FACULTY OF ECONOMICS
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A CONTRIBUTION TO OUR UNDERSTANDING OF THE PSYCHOLOGICAL EFFECTS UNDERLYING THE BUDGETING PROCESS AND ITS OUTCOMES

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Open your mind, arms, and heart to new things and people.
Life is about the people you meet, and the things you create with them.
So go out and start creating!
from "The Holstee Manifesto" © 2009

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Do what you love and love what you do,
Jolien De Baerdemaeker
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NEDERLANDSTALIGE SAMENVATTING

Budgetteren heeft, als hoeksteen van vele management controle systemen, een belangrijke plaats verworven binnen organisaties. Het omvat zowel het budget als zijnde een set van cijfers als het budgetteringsproces, wat verwijst naar het interactief proces waarmee de uit te voeren activiteiten en te leveren prestaties in kwantitatieve, financiële grootheden worden vastgelegd. Omwille van het belang van budgetteren in ondernemingen, is er heel wat onderzoek aan gewijd. Dit onderzoek spitste zich voornamelijk toe op de rol die budgetteren speelt bij het motiveren en evalueren van managers. Ondanks alle gevoerde onderzoeken zijn er nog heel wat losse eindjes. Hoe budgetteren nu precies werkt als motivatie-instrument blijft een 'zwarte doos'.

Dit doctoraat heeft als doel de zwarte doos te openen door een inzicht te verschaffen in de psychologische mechanismen die de werking verklaren van het budgetteringsproces en budget-uitkomsten. We hebben er hierbij specifiek voor gekozen om te focussen op twee elementen: budget participatie en budget slack. Organisaties besteden immers heel wat middelen aan het optimaliseren van hun participatief budgetteringsproces en het managen van budget slack. Inzicht in hoe en wanneer budget participatie managers kan motiveren en in de antecedenten van budget slack kan ondernemingen helpen hun middelen efficiënt in te zetten.

Het doel van de *eerste studie* is om meer inzicht te bieden in hoe en wanneer budget participatie managers motiveert om naar hun budget doelstellingen toe te werken. Voorgaande studies maakten geen onderscheid tussen verschillende vormen van budget participatie of types budget motivatie. Onderzoek in andere disciplines toonde nochtans aan dat noch participatie, noch motivatie uni-dimensionele constructen zijn. Om een beter inzicht te verkrijgen in de rijkheid van beide budget-concepten alsook hun onderlinge samenhang te begrijpen, hebben we een kwalitatieve veldstudie uitgevoerd. De resultaten van 18 semigestructureerde interviews leren ons dat managers op verschillende manieren kunnen participeren in het budgetteringsproces. Participatie omvat immers twee luiken: het houdt in dat managers betrokken worden in en invloed kunnen uitoefenen op budgetdoelstellingen. De mate waarin managers invloed kunnen uitoefenen varieert al naargelang de vorm van participatie. Onze studie wijst erop dat deze vorm kan variëren van 'geen invloed' tot 'gezamenlijk beslissen'. Op een gelijkaardige manier wijst de eerste studie ook uit dat er verschillende types budget motivatie bestaan. Managers kunnen gemotiveerd zijn omdat ze het budget interessant en uitdagend vinden (intrinsieke regulatie), omdat ze het belang ervan voor zichzelf (geïntegreerde regulatie) of de onderneming (geïdentificeerde regulatie) inzien, of omdat ze zich verplicht voelen door externe (externe regulatie) of interne (geïntrojecteerde regulatie) factoren. De verschillende vormen van participatie spelen in op de verschillende

types motivatie al naargelang de mate waarin er voldaan wordt aan de drie basis psychologische noden van de manager: de nood aan autonomie, competentie, en verbondenheid. Drie randvoorwaarden bepalen of deze noden voldaan worden, alsook het specifieke motivationele effect van budget participatie: oprechte participatie, participatie congruentie, en strategisch alignering. Als managers op een consulterende manier kunnen participeren in het budgetteringsproces, moet deze consultatie oprecht zijn om hun drie basis psychologische noden te vervullen. Oprechte consultatie houdt in dat er echt geluisterd wordt naar de manager en dat zijn/haar input in rekening genomen wordt bij het vaststellen van de budgetdoelstellingen. Sommige managers blijken geen gefrustreerde noden te hebben, ondanks een gebrek aan de mogelijkheid om invloed uit te oefenen op de budgetdoelstellingen. Onze resultaten tonen aan dat deze managers geen aspiratie hadden om te participeren. Participatiecongruentie kan er dus voor zorgen dat er geen nood-frustratie optreedt, ondanks een gebrek aan invloed. Strategische alignering ten slotte vervult een dubbele rol. Enerzijds kan het een substituut zijn voor een oprechte vorm van participatie waarbij de manager veel invloed kan uitoefenen. Anderzijds is het een noodzakelijke voorwaarde opdat de voldane noden van autonomie, competentie, en verbondenheid zich zouden vertalen in een autonoom type budget motivatie (i.e., intrinsieke, geïntegreerde, of geïdentificeerde regulatie).

Wanneer we focussen op budgetteren als een motivatie-instrument, is het ook belangrijk om budget slack te onderzoeken. Geïnspireerd door de resultaten van de eerste studie die het belang van strategie in een budget-context aanduidden, onderzochten we in de *tweede studie* de relatie tussen participatief strategisch plannen (PSP) en budget slack. Waar eerder onderzoek het belang van strategie in een budget-context reeds erkende, lag de focus steeds op het effect van generieke strategieën en werden kenmerken van het strategisch proces genegeerd. In de strategische management literatuur groeide nochtans het besef dat dit strategisch proces in toenemende mate participatief moet georganiseerd worden. De tijd dat top management alwetend was, ligt ver achter ons. De strategische kennis zit wijdverspreid doorheen de onderneming. Vandaar dat middle managers de kans moeten krijgen deel te nemen aan het strategisch planningsproces en samen met de C-suite de strategie te co-creëren. In de tweede studie verruimen we daarom onze en nemen beide elementen van het organisatie-brede proces op (i.e., zowel PSP als budget participatie). We namen een vragenlijst af van 247 managers in een cross-sectie van West-Europese ondernemingen en verwerkten de resultaten met structural equation modeling. Uit deze studie leren we dat managers minder budget slack creëren als ze mogen participeren in het strategisch planningsproces. PSP zorgt ervoor dat managers een grotere affectieve organisatiebetrokkenheid vertonen. Vanuit deze betrokkenheid aanvaarden ze de doelstellingen van de organisatie als ware het hun eigen doelstellingen en zijn ze bereid

inspanningen te leveren ten voordele van de organisatie. Aangezien budget slack negatieve gevolgen kan hebben voor de onderneming, zullen managers met een hoge affectieve betrokkenheid minder slack creëren. Verder geven de resultaten van deze studie ook aan dat budget participatie leidt tot minder budget slack via het indirect mediërend pad van autonome budget motivatie. Autonoom gemotiveerde managers zullen beter hun best doen en creatiever uit de hoek komen om de budgetdoelstellingen te realiseren 'zoals ze zijn' en minder de behoefte voelen om slack in te bouwen. Samenvattend geeft deze studie aan dat het belangrijk is om de bredere organisatie-context in acht te nemen om het budget slack proces te begrijpen.

De *derde studie* gaat nog een stapje verder en kijkt naar de externe organisatie-context. We bestuderen hier meer specifiek de relatie tussen gepercipieerde omgevingsonzekerheid en budget slack. Eerder onderzoek stelde herhaaldelijk dat omgevingsonzekerheid één van de voornaamste antecedenten van budget slack is. Deze relatie werd tot op heden echter nog nooit empirisch getest. Het doel van de derde studie was dan ook om na te gaan of en hoe omgevingsonzekerheid gerelateerd is aan budget slack. Steunend op een combinatie van economische (i.e., agency theorie en het information-processing raamwerk) en psychologische (i.e., rol theorie) theorieën, zetten we een model op poten om deze vaak gesuggereerde maar ongetoetste relatie empirisch te testen. Resultaten werden verzameld aan de hand van een vragenlijst die door 218 managers werd ingevuld. Opnieuw werden de data verwerkt in een structural equation model. De resultaten van deze laatste studie wijzen op het belang van individuele psychologische variabelen in het verklaren van budget slack: managers creëren budget slack als een reactie op de rol ambiguïteit en spanning die ze ervaren naar aanleiding van de hoge omgevingsonzekerheid. De psychologische variabelen rol ambiguïteit en job-gerelateerde spanning verklaren meer variatie in budget slack dan de economische verklaring die steunt op het aantal uitzonderingen waarmee een manager geconfronteerd wordt. Uit deze studie besluiten we voorzichtig dat managers niet altijd budget slack creëren om het zichzelf makkelijk te maken maar ook omdat het op psychologisch vlak een geruststellende rol kan spelen.

De drie studies in dit doctoraat wijzen erop dat budgetteren, het budgetteringsproces, en de budget-uitkomsten geen uniforme processen zijn maar dat ze sterk verweven zijn met de menselijke complexiteit. De resultaten versterken de idee dat budgetteren gedaan wordt voor en door mensen dus het menselijke aspect mag hier zeker niet ontbreken. We wijzen ondernemingen dan ook op het belang van deze menselijke factor en stellen dat het managen van de psychologische gevolgen van budgetteren belangrijker is dan een technisch perfect formeel budgetteringsproces.

ENGLISH SUMMARY

Budgeting plays an important role in organizations as it is the cornerstone of the majority of management control systems. It refers to both the budget as a set of numbers and the budgeting process, which refers to the interactive process in which future activities and deliverables are translated into quantitative, financial terms. Given its central role in organizations, much research effort has been devoted to budgeting in general and its functioning as a motivation and performance evaluation tool in particular. Despite the vast amount of research, some loose ends remain. How budgeting exactly can motivate employees is still a 'black box'.

This dissertation aims to open this black box by clarifying the psychological mechanisms underlying the budgeting process and its outcomes. In particular, we focus on budget participation and budgetary slack. After all, organizations spend large amounts of money in attempts to 'make their budgeting process work' and manage the amount of slack created within this process. A better understanding of budget participation's motivational effects and budgetary slack's antecedents will be useful for efficient resource allocation.

The aim of the *first study* is to explore how and when budget participation motivates managers to work toward budget attainment. Prior studies have not distinguished between different forms of budget participation nor types of budget motivation. Research in other disciplines, however, has demonstrated that neither participation nor motivation are uni-dimensional constructs. To gain an insight in the richness of both budgeting concepts as well as to understand their relationship, we conducted a qualitative field study. The results of 18 semi-structured interviews show us that managers can be involved in different ways in the budgeting process. In particular, budget participation consists of two parts: it implies that managers are *involved in* and *have influence over* the determination of their budgetary targets. The extent of influence varies along the diverse forms of participation. The results of our study show that these forms can vary from 'no influence' to 'joint decision-making'. Similarly, the results of this study demonstrate that different types of budget motivation exist. Managers can be motivated to attain the budget because they think the budget is fun and interesting (intrinsic regulation), because they understand the importance of budget attainment for themselves (integrated regulation) or the organization (identified regulation), or because they feel pressured by external (external regulation) or internal (introjected regulation) controlling imperatives. The diverse forms of budget participation relate to these different types of budget motivation depending on the manager's degree of basic psychological need satisfaction: the need for autonomy, competence, and relatedness. Three boundary conditions determine whether these needs are satisfied as well as the specific motivational effects of budget

participation: true participation, participation congruence, and strategic alignment. First, when managers are allowed a 'consultation' form of budget participation, this consultation has to be perceived as true for the basic psychological needs to be fulfilled. True consultation holds that top management is genuinely interested in subordinate managers' input and takes this input into account when deciding upon the budgetary targets. Second, it seems that some managers do not suffer from frustrated needs for autonomy, competence, or relatedness despite having no influence on the budgetary targets. Our results show that these managers had no participatory aspirations. Participation congruence can thus mitigate the frustrating effect on the basic needs for the 'no influence' forms of participation. Third, strategic alignment has a double function. On the one hand, it can act as a substitute for high influence, true forms of budget participation. On the other hand, strategic alignment is a necessary condition for satisfied autonomy, competence, and relatedness needs to translate into an autonomous type of budget motivation (i.e., intrinsic, integrated, or identified regulation).

Given our focus on budgeting as a motivation-tool, it is also important to examine budgetary slack. Inspired by the results from the first study that illustrated the importance of strategy in a budgeting context, we examined in our *second study* the relationship between participation in strategic planning and budgetary slack. Although prior research had recognized the importance of strategy in the budgeting context, its focus was on the effect of generic strategies, hence neglecting the characteristics of the strategy process itself. In the strategic management literature, however, the awareness grew that this strategic process should be organized in a participative way. Top management is no longer omniscient; the strategic knowledge is spread throughout the entire organization. Therefore, middle managers should be able to participate in the strategic planning process and co-create the strategy with the C-suite. This is why we broaden our horizon in the second study and include both elements of the organizational planning process (i.e., both participation in strategic planning and budget participation). We gathered survey results from 247 managers in a cross-section of West-European organizations and analyzed the results with structural equation modeling. Our results demonstrate that managers create less budgetary slack when they are allowed to participate in the strategic planning process. Participative strategic planning creates a higher affective organizational commitment on the manager's part. Inspired by their affective commitment, managers accept the organization's goals as if these were their own and devote their effort to attaining these goals. As budgetary slack can have negative consequences for the organization, managers with high affective commitment will be less inclined to create budgetary slack. The results of this study also indicate that budget participation decreases budgetary slack through the full mediation effect of autonomous budget motivation. Autonomously motivated managers will be more willing and more creative to attain the budgetary targets 'as they are' and hence will be less inclined to create budgetary slack.

Overall, the second study highlights that it is important to study the broader internal organizational context for understanding the budgetary slack process.

The *third study* goes another step further and looks at the impact of the external organizational context. In particular, we examine the relationship between perceived environmental uncertainty and budgetary slack. Prior research repeatedly conjectured environmental uncertainty as one of the main antecedents of slack. This relationship, however, has never been empirically tested before. Consequently, the aim of the third study is to test whether and how environmental uncertainty is related to budgetary slack. Drawing on a combination of economics-based (i.e., agency theory and information-processing framework) and psychology-based (i.e., role theory) theories, we set up a model to empirically test this often suggested but ill-tested relationship. We collected data through a survey that was filled in by 218 managers. Data were again analyzed using structural equation modeling. The results of this final study pinpoint the importance of individual, psychological variables in explaining budgetary slack: managers create budgetary slack in response to role ambiguity and job-related tension, caused by environmental uncertainty. The psychological variables role ambiguity and job-related tension explain a significantly larger proportion of the variance in budgetary slack than the economics-based explanation which builds on the number of exceptions a manager is confronted with. We tentatively conclude that managers not always create budgetary slack to make it themselves easy but also because it may play a psychologically comforting role.

The three studies in this dissertation show that budgeting, its characteristics, and outcomes are no uniform processes but are deeply embedded in human complexities. Our results strengthen the idea that budgeting is done by people for people so the people-factor can never be neglected. We point out the importance of the people-factor to organizations and posit that it is more important to manage the psychological consequences of budgeting than to have a technically sound formal budgeting process.

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CHAPTER 1 - INTRODUCTION

Budgeting is one of organizations' most important control systems as virtually every aspect of management accounting is implicated in budgeting (e.g., Arnold and Artz, 2015; Davila and Wouters, 2005; Hansen et al., 2003; Hansen and Van der Stede, 2004; Luft and Shields, 2003; Merchant and Van der Stede, 2011). Budgeting relates, for example, to cost accounting, responsibility accounting, performance measurement, and compensation. Moreover, budgeting constitutes one of the few processes that cover all areas of organizational activity (Otley, 1999) and is deeply ingrained in almost all organization's fabric (Scapens and Roberts, 1993). Therefore, budgeting has long been considered as the pivotal organizational control mechanism and continues to attract research attention.

Despite the critical mass of academic research, scholarly understanding of how budgeting exactly works is still limited. As few research has produced insights into the 'black box of budgeting', recent practitioner and academic research started questioning budgeting's potential (e.g., Ekholm and Wallin, 2000; Hansen et al., 2003; Hope and Fraser, 2003; Jensen, 2003; Wallander, 1999). As a result, there is a growing need for research on the *psychological effects underlying the budgeting process and its outcomes*.

In this introductory chapter, I first introduce the concept of budgeting. Second, I point out the budgeting research gaps and simultaneously highlight the structure of this dissertation. Next, I elaborate on the research methods employed in this dissertation. Finally, I briefly discuss the theories that are used in this dissertation to help further our understanding of the budgeting process.

1. The concept of budgeting

'Budgeting' can be used to refer to two main topics. First, 'budgeting' can refer to the budget as a *set of numbers*. These numbers are an important tool for effective short-term planning and control in organizations. In this dissertation, I focus on the *operating budget*[1], which normally covers one year and gives an estimate of the revenues and expenses resulting from the business operations during that year (Anthony and Govindarajan, 2007). For example, a typical operating budget might include anticipated material and labor costs to run the business and to manufacture products or produce services. Second, 'budgeting' can also refer to *the process of developing and using a budget*. It is the process of setting financial goals,

[1] Whereas the operating budget represents those expenditures required for the day-to-day functioning of the business, the capital budget encompasses the process of allocating resources for major investment expenditures. Capital budgeting falls outside the scope of this dissertation.

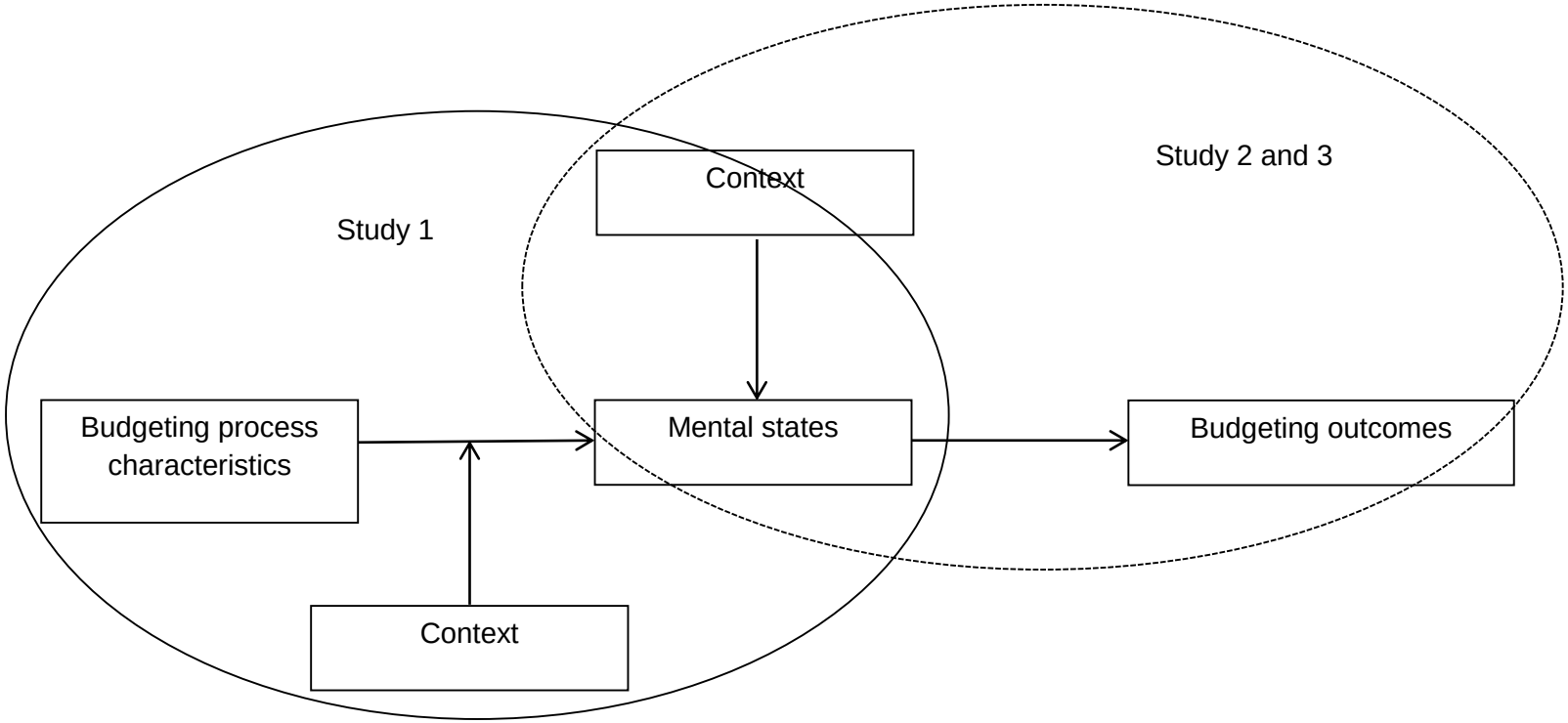
forecasting future financial resources and needs, monitoring and controlling income and expenditures, and evaluating progress toward achieving the financial goals. In line with Covaleski et al. (2003), I use 'budgeting' to refer to both the set of numbers and the process of arriving there. I use 'budget' to refer to the set of numbers only, and 'budgeting process' to refer to the process only.

Budgeting serves different purposes, including (1) operational planning and control, (2) motivation and performance evaluation, and (3) goal communication and strategy formation (Atkinson et al., 2011; Hansen and Van der Stede, 2004; Horngren et al., 2008). This dissertation focuses on the *motivational aspects* of budgeting. Inspired by the seminal work of Argyris (1952, 1953), a significant majority of budgeting research has focused on understanding how budgeting can best serve its motivation and performance evaluation objective. In particular, Argyris (1952) was the first to suggest the importance of behavioral factors in understanding the effectiveness of budgeting. Milani (1975) also argued that the human aspect of budgeting is very important as the budget is a tool that cannot exist without people. Indeed, as 'budgets are made by people for the purpose of guiding their actions and measuring their success, budgets cannot be analyzed from an accounting standpoint only' (Cherrington and Cherrington, 1973, p. 225). Budgeting can motivate managers in the sense that budgets provide direction: the budget is a quantification of top management's objectives. Additionally, the data in the operational budget may serve as a standard against which a manager's actual performance is compared.

2. Highlighting the structure and budgeting research gaps

This dissertation aims to open budgeting's black box by *clarifying the psychological mechanisms underlying budget participation and budgetary slack* (see Figure 1 for a graphical overview of the structure of this dissertation). Gaining profound insight into budget participation and budgetary slack is important from a practical perspective as organizations spend large amounts of money in attempts to 'make their budgeting process work' and to manage the amount of slack created within this process. A better knowledge of the motivational effects of budget participation and a deeper insight into the antecedents of budgetary slack should be useful in guiding efforts to enhance the effectiveness of budgeting practices.

Figure 1. Dissertation structure



2.1 The concepts of budget participation and budgetary slack

One of the most important psychological effects of the budgeting process, is its motivational effect, which is mainly impacted by the degree of *budget participation* allowed to subordinate managers. Budget participation is defined as a process in which the subordinate manager is involved in and has influence over the setting of his or her budgetary targets (Anthony and Govindarajan, 2007; Shields and Shields, 1998).

Another key concept in the budgeting literature closely connected to budgeting as a motivation-tool, is *budgetary slack*. Budgetary slack is a complex part of the budgeting process. Not only does evidence indicate that there is considerable budgetary slack in organizations (e.g., Merchant, 1985; Schoute and Wiersma, 2007), it also remains one of the primary controversial, unsolved issues in budgeting research (see e.g., Derfuss, 2012; Dunk and Nouri, 1998). There is substantial literature that discusses possible antecedents of budgetary slack (for an overview, see Dunk and Nouri, 1998), but these studies have resulted in contradictory findings (Brown et al., 2009). These mixed findings establish a need to identify and test the effects of additional explanatory variables (Webb, 2001).

The notion of budgetary slack has been discussed in the management accounting literature since the early 1950s (Lukka, 1988, p. 281). Yet, it has been treated ambiguously and has been referred to under a variety of labels (Derfuss, 2012; Merchant, 1985). In experimental research, budgetary slack has been defined as the difference between an individual's best estimate of performance and the standard chosen when participating in standard selection (Waller, 1988; Young, 1985). Similarly, Douglas and Wier (2000) refer to budgetary slack as the difference between planned performance targets and real performance capabilities. Managers can create budgetary slack by intentionally underestimating their revenues and productive capabilities and/or by overestimating the costs and resources required to complete a budgeted task (Dunk and Nouri, 1998). As a result, the budget will contain a certain amount of resources that are excess over what is necessary (Merchant, 1985) and hence make the budgetary targets easier to attain (Dunk, 1993). Traditionally, budgetary slack is viewed as 'bad' because it can be seen as an analogue for inefficiency and managerial interest that detracts value from the firm (e.g., Leibenstein, 1966; Williamson, 1964). But, budgetary slack can also be viewed as 'good' because it fosters experimentation and innovation, absorbs performance shocks, and resolves goal conflict (Cyert and March, 1963; Davila and Wouters, 2005; Marginson and Ogden, 2005; Van der Stede, 2000, 2001). In this dissertation, I follow prior scholars such as Dunk (1993), Van der Stede (2000), and Indjejikian and Matejka (2006) in their definition of budgetary slack and focus on the ease with which budgetary targets can be achieved. Budgetary slack occurs when managers 'negotiate highly achievable targets' (Van der Stede, 2000, p. 609), i.e., targets that are lower than their best-guess forecast about

the future. Conversely, a budget contains little slack if it requires considerable effort and a high degree of efficiency (Simons, 1987). Moreover, we interpret budgetary slack as a neutral concept without a positive or negative tone that is only determined by its use (Davila and Wouters, 2005).

2.2 Study 1 – Budget participation and budget motivation: Understanding the complexities and underlying mechanisms

The budgeting process can range from highly authoritative (i.e., top down) to highly participative (i.e., bottom up). With top-down budgeting, top management sets the budget targets for the lower levels. With bottom-up budgeting there is room for budget participation. Argyris' (1952, 1953) principal recommendation was to use budget participation to avoid low budget motivation. Yet, while organizations are still in the process of increasingly allowing subordinate managers to participate in the budgeting process to ensure their motivation toward the budget goals (Dugdale and Lyne, 2010; Heinle et al., 2014; Shastri and Stout, 2008), these positive outcomes are not always achieved. Indeed, although research on the motivational effects of budget participation spans several decades (e.g., Argyris, 1952; Brownell and McInnes, 1986; Milani, 1975) there is still much to learn about the exact nature of participation and motivation in a budgeting context.

The first study of this dissertation is inspired by the tension between an increased use of budget participation for motivational purposes and our current lack of understanding these effects as well as the nature of participation and motivation in a budgeting context. In particular, we explore whether diverse forms of budget participation and types of budget motivation exist and how and when they relate to each other. To obtain a deeper insight into the diversity of participation forms, motivation types, and budget participation's motivational effects and boundary conditions, we engage in a field study and draw on self-determination theory (SDT)[2] (Deci and Ryan, 1985) as a theoretical lens to analyze our findings. As such, we provide a more realistic view of both participation (i.e., participation can range from 'no influence' to 'joint decision-making') and motivation (i.e., motivation can be either 'autonomous' or 'controlled') in a budgeting context. Moreover, we uncover the conditions under which specific forms of budget participation relate to the different types of budget motivation.

[2] See section '4.1 Self-determination theory' for a brief explanation of this theory's background.

2.3 Study 2 – The impact of participation in strategic planning on managers' creation of budgetary slack: The mediating role of autonomous motivation and affective organizational commitment

In line with the work by Simons (1995) and Kaplan and Norton (2001, 2008), we seek to extend the accounting-based perspective on control to include the wider range of activities initially excluded by Anthony (1965)[3]. Indeed, both the budgeting and strategic planning process are an indistinguishable part of an organization's broader planning process (Frezatti et al., 2011; Merchant and Van der Stede, 2011). Prior research on strategy and budgetary slack has been confined to the effect of generic strategies on budgetary slack, neglecting the characteristics of the strategic planning process itself. In particular, as recent work on strategic management (Floyd and Wooldridge, 2000; Kaplan and Norton, 2001, 2008) suggests that strategy should be planned in a participative way, this study aims to clarify *whether and how participation in strategic planning (PSP) relates to budgetary slack*. Indeed, PSP positively influences organizational commitment and motivation (Freeman, 1989); two key concepts in budgetary slack research (Argyris, 1952; Becker and Green, 1962; Nouri and Parker, 1996) thus providing the perfect linking pins between budgeting and strategic planning research. By using insights from both SDT and organizational commitment theory[4], we capture the whole planning process and as such further our understanding of the antecedents of budgetary slack.

2.4 Study 3 – An economics-based and psychology-based perspective on the relationship between environmental uncertainty and budgetary slack

The empirical focus of prior research has mainly been on organizational level variables such as budget participation (e.g., Milani, 1975; Onsi, 1973), information asymmetry (e.g., Baiman, 1982; Chow et al., 1988), and superior's ability to detect slack (e.g., Onsi, 1973) as explanations for the creation of budgetary slack. Theoretical research, however, has recognized that budgetary slack can also be created in response to environmental level factors such as environmental uncertainty (e.g., Bourgeois, 1981; Cyert and March, 1963; Davila and Wouters, 2005; Kren, 2003). In particular, environmental uncertainty was first raised more than 50 years ago by Cyert and March (1963) as one of the main contributors of slack. Although ample studies since then have conjectured a relationship between environmental uncertainty

[3] In his seminal management control framework, Anthony (1965) distinguished management control, of which budgeting is a critical element, from strategic planning. He viewed strategic planning as an irregular activity that takes place in the higher echelons of an organization, but provides the guiding goals and objectives for the management control process. Although Anthony (1965) recognized strategic planning as an essential process, he viewed it as a separate field of study. Inspired by this work, later research focused on budgeting in isolation from strategic planning which created a gap between management control and strategy.

[4] See section '4.1 Self-determination theory' and section 4.2 'Organizational commitment theory', respectively for an explanation of these theoretical backgrounds.

and budgetary slack (e.g., Bourgeois, 1981; Davila and Wouters, 2005; Merchant, 1985; Webb, 2001), we lack adequate theorization and empirical results.

In the third study, we extend this line of research by theorizing and empirically testing *whether and how environmental uncertainty relates to budgetary slack*. In particular, we draw on both economics-based (i.e., information-processing and agency theory) and psychology-based theories (i.e., role theory[5]) to create a more complete and valid understanding of the budgetary slack process.

3. Research methods

3.1 Qualitative field research

The choice of the appropriate research design depends on three elements: (a) the type of research questions posed, (b) the extent of control the investigator has over actual behavioral events, and (c) the degree of focus on contemporary as opposed to historical events (Yin, 2003). Since 'how' and 'when' questions are central to the study in Chapter 2, a *qualitative multiple-case field study* is undertaken. In particular, the qualitative field study methodology is used to obtain a deeper understanding of the motivational effects of budget participation. Qualitative research can address complex relationships that cannot be easily illustrated through simple causal statistical models (Yin, 2003). Another advantage of using the field study methodology is that it is easily adaptable to our exploratory aims in Chapter 2. More specifically, the empirical evidence in Chapter 2 is gathered through a focused variant of qualitative field study research: *semi-structured interviews* are conducted in which managers can provide open-ended answers to capture their perceptions. This technique enables us to have direct and in-depth contact with the research participants (Atkinson and Shaffir, 1998). Furthermore, semi-structured interviews provide the major advantage of having the possibility of 'probing' during the interview, which is of particular importance for the purposes of our research. Through probing, a qualitative case study provides an opportunity to further investigate the conflicting and ambiguous findings (Lillis and Mundy, 2005). Finally, semi-structured interviews also make it possible to ask follow-up questions if unexpected outcomes promise to be interesting (Ahrens and Chapman, 2006; Eisenhardt, 1989b).

[5] See section '4.3 Role theory', '4.4 Agency theory', and '4.5 Information-processing framework' for more information on these respective theories.

3.2 Quantitative survey method

In Chapter 3 and 4, data are collected through an on-line *survey questionnaire* to increase these studies' comparability with previous research and because we want to study managerial behavior in a real-life business context. The target population for both studies are managers with budget responsibilities.

The quantitative data obtained through these questionnaires are analyzed using *structural equation modeling* (SEM). SEM is a statistical method designed to test a theoretical model and commonly refers to the combination of two things: (1) a measurement model that defines relationships between the observed items and latent constructs, and (2) a structural model which represents the relationships between the latent constructs. The major advantage of SEM is that it can evaluate the proposed hypotheses while accounting for measurement reliability (Anderson and Gerbing, 1988; Hair et al., 2010).

4. Main theories

4.1 Self-determination theory

Self-determination theory (SDT) is a macro-theory of human motivation that, in the last decade, has gained ample research attention within the field of psychology (Gagné and Deci, 2005; Van den Broeck et al., 2010; Vansteenkiste et al., 2006; Vansteenkiste et al., 2010; Vansteenkiste et al., 2008). Moreover, its rationale has recently been applied in management control research (e.g., Adler and Chen, 2011; De Baerdemaeker and Bruggeman, 2015; Kunz and Linder, 2012; Wong-On-Wing et al., 2010).

Research in SDT has revealed that different types of motivation with different consequences exist (e.g., Deci et al., 1989; Deci and Ryan, 2004; Ryan and Deci, 2000). In particular, motivation theorists distinguish *intrinsic* from *extrinsic motivation* (Deci, 1975; Deci and Ryan, 1985). More specifically, a person is *intrinsically* motivated if s/he performs an activity for its sheer enjoyment. Conversely, a person is *extrinsically* motivated if s/he performs an activity for an outcome that is operationally separable from that activity.

More recently, SDT has further differentiated between the types of extrinsic motivation depending on their relative degree of self-determination. The focus has shifted from an intrinsic-extrinsic distinction to a distinction between autonomous and controlled motivation. Under *controlled (extrinsic) motivation*, a manager's functioning is, to a large extent, determined by external or internal controlling imperatives (Deci, 1975). Controlled motivation involves the regulation of behavior with the experience of pressure and coercion to think, feel or behave in a particular way. This is the type of motivation implicitly focused on by much of

the budgeting literature (e.g., Chow et al., 1988; Covaleski et al., 2003; Waller, 1988). Conversely, *autonomous motivation* involves the regulation of behavior with the experience of volition, psychological freedom, and reflective self-endorsement. Autonomously motivated managers put effort in their work because they enjoy it (i.e., intrinsic motivation) or because they have internalized the goals of their organization (i.e., autonomous extrinsic motivation) (Vansteenkiste et al., 2010).

I build on SDT in both Chapter 2 and 3 of this dissertation. In particular, I use SDT in Chapter 2 to gain profound insight into the richness of motivation in a budgeting context and further build on these insights in Chapter 3 by studying autonomous budget motivation as a mediating mechanism in the relationship between the broader organizational planning process and budgetary slack.

4.2 Organizational commitment theory

Organizational commitment theory comprises the idea that managers can be motivated to pursue organizational goals. Although the approaches to the definition of organizational commitment vary across studies (Buchanan, 1974; Hrebiniak and Alutto, 1972; Mathieu and Zajac, 1990; Sheldon, 1971), all researchers elaborate to some extent on the psychological bond between an employee and the organization s/he is working for. Allen and Meyer (1990) made a distinction between three types of organizational commitment. *Affective* organizational commitment refers to employees' emotional attachment to the organization and is characterized by (1) a strong belief in and acceptance of the organizational goals and values and (2) a willingness to exert substantial effort on the organization's behalf (Mowday et al., 1974; Mowday et al., 1979). *Continuance* commitment, on the other hand, refers to the perceived costs associated with leaving the firm. The third type, *normative* commitment, concerns a perceived obligation to continue employment. Specifically, we use the affective commitment conceptualization, as this may be considered the main component of organizational commitment (Allen and Meyer, 1990; Van den Broeck et al., 2010), it has stronger relationships with positive work outcomes (e.g., Mathieu and Zajac, 1990; Meyer et al., 1989), it is in line with previous work introducing organizational commitment in budgeting (Derfuss, 2009) and budgetary slack research (Nouri, 1994; Nouri and Parker, 1996), and it corresponds best to the concept of autonomous motivation (Gagné et al., 2008).

I use the insights from organizational commitment theory in Chapter 3 when studying affective organizational commitment's mediating effect in the relationship between the broader organizational planning process and budgetary slack.

4.3 Role theory

Role theory emphasizes the nature of individuals as social actors whose behavior is guided by expectations held both by the individual and by other people (Katz and Kahn, 1978). These expectations correspond to the different *roles* individuals perform or enact in their daily lives. A role consists of a set of rules or norms that function as a plan or blueprint to guide behavior. Roles specify which goals should be pursued, which tasks must be accomplished, and which performances are required in a given scenario or situation. Of particular interest to researchers has been the role stress experienced within the *organizational role set*. More specifically, much research effort has been devoted to the extent to which the expectations of these roles are unclear (i.e., *role ambiguity*) or incompatible to one another (i.e., *role conflict*) (e.g., Jackson and Schuler, 1985; Rebele and Michaels, 1990; Van Sell et al., 1981).

In Chapter 4, I draw on role theory in general and role ambiguity in particular to provide insight into the psychology-based path explaining the relationship between perceived environmental uncertainty and budgetary slack.

4.4 Agency theory

Agency theory deals with the problems that can occur in the economic exchange relationship that develops when one individual (the principal) grants decision-making authority to another (the agent) to act on her behalf (e.g., Baiman, 1982; Eisenhardt, 1989a; Jensen and Meckling, 1976). The budgeting process is a process that can typically be described in terms of an agency relationship. In particular, the superior manager (the principal) engages a subordinate manager (the agent) to perform some services within the budgeting process on her behalf, which involves delegating some decision-making authority to the agent. The major concern of agency theory is that the welfare of the principal may not be maximized because the principal and agent tend to have different goals as well as different predispositions toward *risk* (Baiman, 1982). Specifically, principals are considered risk neutral whereas agents are assumed to be risk averse (Wiseman and Gomez-Meija, 1998). Moreover, as agency theory is rooted in economic utilitarianism, it also assumes that both the agent and principal are *utility maximizers* (Ross, 1973).

I borrow agency theory's risk and utility maximizing assumption in Chapter 4 when discussing the economics-based relationship between perceived environmental uncertainty and budgetary slack.

4.5 Information-processing framework

In 1973, Galbraith introduced an approach toward the importance of information processing in organizations. He developed his information-processing framework in the context of businesses facing dynamic changes in their business environment and initially described the problem as the 'design problem of organizations'. He posited (1973, p. 4) that the best solution to this design problem 'is contingent upon the uncertainty […] in the organizational unit'. In particular, Galbraith (1973) suggested that as environmental uncertainty increases, the *number of exceptions* a company is confronted with increases as well. In an attempt to manage these exceptions, the decision-makers in the organization must process a higher amount of information to attain a certain performance level. Processing more information requires gathering more data, transforming more data into information, and more communication and storage of information in the organization. The primary effect of environmental uncertainty is that it becomes more difficult to plan ahead or take decisions before actions are executed. As a reaction, organizations can implement three possible strategies: (1) increase their ability to plan, (2) be able to adapt flexibly, and (3) lower the performance level of the organization.

I combine the insights from the information-processing framework with those of agency theory in Chapter 4 to hypothesize on the economics-based relationship between perceived environmental uncertainty and budgetary slack.

4.6 Psychology as the common background

Although each study has its own focus, they also share a common element. All three studies rely on psychology theories to investigate how the context of budgeting influences managers' motivation or how the broader organizational context influences budgeting outcomes. Therefore, we can situate each of these three studies in Covaleski et al.'s (2003) psychology-based budgeting research classification scheme. They defined first stage research as budgeting studies seeking to answer the question: 'Do budgeting practices have direct linear additive effects on mental states, individual behavior, and individual performance?' The second stage aims to answer the question whether the effects of budgeting on these mental states, behavior, and performance are conditional on other variables (e.g., *when* is a certain form of budget participation able to autonomously motivate managers to achieve the budget?) whereas third stage research focuses on how mental states mediate the effect of budgeting on individual behavior and performance (e.g., *how* do the diverse forms of budget participation relate to the different types of budget motivation?, *how* is a participative strategy process/environmental uncertainty related to budgetary slack?). So whereas the second and

third study in this dissertation are situated completely in Covaleski et al.'s (2003) third-stage research, the first study is situated on the intersection of stage two and three.

The remainder of this dissertation is structured as follows. Chapter 2 presents the first study that explores the concepts of participation and motivation in a budgeting context as well as the relationship between those two elements. Chapter 3 contains the second study that tests the relationship between PSP and budgetary slack. Next, chapter 4 details the third study that examines the relationship between environmental uncertainty and the presence of budgetary slack. To conclude, chapter 5 discusses the main findings, limitations, opportunities for future research, and both the academic and practical contributions of this dissertation.

5. References

Adler, P.S., Chen, C.X., 2011. Combining creativity and control: Understanding individual motivation in large-scale collaborative creativity. Accounting, Organizations and Society 36, 63-85.

Ahrens, T., Chapman, C.S., 2006. Doing qualitative field research in management accounting: Positioning data to contribute to theory. Accounting, Organizations and Society 31, 819-841.

Allen, N.J., Meyer, J.P., 1990. The measurement and antecedents of affective, continuance and normative commitment to the organization. Journal of Occupational Psychology 63, 1-18.

Anderson, J.C., Gerbing, D.W., 1988. Structural equation modeling: A review and recommended two-step approach. Psychological Bulletin 103, 411-423.

Anthony, R.N., 1965. Planning and control systems: A framework for analysis. Harvard Business School, Boston (Mass).

Anthony, R.N., Govindarajan, V., 2007. Management control systems, 12th ed. McGraw-Hill, Boston, Massachusetts.

Argyris, C., 1952. The impact of budgets on people. Controllership foundation.

Argyris, C., 1953. Human problems with budgets. Harvard Business School, Boston (Mass).

Arnold, M.C., Artz, M., 2015. Target difficulty, target flexibility, and firm performance: Evidence from business units' targets. Accounting, organizations and society 40, 61-77.

Atkinson, A.A., Kaplan, R.S., Matsumura, E.M., Young, S.M., 2011. Management accounting, 6th ed. ed. Prentice Hall, New York.

Atkinson, A.A., Shaffir, W., 1998. Standards for field research in management accounting. Journal of Management Accounting Research 10, 41-68.

Baiman, S., 1982. Agency research in managerial accounting: A survey, in: Bell, J. (Ed.), Accounting control systems: A technical, social, and behavioral integration. Markus Wiener Publishing, Inc., NY, p. 312.

Becker, S., Green, D., 1962. Budgeting and employee behavior. The Journal of Business 35, 392-402.

Bourgeois, L.J., 1981. On the measurement of organizational slack. Academy of Management Review 6, 29-39.

Brown, J.L., Evans, J.H., Moser, D.V., 2009. Agency theory and participative budgeting experiments. Journal of Management Accounting Research 21, 317-345.

Brownell, P., McInnes, M., 1986. Budgetary participation, motivation, and managerial performance. Accounting Review 61, 587-600.

Buchanan, B.I., 1974. Building organizational commitment: The socialization of managers in work organizations. Administrative Science Quarterly 19, 533-546.
Cherrington, D.J., Cherrington, J.O., 1973. Appropriate reinforcement contingencies in the budgeting process. Journal of Accounting Research 11, 225-253.

Chow, C.W., Cooper, J.C., Waller, W.S., 1988. Participative budgeting: Effects of a truth-inducing pay scheme and information asymmetry on slack and performance. Accounting Review 63, 111-122.

Covaleski, M.A., Evans III, J.H., Luft, J.L., Shields, M.D., 2003. Budgeting research: Three theoretical perspectives and criteria for selective integration. Journal of Management Accounting Research 15, 3-49.

Cyert, R.M., March, J.G., 1963. Behavioral theory of the firm. Prentice Hall, Englewood Cliffs, NJ.

Davila, T., Wouters, M., 2005. Managing budget emphasis through the explicit design of conditional budgetary slack. Accounting, Organizations and Society 30, 587-608.

De Baerdemaeker, J., Bruggeman, W., 2015. The impact of participation in strategic planning on managers' creation of budgetary slack: The mediating role of autonomous motivation and affective organisational commitment. Management Accounting Research.

Deci, E.L., 1975. Intrinsic motivation. New York (N.Y.): Plenum Press.

Deci, E.L., Connell, J.P., Ryan, R.M., 1989. Self-determination in a work organization. Journal of Applied Psychology 74, 580-590.

Deci, E.L., Ryan, R.M., 1985. Intrinsic motivation and self-determination in human behavior Plenum Press, New York.

Deci, E.L., Ryan, R.M., 2004. Handbook of self-determination research. Rochester (N.Y.): University of Rochester.

Derfuss, K., 2009. The relationship of budgetary participation and reliance on accounting performance measures with individual-level consequent variables: A meta-analysis. European Accounting Review 18, 203-239.

Derfuss, K., 2012. Budget slack: Some meta-analytic evidence, 8th Conference on New Directions in Management Accounting, Brussels, Belgium.

Douglas, P.C., Wier, B., 2000. Integrating ethical dimensions into a model of budgetary slack creation. Journal of Business Ethics 28, 267-277.

Dugdale, D., Lyne, S., 2010. Budgeting practice and organisational structure. CIMA Publishing; Elsevier, Oxford.

Dunk, A.S., 1993. The effect of budget emphasis and information asymmetry on the relation between budgetary participation and slack. Accounting Review 68, 400-410.

Dunk, A.S., Nouri, H., 1998. Antecedents of budget slack: A literature review and synthesis. Journal of Accounting Literature 17, 72-96.

Eisenhardt, K.M., 1989a. Agency theory - An assessment and review. Academy of Management Review 14, 57-74.

Eisenhardt, K.M., 1989b. Building theories from case study research. Academy of Management Review 14, 532-550.

Ekholm, B.-G., Wallin, J., 2000. Is the annual budget really dead? European Accounting Review 9, 519-539.

Floyd, S.W., Wooldridge, B., 2000. Building strategy from the middle: Reconceptualizing strategy process. Sage, London.

Freeman, E.B., 1989. Effectiveness of strategic planning: A multidimensional view. Academy of Management Proceedings 1, 12-16.

Frezatti, F., Aguiar, A.B., Guerreiro, R., Gouvea, M.A., 2011. Does management accounting play role in planning process? Journal of Business Research 64, 242-249.

Gagné, M., Chemolli, E., Forest, J., Koestner, R., 2008. A temporal analysis of the relation between organisational commitment and work motivation. Psychologica Belgica 48, 219-241.

Gagné, M., Deci, E.L., 2005. Self-determination theory and work motivation. Journal of Organizational Behavior 26, 331-362.

Galbraith, J.R., 1973. Designing complex organizations. Addison-Wesley Longman Publishing Co., Inc.

Hair, J.F.J., Black, W.C., Babin, B.J., Anderson, R.E., 2010. Multivariate data analysis: A global perspective, 7th ed. Pearson Education, Inc., Upper Saddle River, New Jersey.

Hansen, S.C., Otley, D.T., Van der Stede, W.A., 2003. Practice developments in budgeting: An overview and research perspective. Journal of Management Accounting Research 15, 95-116.

Hansen, S.C., Van der Stede, W.A., 2004. Multiple facets of budgeting: An exploratory analysis. Management Accounting Research 15, 415-439.

Heinle, M.S., Ross, N., Saouma, R., 2014. A theory of participative budgeting. The Accounting Review 89, 1025-1050.

Hope, J., Fraser, R., 2003. Beyond budgeting - How managers can break free from the annual performance trap. Harvard Business School Press, Boston (Mass.).

Horngren, C.T., Datar, S.M., Foster, G., 2008. Cost accounting: A managerial emphasis. Prentice Hall, New York.

Hrebiniak, L.G., Alutto, J.A., 1972. Personal and role-related factors in the development of organizational commitment. Administrative Science Quarterly 17, 555-573.

Indjejikian, R.J., Matejka, M., 2006. Organizational slack in decentralized firms: The role of business unit controllers. Accounting Review 81, 849-872.

Jackson, S.E., Schuler, R.S., 1985. A meta-analysis and conceptual critique of research on role ambiguity and role conflict in work settings. Organizational Behavior and Human Decision Processes 36, 16-78.

Jensen, M.C., 2003. Paying people to lie: The truth about the budgeting process. European Financial Management 9, 379-406.

Jensen, M.C., Meckling, W.H., 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. Journal of Financial Economics 3, 305-360.

Kaplan, R., Norton, D., 2001. The strategy-focused organization: How balanced scorecard companies thrive in the new business environment. Harvard Business School Press, Boston, Massachusetts.

Kaplan, R., Norton, D., 2008. The execution premium: Linking strategy to operations for competitive advantage. Harvard Business Press, Boston, Massachusetts.

Katz, D., Kahn, R.L., 1978. The social psychology of organizations. Wiley, New York.

Kren, L., 2003. Effects of uncertainty, participation, and control system monitoring on the propensity to create budget slack and actual budget slack created. Advances in Management Accounting 11, 143-167.

Kunz, J., Linder, S., 2012. Organizational control and work effort–Another look at the interplay of rewards and motivation. European Accounting Review 21, 591-621.

Leibenstein, H., 1966. Allocative efficiency vs. X-efficiency. American Economic Review 56, 392-415.

Lillis, A.M., Mundy, J., 2005. Cross-sectional field studies in management accounting research-closing the gaps between surveys and case studies. Journal of Management Accounting Research 17, 119-141.

Luft, J., Shields, M.D., 2003. Mapping management accounting: Graphics and guidelines for theory-consistent empirical research. Accounting, Organizations and Society 28, 169-249.

Lukka, K., 1988. Budgetary biasing in organizations: Theoretical framework and empirical evidence. Accounting, Organizations and Society 13, 281-301.

Marginson, D., Ogden, S., 2005. Coping with ambiguity through the budget: The positive effects of budgetary targets on managers' budgeting behaviours. Accounting, Organizations and Society 30, 435-456.

Mathieu, J.E., Zajac, D., M., 1990. A review and meta-analysis of the antecedents, correlates, and consequences of organizational commitment. Psychological Bulletin 108, 171-194.

Merchant, K.A., 1985. Budgeting and the propensity to create budgetary slack. Accounting, Organizations and Society 10, 201-210.

Merchant, K.A., Van der Stede, W.A., 2011. Management control systems: Performance measurement, evaluation and incentives, 3rd ed. ed. Prentice Hall, London.

Meyer, J.P., Paunonen, S.V., Gellatly, I.R., Goffin, R.D., Jackson, D.N., 1989. Organizational commitment and job performance: It's the nature of the commitment that counts. Journal of Applied Psychology 74, 152-156.

Milani, K., 1975. The relationship of participation in budget-setting to industrial supervisor performance and attitudes: A field study. Accounting Review 50, 274-284.

Mowday, R.T., Porter, L.W., Dubin, R., 1974. Unit performance, situational factors, and employee attitudes in spatially separated work units. Organizational Behavior and Human Performance 12, 231-248.

Mowday, R.T., Steers, R.M., Porter, L.W., 1979. The measurement of organizational commitment. Journal of Vocational Behavior 14, 224-247.

Nouri, H., 1994. Using organizational commitment and job involment to predict budgetary slack: A research note. Accounting, Organizations and Society 19, 289-295.

Nouri, H., Parker, R.J., 1996. The effect of organizational commitment on the relation between budgetary participation and budgetary slack. Behavioral Research in Accounting 8, 74.

Onsi, M., 1973. Factor analysis of behavioral variables affecting budgetary slack. Accounting Review 48, 535-548.

Otley, D., 1999. Performance management: A framework for management control systems research. Management Accounting Research 10, 363-382.

Rebele, J.E., Michaels, R.E., 1990. Independent auditors' role stress: Antecedent, outcome, and moderating variables. Behavioral Research in Accounting 2, 124-153.

Ross, S.A., 1973. The economic theory of agency: The principal's problem. American Economic Review 63, 134-139.

Ryan, R.M., Deci, E.L., 2000. Intrinsic and extrinsic motivations: Classic definitions and new directions. Contemporary educational psychology 25, 54-67.

Scapens, R.W., Roberts, J., 1993. Accounting and control: A case study of resistance to accounting change. Management Accounting Research 4, 1-32.

Schoute, M., Wiersma, E., 2007. The impact of budgetary slack on budget use. ARCA, Amsterdam Research Center in Accounting.

Shastri, K., Stout, D.E., 2008. Budgeting: Perspectives from the real world. Management Accounting Quarterly 10, 18-25.

Sheldon, M.E., 1971. Investments and involvements as mechanisms producing commitment to the organization. Administrative Science Quarterly 16, 143-150.

Shields, J.F., Shields, M.D., 1998. Antecedents of participative budgeting. Accounting, Organizations and Society 23, 49-76.

Simons, R., 1987. The role of management control systems and business strategy: An empirical analysis. Accounting, Organizations and Society 12, 357-374.

Simons, R., 1995. Levers of control: How managers use innovative control systems to drive strategic renewal. Harvard Business Press.

Van den Broeck, A., Vansteenkiste, M., De Witte, H., Soenens, B., Lens, W., 2010. Capturing autonomy, competence, and relatedness at work: Construction and initial validation of the Work-related Basic Need Satisfaction scale. Journal of Occupational and Organizational Psychology 83, 981-1002.

Van der Stede, W.A., 2000. The relationship between two consequences of budgetary controls: budgetary slack creation and managerial short-term orientation. Accounting, Organizations and Society 25, 609-622.

Van der Stede, W.A., 2001. The effect of corporate diversification and business unit strategy on the presence of slack in business unit budgets. Accounting, Auditing & Accountability Journal 14, 30-52.

Van Sell, M., Brief, A.P., Schuler, R.S., 1981. Role conflict and role ambiguity: Integration of the literature and directions for future research. Human Relations 34, 43-71.

Vansteenkiste, M., Lens, W., Deci, E.L., 2006. Intrinsic versus extrinsic goal contents in self-determination theory: Another look at the quality of academic motivation. Educational Psychologist 41, 19-31.

Vansteenkiste, M., Niemiec, C.P., Soenens, B., 2010. The development of the five mini-theories of self-determination theory: An historical overview, emerging trends, and future directions, in: Urdan, T.C., Karabenick, S.A. (Eds.), The decade ahead: Theoretical perspectives on motivation and achievement (Advances in motivation and achievement, Volume 16). Emerald Group Publishing Limited, pp. 105-165.

Vansteenkiste, M., Ryan, R.M., Deci, E.L., 2008. Self-determination theory and the explanatory role of psychological needs in human well-being, in: Bruni, L., Comim, F., Pugno, M. (Eds.), Capabilities and hapiness. Oxford University Press, Oxford, UK, pp. 187-223.

Wallander, J., 1999. Budgeting—an unnecessary evil. Scandinavian Journal of Management 15, 405-421.

Waller, W.S., 1988. Slack in participative budgeting: The joint effect of a truth-inducing pay scheme and risk preferences. Accounting, Organizations and Society 13, 87-98.

Webb, R.A., 2001. The impact of reputation and variance investigations on the creation of budget slack. Accounting, Organizations and Society 27, 361-378.

Williamson, O.E., 1964. The economics of discretionary behavior: Managerial objectives in a theory of the firm. Prentice-Hall, Englewood Cliffs, NJ.

Wiseman, R.M., Gomez-Meija, L.R., 1998. A behavioral agency model of managerial risk taking. Academy of Management Review 23, 133-153.

Wong-On-Wing, B., Lan, G., Lui, G., 2010. Intrinsic and extrinsic motivation and participation in budgeting: Antecedents and consequences. Behavioral Research in Accounting 22, 133-153.

Yin, R.K., 2003. Case study research: Design and methods, 3rd ed. Thousand Oaks: SAGE publications, London.

Young, S.M., 1985. Participative budgeting: The effects of risk aversion and asymmetric information on budgetary slack. Journal of Accounting Research 23, 829-842.

CHAPTER 2 – BUDGET PARTICIPATION AND BUDGET MOTIVATION: UNDERSTANDING THE COMPLEXITIES AND UNDERLYING MECHANISMS

KEYWORDS:

Budget participation

Budget motivation

Self-determination theory

True participation

Participation congruence

Strategic alignment

ABSTRACT

Although research on the motivational effects of budget participation spans several decades, there is still much to learn about the exact nature of participation and motivation in a budgeting context. In this paper, we build on and add to this prior literature by providing field study evidence of diverse forms of budget participation and different types of budget motivation. We provide insights into how and when the diverse forms of budget participation relate to the different types of budget motivation. Regarding how participation and motivation are related, we elaborate on the needs for autonomy, competence, and relatedness as important underlying mechanisms. Regarding the when-question, true participation and participation congruence, in combination with strategic alignment, are identified as important conditions determining a certain form of budget participation's specific motivational effects. As such, our findings reveal the complexities and shed light on the underlying mechanisms of the motivational effects of budget participation.

1. Introduction

Medium and large-sized companies increasingly allow subordinate managers to participate in the budgeting process to ensure their ownership and motivation to attain the budgetary targets[6] (Dugdale and Lyne, 2010; Heinle et al., 2014; Shastri and Stout, 2008). While companies expect budget motivation when allowing managers budget participation (BP), this motivational effect is not always achieved (e.g., Mia, 1988; Shields and Young, 1993). Indeed, although research on the motivational effects of BP spans several decades (e.g., Argyris, 1952; Brownell and McInnes, 1986; Milani, 1975), there is still much to learn about the exact nature of participation and motivation in a budgeting context.

Prior research on participative decision-making (PDM) recognizes diverse forms of participation along the *influence* continuum but fairly little is known about this typology in a budgeting context. Traditional BP research has mainly focused on the motivational effects of subordinate managers' *involvement* in the budgeting process, hence neglecting differences in the extent of influence (Byrne and Damon, 2008; Libby, 1999). In this paper, however, we recognize that diverse forms of BP may exist along the influence continuum and that BP's motivational effects may vary from one form to another.

Similarly, when discussing motivation in a budgeting context, Wong-on-Wing et al. (2010, 134, emphasis added) recently stated: 'A review of prior studies in PB [participative budgeting] (see, for example, Covaleski et al., 2003; Shields and Shields, 1998) highlights the inadequate use of the term 'motivation'. In particular, research in PB does not differentiate among different types of motivation. Distinguishing among *various types of motivation* is important since they have been shown to lead to *different consequences.* In this paper, we build on self-determination theory (SDT) (Deci and Ryan, 1985) to gain an understanding of the different types of budget motivation that may exist in reality. On these grounds, the research question addressed in this paper is:

> Do different forms of BP and types of budget motivation exist and how and when do they relate to each other?

To address this research question, we conducted 18 semi-structured interviews with business-unit, production, project, commercial, team, and finance managers of three West-European companies over a three year period. Analyzing the detailed interview data, we were able to observe diverse forms of BP ranging from no influence to joint decision-making, and different types of budget motivation residing under autonomous or controlled motivation[7]. Moreover, we

[6] We use the terms 'motivation to attain the budgetary targets' and 'budget motivation' interchangeably.
[7] We elaborate in more detail on these forms of participation and types of motivation in the theoretical background section.

also find that if a certain BP form satisfies the subordinate manager's needs for autonomy, competence, and relatedness, this manager generally experiences an autonomous type of budget motivation. Conversely, if BP frustrates those needs, the subordinate manager generally has a controlled form of budget motivation.

Interestingly, however, our field study evidence also shows that a certain form of BP may relate to both autonomous and controlled types of budget motivation, depending on the circumstances. More precisely, the 'no influence' forms can relate to autonomous types of budget motivation despite the basic psychological needs being frustrated and the high influence forms (i.e., 'consultation' and 'joint decision-making') can relate to controlled types of budget motivation despite the psychological needs being satisfied. Similarly, under certain conditions satisfied basic psychological needs may relate to controlled types of budget motivation whereas sometimes frustrated needs for autonomy, competence, and relatedness may relate to autonomous types of budget motivation. Our field study results indicate that true participation and participation congruence, in combination with strategic alignment, are important factors determining BP's specific motivational effects.

Overall, our detailed insights into the complexities and underlying mechanisms of BP's motivational effects suggest a threefold contribution to the extant budgeting literature. First, we enrich the traditional budgeting studies that have implicitly but largely ignored the existence of multiple forms of BP and types of budget motivation (e.g., Brownell and McInnes, 1986; Ronen and Livingstone, 1975). We broadened the traditional accounting view on budget motivation by including insights from SDT and we were able to identify diverse forms of BP by building on PDM-literature. In particular, we provide a distinction between autonomous (i.e., intrinsic, identified and integrated regulation) and controlled (i.e., external and introjected regulation) types of budget motivation and suggest a BP continuum ranging from no influence to joint decision-making. Second, by answering calls for research using alternate theories to explore the motivational effects of BP (Chong and Chong, 2002; Covaleski et al., 2003), we shed light on *how* the diverse forms of BP influence the different types of budget motivation. In particular, if a form of BP satisfies the subordinate manager's needs for autonomy, competence, and relatedness, it generally relates to autonomous types of budget motivation. If, however, the BP form frustrates those three basic psychological needs, it generally relates to a controlled type of budget motivation. Third, by uncovering when a certain BP form and satisfied or frustrated basic psychological needs relate to either autonomous or controlled types of budget motivation, this research advances the budgeting literature. The experience of true BP (for the 'consultation' type), participation congruence (for the 'no influence' types) and strategic alignment (for the needs for autonomy, competence, and relatedness) are important contingent factors in understanding BP's motivational effects. From a managerial perspective, this presents crucial information for an effective design of the BP process if BP is implemented for

motivational purposes as we provide top management a guideline on how to design their participatory process.

The remainder of this paper is organized as follows. In the second section, we review the literature on the motivational effects of BP. Section 3 positions the theoretical background. In the fourth section, we elaborate on the field study methodology and introduce the field study setting while Section 5 develops, analyzes, and discusses the qualitative field study findings. Finally, we offer concluding remarks, outline the paper's limitations and suggest some fruitful avenues for further research.

2. The motivational effects of budget participation

Inspired by Argyris' (1952) seminal work on the effects of budgets on people, research on subordinate BP was pervasive in the 1980s. In particular, ample attention has been paid to the motivational effects of BP. Today, companies still increasingly allow subordinate managers to participate in the budgeting process expecting, but not always achieving, motivation to attain the budgetary targets (Bjornenak, 2014; Dugdale and Lyne, 2010; Heinle et al., 2014; Shastri and Stout, 2008).

Searfoss and Monckza (1973) were among the first to conduct an empirical study on BP's motivational effects. They illustrated that perceived participation in the budgeting process and subordinates' motivation to attain the budgetary targets – in the form of effort expended to achieve the targets – were positively related. This result contrasts, however, with the later findings of Brownell (1983) and Ivancevich (1976), who were not able to find a significant relationship between BP and subordinates' budget motivation. Additionally, some researchers relied on expectancy theory[8] to study the relationship between BP and motivation. Relying on the same theoretical approach, Ronen and Livingstone (1975) hypothesized a positive effect of BP on subordinate's budget motivation, Mia (1988) found a positive effect between BP and work motivation, but Brownell and McInnes (1986) failed to empirically support this positive relationship.

Despite the large amount of research, we still lack a clear understanding of BP's motivational effects (e.g., Shields and Young, 1993), which is supported by Derfuss' (2009) recent meta-analytic review of BP. This lack of understanding contrasts sharply with the increasing use of BP for motivational purposes (e.g., Dugdale and Lyne, 2010; Shastri and Stout, 2008). What is the practitioner manager to conclude on the basis of this evidence? Does

[8] According to expectancy theory, motivation depends on the expectation that the efforts made will result in a performance sufficient to trigger the granting of valued rewards (Vroom, 1964).

BP motivate or does it not motivate subordinate managers to attain the budgetary targets and what are the underlying mechanisms?

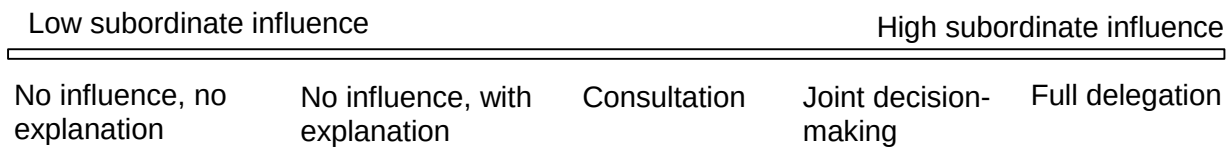
3. Theoretical background

3.1 Diverse forms of budget participation

Letting subordinate managers participate in the budgeting process *involves* them in and allows them *influence* over the determination of their budgetary targets (Anthony and Govindarajan, 2007; Shields and Shields, 1998). Although these two dimensions of participation are recognized in budgeting research (e.g., Byrne and Damon, 2008; Otley et al., 1994), prior BP research has mainly focused on the motivational effects of subordinates' degree of involvement, neglecting the possibility of differences in the extent of subordinate manager influence. Moreover, experimental budgeting research has traditionally treated BP as a dichotomous variable, neglecting the possibility that different forms of BP may exist.

Research in PDM, of which BP is a specific example, widely accepts the existence of a continuum of subordinate influence along which various decision procedures can be ordered (e.g., Cotton et al., 1988; Heller and Yukl, 1969; Hunton and Price, 1994). Indeed, participation in practice can range heavy from subordinate managers having no influence to full delegation. Figure 1 shows the relationship between the influence continuum and the diverse forms of participation that can be present in a budgeting context (based on the work of Heller and Yukl, 1969).

Figure 1. The influence continuum with the diverse forms of budget participation



The forms of BP are defined in behavioral terms and can be summarized as follows. *No influence, with or without explanation* refers to a budgeting process where the superior decides on the budgetary targets without any prior consultation of the subordinate managers. After having set the budgetary targets, the superior may (i.e., with explanation) or may not (i.e., without explanation) give the subordinate managers a post-decision explanation for the reasons of the decision. *Consultation* refers to a budgeting process where the superior decides on the budgetary targets after consulting the subordinate managers. This form of BP was studied earlier by Libby (1999) and Byrne and Damon (2008). It reflects a budgeting process in which subordinates are involved in the decision process but the superior makes the final decision (Vroom, 1983). *Joint decision-making* refers to a budgeting process in which the superior and subordinate managers form a consensus decision about the budgetary targets to be set. *Full delegation* refers to a budgeting process in which the superior allows the subordinate managers to set the budgetary targets on their own.

As the motivational effects of BP may vary from one form to another, we extend the PDM literature and suggest in this study that *a continuum of BP forms, ranging from no influence to full delegation, exists*.

3.2 Different types of budget motivation: A view from self-determination theory

When discussing motivation in a budgeting context, Wong-on-Wing et al. (2010, p. 134, emphasis added) recently stated: 'A review of prior studies in PB [participative budgeting] (see, for example, Covaleski et al., 2003; Shields and Shields, 1998) highlights the inadequate use of the term "motivation". In particular, research in PB does not differentiate among different types of motivation. Distinguishing among *various types of motivation* is important since they have been shown to lead to *different consequences.*' Indeed, human motivation can vary not only in level but also in type (e.g., Deci and Ryan, 2008; Ryan and Deci, 2000b).

Prior research on BP's motivational effects has largely ignored or conflated the different types of motivation. Young (1985), for example, studies money as the sole motivation to perform well. Searfoss and Monckza (1973) used the effort expended to achieve the budgetary targets as a proxy for budget motivation without tapping into the reasons why this effort is expended and hence neglecting the possibility of different types of motivation. Other researchers recognized the existence of intrinsic and extrinsic motivation by building on expectancy theory (e.g., Brownell and McInnes, 1986; Mia, 1988; Ronen and Livingstone, 1975) but focused on total motivation as the simple sum of intrinsic and extrinsic motivation. Moreover, by focusing on the outcome instead of the reason for performing a certain activity, both types of motivation were conflated. Giving help to others, for example, is classified as an intrinsic valence according to expectancy theory (Brownell, 1980) but depending on why

people would want to help others, this could represent both intrinsic and extrinsic motivation (Deci and Ryan, 2000; Vansteenkiste et al., 2010).

Given these findings, our attention should shift from the overall motivation level toward the different motivation types (Kunz, 2015). Our separation between different motivation types is grounded in the theoretical framework provided by SDT (Deci et al., 1989; Deci and Ryan, 2004; Ryan and Deci, 2000a). In particular, a core aspect of SDT is the differentiation between *autonomous* and *controlled motivation*[9] (Deci, 1975; Deci and Ryan, 1985). *Autonomous motivation* involves the regulation of behavior with the experience of volition, psychological freedom and reflective self-endorsement. Autonomously motivated managers put effort in attaining the budgetary targets because they enjoy it (i.e., *intrinsic motivation*) or because they have internalized the importance of budget attainment for their organization (i.e., *autonomous extrinsic motivation*) (Vansteenkiste et al., 2010). More specifically, SDT distinguishes two types of autonomous extrinsic motivation. First, *identified regulation* implies that people understand and endorse the personal value and significance of behavior (e.g., a manager tries to attain the budgetary targets because good budgetary performance is an important goal for the organization) (Vansteenkiste et al., 2006). Second, *integrated regulation* implies that people have fully internalized the extrinsic motivation and form a coherent and unified sense of self-reflection and self-awareness (e.g., a manager puts effort into attaining the budget because it is consistent with other organizational goals, such as strategy implementation) (Vansteenkiste et al., 2010). Conversely, under *controlled (extrinsic) motivation*, a manager's functioning is to a large extent determined by external (*external regulation*; e.g., a manager is working toward budget attainment because s/he fears the financial repercussions of not hitting the budget) or internal (*introjected regulation*; e.g., a manager puts effort into attaining the budget because s/he would feel ashamed not realizing the targets) controlling imperatives. Controlled motivation involves the regulation of behavior with the experience of pressure and coercion to think, feel or behave in a particular way. This is the type of motivation implicitly focused on by much of the budgeting literature (e.g., Chow et al., 1988; Covaleski et al., 2003; Waller, 1988). *Amotivation* also exists. This means that people lack any intentionality and are not motivated at all which results in people not acting or acting passively.

This distinction between autonomous and controlled types of motivation is important, since research (e.g., Güntert, 2015; Trépanier et al., 2013) provides evidence for positive consequences being associated with autonomous types of motivation and negative consequences being associated with controlled types of motivation. In particular, autonomous

[9] The distinction between autonomous and controlled motivation differs from the distinction between intrinsic and extrinsic motivation. In particular, SDT recognizes different types of extrinsic motivation depending on their relative degree of self-determination and therefore the focus shifted from the intrinsic-extrinsic distinction to the autonomous-controlled distinction.

motivation types are associated with 'greater persistence, more effective performance, higher quality relationships, and better social adjustment and well-being' (Vansteenkiste et al., 2008, 21). Similarly, Bono and Judge (2003) found that autonomously motivated employees have greater affective organizational commitment and greater job satisfaction. Excess controlled motivation, on the other hand, gives rise to increased stress and burnout (Deci and Ryan, 2004). In summary, controlled types of motivation are more likely to produce negative effects, while autonomous types of motivation will more likely foster positive outcomes, especially for relatively complex tasks (Gagné and Deci, 2005; Vallerand, 1997). Indeed, Wong-on-Wing et al. (2010) have recently illustrated the importance of the difference between autonomous and controlled types of motivation in the interplay between performance and BP. More specifically, they illustrated that autonomous types of motivation for participation in budgeting are positively related to performance, whereas controlled motivation types for BP are negatively associated with performance.

In this paper, we recognize both autonomous (i.e., intrinsic, identified, and integrated regulation) and controlled (i.e., external and introjected regulation) types of budget motivation. We acknowledge that multiple types of budget motivation may be present at any given time (Hidi and Harackiewicz, 2000; Järvelä and Salovaara, 2004; Pintrich, 2000) and that their relative strength can be influenced by the diverse forms of BP. This approach distinguishes our paper from all previous articles that studied the motivational effects of BP, because in this previous literature there was no distinction between autonomous and controlled types of budget motivation (Wong-On-Wing et al., 2010) nor between the different forms of BP. Since we cannot exclude that diverse forms of BP interact differently with the types of budget motivation, we will *explore how and when the diverse BP forms relate to the different types of budget motivation*.

3.3 Basic psychological needs as underlying mechanisms

SDT proposes that the forms of BP will relate to autonomous or controlled types of budget motivation, depending on a differential degree of basic psychological need satisfaction. In particular, SDT posits three basic needs innate to all humans: the need for autonomy, competence, and relatedness. The need for *autonomy* refers to the need to feel strong-willed and fully endorsing one's actions (Deci, 1975; Deci and Ryan, 2004). The need for *competence* implies that people want to experience opportunities to exercise and express their capacities and hence feel a sense of confidence (Vansteenkiste et al., 2008). The third basic psychological need, the need for *relatedness*, denotes caring for and feeling cared for by others (Ryan, 1995). If those three basic needs are satisfied by the form of BP, managers will experience an autonomous type of budget motivation. If the three basic psychological needs

are frustrated by the form of BP, managers will experience a type of controlled budget motivation.

Adopting the concept of basic need satisfaction to the diverse forms of BP on the influence continuum, we expect that the degree of psychological need satisfaction will increase as the subordinate manager's BP form evolves from 'no influence' to 'full delegation'. More specifically, in the conditions where the superior decides on the budgetary targets without prior consultation of the subordinate managers (both without and with post-decision explanation), the subordinate managers' need for autonomy, competence, and relatedness will not be satisfied in the budgeting process. In the condition of consultation, the danger of pseudo-participation exists (Libby, 1999). Pseudo-participation is defined as a process that leads subordinate managers to believe that they will have some influence over the budgetary targets set, but in reality, their input is ignored. Only if this consultation form of BP is considered as true (i.e., there is a genuine interest of the superior in what the subordinate managers suggest), it will satisfy the basic psychological needs within the budgeting context. In the conditions of joint decision-making and full delegation, we expect that subordinate managers' needs will be satisfied within the budgeting process. In particular, these two forms of BP provide autonomy (Venkatesh and Blaskovich, 2012), give subordinate managers control and hence a feeling of competence (Birnberg et al., 2007; Chenhall, 2003; Shields et al., 2000), and induce a friendlier atmosphere and trust which satisfies the need for relatedness (Elmassri and Harris, 2011; Lau and Buckland, 2001). Consequently, we propose that *subordinate managers will have relatively more autonomous types of budget motivation when their form of BP evolves from no/low to high subordinate influence, given that they perceive their form of BP as true*.

4. Research method

4.1 Choice of the research method

Since 'how' and 'when' questions were central to our research, we base this paper on a multiple-case field study (Yin, 2003). Moreover, we were particularly interested in studying subordinate managers' *perceptions* of their form of BP, as motivation is influenced by the perceived, rather than the actual, reality (e.g., Link and Oldendick, 2000; Van der Stede et al., 2005). The use of a field study also seems particularly appropriate, as we want to explore diverse forms of participation and different types of motivation *in an accounting context*. In traditional accounting research, participation and motivation have largely been reduced to a statistical model, while there have been fewer attempts to realistically understand them. In this study, however, we explore BP and budget motivation within people inside their inter-subjective worlds.

Semi-structured interviews were conducted with managers in which they could provide open-ended answers to capture their perceptions, as this enabled us to have direct and in-depth contact with the research participants (Atkinson and Shaffir, 1998). Furthermore, semi-structured interviews provide the major advantage of having the possibility of 'probing' during the interview, which is of particular importance for the purposes of our research. Finally, semi-structured interviews also make it possible to ask follow-up questions if unexpected outcomes promise to be interesting (Ahrens and Chapman, 2006; Eisenhardt, 1989). As a result, our research setting provided us with a clear and more complete understanding of the answers and their context, as the interviews not only provided information on facts, but also shed light on subjective views and personal insights (Czarniawska, 2004; Flyvbjerg, 2001).

4.2 Company selection

To investigate information-rich settings, we took into account the size of the organization in selecting the field study companies. We excluded small companies to avoid not having a formal, established budgeting process. Confronted with a plurality of hard-to-reach medium and large manufacturing and service organizations, we relied on business relationships between one of the authors and key employees within the companies.

Three companies, out of the four we contacted, agreed to participate in our study[10]. The fourth company was not interested in participating as it had just been restructured. Having more than one company was deemed essential for our research and the three companies yielded a cross-section of industries, products, and services. Company A[11] is a telecommunications company that employs about 16,000 people in Belgium. Company B is an international technology company serving both business and private customers; the company employs approximately 120,000 employees in 14 different countries. Company C is a leading consulting and engineering company that employs about 7,500 employees in 10 different countries.

[10] 'Companies' in this context may be fully independent or may be a subunit of a larger firm. They all, however, appeared as a separate entry in the Bel-first Directory, which is a database containing financial information about two million companies located in Belgium and Luxemburg.

[11] The confidentiality agreement used in our study prevents us from prevailing the identity of the organizations. Therefore, detailed information on corporate operations cannot be provided. Publishing results anonymously, however, provided us the opportunity to obtain inside information from interviewees which would otherwise not have been disclosed (Rubin and Rubin, 1995).

4.3 Data collection

Data collection was mainly based on interviews with 15 managers[12]. Moreover, we collected additional information on the budgeting process by interviewing three accounting staff members (one in each organization) and by gathering internal documents, such as organization charts and slides presented at budget meetings, whenever possible. Combining multiple respondents and multiple data sources reduces the risk of response bias and permits triangulation so as to improve the validity and reliability of our data (Gibbert and Ruigrok, 2010; Yin, 2003).

In all three companies, we first interviewed our business contacts. These managers provided us with background information on their company. Furthermore, they helped us gain access to other employees in their respective companies, as they permitted us to mention their name in the contact email seeking an interview with additional managers and accounting staff members. In general, business unit, project, as well as production managers were interviewed because of their importance for the implementation of budgetary plans and the consequent realization of budgetary targets (Van der Stede, 2000). By obtaining viewpoints from multiple types of managers, we enriched our analysis and strengthened our findings. An overview of these interviewees is provided in Table 1.

Our interview protocol was informed by the literature (Yin, 2003) and included the following topics: the budgeting process, the interviewee's role in this process and the form of participation denoted to the interviewee, his/her type of budget motivation, the dynamics between this motivation and the form of BP, and possible other budgeting process characteristics. We incrementally developed our set of questions for each interview to capture and explore new factors that popped up during the course of the interviews, which is in line with prior research (e.g., Schermann et al., 2012). Figure 2 summarizes our protocol development.

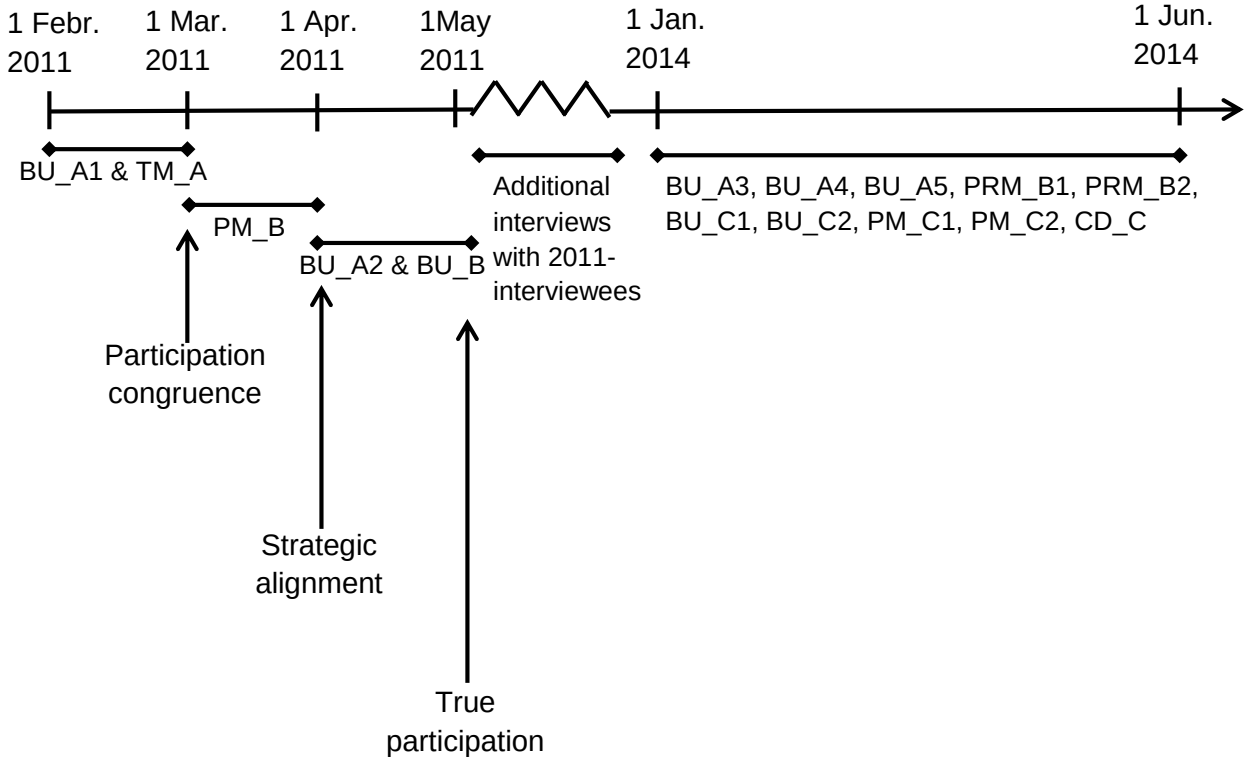
The first question on each topic was an open-ended, general question, whereas later questions on the same topic were more interview-specific, as the nature of these specific questions depended on the interviewee's answer to the first question (Irvine and Gaffikin, 2006). All interviews were carried out in independent sessions which lasted approximately 60 minutes on average. The interviews were conducted by the first author at the interviewee's workplace. Interviews were tape recorded and transcribed within a week after each interview. Both authors discussed the interviews based upon these verbatim transcriptions and the first author subsequently coded all data.

[12] All managers were controlled by a corporate budgeting system and had some kind of budget responsibility (profit, cost, or revenue). Please see Table 1 for more information on each manager's budgetary responsibility.

Table 1. Overview of the interviewees

Company	Function of the interviewee	Interview duration (min)	Abbreviation	Budget responsibility
Company A	BU manager	74	BU_A1	Cost
	BU manager	56	BU_A2	Cost
	BU manager	62	BU_A3	Profit
	BU manager	93	BU_A4	Profit
	BU manager	53	BU_A5	Profit
	Team manager	45	TM_A	Cost
	Accounting staff	54	ACC_A	
Company B	BU manager	53	BU_B	Profit
	Production manager	71	PRM_B1	Cost
	Production manager	82	PRM_B2	Cost
	Project manager	32	PM_B	Cost
	Accounting staff	70	ACC_B	
Company C	BU manager	37	BU_C1	Profit
	BU manager	72	BU_C2	Profit
	Commercial manager	78	CM_C	Cost
	Project manager	66	PM_C1	Revenue
	Project manager	61	PM_C2	Cost
	Accounting staff	35	ACC_C	

Figure 2. Time line for our interview protocol development



4.4 Data analysis

We analyzed the data as we collected them, working back and forth between our empirical data and the extant literature (Ahrens and Chapman, 2006; Eisenhardt, 1989; Englund and Gerdin, 2015). However, to avoid any researcher bias, we also used NVivo10 (a qualitative analysis program) to conduct a systematic coding and analysis. During the first step of *data coding*, we set up a coding protocol whereby codes were derived from a review of the prior literature (Yin, 2003). Before applying this protocol to our data, we read the interview transcripts at least two times. Informed by recent research (e.g., Bouten and Hoozée, 2013), we let the interview tape running while going through the transcripts. We adapted our initial coding protocol to reflect interesting paths and factors identified from the data itself during these in-depth readings. The final coding protocol was applied to all transcripts using NVivo10, which gave us the opportunity to develop a hierarchy of codes and link these codes to text segments. Furthermore, the software facilitated building tables containing all of the separate codes, supporting quotes linked to each code, and a reference to the interviewee and the company s/he was working for at the time of the interview(s). Many paragraphs in the transcripts were labeled with multiple codes, indicating that these paragraphs contained an indication about how the different themes are related.

Second, we initiated the *data display* phase by building data matrices and word clouds from these linked and interconnected themes (see Fig. 3). These data matrices and word clouds graphically summarize the codes assigned to each transcript and allow us to identify emerging themes and patterns in the data (Lillis and Mundy, 2005).

Third, once we had acquired a preliminary understanding of the complexities and underlying mechanisms of BP's motivational effects per interview, we compared the interviews within and across companies to list similarities and differences observed during the *data analysis* phase (Eisenhardt, 1989). Provisional patterns from the individual interviews were cross-checked to increase the internal validity of our study. By actively searching for cross-case patterns and regularities, and probing unexpected or divergent relationships, we aimed to enhance the external validity of our research and provide a basis for analytical generalization[13] (e.g., Eisenhardt, 1989; Gibbert et al., 2008; Yin, 2003).

Finally, during the *quote selection* phase, a choice of quotes from the transcripts was made to answer our research question.

[13] Analytical generalization denotes a process that refers to the generalization from empirical observations to theory, rather than a population (Yin, 2003).

Figure 3. Example of a word cloud (representing basic psychological need satisfaction for autonomous and controlled types of budget motivation)

Panel A. Word cloud for autonomous types of budget motivation

Panel B. Word cloud for controlled types of budget motivation

5. Analysis and discussion

The first subsection describes each company's budgeting process, the forms of BP, and the types of budget motivation for each interviewee. In the second subsection, we look how the diverse forms of BP relate to the different types of budget motivation and highlight the role of true participation. In the final subsection, we elaborate on the role of participation congruence and strategic alignment to identify when a certain form of BP and satisfied or frustrated psychological needs relate to either autonomous or controlled types of budget motivation.

5.1 The budgeting process, budget participation, and budget motivation

5.1.1 Descriptive characteristics of the budgeting process and forms of budget participation

In the first part of the interview, we asked for descriptive information regarding the budgeting process at the interviewee's company. As the extent of influence allowed in BP can vary across and within organizations, we wanted to know how budgetary targets were developed, who was involved, and how much influence each interviewee had in this process[14] (for an overview, see Table 2).

[14] From our interviews with the accounting staff members, we know that all three organizations used a budgeting approach that combines characteristics from incremental and zero-based budgeting. However, as this study is interested in differences in the extent of influence when setting the budgetary targets, and not so much in the technical design of the budgeting system itself, we did not go into detail on the technical characteristics. The remainder of this section therefore focuses on managers' participation in determining the content (i.e., the budgetary targets) of the budgeting system.

Table 2. Cross-case comparisons

Panel A. Overview company A

	Company A					
	BU_A1	BU_A2	BU_A3	BU_A4	BU_A5	TM_A
Budget participation	Consultation	Consultation	Consultation	Consultation	Consultation	No influence
True participation	Yes	No	Yes	Yes	Yes	-
Budgetary needs satisfied	Yes	No	Yes	Yes	Yes	-
Budget motivation	Autonomous	Controlled	Autonomous	Autonomous	Autonomous	Autonomous
Participation congruence	Yes	No	Yes	Yes	Yes	Yes
Strategic alignment	NI	No	Yes	Yes	Yes	Yes

Panel B. Overview company B

	Company B			
	PM_B	BU_B	PRM_B1	PRM_B2
Budget participation	No influence	Consultation	No influence	No influence
True participation	-	No	-	-
Budgetary needs satisfied	No	No	-	-
Budget motivation	Controlled	Controlled	Autonomous	Autonomous
Participation congruence	No	No	NI	NI
Strategic alignment	No	No	Yes	Yes

Panel C. Overview company C

	Company C				
	BU_C1	BU_C2	PM_C1	PM_C2	CD_C
Budget participation	Joint decision-making	Joint decision-making	No influence	No influence	Consultation
True participation	Yes	Yes	-	-	No
Budgetary needs satisfied	Yes	Yes	-	No	No
Budget motivation	Autonomous	Controlled	Controlled	Autonomous	Controlled
Participation congruence	NI	Yes	Yes	No	NI
Strategic alignment	Yes	No	No	Yes	NI

NI = no information available

Company A has a mixed budgeting process, as it consists of a combination of top-down and bottom-up practices. The process is initiated top-down, guided by the company's central strategy and finance divisions. Top management sits together with the strategy team to discuss the company's long-term view and the strategy that will be followed to fulfill this. Taking this strategy, shareholder expectations, and market evolutions into account, the finance division sets some limitations on the total budgetary resources available. Simultaneously, top management defines overarching themes (e.g., innovative technologies, cost reducing initiatives, customer service projects…) related to the content of the company's strategy. Next, in the bottom-up process, all business unit managers and their direct reporting lines are asked which projects they would like to carry out and the resources needed for those projects to be implemented successfully. All of these projects are consolidated per overarching theme. A specific team, with representatives from each business unit, decides upon the acceptance and prioritization of the projects within a certain theme. Finally, the total amount of resources available is divided over the different themes by top management (these funded themes are called 'budgetary clusters') so as to reflect both the company strategy (i.e., the relative amount of resources dedicated to each cluster reflects the organization's strategic focus) and the input from the bottom-up process. Hence, the budgetary targets are established through a participative process which involves both horizontal collaboration and vertical negotiation. Indeed, company A's business-unit managers recognized being involved in and having influence over the budgeting process:

> We are asked what we want to do next year and how much money we need to realize those projects. (BU_A1)
>
> Every business unit can propose the projects it would like to fulfill within each cluster [i.e., a funded theme of projects]. Along with these proposals, each business unit must give an estimate of its total resources needed for the upcoming fiscal year. (BU_A3)

Noteworthy, this consultation form of BP in company A is confined to higher management levels, as evidenced by the team manager: *'In fact, the whole budgeting process is dominated by my business unit manager, I do not play a role in that process'* (TM_A), reflecting a 'no influence' form of BP.

A similar budgeting process is present in company B. More specifically, the process consists of three phases. In the first phase, top management and the finance division review the company strategy. In the second phase, market data are collected from the marketing managers. The finance division then combines all the input and provides a market guidance about the company's expected profitability. At the same time, they ask the business unit managers to come up with their own proposal. In a third phase, the finance division gathers all the proposals and compares them with its own market guidance. If the aggregated proposals

are not sufficient to hit the profitability target, proposals are sent back for adjustment. This is really a back-and-forth discussion process which ends with a final decision by the general manager. One interviewee in company B (i.e., BU_B) indeed recognized being consulted in the budgeting process. The other interviewees, however, did not experience any influence over the budgetary targets set, again providing evidence of influential BP being confined to the higher management level:

> For every business unit in our company, a budgeting round is organized in which top management determines the budgetary targets set. I have no influence in this process: it are just my superiors that can determine and influence the budget allocation. (PM_B1)
>
> I get my targets imposed by my superiors. There is no possibility for me to co-decide with them upon my annual budgetary target. (PRM_B2)

The structure of the budgeting process in company C starts with a negotiation between the business unit managers, the financial director, and the country managing director. Relying on these negotiations, this group then jointly proposes a budgetary target for each business unit. Once budgetary proposals have been formulated for all business units, the country managing director reviews the overall budgetary target with corporate management to ensure that the business units' targets reach the budgetary objectives set for the country. The country manager, together with the financial director and the business unit managers, revises the budgetary targets if necessary, to include this top-down corporate management information. As reflected in the process, the business unit managers recognized being able to jointly decide on their budgetary targets:

> The positive thing about the budgeting process in this company, is that the budgetary target is really a joint decision. We take the decision together and also bear the joint responsibility. (BU_C1)

As in both company A and B, influence in the budgeting process in company C is also confined to higher management levels:

> My superiors take all the decisions to come to our budgetary target. They have a meeting in the company's headquarters or in a fancy hotel and come back with some number. Sometimes it seems as they just picked a random number and that the target could have been just as easy some different number. (PM_C1)

5.1.2 The types of budget motivation

As the stated reasons for behavior (e.g., putting effort into attaining the budgetary target) indicate the individual's motivation for that behavior, we asked the interviewees *how* they felt about achieving the budgetary targets and *why* they (did not) put effort into attaining them[15]. Our inquiry into managers' budget motivation leads to quotes that support the existence of different types of budget motivation.

Some managers mentioned focusing their effort on attaining the budgetary targets, because they felt pressured by an external force, referring to *external regulation*. Remember that external budget regulation implies that employees put effort in attaining the budgetary targets because (they think that) somebody else wants them to do so or because they would get some kind of reward, praise or approval or avoid some punishment for it:

> I only put effort into attaining the budgetary targets because I want to *prevent* having to prepare a business case because this is a very time-consuming task. It is just for *my own convenience*: if I stay in line with the budgetary targets, I can save some time and I can work more smoothly. (PM_B)

Other managers, however, put effort into attaining the budgetary targets because they feel pressured by internal controlling imperatives such as feelings of guilt and shame (i.e., these managers report *introjected budget regulation*):

> I take every opportunity to earn as much revenue as possible because *I hate losing*. And not attaining the target would feel as a lost battle. It would *hurt my feeling of honor*. (PM_C1)

These external and internal forces can also interact to put pressure on the manager:

> The budget is like a *game with certain rules*. You cannot play the game without accepting the rules, even if you *do not like these rules*. I only accept the rules and play the game along because otherwise I would feel like *letting down my people*. (BU_A2)

Indeed, these interviewees experience a controlled type of budget motivation. Some other managers, however, identified with the value of budget attainment, indicating *integrated or identified budget regulation*:

> I put effort into attaining the budgetary targets because it is important for our business. I *value the long-term well-being of my company* and as an employee, I understand my role in attaining this well-being as working toward the budgetary targets. (TM_A)

[15] We found no evidence of amotivation being present for our interviewees. As suggested above, all managers we interviewed had some kind of budget responsibility which may explain the absence of amotivation.

> Trying to respect the budget and do as much as possible with as few resources as possible really *aligns with my personal values*. I flip each coin before I spend it, both at work and home. (PRM_B1)

Other managers refer to the fun they have in trying to attain the budgetary targets and how putting effort into attaining the targets stimulates their creativity, which points to *intrinsic budget motivation*:

> I put effort into attaining the budget because it is *interesting* and *fascinating*. It stimulates my *creativity* and I *like* to search for less obvious solutions to attain the budgetary targets. (BU_A1)

In Table 3, we elaborate further on the different types of budget motivation by providing more quotes expressing the interviewees' motivation to attain the budgetary targets. It should be noted that although either an autonomous or controlled type of motivation dominates the behavior of each interviewee, multiple interviewees have simultaneously experienced autonomous and controlled types of budget motivation. As all interviewees are (partially) evaluated on achieving the budgetary targets for monetary incentives or promotion, a controlled type of budget motivation (i.e., putting effort into attaining the budgetary targets for monetary or promotion purposes) was, to some extent, present for all interviewees. However, we focus on the relative strength of the motivation types[16].

[16] The relative strength of the types of budget motivation is based on a general reading of the interviews, taking into account each interviewee's emotions and body-language.

Table 3. Quotes on the interviewees' relatively strongest type of budget motivation

Company	Interviewee	Quote	Relatively strongest type of motivation
Company A	BU_A1	I put effort into attaining the budgetary targets because it is *interesting* and *fascinating*. It stimulates my *creativity* and I *like* to search for less obvious solutions to attain the budgetary targets.	Intrinsic motivation
	BU_A2	The budget is like a *game with certain rules*. You cannot play the game without accepting the rules, even if you *do not like these rules*. I only accept the rules and play the game along because otherwise I would feel like *letting down my people*.	Combination of external and introjected regulation
	BU_A3	By attaining the budgetary target, I can *give something back* to the organization and the community. Money and promotion are only relative. I am grateful for the opportunity of having a say in the budget, so I am really *committed* to attain it.	Identified regulation
	BU_A4	The budgetary target is a *challenge* and I *like* being challenged.	Intrinsic motivation
	BU_A5	The budget is *fun* because it *challenges* me. I am committed to the well-being of our organization so I *understand* that attaining the budgetary targets is important.	Combination of intrinsic and integrated regulation
	TM_A	I put effort into attaining the budgetary targets because it is *important* for our business. I *value* the long-term well-being of my company and as an employee, I *understand* my role in attaining this well-being as working toward the budgetary targets.	Identified regulation
Company B	BU_B	I only put effort into attaining the budgetary targets because I want to *prevent* having to prepare a business case because this is a very time-consuming task.	External regulation
	PRM_B1	Trying to respect the budget and do as much as possible with as few resources as possible, being as efficient as possible really *aligns with my personal values*. I flip each coin before spending it, both at work and home.	Integrated regulation
	PRM_B2	Attaining the budgetary target is a *challenging* ambition. It is *fun* trying to achieve this ambition.	Intrinsic motivation
	PM_B	I am *not committed* to the budget but it is the system and I have to accept that. I only try to attain the target as much as possible to *avoid* the energy-demanding procedure of preparing a business case.	External regulation

Company C	BU_C1	I *understand* the importance of the budget for the *long-term well-being* of the company.	Identified regulation
	BU_C2	I think we focus too much on the budget. It is a *necessary evil* to be able to run our business but I would rather do that without the budget as a guideline.	External regulation
	CD_C	To be honest, what drives me to attain the budgetary target is the fact that *I am judged upon it*. If I did not attain the target by the end of the year and overspent… There is no formal punishment but still, people *look at me in a bad way*.	Combination of external regulation and introjected regulation
	PM_C1	The budgetary target has *no meaning* for me. It is *just a number* and it could have been just as easy another number. I take every opportunity to earn as much revenue as possible because *I hate losing*. And not attaining the target would feel as a lost battle. It would *hurt my feeling of honor*.	Introjected regulation
	PM_C2	I think it is important to be *correct* toward the organization. *I value being treated correctly* so I treat my company correctly too by respecting the budgetary targets.	Integrated regulation

5.2 Basic psychological needs as underlying mechanisms between the diverse forms of budget participation and different types of budget motivation

From our interview data, it appears that the business unit managers from company A (except BU_A2) and company C extract satisfied needs for budgetary autonomy, competence, and relatedness from being consulted or making a joint decision in the budgeting process, respectively (see also Table 2). Words[17] in the word cloud such as 'shared', 'jointly', 'consensus', 'cluster', and 'group(s)' clearly refer to a satisfied need for relatedness. 'Responsibility', 'freedom', and 'opportunity' reflect a satisfied need for autonomy and 'skills' and 'understand' give indication of a satisfied need for competence (see Figure 3).

> I can make my *own decisions* and do not have to ask for everything which provides me *freedom*. I really value the *responsibility* this participation gives me. In fact, it gives me the feeling that I can *contribute* to my company's added value and I can further *develop my skills* thanks to this opportunity. […] Being able to participate also makes me *better understand* why a decision has to be taken and within which context this happens. As such, it creates *better relationships* with top management as we are along the same line. (BU_A1)

> I am part of the budget committee and we take budgetary decisions *jointly*. Each budgetary decision is *substantiated well* such that we all *understand the underlying rationale*. Each member of this committee has *sufficient opportunities to deliver input* for these supporting rationales and we provide each other the *freedom to voice and defend this input*. (BU_C2)

Although BU_A2, BU_B, and CD_C were consulted in the budgeting process before top management made a decision on the budgetary targets set, they reported frustrated basic psychological needs (see Table 2 for an overview and Table 4 and Table 5, panel A for a detailed insight).

[17] The more often a word has been used by the interviewees, the bigger the word appears in the word cloud. That is, the size of a word is driven by the frequency of its presence in our interview transcriptions. For example, the word "cluster" has been used more often than the word "jointly" to refer to a satisfied need for relatedness.

Table 4. Quotes on the interviewees' basic psychological need satisfaction

Company	Interviewee	Quote	Basic needs		
			Autonomy	Competence	Relatedness
Company A	BU_A1	I can make my *own decisions* and do not have to ask for everything which provides me *freedom*. I really value the *responsibility* this participation gives me. In fact, it gives me the feeling that I can *contribute* to my company's added value and I can further *develop my skills* thanks to this opportunity. […] Being able to participate also makes me *better understand* why a decision has to be taken and within which context this happens. As such, it creates *better relationships* with top management as we are along the same line.	Satisfied	Satisfied	Satisfied
	BU_A2	I have the feeling that budgetary issues are *not under my control*. This *frustrates* me and sometimes gives rise to *discussions and problems* with my colleagues.	NI	Frustrated	Frustrated
	BU_A3	Being consulted in the budgeting process, makes me feel *engaged* and *committed*. Being in a cluster, gives me the opportunity to *fully understand* decisions and have *impact* on them. […] This process is a *friendly* way of working.	Satisfied	Satisfied	Satisfied
	BU_A4	I appreciate the *responsibility* that budgetary participation gives me. Moreover, I think that budget participation is necessary as my unit has the *appropriate skills and competences* to make good budgetary decisions.	Satisfied	Satisfied	NI
	BU_A5	We are *free* to provide input for the budgeting process. We know we can make a difference, we know that we have *control* over the budgetary decisions as we are able to influence the process through the input we deliver.	Satisfied	Satisfied	NI

Company B	BU_B	Being excluded makes me feel *helpless*. It would be better to give *more autonomy* to the product groups because now the instability is *frustrating* as the budgetary decisions are made *unilaterally*. I have the feeling that the budgeting process is *out of my control*. Another point of *frustration* is that the people deciding about my budgetary targets do not have sufficient insight in my products. This may lead to *internal discussions and conflicts* with my colleagues.	Frustrated	Frustrated	Frustrated
	PM_B	The fact that I am confronted with the budget instead of having an influence over it gives me *stress*. I can feel that it gives my whole team more stress which leads to *conflicts and discussions*. Because I do not have an insight in the 'why' of the budgetary decisions, I have the feeling that the budgeting process is *out of my control*. We have more experience and product knowledge so it would be better to let us *have some influence* over the budgetary targets.	Frustrated	Frustrated	Frustrated

Company C	BU_C1	I have ample opportunities to *deliver input* for the budgeting process. Being able to deliver this input and making decisions *jointly*, I *commit* to the budget. Decisions are taken *in consensus* so we are all *owners* of the budget.	Satisfied	NI	Satisfied
	BU_C2	I am part of the budget committee and we take budgetary decisions *jointly*. Each budgetary decision is *substantiated well* such that we all *understand the underlying rationale*. Each member of this committee has *sufficient opportunities to deliver input* for these supporting rationales and we provide each other the *freedom to voice and defend this input*.	Satisfied	Satisfied	Satisfied
	CD_C	I can deliver input for the budgeting process but it is *finance that gets to decide*. Each year, they say that I have to cut in the demanded resources. Moreover, *I do not have the power to decide which costs will be cut* as I deliver services to the business units. So the business unit managers have to approve before I can cut certain costs. I can defend, hope, think… But in the end, they decide and sometimes this is *frustrating*. […] It becomes an internal joke. Each time when we have to economize, they all point in my direction. *But I do not think it is funny*. My budget is important as well you know… It seems that some people treat my budget as the *bin*. 'Oh, we forgot about that dinner we had over there. Let shift it to marketing!'	Frustrated	NI	Frustrated
	PM_C2	The budgeting process is like a *black box* to me. Both the content of the box and how the box is assembled are unclear to me. All decisions are taken at the level of the budget committee and *my input is not solicited*.	Frustrated	Frustrated	NI

NI = no information available

Table 5. Representative quotations from the interviews

Themes	Interviewee	Exemplary quotations
Panel A		
True participation ('consultation' form of BP)	BU_A3	I really *feel free to speak up* in the budgetary clusters. We are *valued for our input* so we do not have to be afraid to say something wrong.
	BU_A5	The budgeting process is truly an *open conversation* with ample *opportunities for debate*.
	BU_C1	You can trust me when I say that *we dare to speak up* in this [budgeting] process. We do not mince words and bring up whatever we feel should be discussed.
Panel B		
Participation congruence/incongruence ('no influence' forms of BP)	TM_A	I do not care whether I can participate in the budgeting process or not.
	BU_C1	I feel it is rather normal that we can provide input and make budgetary decisions. In the end, finance has no market knowledge so they cannot ignore us if they want to have a realistic budgetary target.
Panel C		
Strategic alignment (needs for autonomy, competence, and relatedness)	BU_A4	I identify myself with my company's strategy. Each year, we have a week full of strategy workshops. It is important that we do not only understand the strategy but also internalize it and act upon it. To make this happen, we have an active policy of cascading down the strategy from the highest to the lowest level. We want to make sure that everybody understands the strategy, believes in it, and is aligned with it. So we actively try to map each individual's daily job into the broader strategy so as to make sure that people buy in.
	BU_A5	I am aligned to this company's strategy because I am actively involved in the strategy process. Together with my team, I can formulate bottom-up suggestions and communicate them to our strategy division. They will further elaborate on it and if it seems worthwhile, they will transmit it further to top management to take into account for the following update of the strategic plan.
	PM_C2	We build strategy in an interactive and cooperative process with a broad group of managers.

In line with earlier warnings by Libby (1999) and Byrne and Damon (2008), we found evidence that these managers saw their consultation form of BP as pseudo-participative. They recognized the opportunity of being able to deliver input for the budgetary targets, but they had the feeling that their superiors did not seriously take into account their concerns:

> I have no influence in the real decision-making process. Our needs are not *really* taken into account. It seems that top management *does not really understand our needs or does not want to understand them*. (BU_A2)

Conversely, the other business unit managers in company A considered their consultation to be a form of *true participation*. BU_A1, for example, told us she was allowed to formulate the amount of resources needed to carry out the strategic projects for her business unit. Her superior genuinely took her demands in concern when deciding upon the final allocation of resources. Both BU_A3 and BU_A5 also valued the process of *open interaction* and *joint evaluation*. This does not imply that subordinate managers can make the final budgetary decision, nor that their input is always completely reflected in the final budget allocation. The process of *true consultation*, however, provides subordinate managers a rationale for their apparent lack of influence over the final budget. As such, transparent communication when the final budgetary targets are not affected by subordinates' communicated preferences avoids the perception of the consultative budgeting process to be pseudo-participative. In conclusion, managers must perceive their consultation form of BP as true to benefit from psychological need satisfaction. Once an individual is asked to provide input for the budgeting process, s/he expects that her/his contribution will be used or an explanation will be given if not. Otherwise, the consultation form of BP may relate to psychological need frustration and controlled types of budget motivation.

PM_B and PM_C2, who had no influence in the budgeting process, reported frustrated basic psychological needs as reflected in words such as 'conflicts' and 'frustrations' for frustrated relatedness, 'unilaterally' and 'confronted' for frustrated autonomy, and 'helpless' and 'stress' for frustrated competence (see Figure 3).

> The fact that I am confronted with the budget instead of having an influence over it gives me more *stress*. Because I do not have an insight in the 'why' of the budgetary decisions, I have the feeling that the budgeting process is *out of my control*. (PM_B)

Hence, in line with the expectations discussed above, it may be argued that if managers' form of BP evolves from no/low to high subordinate influence and they perceive their BP as true (i.e., for the 'consultation' type of BP), they experience more satisfied needs for autonomy, competence, and relatedness which generally stirs autonomous types of budget motivation. Conversely, a 'no influence' form of BP in general seems to frustrate the

interviewees' basic needs and increases the relative strength of controlled types of budget motivation.

5.3 Exploring the conditions determining budget participation's motivational effects

From our results, it seems that a certain form of BP and satisfied or frustrated psychological needs can relate to both autonomous and controlled types of budget motivation, depending on the circumstances. Indeed, budgeting is not a uniform, mechanistic tool but is it deeply embedded in human complexities (Bryer, 2014). Besides true participation, other contextual and personal variables may determine BP's exact motivational effects. In the next section, we elaborate on two such factors that determine BP's real-life motivational effects (exemplary quotations substantiating our analyses are provided in panel B and C from Table 5).

5.3.1 Participation Congruence

Preliminary results. Just as a high influence form of BP does not automatically relate to budgetary need satisfaction (see above, true participation), a 'no influence' form of BP does not necessarily imply frustrated psychological needs, as can be seen from Table 2. More specifically, TM_A, PRM_B1, PRM_B2, and PM_C1 do not suffer from frustrated needs for autonomy, competence, and relatedness whereas PM_B and PM_C2 reported frustrated psychological needs due to a 'no influence' form of BP.

Going back to the literature. The discrepancy model of participation holds that participation's motivational effects are dependent on the relative congruence between a managers' desired and actual level of participation (Doll and Torkzadeh, 1989; Hunton and Price, 1994). If the desired level of participation substantially exceeds the actual level of participation, *deprivation* occurs (Alutto and Acito, 1974; Doll and Torkzadeh, 1989), which is expected to have adversarial motivational effects (Hunton and Price, 1994).

Our field study revisited. Applying this discrepancy model to our budgeting context, it appeared that TM_A and PM_C1 had no participatory aspirations:

> It *does not matter to me* whether I can participate in the budget or not. (TM_A)
>
> I *do not like numbers* so I am happy that I am not bothered by them. (PM_C1)

The balance between TM_A's and PM_C1's actual and desired level of BP may, at least partly, explain why a 'no influence' form of BP did not frustrate their basic psychological needs. Conversely, the project manager from company B and PM_C2 experienced high deprivation:

> My budget is imposed top-down; it does not match the needs of my business unit. I can communicate any preoccupations concerning the budget allocation to the financial staff

> but my remarks are not taken into account by them. *I think it would be better to ask the business units for their own estimate* and combine these estimates with accounting considerations and as such reach a compromise. I do not say that I can foresee every opportunity that will come up but *my business unit has more hands-on experience than my superiors to build on*. (PM_B)

In summary, it seems that the effect of a 'no influence' form of BP on the managers' basic psychological needs is contingent on participation congruence. More specifically, if managers are not allowed influence in the budgeting process, this will have no frustrating effect on their basic psychological needs if those managers had no participatory aspirations. Based on these grounds, we propose that *the 'no influence' forms of BP will only relate to frustrated psychological needs if the subordinate manager experiences participation deprivation*.

5.3.2 Strategic alignment

Preliminary results. Although true participation explains why the consultative form of BP can relate to both satisfied and frustrated needs for autonomy, competence, and relatedness and participation congruence gives insight into when 'no influence' forms of BP create frustrated or satisfied needs, they do not explain why TM_A, PRM_B1, PRM_B2, and PM_C2 experience autonomous types of budget motivation while PM_C1 reports a controlled type of budget motivation. Moreover, our results also show that, contrary to our expectations, satisfied needs for autonomy, competence, and relatedness do not always result in autonomous types of budget motivation (BU_C2) and that frustrated psychological needs do not always generate controlled types of budget motivation (PM_C2).

Going back to the literature. An important role of budgeting is to help managers successfully implement their organization's strategy. Indeed, budgets are used as a means of coordinating and communicating strategic priorities (Abernethy and Brownell, 1999) and can as such be part of the strategic management process of an organization (Shastri and Stout, 2008). A company's strategy not only includes the *goals* of the organization, but also the *means* it takes to achieve these goals (Chandler, 1962). If managers share a clear understanding of the strategic priorities, we call them *strategically aligned*.

Our field study revisited.

> You can compare strategy versus budgeting with a car. It is when planning the trip that you determine the direction your car will be heading, not when you stop at the gasoline station and decide upon the amount of gas to fuel. (PM_C2)

Informal controls, such as the continuous communication of the company's values (for example respect, simplicity, and customer service in company A) are important in ensuring strategic

alignment but are not enough. We found that it is solely through participation in the strategy process that internalization may occur. In particular, this strategic participation contributes to a shared vision and consequent strategic alignment:

> I am *involved in brain-storm sessions about how to implement the business unit strategy*. My superior tells us what the strategy is and I can help in formulating ideas to on how best implement it. (TM_A)

The team manager from company A and the production managers from company B had no influence over their budgetary targets, but they did not suffer from frustrated psychological needs (due to their participation congruence) nor had controlled types of budget motivation (due to their strategic alignment). The project manager from company B, however, reported frustrated budgetary autonomy, competence, and relatedness needs, as he experienced participation deprivation and had a controlled form of budget motivation as he lacked strategic alignment. Conversely, PM_C1 was not strategically aligned, which may explain his controlled type of budget motivation notwithstanding that his basic psychological needs were not frustrated due to his participation congruence. Scrutinizing the verbatim transcripts, it appeared that TM_A, PRM_B1, and PRM_B2 derived their autonomous types of budget motivation from being aligned with their respective company's strategy.

Similarly, strategic alignment is a contingent factor in the relationship between the basic psychological needs and budget motivation. In particular, BU_C2 enjoys a joint decision-making form of BP, experiences satisfied needs for autonomy, competence, and relatedness but has a controlled type of budget motivation as he is not strategically aligned. Conversely, notwithstanding frustrated psychological needs due to participation deprivation, PM_C2 has an autonomous type of budget motivation as he is strategically aligned. Therefore, we expect that if managers comply with the organization's strategic plans and targets (Cäker and Siverbo, 2013), such that they are *strategically aligned*, autonomous types of budget motivation may become stronger, even if these managers cannot influence the budgetary targets. More specifically, strategically aligned managers will identify with and internalize the goals and means needed to achieve these goals. Therefore, we propose that *strategic alignment can act as a substitute for high influence BP*. If managers understand and comply with the organizational strategic goals, they will also understand and comply with the means needed for their implementation (i.e., the budgetary targets). If managers understand 'the broader picture' and know where the organization is heading to, they will have autonomous types of budget motivation, regardless of their form of BP. Conversely, *if subordinate managers are allowed a form of BP with high influence* (i.e., true consultation or joint decision-making) *but do not know where the budget stands for* (i.e., are not strategically aligned), we expect that

their satisfied basic psychological needs will not translate into autonomous types of budget motivation.

6. Conclusions

Organizations allow employees to participate in the budgeting process expecting, but not always achieving, positive outcomes such as budget motivation. The aim of this paper was to explore the complexities and underlying mechanisms of BP's motivational effects. More specifically, we focused on the following research question: do different forms of BP and types of budget motivation exist and how and when do they relate to each other? To answer this research question, we conducted 18 semi-structured interviews with a cross-section of managers in three companies.

If we start out from the question of whether different forms of BP and types of budget motivation exist, our findings largely corroborate previous research on PDM and SDT. In particular, forms of BP can range from 'no influence' to 'joint decision-making'. We found no evidence of 'full delegation' being present in a real-life budgeting context. This finding constitutes an important implication for current experimental BP research as a setting in which subordinate managers can unilaterally decide on the budgetary targets may not be the most suitable representation of a real-life budgeting process. Our study adds to this also the insight that the high influence forms of BP seem to be reserved for higher management levels. Moreover, we found evidence of different types of motivation in a budgeting context, ranging from external regulation to intrinsic motivation. Hence, we are able to enrich the current budgeting studies that have largely neglected the richness of budget motivation.

Second, using an alternate theory to explore the motivational effects of BP (as suggested by Chong and Chong, 2002; Covaleski et al., 2003) we are able to shed light on its underlying mechanisms. In general, it appears that if managers are allowed a high influence, true form of BP, their needs for autonomy, competence, and relatedness are satisfied within the budgeting context which can foster autonomous types of budget motivation. Conversely, if managers have no influence in the budgeting process, their basic psychological needs are generally frustrated within the budgeting process, which can create controlled types of budget motivation.

A third insight is that the 'no influence' and 'consultation' form of BP may relate to both satisfied and frustrated psychological needs, depending on the circumstances. Similarly, satisfied and frustrated psychological needs may result in both autonomous and controlled types of budget motivation. In particular, we identified a constellation of three factors determining BP's specific motivational effects: true participation, participation congruence, and strategic alignment. For the 'consultation' form of BP to foster psychological need satisfaction, it is important that managers perceive their consultation as *true*, which holds subordinate

managers as being free to engage in discussions and being able to actively influence the budgetary decisions (Argyris, 1953; Miles, 1999). If top management is not genuinely taking into account the suggestions of subordinate managers, consultative BP will relate to frustrated psychological needs. In summary, these results imply that solely offering voice in settings where the subordinate manager's preferences are not taken into account for the budget set, nor will this manager receive an adequate explanation (i.e., the perception of pseudo-participation), may be somewhat costly, as pseudo-participation has adversarial motivational effects.

Furthermore, managers who have a 'no influence' form of BP only suffer from basic psychological need frustration, if in fact they desired to participate in the process. Participation deprivation may leverage the detrimental effects of a lack of influence on the satisfaction of managers' needs for autonomy, competence, and relatedness within the budgeting context. However, if managers did not have participatory aspirations, 'no influence' BP does not frustrate their basic psychological needs, as these managers are in an equilibrium situation. This finding implies that the relationship between 'no influence' forms of BP and need frustration is contingent upon *participation congruence*.

In addition, the results of our field study also highlight the importance of *strategic alignment*. Frustrated psychological needs can relate to autonomous types of budget motivation and satisfied needs only translate into autonomous types of budget motivation if the subordinate manager is strategically aligned. Strategic alignment can strengthen the managers' autonomous types of budget motivation, disregarding their form of BP. Strategic alignment ensures a positive identification and internalization process, whereby subordinate managers invest their effort into compliance with strategic plans and targets. The criticism that budgets are not linked to strategy is thus unfounded for the organizations in our study. Indeed, we propose that strategic alignment and high influence forms of BP can be used interchangeably. Managers have an autonomous type of budget motivation when they have a clear understanding of the strategy, the methods and means necessary for its implementation, disregarding their form of BP. Strategic alignment, for example through participation in the strategy implementation process, can hence act as an alternative for high influence and true forms of BP. Conversely, for satisfied needs to result in autonomous types of budget motivation, we propose that it is important that managers know what the budget stands for. If managers have influence over setting their budgetary targets, but do not understand where those means are heading to, their satisfied needs do not relate to autonomous types of budget motivation. These findings tie in with the growing amount of management control research recognizing that management control systems are part of packages and are structurally related and integrated (Grabner and Moers, 2013; Malmi and Brown, 2008; Mundy, 2010).

In fact, we argue that organizations have a significant degree of control over the antecedents of both the autonomous and controlled types of budget motivation by designing their BP process in a specific way. Research should further tease out the effects of different management control systems on the different types of motivation. Taken together, our results highlight the importance of distinguishing among various forms of BP and different types of budget motivation and suggest that the motivational effects of BP may be more complex than assumed.

The findings reported here should be interpreted in light of some potential limitations. One important limitation of this study is that we cannot guarantee that managers' perceptions of BP are equivocal to the objective reality. However, we do know that people act on perceptions (Collier et al., 2004, 76). Thus, even if these perceptions do not correspond with reality, managers act as if they were true. It is the *perceived* form of BP that can trigger satisfied needs and autonomous types of budget motivation, not the actual form of BP granted to the subordinate manager. Second, in terms of the field study design, we acknowledge that this research cannot be generalized to other companies, due to a lack of statistical control (Yin, 2003). However, given the purpose of our research, a field study design was the most appropriate research method. Moreover, both multiple and nested interviews were undertaken to allow for analytical generalization (Gibbert and Ruigrok, 2010). Another limitation of field research is the potential for interviewer bias (Atkinson and Shaffir, 1998). We actively aimed at minimizing this bias by maintaining a disciplined, systematic protocol. Moreover, the results of all of the independent interviews were compared to minimize interviewer bias, and as such, the reliability of the research results was enhanced.

Within its confines, this study sheds new light on the complexities and underlying mechanisms underlying the motivational effects of BP. As this is an exploratory study drawing on data collected from a small sample of managers, future research could enhance the external validity of the research by increasing the sample size of the companies interviewed. The next step could be to test our ex-post propositions more formally (Keating, 1995), such as in the form of a survey questionnaire. Another avenue future research could explore is the multi-dimensionality of the BP construct (Shields and Shields, 1998). Although BP has many definitions, dimensions, and organizational contexts (Durocher et al., 2007), in this study we focused on superior-subordinate participation, which is in line with previous research. Future research could develop a multi-item measure that copes with all BP's dimensions and test whether all dimensions impact the same type of budget motivation. Furthermore, it is unclear from our research whether pseudo-participative 'consultation' is worse than 'no influence' forms of BP for managers' autonomous types of budget motivation. As it is accepted practice that managers should participate in the budget, it seems that some organizations feel pressured to do this, which results in pseudo-participation. However, pseudo-participation

does not reap autonomous motivational benefits. In this situation, it may be better to set the budget without subordinate influence and explain its rationale. Indeed, anecdotal evidence suggests that managers would rather be given a budget to work with than spend hours researching, deciding upon, and drawing together plans and projects with an accompanying budget, only to have it rejected. Future research could explore this possibility. Finally, given that the academic evidence on the usefulness of SDT in budgeting is still sparse, we encourage further using SDT, as it provides a richer view on motivation and may explain mixed results in current research (Birnberg et al., 2007).

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8. References

Abernethy, M.A., Brownell, P., 1999. The role of budgets in organizations facing strategic change: An exploratory study. Accounting, organizations and society 24, 189-204.

Ahrens, T., Chapman, C.S., 2006. Doing qualitative field research in management accounting: Positioning data to contribute to theory. Accounting, Organizations and Society 31, 819-841.

Alutto, J.A., Acito, F., 1974. Decisional Participation and Sources of Job Satisfaction: A Study of Manufacturing Personnel. The Academy of Management Journal 17, 160-167.

Anthony, R.N., Govindarajan, V., 2007. Management control systems, 12th ed. McGraw-Hill, Boston, Massachusetts.

Argyris, C., 1952. The impact of budgets on people. Controllership foundation.

Argyris, C., 1953. Human problems with budgets. Harvard Business School, Boston (Mass).

Atkinson, A.A., Shaffir, W., 1998. Standards for field research in management accounting. Journal of Management Accounting Research 10, 41-68.

Birnberg, J.G., Luft, J., Shields, M.D., 2007. Psychology theory in management accounting research, in: Chapman, C.S., Hopwood, A., Shields, M.D. (Eds.), Handbook of management accounting research. Elsevier, Oxford, UK, pp. 113-135.

Bjornenak, T., 2014. Return on management accounting innovations, 12th Manufacturing Accounting Research Conference, Copenhagen.

Bono, J.E., Judge, T.A., 2003. Self-concordance at work: Toward understanding the motivational effects of transformational leaders. The Academy of Management Journal 46, 554-571.

Bouten, L., Hoozée, S., 2013. On the interplay between environmental reporting and management accounting change. Management Accounting Research 24, 333-348.

Brownell, P., 1980. Participation in the budgeting process: When it works and when it doesn't, Working paper Alfred P. Sloan School of Management. Massachusetts Institue of Technology, Cambridge, Massachusetts.

Brownell, P., 1983. The motivational impact of management-by-exception in a budgetary context. Journal of Accounting Research 21, 456-472.

Brownell, P., McInnes, M., 1986. Budgetary participation, motivation, and managerial performance. Accounting Review 61, 587-600.

Bryer, A.R., 2014. Participation in budgeting: A critical anthropological approach. Accounting, organizations and society.

Byrne, S., Damon, F., 2008. To participate or not to participate? Voice and explanation effects on performance in a multi-period budget setting. The British Accounting Review 40, 207-227.

Cäker, M., Siverbo, S., 2013. Strategic alignment in decentralized organizations – The case of Svenska Handelsbanken. Scandinavian Journal of Management.
Chandler, A.D., 1962. Strategy and structure: Chapters in the history of the industrial enterprise. MIT press, Cambridge (Mass.).

Chenhall, R.H., 2003. Management control systems design within its organizational context: Findings from contingency-based research and directions for the future. Accounting, Organizations and Society 28, 127-168.

Chong, V.K., Chong, K.M., 2002. Budget goal commitment and informational effects of budget participation on performance: A structural equation modeling approach. Behavioral Research in Accounting 14, 65-86.

Chow, C.W., Cooper, J.C., Waller, W.S., 1988. Participative budgeting: Effects of a truth-inducing pay scheme and information asymmetry on slack and performance. Accounting Review 63, 111-122.

Collier, N., Fishwick, F., Floyd, S.W., 2004. Managerial involvement and perceptions of strategy process. Long Range Planning 37, 67-83.

Cotton, J.L., Vollrath, D.A., Froggatt, K.L., Lengnick-Hall, M.L., Jennings, K.R., 1988. Employee participation: Diverse forms and different outcomes. The Academy of Management Review 13, 8-22.

Covaleski, M.A., Evans III, J.H., Luft, J.L., Shields, M.D., 2003. Budgeting research: Three theoretical perspectives and criteria for selective integration. Journal of Management Accounting Research 15, 3-49.

Czarniawska, B., 2004. Narratives in Social Science Research. Sage Publications, London, UK.

Deci, E.L., 1975. Intrinsic motivation. New York (N.Y.): Plenum Press.

Deci, E.L., Connell, J.P., Ryan, R.M., 1989. Self-determination in a work organization. Journal of Applied Psychology 74, 580-590.

Deci, E.L., Ryan, R.M., 1985. Intrinsic motivation and self-determination in human behavior Plenum Press, New York.

Deci, E.L., Ryan, R.M., 2000. The 'what' and 'why' of goal pursuits: Human needs and the self-determination of behavior. Psychological Inquiry 11, 227.

Deci, E.L., Ryan, R.M., 2004. Handbook of self-determination research. Rochester (N.Y.): University of Rochester.

Deci, E.L., Ryan, R.M., 2008. Self-determination theory: A macrotheory of human motivation, development, and health. Canadian Psychology 49, 182-185.

Derfuss, K., 2009. The relationship of budgetary participation and reliance on accounting performance measures with individual-level consequent variables: A meta-analysis. European Accounting Review 18, 203-239.

Doll, W.J., Torkzadeh, G., 1989. A discrepancy model of end-user computing involvement. Management Science 35, 1151-1171.

Dugdale, D., Lyne, S., 2010. Budgeting practice and organisational structure. CIMA Publishing; Elsevier, Oxford.

Durocher, S., Fortin, A., Côté, L., 2007. Users' participation in the accounting standard-setting process: A theory-building study. Accounting, Organizations and Society 32, 29-59.

Eisenhardt, K.M., 1989. Building theories from case study research. Academy of Management Review 14, 532-550.

Elmassri, M., Harris, E., 2011. Rethinking budgetary slack as budget risk management. Journal of Applied Accounting Research 12, 278-293.

Englund, H., Gerdin, J., 2015. Developing Enabling Performance Measurement Systems: On the Interplay Between Numbers and Operational Knowledge. European Accounting Review 24, 277-303.

Flyvbjerg, B., 2001. Making social science matter: Why social inquiry fails and how it can succeed again. Cambridge University Press, Cambridge.

Gagné, M., Deci, E.L., 2005. Self-determination theory and work motivation. Journal of Organizational Behavior 26, 331-362.

Gibbert, M., Ruigrok, W., 2010. The ‘‘What’’and ‘‘How’’of case study rigor: Three strategies based on published work. Organizational Research Methods 13, 710-737.

Gibbert, M., Ruigrok, W., Wicki, B., 2008. What passes as a rigorous case study? Strategic Management Journal 29, 1465-1474.

Grabner, I., Moers, F., 2013. Management control as a system or a package? Conceptual and empirical issues. Accounting, Organizations and Society.

Güntert, S.T., 2015. The impact of work design, autonomy support, and strategy on employee outcomes: A differentiated perspective on self-determination at work. Motivation and Emotion 39, 74-87.

Heinle, M.S., Ross, N., Saouma, R., 2014. A theory of participative budgeting. The Accounting Review 89, 1025-1050.

Heller, F.A., Yukl, G., 1969. Participation, managerial decision-making, and situational variables. Organizational Behavior and Human Performance 4, 227-241.

Hidi, S., Harackiewicz, J.M., 2000. Motivating the academically unmotivated: A critical issue for the 21st century. Review of educational research 70, 151-179.

Hunton, J.E., Price, K.H., 1994. A framework for investigating involvement strategies in accounting information systems development. Behavioral Research in Accounting 6, 128.

Irvine, H., Gaffikin, M., 2006. Methodological insights-getting in, getting on and getting out: reflections on a qualitative research project. Accounting, Auditing & Accountability Journal 19, 115-145.

Ivancevich, J.M., 1976. Effects of goal setting on performance and job satisfaction. Journal of Applied Psychology 61, 605.

Järvelä, S., Salovaara, H., 2004. The interplay of motivational goals and cognitive strategies in a new pedagogical culture. European Psychologist 9, 232-244.
Keating, P.J., 1995. A framework for classifying and evaluating the theoretical contributions of case research in management accounting. Journal of Management Accounting Research 7, 66-86.

Kunz, J., 2015. Objectivity and subjectivity in performance evaluation and autonomous motivation: An exploratory study. Management Accounting Research.

Lau, C.M., Buckland, C., 2001. Budgeting—The role of trust and participation: A research note. Abacus 37, 369-388.

Libby, T., 1999. The influence of voice and explanation on performance in a participative budgeting setting. Accounting, Organizations and Society 24, 125-137.

Lillis, A.M., Mundy, J., 2005. Cross-sectional field studies in management accounting research-closing the gaps between surveys and case studies. Journal of Management Accounting Research 17, 119-141.

Link, M.W., Oldendick, R.W., 2000. The role of survey research in the benchmarking process. Journal of Public Budgeting, Accounting & Financial Management 12, 138-164.

Malmi, T., Brown, D.A., 2008. Management control systems as a package - Opportunities, challenges and research directions. Management Accounting Research 19, 287-300.

Mia, L., 1988. Managerial attitude, motivation and the effectiveness of budget participation. Accounting, Organizations and Society 13, 465-475.

Milani, K., 1975. The relationship of participation in budget-setting to industrial supervisor performance and attitudes: A field study. Accounting Review 50, 274-284.

Miles, R.E., 1999. Human relations or human resources?, in: Poole, M. (Ed.), Human Resource Management: Critical Perspectives on Business and Management. Routledge, London, pp. 1-14.

Mundy, J., 2010. Creating dynamic tensions through a balanced use of management control systems. Accounting, Organizations and Society 35, 499-523.

Otley, D.T., Hannakis, L., Lindsay, R.M., 1994. Influence in budgeting, locus of control and organizational effectiveness: Cultural differences. Accounting and Business Review 1, 29-42.

Pintrich, P.R., 2000. Multiple goals, multiple pathways: The role of goal orientation in learning and achievement. Journal of educational psychology 92, 544-555.

Ronen, J., Livingstone, J., 1975. An expectancy theory approach to the motivational impacts of budgets. The Accounting Review 50, 671-685.

Rubin, J., Rubin, I.S., 1995. Qualitative Interviewing: The Art of Hearing Data. Sage Publications, Thousand Oaks, CA.

Ryan, R.M., 1995. Psychological needs and the facilitation of integrative processes. Journal of Personality 63, 397-427.

Ryan, R.M., Deci, E.L., 2000a. Intrinsic and extrinsic motivations: Classic definitions and new directions. Contemporary educational psychology 25, 54-67.

Ryan, R.M., Deci, E.L., 2000b. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. American Psychologist 55, 68-78.

Schermann, M., Wiesche, M., Krcmar, H., 2012. The role of information systems in supporting exploitative and exploratory management control activities. Journal of Management Accounting Research 24, 31-59.

Searfoss, D.G., Monczka, R.M., 1973. Perceived participation in the budget process and motivation to achieve the budget. The Academy of Management Journal 16, 541-554.

Shastri, K., Stout, D.E., 2008. Budgeting: Perspectives from the real world. Management Accounting Quarterly 10, 18-25.

Shields, J.F., Shields, M.D., 1998. Antecedents of participative budgeting. Accounting, Organizations and Society 23, 49-76.

Shields, M.D., Deng, F.J., Kato, Y., 2000. The design and effects of control systems: Tests of direct-and indirect-effects models. Accounting, organizations and society 25, 185-202.

Shields, M.D., Young, S.M., 1993. Antecedents and consequences of participative budgeting: Evidence on the effects of asymmetrical information. Journal of Management Accounting Research 5, 265-280.

Trépanier, S.-G., Fernet, C., Austin, S., 2013. The moderating role of autonomous motivation in the job demands-strain relation: A two sample study. Motivation and Emotion 37, 93-105.

Vallerand, R.J., 1997. Toward a hierarchical model of intrinsic and extrinsic motivation, in: Zanna, M.P. (Ed.), Advances in Experimental Social Psychology. Academic Press, San Diego, CA, pp. 271-360.

Van der Stede, W.A., 2000. The relationship between two consequences of budgetary controls: budgetary slack creation and managerial short-term orientation. Accounting, Organizations and Society 25, 609-622.

Van der Stede, W.A., Young, S.M., Chen, C.X., 2005. Assessing the quality of evidence in empirical management accounting research: The case of survey studies. Accounting, Organizations and Society 30, 655-684.

Vansteenkiste, M., Lens, W., Deci, E.L., 2006. Intrinsic versus extrinsic goal contents in self-determination theory: Another look at the quality of academic motivation. Educational Psychologist 41, 19-31.

Vansteenkiste, M., Niemiec, C.P., Soenens, B., 2010. The development of the five mini-theories of self-determination theory: An historical overview, emerging trends, and future directions, in: Urdan, T.C., Karabenick, S.A. (Eds.), The decade ahead: Theoretical perspectives on motivation and achievement (Advances in motivation and achievement, Volume 16). Emerald Group Publishing Limited, pp. 105-165.

Vansteenkiste, M., Ryan, R.M., Deci, E.L., 2008. Self-determination theory and the explanatory role of psychological needs in human well-being, in: Bruni, L., Comim, F., Pugno, M. (Eds.), Capabilities and hapiness. Oxford University Press, Oxford, UK, pp. 187-223.

Venkatesh, R., Blaskovich, J., 2012. The mediating effect of psychological capital on the budget participation-job performance relationship. Journal of Management Accounting Research 24, 159-175.
Vroom, V.H., 1964. Work and Motivation. Wiley, New York (N.Y.).

Vroom, V.H., 1983. Leadership, in: Dunnett, M.D. (Ed.), The Handbook of Industrial and Organizational Psychology. John Wiley & Sons, New York, pp. 1527-1552.

Waller, W.S., 1988. Slack in participative budgeting: The joint effect of a truth-inducing pay scheme and risk preferences. Accounting, Organizations and Society 13, 87-98.

Wong-On-Wing, B., Lan, G., Lui, G., 2010. Intrinsic and extrinsic motivation and participation in budgeting: Antecedents and consequences. Behavioral Research in Accounting 22, 133-153.

Yin, R.K., 2003. Case study research: Design and methods, 3rd ed. Thousand Oaks: SAGE publications, London.

Young, S.M., 1985. Participative budgeting: The effects of risk aversion and asymmetric information on budgetary slack. Journal of Accounting Research 23, 829-842.

CHAPTER 3 – THE IMPACT OF PARTICIPATION IN STRATEGIC PLANNING ON MANAGERS' CREATION OF BUDGETARY SLACK: THE MEDIATING ROLE OF AUTONOMOUS MOTIVATION AND AFFECTIVE ORGANIZATIONAL COMMITMENT[18]

KEYWORDS:

Budgetary slack

Participation

Strategy

Organizational commitment

Motivation

ABSTRACT

This study investigates the impact of participative strategic planning on managers' creation of budgetary slack. Specifically, we draw on self-determination and organizational commitment theory to examine whether and how the degree of managerial participation in strategic planning relates to the creation of budgetary slack. The hypotheses are empirically tested with survey data obtained from 247 managers in a cross-section of West-European organizations. The results from a structural equation model, with controls for budget participation and slack detection, suggest that increased participation in strategic planning leads to lower budgetary slack creation through the suggested path of heightened affective organizational commitment. In addition, the results indicate that budget participation decreases the creation of budgetary slack through the mediating effect of autonomous budget motivation, suggesting that both elements of the organizational planning process are related to the creation of budgetary slack. Our study contributes to the growing research exploring the interface between accounting and strategy by recognizing the importance of participative strategic planning for understanding managers' creation of budgetary slack.

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1. Introduction

Budgetary slack, defined as the deliberate incorporation of excess resources in the budget that make the budget easier to attain (Merchant, 1985), is one of the most investigated budgeting outcomes. Not only does evidence indicate that there is considerable budgetary slack in organizations (e.g., Merchant, 1985; Schoute and Wiersma, 2007), it also remains one of the primary controversial, unsolved issues in budgetary control. There is a considerable literature that discusses possible antecedents of budgetary slack (for an overview, see Derfuss, 2012; Dunk and Nouri, 1998). The majority of this prior literature investigated the effect of budget participation (BP) on the creation of budgetary slack. These empirical studies, however, have resulted in contradictory findings. BP seems a necessary but not sufficient explanation for budgetary slack creation, which establishes a need to identify and test the effect of additional explanatory variables (Webb, 2001).

This study focuses on managers' *participation in strategic planning* (PSP) as an additional explanation for the creation of budgetary slack. The identification of PSP as a possible antecedent of budgetary slack creation is based on the fact that the budget is an indistinguishable part of an organization's planning process (e.g., Covaleski et al., 2003; Hansen et al., 2003; Merchant and Van der Stede, 2011). This planning process not only includes budgeting but also strategic planning (e.g., Frezatti et al., 2011). Focus in extant research on a manager's immediate budget setting and BP has neglected the possible effect of strategic planning on budgetary slack creation. This omission may be significant as it may, at least partially, explain the inconsistencies in the research findings concerning the effect of BP on managers' budgetary slack creation. This research aims to extend prior research's focus by studying the effect of strategic planning on budgetary slack creation, over and beyond BP's effect in order to capture the whole planning process and as such further our understanding of the antecedents of budgetary slack creation. In particular, as recent work on strategic management (e.g., Floyd and Wooldridge, 2000; Kaplan and Norton, 2001) suggests that strategy should be planned in a *participative* way, this study aims to clarify whether and how PSP relates to the creation of budgetary slack.

As understanding managerial behavior requires insights from both psychology-based and economic-based theories, we follow Covaleski et al.'s (2003) suggestion and adopt a psychology-based management accounting research approach. More specifically, we use insights from organizational commitment and self-determination theory (SDT) to broaden our understanding of whether and how PSP relates to budgetary slack. To test our hypotheses, we conducted a survey which was completed by 247 managers from a cross-section of West-European organizations.

The contribution of this paper to management accounting research is threefold. First, our study results contribute to the budgetary slack literature by demonstrating that PSP reduces the amount of budgetary slack created through enhanced affective organizational commitment, after controlling for the effect of BP and slack detection. As such, we deepen our understanding of the factors that drive budgetary slack. Second, we show that BP also decreases the creation of budgetary slack through heightened autonomous budget motivation. Taken together, in order to understand the creation of budgetary slack in a specific situation, we should take into account both the level of BP and PSP. Both elements are part of an organization's planning process and are related to budgetary slack creation, albeit through a different path. Third, our study extends the line of research on the interface between accounting and strategy (Dent, 1990; Langfield-Smith, 1997) by focusing on the relationship between the level of PSP and the creation of budgetary slack. Surprisingly, few management accounting research has been published on PSP despite it being of interest in the academic and professional literature in recent years (Kaplan and Norton, 2008; Wooldridge et al., 2008). In addition to the contributions to management accounting research, this study also has the potential to inform the practice of management accounting. In particular, our results demonstrate the importance of personal variables such as affective organizational commitment and autonomous motivation to understand managers' budgeting behavior. Indeed, it are not the formal management control systems in itself but it are their effects on these personal variables that are primordial to understand managers' budgetary slack creation. Moreover, our study gives practitioners an understanding of how budgeting and strategy may interact. Specifically, we show that the way managers are involved in the strategy process determines their budgetary slack creation. When trying to influence subordinate managers' budgeting behavior, top management should hence take a holistic approach and consider both elements of the planning process.

The remainder of this study is organized as follows. Section 2 provides the theoretical background of the constructs used in our research model and develops the hypotheses. Section 3 describes our research method, and section 4 presents the results of the analysis of our survey data. In section 5, we summarize the conclusions of our research, discuss the limitations, and suggest some fruitful directions for future research.

2. Theoretical background and hypothesis development

2.1 Managers' creation of budgetary slack

The traditional concern is that managers have an incentive to create budgetary slack by withholding or misrepresenting their private information in an attempt to control for resources, to achieve personal aspirations, or in order to maximize the expected rewards dependent upon budget attainment (Dunk, 1993a; Nouri, 1994). Consequently, a manager's budget demand not necessarily reflects real organizational necessities (Hopwood, 1974).[19]

The majority of slack-related studies have focused on BP as the main explanation for the creation of budgetary slack (e.g., Merchant, 1985; Nouri and Parker, 1996; Onsi, 1973). BP refers to 'a process in which the subordinate is involved in, and has influence over, the determination of his budget' (Anthony and Govindarajan, 2007, p. 380). There is, however, little consistent evidence on the effect of BP on the creation of budgetary slack. While some studies report that the relationship is negative (Dunk, 1993a; Merchant, 1985; Onsi, 1973), others report a positive relationship (Lowe and Shaw, 1968; Lukka, 1988) or an insignificant one (Collins, 1978).

These mixed results have led to the use of other approaches such as agency models (e.g., Young, 1985) and the use of contingency factors to predict the creation of budgetary slack (for an overview, see Derfuss, 2012; Dunk and Nouri, 1998). Although these approaches have helped gain insight into the creation of budgetary slack, much remains unexplained, establishing the need to identify and test the effect of additional explanatory variables (Webb, 2001; Yuen, 2004). Such an additional explanation suggested by prior budgeting research is the organization's strategy (e.g., Merchant and Manzoni, 1989; Van der Stede, 2000, 2001) as research increasingly acknowledges both budgeting and strategy as parts of the organizational planning process (e.g., Cadez and Guilding, 2008; Frezatti et al., 2011). Whereas prior empirical studies incorporating strategy in budgetary slack research have focused on the effect of generic strategies[20] (Derfuss, 2012; Van der Stede, 2000, 2001), we focus on the effect of PSP.

[19] We recognize that the creation of budgetary slack in itself is not undesirable *per se* (e.g., Davila and Wouters, 2005; Marginson and Ogden, 2005; Van der Stede, 2000) and that it is only detrimental to the organization to the extent that it results in the expropriation of resources (Church et al., 2012). Judging the (un)desirability of budgetary slack, however, goes beyond the scope of this paper.

[20] We use the phrase 'generic strategies' to refer to Porter's distinction between three types of strategies: low cost, differentiation, and focus. In particular, 'generic' reflects the choices companies make regarding both the type of competitive advantage (low cost or differentiation) and the scope (narrow or industry-wide focus).

2.2 Participation in strategic planning and its relationship with budgetary slack

Strategy, defined as 'the determination of the basic long-term goals and objectives of an enterprise, and the adoption of courses of action […] necessary for carrying out these goals' (Chandler, 1962, p. 13) was traditionally treated as a dichotomy: strategy planning was the sole responsibility of top management and strategy implementation the task of all other managerial levels (e.g., Ansoff, 1965; Anthony, 1965). This traditional division of work was challenged as environmental uncertainty increased in recent decades: we have observed a shift in focus in the strategic management literature from top management to other managerial levels in the organization. We may even say that there is currently a widespread feeling that top management is no longer in a position to make strategic decisions on its own. Recent work on strategic management (e.g., Floyd and Wooldridge, 2000; Kaplan and Norton, 2001, 2008) therefore suggests that in today's business environment, strategy should be planned in a *participative* way.

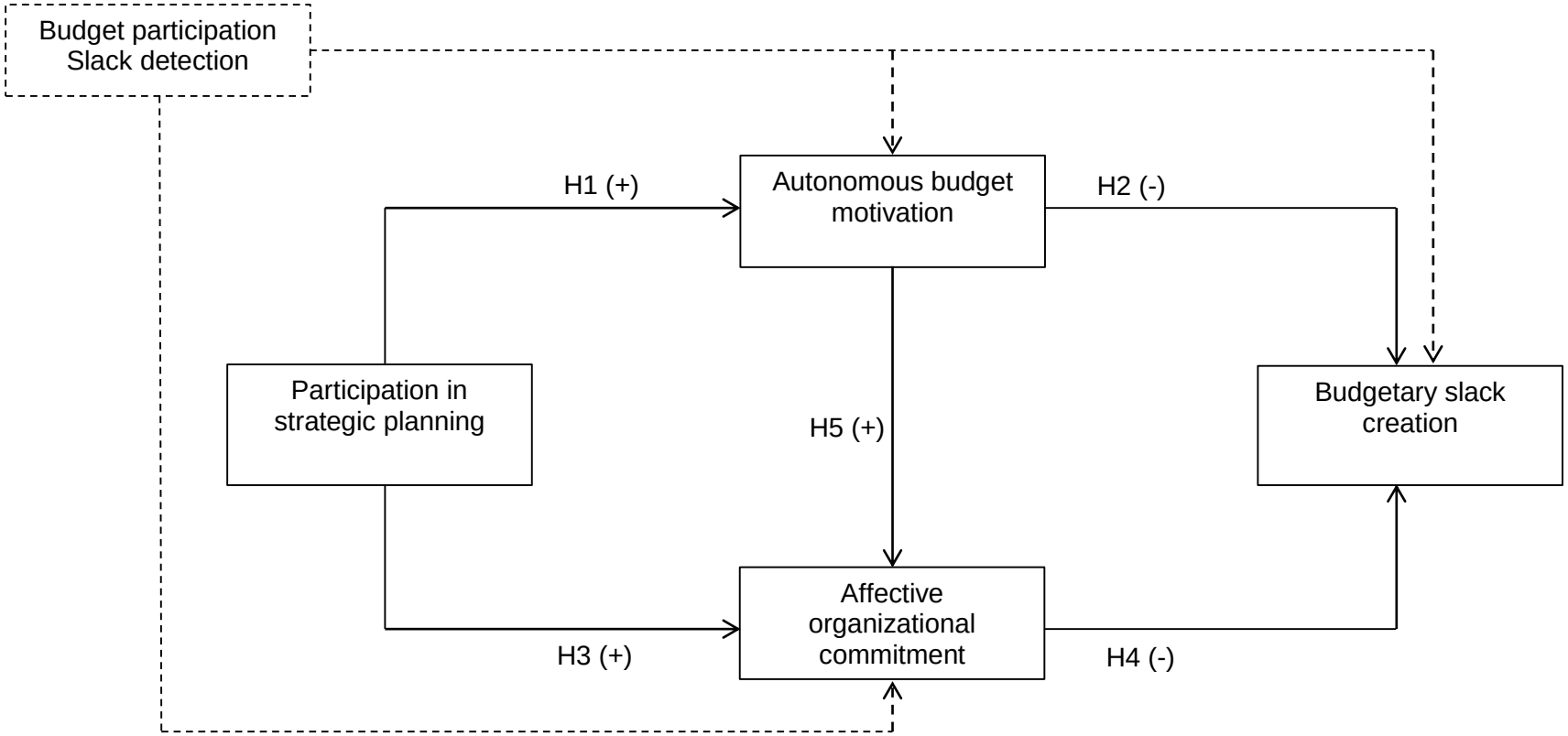
Although there is strong theoretical and empirical support for a positive relationship between PSP and organizational performance (Bourgeois and Brodwin, 1984; Wooldridge and Floyd, 1990), prior literature is less clear on the potential impact of PSP on budgetary slack. First, PSP can be argued to decrease budgetary slack creation. One of the main reasons why managers create slack is to protect themselves and the organization's core from uncertainty (Cyert and March, 1963). PSP can lower the uncertainty experienced (and, *ceteris paribus*, the need for and the creation of budgetary slack) in several ways. First, if managers are allowed PSP internal communication will be enhanced as it permits both vertical and horizontal information sharing (Hutzschenreuter and Kleindienst, 2006). Second, the integration of different capabilities through PSP can evoke a cognitive effect on the managers' part (Hall, 2008). The provision of more and better information allows managers to make better informed choices and positively influences the decision quality (Raes et al., 2011), which can result in improved resource allocations (i.e., a lower amount of budgetary slack) (e.g., Cadez and Guilding, 2008). Third, as managers are allowed PSP, transparency is accomplished and managers will better understand their organization's strategy (Chapman and Kihn, 2009; Wooldridge and Floyd, 1990). As goals and directions become more clear, uncertainty decreases and accordingly the need and the creation of budgetary slack (Yuen, 2004). Conversely, PSP can also increase budgetary slack creation. The propensity of managers to let their behavior be influenced by their preferences is called 'motivated reasoning'[21] (Kunda, 1990). Recent research by Tayler (2010) has illustrated the importance of motivated reasoning in a balanced scorecard setting. Expanding it to the strategy-accounting context, we can expect

[21] We are greatly indebted to one of the anonymous reviewers for pointing out this interesting suggestion.

that if managers are allowed PSP, they will be more involved and committed to the organization's strategy (Allen and Meyer, 1990) and therefore will safeguard the implementation of the strategy they co-developed. As budgetary slack can provide a buffer against unforeseen circumstances (Cyert and March, 1963), its existence may help managers in ensuring a smooth strategy implementation. Therefore, we recognize that managers allowed PSP may create budgetary slack with this noble intention in mind.

Given that it is unclear whether PSP will be positively or negatively related to the creation of budgetary slack, we incorporate motivation and organizational commitment as mediating variables to examine whether and how PSP and budgetary slack are related. We chose these two variables as mediating mechanisms because both motivation and organizational commitment are important variables in the strategic management and budgetary slack literature. More specifically, Gerbing, Hamilton and Freeman (1994) reported that PSP positively influences organizational commitment and motivation and earlier budgetary slack research has also recognized the role of motivation (e.g., Becker and Green, 1962) and organizational commitment (Nouri and Parker, 1996). Therefore, we combine these two lines of research. The full theoretical model appears in Figure 1. Each link in the model represents a hypothesis and will be discussed below.

Figure 1: Theoretical model



2.3 The relationship between participation in strategic planning and autonomous motivation

Hansen and Van der Stede (2004) recognize that budgeting can ex-ante translate the long-term strategic plans of the firm into a short-term operating budget. Indeed, a fundamental purpose of the budget is to provide a means by which managers can grapple with the abstract and complex strategy (Anthony and Govindarajan, 2007). As a financial translation of the strategy, the budget communicates the strategy to the employees and enables the strategic plan to meet its goals. Moreover, strategic planning guides the deployment of resources so that organizations can achieve their competitive advantage (Ketokivi and Castañer, 2004). As managers can participate in strategic planning, they will internalize the strategic goals of the organization and consequentially the means (i.e., the budget) needed to achieve those goals[22]. PSP can thus be seen to engender managers' motivation not only for the organization's strategic goals but also for the budgetary targets.

When studying motivation, motivation theorists (Deci, 1975; Ryan and Deci, 2000b) have illustrated the importance of distinguishing between autonomous and controlled motivation. Whereas autonomous motivation is characterized by underlying feelings of freedom and volition, controlled motivation is characterized by an overarching feeling of pressure (Vansteenkiste et al., 2009). This distinction between autonomous and controlled motivation is important, as ample research in the field of psychology has provided evidence of positive outcomes for autonomous motivation and negative outcomes associated with controlled motivation (e.g., Ryan and Deci, 2000b; Vansteenkiste et al., 2009). Moreover, the usefulness of this contrast is not confined to psychology research but has also been demonstrated in recent budgeting research. More specifically, Wong-on-Wing et al. (2010) introduced a motivation-based model of participative budgeting to explain the mixed evidence concerning the relationship between BP and performance.

Within SDT, it is maintained that autonomous motivation can be fostered through a need-supportive environment (Vansteenkiste et al., 2010). A need-supportive environment sustains the three basic psychological needs innate to all humans: the need for autonomy, the need for competence, and the need for relatedness. The need for *autonomy* refers to feeling strong-willed and fully endorsing one's actions. People want to experience choice in their behavior (Vansteenkiste et al., 2010) and be the initiators of their own actions (Deci, 1975). As a specific instance of participative decision-making, PSP can provide managers with a sense of willpower and choice (Deci et al., 1989) and thereby satisfy their need for autonomy. The

[22] The assumption of a strong link between budget and strategy was tested by a four-item scale developed specifically for this study (see Appendix A). The strength of the link received an average score of five out of seven, implying that our assumption is appropriate in this particular sample.

second basic need, *competence*, concerns feeling effective in one's interactions with the social and physical environment (Deci, 1975). People have a natural tendency to explore, manipulate, and master their environment (Vansteenkiste et al., 2010). Therefore, they feel competent if they experience opportunities to exercise and express their capacities (Deci and Ryan, 2004). PSP can give managers the feeling that they are better able to control their environment (Chenhall, 2003; Hutzschenreuter and Kleindienst, 2006), their work (Shields and Shields, 1998), and the decision-making process (Locke and Latham, 1990). Being invited to participate in strategic planning hence signals trust in the manager's competence. Lastly, the need for *relatedness* denotes caring for and feeling cared for by others. People search for close relationships and want to feel as though they belong to a social group (Baumeister and Leary, 1995). Allowing managers PSP increases the level of consensus among managers, enhances internal communication, and creates a climate of shared effort (Papadakis et al., 1998), which all satisfy the need for relatedness. Based upon these findings, we expect that the satisfaction of the three basic needs through PSP will encourage internalization of both the organizational goals and the resources needed to implement those goals, such that the manager experiences autonomous motivation to achieve the budgetary targets. Hypothesis H1 tests for this positive relationship:

H1. Higher levels of PSP increase managers' autonomous budget motivation.

2.4 The relationship between autonomous motivation and budgetary slack

Managers can engage in similar behaviors for different underlying reasons (Grant et al., 2011). They may constrain their budgetary slack creation because of social pressure, accountability pressure, or pressure to reveal private information they otherwise would not (Covaleski et al., 2003). However, individuals who feel pressured fail to maintain their effort and performance over time (Grant, 2008). Conversely, autonomous motivation predicts greater goal-directed effort and goal attainment (Sheldon and Elliot, 1998). Managers having autonomous budget motivation understand the importance of budget attainment which is central to their decisions about how best to meet these budgetary targets. Prior research has illustrated autonomous motivation's strong relationship with positive work outcomes, such as performance, creativity, persistence, and initiative (e.g., Ryan and Deci, 2000b; Wong-On-Wing et al., 2010). This implies that autonomously motivated managers will put more effort in looking for creative solutions to attain the budgetary targets 'as they are' and will be less inclined to make the targets easier to attain (i.e., they will be less inclined to create budgetary slack). Therefore, we formulate the following hypothesis:

H2. Higher levels of autonomous budget motivation decrease budgetary slack creation.

2.5 The relationship between participation in strategic planning and affective organizational commitment

PSP spurs not only motivation but also affective commitment to the organization (Freeman, 1989; Shields and Shields, 1998). *Affective* organizational commitment refers to employees' emotional attachment to the organization and is characterized by (1) a strong belief in and acceptance of the organizational goals and values and (2) a willingness to exert substantial effort on the organization's behalf (e.g., Mowday et al., 1979).

Employees develop a deep sense of affective organizational commitment if they are in a business environment that provides them chances to participate in decision-making (Searfoss and Monczka, 1973). PSP, as a specific form of participative decision-making, is positively related to the satisfaction of the manager's need for autonomy and competence and satisfaction of those needs is identified as an antecedent of affective organizational commitment (e.g., Greguras and Dieffendorff, 2009). Applying these notions to a strategic management context, ample research illustrates that PSP leads to greater acceptance of organizational goals and hence fosters affective organizational commitment (e.g., Kim and Mauborgne, 1998; Korsgaard et al., 1995). Indeed, PSP enhances affective organizational commitment as it provides managers an opportunity to make organizational decisions and commits them to these decisions (Mathieu and Zajac, 1990). The following hypothesis tests for this positive relationship:

H3. Higher levels of PSP increase managers' affective organizational commitment.

2.6 The relationship between affective organizational commitment and budgetary slack

The possibility of creating budgetary slack can instill a conflict of interest, as slack creation may be beneficial for the manager but may run against the interests of the organization as a whole (Kramer and Hartmann, 2011). Managers with strong affective commitment will act in the interests of the organization just as they would in their own because they have come to perceive the interests as identical (Kim and Mauborgne, 1998). These managers align with the organizational goals and feel positive about them. Conversely, managers with low organizational commitment are primarily driven by satisfying their individual goals and ambitions.

Nouri (1994) and Nouri and Parker (1996) found that managers' level of affective organizational commitment influences their attempt to create budgetary slack. Strongly affectively committed managers understand the potential dysfunctional effects of budgetary slack for their organization and will be inclined to act in the general interest of the organization. Therefore, the amount of budget slack they create will be low. Conversely, managers with a

low level of affective organizational commitment may exhibit a high degree of budgetary slack creation because as rational economic individuals, this is often in their best interest (Lowe and Shaw, 1968). Hypothesis 4 tests for this negative relationship:

> **H4.** Higher levels of affective organizational commitment decrease budgetary slack creation.

2.7 The relationship between autonomous motivation and affective organizational commitment

Motivation is one of the bases through which commitment develops. Researchers have argued that autonomous motivation and affective organizational commitment should be related to each other (e.g., Gagné et al., 2008). More specifically, Bono and Judge (2003) demonstrated a positive relationship between autonomous reasons for pursuing work goals and affective organizational commitment. They asked respondents to identify important job-related goals, such as budget attainment, and found that autonomous reasons for pursuing those goals were positively related to affective organizational commitment. While Bono and Judge (2003) implicitly considered budget attainment as one possible work goal amongst others, we specifically tap into this issue and expand the idea that managers' motivation for budget attainment may have implications for their overall organizational affective commitment. Indeed, in his hierarchical motivation model Vallerand (1997) recognizes that motivation exists at three levels of generality: the global, contextual, and situational levels. One of the motivational features concerns the bottom-up influence of situational on contextual motivation. Applying this to our setting, we know that all managers in our sample have budget responsibility[23] (see 3.1 Data collection for more detailed information about our sampling approach). Given the importance of budget attainment within their work setting, we believe that managers experiencing autonomous budget motivation are more likely to experience affective organizational commitment. In other words, stretching Vallerand's (1997) hierarchical model, we believe that managers' situational autonomous budget motivation will relate to them feeling affectively committed at the contextual level of the organization. This positive expectation is tested through the following hypothesis:

> **H5.** Higher levels of autonomous budget motivation increase managers' affective organizational commitment.

[23] In particular, 65% of the managers reported having full P&L responsibility, whereas the other 35% had either expense or revenue responsibility.

3. Research Method

3.1 Data collection

To test our hypotheses, we conducted a survey study to increase our study's comparability with previous research and because we wanted to study managerial behavior in a real-life business context. The target population of this research is managers with budget responsibilities, a key condition for examining the creation of budgetary slack (e.g., Merchant, 1985; Onsi, 1973). Typically, general managers have these responsibilities, as do marketing, sales, R&D, supply chain and production managers[24]. Moreover, these managers are uniquely positioned to evaluate the value of information to the firm and should therefore occupy a central position in the strategic planning process (Floyd and Wooldridge, 1992).

For the random sample, we obtained contact information from a West-European commercial mailing list provider whose total number of e-mail addresses approximates 300,000[25]. Given the above criteria of function, 2,301 invitations were mailed to managers in January 2013, of which 256 failed to reach the respondent due to an invalid e-mail addresses, the respondent left the firm for another job, or had retired. To increase the response rate, each participant was promised confidentiality and a follow-up was administered to non-respondents two weeks after the initial mail-out. Respondents were provided both material (i.e., a chance to win a gastronomic dinner for two) and non-material compensation (i.e., feedback about the study) (Moore and Tarnai, 2002). Of the 2,045 invitations that reached the respondents, 249 responses were returned, yielding a response rate of 12.18%. This response rate is in line with other behavioral management accounting research (e.g., Chenhall et al., 2011; Moores and Yuen, 2001). We compared the demographics and mean responses on all constructs of early (i.e., the respondents who answered after the initial mail-out) and late (i.e., the respondents who answered after the reminder) respondents. The χ^2 and two-sample t-tests revealed no systematic differences ($p>0.05$). Therefore, non-response bias is unlikely to affect the results.

As all data are self-reported, common method bias (CMB) may influence the observed correlations between the constructs (Podsakoff et al., 2003). A priori, we attempted to reduce the potential effects of CMB by safeguarding the respondents' anonymity and by assuring them that there were no right or wrong answers. A posteriori, we conducted Harman's one-factor test on the four conceptually crucial variables in our theoretical model (i.e., PSP, autonomous motivation, affective organizational commitment, and budgetary slack). A four-factor solution rather than a single factor occurred, and the first factor explained only 19% of the total variance.

[24] Our sample also comprises 6% finance managers. We did an additional analysis (results not reported here) without these managers and our inferences remained unchanged.
[25] Although not all managers were represented in this commercial mailing list, it provided the advantage of targeting the right people to complete our survey.

These results indicate that CMB is unlikely to contaminate the research results (Podsakoff et al., 2003). Second, following the recommendations of Widaman (1985), we included a common method factor in the structural equation model. While the method factor did slightly improve the model fit (CMINDF = 2.57 and NNFI = 0.93), it was not significant. Given the small magnitude and insignificance of the common method factor, we contend that CMB is unlikely to be a serious concern for this study, implying that other factors account for the observed variance. Moreover, potential response bias was investigated by manually going through each individual filled-in questionnaire and by inspecting the variance across all items. For two respondents, an answer pattern was recorded[26]. Therefore, we decided to remove these respondents from further analyses, yielding 247 usable responses. The characteristics of the final sample are displayed in Table 1.

3.2 Variable measurement

For all variables in our study, the survey items were scored on a seven-point Likert-type scale ranging from one (strongly disagree) to seven (strongly agree) unless stated otherwise. We used previously validated scales whenever possible to ascertain construct validity. To check on the relevance of these measures, our questionnaire was submitted to the scrutiny of six faculty colleagues, three part-time MBA students, and 21 managers with budget responsibility[27] for pre-testing. Final measures were then developed and refined. Furthermore, we conducted empirical tests (i.e., range of responses, Cronbach's alpha, and factor analyses) as suggested by Nunnally (1978) to further establish content and construct validity. An overview of the survey items is provided in Appendix A. Appendix B depicts the factor analyses used to construct the variables in this study. Descriptive statistics of the constructs based on the equally weighted average scores of multi-item variables and the correlation matrix are presented in Table 2.

[26] They chose the neutral option for almost every item.
[27] The target respondents for the pretest phase were excluded from the actual hypothesis testing sample.

Table 1: Respondents by tenure, age, gender, education, role, and company size

Characteristics of sample	n	Mean	%
Panel A: Respondent profile			
Tenure			
Years in organization	244	13.10	
Years in current function	247	6.17	
Age	245	46.92	
Gender			
Male	214		87%
Female	31		13%
Education			
Secondary education or less	15		6%
Bachelor	65		26%
Master	156		63%
PhD	11		5%
Role			
Finance	16		6%
General management	50		20%
Manufacturing	37		14%
Marketing	26		11%
R&D	26		11%
Sales	49		20%
Supply chain	41		17%
Other	2		1%
Panel B: Company profile			
Number of employees			
0 to 250	72		30%
251 to 500	38		15%
501 to 1000	22		9%
1,001 to 5000	34		14%
5,001 to 10,000	19		8%
10,001+	58		24%

Table 2: Descriptive statistics, correlation matrix, and discriminant validity coefficients (n = 247) for participation in strategic planning, autonomous budget motivation, affective organizational commitment, the creation of budgetary slack, and the control variables.

Variable	Mean	s.d.	Min	Max	Cronbach α	(1)	(2)	(3)	(4)	(5)	(6)
PSP (1)	5.56	0.95	1.90	7	0.93	**0.75**					
AM (2)	5.38	0.99	1	7	0.85	0.23**	**0.71**				
AOC (3)	5.63	0.98	1	7	0.87	0.42**	0.25**	**0.74**			
SLACK (4)	3.06	1.11	1	6.33	0.70	-0.27**	-0.32**	-0.29**	**0.66**		
BP (5)	5.57	1.04	1	7	0.89	0.45**	0.18**	0.26**	-0.26**	**0.77**	
DETECT (6)	5.32	1.11	1.67	7	0.81	0.28**	0.17**	0.28**	-0.18**	0.24**	**0.77**

**,* Correlation is significant at the 0.01 level, 0.05 level (two-tailed test), respectively. Correlations between the different constructs are below the diagonal. The square root of the AVE value for each of the constructs is along the diagonal (in bold).

PSP = participation in strategic planning; AM = autonomous motivation; AOC = affective organizational commitment; SLACK = the creation of budgetary slack; BP = budget participation; and DETECT = slack detection

3.2.1 Participation in strategic planning (PSP)

Given the novelty of PSP in management accounting survey research, we designed a new instrument specifically for this study. Special attention has been paid to the conceptual specification of the construct. PSP, as a practice-informed construct, is given meaning by listing its theoretical properties found in practice (Bisbe et al., 2007). The process of specifying this construct's exact meaning consists of a twofold approach. First, we elaborate on the definition of 'participation' and 'strategic planning'. Participation refers to both the '*involvement* of employees in and their *influence* over' certain organizational decisions (Anthony and Govindarajan, 2007, p. 10, emphasis added). Strategic planning focuses on 'the determination of the basic long-term goals and objectives of an enterprise' (Chandler, 1962, p. 13). Allowing managers PSP thus implies involving them in and allowing them to influence the long-term goals and objectives of the organization (Freeman, 1989). As such, we recognize both the quantity and quality aspect of management participation in the strategy process, as recommended by Gerbing et al. (1994). Second, we engaged in a thorough examination of the strategic management literature and conducted in-depth interviews with three senior managers and one middle manager[28] to fully grasp the process of strategic planning in both theory and practice. Further support was provided for the validity of the theoretical definition, as illustrated by the following quote given by one of the interviewees:

> *'Strategic planning is looking for an answer to the "what" question: what do we want to achieve? Strategy implementation, conversely, focuses on the "how" question: once we have decided what we want to do, we need to decide upon how to achieve these goals.'*

We used thematic analysis procedures to systematically identify patterns that organize both the published and oral information on the strategic planning process in a meaningful way. Appendix C provides a non-exhaustive overview of the analyzed quotations from published work. Different themes referring to different PSP properties were developed and clustered into one code when the themes had similar contents or were closely conceptually related (Boyatzis, 1998). The output of this procedure are two codes representing the building blocks of the strategic planning process, namely, the visioning process and the strategic positioning process, which is in line with research by Merchant and Van der Stede (2011). The *visioning process* entails answering abstract questions of existence. In particular, the interviewees mentioned such questions as *'What type of organization are we?', 'What type of organization do we want to be?';* and *'What type of business do we want to be in?'*, reflecting Johnson and

[28] Senior manager A (54 year, male) has been the CEO of a playing card company for 18 years. Senior manager B (60 year, male) has been in his function of general manager in a civic and social organization for 15 years. Senior manager C (51 year, male) is since five years responsible for the strategy process in the same organization as senior manager B. Middle manager D (51 year, female) works already 21 years for a telecommunication company and is since two years after sales manager.

Scholes' (1989) definition of corporate strategy. The *strategic positioning process* refers to preparing analyses and making decisions about the strategic position of the firm, as reflected in Porter's (1985, p. 1) notion of competitive strategy: strategy is 'the search for a favourable competitive position in an industry'. Interviewees cited external and internal analyses, and decisions about products, markets, product-market combinations, and the firm's/business unit's competitive advantage. To measure participation in the two sub strategy processes identified in the interviews, we adapted the BP measure[29], which was developed by Milani (1975) and tested extensively in prior research (e.g., Chenhall, 2003; Dunk, 1993a; Leach-López et al., 2007). The item pool included 12 items: six items measuring participation in the visioning process and six items measuring participation in the strategic positioning process (see Appendix A). More specifically, we asked respondents to indicate their extent of involvement in and influence over (a) the determination of the basic long-term goals, objectives, and future opportunities of their organizational entity[30] (i.e., the visioning process), and (b) the identification, preparation, and evaluation of options (i.e., the strategic positioning process). Although the measurement properties of this 12-item PSP scale are good, scale items two and eight could be viewed as rather communication by the superior instead of subordinate participation and thus we recalculated the measure without these items. The exploratory factor analysis reveals that the ten remaining questions used to measure PSP load on one factor with an explained variance of 61%. The reliability of the 10-item construct is strong ($\alpha = 0.93$). Since this is a new measure, we correlated it to an established measure of participation in strategic decision making (Floyd and Wooldridge, 1992) (nine-item scale, 43% variance explained, $\alpha = 0.83$) and found, as expected, a significant positive correlation ($r = 0.40$, $p < 0.01$). As the measurement properties of the specific measurement instrument were better than those of the Floyd and Wooldridge (1992) instrument, we decided to use the former as input for the statistical analyses.

3.2.2 Autonomous budget motivation (AM)

The adapted Motivation At Work Scale by Gagné et al. (2013) was used to measure the manager's autonomous budget motivation. However, a change was made specifically for the purpose of this study. The original stem of the question reading 'Why do you or would you put effort into your current job?' was changed to 'Why do you or would you put effort into attaining your organizational entity's budget?' The exploratory factor analysis reveals that AM is uni-dimensional with an explained variance of 58% and a Cronbach's alpha coefficient of 0.85.

[29] The original phrase referring to the budgeting process was replaced by 'vision' or 'long-term goals and objectives' to refer to the visioning process and was replaced by 'strategic position' when measuring the amount of participation in the strategic positioning process.
[30] We used the phrase 'organisational entity' to refer to the specific unit the respondents is working in. For example, an organisational entity can be a business unit, a department…

3.2.3 Affective organizational commitment (AOC)

To assess AOC, the eight-item Affective Commitment Scale (ACS) developed by Allen and Meyer (1990) was employed[31]. This questionnaire has been widely used in research and has been shown to have acceptable levels of reliability and validity (Meyer and Allen, 1991). Exploratory factor analysis reveals that two items ('I would be very happy to spend the rest of my career with this organization'[32] and 'I think that I could easily become as attached to another organization as I am to this one') did not load significantly on the factor and were dropped from the measurement model. The final exploratory analysis indicates that the six retained items are uni-dimensional and explain 60% of the variance. In the current study, the Cronbach's alpha coefficient for the revised six-item construct is 0.87.

3.2.4 Budgetary slack (SLACK)

In line with Dunk (1993a), Van der Stede (2000), and Indjejikian and Matejka (2006), the definition of budgetary slack used in this study focuses on the ease with which budgetary targets can be achieved. Budgetary slack occurs when managers 'negotiate highly achievable targets' (Van der Stede, 2000, p. 609), i.e., targets that are deliberately lower than their best-guess forecast about the future. Managers can create budgetary slack by intentionally overstating future costs or understating future revenues (Merchant and Van der Stede, 2011; Onsi, 1973). This lowers the budgetary targets set and makes it easier for the manager to attain the required targets. Conversely, a budget contains little slack if it requires considerable effort and a high degree of efficiency (Simons, 1987). To reflect budgetary slack creation, we used the measurement instrument developed by Dunk (1993a). Considerable evidence of the validity and reliability of this scale has been compiled (e.g., Van der Stede, 2000). It is clear from the exploratory factor analysis that the item 'Budgets set for my organizational entity are safely attainable' does not load adequately on the factor. Therefore, we deleted this item for further analyses. The remaining three items load on the same factor, which explains 62% of the variance. The reliability of the three-item construct is acceptable ($\alpha = 0.70$). The construct is correlated to two alternative measures for the creation of budgetary slack (Van der Stede's (2000) and Onsi's (1973) measure, respectively) to ensure that the Dunk (1993a) measure is working plausibly in our sample. As expected, the results show positive and significant correlations ($r = 0.79$, $p < 0.01$ and $r = 0.23$, $p < 0.01$, respectively). Dunk's (1993a) measure

[31] In some items, the original word 'organization' was replaced by the word 'organizational entity'. Similar changes were made to the original commitment measurement scale by Aranya and Ferris (1984) and Wong-on-Wing *et al.* (2010), who replaced the word 'organization' with 'profession' and 'bank', respectively.

[32] This item was also deleted in the study of Viator and Pasewark (2005) due to significant cross-loadings.

is retained for further empirical analyses as it has better measurement properties than Van der Stede's (2000) and Onsi's (1973) measure in this specific sample.

3.2.5 Control variables

We used two control variables in this study[33]. First, we controlled for BP. Although results are mixed, the large amount of research on the relationship between BP and budgetary slack indicates the importance of controlling for it. BP was measured using the six-item measurement instrument developed by Milani (1975). Second, prior research revealed that a superior's ability to detect slack (DETECT) is negatively related to a manager's creation of budgetary slack (Merchant, 1985; Onsi, 1973), as 'slack cannot be created where it is easily detected' (Merchant, 1985, p. 203). DETECT was measured by the three-item measure developed by Onsi (1973). The exploratory factor analyses reveal that BP and DETECT are uni-dimensional with explained variances of 65% and 72%, respectively, and their Cronbach's alphas are 0.89 and 0.81, respectively.

4. Research results and discussion

4.1 Statistical method

We used structural equation modeling (SEM) to examine the role of autonomous budget motivation and affective organizational commitment in the relationship between PSP and SLACK[34]. An advantage of SEM is that it can simultaneously evaluate the proposed hypotheses and test the measurement reliability (Smith and Langfield-Smith, 2004). We conducted our analyses in LISREL 9.1 according to the two-step approach recommended by Anderson and Gerbing (1988). This approach has been employed in a number of recent accounting studies (e.g., Hartmann and Slapničar, 2009; Wong-On-Wing et al., 2010). A structural equation model using the maximum likelihood (ML) method[35] in which AM and AOC

[33] We also controlled for perceived environmental uncertainty, organizational strategy, and some background variables (i.e., number of years working in the organization/current function, age, and gender). As our analyses (results not reported here) indicated that none of these control variables were correlated with the dependent variable, we decided to omit them from further analyses (Becker, 2005).

[34] As we reviewed the tolerance and variance inflation factors for each construct, no evidence of multicollinearity was found. Furthermore, we plotted the residuals and performed White's test, but no signs of heteroscedasticity were apparent.

[35] In preliminary tests, we discovered that our data are not multivariate normally distributed, as is the case with most data of perceptual nature (Hunton and Gibson, 1999). We tested normality by investigating the skewness and kurtosis indexes associated with each of the survey items and conducted Shapiro-Wilk's test. Although results indicated that the measures were not normally distributed, we used the maximum likelihood (ML) method, as it performs well even under conditions of non-normality (Boomsma and Hoogland, 2001).

mediate the relation between PSP and SLACK was estimated, controlling for the effects of BP and DETECT on both the dependent and mediating variables.

4.1.1 Analysis of the measurement model

The first step in the analysis was to develop a measurement model. This model aims to specify the relationships between observed and latent variables (Hair et al., 2010). Our measurement model consists of four theoretical latent factors (PSP, AM, AOC, and SLACK) and two control variables (DETECT and BP). The standardized factor loadings and statistics from the measurement analysis are reported in Appendix B.

Model fit is determined by the degree of correspondence between the observed and the estimated covariance matrix. Despite a significant χ^2 (χ^2 [513] = 1,398.6, $p < 0.01$), which is to be expected with a sample size as large as ours (Bentler and Bonett, 1980), the measurement model fits well according to other goodness-of-fit (CMINDF = 2.73 < 3; CFI = 0.93 > 0.90; and NNFI = 0.92 > 0.90) and badness-of-fit indices (RMSEA = 0.08 < 0.10; SRMR = 0.07 < 0.09) (e.g., Arbuckle and Wothke, 1999; Bentler and Bonett, 1980; Browne and Cudeck, 1993; Hair et al., 2010). Regarding item reliability, Hair et al. (2010) suggest that significant item loadings greater than 0.50 are sufficient to establish reliability. All items suggest good reliability with all loadings being significant ($p < 0.05$) and above 0.50. Next, convergent validity was assessed by examining the composite reliability (CR) and average variance extracted (AVE). As Appendix B confirms, the CR index of all constructs is good as all scores equal or exceed the threshold value of 0.70 (Hair et al., 2010). Moreover, most AVE scores are close to, or higher than, the threshold value of 0.50 which indicates that at least 50% of the indicator variance is accounted for by construct variance rather than noise (Fornell and Larcker, 1981)[36]. Discriminant validity of the constructs was assessed by comparing the square roots of the AVEs with the correlations between the constructs. As observed from Table 2, the square roots of the AVEs are larger than the off-diagonal reported correlations, which demonstrates strong evidence of discriminant validity (Fornell and Larcker, 1981). Overall, the results from the measurement model indicate adequate construct validity for all constructs in the model.

In addition, the correlation analysis in Table 2 indicates a strong relationship between PSP and AM (r = 0.23), AOC (r = 0.42), and SLACK (r = -0.27). Moreover, we find a significant positive correlation between AM and AOC (r = 0.25). Examination of the relationships between SLACK and both mediating effects reveals that both more AM (r = -0.32) and AOC (r = -0.29) significantly decrease SLACK. Both control variables (i.e., BP and DETECT) are significantly

[36] The only exception was SLACK with an AVE value (0.44) slightly below 0.50. However, we refrained from deleting items measuring SLACK to enhance its AVE to maintain the content validity of our measure.

positively correlated with AM (r = 0.18 and r = 0.17, respectively) and AOC (r = 0.26 and r = 0.28, respectively) but significantly decrease SLACK (r = -0.26 and r = -0.18, respectively).

4.1.2 Analysis of the structural model

4.1.2.1 Theoretical model fit

Second, the structural model with relationships between the latent variables was analyzed using the measurement error variances specified in the first step of the analysis (Smith and Langfield-Smith, 2004). To determine the optimal model, we used Anderson and Gerbing's (1988) decision-tree framework for the set of sequential SCDTs. The results of these SCDTs are shown in Table 3.

First, we performed a SCDT between the saturated and the theoretical model (see Figure 1). The results of this test show a significant difference ($p < 0.01$). The next step was to compare the theoretical model with the next most likely constrained model. More specifically, the theoretical model was compared with a constrained model in which the link between PSP and AM was constrained to zero. The SCDT between the two models was not significant ($p = 0.22$). The third step was to compare the constrained model and saturated model. Although the result of the SCDT was significant ($p < 0.01$), the constrained model provides an adequate fit (χ^2 [514] = 1,400.1, $p < 0.01$; CMINDF = 2.72; CFI = 0.93; NNFI = 0.92; RMSEA = 0.08; SRMR = 0.07). Therefore, our hypotheses were tested based on the constrained model where the path coefficient between PSP and AM was constrained to zero[37].

4.1.2.2 Testing the hypotheses

We used completely standardized parameter estimates for the constrained model to test our hypotheses. The results are shown in Table 4 and Figure 2 illustrates the significant associations in our path model.

[37] We refrained from testing an unconstrained model as suggested by Anderson and Gerbing's (1988) decision-tree framework as no additional meaningful paths could be identified in our model.

Table 3: Sequential chi-square difference tests

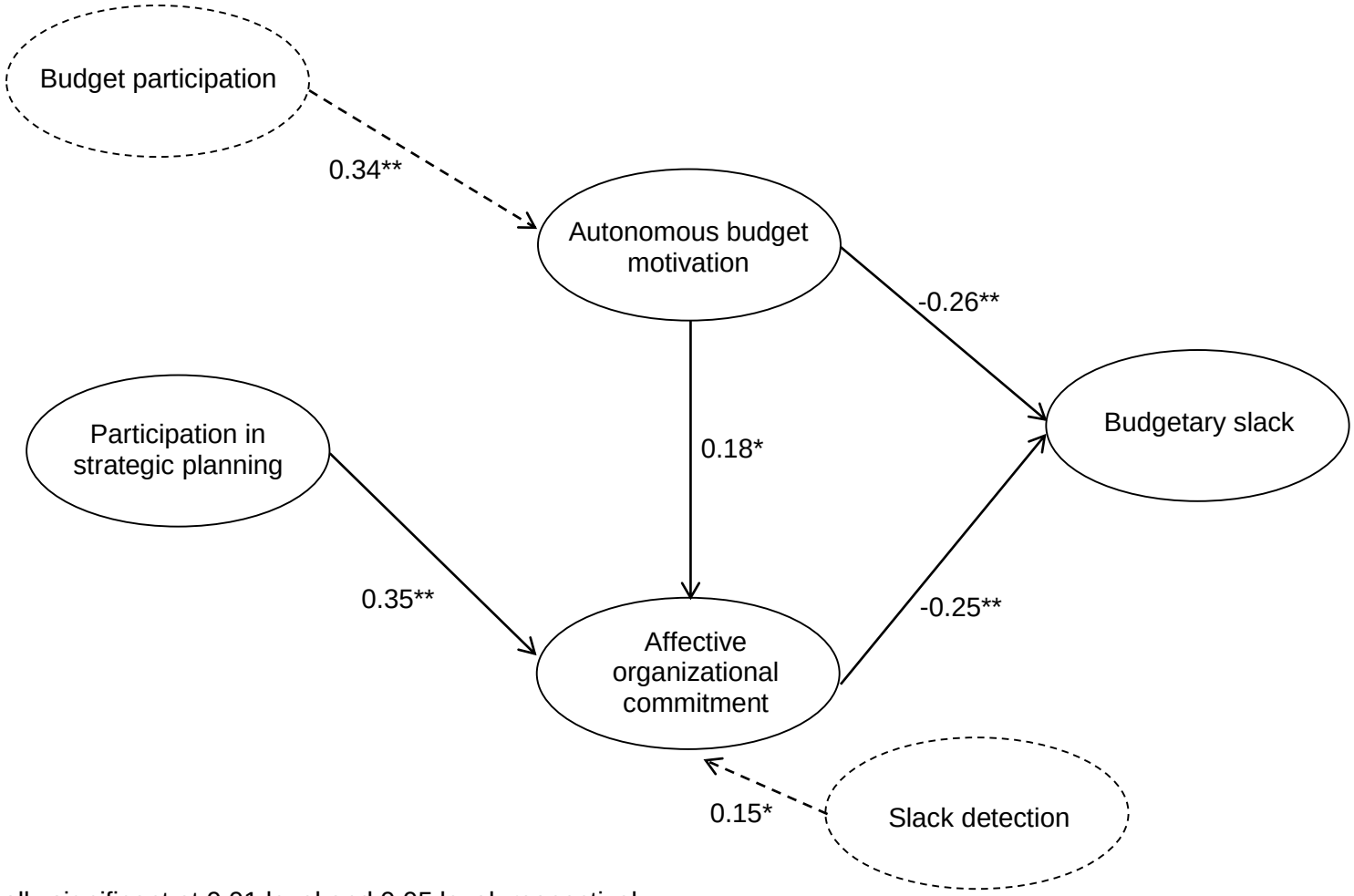
	Model	X^2	$\Delta\chi^2$	df	Δdf	Significance level
Step 1	Theoretical model	1,398.6		513		
	Saturated model	0	1,398.6	0	513	p < 0.01
Step 2	Theoretical model	1,398.6		513		
	Constrained model	1,400.1	1.5	514	1	ns
Step 3	Constrained model	1,400.1		514		
	Saturated model	0	1,400.1	0	514	p < 0.01

Table 4: Path coefficients

Dependent variable	Independent Variable	Coefficient (p-value)	Hypothesis	Hypothesis supported?
SLACK	AM	-0.26** (0.00)	H3	Y
SLACK	AOC	-0.25** (0.00)	H5	Y
SLACK	BP	-0.12 (0.15)	-	
SLACK	DETECT	-0.09 (0.29)	-	
AOC	AM	0.18* (0.01)	H6	Y
AOC	PSP	0.35** (0.00)	H4	Y
AOC	BP	0.02 (0.82)	-	-
AOC	DETECT	0.15* (0.05)	-	-
AM	BP	0.34** (0.00)	-	-
AM	DETECT	0.05 (0.15)	-	-

Note: **, * indicate significance at < 1 per cent, and 5 per cent, respectively.

Figure 2: Structural model with significant path estimates



**,* Statistically significant at 0.01 level and 0.05 level, respectively

As noted earlier, the path between PSP and AM (β = 0.10, p > 0.05) was constrained to zero due to its insignificance. Consequently, our data failed to support hypothesis H1 (linking higher levels of PSP to higher levels of AM)[A]. Consistent with our theoretical expectations, the path estimate between AM and SLACK is negative and significant (β = -0.26, p < 0.01). Hypothesis H2, linking higher levels of autonomous budget motivation to lower levels of budgetary slack creation, is thus supported. As predicted in hypothesis H3, higher levels of PSP are positively associated with a managers' affective commitment toward the organization (β = 0.35, p < 0.01). Furthermore, in support of hypotheses H4, the results indicate that higher levels of affective organizational commitment are associated with lower levels of budgetary slack creation (β = -0.25, p < 0.01). In support of hypothesis H5, we found a statistically significant positive association between a manager's AM and his/her AOC (β = 0.18, p < 0.05).

Together, the results regarding the association of PSP with SLACK through AOC hint toward a pattern of full mediation. To establish the mediating relationship, we multiplied the statistically significant indirect effects on and from AOC: PSP-AOC (0.35) and AOC-SLACK (-0.25), which equals an indirect total effect of -0.09. As shown in Table 4, the coefficients making up the mediation path are significantly different from zero. Moreover, all effects are in the predicted direction: letting managers participate in strategic planning is positively associated with affective organizational commitment, and affective organizational commitment is negatively associated with the creation of budgetary slack. The significance of these effects means that the joint significance test rejects the null hypothesis of no mediation. Furthermore, following the Preacher and Hayes procedure (2004), we multiplied the direct paths of each of the 1,000 bootstraps to obtain an estimated coefficient for the indirect effect. The bootstrapped 95% confidence interval ([-0.134; -0.022]) for the AOC mediation path did not include zero, indicating a significant indirect effect.

4.2 Validity tests for statistical robustness

To ensure that the results are robust and given the multivariate non-normality of the data in this study, additional analyses were conducted. First, the analysis was redone using the robust ML method, a distribution-free method robust against small sample sizes. The use of robust ML slightly improved the fit of the measurement model (NNFI = 0.95, CFI = 0.95) and qualitatively similar path estimates were obtained. Second, the robustness of the model was investigated by incorporating a path between PSP and controlled budget motivation (CM) and between CM and SLACK. This model revealed that PSP not significantly increases CM (β = 0.08, p = 0.33) and that CM not significantly decreases SLACK (β = -0.03, p = 0.27). The probability level and direction of all of the hypothesized relationships remained unaltered. These investigations suggest an acceptable robustness of the model depicted in Figure 2.

5. Conclusions

The purpose of our study was to provide empirical evidence on whether and how PSP relates to managers' creation of budgetary slack through affective organizational commitment and autonomous budget motivation. Our analysis shows that PSP indirectly decreases the creation of budgetary slack through the mediating effect of affective organizational commitment. PSP aligns managers' behaviors and decisions with the organization's goals and as such instills affective commitment on the managers' part. Affectively committed managers will undertake actions in line with their organization's goals and create less budgetary slack.

This study provides several contributions to both management accounting research and practice. First, our study extends the budgetary slack literature by recognizing an important influencing factor: PSP. Prior research mainly focused on generic strategies but overlooked the effect of PSP although the strategic management literature pinpointed its importance. In particular, this research shows that PSP decreases managers' budgetary slack creation through affective commitment. The significant proportion of variance explained for the creation of budgetary slack ($R^2 = 0.25$ for our model, $R^2 = 0.13$ for the traditional explanation) indicates the importance of PSP, autonomous budget motivation, and affective organizational commitment in explaining budgetary slack in addition to the traditional explanatory variables. Second, we believe that this study contributes to the growing amount of research recognizing that the budgeting process cannot be studied in isolation, as budgeting and strategic planning are both part of the organizational planning process (e.g., Covaleski et al., 2003; Kramer and Hartmann, 2011). Based on our study, it appears that BP is not directly related with managers' creation of budgetary slack, but that it only indirectly decreases budgetary slack through the mediating effect of autonomous budget motivation. PSP, on the other hand, lowers the creation of budgetary slack through affective organizational commitment. It is therefore important to study the effect of both parts of the planning process simultaneously to understand what exactly drives budgetary slack[B]. Third, this study contributes to the growing research exploring the interface between accounting and strategy (Dent, 1990). Although strategy has gained significant importance in the management and organizational literature (Langfield-Smith, 1997), according to the best of our knowledge, no accounting research has investigated the impact of PSP despite the growing amount of strategic management research on this topic. Fourth, this study also has some implications for the practice of management accounting. In particular, our results demonstrate the importance of personal variables such as affective organizational commitment and autonomous motivation to understand managers' budgeting behavior. It are not the formal management control systems in itself but it are their effects on these personal variables that are important to understand managers' budgetary slack creation. Top management should therefore not only focus on the *design* of a participatory system – being it either in the strategic planning or budgeting process – but they should also understand

and manage the *psychological effects* it evokes on the subordinate manager's part. Moreover, our study gives practitioners an understanding of how budgeting and strategy can be related. Hence, it illustrates the importance and the benefits of managing the strategy and budgeting processes in an integrated way.

The results of this study are subject to a number of limitations. First, the proposed model considers two mediating factors (i.e., autonomous budget motivation and affective organizational commitment) in the relationship between PSP and SLACK. There are doubtlessly alternative explanations that have not been captured in the model tested here to keep the scope of this work manageable. Other underlying mechanisms that have been examined in relation to the creation of budgetary slack include perceived fairness (e.g., Wentzel, 2004), trust (e.g., Langevin and Mendoza, 2013), and ethics (e.g., Stevens, 2002). The inclusion of these variables could have produced different results. Future research should explore possible other mediating mechanisms between PSP and SLACK. Second, the use of the PSP measurement instrument for the first time may impede the results of our study. Although the psychometric properties of our measurement instrument were satisfying, future research should further validate and refine it. Third, by choosing budgetary slack as a dependent variable, we are unable to determine whether slack is desirable or not (Van der Stede, 2001). As we cannot test whether the presence of budgetary slack is good or bad for performance, future research should attempt to test the good and bad conditions more explicitly. In addition to these study-specific limitations, there are some limitations associated with cross-sectional survey research in general. First, this study depends on participants' self-reported measures. Although steps were taken to ensure reliability and tests show that there is no reason to expect CMB or non-response bias, the possibility of noisy measures cannot be eliminated. Although there is support for the use of self-assessment (Venkatraman and Ramanujam, 1987) and its use allows us to compare our study with earlier budgetary slack research, a multi-method approach would improve the validity of the results by confirming self-assessments with external measures. Second, a cross-sectional study can only provide presumptive evidence about causality. Alternative methods (e.g., experiment, longitudinal field research) may provide more information about the directional relationships.

Notwithstanding these limitations, this study provides evidence on the relationship between PSP and the creation of budgetary slack. As the current study is the first to examine this relationship, many opportunities exist for further research in this area. One avenue for future research is to focus on other consequences of PSP. Involving managers in strategic planning can, for example, also impact managerial and organizational performance. Furthermore, the consequences as well as antecedents of PSP must be investigated. Possible antecedents, such as environmental complexity and the organization's competitive strategy, should be studied (Hutzschenreuter and Kleindienst, 2006). Another avenue to explore is

whether fostering autonomous budget motivation can offset the positive effects of lower information asymmetry (due to PSP) on job tension (Jaworski and Young, 1992). Future research could also investigate the impact of other characteristics of the strategy process (e.g., the degree of formality, the degree of openness of top management to subordinate managers' PSP) on budgeting outcomes.

While further research is needed before definitive conclusions can be drawn, the findings of our study suggest that studying the whole planning process (i.e., both budgeting and strategic planning) is useful for understanding the creation of budgetary slack. The antecedents of budgetary slack creation may be more complex and diverse than assumed since budgetary slack creation relates to the broader planning context than merely the direct budgeting setting.

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7. References

Allen, N.J., Meyer, J.P., 1990. The measurement and antecedents of affective, continuance and normative commitment to the organization. Journal of Occupational Psychology 63, 1-18.

Anderson, J.C., Gerbing, D.W., 1988. Structural equation modeling: A review and recommended two-step approach. Psychological Bulletin 103, 411-423.

Ansoff, H.I., 1965. Corporate strategy: An analytic approach to business policy for growth and expansion. McGraw-Hill, New York (N.Y.).

Anthony, R.N., 1965. Planning and control systems: A framework for analysis. Harvard Business School, Boston (Mass).

Anthony, R.N., Govindarajan, V., 2007. Management control systems, 12th ed. McGraw-Hill, Boston, Massachusetts.

Aranya, N., Ferris, K.R., 1984. A reexamination of accountants' organizational-professional conflict. The Accounting Review 59, 1-15.

Arbuckle, J., Wothke, W., 1999. AMOS 4 user's reference guide. Chicago: Smallwaters Corporation.

Baumeister, R., Leary, M.R., 1995. The need to belong: Desire for interpersonal attachments as a fundamental human motivation. Psychological Bulletin 117, 497-529.

Becker, S., Green, D., 1962. Budgeting and employee behavior. The Journal of Business 35, 392-402.

Becker, T.E., 2005. Potential problems in the statistical control of variables in organizational research: A qualitative analysis with recommendations. Organizational Research Methods 8, 274-289.

Bentler, P.M., Bonett, D.D., 1980. Significance tests and goodness of fit in the analysis of covariance structures. Psychological Bulletin 88, 588-606.

Bisbe, J., Batista-Foguet, J.-M., Chenhall, R.H., 2007. Defining management accounting constructs: A methodological note on the risks of misspecification. Accounting, Organizations and Society 32, 789-820.

Bono, J.E., Judge, T.A., 2003. Self-concordance at work: Toward understanding the motivational effects of transformational leaders. The Academy of Management Journal 46, 554-571.

Boomsma, A., Hoogland, J.J., 2001. The robustness of LISREL modeling revisited. Structural equation models: Present and future. A Festschrift in honor of Karl Jöreskog, 139-168.

Bourgeois, L.J., Brodwin, D.R., 1984. Strategic implementation: Five approaches to an elusive phenomenon. Strategic Management Journal 5, 241-264.

Boyatzis, R.E., 1998. Transforming qualitative information: Thematic analysis and code development. Sage, Thousand Oaks (Calif.).

Browne, M.W., Cudeck, R., 1993. Alternative ways of assessing model fit, in: Bollen, K.A., Long, J.S. (Eds.), Testing Structural Equation Models. Sage, Newbury Park, CA, pp. 136-162.

Cadez, S., Guilding, C., 2008. An exploratory investigation of an integrated contingency model of strategic management accounting. Accounting, Organizations and Society 33, 836-863.

Chandler, A.D., 1962. Strategy and structure: Chapters in the history of the industrial enterprise. MIT press, Cambridge (Mass.).

Chapman, C.S., Kihn, L.-A., 2009. Information system integration, enabling control and performance. Accounting, organizations and society 34, 151-169.

Chenhall, R.H., 2003. Management control systems design within its organizational context: Findings from contingency-based research and directions for the future. Accounting, Organizations and Society 28, 127-168.

Chenhall, R.H., Kallunki, J.-P., Silvola, H., 2011. Exploring the relationships between strategy, innovation, and management control systems: The roles of social networking, organic innovative culture, and formal controls. Journal of Management Accounting Research 23, 99-128.

Church, B.K., Hannan, R.L., Kuang, X.J., 2012. Shared interest and honesty in budget reporting. Accounting, organizations and society 37, 155-167.

Collins, F., 1978. The interaction of budget characteristics and personality variables with budgetary response attitudes. The Accounting Review 53, 324-335.

Covaleski, M.A., Evans III, J.H., Luft, J.L., Shields, M.D., 2003. Budgeting research: Three theoretical perspectives and criteria for selective integration. Journal of Management Accounting Research 15, 3-49.

Cyert, R.M., March, J.G., 1963. Behavioral theory of the firm. Prentice Hall, Englewood Cliffs, NJ.

Davila, T., Wouters, M., 2005. Managing budget emphasis through the explicit design of conditional budgetary slack. Accounting, Organizations and Society 30, 587-608.

Deci, E.L., 1975. Intrinsic motivation. New York (N.Y.): Plenum Press.

Deci, E.L., Connell, J.P., Ryan, R.M., 1989. Self-determination in a work organization. Journal of Applied Psychology 74, 580-590.

Deci, E.L., Ryan, R.M., 2004. Handbook of self-determination research. Rochester (N.Y.): University of Rochester.

Dent, J.F., 1990. Strategy, organization and control: Some possibilities for accounting research. Accounting, Organizations and Society 15, 3-25.

Derfuss, K., 2012. Budget slack: Some meta-analytic evidence, 8th Conference on New Directions in Management Accounting, Brussels, Belgium.

Dunk, A.S., 1993. The effect of budget emphasis and information asymmetry on the relation between budgetary participation and slack. Accounting Review 68, 400-410.
Dunk, A.S., Nouri, H., 1998. Antecedents of budget slack: A literature review and synthesis. Journal of Accounting Literature 17, 72-96.

Floyd, S.W., Wooldridge, B., 1992. Middle management involvement in strategy and its association with strategic type. Strategic Management Journal 13, 153-167.

Floyd, S.W., Wooldridge, B., 2000. Building strategy from the middle: Reconceptualizing strategy process. Sage, London.

Fornell, C., Larcker, D.F., 1981. Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research 18, 39-50.

Freeman, E.B., 1989. Effectiveness of strategic planning: A multidimensional view. Academy of Management Proceedings 1, 12-16.

Frezatti, F., Aguiar, A.B., Guerreiro, R., Gouvea, M.A., 2011. Does management accounting play role in planning process? Journal of Business Research 64, 242-249.

Gagné, M., Chemolli, E., Forest, J., Koestner, R., 2008. A temporal analysis of the relation between organisational commitment and work motivation. Psychologica Belgica 48, 219-241.
Gagné, M., Forest, J., Vansteenkiste, M., Crevier-Braud, L., Van den Broeck, A., Aspeli, A.K., Battistelli, A., Bellerose, J., Benabou, C., Chemolli, E., Güntert, S.T., Halvari, H., Johnson, P., Indiyastuti, D.L., Ndao, A., Martin-Albo, J., Molstad, M., Naudin, M., Ntalianis, F., Nunez, J.L., 2013. The multi-dimensional work motivation scale: Validation evidence in seven languages and nine countries.

Gerbing, D.W., Hamilton, J.G., Freeman, E.B., 1994. A large-scale second-order structural equation model of the influence of management participation on organizational planning benefits. Journal of Management 20, 859-885.

Grant, A.M., 2008. Does intrinsic motivation fuel the prosocial fire? Motivational synergy in predicting persistence, performance, and productivity. Journal of Applied Psychology 93, 48.
Grant, A.M., Nurmohamed, S., Ashford, S.J., Dekas, K., 2011. The performance implications of ambivalent initiative: The interplay of autonomous and controlled motivations. Organizational Behavior and Human Decision Processes 116, 241-251.

Greguras, G.J., Dieffendorff, J.M., 2009. Different fits satisfy different needs: Linking person-environment fit to employee commitment and performance using self-determination theory. Journal of Applied Psychology 94, 465-477.

Hair, J.F.J., Black, W.C., Babin, B.J., Anderson, R.E., 2010. Multivariate data analysis: A global perspective, 7th ed. Pearson Education, Inc., Upper Saddle River, New Jersey.

Hall, M., 2008. The effect of comprehensive performance measurement systems on role clarity, psychological empowerment and managerial performance. Accounting, Organizations and Society 33, 141-163.

Hansen, S.C., Otley, D.T., Van der Stede, W.A., 2003. Practice developments in budgeting: An overview and research perspective. Journal of Management Accounting Research 15, 95-116.

Hansen, S.C., Van der Stede, W.A., 2004. Multiple facets of budgeting: An exploratory analysis. Management Accounting Research 15, 415-439.

Hartmann, F., Slapničar, S., 2009. How formal performance evaluation affects trust between superior and subordinate managers. Accounting, Organizations and Society 34, 722-737.
Hopwood, A., 1974. Accounting and human behaviour. Haymarket, London.

Hunton, J.E., Gibson, D., 1999. Soliciting user-input during the development of an accounting information system: Investigating the efficacy of group discussion. Accounting, Organizations and Society 24, 597-618.

Hutzschenreuter, T., Kleindienst, I., 2006. Strategy-process research: What have we learned and what is still to be explored. Journal of Management 32, 673-720.

Indjejikian, R.J., Matejka, M., 2006. Organizational slack in decentralized firms: The role of business unit controllers. Accounting Review 81, 849-872.

Jaworski, B.J., Young, S.M., 1992. Dysfunctional behavior and management control: An empirical study of marketing managers. Accounting, Organizations and Society 17, 17-35.

Johnson, G., Scholes, K., 1989. Exploring corporate strategy: Text and cases. Prentice-Hall, London.

Kaplan, R., Norton, D., 2001. The strategy-focused organization: How balanced scorecard companies thrive in the new business environment. Harvard Business School Press, Boston, Massachusetts.

Kaplan, R., Norton, D., 2008. The execution premium: Linking strategy to operations for competitive advantage. Harvard Business Press, Boston, Massachusetts.

Ketokivi, M., Castañer, X., 2004. Strategic planning as an integrative device. Administrative Science Quarterly 49, 337-365.

Kim, C.W., Mauborgne, R., 1998. Procedural justice, strategic decision making, and the knowledge economy. Strategic Management Journal 19, 323-338.

Korsgaard, M.A., Schweiger, D.M., Sapienza, H.J., 1995. Building commitment, attachment, and trust in strategic decision-making teams: The role of procedural justice. The Academy of Management Journal 38, 60-84.

Kramer, S., Hartmann, F., 2011. Top-down and bottom-up budgeting, budgetary slack and managerial performance: The mediating effects of social and economic exchange perceptions, GMARS, Australia, New South Wales.

Kunda, Z., 1990. The case for motivated reasoning. Psychological bulletin 108, 480-498.

Langevin, P., Mendoza, C., 2013. How can management control system fairness reduce managers' unethical behaviours? European Management Journal 31, 209-222.

Langfield-Smith, K., 1997. Management control systems and strategy: A critical review. Accounting, Organizations and Society 22, 207-232.

Leach-López, M.A., Stammerjohan, W.W., McNair, F.M., 2007. Differences in the role of job-relevant information in the budget participation-performance relationship among U.S. and Mexican managers: A question of culture or communication. Journal of Management Accounting Research 19, 105-136.

Locke, E.A., Latham, G.P., 1990. A theory of goal setting and task performance. Prentice-Hall, Englewood Cliffs, NJ.

Lowe, E.A., Shaw, R.W., 1968. An analysis of managerial biasing: Evidence from a company's budgeting process. Journal of Management Studies 5, 304-315.

Lukka, K., 1988. Budgetary biasing in organizations: Theoretical framework and empirical evidence. Accounting, Organizations and Society 13, 281-301.

Marginson, D., Ogden, S., 2005. Coping with ambiguity through the budget: The positive effects of budgetary targets on managers' budgeting behaviours. Accounting, Organizations and Society 30, 435-456.

Marginson, D.E.W., 2002. Management control systems and their effects on strategy formation at middle-management levels: Evidence from a U.K. organization. Strategic Management Journal 23, 1019-1031.

Mathieu, J.E., Zajac, D., M., 1990. A review and meta-analysis of the antecedents, correlates, and consequences of organizational commitment. Psychological Bulletin 108, 171-194.

Merchant, K.A., 1985. Budgeting and the propensity to create budgetary slack. Accounting, Organizations and Society 10, 201-210.

Merchant, K.A., Manzoni, J.-F., 1989. The achievability of budget targets in profit centers: A field study. Accounting Review, 539-558.

Merchant, K.A., Van der Stede, W.A., 2011. Management control systems: Performance measurement, evaluation and incentives, 3rd ed. ed. Prentice Hall, London.

Meyer, J.P., Allen, N.J., 1991. A three-component conceptualization of organizational commitment. Human Resource Management Review 1, 61-89.

Milani, K., 1975. The relationship of participation in budget-setting to industrial supervisor performance and attitudes: A field study. Accounting Review 50, 274-284.

Moore, D.L., Tarnai, J., 2002. Evaluating nonresponse error in mail surveys, in: Groves, R.M., Dillman, D.A., Eltinge, J.L., Little, R.J.A. (Eds.), Survey nonresponse. Wiley-Interscience, New York, pp. 197-211.

Moores, K., Yuen, S., 2001. Management accounting systems and organizational configuration: A life-cycle perspective. Accounting, Organizations and Society 26, 351-389.

Mowday, R.T., Steers, R.M., Porter, L.W., 1979. The measurement of organizational commitment. Journal of Vocational Behavior 14, 224-247.

Nouri, H., 1994. Using organizational commitment and job involment to predict budgetary slack: A research note. Accounting, Organizations and Society 19, 289-295.

Nouri, H., Parker, R.J., 1996. The effect of organizational commitment on the relation between budgetary participation and budgetary slack. Behavioral Research in Accounting 8, 74.

Nunnally, J.C., 1978. Psychometric theory, 2nd edition ed. McGraw-Hill Book Company, New York, NY.
Onsi, M., 1973. Factor analysis of behavioral variables affecting budgetary slack. Accounting Review 48, 535-548.

Papadakis, V.M., Lioukas, S., Chambers, D., 1998. Strategic decision-making processes: The role of management and context. Strategic Management Journal 19, 115-147.

Podsakoff, P.M., MacKenzie, S.B., Lee, J.-Y., Podsakoff, N.P., 2003. Common method biases in behavioral research: A critical review of the literature and recommended remedies. Journal of Applied Psychology 88, 879-903.

Porter, M.E., 1985. Competitive advantage: Creating and sustaining superior performance. Free Press, New York.

Preacher, K.J., Hayes, A.F., 2004. SPSS and SAS procedures for estimating indirect effects in simple mediation models. Behavior Research Methods, Instruments, & Computers 36, 717-731.

Raes, A.M.L., Heijltjes, M.G., Glunk, U., Roe, R.A., 2011. The interface of the top management team and middle managers: A process model. Academy of Management Review 36, 102-126.

Reid, D.M., 1989. Operationalizing strategic planning. Strategic Management Journal 10, 553-567.

Ryan, R.M., Deci, E.L., 2000. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. American Psychologist 55, 68-78.

Schoute, M., Wiersma, E., 2007. The impact of budgetary slack on budget use. ARCA, Amsterdam Research Center in Accounting.

Searfoss, D.G., Monczka, R.M., 1973. Perceived participation in the budget process and motivation to achieve the budget. The Academy of Management Journal 16, 541-554.

Sheldon, K.M., Elliot, A.J., 1998. Goal striving, need satisfaction, and longitudinal well-being: The self-concordance model. Journal of Personality and Social Psychology 76, 482-497.

Shields, J.F., Shields, M.D., 1998. Antecedents of participative budgeting. Accounting, Organizations and Society 23, 49-76.

Shrivastava, P., Grant, J.H., 1985. Empirically derived models of strategic decision-making processes. Strategic Management Journal 6, 97-113.

Simons, R., 1987. The role of management control systems and business strategy: An empirical analysis. Accounting, Organizations and Society 12, 357-374.

Smith, D., Langfield-Smith, K., 2004. Structural equation modeling in management accounting research: Critical analysis and opportunities. Journal of Accounting Literature 23, 49-86.

Stevens, D.E., 2002. The effects of reputation and ethics on budgetary slack. Journal of Management Accounting Research 14, 153-171.

Tayler, W.B., 2010. The balanced scorecard as a strategy-evaluation tool: The effects of implementation involvement and a causal-chain focus. The Accounting Review 85, 1095-1117.
Vallerand, R.J., 1997. Toward a hierarchical model of intrinsic and extrinsic motivation, in: Zanna, M.P. (Ed.), Advances in Experimental Social Psychology. Academic Press, San Diego, CA, pp. 271-360.

Van der Stede, W.A., 2000. The relationship between two consequences of budgetary controls: budgetary slack creation and managerial short-term orientation. Accounting, Organizations and Society 25, 609-622.

Van der Stede, W.A., 2001. The effect of corporate diversification and business unit strategy on the presence of slack in business unit budgets. Accounting, Auditing & Accountability Journal 14, 30-52.

Vansteenkiste, M., Niemiec, C.P., Soenens, B., 2010. The development of the five mini-theories of self-determination theory: An historical overview, emerging trends, and future directions, in: Urdan, T.C., Karabenick, S.A. (Eds.), The decade ahead: Theoretical perspectives on motivation and achievement (Advances in motivation and achievement, Volume 16). Emerald Group Publishing Limited, pp. 105-165.

Vansteenkiste, M., Sierens, E., Soenens, B., Luyckx, K., Lens, W., 2009. Motivational profiles from a self-determination perspective: The quality of motivation matters. Journal of Educational Psychology 101, 671-688.

Venkatraman, N., Ramanujam, V., 1987. Measurement of business economic performance: An examination of method convergence. Journal of Management 13, 109-122.
Viator, R.E., Pasewark, W.R., 2005. Mentorship separation tension in the accounting profession: The consequences of delayed structural separation. Accounting, Organizations and Society 30, 371-387.

Webb, R.A., 2001. The impact of reputation and variance investigations on the creation of budget slack. Accounting, Organizations and Society 27, 361-378.

Wentzel, K., 2004. Do perceptions of fairness mitigate managers' use of budgetary slack during asymmetric information conditions? Advances in Management Accounting 13, 223-244.

Widaman, K.F., 1985. Hierarchically nested covariance structure models for multitrait-multimethod data. Applied Psychological Measurement 9, 1-26.

Wong-On-Wing, B., Lan, G., Lui, G., 2010. Intrinsic and extrinsic motivation and participation in budgeting: Antecedents and consequences. Behavioral Research in Accounting 22, 133-153.

Wooldridge, B., Floyd, S.W., 1990. The strategy process, middle management involvement, and organizational performance. Strategic Management Journal 11, 231-241.

Wooldridge, B., Schmid, T., Floyd, S.W., 2008. The middle management perspective on strategy process: Contributions, synthesis, and future research. Journal of Management 34, 1190-1221.

Young, S.M., 1985. Participative budgeting: The effects of risk aversion and asymmetric information on budgetary slack. Journal of Accounting Research 23, 829-842.

Yuen, D.C.Y., 2004. Goal characteristics, communication and reward systems, and managerial propensity to create budgetary slack. Managerial Auditing Journal 19, 517-532.

8. Appendices

Appendix A. Survey questions

Main research variables

Participation in strategic planning (PSP)

1. I am involved in developing each aspect of my organizational entity's vision.
2. The reasoning provided by my supervisor when revisions are made regarding my organizational entity's long-term goals and objectives is very logical.
3. I very frequently state my requests, opinions or suggestions about my organizational entity's long-term goals and objectives without being asked.
4. I have a high amount of influence on the final decisions determining my organizations entity's long-term goals and objectives.
5. My contribution to my organizational entity's long-term goals and objectives is very important.
6. When decisions are made regarding my organizational entity's long-term goals and objectives, my supervisor seeks my requests, opinions, or suggestions very frequently.
7. I am involved in developing each aspect of my organizational entity's strategic position.
8. The reasoning provided by my supervisor when revisions are made regarding the strategic position of my organizational entity is very logical.
9. I very frequently state my requests, opinions or suggestions about my organizational entity's strategic position without being asked.
10. I have a high amount of influence on the final decisions determining my organizations entity's strategic position.
11. My contribution to my organizational entity's strategic position is very important.
12. When decisions are made regarding my organizational entity's strategic position, my supervisor seeks my requests, opinions, or suggestions very frequently.

Autonomous budget motivation (AM)

1. I put effort into attaining the budget because putting effort into attaining the budget aligns with my personal values.
2. I put effort into attaining the budget because I enjoy it.
3. I put effort into attaining the budget because I personally consider it important.
4. I put effort into attaining the budget because attaining my organizational entity's budget is exciting.
5. I put effort into attaining the budget because putting effort into attaining the budget has personal significance to me.
6. I put effort into attaining the budget because it is interesting.

Affective organizational commitment (AOC)

1. I would be very happy to spend the rest of my career with this organization.
2. In enjoy discussing this organization with people outside of it.
3. I really feel as if this organizational entity's problems are my own.
4. I think that I could become as easily attached to another organization as I am to this one. *
5. I do not feel like 'part of the family' in my organizational entity. *

6. I do not feel ‘emotionally attached’ to my organizational entity. *
7. This organization has a great deal of personal meaning for me.
8. I do not feel a strong sense of belonging to my organizational entity. *

Creation of budgetary slack (SLACK)

1. Budgets set for my organizational entity are safely attainable.
2. Budget targets have not caused me to be particularly concerned with improving efficiency in my organizational entity.
3. Targets incorporated in my budget are difficult to achieve. *
4. Budgets set for my organizational entity are not particularly demanding.

Control variables

Budget participation (BP)

1. I am involved in setting all portions of my budget.
2. The reasoning provided by my supervisor when budget revisions are made is very logical.
3. I very frequently state my requests, opinions, or suggestions about the budget without being asked.
4. I have a high amount of influence on the final budget.
5. My contribution to the budget is very important.
6. When the budget is being set, my supervisor seeks my requests, opinions and/or suggestions very frequently.

Slack detection (DETECT)

1. My superior has enough information to know if there is slack (i.e. excess resources; surplus) in my organizational entity’s budget.
2. Top management receives detailed information on the activities by organizational entity and by product.
3. Top management has a way to know if there is slack (i.e. excess resources; surplus) in an organizational entity’s budget.

Validity check

Controlled budget motivation (CM)

1. I put effort into attaining the budget because others (e.g. employer, supervisor) offer me greater job security if I put in enough effort.
2. I put effort into attaining the budget because it makes me feel proud of myself.
3. I put effort into attaining the budget because I risk losing my job if I don't put enough effort into attaining it.
4. I put effort into attaining the budget because others (e.g. employer, supervisor) will reward me financially based on my budgetary performance.
5. I put effort into attaining the budget to get other's (e.g. supervisor, colleagues) approval.
6. I put effort into attaining the budget because I have to prove myself that I can.
7. I put effort into attaining the budget because others (e.g. supervisor, colleagues) will respect me more.
8. I put effort into attaining the budget because otherwise I will feel ashamed of myself.
9. I put effort into attaining the budget to avoid being criticized by others (e.g. supervisor, colleagues).
10. I put effort into attaining the budget because otherwise I will feel bad of myself.

Strategic alignment of the budget (ALIGN)

1. The budget is poorly linked to the strategy of my organizational entity. *
2. My budget is the financial translation of the organizational entity's strategy.
3. Budgets add little value because they focus too heavily on short term financial performance targets at the expense of other strategically important initiatives.*
4. My organizational entity's budget goals are aligned with the strategic choices made in the organization.

* Items are reverse-coded

Appendix B. Exploratory and confirmatory factor analysis

Variable	Factor	Stand. loading	AVE	Reliability
Participation in strategic planning (PSP)	α = 0.93		0.57	0.93
I am involved in developing each aspect of my organizational entity's vision.	0.72	0.65		
I very frequently state my requests, opinions or suggestions about my organizational entity's long-term goals and objectives without being asked.	0.65	0.56		
I have a high amount of influence on the final decisions determining my organizational entity's long-term goals and objectives.	0.78	0.74		
My contribution to my organizational entity's long-term goals and objectives is very important.	0.78	0.72		
When decisions are made regarding my organizational entity's long-term goals and objectives, my supervisor seeks my requests, opinions or suggestions very frequently.	0.72	0.65		
I am involved in developing each aspect of my organizational entity's strategic position.	0.85	0.85		
I very frequently state my requests, opinions or suggestions about my organizational entity's strategic position without being asked.	0.77	0.73		
I have a high amount of influence on the final decisions determining my organizational entity's strategic position.	0.86	0.88		
My contribution to my organizational entity's strategic position is very important.	0.86	0.87		
When decisions are made regarding my organizational entity's strategic position, my supervisor seeks my requests, opinions or suggestions very frequently.	0.82	0.82		

Variable	Factor	Stand. loading	AVE	Reliability
Autonomous budget motivation (AM)	α = 0.85		0.50	0.88
I put effort into attaining the budget because putting effort into attaining the budget aligns with my personal values.	0.75	0.66		
I put effort into attaining the budget because I enjoy it.	0.74	0.68		
I put effort into attaining the budget because I personally consider it important.	0.72	0.71		
I put effort into attaining the budget because it is exciting.	0.77	0.67		
I put effort into attaining the budget because putting effort into attaining the budget has personal significance to me.	0.82	0.72		
I put effort into attaining the budget because it is interesting.	0.78	0.80		
Affective organizational commitment (AOC)	α = 0.87		0.54	0.86
I enjoy discussing my organization with people outside of it.	0.63	0.54		
I really feel as if this organizational entity's problems are my own.	0.73	0.64		
I do not feel like 'part of the family' in my organizational entity.	-0.83	0.81		
I do not feel 'emotionally attached' to my organizational entity.	-0.81	0.79		
This organization has a great deal of personal meaning for me.	0.77	0.69		
I do not feel a strong sense of belonging to my organizational entity.	-0.87	0.87		

Variable	Factor	Stand. loading	AVE	Reliability
Budgetary slack (SLACK)	α = 0.70		0.44	0.70
Budget targets have not caused me to be particularly concerned with improving efficiency in my organizational entity.	0.80	0.67		
Targets incorporated in my budget are difficult to achieve.	-0.76	0.56		
Budgets set for my organizational entity are not particularly demanding.	0.81	0.75		
Budget participation (BP)	α = 0.89		0.59	0.89
I am involved in setting all portions of my budget.	0.84	0.82		
The reasoning provided by my supervisor when budget revisions are made is very logical.	0.74	0.67		
I very frequently state my requests, opinions or suggestions about the budget without being asked.	0.73	0.67		
I have a high amount of influence on the final budget.	0.86	0.85		
My contribution to the budget is very important.	0.86	0.83		
Slack detection (DETECT)	α = 0.81		0.60	0.82
My superior has enough information to know if there is slack (i.e. excess resources; surplus) in my organizational entity's budget.	0.83	0.71		
Top management receives detailed information on the activities by organizational entity and by product.	0.83	0.73		
Top management has a way to know if there is slack (i.e. excess resources; surplus) in my organizational entity's budget.	0.89	0.87		

Appendix C. Instances of the characteristics of the strategic planning process taken from the strategic management literature

Source	Characteristic	Theme
Chandler (1962, p. 13)	The determination of the basic long-term goals and objectives of an enterprise	Visioning process
Bourgeois and Brodwin (1984, p. 243)	Identifying the objectives of the organization	Visioning process
Shrivastava and Grant (1985, p. 97)	Problem formulation and objective setting	Visioning process
	Identification and generation of alternative solutions	Strategic positioning process
	Analysis and choice of a feasible alternative	Strategic positioning process
Reid (1989, p. 554)	Identifying future opportunities	Visioning process
Wooldridge and Floyd (1990, p. 236)	Identifying problems and proposing objectives	Visioning/strategic positioning process
	Generating options	Strategic positioning process
	Evaluating options	Strategic positioning process
	Developing details about options	Strategic positioning process
Marginson (2002, p. 1022)	Detecting new ideas	Visioning/strategic positioning process

9. Post publication notes

[A] Contrary to our expectations, there is no evidence of a significant positive relationship between PSP and autonomous budget motivation. Inspection of the model reveals that autonomous budget motivation is fostered by letting managers participate in the budgeting process rather than letting them participate in the organization's strategic planning process.

[B] As we were inspired by self-determination and organizational commitment theory, this study has a predominantly motivational and psychological point of view. From these standpoints, more participation is always better. In particular, if managers are allowed more PSP, their affective commitment toward the organization will increase. Similarly, a higher level of budget participation increases managers' autonomous budget motivation. Although more participation is desirable from the motivational viewpoint, it may not be desirable from a cost-efficiency point of view. Indeed, increasing participation is costly for the organization as it requires more people, time, and resources. Given the reality of limited resources, organizations must make a choice and trade-off more PSP and budget participation.

Combining insights from the studies in chapter 2 and chapter 3, we tentatively suggest the manager's *hierarchical level* as the answer to the trade-off between more PSP and budget participation. Whereas both are important, organizations often have to make a choice and could base this choice on the hierarchical level of the manager in the organization. High and middle level managers are in direct contact with the organization's broader environment and are thus perfectly positioned to capture information important for the strategy process. Allowing these managers PSP, can be realistically expected to increase their strategic alignment. As we know from chapter 2, strategic alignment can act as a substitute for high influence, true forms of budget participation. Lower level managers, however, are more concerned with the daily operations and implementation of the strategy. Involving them in the strategic planning process could be overwhelming so here I would recommend a higher level of budget participation (under the condition that the budget is the financial translation of the organization's strategy).

CHAPTER 4 – AN ECONOMICS-BASED AND PSYCHOLOGY-BASED PERSPECTIVE ON THE RELATIONSHIP BETWEEN ENVIRONMENTAL UNCERTAINTY AND BUDGETARY SLACK

KEYWORDS:

Budgetary slack

Environmental uncertainty

Information-processing theory

Agency theory

Role theory

ABSTRACT

The area of budgetary slack has been the focus of much research effort. Although it has been suggested for over more than 50 years that environmental uncertainty is one of its main antecedents, to date no research has empirically tested this relationship. In this paper, we fill this gap and provide an understanding of whether and how environmental uncertainty is related to budgetary slack. In particular, building on information-processing, agency, and role theory, we hypothesize that perceived environmental uncertainty is related to budgetary slack through the indirect effect of both the number of exceptions a manager is confronted with and the sequential indirect effect of role ambiguity and job-related tension. Using quantitative survey data, we find that budgetary slack is positively related to managers' job-related tension caused by uncertainty-driven role ambiguity. As the effect of sequential role ambiguity and job-related tension on budgetary slack overrides the explanatory potential of the number of exceptions a manager is confronted with, our results highlight the importance of psychological variables to fully understand the budgetary slack process.

1. Introduction

Budgetary slack – defined as the excess of resources beyond those strictly needed to complete a task (Cyert and March, 1963; Waller, 1988) – remains an important area of management accounting research (e.g., Derfuss, 2012; Lau and Eggleton, 2003). The empirical focus of prior budgetary slack research has mainly been on organizational level variables such as budget participation (e.g., Milani, 1975; Onsi, 1973), information asymmetry (e.g., Baiman, 1982; Chow et al., 1988), and superior's ability to detect slack (e.g., Onsi, 1973) as explanations for the creation of budgetary slack.

Theoretical research, however, has recognized that budgetary slack can also be created in response to environmental level factors such as environmental uncertainty (e.g., Bourgeois, 1981; Cyert and March, 1963; Davila and Wouters, 2005; Kren, 2003). Although environmental uncertainty was first raised more than 50 years ago by Cyert and March (1963) as one of the main contributors of slack and ample studies since then have conjectured a relationship between environmental uncertainty and budgetary slack (e.g., Bourgeois, 1981; Davila and Wouters, 2005; Merchant, 1985; Webb, 2001), we lack adequate theorization and empirical results. Our study is therefore designed to address this gap in the literature. In particular, we draw on both economics-based (i.e., information-processing and agency theory) and psychological-based (i.e., role theory) bodies of theory to theoretically underpin and empirically test whether and how environmental uncertainty is related to budgetary slack. In particular, we hypothesize that perceived environmental uncertainty is positively associated with budgetary slack, either through the economics-based effect of the number of exceptions a manager is confronted with or through the psychology-based two-step path of role ambiguity and job-related tension.

We collected survey data from 218 managers to assess the hypothesized relationships. The results indicate that perceived environmental uncertainty is positively associated with budgetary slack through the sequential indirect path of role ambiguity and job-related tension. Although perceived environmental uncertainty is positively related with the number of exceptions a manager is confronted with, these exceptions do not seem to activate the precautionary motive as there is no significant relationship between these exceptions and budgetary slack.

This study makes four broad contributions to the budgetary slack literature. First, following the recommendations of Covaleski et al. (2003), we used a multi-theoretical framework combining economics-based and psychology-based theories to theoretically underpin the relationship between perceived environmental uncertainty and budgetary slack. In particular, our study develops a composite path model integrating two perspectives that

have not been simultaneously examined before to shed light on the underlying mechanisms by which perceived environmental uncertainty is related to budgetary slack. Second, our study is the first of which we are aware that provides cross-sectional evidence that these two elements are related. Indeed, although ample research identified environmental uncertainty as a factor affecting budgetary slack (e.g., Bourgeois, 1981; Cyert and March, 1963; Davila and Wouters, 2005; Merchant, 1985; Webb, 2001) – to the best of our knowledge – none had empirically tested this relationship before. Third, by filling this gap, our study proposes a more complete model of the antecedents of budgetary slack. In particular, we recognize that three types of factors may influence budgetary slack: environmental (i.e., environmental uncertainty), organizational (i.e., budget participation, slack detection, and information asymmetry), and individual (i.e., the number of exceptions a manager is confronted with, role ambiguity and job-related tension) factors. As our results show that the variance explained by the psychology-based model is higher than the variance explained by the economics-based model, we highlight the importance of psychological variables such as role ambiguity and job-related tension to fully understand the budgetary slack process. Fourth, we contribute to the literature using role theory in an accounting context. Prior research mainly used role theory to explain stress and tension in an auditing (e.g., Jones et al., 2010; Viator, 2001) or performance evaluation context (e.g., Choo and Tan, 1997; Hall, 2008). Very little research, however, recognized the theory's potential in budgeting research (e.g., Dunk, 1993b; Marginson and Ogden, 2005) and – to the best of our knowledge – none has used role theory in budgetary slack research. By extending role theory's knowledge to a budgetary slack context, we were able to shed light on the psychological mechanisms underlying the relationship between perceived environmental uncertainty and budgetary slack. In particular, our study is the first of which we are aware to show that sequential role ambiguity and job-related tension can positively affect budgetary slack.

The rest of the paper is structured as follows. In the next section, we review the theory and existing empirical evidence that lead to our hypotheses. In subsequent sections, we describe the research method, present the empirical results, and discuss the implications and limitations of our study.

2. Literature review and hypotheses development

2.1 Budgetary slack

Budgetary slack plays an important role in the functioning of budgets (Davila and Wouters, 2005, p. 587). Not only does evidence indicate that there is considerable budgetary slack in organizations, it also remains one of the primary unsolved issues[38] in budgetary control (e.g., Lau and Eggleton, 2003; Schoute and Wiersma, 2007). Given its importance, much research effort has been devoted to possible antecedents of budgetary slack (for an overview, see Derfuss, 2012; Dunk and Nouri, 1998). The majority of these prior studies has focused on the effect of *organizational level* explanatory variables such as budget participation (e.g., Brownell and McInnes, 1986; Leach-López et al., 2007; Lukka, 1988; Milani, 1975; Onsi, 1973), information asymmetry (e.g., Baiman, 1982; Chow et al., 1988; Dunk, 1993a; Waller, 1988; Young, 1985), and superior's ability to detect slack (e.g., Merchant, 1985; Onsi, 1973).

Budgetary slack, however, can also be influenced by *environmental level* variables. Indeed, one of the main suggestions in the slack literature is that the organization's environment can influence the level of slack (e.g., Bourgeois, 1981; Cyert and March, 1963). In particular, environmental uncertainty has been proposed as one of the main budgetary slack antecedents. For example, in an early study Onsi (1973) argued that budgetary slack serves as a hedge against environmental uncertainty. Lukka (1988, p.290) subsequently conjectured that environmental uncertainty is one of the main contributors to budgetary slack as it leads to 'a need to prepare oneself for it, just to be on the safe side'. Church, Hannan and Kuang (2012) concluded that budgetary slack may be necessary in some settings, so as to increase agility in the face of environmental uncertainty.

Despite all this research enthusiasm, no study – to the best of our knowledge – has empirically investigated whether and how environmental uncertainty relates to budgetary slack. This article aims to fill this gap in the literature by combining insights from economics-based and psychology-based theories to shed light on whether and the mechanisms by which environmental uncertainty may affect budgetary slack. Figure 1 presents a graphical overview of the hypotheses we develop subsequently.

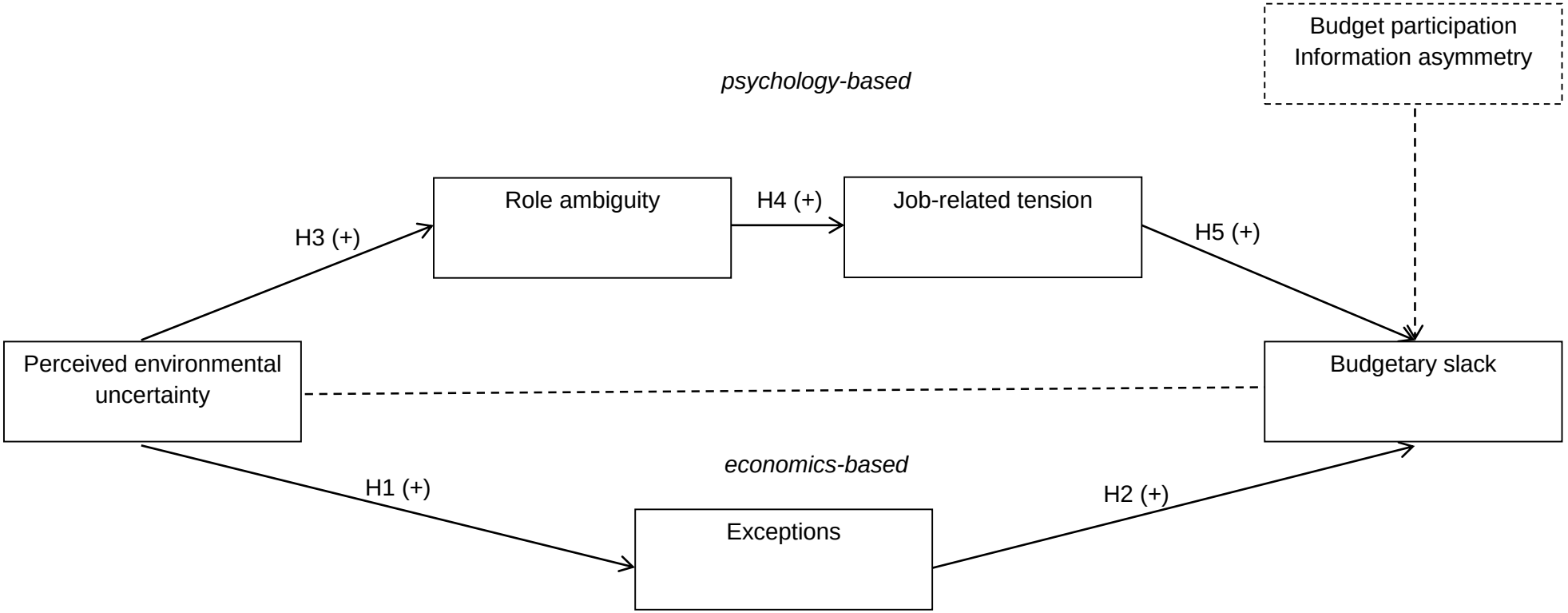
[38] We recognize that the creation of budgetary slack in itself is not undesirable *per se* (Davila and Wouters, 2005; Marginson and Ogden, 2005; Van der Stede, 2000) and that it is only detrimental to the organization to the extent that it results in the expropriation of resources (Church et al., 2012). Judging the (un)desirability of budgetary slack, however, goes beyond the scope of this paper.

2.2 *Environmental uncertainty*

The environment represents the 'totality of physical and social factors directly taken into consideration in the decision-making behavior of individuals in the organization' (Duncan, 1972, p. 314). Under the current dynamics, this environment is likely to be fraught with uncertainty. Environmental uncertainty refers to a lack of information concerning the factors that need to be taken into account when making a decision and these factors' rate of change (Chapman, 1997; Galbraith, 1973). More formally, environmental uncertainty can be described as having three characteristics: (1) not knowing which environmental factors are associated with a given decision-making situation, (2) not knowing the outcome of a specific decision in terms of how much the organization would lose if the decision were incorrect, and (3) the inability to assign any probabilities with any degree of confidence with regard to how environmental factors are going to affect the success or failure of the decision unit in performing its function (Duncan, 1972, p. 318).

In this paper, we focus on the relationship between budgetary slack and *perceived* environmental uncertainty as it is widely recognized that managers' (budgeting) behavior is influenced by the perceived rather than the actual reality. In particular, Weick (1969) asserted that an organization's environment is a perceptual rather than objective phenomenon. Several authors (e.g., Duncan, 1972; Fisher, 1996) have argued that if the organization's environment is a perceptual phenomenon, environmental uncertainty must also be perceptual in nature. For example, Downey et al. (1975) recognized that uncertainty must be thought of as an attribute of an individual's behavioral environment rather than an attribute of the objective, physical environment. As a consequence, managers do not create budgetary slack in response to objective environmental uncertainty but create it as a reaction to their *perception* of this environmental uncertainty.

Figure 1. Diagrammatical representation of the research hypotheses



2.3 *The economics-based relationship between environmental uncertainty and budgetary slack*

We combine two bodies of economics-based theories to explain how environmental uncertainty may increase budgetary slack. The first body of theory is related to *information-processing*. Galbraith (1973, p.16) substantiated that as environmental uncertainty increases, the number of exceptions a company is confronted with increases as well. As a consequence, a higher amount of information must be processed[39] by the decision-makers in the organization to attain a certain performance level. The primary effect of environmental uncertainty is that it becomes more difficult to plan ahead or take decisions before actions are executed. As a reaction, organizations will implement strategies to (1) increase their ability to plan, (2) be able to adapt flexibly, or (3) lower the performance level of the organization.

Second, we stretch Galbraith's (1973) information-processing theory to the individual level[40] by combining it with insights from *agency theory*. The budgeting process and the creation of budgetary slack can be described in terms of an agency relationship. In particular, the superior manager (the principal) engages a subordinate manager (the agent) to perform some services within the budgeting process on her behalf, which involves delegating some decision-making authority – and hence the possibility to create budgetary slack[41] – to the agent[42] (Jensen and Meckling, 1976). One of the main assumptions underlying agency theory is that the agent is a risk-averse[43] individual who makes utility maximizing decisions (Baiman, 1982). The agent's net utility (U) depends on the organization's wage offer (w) and the cost of his effort (c(e)). As the level of w is mainly within the organization's span of control, the

[39] Information processing in organizations is generally defined as including the gathering of data, the transformation of data into information, and the communication and storage of information in the organization (e.g., Galbraith, 1973).

[40] We feel confident to stretch information-processing theory from the organizational to the individual level as our measure of perceived environmental uncertainty at the individual level is positively correlated with a measure of environmental uncertainty at the organizational level. In particular, Duncan's (1972) measure of individual perceived environmental uncertainty was significantly positively correlated ($r = 0.18$, $p < 0.01$) with Govindarajan's (1984) measure asking respondents how (un)predictable the manufacturing technology, competitor's actions, market demand, product attributes, raw material availability, raw material price, government regulation, and labor union actions are in the context of their organizational business unit.

[41] Lukka (1988) suggested that budget participation – as a proxy for budgetary decision rights – provides subordinate managers with the opportunity to take part directly in the creation of budgetary slack.

[42] The assumption of budgeting decision rights being delegated to the managers in our sample was deemed appropriate as the average reported level of budget participation – considered as a proxy for budgetary responsibility – was 5.22 out of seven.

[43] We tested the assumption of risk-averseness by using the 11-item proxy measurement instrument of tolerance for ambiguity (TFA) (MacDonald, 1970) (see Appendix A). The average mean value of TFA was 3.86 out of seven for this specific sample. Moreover, only 17 respondents (7.8%) had a TFA-score higher than five out of seven. As a check, we ran the model without these 17 managers (results not reported here) but the inferences remain unchanged. In general, we can conclude that our respondents are relatively risk-averse.

subordinate manager can only directly influence his net utility through c(e), which is a function of his effort level (e) and a random state factor beyond his control (θ). In other words, the agent's pay-off is largely determined by his effort (e) in combination with the realization of some exogenous event (θ):

$$U = w - c(e) \quad \text{Eq. 1}$$

$$c(e) = f(e,\theta) \quad \text{Eq. 2}$$

The more the agent perceives his environment as uncertain (e.g., the broader the range of possible θ values, the less the agent knows this range, the more difficult it is for the agent to know the θ value upfront…), the larger the uncontrollable part of his cost of effort c(e) (Eq. 2). More noise and randomness are added to the subordinate manager's net utility function due to the larger number of exceptions the manager is confronted with (Eq. 1). Therefore, we hypothesize the following:

H1. Perceived environmental uncertainty is positively associated with the number of exceptions a manager is confronted with.

Building on information-processing theory, we suggest three potential strategies for managers to deal with this increased randomness caused by exceptions; i.e., managers can implement a strategy to (1) extend their abilities and skills to plan forward, (2) be able to respond flexibly to the uncertain environment, or (3) decrease their required performance level. Referring back to agency theory's assumptions, we discard the first strategy. Indeed, the manager will not increase his information-processing capacity and skills as this would require an additional investment in e, which would yield disutility to the manager as e is interpreted as a cost incurred by the subordinate manager on behalf of the principal (see Eq. 1 and Eq. 2). Subordinate managers hence prefer strategies that increase their flexibility or lower their required performance level as these strategies can maximize their total net utility (Kroll et al., 1990). Prior research has proposed budgetary slack as fulfilling both the increased flexibility and decreased performance aim. First, budgetary slack can increase managers' flexibility as it enables them to continually adjust their activities in response to changes in the environment (Chong and Johnson, 2007; Merchant and Manzoni, 1989), it provides them more options to react under the condition of high perceived environmental uncertainty (Bourgeois, 1981), and it hedges against a lack of predictability (Brownell and Dunk, 1991; Lukka, 1988; Merchant, 1985). In particular, in uncertain environments, it is more difficult to know upfront the amount of resources that will be needed as unexpected opportunities may pop up. A shortfall of budgetary resources might prevent managers from investing in these unanticipated yet profitable opportunities. Hence, under these conditions, managers may find it more interesting

to create budgetary slack to mitigate the opportunity cost of missing out on a profitable project. This motivation of creating budgetary slack to avoid running short of critical resources and guaranteeing flexibility, is called the *precautionary motive* (Opler et al., 1999). As such, budgetary slack can absorb some of the uncertainty concerning the θ value and hence maximize the managers' net utility by decreasing c(e). Second, budgetary slack can serve as a protection against missing the budgetary target while increasing the likelihood of budget achievability to gain rewards as it makes targets easier to attain (Merchant and Van der Stede, 2011; Onsi, 1973). Those budgetary rewards can maximize U by indirectly increasing w[44] and lowering c(e).

We can conclude that as perceived environmental uncertainty and the associated exceptions increase, the cost-benefit analysis for budgetary slack changes such that its benefits (e.g., increased flexibility and decreased performance) become larger than its costs (e.g., lower credibility for the subordinate manager in budget negotiations (Pope, 1984), but also organizational performance norms (Lowe and Shaw, 1968) and inter-manager competition (Fama, 1980) can act as constraining influences and impose costs on managers who create relatively slack budgets). As budgetary slack, through increased flexibility (lower c(e)) and reduced performance levels (higher w and lower c(e)), can maximize the subordinate manager's net utility function, we hypothesize the following:

H2. The number of exceptions a manager is confronted with is positively associated with budgetary slack.

2.4 *The psychology-based relationship between environmental uncertainty and budgetary slack*

As we believe that a true understanding of budgetary slack requires both economics-based and psychology-based theories (Covaleski et al., 2003), we use *role theory* as the complementary theoretical framework to analyze the psychology-based relationship between environmental uncertainty and budgetary slack. Indeed, the dependency between an organization, its environment and its employees has important psychological implications. More specifically, perceived environmental uncertainty has been linked to role ambiguity (e.g., Kahn et al., 1964; Rebele and Michaels, 1990). *Role ambiguity* refers to a lack of information regarding (1) the job expectations (goal clarity), (2) the behavior necessary for attaining known

[44] Although the wage offer (w) is mainly within the span of control of the organization, subordinate managers can indirectly influence w by the output they realize. In particular, agency theory generally ascribes two wage offers, depending on the output the subordinate manager realizes. For the type of managers in our study (see Section 3.1) is it rather common that their budgetary performance is part of their subsequent performance evaluation and hence indirectly influences w.

goals (process clarity), and (3) the consequences of role performance (Kahn et al., 1964). In particular, it results from a lack of role information as this information is either non-existent, or simply not communicated. Therefore, role ambiguity has been perceived as the 'discrepancy between the amount of information a person has and the amount of information s/he requires to perform his or her role adequately' (Kahn, 1974, p. 426). Prior research has addressed role difficulties during decision-making in uncertain environments. Kahn et al. (1964), Rizzo et al. (1970), and House and Rizzo (1972), for example, argued that role ambiguity results from the inability of individuals to fully comprehend the organizational complexities of their firm. Lysonski (1985) and Rebele and Michaels (1990) indeed found a significant positive effect of perceived environmental uncertainty on role ambiguity. Following these results, we argue that uncertainty about which factors to take into account when making a decision and a lack of information concerning these factors' rate of change may blur the duties and responsibilities of managers. Moreover, the perception of environmental uncertainty may leave managers unsure about what actions to take to fulfill their responsibilities as the consequences of these actions may be unknown (Marginson and Ogden, 2005, p. 441). Consequently, we argue that perceived environmental uncertainty is positively related to role ambiguity:

H3. Perceived environmental uncertainty is positively associated with role ambiguity.

Job-related tension, defined as 'tension arising from psychologically stressful circumstances in the job environment' (Kenis, 1979, p. 712), occurs in response to a stressor, such as role ambiguity. Indeed, role ambiguity increases the probability that an individual will experience job-related tension (e.g., Jackson and Schuler, 1985; Rebele and Michaels, 1990). Wispe and Thayer (1957), for example, interviewed three levels of managers in a life-insurance company and found that managers experiencing role ambiguity were more stressed. Also, in the auditing context, ample studies have illustrated the detrimental consequences of role ambiguity on job-related tension (e.g., Bamber et al., 1989; Jones et al., 2010). Accordingly, we propose the following hypothesis:

H4. Role ambiguity is positively associated with job-related tension.

Managers experience job-related tension as stress in the job because they experience either of a lack of control or having an excessive workload. In other words, job-related tension manifests itself as lacking control over decisions or by having to do too many tasks without sufficient resources for those tasks. Even though this job-related tension in itself does not have to be harmful to the manager, Hopwood (1973, pp. 23-6) claims that as job-related tension increases, individuals will seek for relief. In this paper, we posit that managers create

budgetary slack expecting such relief and comfort. Hopwood (1972) and Hirst (1981), for example, argue that managers may engage in budgeting behaviors such as padding their budgets with extra resources in response to job-related tension. Indeed, budgetary slack provides managers a degree of freedom from short-term commitment so they can deal better with the lack of control and predictability (Merchant, 1985; Nohria and Gulati, 1996). Budgetary slack gives managers a leeway in managing their response so they can regain a feeling of control (Cyert and March, 1963). Further support for our assertion that job-related tension is positively associated with budgetary slack is drawn from the job stress literature on excessive workload. This excessive workload can either be demands that the manager cannot meet or a shortage of resources to complete his/her tasks (Dunk, 1993b). Budgetary slack, however, can play a stabilizing role by providing a pool of 'emergency resources'. Managers can use these extra resources to meet multiple demands simultaneously (Davila and Wouters, 2005) or to avoid running short of resources when unexpected demands pop up (Lukka, 1988). Managers confronted with job-related tension caused by uncertainty-driven role ambiguity may thus respond by creating more budgetary slack as they expect it shields them from resource shortage and a loss of control. We formally test our expectation with the following hypothesis:

H5. Job-related tension is positively associated with budgetary slack.

3. Research method

3.1 *Sample selection and data collection*

To test the predicted hypotheses, data were collected in Belgium through an on-line survey questionnaire which was administered to a random sample of 2,500 managers from organizations identified in the *Trends Top 10,000* (2014) register of firms[45] and having more than 100 employees[46]. The criterion for sample inclusion was that all respondents are at least middle-level managers[47] and have budget responsibilities, a key condition when examining budgetary slack (e.g., Merchant, 1985; Onsi, 1973). Sales, marketing, manufacturing, R&D, supply chain, IT, and general managers were selected because they typically have these responsibilities and are extensively involved in the budgeting process[48]. Of the 2,500

[45] *Trends Top 10,000* is a database that contains detailed financial and administrative information on the 10,000 largest companies in Belgium.
[46] It was expected that companies with fewer employees were unlikely to have formally defined budgetary targets.
[47] *Trends Top 10,000* contains only contact information of middle-level and top-level managers.
[48] Our sample also comprises 1% finance and 1% HR managers. We did an additional analysis (results not reported here) without these managers and our inferences remained unchanged.

invitations sent, 489 failed to reach the respondent due to an invalid e-mail address (440), the respondent's firm leave (42) or retirement (7).

To improve the response rate, Dillman's (2009) *Tailored Design Method* was adopted to design and administer our questionnaire. More specifically, respondents were promised confidentiality and could obtain a summary report of the survey results. Respondents also had the chance to win a gastronomic dinner or wellness session for two. In addition, a follow-up was administered to non-respondents two weeks after the initial mail-out. Two weeks after the follow-up, we contacted non-respondents to learn about the reasons for their non-response and to try to persuade them to finish the questionnaire. Reasons for non-response included a lack of time, company policy, and a lack of interest in the study. Of the 2,011 invitations that reached the respondent, 220 responses were returned, yielding a response rate of 11% which is in line with other recent behavioral management accounting research (e.g., Chenhall et al., 2011; Chong and Mahama, 2014; De Baerdemaeker and Bruggeman, 2015; Moores and Yuen, 2001). The total response rate includes a 6% response rate (125 responses) from the initial distribution of the questionnaire and a 5% response rate (95 responses) from the reminder mail-out.

The sample is quite broad and diverse. Observations include data from construction (16%), automotive and electronics (11%), food and beverages (11%), energy (7%), transportation and storage (6%), and many other industries (e.g., health care, retail, textiles and clothing, et cetera; 37%). Moreover, the organizations differ widely in terms of size[49]. The majority of the respondents were male (86%), on average 49 years old, working for 16 years in the organization, employed in the current function for 7 years, and taking up a variety of functions in their respective organizations. Table 1 summarizes the information on respondents and their organizations.

Non-response bias was tested, drawing on the familiar assumption that late responses (i.e., questionnaires received after the reminder e-mail) are more likely to resemble non-responses than early responses (i.e., questionnaires received prior to the reminder e-mail) do (Moore and Tarnai, 2002). Two-sample t-tests (for the mean responses of all constructs in our model) and χ^2-tests (for the demographics) revealed no significant differences ($p > 0.05$), indicating that non-response bias is unlikely to affect our results. Moreover, we manually went through all questionnaires and investigated the standard deviation over all responses for each respondent to detect possible response bias. For one respondent, an answer pattern was recorded implying that this response could not be used for further analyses[50]. Moreover, we

[49] Size was measured as the number of employees working for the organization.
[50] The respondent indicated the neutral option for almost all items. As a robustness check, we reran the analysis with this respondent. Our conclusions did not change as all results were qualitatively similar to the results without this respondent.

removed one respondent from further analyses as s/he indicated working in an organization having less than 100 employees.

Given that the dependent and independent variables in our study are all perceptual self-reported measures, common method bias (CMB) may exist in our data (Podsakoff et al., 2003). A priori, we attempted to reduce the potential effects of CMB by using different scale anchor points, by safeguarding the respondent's anonymity, and by assuring respondents that there were no right or wrong answers (Hinkin, 1995). A posteriori, we conducted Harman's single factor test on all items measuring the constructs in our theoretical model. A four-factor rather than a single-factor solution occurred. Moreover, the first factor explained only 18% of the total variance. Following the recommendations of Widaman (1985), we also included a common method factor in the structural equation model. While the method factor slightly improved the model fit (CMINDF = 1.51 and SRMR = 0.06), it was not significant. Given the multiple-factor solution and the common factor's insignificance, CMB is no serious concern for this study.

Prior to launching it online, the questionnaire was comprehensively pretested and piloted to curtail response error (Van der Stede et al., 2005). Five academics, who were not involved in developing the questionnaire, assessed the questionnaire's length, wording, and question ordering. Moreover, an interview was conducted with one manager to ensure clarity and avoid misunderstandings of the survey questions (Diamond, 2000). Some problems signaling ambiguous word choice were identified. A revised version of the questionnaire was distributed to ten managers in a business consulting firm. Seven completed questionnaires were returned. No additional comments were made. The final version of the research instrument is described below.

Table 1. Sample background

	n	%	Min	Max	Mean	Std. dev.
Respondent profile						
Gender						
Male	187	86%				
Female	30	14%				
Function						
Finance	3	1%				
General	45	21%				
HR	3	1%				
Manufacturing	35	16%				
Marketing	14	6%				
R&D	12	6%				
Sales	50	23%				
Supply chain	22	10%				
IT	21	10%				
Other	13	6%				
Tenure						
Organization	217		1	45	15.68	10.14
Function	217		1	33	7.30	6.27
Age	171		26	67	49.23	8.09
Company profile						
Size (number of employees)	214		100	4,500,000	58,237.22	315,895.72

3.2 *Variable measurement*

Variables were operationalized through multi-item constructs and all scale items were scored on a seven-point Likert scale ranging from ‘strongly disagree’ to ‘strongly agree’ unless stated otherwise. Where necessary, items were reverse coded so that higher scores reflect higher levels of perceived environmental uncertainty, exceptions, role ambiguity, job-related tension, and budgetary slack. Established and reliable scales, with some small modifications to fit the present research context, were used whenever possible. Our measurement instrument is provided in Appendix A.

3.2.1 Perceived environmental uncertainty

We measured perceived environmental uncertainty (PEU) using 11 items from Duncan's (1972) scale, which is widely used in accounting (e.g., Fisher, 1996; Govindarajan, 1986; Gregson et al., 1994) and has proved the most useful to date to measure PEU (see items 1-11, Appendix A). In particular, Duncan’s (1972) instrument measures the frequency with which certain events and situations occur in the respondent’s job. Response categories ranged from (1) never, (2) rarely, in less than 10% of the time, (3) occasionally, in about 30%

of the time, (4) sometimes, in about 50% of the time, (5) frequently, in about 70% of the time, (6) usually, in about 90% of the time, to (7) every time. Thus, higher scores indicate a higher degree of perceived environmental uncertainty.

A decision was made in favor of the deletion of four items (PEU3, PEU4, PEU5, and PEU8), given their too low communality[51] (less than 0.50). Single factor analysis results indicate that the remaining seven items loaded on a single factor which supports the uni-dimensionality of the research instrument. In the current study, the Cronbach α for the revised seven-item construct is 0.83 which indicates a high internal consistency for the PEU scale.

3.2.2 Exceptions

We assessed the number of exceptions (EXCEP) a manager is confronted with using a single-item measure based on prior work of Duncan (1972). Respondents were asked to rate, on a seven-point scale ranging from (1) never to (7) every time, how frequent they encountered new or unusual problems at their business unit (see item 12, Appendix A).

3.2.3 Role ambiguity

Measurement of role ambiguity (RA) was based on the six-item scale developed by Rizzo, House and Lirtzman (1970) (see items 13-18, Appendix A)[52]. These items have been widely used in prior accounting research (e.g., Burney and Widener, 2007; Jones et al., 2010; Maas and Matejka, 2009; Marginson et al., 2014; Viator, 2001).

As the possibility of some overlap exists between the PEU and RA constructs (Gregson et al., 1994), we conducted a principal component factor analysis with varimax rotation to ensure that it are two separate constructs (see Appendix B). Empirical results revealed a two-factor solution with the six items for RA loading onto the first factor and the seven items for PEU loading onto the second factor. The managers in our sample were able to distinguish between their responsibilities in a *role* (RA) and the degree of uncertainty they have regarding their *environment* (PEU) which provides evidence for the integrity of our research model. The Cronbach α in this study is 0.82 for RA, indicating acceptable reliability (Nunnally, 1978).

[51] An item's communality reflects how much of the variance in the original item is reflected by the extracted factor.

[52] Although we focus on role ambiguity, all 14 items that were developed by Rizzo et al. (1970) to measure both role ambiguity and role conflict were included in the questionnaire. We did this in order to check the validity of the role ambiguity instrument. A principal component analysis with varimax rotation on the 14-item measure reveals a three-factor solution. The six items for role ambiguity load onto a single factor, the eight items for role conflict cross-load on two factors. For the sake of brevity, only the items relating to role ambiguity are reported in Appendix A.

3.2.4 Job-related tension

The 15-item measure of job-related tension (JRT) developed by the Institute for Social Research at the University of Michigan (Kahn et al., 1964) was employed in this study as it has established levels of validity and reliability (MacKinnon, 1978) and it provides consistency with prior research in the accounting literature studying JRT (e.g., Choo and Tan, 1997; Dunk, 1993b; Emsley, 2001) (see items 19-33, Appendix A). Response categories ranged from (1) never, (2) rarely, in less than 10% of the time, (3) occasionally, in about 30% of the time, (4) sometimes, in about 50% of the time, (5) frequently, in about 70% of the time, (6) usually, in about 90% of the time, to (7) every time. A factor analysis comprising all items from our research model indicated significant cross-loadings for JRT2 with the RA construct so we decided to remove this item from further analyses. Moreover, results from a single factor analysis indicated that four items (i.e., JRT3, JRT4, JRT9, and JRT15) had a factor loading lower than 0.50 and a too low communality. After dropping these items, the remaining ten items loaded on one factor. We cross-checked the integrity of our JRT measure by conducting a factor analysis with varimax rotation for the remaining JRT and RA-items. The results revealed a two-factor solution with the six RA-items loading on one factor and the ten JRT-items loading on the second factor, hence corroborating the validity of our measurement instrument (see Appendix C). The Cronbach α of the remaining ten JRT-items was 0.86 which provides evidence for the construct's internal consistency.

3.2.5 Budgetary slack

In line with Dunk (1993a), Van der Stede (2000), and Indjejikian and Matejka (2006), the definition of budgetary slack we use in this study, focuses on the ease with which budgetary targets can be achieved. Budgetary slack occurs when managers 'negotiate highly achievable targets' (Van der Stede, 2000, p. 609), i.e., targets that are lower than their best-guess forecast about the future. Conversely, a budget contains little slack if it requires considerable effort and a high degree of efficiency (Simons, 1987). To measure budgetary slack (SLACK), we used the six-item instrument developed by Dunk (1993a) (see items 34-39, Appendix A). Considerable evidence of the reliability and validity of this scale has been compiled (e.g., Van der Stede, 2000). Single factor analysis reveals that three items (SLACK1, SLACK3, and SLACK5) should be dropped from further analyses as their communality value is lower than 0.50. The remaining three items load on one factor. Cronbach α for the three-item instrument was 0.66, which exceeded the acceptable 0.60 threshold. The construct is correlated to Onsi's (1973) and Van der Stede's (2000) alternative measure for budgetary slack. As expected, the results show a significantly positive correlation ($r = 0.29$, $p < 0.01$; $r = 0.69$, $p < 0.01$, respectively). Dunk's (1993a) measure is, however, retained for further analyses as it has

better measurement properties than both the Onsi (1973) and Van der Stede (2000) measurement instrument in this specific sample (α = 0.50 and α = 0.55, respectively).

3.2.6 Control variables[53]

Budget participation (BP). Although results are mixed, the large amount of research on the relationship between BP and SLACK indicates the importance of controlling for the influence of BP on SLACK. BP was measured with the well-established six-item measure developed by Milani (1975) (see items 40-45, Appendix A). Single factor analysis reveals that BP3 does not load adequately on the factor (i.e., factor loading of 0.38). After deleting this item, the remaining five items are uni-dimensional. The Cronbach α of 0.84 provides evidence for the construct's internal consistency.

Slack detection (DETECT). Prior research illustrated the negative relationship between DETECT and SLACK (Merchant, 1985; Onsi, 1973). Indeed, 'slack cannot be created where it is easily detected' (Merchant, 1985, p. 203). We measured DETECT with the three-item instrument developed by Onsi (1973) (see items 46-48, Appendix A). The single factor analysis reveals that DETECT is uni-dimensional with a Cronbach α of 0.85.

Information asymmetry (IA). IA exists when subordinates' information exceeds that of their superiors. SLACK may be created by employees biasing the upward communication of this private information (e.g., Chow et al., 1988; Waller, 1988; Young, 1985). Therefore, we control for a positive relationship between IA and SLACK. IA was measured with Dunk's (1993a) three-item measure (see items 49-51, Appendix A). The response categories were different depending on the specific question and can be consulted in Appendix A. Results of a single factor analysis indicate that all items load onto one factor with a Cronbach α value of 0.79.

[53] We also controlled for background variables such as the respondents' tenure in their organization and respective functions, age, gender, and size of the organization. As our analyses (results not reported here) indicated that none of these control variables were correlated with the dependent variable, we decided to omit them from further analyses (Becker, 2005).

4. Analysis and results

4.1 Descriptive statistics

Table 2 reports the descriptive statistics and correlations among the variables in this study. First, the relationship between PEU and SLACK is insignificant ($r = 0.01$, $p = 0.96$). Second, PEU is significantly positively correlated with EXCEP ($r = 0.23$, $p < 0.01$, H1) but EXCEP is only marginally significantly correlated with SLACK ($r = 0.13$, $p = 0.06$, H2). Third, we observe a significant positive relationship between PEU and RA ($r = 0.39$, $p < 0.01$, H3). In turn, RA is significantly positively correlated with JRT ($r = 0.36$, $p < 0.01$, H4) and JRT significantly positively relates to SLACK ($r = 0.16$, $p < 0.05$, H5). These correlations suggest that PEU is related to SLACK through the psychological two-step indirect path of RA and JRT. None of the control variables correlated significantly with SLACK[54] ($r = 0.03$, $p = 0.69$ for BP; $r = -0.11$, $p = 0.09$ for DETECT; and $r = -0.08$, $p = 0.23$ for IA, respectively).

4.2 Statistical method

The economics-based and psychology-based explanation of the relationship between perceived environmental uncertainty and budgetary slack is further examined by using LISREL[55] structural equation modeling (SEM)[56]. An advantage of SEM is that it can evaluate the proposed hypotheses while accounting for measurement reliability. All analyses use the maximum likelihood (ML) method[57] and follow procedures recommended by Hair et al. (2010) for evaluating model fit and interpreting the SEM model. In particular, we follow the recommended two-step approach (Anderson and Gerbing, 1988) which is in line with recent accounting studies (e.g., Chong and Chong, 2002; Hartmann and Slapničar, 2009; Sweeney and Quirin, 2009; Wong-On-Wing et al., 2010).

[54] The results from a multiple regression analysis, however, show a significant β-coefficient for both DETECT ($\beta = -0.15$, $p < 0.05$) and IA ($\beta = -0.14$, $p < 0.10$). Therefore, we decided to retain the control variables for further analyses.

[55] We obtained the SEM results using LISREL 9.1.

[56] We reviewed the variance inflation factors and tolerance levels and found no indication of multicollinearity. Moreover, we plotted the residuals and performed White's test and no signs of heteroscedasticity were apparent (Hair et al., 2010).

[57] In preliminary tests, we discovered that our data are not multivariate normally distributed, as is the case with most perceptual data (Hunton and Gibson, 1999). We tested normality by investigating the skewness and kurtosis indexes associated with each of the survey items and conducted Shapiro-Wilk's test (Kline, 2005). Although results indicated that the measures were not normally distributed, we used the ML method as it performs well, even under conditions of non-normality (Boomsma and Hoogland, 2001). In section '4.3 Validity tests for statistical robustness' we report the results from the robust ML-model.

Table 2. Descriptive statistics, correlation matrix, and discriminant validity coefficients (n = 218) for perceived environmental uncertainty, the number of exceptions, role ambiguity, job-related tension, budgetary slack, and the control variables.

Variable	Mean	s.d.	Min	Max	Cronbach α	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
PEU (1)	2.69	0.63	1.14	5.00	0.83	**0.66**							
EXCEP (2)	3.68	1.22	1.00	7.00	-	0.23**	**-**						
RA (3)	2.32	0.74	1.00	5.33	0.82	0.39**	0.08	**0.68**					
JRT (4)	2.55	0.72	1.09	6.09	0.83	0.34**	0.31**	0.36**	**0.63**				
SLACK (5)	3.02	1.17	1.00	6.00	0.66	0.01	0.13*	0.14*	0.16*	**0.69**			
BP (6)	5.22	1.04	1.67	7.00	0.84	-0.33**	0.08	-0.26**	-0.26**	0.03	**0.73**		
DETECT (7)	5.30	1.09	1.67	7.00	0.85	-0.24**	-0.01	-0.38**	-0.06	-0.11	0.14*	**0.81**	
IA (8)	5.18	1.33	1.00	7.00	0.79	-0.21**	0.01	-0.04	-0.17*	-0.08	0.16*	-0.07	**0.75**

**,* Correlation is significant at the 0.01 level, 0.05 level (two-tailed test), respectively. Correlations between the constructs are below the diagonal. The square root of the AVE value for each of the constructs is along the diagonal (in bold).

PEU = perceived environmental uncertainty, EXCEP = number of exceptions, RA = role ambiguity, JRT = job-related tension, SLACK = budgetary slack, BP = budget participation, DETECT = slack detection, and IA = information asymmetry.

4.2.1 Measurement model

The first step in our analysis was developing the measurement model, consisting of five theoretical latent constructs (PEU, EXCEP, RA, JRT, and SLACK) and three control variables (BP, DETECT, and IA). This model specifies the relationships between the observed items and latent constructs. In other words, the measurement model assesses the reliability and validity of the observed items relating to our specific latent constructs. Table 3 reports the standardized factor loadings and statistics from the measurement analysis.

The measurement model provides a good fit, although the χ^2-value is significant (χ^2 [637] = 1,001.55, $p < 0.01$), which is typical for a sample size as large as ours (Bentler and Bonett, 1980). Specifically, the ratio of χ^2 over degrees of freedom (CMINDF = 1.57) is lower than the recommended cut-off value of 3, both the comparative fit index (CFI = 0.95) and the non-normed fit index (NNFI = 0.94) are larger than 0.90, the root mean square error of approximation (RMSEA = 0.05) is lower than 0.10 and the standardized root mean square residual (SRMR = 0.07) is lower than the recommended 0.09 cut-off value (e.g., Arbuckle and Wothke, 1999; Bentler, 1990; Hair et al., 2010). As shown in Table 3, all item loadings are greater than 0.50[58] and significant ($p < 0.05$), indicating that the items share more variance with their respective constructs than with the error variance. Next, the reliability of each latent construct was assessed by calculating its composite reliability (Fornell and Larcker, 1981). As illustrated in Table 3, the composite reliability index of all constructs is good and meets or exceeds the threshold value of 0.70 (Hair et al., 2010).

Construct validity is assessed in terms of both convergent and discriminant validity. First, the constructs' convergent validity was assessed by investigating the average variance extracted (AVE) (see Table 3). All but one[59] AVE scores are close to or higher than the threshold value of 0.50. Second, we assessed discriminant validity of the constructs by using the three-step procedure suggested by Hair et al. (2010). In a first phase, we conducted a series of χ^2 difference tests (SCDTs) (Joreskog, 1971). We fixed the correlation between two constructs to one and reran the model. We then compared the fits of the constrained models with the fit of the original model to assess discriminant validity. For every pair of constructs we tested, the unconstrained model provided evidence of superior fit ($p < 0.01$). In a second phase, we tested a model in which all observed items were indicators of only one latent construct. The SCDT comparing this model with the original model was significant ($p < 0.01$), again providing support for discriminant validity. In the third phase, we conducted a further test

[58] Only SLACK4 has an item loading slightly lower than 0.50 (i.e., 0.44). We refrained from deleting this item as the results of an exploratory factor analysis clearly indicate that SLACK is a uni-dimensional variable.

[59] The only exception was JRT with an AVE value of 0.40. However, we refrained from deleting items measuring JRT to enhance its AVE to maintain the content validity of our measure.

of discriminant validity by comparing the correlations between the latent constructs with the square root of the AVEs (see Table 3). As the square roots of the AVE are larger than the off-diagonal correlations, discriminant validity is supported. Moreover, it is clear from Table 3 that the internal reliability of each latent construct exceeds its inter-construct reliabilities, providing strong evidence of discriminant validity (Churchill, 1979). Overall, the analyses indicate adequate construct validity for all latent constructs in the model.

Table 3. Standardized factor loadings from the LISREL measurement model

Variable	Stand. loading	AVE	Reliability
Perceived environmental uncertainty (PEU)		0.43	0.84
PEU1	0.64		
PEU2	0.71		
PEU6	0.53		
PEU7	0.70		
PEU9	0.71		
PEU10	0.64		
PEU11	0.62		
Number of exceptions (EXCEP)			
EXCEP1	1.00	-	-
Role ambiguity (RA)		0.46	0.83
RA1	0.60		
RA2	0.69		
RA3	0.61		
RA4	0.61		
RA5	0.79		
RA6	0.71		
Budgetary slack (SLACK)		0.47	0.70
SLACK2	0.53		
SLACK4	0.44		
SLACK6	0.97		

Variable	Stand. loading	AVE	Reliability
Job-related tension (JRT)		0.40	0.87
JRT1	0.65		
JRT5	0.69		
JRT6	0.58		
JRT7	0.64		
JRT8	0.63		
JRT10	0.56		
JRT11	0.67		
JRT12	0.68		
JRT13	0.57		
JRT14	0.60		
Budget participation		0.54	0.85
BP1	0.79		
BP2	0.59		
BP4	0.83		
BP5	0.78		
BP6	0.64		
Slack detection (DETECT)		0.66	0.85
DETECT1	0.91		
DETECT2	0.70		
DETECT3	0.81		
Information asymmetry (IA)		0.56	0.79
IA1	0.80		
IA2	0.73		
IA3	0.72		

4.2.2 Structural model

Second, we analyzed the structural model which represents the relationships between the latent constructs while taking into account the measurement error variances identified in the measurement model. In particular, a SEM model was estimated in which PEU relates to SLACK, via (1) the psychology-based sequential indirect path of RA and JRT and (2) the economics-based indirect path of EXCEP, controlling for the effects of BP, DETECT, and IA on SLACK. Table 4 lists each hypothesis and its corresponding path coefficients while Figure 2 illustrates the path coefficients graphically in our theoretical model.

Consistent with the univariate results, the path estimate between PEU and EXCEP is positively significant ($\beta = 0.50$, $p < 0.01$). Hypothesis H1, proposing a positive association between PEU and EXCEP is thus supported by the results. Our results, however, provide no support for hypothesis H2, predicting a positive relationship between EXCEP and SLACK ($\beta = -0.01$, $p = 0.12$). Conversely, as predicted in hypothesis H3, PEU is significantly positively related to RA ($\beta = 0.57$, $p < 0.01$). Furthermore, the empirical results indicate a significant positive association between RA and JRT ($\beta = 0.71$, $p < 0.01$) which provides support for hypothesis H4, linking higher levels of RA to higher levels of JRT. In support of hypothesis H5, we found a statistically significant positive path estimate between JRT and SLACK ($\beta = 0.30$, $p < 0.01$).

We performed an additional analysis to test the relative explanatory power of the economics-based and psychology-based perspective in predicting the creation of budgetary slack. The proportion of variance explained for budgetary slack amounted to 25% for the economics-based model, while the psychology-based model explained 28% of the variance. The variance explained by the integrative model amounted to 31%, demonstrating a marginal improvement of the integrative model's explanatory power compared to the two separate models. Following recent research by Perego and Hartmann (2009), we conducted pairwise F-tests comparing the R^2 values of the integrated model with those of the separate economics-based and psychology-based models. Although the difference in R^2 values is not substantive, it is statistically significant at $p < 0.05$ for the economics-based versus integrative model. The variance explained by the psychology-based model, however, does not differ significantly from the variance explained by the integrative model. Having compared each of the separate models to the integrative model, we next compared the two separate models to each other using Steiger's (1980) Z-formula. The correlation between the two separate models was $r = 0.67$ ($p < 0.01$) and Z equaled 5.84 ($p < 0.01$), indicating that the psychology-based model with RA and JRT accounts for significantly more variance in budgetary slack than the economics-based model with EXCEP.

Finally, these results hint toward an indirect relationship between PEU and SLACK through the psychology-based sequential effect of RA and JRT. In line with recent research

(e.g., Ylinen and Gullkvist, 2014), we calculated the total indirect effect as the multiplication of the statistically significant effects on and from the RA-JRT combination: PEU-RA (0.57), RA-JRT (0.71), and JRT-SLACK (0.30), which equals a total indirect effect of 0.12. The statistical significance of this three-path effect was tested using the joint significance test and the procedure of Hayes, Preacher, and Myers (2011) based on a bootstrap procedure with 1,000 bootstraps. We observe from Table 4 that all coefficients making up the three-path indirect effect are significantly different from zero. Moreover, all effects are in the predicted, positive direction: the more managers perceive the environment to be uncertain, the more role ambiguity they will experience, this heightened role ambiguity is associated with an increase in job-related tension, and job-related tension is positively related to budgetary slack. Taken together, the joint significance test rejects the null hypothesis of no indirect effect. Furthermore, following the Hayes, Preacher and Myers (2011) procedure, we multiplied the direct path of each of the 1,000 bootstraps to obtain an estimated coefficient for the indirect effect. Those 1,000 direct effect coefficients were sorted from smallest to largest to obtain the 95% bootstrap confidence interval. As this interval did not include zero ([0.05; 0.14]), we can conclude that the three-path indirect effect is significant.

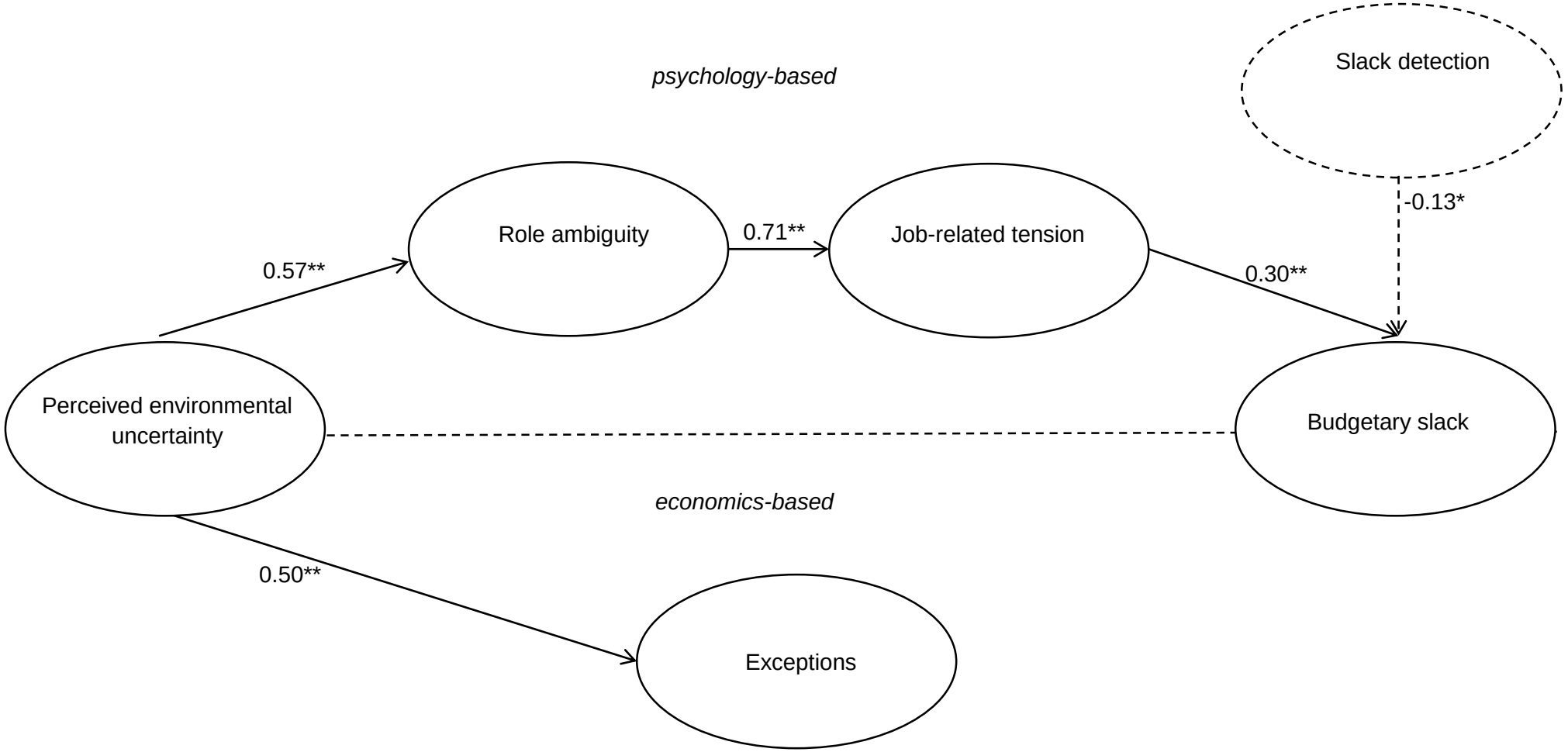
Table 4. Path coefficients from the LISREL structural model

Dependent variable	Independent variables	Associated hypothesis	Path coefficient	Z-value	p-value
EXCEP	PEU	H1	0.498	3.336	0.001
RA	PEU	H3	0.572	6.700	0.000
JRT	RA	H4	0.712	6.626	0.000
SLACK	EXCEP	H2	-0.008	-1.568	0.117
	JRT	H5	0.304	3.568	0.000
	BP	-	0.097	1.694	0.090
	DETECT	-	-0.127	-2.445	0.015
	IA	-	-0.067	-1.245	0.213

n = 218.

PEU = perceived environmental uncertainty, EXCEP = number of exceptions, RA = role ambiguity, JRT = job-related tension, SLACK = budgetary slack.

Figure 2. Structural model with significant path estimates



**, * Statistically significant at 0.01 level and 0.05 level, respectively

4.2.3 Validity tests for statistical robustness

To ensure that the results are robust and given the multivariate non-normality of the data in this study, we conducted some additional analyses.

First, we redid the analysis using the robust ML method, which is a distribution-free method robust against small sample sizes. This method requires both the covariance matrix and the asymptotic covariance matrix as input factors (Lomax and Schumacker, 2012). The use of robust ML slightly improved the fit of the measurement model (NNFI = 0.98, and CFI = 0.98) but qualitatively similar structural paths were obtained.

Second, as the definitions of PEU and JRT might suggest that PEU is a three-dimensional and JRT is a two-dimensional construct, we ran a second-order SEM. A SCDT confirmed that the best model fit results when both PEU and JRT are treated as a single order construct. Moreover, even if we force the second-order structures upon the model, no qualitatively different relationships are found than for the single-order model. For the sake of simplicity, we decided to only report the results of the single-order model as this has the best fit.

Third, as managers' reaction to RA may depend on specific personality traits such as their tolerance for ambiguity (TFA), we included the effect of this variable in our model. More specifically, a manager's need for unambiguous information in uncertain situations may influence the amount of JRT this manager experiences as a result of RA (MacDonald, 1970). Managers scoring high on TFA like ambiguous and complex situations whereas people scoring low on TFA dislike them. It is therefore possible that the relationship between RA and JRT will be stronger for managers with low TFA than for managers with high TFA. TFA was measured by the shortened 11-item version of the MacDonald (1970) instrument (see items 52-62, Appendix A). Splitting at the median of TFA, two subsamples were created. Managers scoring higher (lower) than the median value on TFA were labeled highly (little) tolerant. Multi-sample SEM ($\chi^2/df = 1.69$, CFI = 0.91, NNFI = 0.91, RMSEA = 0.08, SRMR = 0.14) was conducted and a SCDT ($p < 0.01$) revealed that the relationship between RA and JRT was stronger for managers scoring low on TFA ($\beta = 0.94$, $p < 0.01$) than for managers scoring high on TFA ($\beta = 0.50$, $p < 0.01$). The other path coefficients remained qualitatively the same. These additional investigations suggest an acceptable robustness of the model depicted in Figure 2.

5. Conclusions, limitations, and suggestions for future research

Previous empirical work has mainly focused on organizational level variables as explanations for budgetary slack (e.g., Dunk, 1993a; Milani, 1975). Prior theoretical work, however, advanced the notion that budgetary slack can also be affected by environmental level factors such as environmental uncertainty (e.g., Bourgeois, 1981; Cyert and March, 1963). The aim of this study was to empirically examine whether and how environmental uncertainty and budgetary slack are related. We investigated the underlying mechanisms of the environmental uncertainty-budgetary slack relationship by integrating an economics-based and psychology-based perspective. In particular, building on information-processing and agency theory (for the economics-based relationship) and role theory (for the psychology-based relationship), hypotheses have been developed in this paper, predicting that (1) perceived environmental uncertainty is positively associated with budgetary slack through the number of exceptions a manager is confronted with, and that (2) perceived environmental uncertainty is positively associated with budgetary slack through the sequential indirect effect of role ambiguity and job-related tension.

Relying on survey data obtained from 218 respondents, we find that perceived environmental uncertainty increases budgetary slack through the job-related tension that arises from uncertainty-driven role ambiguity. As the mean values of budget participation and information asymmetry are rather high in our sample, we can expect that our respondents had the opportunity and an incentive to create budgetary slack to bias their performance evaluation[60] (Waller, 1988). As the mean value of slack detection, however, is also high we expect their creation of budgetary slack to be lowered. Our results illustrate that despite the detection level being high, the level of budgetary slack is high when job-related tension is high. Therefore, we tentatively conclude that managers create budgetary slack expecting security and comfort in situations where job-related tension caused by uncertainty-driven role ambiguity is present, rather than because they have the mere opportunity to do so[61].

By integrating two perspectives that have not been simultaneously studied before in the budgetary slack literature, we provide four contributions. First, this study contributes to the existing literature by relying on both economics-based and psychology-based theories to theoretically underpin the often suggested relationship between environmental uncertainty and budgetary slack. Second, we provide empirical evidence for the ill-tested suggestion that

[60] For the type of managers we selected, it is common that the budget is used for their performance evaluation.

[61] This tentative conclusion is corroborated by the results of an additional analysis (results not reported here) in which we constrained the sample to those respondents reporting higher than median budget participation, information asymmetry, and slack detection (n = 64). In this subsample, the psychology-based relationship between perceived environmental uncertainty and budgetary slack remains significant and explains a higher proportion of the variance in budgetary slack than the economics-based relationship.

environmental uncertainty is one of the main antecedents of budgetary slack. Third, by providing both an economics-based and a psychology-based path suggesting how perceived environmental uncertainty could be related to budgetary slack, we provide a more complete understanding of the budgetary slack creation process. The integration of environmental (i.e., environmental uncertainty), organizational (i.e., budget participation, slack detection, and information asymmetry), and individual (i.e., the number of exceptions a manager is confronted with, role ambiguity and job-related tension) factors as antecedents of budgetary slack within a single model can facilitate the development of a more coherent and integrated model to explain the occurrence of budgetary slack. In particular, our results highlight the importance of individual psychological variables such as role ambiguity and job-related tension as these explain a significantly larger proportion of the variance in budgetary slack than the individual economic variable of the number of exceptions a manager is confronted with. Indeed, we find that the psychological explanation is the most significant one suggesting that budgetary slack can function as a tool that can help managers to cope with uncertainty rather than being solely dysfunctional to the organization. We tentatively conclude that in uncertain environments, managers create budgetary slack with its uncertainty-buffering effect in mind rather than to ease their work or obtain personal rents. The notion that budgetary slack may be created in response to role ambiguity and job-related tension adds to our understanding of why budgetary slack may be created. Fourth, we contribute to the literature using role theory in an accounting context by building on role theory's knowledge to advance budgetary slack research. This study also has the potential to inform practitioners as the contemporary workplace is experiencing change at a more dramatic pace than ever before. In such an environment, top management must be aware of the potential of budgetary slack, rather than focusing one-sidedly on budgetary slack's dysfunctional economic effects. Rather than focusing on a pure cost minimization model that would eliminate any 'excess' resources, our results imply that superior managers must balance the costs of slack and its potential protective psychological abilities. We therefore underline the importance of choosing a budgetary strategy that suits the organizational environment. This understanding of the budgetary slack process may also assist superiors in the management of budgetary slack, which can be augmented or diminished by trying to influence the manager's psychological state. It is not sufficient to install formal control systems. Indeed, our results highlight that the effect of these formal systems on individual psychological variables should be closely monitored to understand why budgetary slack is created. As it seems from our results that managers may create budgetary slack as a reaction to psychological rather than economic effects, both academics and practitioners should ask themselves the question how far the relationship between job-related tension and budgetary slack can be stretched. Is the creation of budgetary slack a short-term reaction to an increase in job-related tension? What if this job-related tension keeps on growing due to

increased role ambiguity and highly uncertain environments? Prior research hints toward employees leaving the firm in favor of another job if they experience too high job-related tension (e.g., Bamber et al., 1989; Rebele and Michaels, 1990). The current economic situation, however, is characterized by relatively high unemployment levels and job scarcity. What can happen under these conditions given that we can realistically assume an upper bound to the potential of budgetary slack creation?

The results of this study are subject to a number of limitations. First, there are some limitations associated with cross-sectional survey research in general. For example, our study relies on self-reported data. Although steps were taken to ensure reliability of the data and the diagnostic tests indicate no reason to expect bias, the possibility of noisy measures cannot be eliminated. In addition, this study relies on cross-sectional data so we cannot make statements about the direction of causation in our research model[62]. Future studies could use alternative methods and obtain more objective measures to obtain further insights. For example, experimental studies could manipulate role ambiguity at different levels and measure job-related tension and the creation of budgetary slack subsequently. Similarly, future research could use an experimental design to explicitly test for budgetary slack's buffering effect by setting up a 2x2-between subjects design in which both the level of environmental uncertainty and budgetary slack can be high or low. In addition to these general limitations, this study is also limited by the fact that the proposed model only considers environmental uncertainty, the number of exceptions a manager is confronted with, role ambiguity, job-related tension, budget participation, slack detection, and information asymmetry as antecedents for budgetary slack. There are doubtlessly alternative antecedents for budgetary slack that were not examined here to keep the scope of the work manageable. Moreover, we only focus on slack in operational budgets hence neglecting slack in capital budgets and non-financial targets. Future research could broaden the slack-construct to capture the additional resources built into those types of targets as well. The construct of uncertainty could be enlarged as well to reflect multiple types of uncertainty (e.g., task uncertainty) and multiple dimensions (e.g., dynamism, complexity, and munificence (Dess and Beard, 1984)). Future research using this broader uncertainty-construct could examine whether all types and dimensions of uncertainty relate similarly to budgetary slack or not. Finally, by looking at the antecedents of budgetary slack we were unable to determine whether slack is desirable or not (Van der Stede, 2001). Related to this is that we not explicitly tap into managers' reasons for creating budgetary slack. Future research should attempt to test these 'good' and 'bad' conditions more explicitly to unravel whether slack is good or bad for performance.

[62] The causal direction in our model reflects the general assumption about the longitudinal stability of the various factors in our model (Luft and Shields, 2003, pp. 193-4).

Notwithstanding these limitations and the need for more research, this study deepens our insight into the antecedents of budgetary slack by empirically testing a more complete model of budgetary slack, an important and complex area of management accounting research. Whereas traditional empirical budgetary slack research considered mainly organizational level variables, we provide evidence that budgetary slack can be created as it provides managers with an expected coping mechanism for the tension caused by uncertainty-driven role ambiguity. Additionally, by introducing psychological variables as mediating mechanisms, we provide a better understanding of the behavioral issues relating to the development of budgetary targets.

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7. References

Anderson, J.C., Gerbing, D.W., 1988. Structural equation modeling: A review and recommended two-step approach. Psychological Bulletin 103, 411-423.

Arbuckle, J., Wothke, W., 1999. AMOS 4 user's reference guide. Chicago: Smallwaters Corporation.

Baiman, S., 1982. Agency research in managerial accounting: A survey, in: Bell, J. (Ed.), Accounting control systems: A technical, social, and behavioral integration. Markus Wiener Publishing, Inc., NY, p. 312.

Bamber, E.M., Snowball, D., Tubbs, R.M., 1989. Audit structure and its relation to role conflict and role ambiguity: An empirical investigation. Accounting Review 64, 285-299.

Becker, T.E., 2005. Potential problems in the statistical control of variables in organizational research: A qualitative analysis with recommendations. Organizational Research Methods 8, 274-289.

Bentler, P.M., 1990. Comparative fit indexes in structural models. Psychological Bulletin 107, 238-246.

Bentler, P.M., Bonett, D.D., 1980. Significance tests and goodness of fit in the analysis of covariance structures. Psychological Bulletin 88, 588-606.

Boomsma, A., Hoogland, J.J., 2001. The robustness of LISREL modeling revisited. Structural equation models: Present and future. A Festschrift in honor of Karl Jöreskog, 139-168.

Bourgeois, L.J., 1981. On the measurement of organizational slack. Academy of Management Review 6, 29-39.

Brownell, P., Dunk, A.S., 1991. Task uncertainty and its interaction with budgetary participation and budget emphasis: Some methodological issues and empirical investigation. Accounting, Organizations and Society 16, 693-703.

Brownell, P., McInnes, M., 1986. Budgetary participation, motivation, and managerial performance. Accounting Review 61, 587-600.

Burney, L., Widener, S.K., 2007. Strategic performance measurement systems, job-relevant information, and managerial behavioral responses-role stress and performance. Behavioral Research in Accounting 19, 43-69.

Chapman, C.S., 1997. Reflections on a contingent view of accounting. Accounting, Organizations and Society 22, 189-205.

Chenhall, R.H., Kallunki, J.-P., Silvola, H., 2011. Exploring the relationships between strategy, innovation, and management control systems: The roles of social networking, organic innovative culture, and formal controls. Journal of Management Accounting Research 23, 99-128.

Chong, K.M., Mahama, H., 2014. The impact of interactive and diagnostic uses of budgets on team effectiveness. Management Accounting Research 25, 206-222.

Chong, V.K., Chong, K.M., 2002. Budget goal commitment and informational effects of budget participation on performance: A structural equation modeling approach. Behavioral Research in Accounting 14, 65-86.

Chong, V.K., Johnson, D.M., 2007. Testing a model of the antecedents and consequences of budgetary participation on job performance. Accounting and Business Research 37, 3-19.

Choo, F., Tan, K.B., 1997. A study of the relations among disagreement in budgetary performance evaluation style, job-related tension, job satisfaction and performance. Behavioral Research in Accounting 9, 199-218.

Chow, C.W., Cooper, J.C., Waller, W.S., 1988. Participative budgeting: Effects of a truth-inducing pay scheme and information asymmetry on slack and performance. Accounting Review 63, 111-122.

Church, B.K., Hannan, R.L., Kuang, X.J., 2012. Shared interest and honesty in budget reporting. Accounting, Organizations and Society 37, 155-167.

Churchill, G.A., 1979. A paradigm for developing better measures of marketing constructs. Journal of Marketing Research 16, 64-73.

Covaleski, M.A., Evans III, J.H., Luft, J.L., Shields, M.D., 2003. Budgeting research: Three theoretical perspectives and criteria for selective integration. Journal of Management Accounting Research 15, 3-49.

Cyert, R.M., March, J.G., 1963. Behavioral theory of the firm. Prentice Hall, Englewood Cliffs, NJ.

Davila, T., Wouters, M., 2005. Managing budget emphasis through the explicit design of conditional budgetary slack. Accounting, Organizations and Society 30, 587-608.

De Baerdemaeker, J., Bruggeman, W., 2015. The impact of participation in strategic planning on managers' creation of budgetary slack: The mediating role of autonomous motivation and affective organisational commitment. Management Accounting Research.

Derfuss, K., 2012. Budget slack: Some meta-analytic evidence, 8th Conference on New Directions in Management Accounting, Brussels, Belgium.

Dess, G.G., Beard, D.W., 1984. Dimensions of organizational task environments. Administrative Science Quarterly 29, 52-73.

Diamond, S.S., 2000. Reference guide on survey research., Reference manual on scientific evidence., 2nd ed. The Federal Justice Center, Washington, DC, pp. 229-276.

Dillman, D.A., Smyth, J.D., Christian, L.M., 2009. Internet, mail and mixed-mode surveys: The tailored design method. John Wiley & Sons, Inc., Hoboken, New Jersey.

Downey, H.K., Hellriegel, D., Slocum Jr, J.W., 1975. Environmental uncertainty: The construct and its application. Administrative Science Quarterly, 613-629.

Duncan, R.B., 1972. Characteristics of organizational environments and perceived environmental uncertainty. Administrative Science Quarterly 17, 313-327.

Dunk, A.S., 1993a. The effect of budget emphasis and information asymmetry on the relation between budgetary participation and slack. Accounting Review 68, 400-410.

Dunk, A.S., 1993b. The effects of job-related tension on managerial performance in participative budgetary settings. Accounting, Organizations and Society 18, 575-585.

Dunk, A.S., Nouri, H., 1998. Antecedents of budget slack: A literature review and synthesis. Journal of Accounting Literature 17, 72-96.

Emsley, D., 2001. Budget-emphasis in performance evaluation and managers' job related tension: The moderating effect of information completeness. British Accounting Review 33, 399-419.

Fama, E.F., 1980. Agency problems and the theory of the firm. Journal of Political Economy 88, 288-307.

Fisher, C., 1996. The impact of perceived environmental uncertainty and individual differences on management information requirements: A research note. Accounting, Organizations and Society 21, 361-369.

Fornell, C., Larcker, D.F., 1981. Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research 18, 39-50.

Galbraith, J.R., 1973. Designing complex organizations. Addison-Wesley Longman Publishing Co., Inc.

Govindarajan, V., 1984. Appropriateness of accounting data in performance evaluation: An empirical examination of environmental uncertainty as an intervening variable. Accounting, Organizations and Society 9, 125-135.

Govindarajan, V., 1986. Impact of participation in the budgetary process on managerial attitudes and performance: Universalistic and contingency perspectives. Decision Sciences 17, 496-516.

Gregson, T., Wendell, J., Aono, J., 1994. Role ambiguity, role conflict, and perceived environmental uncertainty: Are the scales measuring separate constructs for accountants? Behavioral Research in Accounting 6, 144-159.

Hair, J.F.J., Black, W.C., Babin, B.J., Anderson, R.E., 2010. Multivariate data analysis: A global perspective, 7th ed. Pearson Education, Inc., Upper Saddle River, New Jersey.

Hall, M., 2008. The effect of comprehensive performance measurement systems on role clarity, psychological empowerment and managerial performance. Accounting, Organizations and Society 33, 141-163.

Hartmann, F., Slapničar, S., 2009. How formal performance evaluation affects trust between superior and subordinate managers. Accounting, Organizations and Society 34, 722-737.

Hayes, A.F., Preacher, K.J., Myers, T.A., 2011. Mediation and the estimation of indirect effects in political communication research, in: Bucy, E.P., Holbert, R.L. (Eds.), Sourcebook for political communication research: Methods, measures, and analytical techniques Routledge, New York.

Hinkin, T.R., 1995. A review of scale development practices in the study of organizations. Journal of Management 21, 967-988.

Hirst, M.K., 1981. Accounting information and the evaluation of subordinate performance: A situational approach. Accounting Review 56, 771-784.

Hopwood, A.G., 1972. An empirical study of the role of accounting data in performance evaluation. Journal of Accounting Research 10, 156-182.

Hopwood, A.G., 1973. An accounting system and managerial behavior. Saxon House, D.C. Heath Ltd., Great Britain.

House, R.J., Rizzo, J.R., 1972. Toward the measurement of organizational practices: Scale development and validation. Journal of Applied Psychology 56, 388-396.

Hunton, J.E., Gibson, D., 1999. Soliciting user-input during the development of an accounting information system: Investigating the efficacy of group discussion. Accounting, Organizations and Society 24, 597-618.

Indjejikian, R.J., Matejka, M., 2006. Organizational slack in decentralized firms: The role of business unit controllers. Accounting Review 81, 849-872.

Jackson, S.E., Schuler, R.S., 1985. A meta-analysis and conceptual critique of research on role ambiguity and role conflict in work settings. Organizational Behavior and Human Decision Processes 36, 16-78.

Jensen, M.C., Meckling, W.H., 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. Journal of Financial Economics 3, 305-360.

Jones, A., Norman, C.S., Wier, B., 2010. Healthy lifestyle as a coping mechanism for role stress in public accounting. Behavioral Research in Accounting 22, 21-41.

Joreskog, K.G., 1971. Statistical analysis of sets of congeneric tests. Psychometrika 36, 109-133.

Kahn, R.L., 1974. Conflict, ambiguity, and overload: Three elements in job stress, in: McLean, A. (Ed.), Occupational stress. Thomas Publishing, Springfield, Illinois, pp. 47-61.

Kahn, R.L., Wolfe, D., Quinn, R., Snoek, J.D., Rosenthal, R., 1964. Organizational stress: Studies in role conflict and role ambiguity. Wiley, New York.

Kenis, I., 1979. Effects of budgetary goal characteristics on managerial attitudes and performance. Accounting Review 54, 707-721.

Kline, R.B., 2005. Principles and practice of structural equation modeling, 2nd ed. Guilford Press, New York.

Kren, L., 2003. Effects of uncertainty, participation, and control system monitoring on the propensity to create budget slack and actual budget slack created. Advances in Management Accounting 11, 143-167.

Kroll, M., Simmons, S.A., Wright, P., 1990. Determinants of chief executive officer compensation following major acquisitions. Journal of Business Research 20, 349-366.

Lau, C.M., Eggleton, I.R.C., 2003. The influence of information asymmetry and budget emphasis on the relationship between participation and slack. Accounting and Business Research 33, 91-104.

Leach-López, M.A., Stammerjohan, W.W., McNair, F.M., 2007. Differences in the role of job-relevant information in the budget participation-performance relationship among U.S. and Mexican managers: A question of culture or communication. Journal of Management Accounting Research 19, 105-136.

Lomax, R.G., Schumacker, R.E., 2012. A beginner's guide to structural equation modeling. Routledge Academic.

Lowe, E.A., Shaw, R.W., 1968. An analysis of managerial biasing: Evidence from a company's budgeting process. Journal of Management Studies 5, 304-315.

Luft, J., Shields, M.D., 2003. Mapping management accounting: Graphics and guidelines for theory-consistent empirical research. Accounting, Organizations and Society 28, 169-249.

Lukka, K., 1988. Budgetary biasing in organizations: Theoretical framework and empirical evidence. Accounting, Organizations and Society 13, 281-301.

Lysonski, S., 1985. A boundary theory investigation of the product manager's role. Journal of Marketing 49, 26-40.

Maas, V.S., Matejka, M., 2009. Balancing the dual responsibilities of business unit controllers: Field and survey evidence. Accounting Review 84, 1233-1253.

MacDonald, A.P., 1970. Revised scale for ambiguity tolerance: Reliability and validity. Psychological reports 26, 791-798.

MacKinnon, N.J., 1978. Role strain: An assessment of a measure and its invariance of factor structure across studies. Journal of Applied Psychology 63, 321-328.

Marginson, D., McAulay, L., Roush, M., van Zijl, T., 2014. Examining a positive psychological role for performance measures. Management Accounting Research 25, 63-75.

Marginson, D., Ogden, S., 2005. Coping with ambiguity through the budget: The positive effects of budgetary targets on managers' budgeting behaviours. Accounting, Organizations and Society 30, 435-456.

Merchant, K.A., 1985. Budgeting and the propensity to create budgetary slack. Accounting, Organizations and Society 10, 201-210.

Merchant, K.A., Manzoni, J.-F., 1989. The achievability of budget targets in profit centers: A field study. Accounting Review, 539-558.

Merchant, K.A., Van der Stede, W.A., 2011. Management control systems: Performance measurement, evaluation and incentives, 3rd ed. ed. Prentice Hall, London.

Milani, K., 1975. The relationship of participation in budget-setting to industrial supervisor performance and attitudes: A field study. Accounting Review 50, 274-284.

Moore, D.L., Tarnai, J., 2002. Evaluating nonresponse error in mail surveys, in: Groves, R.M., Dillman, D.A., Eltinge, J.L., Little, R.J.A. (Eds.), Survey nonresponse. Wiley-Interscience, New York, pp. 197-211.

Moores, K., Yuen, S., 2001. Management accounting systems and organizational configuration: A life-cycle perspective. Accounting, Organizations and Society 26, 351-389.

Nohria, N., Gulati, R., 1996. Is slack good or bad for innovation? Academy of Management Journal 39, 1245-1264.

Nunnally, J.C., 1978. Psychometric theory, 2nd edition ed. McGraw-Hill Book Company, New York, NY.

Onsi, M., 1973. Factor analysis of behavioral variables affecting budgetary slack. Accounting Review 48, 535-548.

Opler, T., Pinkowitz, L., Stulz, R., Williamson, R., 1999. The determinants and implications of corporate cash holdings. Journal of financial economics 52, 3-46.

Perego, P., Hartmann, F., 2009. Aligning performance measurement systems with strategy: The case of environmental strategy. Abacus 45, 397-428.

Podsakoff, P.M., MacKenzie, S.B., Lee, J.-Y., Podsakoff, N.P., 2003. Common method biases in behavioral research: A critical review of the literature and recommended remedies. Journal of Applied Psychology 88, 879-903.

Pope, P.F., 1984. Information asymmetries in participative budgeting: A bargaining approach. Journal of Business Finance & Accounting 11, 41-59.

Rebele, J.E., Michaels, R.E., 1990. Independent auditors' role stress: Antecedent, outcome, and moderating variables. Behavioral Research in Accounting 2, 124-153.

Rizzo, J.R., House, R.J., Lirtzman, S.I., 1970. Role conflict and ambiguity in complex organizations. Administrative Science Quarterly 15, 150-163.

Schoute, M., Wiersma, E., 2007. The impact of budgetary slack on budget use. ARCA, Amsterdam Research Center in Accounting.

Simons, R., 1987. The role of management control systems and business strategy: An empirical analysis. Accounting, Organizations and Society 12, 357-374.

Steiger, J.H., 1980. Tests for comparing elements of a correlation matrix. Psychological bulletin 87, 245-251.

Sweeney, J.T., Quirin, J.J., 2009. Accountants as layoff survivors: A research note. Accounting, Organizations and Society 34, 787-795.

Van der Stede, W.A., 2000. The relationship between two consequences of budgetary controls: budgetary slack creation and managerial short-term orientation. Accounting, Organizations and Society 25, 609-622.

Van der Stede, W.A., 2001. The effect of corporate diversification and business unit strategy on the presence of slack in business unit budgets. Accounting, Auditing & Accountability Journal 14, 30-52.

Van der Stede, W.A., Young, S.M., Chen, C.X., 2005. Assessing the quality of evidence in empirical management accounting research: The case of survey studies. Accounting, Organizations and Society 30, 655-684.

Viator, R.E., 2001. The association of formal and informal public accounting mentoring with role stress and related job outcomes. Accounting, Organizations and Society 26, 73-93.

Waller, W.S., 1988. Slack in participative budgeting: The joint effect of a truth-inducing pay scheme and risk preferences. Accounting, Organizations and Society 13, 87-98.

Webb, R.A., 2001. The impact of reputation and variance investigations on the creation of budget slack. Accounting, Organizations and Society 27, 361-378.

Weick, K.E., 1969. The social psychology of organizing. Addison-Wesley Publishing Company, Reading (Mass).

Widaman, K.F., 1985. Hierarchically nested covariance structure models for multitrait-multimethod data. Applied Psychological Measurement 9, 1-26.

Wispe, L.G., Thayer, P.W., 1957. Role ambiguity and anxiety in an occupational group. Journal of Social Psychology 46, 41-48.

Wong-On-Wing, B., Lan, G., Lui, G., 2010. Intrinsic and extrinsic motivation and participation in budgeting: Antecedents and consequences. Behavioral Research in Accounting 22, 133-153.

Ylinen, M., Gullkvist, B., 2014. The effects of organic and mechanistic control in exploratory and exploitative innovations. Management Accounting Research 25, 93-112.

Young, S.M., 1985. Participative budgeting: The effects of risk aversion and asymmetric information on budgetary slack. Journal of Accounting Research 23, 829-842.

8. Appendices

Appendix A. Survey questions

Perceived environmental uncertainty

Rubric on the questionnaire: Please indicate the frequency with which the following items occur. There are no right or wrong answers.

Scale: 1 (Never) - 7 (Every time)

1. PEU1: I am certain about what approaches would be best for dealing with job-related problems that arise during my job fulfillment.*
2. PEU2: I have all the necessary information to make job-related decisions at my firm.*
3. PEU3: When doing my job, it is difficult to determine if a job-related decision is a correct one.
4. PEU4: Environmental changes that I have no control over (e.g., changes in social, economic, political or technical conditions outside of the firm) affect the decisions I make at my firm.
5. PEU5: I am uncertain about how to act to fulfill the requirements of my job.
6. PEU6: I am certain about the job adjustments I have to make to handle the environmental changes that occur at my firm.*
7. PEU7: I can tell if my actions will accomplish my job related objectives.*
8. PEU8: It is difficult for me to determine if the methods I used accomplished my job-related objectives at my firm.
9. PEU9: I know how to obtain the information necessary for job-related decision-making.*
10. PEU10: I can tell if I have met the expectations of others at my firm.*
11. PEU11: I am certain about how my job should be done.*

Number of exceptions

Rubric on the questionnaire: Please indicate the frequency with which the following items occur. There are no right or wrong answers.

Scale: 1 (Never) - 7 (Every time)

12. EXCEP1: I encounter new or unusual problems at my business unit.

Role ambiguity

Rubric on the questionnaire: The following questions address issues that affect your job. Please indicate the extent to which you agree or disagree with each of the following statements. There are no right or wrong answers.

Scale: 1 (Strongly disagree) - 7 (Strongly agree)

13. RA1: I feel certain about how much authority I have in my job.*
14. RA2: Clear, planned goals and objectives exist for my job.*
15. RA3: I know that I have allocated my time properly in my job.*
16. RA4: I know what my responsibilities are in my job.*
17. RA5: I know exactly what is expected of me in my job.*
18. RA6: I have been provided clear explanations of what has to be done in my job.*

Job-related tension

Rubric on the questionnaire: I would like you to indicate how frequently you feel bothered by each of the items listed below. There are no right or wrong answers.

Scale: 1 (Never) - 7 (Every time)

19. JRT1: Feeling that you have too little authority to carry out the responsibilities assigned to you.
20. JRT2: Being unclear about just what the scope and responsibilities of your job are.
21. JRT3: Not knowing what opportunities for advancement or promotion exist for you.
22. JRT4: Feeling that you have too heavy a work load, one that you cannot possibly finish during an ordinary work day.
23. JRT5: Thinking that you will not be able to satisfy the conflicting demands of various people over you.
24. JRT6: Feeling that you are not fully qualified to handle your job.
25. JRT7: Not knowing what your supervisor thinks of you, how s/he evaluates your performance.
26. JRT8: The fact that you cannot get information needed to carry out your job.
27. JRT9: Having to decide things that affect the lives of individuals, people that you know.
28. JRT10: Feeling that you may not be liked and accepted by the people you work with.
29. JRT11: Feeling unable to influence your immediate supervisor’s decisions and actions that affect you.
30. JRT12: Not knowing what the people you work with expect of you.
31. JRT13: Thinking that the amount of work you have to do may interfere with how well it gets done.
32. JRT14: Feeling that you have to do things on the job that are against your better judgment.

33. JRT15: Feeling that your job tends to interfere with your family life.

Budgetary slack

Rubric on the questionnaire: The following questions are about the budgetary targets encompassed in your business unit's operating budget. Please indicate to what extent you agree or disagree with each of the following statements. There are no right or wrong answers.

Scale: 1 (Strongly disagree) - 7 (Strongly agree)

34. SLACK1: Budget targets demand high productivity in my business unit.*
35. SLACK2: Budget targets set for my business unit are safely attainable.
36. SLACK3: I have to carefully monitor costs/revenues in my business unit because of budgetary constraints.*
37. SLACK4: Budget targets have not caused me to be particularly concerned with improving efficiency in my business unit.
38. SLACK5: Targets incorporated in the budget are difficult to reach.*
39. SLACK6: Budget targets for my business unit are not particularly demanding.

Budget participation

Rubric on the questionnaire: Please indicate to what extent you agree or disagree with each of the following statements. No right or wrong answers exist.

Scale: 1 (Strongly disagree) - 7 (Strongly agree)

40. BP1: I am involved in setting all portions of my budget.
41. BP2: The reasoning provided by my supervisor when budget revisions are made is logical.
42. BP3: I state my requests, opinions, or suggestions about the budget to my supervisor without being asked.
43. BP4: I have a high amount of influence on the final budget.
44. BP5: My contribution to the budget is important.
45. BP6: When the budget is being set, my supervisor seeks my requests, opinions, or suggestions.

Slack detection

Rubric on the questionnaire: Please indicate to what extent you agree or disagree with each of the following statements. No right or wrong answers exist.

Scale: 1 (Strongly disagree) - 7 (Strongly agree)

46. DETECT1: Top management has enough information to know if there is slack in my business unit's operating budget.
47. DETECT2: Top management receives detailed information on the activities by business unit and product.
48. DETECT3: Top management has a way to know if there is slack in my business unit's operating budget.

Information asymmetry

Rubric on the questionnaire: In comparison with your superior,

49. IA1: Who is in possession of better information regarding the activities undertaken in your business unit?
    Scale: 1 (My superior has much better information) – 7 (I have much better information)
50. IA2: Who is more familiar with the input-output relationships of the operations in your business unit?
    Scale: 1 (My superior is much more familiar) – 7 (I am much more familiar)
51. IA3: Who is more certain of the performance potential of your business unit?
    Scale: 1 (My superior is much more certain) – 7 (I am much more certain)

Tolerance for ambiguity

Rubric on the questionnaire: There are no right or wrong answers and therefore your first response is important.

52. TFA1: There is a right and wrong way to do almost everything.*
53. TFA2: Practically every problem has a solution.*
54. TFA3: I have always felt that there is a clear difference between right and wrong.*
55. TFA4: Nothing gets accomplished in this world unless you stick to some basic rules.*
56. TFA5: If I were a doctor, I would prefer the uncertainties of a psychiatrist to the clear and definite work of someone like a surgeon or X-ray specialist.
57. TFA6: Vague and impressionistic pictures have little appeal for me.*
58. TFA7: Before an examination, I felt much less anxious if I knew how many questions there would be.
59. TFA8: The best part of working a jigsaw puzzle is putting in that last piece.*

60. TFA9: I do not like to work on a problem unless there is a possibility of coming out with a clear-cut and unambiguous answer.
61. TFA10: I like to fool around with new ideas, even if they turn out later to be a total waste of time.
62. TFA11: Perfect balance is the essence of all good composition.*

* Items are reverse-coded

Appendix B. Principal component factor analysis with varimax rotation for role ambiguity and perceived environmental uncertainty

Variable	Factor 1	Factor 2
A. I feel certain about how much authority I have in my job.	0.13	**0.67**
A. Clear, planned goals and objectives exist for my job.	0.14	**0.75**
A. I know that I have allocated my time properly in my job.	0.24	**0.65**
A. I know what my responsibilities are in my job.	0.21	**0.65**
A. I know exactly what is expected of me in my job.	0.20	**0.79**
A. I have been provided clear explanations of what has to be done in my job.	0.06	**0.77**
U. I am certain about what approaches would be best for dealing with job-related problems.	**0.72**	0.09
U. I have all the necessary information to make job-related decisions.	**0.70**	0.24
U. I am certain about the job adjustments I have to make to handle the environmental changes that occur at my business unit.	**0.66**	0.01
U. I can tell if my actions will accomplish my job-related objectives.	**0.71**	0.22
U. I know how to obtain the information necessary for job-related decision-making.	**0.74**	0.16
U. I can tell if I have met the expectations of others at my business unit.	**0.67**	0.20
U. I am certain about how my job should be done.	**0.61**	0.30
Eigen values	1.90	4.93
Explained variance	25.67%	26.88%

Kaiser-Meyer-Olkin measure of sampling adequacy: 0.87.

A = Measures for role ambiguity.

U = Measures for perceived environmental uncertainty.

Appendix C. Principal component factor analysis with varimax rotation for role ambiguity and job-related tension

Variable	Factor 1	Factor 2
A. I feel certain about how much authority I have in my job.	0.30	**0.59**
A. Clear, planned goals and objectives exist for my job.	0.02	**0.81**
A. I know that I have allocated my time properly in my job.	0.21	**0.65**
A. I know what my responsibilities are in my job.	0.22	**0.63**
A. I know exactly what is expected of me in my job.	0.19	**0.80**
A. I have been provided clear explanations of what has to be done in my job.	0.09	**0.77**
T. Feeling that you have too little authority to carry out the responsibilities assigned to you.	**0.69**	0.13
T. Thinking that you will not be able to satisfy the conflicting demands of various people over you.	**0.74**	0.13
T. Feeling that you are not fully qualified to handle your job.	**0.62**	0.15
T. Not knowing what your supervisor thinks of you, how s/he evaluates your performance.	**0.60**	0.29
T. The fact that you cannot get information needed to carry out your job.	**0.65**	0.15
T. Feeling that you may not be liked and accepted by the people you work with.	**0.60**	0.14
T. Feeling unable to influence your immediate supervisor's decisions and actions that affect you.	**0.68**	0.19
T. Not knowing what the people you work with expect of you.	**0.60**	0.40
T. Thinking that the amount of work you have to do may interfere with how well it gets done.	**0.65**	0.07
T. Feeling that you have to do things on the job that are against your better judgment.	**0.67**	0.07
Eigen values	5.79	2.12
Explained variance	27.86%	21.52%

Kaiser-Meyer-Olkin measure of sampling adequacy: 0.89.

A = Measures for role ambiguity.

T = Measures for job-related tension.

CHAPTER 5 - CONCLUSION

The goal of this dissertation was to shed light on the 'black box of budgeting' by clarifying the psychological mechanisms underlying two of the most important budgeting concepts: budget participation and budgetary slack. In particular, our first study focused on *how and when diverse forms of budget participation relate to different types of budget motivation.* The second and third study examined *the effect of participation in strategic planning (PSP) and environmental uncertainty on budgetary slack*, respectively.

This last chapter summarizes the main findings of each study and brings them together to provide a general overview of how budgeting works. Meanwhile, I also illustrate this dissertation's contributions to current budgeting research. Next, I summarize the limitations and suggest fruitful opportunities for future research. Finally, I conclude with the practical implications of this dissertation.

1. Main findings

1.1 Study 1 – Budget participation and budget motivation

Relying on participative decision-making (PDM) and self-determination theory (SDT), we were able to enrich current budgeting studies that have largely neglected the richness of budget participation and budget motivation. By engaging in an in-depth field study, we found evidence of multiple types of budget motivation and diverse forms of budget participation. In particular, managers can put effort into attaining their budget goals either because they like this (intrinsic motivation), because they have internalized the importance of the budget goals to themselves (autonomous integrated regulation) or to their organization (autonomous identified regulation), or because they feel pressured to do so by an external (controlled external regulation) or internal (controlled introjected regulation) controlling imperative. Moreover, our results also suggest a budget participation continuum ranging from 'no influence' to 'joint decision-making'.

Understanding how and when diverse forms of budget participation relate to these different types of motivation, was the main focus of this first study. Regarding how participation and motivation are related, we elaborate on the needs for autonomy, competence, and relatedness as important underlying mechanisms. Regarding the when-question, true participation (for the 'consultation' type) and participation congruence (for the 'no influence' types), in combination with strategic alignment (for the needs for autonomy, competence, and

relatedness), are identified as important factors determining whether a certain form of budget participation will stir autonomous or controlled budget motivation.

1.2 Study 2 – Participation in strategic planning and budgetary slack

The results of the second study underline the importance of taking into account the broader organizational context in which budgeting is taking place to understand the budgetary slack process. In particular, we focused on the internal organizational context by studying the effect of the whole planning process (i.e., both the strategic planning and budgeting process) on budgetary slack. This study provided evidence of both elements of the planning process being related to budgetary slack, although through a different path. More specifically, the relationship between PSP and budgetary slack is mediated by affective organizational commitment whereas the relationship between budget participation and budgetary slack is mediated by autonomous budget motivation. Taken together, the results suggest that to understand the budgetary slack process, both elements of the organizational planning process should be taken into account.

1.3 Study 3 – Environmental uncertainty and budgetary slack

Not only the internal but also the external organizational context is important when studying budgetary slack, as evidenced by the third study of this dissertation. This study focused on the relationship between environmental uncertainty and budgetary slack. Drawing on both economics-based (i.e., agency theory and the information processing framework) and psychology-based theories (i.e., role theory), we empirically examined whether and how perceived environmental uncertainty related to budgetary slack. Our results demonstrated the importance of individual psychological variables. Indeed, perceived environmental uncertainty relates indirectly to more slack through the two-step indirect effect of role ambiguity and job-related tension. Although increased uncertainty confronts the manager with more exceptions, these exceptions do not increase the creation of budgetary slack, which illustrates the relative importance of the psychological over the economic explanation for budgetary slack. This study provides tentative evidence for budgetary slack's uncertainty-buffering role as we cautiously assume that managers create budgetary slack in a reaction to role ambiguity and the associated job-related tension rather than because they have the mere opportunity to do so.

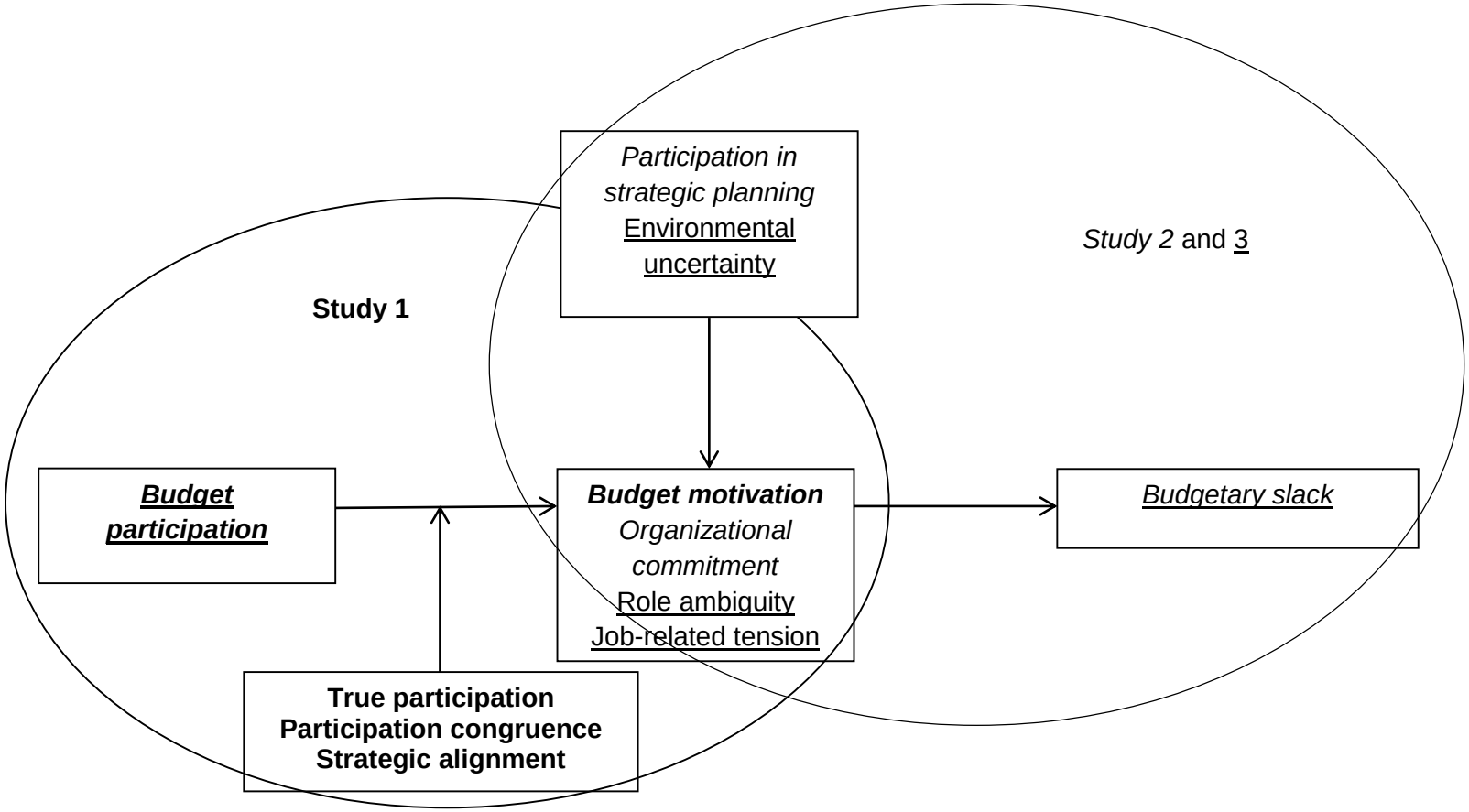
2. General conclusion and contributions

2.1 General conclusion

Each study has its own conclusions and contributions but together, these studies shed light into 'the black box of budgeting' (see Figure 1 for a graphical overview of the results of this dissertation).

The general conclusion of this dissertation is that *budgeting, its characteristics and outcomes are no uniform processes but are deeply embedded in human complexities*. These human complexities are illustrated in detail throughout the three studies. The first study shows that although the decision to let subordinate managers participate in the budgeting process or not is a decision taken at the organizational level, its consequences should be examined at the individual level. In particular, whether the 'consultation' form of budget participation results in the satisfaction of the basic psychological needs, depends on the individual manager's perception of whether this consultation is true or pseudo-participative. Moreover, for some managers, a 'no influence' form of budget participation does not frustrate their needs for autonomy, competence, or relatedness; which seems to depend on their level of participation congruence. Similarly, it is not because managers work in the same organization that they feel equally strategically aligned. The second and third study pinpoint the importance of individual psychological variables for understanding the budgetary slack process. Whereas study 2 shows that the individual variables fully mediate the effect of formal mechanisms on budgetary slack (i.e., autonomous budget motivation mediates the relationship between budget participation and budgetary slack, and affective organizational commitment mediates the relationship between PSP and budgetary slack), study 3 provides evidence of the psychology-based path explaining more variance in budgetary slack than the economics-based path. Together, these results reinforce the notion that budgeting is inspired by people and made for people so the 'people' factor is primordial to understand its working.

Figure 1. Dissertation results



2.2 Contributions

This dissertation contributes to the existing budgeting literature in five broad ways.

First, this dissertation advances our understanding of *budget participation*. The results of study 1 highlight the importance of distinguishing between diverse forms of budget participation to unravel its motivational effects. Budget participation, however, may not only function as a motivational tool, it may also be used as a tool to manage the amount of budgetary slack created. In particular, the results in study 2 show how budget participation indirectly decreases budgetary slack through the mediating effect of autonomous budget motivation. Combining the results from study 1 and study 2 suggests that true forms of high influence budget participation can, in combination with strategic alignment, decrease budgetary slack through the full mediation effect of autonomous budget motivation.

Second, we extend research on *budgetary slack* by testing an integrated model of antecedents. Whereas previous slack research focused largely on the narrow budget setting, we enlarged the scope of potential antecedents. In particular, study 2 introduced the strategy process and study 3 examined budgetary slack's relationship with perceived environmental uncertainty.

Third, this dissertation illustrates the *importance of strategy in the budgeting process* in two ways. (1) In our first study, we find that strategic alignment can act as a substitute for high influence, true forms of budget participation. Moreover, our results also show that strategic alignment is a necessary condition for budget participation to be an autonomous motivation tool. If managers do not know nor embrace their organization's strategy, providing them the opportunity to participate in the budgeting process will not reap autonomous motivational benefits. Only when budget participation is accompanied by strategic alignment, participation can autonomously motivate managers to attain their budget goals. (2) In our second study, we followed up on the fact that budgeting and strategy are part of an integrated organizational planning process by studying the effect of PSP on budgetary slack. We learned that allowing managers PSP, decreases budgetary slack through the mediating effect of affective organizational commitment.

Fourth, by studying the effect of both the external (i.e., perceived environmental uncertainty in study 3) and internal (i.e., PSP in study 2) broader organizational context, we contribute to the research idea that budgeting does not operate in isolation (e.g., Malmi and Brown, 2008). To understand the budgetary slack process, we should look further than the characteristics of the budgeting process. Indeed, budgetary slack can be influenced by environmental, organizational and individual level variables.

Fifth, we contribute to the second and third stage of psychological budgeting research (Covaleski et al., 2003). In particular, by relying on SDT we were able to identify different types

of budget motivation and gain insight into how and when a certain form of budget participation can autonomously motivate managers to attain the budget. Moreover, combining SDT and organizational commitment theory provided insight into how both PSP and budget participation relate to budgetary slack whereas role theory helped us gain an understanding of the relationship between perceived environmental uncertainty and budgetary slack. Hence, by combining already known theories in budgeting research (e.g., organizational commitment and role theory) with new developments in psychology (e.g., SDT), we gained a more complete understanding of two important budgeting concepts: budget participation and budgetary slack.

3. Limitations and suggestions for future research

3.1 Contextual and methodological limitations

Like all research, this dissertation has both contextual and methodological limitations. First, in this dissertation we focused on budgeting's motivational function and hence excluded other functions, such as for example the planning function. Notwithstanding the importance of budgeting as a motivational device, recent research increasingly recognizes that budgeting can simultaneously serve different purposes (e.g., Arnold and Artz, 2015; Ekholm and Wallin, 2000; Hansen and Van der Stede, 2004). Therefore, future research should study the simultaneous use of budgeting for different purposes and the tension and conflicts that may arise from these interactions. Second, we mainly relied on psychological theories to open budgeting's 'black box'. Although psychology theory has been used to study management accounting practice in general and budgeting in particular for over 60 years (Birnberg et al., 2007), budgeting research could benefit from an active integration of psychological, social, and economic theories (Covaleski et al., 2003). Research choosing between competing theories or combining compatible theories from different perspectives would create a more valid and complete understanding of budgeting practices and outcomes. We took a first step in this direction in our third study, where we relied on both economics-based and psychology-based theories to hypothesize on the relationship between environmental uncertainty and budgetary slack. Further integration steps, however, should be taken in future research. Third, some methodological limitations are present. To provide a deeper understanding of budget participation and budget motivation, we engaged in field research for our first study. Despite the richness that a field study can provide, it does not allow to make broad generalizations. Our results should thus be interpreted with care. Study 2 and 3 relied on self-reported survey data which may create a concern for common method bias. Although steps were undertaken to ensure reliable data and the tests indicate no signs of bias, the possibility of noisy measures

cannot be fully eliminated. Moreover, self-reported measures reflect perceptions instead of actual reality. Rather than seeing this as a limitation of our research, we strongly value the importance of perceptions. Indeed, managers react to their perceived rather than the actual reality (Link and Oldendick, 2000; Van der Stede et al., 2005) implying that budget motivation is linked to perceived rather than actual budget participation (study 1). Moreover, managers create budgetary slack in response to their perceived rather than actual level of PSP (study 2) and environmental uncertainty (study 3). Finally, relying on cross-sectional data, we cannot make statements about causality. Future studies, therefore, could use alternative methods (e.g., experimental research or longitudinal research) and obtain more objective measures to alleviate these methodological limitations.

3.2 Suggestions for future research

Despite the radical changes in today's highly competitive environment, budgeting remains relevant to contemporary organizations (e.g., Bjornenak, 2014; Libby and Lindsay, 2010). I therefore believe that further research into its characteristics and outcomes remains interesting from both a theoretical and practical perspective. In this section, I suggest four fruitful avenues for future research.

First, future research could further expand the definition of budget participation. Although study 1 takes an important first step in recognizing that different forms of budget participation exist, we approached participation from the typical superior-subordinate dimension. The organizational behavior literature (e.g., Barki and Hartwick, 1994; Cotton et al., 1988; Doll and Torkzadeh, 1989; Ives and Olson, 1984), however, has identified several other dimensions of participation, such as its degree of formality, the level of group dynamics, vertical (i.e., between superior and subordinate) versus horizontal (i.e., between managers at the same hierarchical level) participation, which have been largely denied in budgeting research. It can be logically expected that the consequences of budget participation will vary along each of these dimensions. I therefore recommend that future budgeting research aims to disentangle the different dimensions of budget participation, adapts Milani's (1975) traditional measure to reflect this multi-dimensionality, and assesses these dimensions' differential effects on budget motivation and budgetary slack.

Second, although recent budgeting research recognizes that budgetary slack can be beneficial for the organization (e.g., Davila and Wouters, 2005; Marginson and Ogden, 2005), little research has explicitly tested these potential positive effects. I would recommend future research to examine the relationship between budgetary slack, and innovation, efficiency, and uncertainty-buffering, respectively. Moreover, when assessing these consequences, I suggest that future research distinguishes between budgetary slack's long-term versus short-term and economic versus psychological consequences. Whereas budgetary slack represents an

opportunity cost reflecting waste and inefficiency from a short-term, economic perspective, it may resolve goal-conflict, buffer managers from environmental uncertainty, and enable managers to balance multiple goals at the same time which may increase these managers' competence feeling from a long-term, psychological perspective.

Third, management accounting has typically focused on slack in operational budgeting, neglecting the potential for slack in non-financial objectives and capital budgeting. Due to the presence of asymmetric information, subordinate managers may introduce slack into their capital budgeting cash flow forecasts. I found only five empirical studies that have examined this issue (i.e., Guilding, 2003; Guilding and Lamminmaki, 2007; Lazaridis, 2006; Pruitt and Gitman, 1987; Turner and Guilding, 2012), with only one of these studies examining antecedents of capital slack (Turner and Guilding, 2012). Moreover, organizations rely increasingly on non-financial objectives (e.g., Hall, 2008; Marginson et al., 2014). As subordinate managers are often involved in setting these objectives, they also main contain a form of slack. Struck by the scant attention directed to these types of slack, I suggest that future research looks into these issues.

Fourth, future research should examine managers' intentions behind the creation of budgetary slack. In line with prior research, we looked into the antecedents of budgetary slack's existence but we did not specifically tap into (a) the reasons why managers created budgetary slack, and (b) what they actually do with these additional resources. As Hansen et al. (2004, p. 1280) noted: 'What a firm does with its resources is at least as important as which resources it possesses'. Insight in both the reasons behind the creation of budgetary slack and its actual usage represent interesting avenues for future research and could help us in determining the conditions under which budgetary slack is good or bad.

4. Practical implications

This dissertation provides some interesting insights for practitioners which can inspire them to improve current budgeting practices. In particular, this dissertation provides guidance on how to avoid two main criticisms often voiced by practitioners toward the traditional budgeting process (e.g., Hansen et al., 2003; Hope and Fraser, 2003; Jensen, 2003): (1) budgeting makes people feel undervalued as it strengthens the vertical command-and-control structure, and (2) budgeting and strategy are unrelated to each other.

First, in order to avoid that managers feel undervalued, budgeting should be structured in a way that it creates autonomous budget motivation. My dissertation shows that allowing managers budget participation is not sufficient in this regard. Top management should consciously design this participatory process by taking into account the following five guidelines. (1) Budget participation is more than soliciting subordinate manager's input. Meaningful participation not only involves subordinate managers in setting their budgetary

targets, but it also allows them *influence* over the targets. It is hence important that top management recognizes this influence-dimension. (2) Once the decision on the form of budget participation is taken, top management must closely monitor its effect on the subordinate managers. Some organizations seem to think that developing a sound, formal budgeting system is most important for budgeting as a motivation-tool. Having such a thoughtfully designed formal system, however, is only the beginning of the story. More important is *its effect on the managers' mental states*. (3) An important boundary condition in managing budget participation's motivational effects is the existence of *true participation*. In particular, when organizations chose the 'consultation' form of participation, managers must perceive this consultation as true. If managers perceive their consultation to be pseudo-participative their basic psychological needs within the budgeting context will be frustrated. A typical situation in which managers may perceive their consultation as pseudo-participative is when the decision on the budgetary targets has been taken upfront by top management. As top management, however, feel they should consult subordinate managers as the empowerment movement is gaining importance, they solicit these subordinates managers input without really taking it into account. Budget participation is time-intensive and rather costly so we advise organizations to spend their limited resources wise. Do not ask subordinate managers input when the decision has already been taken at a higher level. (4) Another suggestion to make the most out of the budgeting process, is to take into account the *aspiration level of managers*. Some managers have no participatory aspirations: it would only cost the organization money and frustrate the manager when s/he is forced to participate in the budgeting process. Managers with no participatory aspirations should not be obliged to participate as a 'no influence' form of budget participation does not harm their basic psychological needs in the budgeting context. (5) Last but not least: organizations should recognize the *importance of strategy* in setting up their budgeting process. The strategy and budgeting process are still too often seen as separate processes. Our first and second study, however, illustrate the importance of an integrated approach. More specifically, the results of our first study show that strategic alignment can act as a substitute for high influence, true forms of budget participation. Resources could be spend efficiently by avoiding 'overlap': managers whom are strongly strategically aligned could, for example, be less intensively involved in the budgeting process. Indeed, as in an integrated approach the budget is the financial translation of the organizational strategy, strategically aligned managers will automatically embrace the means needed to realize the organization's strategy. One possible way to make sure that managers are strategically aligned is by actively involving subordinate managers in the strategy process. As evidenced by our first and second study, this involvement can range from actively soliciting subordinate managers' input in the strategic planning process to letting them participate in brainstorm sessions about how to best implement the strategy.

Second, these types of strategic involvement give practitioners an understanding of how budgeting and strategy can be related. They are both part of the broader organizational planning process. Organizations should thus aim at an integrated approach. A guide to such an integrated approach is provided in the ideas behind the 'Strategy Focused Organization' (SFO) (Kaplan and Norton, 2001, 2008). If organizations want to become a SFO, they should apply the following five principles (Kaplan and Norton, 2001, p. 9-17). (1)*Translate the strategy to operational terms*: an organization should translate its strategy into the logical architecture of a strategy map and Balanced Scorecard (BSC) (Kaplan and Norton, 2005). A strategy map is diagram that documents the primary strategic goals of the organization and how best to realize them. The critical success factors (CSF) from this strategy map can be transferred to a BSC and a key performance indicator will be defined for each CSF. The strategy map and associated BSC contain the key elements of the organization's strategy and hence create a common and understandable point of reference for all its employees. (2) *Align the organization to the strategy*: for organizational performance to become more than the sum of its parts, individual departmental strategies should be linked and integrated for synergies to occur. To become successful, organizations should use the strategy map and BSC in a coordinated manner across their different units to ensure that the whole exceeds the sum of the parts. Such a coordination could be accomplished by cascading the corporate BSC down throughout the entire organization. (3) *Make strategy everyone's everyday job*: strategy implementation requires the active contribution of everyone in the organization. This implies that all employees should understand the strategy and conduct their day-to-day activities in a way that contributes to a successful implementation. Executives can use the BSC to communicate and educate all employees about the organizational strategy and actively involve employees by letting them develop a personal scorecard with personal objectives linked to the organization's objectives. (4) *Make strategy a continual process*: organizations should link their budgeting process to the strategy and regularly review the budget together with the BSC. In that way, organizations can track their strategy implementation and take corrective action when necessary. (5) *Mobilize change through executive leadership*: a necessary condition for a successful strategy implementation is commitment by top management and a broad involvement of middle management in the strategic planning process.

Moreover, this dissertation also shows practitioners the importance of strategy when evaluating budgeting outcomes such as budgetary slack. First, top management can actively influence the amount of budgetary slack in their organization by adapting the level of PSP. Second, managers should not automatically want to avoid budgetary slack. As organizations have to cope with high levels of environmental uncertainty, our third study shows that budgetary slack may help managers as it can be created as an expected buffer against negative psychological consequences, such as role ambiguity and job-related tension, that

come with environmental uncertainty. This suggests that in situations in which reducing perceived uncertainty is not a possibility, the stress associated with this uncertainty may be reduced by providing additional resources. Practitioners should hence interpret budgetary slack as a neutral concept without a positive or negative tone that is only determined by its use (Davila and Wouters, 2005).

5. References

Arnold, M.C., Artz, M., 2015. Target difficulty, target flexibility, and firm performance: Evidence from business units' targets. Accounting, organizations and society 40, 61-77.

Barki, H., Hartwick, J., 1994. Measuring user participation, user involvement, and user attitude. MIS Quarterly 18, 59-82.

Birnberg, J.G., Luft, J., Shields, M.D., 2007. Psychology theory in management accounting research, in: Chapman, C.S., Hopwood, A., Shields, M.D. (Eds.), Handbook of management accounting research. Elsevier, Oxford, UK, pp. 113-135.

Bjornenak, T., 2014. Return on management accounting innovations, 12th Manufacturing Accounting Research Conference, Copenhagen.

Cotton, J.L., Vollrath, D.A., Froggatt, K.L., Lengnick-Hall, M.L., Jennings, K.R., 1988. Employee participation: Diverse forms and different outcomes. The Academy of Management Review 13, 8-22.

Covaleski, M.A., Evans III, J.H., Luft, J.L., Shields, M.D., 2003. Budgeting research: Three theoretical perspectives and criteria for selective integration. Journal of Management Accounting Research 15, 3-49.

Davila, T., Wouters, M., 2005. Managing budget emphasis through the explicit design of conditional budgetary slack. Accounting, Organizations and Society 30, 587-608.

Doll, W.J., Torkzadeh, G., 1989. A discrepancy model of end-user computing involvement. Management Science 35, 1151-1171.

Ekholm, B.-G., Wallin, J., 2000. Is the annual budget really dead? European Accounting Review 9, 519-539.

Guilding, C., 2003. Hotel owner/operator structures: Implications for capital budgeting process. Management Accounting Research 14, 179-199.

Guilding, C., Lamminmaki, D., 2007. Benchmarking hotel capital budgeting practices to practices applied in non-hotel companies. Journal of Hospitality & Tourism Research 31, 486-503.

Hall, M., 2008. The effect of comprehensive performance measurement systems on role clarity, psychological empowerment and managerial performance. Accounting, Organizations and Society 33, 141-163.

Hansen, M.H., Perry, L.T., Reese, C.S., 2004. A Bayesian operationalization of the resource-based view. Strategic Management Journal 25, 1279-1295.

Hansen, S.C., Otley, D.T., Van der Stede, W.A., 2003. Practice developments in budgeting: An overview and research perspective. Journal of Management Accounting Research 15, 95-116.

Hansen, S.C., Van der Stede, W.A., 2004. Multiple facets of budgeting: An exploratory analysis. Management Accounting Research 15, 415-439.

Hope, J., Fraser, R., 2003. Beyond budgeting - How managers can break free from the annual performance trap. Harvard Business School Press, Boston (Mass.).

Ives, B., Olson, M.H., 1984. User involvement and MIS success: A review of research. Management Science 30, 586-603.

Jensen, M.C., 2003. Paying people to lie: The truth about the budgeting process. European Financial Management 9, 379-406.

Kaplan, R., Norton, D., 2001. The strategy-focused organization: How balanced scorecard companies thrive in the new business environment. Harvard Business School Press, Boston, Massachusetts.

Kaplan, R., Norton, D., 2005. The balanced scorecard. Harvard Business Review 84, 100-109.

Kaplan, R., Norton, D., 2008. The execution premium: Linking strategy to operations for competitive advantage. Harvard Business Press, Boston, Massachusetts.

Lazaridis, I.T., 2006. Cash flow estimation practices in Mediterranean countries. Managerial finance 32, 625-633.

Libby, T., Lindsay, R.M., 2010. Beyond budgeting or budgeting reconsidered? A survey of North-American budgeting practice. Management Accounting Research 21, 56-75.

Link, M.W., Oldendick, R.W., 2000. The role of survey research in the benchmarking process. Journal of Public Budgeting, Accounting & Financial Management 12, 138-164.

Malmi, T., Brown, D.A., 2008. Management control systems as a package - Opportunities, challenges and research directions. Management Accounting Research 19, 287-300.

Marginson, D., McAulay, L., Roush, M., van Zijl, T., 2014. Examining a positive psychological role for performance measures. Management Accounting Research 25, 63-75.

Marginson, D., Ogden, S., 2005. Coping with ambiguity through the budget: The positive effects of budgetary targets on managers' budgeting behaviours. Accounting, Organizations and Society 30, 435-456.

Milani, K., 1975. The relationship of participation in budget-setting to industrial supervisor performance and attitudes: A field study. Accounting Review 50, 274-284.

Pruitt, S.W., Gitman, L.J., 1987. Capital budgeting forecast biases: Evidence from the Fortune 500. Financial Management 16, 46-51.

Turner, M.J., Guilding, C., 2012. Factors affecting biasing of capital budgeting cash flow forecasts: Evidence from the hotel industry. Accounting and Business Research 42, 519-545.

Van der Stede, W.A., Young, S.M., Chen, C.X., 2005. Assessing the quality of evidence in empirical management accounting research: The case of survey studies. Accounting, Organizations and Society 30, 655-684.