Organisational characteristics, alternative reasons to budget and two budget forms

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Abstract

This study examines contingency relationships between organisational characteristics and four alternative operational reasons to budget, across two budget forms (fixed budget and rolling forecasts). Furthering the work of Hansen and Van der Stede (2004), results show that contingency relationships between organisational characteristics and the importance of operational reasons to budget were different for performance evaluation reasons, in comparison to operational planning reasons.

Given that extant budget research predominantly focuses on the performance evaluation reason to budget in its conceptualisation of budget emphasis, results from this study serve to remind that more research holistically studying budget emphasis in areas other than performance evaluation is required to better understand the relevance of budgets in different organisational contexts. These results may also explain why there is much conflicting evidence for budget based contingency relationships in extant research.

1 Introduction

This study provides more detailed evidence on the relationship between organisational characteristics and the importance of four operational reasons to budget, which are *coordinating resources, formulating action plans, business unit evaluation* and *staff evaluation*, for the fixed budget and rolling forecast forms.

For over five decades, operational budgeting has been criticised by practitioners and academics (Argyris, 1952; Hopwood, 1972; Jensen, 2003). The main focus of these criticisms have related to a budgets' use for performance evaluation (Hansen, et al. 2003; Hansen and Van der Stede, 2004). Notwithstanding this criticism, budgeting continues to be used by most organisations internationally[6]. Why is there such an apparent difference between budget use (high), and perceived budget usefulness (low)?

Hansen and Van der Stede (2004) proposed that a reason for this difference is a lack of studies considering reasons to budget other than performance evaluation. They proposed that organisations do not gauge budget relevance by only reflecting on one reason to budget (that is, performance evaluation). Also, Sivabalan, et.al. (2007) showed that a wide range of reasons to budget are regarded as important by organisations and many non-evaluation reasons to budget were regarded as more important than performance evaluation, for both fixed budgets and rolling forecasts. Given this, considering non-evaluation reasons to budget may reveal contingent relationships between organisational characteristics and budget importance that are different to those explicated in extant research. This is especially important given that extant contingency research on budgeting contains conflicting evidence on the relationship between organisational characteristics and budget relevance (Chenhall, 2003). The first research question explored in this study is outlined below.

[6] Three studies over the last two decades have shown that traditional annual budgeting is prevalent in at least, if not more than 92% of organisations surveyed (Umapathy, 1987; Ekholm and Wallin, 2000; CPA Australia Budgeting Industry Report 2006).

RQ1: How do organisational characteristics relate to different reasons to budget?

Rolling forecasts use has arguably grown largely due to dissatisfactions with the fixed budget (Haka and Krishnan, 2005; Hansen, et al. 2003). Prior research has investigated a range of reasons to budget for fixed budgets (Hansen and Van der Stede, 2004) but has not examined the impact of organisational characteristics on the importance of reasons to budget for rolling forecasts. Though Hansen and Van der Stede (2004) considered rolling forecasts, they regarded the use of rolling forecasts as a budgetary characteristic within a budget system which was focused on the traditional fixed budget. Recent research has argued for relationships between organisational characteristics (uncertainty), and the importance of rolling forecasts (Haka and Krishnan, 2005). However, Hansen and Van der Stede (2004) did not model the rolling forecast variable in a manner which considered this possibility. This study provides a modified approach to studying the relationship between alternative reasons to budget and budget forms by regarding the rolling forecast form independently to the fixed budget form. The second research question considered in this study is stated below.

RQ2: How are the relationships between organisational characteristics and alternative reasons to budget different for fixed budgets and rolling forecasts?

Hansen and Van der Stede (2004) not only showed that different reasons to budget existed in organisations, but noted that they had differing relationships to different organisational and budgetary characteristics, for a sample of 57 predominantly large organisations. Understandably, little theoretical basis was provided for the different relationships (no propositions/hypotheses development), as the paper was exploratory in its orientation, and attempted to observe if differences exist, without attempting to predict directional associations.

This study extends the work of Hansen and Van der Stede (2004) by taking a more deductive approach by hypothesising relationships between organisational characteristics and the importance of different reasons to budget. Given the

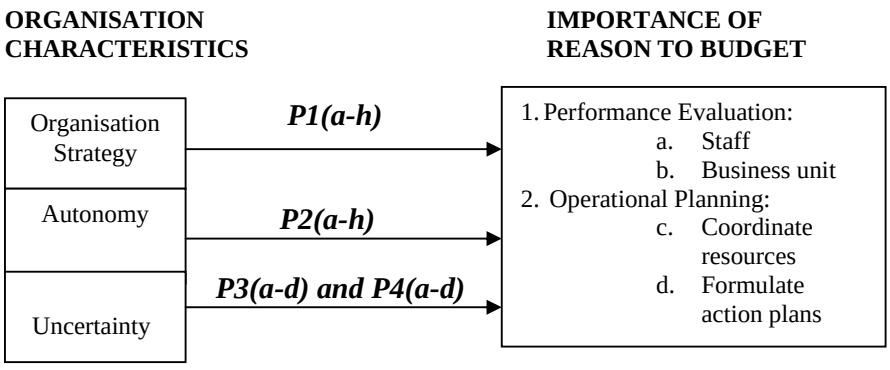
dearth of research on non-evaluation reasons to budget, research from a broader control systems perspective is used to assist in informing these arguments.

Overall, the four reasons to budget are comprised of two operational planning (coordinate resources, formulate action plans) and two performance evaluation (staff evaluation, business unit evaluation) reasons to budget. These four reasons to budget will be used to investigate the propositions in this study.

2 Theoretical framework and proposition development

This study adopts a contingency perspective, incorporating independent and dependent variables previously investigated in budgeting studies. The contingency model used in this study is adapted and modified from the model used in Hansen and Van der Stede (2004), and summarised in Figure 1. As the survey was constructed and distributed before Hansen and Van der Stede (2004) was published, and the focus of the study is more operational than strategic, definitions of certain organisation and budgetary characteristic variables are different to those used in Hansen and Van der Stede (2004). However, all variables used in this study relate to key variables used in Hansen and Van der Stede (2004), and as far as possible the model is aligned to the relevant sections of the framework used in Hansen and Van der Stede (2004).

Figure 1: Research Model



As observed from Figure 1, the analysis of relationships between organisational characteristics and reasons to budget will be divided into four sets of propositions. Proposition 1 (a to h) examines the relationships between strategy

and alternative reasons to budget, for fixed budgets and rolling forecasts. Proposition 2 (a to h) considers the relationships between the level of autonomy and alternative reasons to budget, for fixed budgets and rolling forecasts. Proposition 3 (a to d) examines the relationships between environmental uncertainty and the alternative reasons to budget for fixed budgets, while Proposition 4 (a to d) considers the same relationships for rolling forecasts.

In the third and fourth sets, relationships between uncertainty and the importance of the four reasons to budget are discussed separately, because existing research evidence indicates that rolling forecasts and fixed budgets relate differently to uncertainty (Haka and Krishnan, 2005; Hansen and Van der Stede, 2004; Hansen, et al. 2003).

2.1 Alternative reasons to budget

In their exploratory paper proposing alternative reasons to budget, Hansen and Van der Stede (2004) proposed four reasons to budget; performance evaluation, operational planning, strategy formulation and the communication of goals. Hansen and Van der Stede (2004) argued that two of these reasons to budget were short term and *operational* in nature (performance evaluation and operational planning), while two were long-term and *strategic* (strategy formulation and communication of goals).

This study focuses on the two *operational* reasons to budget (operational planning and performance evaluation)[7], proposing that each of these two operational reasons to budget contain two more specific reasons. *Operational planning* facilitates two functions, *resource coordination* and the *formulation of actions*. *Performance evaluation* can be conducted for either *staff evaluation* and/or *business unit evaluation*.

[7] This is done for two reasons. First, Hansen and Van der Stede (2004) argued for more research that specifically investigates individual reasons to budget in greater detail. Second, performance evaluation, the main reason to budget covered in budget research to date, is an operational reason. By choosing another operational reason (operational planning), a more consistent comparison is made between both categories of reasons to budget.

Operational planning may be conducted to accommodate the allocation of resources required by different departments within an organisation (resource coordination)[8], as per Wallander (1999). Furthermore, within departments, and on a more managerial level, it forces organisations to engage in organisational learning (Haka and Krishnan, 2005) about different courses of action to be conducted in future periods, acting as a means for making organisations plan for future activities (formulation of actions). Both these reasons relate to operational planning, but may have different relationships to organisational or other budgetary variables. For example, organisations may plan (budget) to generally allocate funds across departments (resource coordination), but may not use budgets to help pre-determine specific courses of action within departments.

Hansen and Van der Stede (2004) argued that the majority of budget research focused on the negativities of budgeting associated with performance evaluation. The behavioural assumptions that drive the inducement of "job related tension" tension in prior literature, relates strongly to staff evaluation (Argyris, 1952; Hopwood, 1972; Otley, 1978; Hope and Fraser, 1997; Wallander, 1999; Jensen, 2003). However, organisations may not use a budget to evaluate only staff. Many organisations may use budgets to evaluate business units, as opposed to managerial staff individually. This type of performance evaluation poses a lower direct threat to staff, and as a result, relationships between organisation and budgetary characteristics to these two performance evaluation reasons to budget may not be the same.

2.2 Strategy and reasons to budget

As explained in Langfield-Smith (1997), Mintzberg (1978) defines strategy as a pattern of decisions about an organisation's future. However, these decisions only generate meaning when they are implemented through organisational processes (Simons, 1995; Miles and Snow, 1978). Therefore, in order for strategies to operationally affect an organisation, they must relate to the

[8] Hansen and Van der Stede (2004) specifically mentioned "resource coordination" as a reason to budget that should be investigated in further studies, and regarded it as a possible strategic reason to budget. This study considers resource coordination as an annual distribution activity, and treats it as an operational reason to budget.

management control systems that govern organisational processes (Govindarajan and Gupta, 1985).

In this study, the cost leader/differentiator strategy typology is used. The "cost leader/differentiator" typology is selected for two reasons. First, the typology applies at a business unit level, and has a more operational focus than other more corporate and mission level typologies which are less suited to the "operational" reasons to budget considered in this study. Secondly, this typology was used by Hansen and Van der Stede (2004), and therefore allows for some comparison with existing research on reasons to budget.

Generally, formal management controls (such as budgetary controls) are seen to be more aligned to cost leaders as opposed to differentiators, as the importance of accounting number measurements for controlling an organisation is greater in a cost control environment, than a more qualitative product differentiation environment (Langfield Smith, 1997). Hansen and Van der Stede (2004) found no statistically significant relationship between the extent of differentiation and the importance of the *operational planning* reason to budget or the *performance evaluation* reason to budget. This study re-investigates this relationship, by comparing the cost leader/differentiator strategy to the four operational reasons to budget.

For the two operational planning reasons to budget, it is proposed that competitive strategy type should relate to the *formulation of action plans* more than the *coordination of resources*.

The importance of using budgets to coordinate resources in organisations is difficult to differentiate across either of the two strategy types, as they should be equally important for both. Whatever the strategy adopted by an organisation, resources are required, and need to be managed, and a budget will be used by a majority of organisations to manage the coordination of these resources between departments. This leads to the following propositions:

P1a: For fixed budgets, irrespective of rolling forecast use, strategy is unrelated to the *coordinate resources* reason to budget.

P1b: For rolling forecasts, irrespective of fixed budget use, strategy is unrelated to the *coordinate resources* reason to budget.

However, when organisations budget to formulate action plans, relationships with strategy are more likely to be observed. Differentiator organisations are driven by the need to maximise perceived customer value, and are less standardised than cost leader organisations. Therefore, the use of formal MCS such as budgets to assist in the formulation of action plans will be less for differentiators than for cost leaders. The importance of budgets to formulate action plans, therefore, should be higher for cost leaders than for differentiators. This leads to two propositions.

P1c: For fixed budgets, irrespective of rolling forecast use, the greater the application of a differentiator strategy, the less the importance of the *formulation of action plans* reason to budget.

P1d: For rolling forecasts, irrespective of fixed budget use, the greater the application of a differentiator strategy, the less the importance of the *formulation of action plans* reason to budget.

Staff evaluation and business unit evaluation reasons to budget should show different relationships to organisation strategy. The more differentiated a product offering, the less inclined organisations will be to use formal financial control systems such as budgets (Govindarajan and Gupta, 1985; Langfield-Smith, 1997) to evaluate staff, as the value drivers affecting revenues and costs are more qualitative for differentiators than for cost leaders (Chenhall, 2005; Chenhall and Langfield-Smith, 1998). Conversely, budget based staff evaluations in cost leader organisations should be greater than in differentiator organisations, as the relative focus on cost control is greater. Therefore, the following propositions are generated.

P1e: For fixed budgets, irrespective of rolling forecast use, the

greater the application of a differentiator strategy, the less the importance of the *staff evaluation* reason to budget.

P1f: For rolling forecasts, irrespective of fixed budget use, the greater the application of a differentiator strategy, the less the importance of the *staff evaluation* reason to budget.

However, when evaluating business units, organisations are held financially accountable, irrespective of competitive strategy. The majority of organisations operate under financial constraints (Lapsley and Llewelyn, 1995) and are expected to adhere to a formal financial control device such as budgets (Ekholm and Wallin, 2000), irrespective of the nature of strategy.

P1g: For fixed budgets, irrespective of rolling forecast use, strategy is unrelated to the importance of the *business unit evaluation* reason to budget.

P1h: For rolling forecasts, irrespective of fixed budget use, strategy is unrelated to the importance of the *business unit evaluation* reason to budget.

2.3 Autonomy and reasons to budget

The concept of autonomy used in this study is sourced from the discussion of centralisation and hierarchical structures in Donaldson (2001), and Gordon and Narayanan (1984). Donaldson (2001) argues that the key concept defining more hierarchical organisations is the extent to which top management prescribes to employees "…how to do their job" (Donaldson, 2001; p.22). Discussing this in relation to organisation structure, Donaldson (2001) argues that less hierarchical organisations are more decentralised, leading to top management allowing lower level business unit employees to "…exercise autonomy in decision making" (Donaldson, 2001; p.22). When lower levels of an organisation are less controlled by top management, then the level of autonomy granted is greater. Gordon and Narayanan (1984) similarly regarded the key element to structure as being autonomy, and regarded this as the extent to which authority is delegated.

From a financial perspective, one of the most commonly used management control devices is a budget. The freedom provided by top management to lower

management levels to engage in independent decision making is less likely in more centralised, less autonomous organisations.

From a performance evaluation perspective, prior budgeting research has proposed relationships between hierarchical structures and control outcomes (Chenhall, 2003). Generally, a negative relationship is opined between autonomy and the importance of budgeting for performance evaluation. However, in their study of the operational planning and performance evaluation reasons to budget, Hansen and Van der Stede (2004) found no significant relationships between organisational structure and the importance of their operational planning and performance evaluation reasons to budget.

In this study, it is argued that the importance of the coordinate resources reason to budget should be unrelated to the level of autonomy. Whatever the level of autonomy granted to business units, all units require and request for resources through the budget setting process. Therefore, irrespective of the level of autonomy, the importance of budgeting to coordinate resources should be the same.

P2a: For fixed budgets, irrespective of rolling forecast use, the level of autonomy is unrelated to the importance of the *coordinate resources* reason to budget

P2b: For rolling forecasts, irrespective of fixed budget use, the level of autonomy, is unrelated to the importance of the *coordinate resources* reason to budget

The use of budgets to assist with formulating action plans, however, should be negatively related to the level of autonomy. When autonomy is low, and lower level business units are monitored and directed to a greater extent, the use of budgets to define the boundaries of their action plans will be more tightly imposed. In high autonomy settings, organisations are less likely to constrain the action plans of departments using budgets. This leads to the following propositions.

P2c: For fixed budgets, irrespective of rolling forecast use, the higher the autonomy, the lower the importance of the *formulate action plans* reason to budget.

P2d: For rolling forecasts, irrespective of fixed budget use, the higher the autonomy, the lower the importance of the *formulate action plans* reason to budget.

The importance of using budgets for the staff evaluation reason to budget should be negatively related to the level of autonomy. When greater autonomy is given by top management to business units, the use of formal financial controls to evaluate staff within those units should be less. An example of such business units are research and development (R&D) divisions (Perrow, 1967), where the direct use of budgets to evaluate staff may not be high.

P2e: For fixed budgets, irrespective of rolling forecast use, the higher the autonomy, the lower the importance of the *staff evaluation* reason to budget

P2f: For rolling forecasts, irrespective of fixed budget use, the higher the autonomy, the lower the importance of the *staff evaluation* reason to budget

The importance of budgets to evaluate business units, however, should not be related to the level of autonomy. Whatever the level of hierarchies or centralisation in organisations, every organisation has a limited pool of funds to allocate and will use budgets to make evaluations on a business units' consumption of the same funds. Though staff may not be judged on their adherence to budget in high autonomy conditions, senior management will reflect on the overall spending of business units relative to a budget, irrespective of staff autonomy.

P2g: For fixed budgets, irrespective of rolling forecast use, the level of autonomy is unrelated to the importance of the *business unit evaluation* reason to budget

P2h: For rolling forecasts, irrespective of fixed budget use, the level of autonomy is unrelated to the importance of the *business unit evaluation* reason to budget

2.4 Environmental uncertainty and reasons to budget for fixed budgets

Uncertainty is one of the most commonly used antecedents in management control research. Interest in uncertainty as a variable grew in importance as a result of early contingency theorists (Burns and Stalker, 1961; Lawrence and Lorsch, 1967; Thompson, 1967; Hage and Aiken, 1969; Pugh, et al. 1969) who presented evidence that organisations are broadly influenced by environments and technology. This laid the foundation for a relationship between controls and uncertainty in environments. Controls exist in organisations to guide behaviour (Gresov, et al. 1989), and the extent to which uncertainty affects an organisation defines management ability to control behaviour. Thus, the extent to which uncertainty exists in an organisation influences how controls are selected and enforced. In this study, uncertainty is viewed from the perspective of the environment affecting an organisation. This variable is termed environmental uncertainty in management accounting research, and is widely used (Luft and Shields, 2003; Chenhall, 2003).

The reliance on accounting performance measures (RAPM) research stream proposes that greater environmental uncertainty is usually negatively related to the use of budgetary controls and formal accounting performance measures (Hartmann, 2000). From a performance evaluation perspective, greater uncertainty reduces fixed budget relevance. The extent to which this is consistent for all four operational reasons to budget, however, is unclear.

In their study, Hansen and Van der Stede (2004) found a significant negative relationship between uncertainty measures (resource traceability and degree of competition) and the performance evaluation reason to budget. Hansen and Van der Stede (2004) found that higher resource traceability and lower competition

(lower uncertainty) increased the importance of budgets as a performance evaluation device. They found no relationship between uncertainty and the operational planning reason to budget. However, the extent to which their results applied to both types of performance evaluation and operational planning reasons to budget used in this study has not been investigated.

In this study, it is argued that the importance of planning in uncertain environments should be greater than in stable environments (Birnberg, 1998). When organisational conditions are less certain and goal adherence is a higher risk proposition (Collier and Berry, 2002), the importance of institutionalising controls to assist with operational planning should be greater. Though the development of budgets is more difficult in uncertain environments, the need to plan is greater when an organisation is uncertain of the future than if the future is known with certainty. This should apply to both operational planning reasons to budget. Greater uncertainty should, therefore, increase the importance for budgeting to coordinate resources, and formulate action plans.

P3a: For fixed budgets, irrespective of rolling forecast use, the higher the environmental uncertainty, the higher the importance of the *coordinate resources* reason to budget.

P3b: For fixed budgets, irrespective of rolling forecast use, the higher the environmental uncertainty, the higher the importance of the *formulate action plans* reason to budget.

Similar to Hansen and Van der Stede (2004), it is argued here that greater uncertainty will negatively affect staff budgetary evaluation. Employees are not inert resources, like other resources in organisations. Employees are active and knowledgeable, and capable of response. When uncertainty is high, and budget predictions are less accurate, staffs perceive greater job related tension, leading to sub-optimal work performance (Argyris, 1952). In response to this, management will be less inclined to evaluate staff using budgets in conditions of high uncertainty, and therefore place less importance on the use of budgets for staff evaluation. Evidence for this has been cited often in management accounting research (Jensen, 2003; Hartmann, 2000).

P3c: For fixed budgets, irrespective of rolling forecast use, the higher the environmental uncertainty, the lower the importance of the *staff evaluation* reason to budget.

However, unlike Hansen and Van der Stede (2004), it is argued that the use of budget numbers for business unit evaluation should not change, whatever the level of uncertainty. In pursuit of organisational learning (Haka and Krishnan, 2005), organisations are anxious to understand deviations from budgets, irrespective of the uncertainty present. Though deviations from budgets may be tolerated in higher uncertainty environments, the importance of evaluating performance is equally important.

P3d: For fixed budgets, irrespective of rolling forecast use, environmental uncertainty is unrelated to the *business unit evaluation* reason to budget.

2.5 Environmental uncertainty and reasons to budget for rolling forecasts

Rolling forecasts are a newer form of budgeting, and increasing in prominence (Haka and Krishnan, 2005). As established in Sivabalan, et. al. (2007), they are usually conducted monthly or quarterly. While Hansen and Van der Stede (2004) found that rolling forecasts were prevalent in 23% of North American organisations surveyed, results from Sivabalan, et al (2007) show that rolling forecasts are prevalent in a much larger 65% of Australian respondents. The use of rolling forecasts in organisations is growing, primarily because such budgets are argued to provide a smaller window of forecasting error, and align closer to actual data, thereby improving their utility to organisations (Neely, et al. 2001; Bittlestone, 2000). In this study, the environmental uncertainty organisation characteristic is compared to the importance of the four reasons to budget, for rolling forecasts. Existing research on rolling forecasts, though sparse, has argued that uncertainty is the primary factor affecting the importance of operational rolling forecasts (Haka and Krishnan, 2005).

The positive relationship between uncertainty and the importance of a budget form is unusual. Traditionally, budgetary controls have been argued to suit more certain environments (Govindarajan and Gupta, 1985; Langfield-Smith, 1997). However, this is precisely why rolling forecasts have been argued to assist organisations. Rolling forecast numbers improve on fixed budget numbers due to their updating function, which facilitates organisational learning, as argued in Haka and Krishnan (2005). Therefore, whether rolling forecasts are used to generally *coordinate resources* or more specifically provide information that assists in *formulating action plans*, they are likely to be more important when environments are more uncertain. This leads to the following two propositions.

P4a: For rolling forecasts, irrespective of fixed budget use, the higher the environmental uncertainty, the higher the importance of the *coordinate resources* reason to budget.

P4b: For rolling forecasts, irrespective of fixed budget use, the higher the environmental uncertainty, the higher the importance of the *formulate action plans* reason to budget.

Evidence on the relationship between the importance of rolling forecasts for performance evaluation, and uncertainty is mixed. From the perspective of uncertainty management, rolling forecasts assist organisations to evaluate performance, as such budgets increase the relevance of budgetary targets through better alignment with changes in environmental conditions (Bittlestone, 2000). However, alternative arguments propose that if rolling forecasts are used for performance evaluation, they cause less goal commitment amongst staff in conditions of greater uncertainty (Haka and Krishnan, 2005).

In this study, the negative effect of a reduction in goal commitment is argued to take precedence over the more accurate budget impact. This rationale sources from information theory. Information theory builds into much of the economic literature (Friedman, 1957), and argues that the value of information is defined not by the quality of the information itself, but in the perceived usefulness of the information to the user. In this instance, it is less relevant that rolling forecasts

provide better quality information for performance evaluation by being more accurate. What matters is that functionally, rolling forecast information lowers the goal commitment of its users, and, therefore, should be regarded as less important by organisations, for both staff and business unit evaluation. This leads to the final two propositions.

P4c: For rolling forecasts, irrespective of fixed budget use, the higher the environmental uncertainty, the lower the importance of the *staff evaluation* reason to budget.

P4d: For rolling forecasts, irrespective of fixed budget use, the higher the environmental uncertainty, the lower the importance of the *business unit evaluation* reason to budget.

The propositions developed in this section are summarised in Table 1.

Table 1: Proposition Summary

Reason to budget	Coordinate Resources	Formulate Action Plans	Staff Evaluation	Business Unit Evaluation
Fixed budget				
1. Strategy (P1 a,c,e,g)	**0**	**-**	**-**	**0**
2. Autonomy (P2 a,c,e,g)	**0**	**-**	**-**	**0**
3. Uncertainty (P3 a,b,c,d)	**+**	**+**	**-**	**0**
Rolling forecast				
1.Strategy (P1 b,d,f,h)	**0**	**-**	**-**	**0**
2. Autonomy (P2 b,d,f,h)	**0**	**-**	**-**	**0**
4. Uncertainty (P4 a,b,c,d)	**+**	**+**	**-**	**-**

- = negative relation; 0= no relation; + = positive relation

3 Research method

Design characteristics and descriptive statistics for the study are provided below. The Partial Least Squares (PLS) structural equations modelling approach used in this study will also be explained and discussed.

3.1 Survey procedures and usable sample

The survey approach was used in this study, with a cross-sectional survey sent to 2,400 respondents randomly selected from the Certified Practising Accountants (CPA) Australia member database. The survey method and mail-out procedures

were conducted in accordance with the Dillman (2000) survey process approach. Responses were requested from senior managers of respondent organisations, in order to control for the quality of data responses used for analysis.

Of the 2400 surveys mailed, 331 organisations (13.79%) comprised the respondent sample for fixed budgets and 215 organisations (8.95%) for the rolling forecast. However, organisations with non-annual fixed budget periods were excluded from the sample to ensure a clear demarcation between annual fixed budget organisations as described in extant research, and organisations using rolling forecasts. This resulted in a usable sample of 292 (12.17%) fixed budget organisations. Most non-annual fixed budget organisations also used the rolling forecast, thus the number of rolling forecast organisations reduced from 215 to 189 (7.88%). Descriptive statistics for the two resulting usable samples are provided in Table 2. In order to control for potential skewed sample responses arising from low response rates, the three measures recommended by Van der Stede (2005) were conducted. These are *pre-testing, follow up procedures* and *non-response bias analysis*. All three measures were satisfactorily carried out, and the sample does not display skewed characteristics. It is also regarded as satisfactorily representing the broader population of organisations.

3.2 Structural equations modelling

The regression method used to study the relationships between organisational characteristics and alternative reasons to budget is based on structural equations modelling (SEM). This method is chosen as it is regarded to be appropriate for the nature of variables used in the study, and the exploratory relationships being observed. SEM models exhibit two significant benefits (Hair, et al. 1998). First, they are an effective method for managing multiple relationships simultaneously, without compromising statistical efficiency, and second, they assess relationships comprehensively and provide an effective transition from exploratory analysis, to confirmatory analysis. Structural equations modelling (SEM) is also appropriate for survey based research in the social sciences, as this technique allows the researcher to infer complex causal relationships amongst variables that are directly observable (Mjoen and Tallman, 1997).

The PLS method is a variance based SEM technique that suits studies with a number of exploratory variables and indicators that have not been significantly examined in existing research, and is thus deemed appropriate for this study. PLS is also more aligned to the use of formative indicators and reflective indicators. This suits some of the variables in this study, as they are formative indicators. Factor based co-variance statistical techniques such as Amos and Lisrel are less appropriate for such indicators (Jarvis, et al. 2003). PLS is a variance based technique which is independent of factor based co-variance, and therefore does not require the use of factor analysis to eliminate low factor loading indicators. This characteristic enhances the suitability of PLS for testing using formative indicators.

The PLS regression method used in this study uses path analysis, which is different to the 2SLS regression method used by Hansen and Van der Stede (2004). Unlike Hansen and Van der Stede (2004), this study uses the raw scores of the reason to budget importance variables, and not the residual values resulting from regressing the reason to budget variables with one another. Hansen and Van der Stede (2004) used residual values as they wished to capture the unique component of each reason to budget separate to the other three, then test this unique component for its relationship to organisational characteristics. However, in this study, the focus of reasons to budget is only on operational reasons to budget, and therefore the full spectrum of strategic and operational reasons to budget do not exist from which to extract a unique element. Therefore, this study adopts raw scores for the reason to budget importance variables in the PLS regression.

3.3 Variable descriptions and statistics

Seven variables are used in this study, which relate to the three organisational characteristics (strategy, autonomy and uncertainty) and four operational reasons to budget for the two budget forms. Definitions and justifications for these variables are provided.

3.3.1 Strategy

The strategy variable has been explained in a number of ways in existing management accounting research. The "cost leader/differentiator" typology (developed by Porter (1980)) is used in this study. A cost leader is an entity which focuses on efficiently producing generic products and engages in standardisation to maximise cost reduction (Porter, 1980), thereby attaining profitable operations. A differentiator organisation differentiates its product/service offering from other competitors in the marketplace, usually incurring a higher cost to do so, but charges a premium price, thereby earning a profit. While this typology has been widely discussed and used in management accounting control research (Govindarajan and Gupta, 1985; Govindarajan and Fisher, 1990; Langfield-Smith, 1997), its relationship to alternative reasons to budget has only been investigated in Hansen and Van der Stede (2004).

The strategy variable was operationalised using indicators selected from prior research (Chenhall and Langfield-Smith, 1998). The indicators extracted and used in this study are perceived to be positively related to differentiator organisations, as developed by Miller, et al. (1992), and used in Chenhall and Langfield-Smith (1998). The strategy variable is comprised of eleven indicators, relating to three categories - delivery/service, flexibility and low cost/price. Respondents were asked to "rate the degree of emphasis placed on the following product/service priorities" within their unit. The eleven indicators were measured on a Likert Scale from 1 to 7, "1" being Low Emphasis and "7" being High Emphasis.

All 11 indicators are regarded as being formative to the strategy variable. Though Miller, et al. (1992) and Chenhall (2005) created the indicators to measure the variable, the indicators may not co-vary, because they relate to three different components of the strategy variable. Also, indicators may be independent from each other, and be thematically different. For example, "product availability" and "provide effective after sales service and support" may not be related. The same may be argued for the relationship between "provide fast deliveries" and "make dependable delivery promises".

Descriptive statistics for each indicator are provided in Table 2. The "Low price" and "Low production costs" indicators were both reverse scored because they are positively aligned to the cost leader strategy. The variable, however, measures the extent of differentiator strategy.

Though multiple measures were used for the same variable, factor analysis will not be undertaken to test the goodness of fit of the indicators, as they are regarded as being formative, and should not co-vary (Jarvis, et al. 2003).

3.3.2 Autonomy

Unlike the strategy variable, the indicator for the autonomy variable had not been explicitly translated into a measure in prior research and, therefore, this measure was developed in conjunction with feedback from practitioners and academics.

The autonomy variable is proxied by a single question, which asks "To what extent do units in your organisation exercise autonomy from senior management for the planning of unit operations for an upcoming period?". A 7-point Likert scale describing the "Level of Autonomy" was used, from 1=Nil (nil autonomy) to 7=High (High autonomy). Descriptive statistics on the autonomy variable are provided in Table 2.

Because this indicator had not been used previously, pilot tests were conducted on the survey variables for validation purposes. Pilot respondents who completed and commented on the survey were questioned on the appropriateness of this question, and the extent to which it captured the concept of autonomy when firms prepared plans for an upcoming period. The final question used in the survey incorporated their feedback.

In this study, the autonomy variable was measured by observing the discretion provided by superiors to departments for an upcoming period. The indicator is a defining characteristic of the autonomy concept measured in this study, and is therefore regarded as being formatively related to the autonomy variable, using the criteria developed by Jarvis, et al. (2003). Being a single indicator variable,

factor analysis and composite reliability measures to ascertain convergent validity are not required for this indicator.

3.3.3 Environmental uncertainty

The environmental uncertainty variable comprises external and internal uncertainty as discussed in Hansen and Van der Stede (2004). Four indicators of uncertainty are used for this variable. They are competition, supply, demand and technology uncertainty. The indicators relating to this variable were derived from the environmental uncertainty measures used in Hansen and Van der Stede (2004), Gordon and Narayanan (1984) and Govindarajan (1984).

Gordon and Narayanan (1984) measured environmental uncertainty using a series of questions which targeted the predictability of 5 elements; the organisation's economic, industrial, technological, competitive and customer elements. The first two sources relate to strategic effects of environmental uncertainty and the remaining three relate to operational sources. The three operational sources of environmental uncertainty (technological, competitive and customer) were used in this study, as the focus of the study is on operational reasons to budget. Also, the selection of "predictability" as the Likert scale descriptor was adapted from the terminology used by Gordon and Narayan (1984).

The final indicator for environmental uncertainty was sourced from Govindarajan (1984). Govindarajan (1984) identified customers, suppliers, competitors and regulatory groups as the sources of environmental uncertainty. This study adapted the supplier uncertainty indicator from Govindarajan (1984). The customer and competitor sources of uncertainty were already identified from Gordon and Narayanan (1984), while the regulatory groups uncertainty measure was not considered as the effects of regulatory groups uncertainty were perceived to be related to supply, demand and competition uncertainty and thus did not require inclusion.

Competition, supply and demand uncertainty are sourced from factors outside an organisation's boundaries and therefore termed "external uncertainty". This terminology is similar to that used in Hansen and Van der Stede (2004). The

impact of organisational technologies on operations as discussed in Gordon and Narayanan (1984) relate to processes within organisations, and therefore is termed internal uncertainty. In this study, these two types of uncertainty are regarded as two separate variables.

The three external uncertainty indicators are regarded as formative indicators to the external uncertainty variable. Though the three indicators measure a similar theme (uncertainty), they do not measure the same content. The three indicators measure quite disparate elements of uncertainty that need not be related.

The technology uncertainty indicator is also a formative indicator to the internal uncertainty variable. This is because the technology uncertainty variable relates to the sequences and processes existing in an organisation, which significantly impacts the measurement of internal uncertainty in organisations. Because it is a defining characteristic of the internal uncertainty variable, the relationship between the technology uncertainty indicator and the internal uncertainty variable is regarded as formative. Technology uncertainty was proposed in Hansen and Van der Stede (2004), and also used in this study.

In order to measure environmental uncertainty, predictability was used as the measurement scale for the four elements mentioned above (Gordon and Narayanan, 1984). Respondents were asked "What is the predictability of the following elements of the environment that your unit operates in?". Respondents were provided a 7-point Likert scale for each of the above four elements, with 1= Not predictable and 7= Highly predictable.

Descriptive statistics for both uncertainty variables are shown in Table 2. As explained for the strategy indicators, composite reliability and factor analysis tests were not undertaken as these are regarded as formative indicators.

3.3.4 Reasons to budget

There are four operational reasons to budget, as described previously, and these are regressed with the strategy, autonomy and uncertainty organisational characteristics, for fixed budgets and rolling forecasts separately. In the survey,

respondents separately identified the importance of the four operational reasons to budget for fixed budgets and rolling forecasts, giving a total of eight variables.

The importance of each reason to budget was measured using a 7-point Likert Scale, with "1" being "No Importance" and "7" being "High Importance", as used in Hansen and Van der Stede (2004). Respondents were asked: "What are the main reasons for preparing the fixed period and rolling forecast, and how important are these reasons?".

There is only a single indicator for each variable. These indicators are a defining characteristic of their respective reason to budget variables. The importance score of a reason to budget clearly characterises the reason to budget variable. Therefore, these indicators are regarded as formative in their relation to its variable (Jarvis, et al. 2003).

4 Results and discussion

Findings for the relationships between strategy, autonomy, uncertainty and the four reasons to budget are described in the section below. Table 3 outlines the path coefficients, p-values and t-statistics for each relationship. Figure 2 and Figure 3 display the significance of the relationships in diagrammatical form.

4.1 Findings for strategy and reasons to budget

Relationships between the extent of differentiator strategy and the importance of the four operational reasons to budget were proposed for the fixed budget and rolling forecast forms. In total, eight sets of relationships were tested. Results for the two operational planning reasons, that is the "coordinate resources" reason to budget and "formulate action plans" reason to budget are discussed first, and presented in Table 3.

No relationship was expected between the extent of differentiator strategy and the importance of the "coordinate resources" reason to budget, for both fixed budgets (P1a) and rolling forecasts (P1b). However, results showed a significant positive relationship for both. Therefore, both propositions are rejected. Similarly, a negative relationship was proposed between the extent of differentiator strategy

and the importance of the formulate action plans reason to budget for fixed budgets (P1c) and rolling forecasts (P1d). Results showed the reverse - a positive relationship for both. Therefore, these two propositions are rejected.

For the performance evaluation reasons to budget, a negative relationship was proposed between the extent of differentiator strategy and the importance of the staff evaluation reason to budget, for fixed budgets (P1e) and rolling forecasts (P1f). Both relationships showed a significant positive relation. Therefore, both propositions are rejected. Finally, no relationship was expected between the extent of differentiator strategy and the importance of the business unit evaluation reason to budget, for fixed budgets (P1g) and rolling forecasts (P1h). However, results indicated a statistically significant positive relationship in both cases. Therefore, both propositions are rejected.

While none of the eight propositions for the relationship between the extent of differentiator strategy and importance of reasons to budget were accepted, the results are interesting because they present a counter set of findings to those of Hansen and Van der Stede (2004). While Hansen and Van der Stede (2004) found no relation between the extent of differentiation and operational planning or performance evaluation reasons to budget, this study finds a positive relationship for both categories.

These results are especially unexpected for the performance evaluation reasons to budget. Management accounting research generally expects differentiator organisations to place a lower focus on the use of formal financial MCS for performance evaluation, than cost leaders (Langfield-Smith, 1997). As organisations become more differentiator focused, their reliance on formal financial MCS such as budgets was expected to decrease, as their focus on non quantitative MCS such as quality and customer service were thought to be greater (Porter, 1980) than budgetary based quantitative MCS. Consistent with this rationale, this study proposed a negative relationship for the staff evaluation reason, but argued that the business unit evaluation reason was unrelated because all organisations consider the use of budgets for evaluating the performance of

business units to be equally important. However, the results suggest that differentiator organisations regard operational budgeting as more important.

One possible explanation for this finding is the way in which organisations regard their control systems, as discussed in Simons (1995). Where differentiator organisations consider organisational controls as boundary systems, they may use budgets to evaluate aggregate spending limits without tightly governing the nature of spending itself throughout a period, as often occurs in cost leader organisations. What is interesting, and not explicitly discussed by Simons (1995), is that the results from this study suggest that when using budgets this way, differentiator organisations regard budgets as *more important* than cost leader organisations.

For the two operational planning reasons to budget a similar rationale may be proposed. Results indicate that budgets do not reduce in importance when a differentiator strategy is emphasised. While a cost leader organisation may use budgets tightly for resource coordination purposes, a differentiator organisation could use a budget loosely for resource coordination, regarding it as a boundary system (Simons, 1995) for informing departments on aggregated expenditure ceilings.

Alternatively, the result may also indicate that though differentiators place a lower focus on accounting numbers during a period in coordinating their operations, the need to request funds from top management and have a pool of funds available for expenditures during a period is higher, as expenditures in differentiator organisations are less standardised. Therefore, managers of differentiator organisations make more concerted attempts to secure funds during the resource coordination process and to consider budgets when developing action plans.

Table 2: Descriptive statistics - fixed and rolling sample

Organisational Characteristics and Importance of Reason to budget variables – Fixed Budgets	Mean	Median	Min	Max	Std. Dev.
Coordinate Resources Reason to Budget	5.28	5.28	1	7	1.42
Formulate Action Plans Reason to Budget	5.30	5	1	7	1.27
Staff Evaluation Reason to Budget	4.20	4	1	7	1.66
Business Unit Evaluation Reason to Budget	5.16	5.16	1	7	1.51
High quality products (strategy)	5.87	6	1	7	1.26
Low production costs (strategy)	3.04	3	1	7	1.52
Make changes in design (strategy)	4.39	5	1	7	1.79
Unique product features (strategy)	4.51	5	1	7	1.82
Make rapid volume/mix changes (strategy)	3.59	3.59	1	7	1.74
Provide fast deliveries(strategy)	4.99	5	1	7	1.59
Make dependable delivery promises (strategy)	5.65	6	1	7	1.29
Effective after sales service (strategy)	5.01	5.01	1	7	1.73
Product availability (strategy)	4.89	5	1	7	1.71
Customise products and services (strategy)	4.86	5	1	7	1.72
Low price (strategy)	4.20	4	1	7	1.62
Autonomy	4.60	5	1	7	1.51
Competition Uncertainty – External	3.61	3	1	7	1.40
Supply Uncertainty – External	3.20	3	1	7	1.35
Demand Uncertainty – External	3.33	3	1	7	1.31
Technology uncertainty – Internal	3.47	3	1	7	1.38
Organisational Characteristics and Importance of Reason to budget variables – Rolling forecasts	Mean	Median	Min	Max	Std. Dev.
Coordinate Resources Reason to Budget	5.12	5	1	7	1.48
Formulate Action Plans Reason to Budget	5.52	6	1	7	1.35
Staff Evaluation Reason to Budget	4.08	4	1	7	1.75
Business Unit Evaluation Reason to Budget	5.14	5.14	1	7	1.58
High quality products (strategy)	5.94	6	1	7	1.26
Low production costs (strategy)	2.99	3	1	7	1.47
Make changes in design (strategy)	4.45	5	1	7	1.80
Unique product features (strategy)	4.58	5	1	7	1.85
Make rapid volume/mix changes (strategy)	3.51	3.51	1	7	1.70
Provide fast deliveries(strategy)	5.03	5	1	7	1.64
Make dependable delivery promises (strategy)	5.66	6	1	7	1.32
Effective after sales service (strategy)	5.16	6	1	7	1.70
Product availability (strategy)	5.01	5.01	1	7	1.62
Customise products and services (strategy)	4.98	5	1	7	1.68
Low price (strategy)	4.28	4	1	7	1.58
Autonomy	4.73	5	1	7	1.48
Competition Uncertainty – External	3.62	3	1	7	1.40
Supply Uncertainty – External	3.16	3	1	7	1.32
Demand Uncertainty – External	3.34	3	1	7	1.30
Technology uncertainty – Internal	3.45	3	1	7	1.38

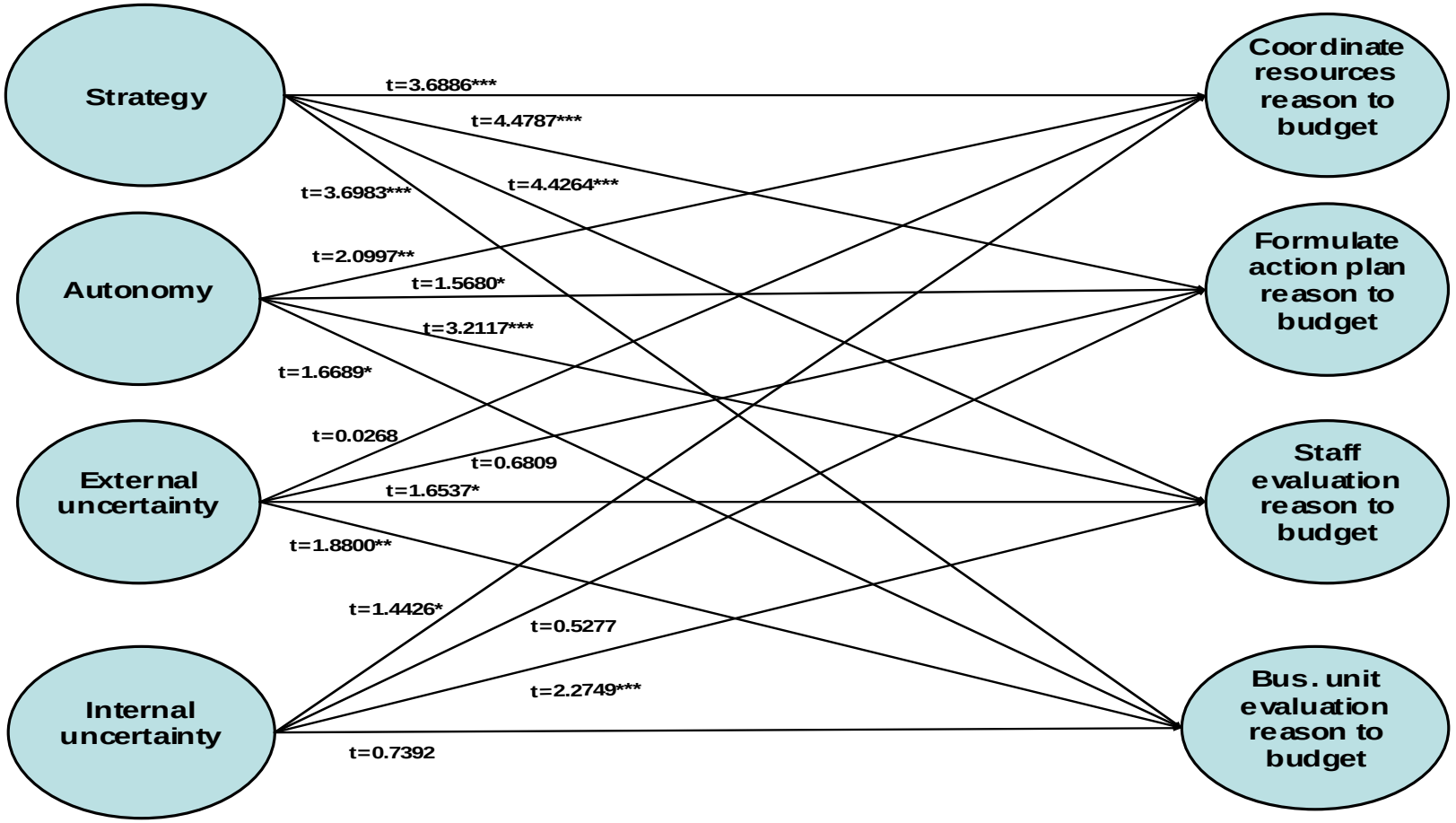
*median score is a decimal point as blank responses from respondents were replaced with mean scores for the variable.

Table 3: Results of PLS regression and path coefficients – fixed budgets

Variable relationship investigated *FIXED BUDGET*	Proposition **(significance p<.10)**	Path coefficient	t-stat /**significance (p<.10)**
Strategy – Importance of RtB (coordinate resources)	P1a (reject) – no relation expected	**0.2470**	**3.6886**
Strategy – Importance of RtB (formulate action plans)	P1c (reject) – opposite sign CL exp	**0.3080**	**4.4787**
Strategy - Importance of RtB (staff evaluation)	P1e (reject) – opposite sign CL exp	**0.2790**	**4.4264**
Strategy - Importance of RtB (business unit evaluation)	P1g (reject) – no relation expected	**0.2280**	**3.6983**
Autonomy – Importance of RtB (coordinate resources)	P2a (reject) – no relation expected	**0.1190**	**2.0997**
Autonomy – Importance of RtB (formulate action plans)	P2c (reject) – opposite sign lower	**0.1050**	**1.5680**
Autonomy – Importance of RtB (staff evaluation)	P2e (reject) – opposite sign lower	**0.1820**	**3.2117**
Autonomy – Importance of RtB (business unit evaluation)	P2h (reject) – no relation expected	**0.1030**	**1.6689**
External Uncertainty – Importance of RtB (coordinate resources)	P3a (reject)	-0.0020	0.0268
Internal Uncertainty - Importance of RtB (coordinate resources)		**-0.0880**	**1.4426**
External Uncertainty – Importance of RtB (formulate action plans)	P3b (reject)	-0.0650	0.6809
Internal Uncertainty - Importance of RtB (formulate action plans)		-0.0280	0.5277
External Uncertainty – Importance of RtB (staff evaluation)	P3c (reject)	**-0.1140**	**1.6537**
Internal Uncertainty - Importance of RtB (staff evaluation)		**0.1250**	**2.2749**
External Uncertainty – Importance of RtB (business unit evaluation)	P3d (reject) – no relation expected	**-0.1490**	**1.8800**
Internal Uncertainty - Importance of RtB (business unit evaluation)		-0.0410	0.7392
Variable relationship investigated *ROLLING FORECAST*	Proposition **(significance p<.10)**	Path coefficient	t-stat /**significance (p<.10)**
Strategy – Importance of RtB (coordinate resources)	P1b (reject) - no relation	**0.2620**	**3.2808**
Strategy – Importance of RtB (formulate action plans)	P1d (reject) – opposite sign	**0.2980**	**4.0495**
Strategy - Importance of RtB (staff evaluation)	P1f (reject) – opposite sign	**0.3600**	**5.2185**
Strategy - Importance of RtB (business unit evaluation)	P1h (reject) – no relation	**0.3110**	**4.0615**
Autonomy – Importance of RtB (coordinate resources)	*P2b (accept) – no relation*	*0.0090*	*0.1771*
Autonomy – Importance of RtB (formulate action plans)	P2d (reject) – opposite sign	**0.1180**	**1.7001**
Autonomy – Importance of RtB (staff evaluation)	P2f (reject) – opposite sign	**0.0850**	**1.3346**
Autonomy – Importance of RtB (business unit evaluation)	P2h (reject) – no relation	**0.1070**	**1.4882**
External Uncertainty – Importance of RtB (coordinate resources)	P4a (reject)	-0.0350	0.4993
Internal Uncertainty - Importance of RtB (coordinate resources)		-0.0500	0.7245
External Uncertainty – Importance of RtB (formulate action plans)	P4b (reject) – opposite sign	**-0.1300**	**1.4829**
Internal Uncertainty - Importance of RtB (formulate action plans)		-0.0070	0.1007
External Uncertainty – Importance of RtB (staff evaluation)	P4c (reject) – opposite sign	-0.0660	0.8471
Internal Uncertainty - Importance of RtB (staff evaluation)		**0.1070**	**1.5376**
External Uncertainty – Importance of RtB (business unit evaluation)	*P4d (accept) – negative relation*	***-0.1120***	***1.4455***
Internal Uncertainty - Importance of RtB (business unit evaluation)		-0.0450	0.6049

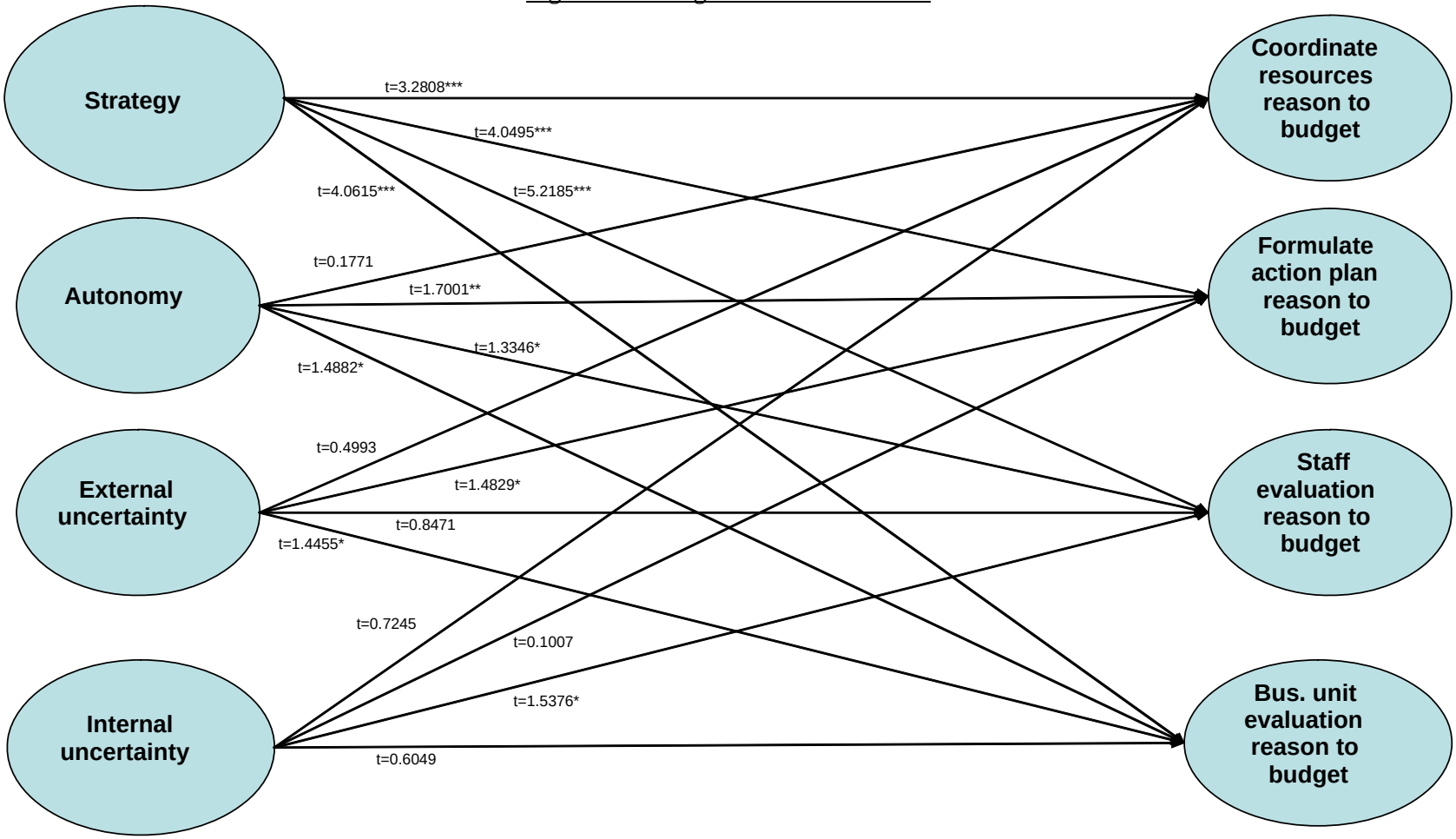
Significant relationships in **Bold**, Propositions accepted in *Italics*, RtB = Reason to Budget

Figure 2: Fixed Budget PLS Results



*** p<0.01; ** p<0.05; * p<0.10

Figure 3: Rolling forecast PLS Results



*** p<0.01; ** p<0.05; * p<0.10

Another argument explaining the positive relationships may be the negative relationship that usually exists between the importance of action controls and results controls (Merchant and Van der Stede, 2003). The importance of results controls such as performance evaluation is greater when the ability to develop action controls during a period is less, and vice versa. Differentiator organisations may place greater importance on formal financial MCS such as budgets for evaluation. Their action controls are less standardised and more qualitatively focused, and thus their reliance on cost based results controls is greater, for operational planning or performance evaluation reasons.

The results and direction of statistical significance between the extent of differentiator strategy for the four reasons to budget were the same for fixed budgets and rolling forecasts (Table 3). Both showed significant positive relationships. This indicates that the budget form used by an organisation does not change the importance of a reason to budget. The similarity om results was expected as it was previously argued that the impact of rolling forecasts did not arise from changes in firm strategy, but rather perceptions of uncertainty in environments. Sivabalan, et. al. (2007) showed that almost all rolling forecast users continue to use a fixed budget, and, therefore, the reasons to budget for rolling forecasts should be similar to fixed budgets.

Hansen and Van der Stede (2004) did not find significant relationships between their strategy variable and either of their operational planning or performance evaluation reasons to budget. However, significant positive relationships are found between the strategy variable used in this study and all four operational reasons to budget. By providing more specific reasons to budget, it is possible that relationships between organisational antecedents and reasons to budget are more clearly observed.

4.2 Findings for autonomy and reasons to budget

The second set of relationships considered the relation between the level of autonomy granted to business units during the budget setting process, and the importance of the four operational reasons to budget. Eight propositions were put forward; four in relation to fixed budgets and four for rolling forecasts. The results for fixed budgets

and rolling forecasts are shown in Table 3. The two operational planning reasons to budget are considered first.

P2a and P2b proposed no relation between the level of autonomy granted to business units for planning their activities, and the importance of the coordinate resources reason to budget. Results showed a positive significant relationship for fixed budgets (P2a) and no relationship for rolling forecasts (P2b). Therefore, P2a is rejected and P2b is accepted.

The unexpected positive result for fixed budgets (P2a) possibly indicates that business unit managers granted greater autonomy regarded the resources coordination process as more important, as the aim of the budget for these managers is to set broad expenditure boundaries for their activities. These managers may not have their activities tightly monitored, but still need to negotiate a request for funds from top management. Though senior management may not require them to justify the detail of their expenditures, business units managers may be held accountable for the performance of their business unit at the end of a period. As discussed in Merchant and Van der Stede (2003), lower action control relevance in higher autonomy conditions may lead to greater results control relevance. Expecting this, business units that grant more autonomy during the budget setting process may place greater importance on the distributions obtained during the resource coordination process.

Another possible explanation for the fixed budgets result is that when autonomy is high, the importance of budgets does not decrease, but instead the mode of use changes, as discussed in the prior strategy section. From being a direct behavioural constraint, a budget instead changes into a boundary system (Simons, 1995) and, as discussed previously, top management place greater emphasis on the coordination process, in order to maximise their boundaries for spending.

Unlike the coordinate resources reason to budget (P2a and P2b), the results for fixed and rolling forecasts are the same for the formulate action plans reason to budget (P2c and P2d). Propositions 2c and 2d proposed a negative relationship between the autonomy and the importance of the formulate action plans reason to budget for fixed

budgets (P2c) and rolling forecasts (P2d). Both propositions are rejected, as a positive statistically significant relationship was found for both propositions.

Similar to P2a and P2b, these results may indicate that budgets are possibly used as loose boundary systems in high autonomy conditions when formulating action plans and regarded with greater importance, than when they are used as tightly controlled planning systems in low autonomy conditions.

P2e and P2f proposed a negative relationship between autonomy and the importance of the staff evaluation reason to budget for fixed budgets (P2e) and rolling forecasts (P2f). Results indicate a positive, statistically significant relationship for fixed budgets (P2e) and rolling forecasts (P2f). Therefore, both propositions are rejected.

These results may possibly be explained by the fact that when more autonomy is granted during a period, top management places more emphasis on budgets as a determinant of staff evaluation, as described by Merchant and Van der Stede (2003). In high autonomy conditions, action controls are more difficult to implement and outcomes based results controls are relied on by organisations to analyse organisational performance.

No relationship was expected between the level of autonomy and the importance of the business unit evaluation reason to budget, for fixed budgets (P2g) and rolling forecasts (P2h). Both propositions are rejected, as the results show a statistically significant positive relationship for both. Again, and similar to the result for the formulate action plans reason to budget, greater autonomy is positively related to the importance of the business unit evaluation reason to budget. As autonomy increases, it is plausible that budgets continue to be important, but as a loose boundary system for evaluating business units.

Alternatively, and similar to the rationale provided for the relationship between the level of autonomy and the importance of the staff evaluation reason to budget for fixed budgets (P2e), the importance of using budgets for performance evaluation increases in higher autonomy settings. Top management in more autonomous organisations exert less direct control of business units during a period. Therefore, the

importance of budgets to evaluate business units at the end of a period is possibly greater.

Overall, it is interesting to note that Hansen and Van der Stede (2004) found no significant relationship between their measure of structure and their operational planning and performance evaluation reasons to budget. A possible reason for the positive relationships found in this study for the autonomy variable may be the sub-categorising of the two operational reasons to budget used in Hansen and Van der Stede (2004) into the four in this study. By providing a more detailed set of reasons to budget, significant relationships are found for all four reasons to budget for fixed budgets (P3a,c,e,g) and three of the four for rolling forecasts (P2d,f,h).

4.3 Findings for environmental uncertainty and reasons to budget for fixed budgets

Hansen and Van der Stede (2004) found no relationship between environmental uncertainty and their operational planning reason to budget. This study proposed a positive relationship between the level of uncertainty and the importance of the coordinate resources reason to budget for fixed budgets (3a). This proposition is rejected as a significant negative relationship was found between these two variables.

The negative relationship was unexpected, as the use of budgets for operational planning was thought to be less important in low uncertainty conditions, where predictability was high. The need to have a plan when the future is relatively more certain was thought to be lower. Results possibly indicate that the greater certainty appears to drive organisations to place greater importance in budgeting for coordinating resources. Organisations place greater importance on the accuracy of budget numbers in the planning process. Organisations may also find the importance of budgets for operational planning to be less in high uncertainty conditions, as budgeting becomes too difficult and costly. The cost of developing a budget outweighs the benefits of having a plan in more uncertain conditions.

Proposition 3b argued for a positive relationship between the level of uncertainty and the importance of the formulate action plans reason to budget. This proposition is

rejected. No relationship was found between the importance of this reason to budget, and external uncertainty. This result is similar to Hansen and Van der Stede (2004), who found no relationship between uncertainty and the importance of their operational planning reason to budget. It is also counter to much of the established research, which argues for a greater focus on formal financial management control systems in low uncertainty conditions (Chenhall, 2003; Lau, et al. 1995).

Proposition 3c proposed a negative relationship between uncertainty and the importance of the staff evaluation reason to budget, similar to the Hansen and Van der Stede (2004) finding for their performance evaluation reason to budget. A negative relationship was observed for external uncertainty, and a positive relationship was observed for internal uncertainty. Overall, Proposition 3c is rejected as results are not conclusive.

However, the opposing direction and significance of both uncertainty types is interesting. The results may be explained by the possibility that external sources of uncertainty may be perceived to be less controllable, and as a result, staffs are not expected to adhere to budgets when such external uncertainty is high. However, internal based technology uncertainty is intrinsic to an organisation, and therefore senior management possibly expect staff to manage this uncertainty. In higher internal uncertainty conditions, management place greater emphasis on staff evaluation, to provide staff with an incentive to take measures which manage these uncertainties.

No relationship was expected between the level of uncertainty and the importance of budgets for business unit evaluation (P3d). As expected, results showed no relationship between the level of internal uncertainty and the importance of the business unit evaluation reason to budget. However, results showed a significant negative relationship between the level of external uncertainty and the importance of the business unit evaluation reason to budget. This result is unexpected, indicating that organisations may still continue to evaluate in order to possess a general view of the performance of a business unit, but will place less importance on business unit evaluation when uncontrollable factors are present.

4.4 Findings for environmental uncertainty and reasons to budget for rolling forecasts

P4a investigated the relationship between the level of uncertainty and the importance of the coordinate resources reason to budget, for rolling forecasts. Hansen and Van der Stede (2004) did not investigate the relationship between uncertainty and rolling forecasts. Therefore, the results from this study provide a first indication of the similarities and differences in relationships between organisational characteristics and the importance of rolling forecasts.

P4a proposed a positive relationship between the coordinate resources reason to budget and the level of uncertainty. Results indicated no relationship. Given that the mean importance score for resource coordination using rolling forecasts is high, the result possibly indicates that irrespective of the level of uncertainty, rolling forecasts are used for resource coordination in organisations.

This finding is counter to the general expectation that rolling forecasts are more useful in more uncertain environments, especially because they facilitate organisational learning (Haka and Krishnan, 2005). The result possibly emphasises that organisations with low uncertainty find it important to conduct operational budgets over shorter periods than organisations with higher uncertainty, as budgets will always be more accurate when forecasted over a shorter period, and therefore advantageous. It is interesting that the perceived importance of more accurate budgets does not appear to reduce when the relevance of rolling forecast adjustments are less, as would be expected for less uncertain environments.

P4b proposed a positive relationship between the level of uncertainty and the importance of the formulate action plans reason to budget. This proposition is rejected, as results indicate a significant negative relationship between external uncertainty and this reason to budget. This result possibly indicates that the benefit of more accurate numbers provided by rolling forecasts are outweighed by the probability that higher uncertainty may lead to greater deviations between budget and

actual numbers. Interestingly, rolling forecasts were originally introduced to improve budgeting in high uncertainty conditions. They were expected to help facilitate organisational learning (Haka and Krishnan, 2005) through more frequent updating and also improve budget accuracy. The lower importance of rolling forecasts for formulating action plans as uncertainty increases suggests that this may not be the case.

P4c proposed a negative relation between environmental uncertainty and the importance of the staff evaluation reason to budget. Results indicated no relationship for external uncertainty, and a significant positive relationship for internal uncertainty. P4c therefore is rejected. This result for internal uncertainty is interesting, as the direction of the significant relationship is opposite to that expected. Greater internal uncertainty resulted in more importance being placed on the use of budgets for staff evaluation.

It is possible that as a means of control, budgets are still used, but more loosely. When used more loosely, with a greater tolerance for deviations, budgets at least provide organisations in uncertain environments with a loose guide as to how business units perform, and facilitate discussions regarding deviations from budgets. Therefore, budgets are more important in high uncertainty conditions than in conditions where uncertainty is lower and budget numbers are known to be relevant. When regarded for evaluating business units in lower uncertainty environments, budgets may be used, but they are not regarded as important, as the information gained from performance evaluation may have been expected, and from a management perspective, perceived to be less important.

P4d proposed a negative relationship between environmental uncertainty and the importance of using rolling forecasts for business unit evaluation. This proposition is accepted, as results indicated a negative relationship between business unit evaluation and external uncertainty.

The different results found for P4c and P4d also emphasise the difference between staff evaluation and business unit evaluation in organisations. A positive relationship was found for staff evaluation (P4c), while a negative relationship was found for

business unit evaluation (P4d). Hansen and Van der Stede (2004) found a negative relationship between uncertainty and the importance of their performance evaluation reason to budget. Overall, the systematic observation of different and significant findings from all four categories of propositions highlights the benefit from studying more detailed operational reasons to budget.

5 Conclusions and suggestions for future research

By applying a section of the Hansen and Van der Stede (2004) model to an expanded set of four operational reasons to budget, results are obtained which further our understanding of the relationships between organisational characteristics and the importance of operational reasons to budget. The results also raise questions for future research to consider.

The differences observed between relationships across both research questions possibly emphasise the benefits of expanding the two operational reasons to budget used by Hansen and Van der Stede (2004) to the four operational reasons to budget used in this study, and the consideration of fixed budgets and rolling forecasts in parallel. This research area is quite recent and in its developmental stage, and the observation of differences is encouragement for the simultaneous consideration of more detailed reasons to budget in research. In this study, only two propositions were accepted, though 22 of the 32 relationships investigated showed statistically significant relationships. This indicates that there are relationships between variables, but they are difficult to explicate given the exploratory nature of this research. Future research which collectively studies these variables in order to observe systematic trends in relationships between organisational characteristics and different reasons to budget will provide beneficial insights.

Furthermore, many competing perspectives exist in management control systems, when studying the relation between organisational characteristics and budget importance. Certain perspectives offer opposing relationships to other perspectives. For example, greater uncertainty may lead to the greater use of action controls over results controls (Merchant and Van der Stede, 2003), as results are difficult to measure. Alternatively, greater uncertainty may also cause the institution of processes

which define action controls to be more difficult, and therefore organisations revert to a greater emphasis on analysing outcomes and place greater emphasis on results controls. To this end, more research is needed which observes different reasons to budget together in the same research setting, in order to better understand the way organisational characteristics affect budget relevance. Future studies that consider the benefits from reasons to budget and budgetary characteristics will provide more insights into this research area.

Studies that focus on the impact of new budget forms, such as the rolling forecast, and its general relationship to all alternative reasons to budget and organisational and budgetary characteristics, will also provide valuable guidance to organisations seeking to adopt new budget forms such as the rolling forecast. Finally, the use of more case studies to specifically investigate the alternative reasons to budget suggested by Hansen and Van der Stede (2004) will provide a richer data set for analysis, within more specific contexts.

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