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Budget Emphasis in Small and Medium-sized Enterprises: Evidence from Denmark

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Abstract

Purpose – The purpose of this paper is to investigate the use of budget targets for performance evaluation in small and medium-sized enterprises (SMEs) from a contingency perspective.

Design/methodology/approach – This paper is based on a survey conducted among small and medium-sized Danish production companies. It takes a contingency approach and applies structural equation modelling to analyse the data.

Findings – We find that budget emphasis is related to size, decentralization and interdependence. Furthermore, we hypothesize and find that the degree of budget emphasis is positively related to performance.

Research limitations/implications – The usual limitations associated with survey-based research should be considered before drawing conclusions from our findings. In that regard, replications of our study could be useful.

Practical implications – The practical implication of this paper is that emphasis on the budget target in performance evaluation is of relevance for small and medium-sized production companies.

Originality/value – This paper contributes by providing insights into management accounting in small and medium-sized enterprises. More specifically, this paper contributes to the debate in the SME literature regarding the value of planning and budgeting in SMEs as the paper focuses on the use of budgets for performance evaluation.

Keywords: Budgeting, Budget Emphasis, Beyond Budgeting, Small and Medium-sized Enterprises, Contingency Theory, Structural Equation Modeling.

Paper type: Research paper

1. Introduction

This study focusses on budget emphasis in SMEs. Based on a survey conducted among Danish production companies with between 20 and 500 employees, we use structural equation modelling (AMOS) to analyse the firms' emphasis on budgets for performance evaluation. We study the relationship between budget emphasis and performance as well as the relationship between budget emphasis and four contingency variables: size, perceived environmental uncertainty, structure (in the form of decentralization) and technology (in the form of interdependence).

Mitchell and Reid (2000, p. 386) highlight that "…researching management accounting in the small firm setting has never been fashionable", and, in general, research on performance measurement in SMEs is sparse (Garengo *et al.,* 2005). The budgeting system is among the most widespread management control systems (MCSs) in SMEs (Collis and Jarvis, 2002) but to our knowledge, budget emphasis in SMEs has not previously been studied, and the overall question we ask is: Do budgets have relevance in regard to performance evaluation in SMEs?

This is not a trivial question as the focus on large corporations in management accounting research means that the extant research is not "fully applicable to smaller firms" (Lohr, 2012, p. 35). Generally, SMEs use less management accounting than larger companies, and they use it differently (Lavia López and Hiebl, 2015). Smaller companies may rely on informal management practices (such as personal supervision) to a greater extent than larger companies, at least until they reach a size that requires more formal control systems (King *et al.*, 2010). Accordingly, there is a need to test the findings from studies of large organizations in the setting of smaller firms. Hence, from a theoretical and practical point of view, this is a relevant research question: Does the emphasis on budgets for performance evaluation influence overall performance in SMEs?

The paper begins with a literature review and the development of the hypotheses in the next section, which is followed by a description of our methods. The results are then reported, after which we discuss our results and draw some conclusions.

2. Development of hypotheses

As highlighted by Chenhall (2007), early contingency studies within the accounting field seemed to focus on four factors affecting MCS design: size, environmental uncertainty, organizational structure, and technology.[1] Chenhall (2007, p. 164) notes that "[i]n considering MCS research since 1980, it is apparent that these key variables have been confirmed as descriptors of fundamental, generic elements of context." We structured our hypothesis development around these four traditional contingency variables, their effects on budgeting, and the performance of the sample companies. The resulting structural model can be seen in Figure 1.

2.1 Size

In the contingency literature, increased size is associated with more indirect, impersonal forms of control, and the size of an organization is positively associated with a greater degree of formalization (Donaldson, 2001). As budgeting is a formalized method of planning and control, a positive association between size and the use of budgets is therefore to be expected. Chenhall (2007, p. 182) points out that "as organizations become larger the need for managers to handle greater quantities of information increases…". In line with this, Merchant (1981) finds a positive relationship between size and the importance of meeting the budget, and Hiebl *et al.* (2012) find that size is an important driver for the establishment of a management accounting department. In their study of small healthcare businesses, King *et al.* (2010) hypothesize and find that size is positively related to the adoption of written budgets. We therefore propose that emphasis on budget targets will increase when organizational size increases, also in SMEs. Accordingly, we formulate the following hypothesis:

> *Hypothesis 1: There is a positive relationship between the size of the organization and budget emphasis in SMEs.*

2.2 Perceived Environmental Uncertainty

Research concerning the relationship between budgets and perceived environmental uncertainty (PEU) provides ambiguous conclusions and highlights a paradox in contingency theory (Hartmann, 2000). The arguments for a reduced budget emphasis in an environment with higher uncertainty are that unpredictability makes it difficult to set realistic targets for responsibility centres and that unpredictability complicates the use of budgets in ex-post

[1] In addition to these four contingency variables, Chenhall (2007) includes strategy and national culture in his literature review.

evaluations (Hartmann, 2000, p. 471). On the other hand, Chenhall (2007, p. 173) proposes that, "[t]he more hostile and turbulent the external environment, the greater the reliance on formal controls and emphasis on traditional budgets," and Otley (1978) suggests that tight budget control should be used when faced with difficult conditions. As argued by Otley (2016, p. 50), organizations faced with uncertainty require "flexible and adaptable systems to manage activities when unexpected events occur".

All in all, both the arguments and the empirical evidence point in different directions. On the one hand, an increase in PEU might be expected to increase the emphasis on meeting the budget target in order to maintain control. On the other hand, the uncertainty makes budgets less useful for evaluation purposes, which would imply less emphasis on meeting the budget target. Accordingly, we have chosen to make two hypotheses each pointing in a different direction:

> *Hypothesis 2a: There is a positive relationship between PEU and budget emphasis in SMEs.*
>
> *Hypothesis 2b: There is a negative relationship between PEU and budget emphasis in SMEs.*

2.3 Structure

Organizational structure can be measured in a number of ways, including the extent of decentralization or organic-mechanistic orientation (Chenhall, 2007). We choose to focus on organizational structure in the form of decentralization as "[t]he budget may be seen as a means for decentralizing certain types of operation decisions" (Bruns and Waterhouse, 1975, p. 181). Merchant (1981) finds evidence of a positive relationship between decentralization and the importance of meeting budget goals, and, in addition, King *et al.* (2010) find a positive relationship between decentralization and the adoption of written budgets.

Prior research suggests that decentralization is followed by increased formalization in order to maintain control when decision authority has been delegated to lower levels in the organization (Zeffane, 1989). According to Atkinson *et al*. (2012, p. 489-490) contemporary practices sees organizations decentralizing by using result control. As a budget is typically the first MCS to be implemented in a company (Davila and Foster, 2005), the most likely way of exercising "result control" in an SME is to measure results against the budget. Therefore, we

expect that decentralization is followed by an increased budget emphasis in order to maintain control. We therefore formulate the following hypothesis:

> *Hypothesis 3: There is a positive relationship between the degree of decentralization and budget emphasis in SMEs.*

2.4 Technology

Chenhall (2007, p. 174) identifies three generic types of technology that are related to MCS design: complexity, task uncertainty, and interdependence[2]. In this study, we focus on interdependence because Chenhall and Morris (1986, p. 18) highlight that "organizational interdependence is an important element of context in the design of management accounting systems (MAS)". This focus on interdependence, provides an indirect focus on coordination as budgets can help coordinate between units (Anthony and Govindarajan, 2006). However, it should be noted that for planning to be effective as a coordination mechanism, a high degree of performance according to plan is required. As shown by Hirst and Yetton (1999), higher task interdependence can lead to performance variance, and this could then make budgets less useful for coordination. One way of reducing performance variance could be the use of goal setting (Hirst and Yetton, 1999). It has been demonstrated in numerous studies that goal setting leads to greater persistency and effort (Locke and Latham, 2002). We propose that budget target emphasis will motivate the organizational units to put a greater effort into reaching those targets, thereby decreasing variances. With less variance, the budget will be more useful for coordinating interdependent units (Hirst and Yetton, 1999), and we propose that this will also be the case in SMEs. Therefore, we formulate the following hypothesis:

> *Hypothesis 4: There is a positive relationship between the degree of interdependence and budget emphasis in SMEs.*

2.5 Budget emphasis and performance

Research on the relationship between planning and performance in SMEs has yielded mixed results (Masurel and Smit, 2000). However, Masurel and Smit (2000) and Brinckmann *et al.* (2010) find a positive relationship between planning and performance in smaller companies,

[2] As stated by Chenhall (2007, p. 174) "[t]echnology has many meanings in organizational behavior. At a general level, technology refers to how the organization's work processes operate (the way tasks transform inputs into outputs []". Accordingly, our measure of technology focuses on the work flow between budgeting units in the form of their interdependence.

and, as pointed out by Lavia López and Hiebl (2015), research has found a positive performance effect of using management accounting systems in SMEs.

In general, findings regarding the effect of budget emphasis have been ambiguous (Covaleski *et al.*, 2007). However, the literature on work motivation suggests that the presence of goals has a positive effect on performance (see, for example, Locke and Latham, 2002; Latham, 2007). Goal setting positively affects performance through four mechanisms (Locke and Latham, 2002, p. 706-707; Latham, 2007, p. 53):

1. Direct attention paid to relevant activities,
2. Greater effort,
3. More persistency and
4. Motivates the development of relevant strategies for goal attainment.

A number of studies have demonstrated the positive performance effect of goal setting (Locke and Latham, 2002), which is mediated by goal commitment. Therefore, in a budget setting in SMEs, we expect greater budget emphasis to increase commitment to budget goals, resulting in enhanced performance (see also Chong and Chong, 2002; Sholihin *et al.*, 2010). Accordingly, we propose that the emphasis on budget achievement will have a positive performance effect in SMEs:

> *Hypothesis 5: There is a positive relationship between the degree of budget emphasis and performance in SMEs.*

The structural model of our hypotheses can be seen in Figure 1.

[Insert Figure 1 about here]

3. Methodology

3.1 Sample procedures

This paper is based on a survey of Danish production companies with between 20 and 500 employees. In limiting our definition of SMEs to firms of less than 500 employees, we follow

the methodology common to other studies of SMEs (see, for example, Alatar *et al.*, 2009; Gibbons and O'Connor, 2005). The lower limit of 20 employees was chosen to ensure that formal management accounting would be identified in the responding organizations. As highlighted by Perry (2001, p. 205), "one might not expect to find more sophisticated planning in firms with fewer than 15-20 employees." Companies were identified via the Danish database *NN Markedsdata*, and only production sites within the chosen size range were selected. To ensure that the companies selected were, in fact, production companies, only companies indicating that they had an employee responsible for the functional area of production were included. Furthermore, the list of companies was checked manually to be certain that non-production companies were excluded.

The questionnaire was sent by e-mail to the person responsible for finance. Those companies that did not list the name of an employee with such responsibilities were contacted directly in order to retrieve this information. In this process, some companies indicated that they were not interested in participating and they were therefore removed from the sample. In total, 947 companies received the questionnaire. Three rounds of follow-ups were conducted, and we received a total of 159 responses, which gives a total response rate of 16.8 percent. Three of the responding companies reported a number of employees that was outside our set range and were therefore removed from the sample, leaving a usable sample of 156 companies (rendering a usable response rate of 16.5 percent). This response rate is considered satisfactory as small businesses are known for not being particularly willing to respond to questionnaires (Marriott and Marriott, 2000). Tests of non-response bias were conducted using t-tests in which we compared the answers submitted by early and late respondents (see Armstrong and Overton, 1977). We found no signs of non-response bias.

3.2 Measures used

Factor loadings of applied questions are illustrated in Table 1. All items with a loading of less than 0.5 were removed in accordance with the recommendations (Hair *et al.*, 2010). The full wording of the questions is provided in Appendix A (translated from Danish into English). That appendix also includes the questions that were removed due to low loadings. The questionnaire also contained measures not used in this study (these are not listed in the appendix). In the following sections, we explain our measures in more detail.

Measure of budget emphasis. In order to focus on the use of budgets as a goal (budget emphasis), we used the measure of budget emphasis developed by Hansen and Van der Stede

(2004). However, we modified the wording slightly in order to stress a focus on aggregated budget targets (such as profit or total costs). This four-item measure of budget emphasis had a Cronbach's alpha of 0.79.

Measure of performance. We measured total performance using the four-item measure found in Hansen and Van der Stede (2004). Given the low loading, the question regarding internal effectiveness was removed from the measurement model used in this study. The final three-item measure had a Cronbach's alpha of 0.71.

Measures of the independent variables. We relied on the measure used by Gordon and Narayanan (1984) to measure PEU. The original measure consisted of ten items, but when we tested the measurement model many of the items demonstrated low loadings. After removing all items with loadings of less than 0.5, we were left with four items. Three of these items focused primarily on uncertainty with regard to technology and product development, and the fourth item focused on economic dynamism. The question concerning economic dynamism (with a loading of 0.55) was left out as economic dynamism is a different dimension of uncertainty than uncertainty regarding technology and product development – Thus, the final PEU measure focused on technological uncertainty, and the three-item measure had a Cronbach's alpha of 0.73. In section 4.3 we elaborate more on the implications of using this measure.

We adopted the decentralization measure found in Gordon and Narayanan (1984) as the measure of decentralization. The original measure consisted of nine items. However, several items had low loadings in tests of the measurement model and were therefore removed, resulting in a five-item measure with a Cronbach's alpha of 0.77. The remaining five items focus on delegation of authority, which corresponds well to the arguments in the hypothesis section (section 2.3) that delegation of authority is followed by budget emphasis in order to maintain control[3].

The degree of interdependence was measured using a simple one-item question asking the respondent to indicate the degree of interdependence among the budgeting units on a seven-

[3] It should be noted that the decentralization from Gordon and Narayanan (1984) has formative features, which could be one of the explanations for the low loadings for some of the items. Bisbe *et al.* (2007, p. 792) denote a formative construct as a construct that "is understood to be formed by a series of constitutive indicators (i.e., a formative model), in which case a census of indicators is required in order to describe the construct."

point Likert scale. Finally, we measured size using the natural logarithm of the number of employees.

[Insert Table 1 about here]

4. Results

We tested the empirical sample using a covariance-based structural-equation model. By using structural-equation modelling, we could test both the measurement model and the structural model. AMOS version 22 was used with maximum likelihood estimation. Even though our sample size would suggest the use of the partial least squares approach, we chose to use a covariance based approach (in the form of AMOS), which provides an overall goodness-of-fit measure. As such, it is better suited for theory-testing than the partial least squares approach (see Hair *et al.*, 2013).

4.1 The measurement model

Internal consistency reliability was measured using the composite reliability measure as well as the traditional measure of Cronbach's alpha (reported above). As highlighted by Hair *et al.* (2013, p. 101), "*Cronbach's alpha* is sensitive to the number of items in the scale and generally tends to underestimate the internal consistency reliability." The composite reliability measure is recommended as an alternative. This measure takes the different outer loadings of the indicators into account. The composite reliability of the measures included in this study and the Cronbach's alphas are reported in Table 2. The measures are all above 0.7, which indicates good reliability (Hair *et al.*, 2010). All of the loadings of each measure's indicators are shown in Table 1. They are all above 0.5, as recommended by Hair *et al.* (2010).

We also computed the average variance extracted (AVE) in order to determine discriminant validity. According to Hair *et al.* (2013), the square root of the AVE for each measure should be greater than the measure's correlation with any of the other measures. Therefore, the square root of the *AVE* is reported on the diagonal of the correlation matrix in Table 2. The results fit with this criterion.

[Insert Table 2 about here]

We adopted the procedure used by Fullerton *et al.* (2013) to evaluate the measurement model by examining the IFI, CFI, TLI, RMSEA, and AIC, as well as chi-squared divided by the

degrees of freedom. According to Kline (2005), chi-squared divided by the degrees of freedom should be less than 2.0 in order to indicate a good fit. The IFI, CFI, and TLI should all preferably be greater than 0.95 (Hu and Bentler, 1999), although a traditional rule of thumb has been to set the cut-off value at 0.9 (Marsh *et al*, 2004). The RMSEA should be less than 0.08 (preferably less than 0.05) to indicate an acceptable fit (Browne and Cudeck, 1993), while AIC for the default model should be lower than the AIC for the saturated model (Fullerton *et al.*, 2013). As shown in Table 3, the values of the fit measures are within or close to these cut-off values, indicating acceptable fit.

[Insert Table 3 about here]

4.2 The structural model

The fit of the structural model is also illustrated in Table 3. First, we evaluated the fit of the model before evaluating the individual path coefficients. The fit of the base model (Figure 1 above) can be seen in Table 3. Again, we followed the procedure used by Fullerton *et al.* (2013) when evaluating the structural model. As can be observed from the data, the model fit is acceptable when looking at these fit indices as they are within or close to the cut-off values.

As shown in Table 4, the path coefficient and the path from the PEU measure are insignificantly related to budget emphasis. Therefore, we removed the PEU variable in order to achieve a more parsimonious model. The fit indices for this trimmed model, which are presented in Table 3, are higher. Moreover, they are all within the cut-off values, indicating good fit.

[Insert Table 4 about here]

There are positive and significant relationships between the degree of budgetary emphasis and size, decentralization, and interdependence among budget units. These findings support Hypotheses 1, 3, and 4. In addition, budget emphasis is positively and significantly related to

overall performance, which supports Hypothesis 5. Hypotheses 2a and 2b is not supported: the coefficient is positive, as hypothesized in hypothesis 2a, but insignificant.

4.3 Post-hoc analyses on PEU

One explanation of the non-result regarding PEU in this study could be that our measure became a measure of technological uncertainty due to the low loadings of several items. The PEU measure used has formative features (see footnote 3), and therefore this measure results in a three-item measure of technological uncertainty. Thereby the effect of other dimensions of uncertainty is not taken into account in the analysis. In order to take these other dimensions of PEU into account, we have run the Structural Equation Model with PEU as a manifest variable calculated as an average of the ten items in the original PEU measure. The results are not tabulated, but the model produces a positive and significant relationship between PEU and budget emphasis, which indicates that SMEs increase budget emphasis when faced with a general increase in PEU (i.e. support for hypothesis 2a).

5. Discussion and conclusion

This study contributes to the budgeting literature in several ways. First, it responds to Chenhall's (2007) call for more contingency-based research in smaller organizations (the left side of the structural model in Figure 1). Our results suggest that existing findings regarding budget emphasis found in larger enterprises are applicable to SMEs, at least to some extent. As SMEs rely on informal mechanisms for coordination to a larger extent (King *et al.*, 2010), our results contribute by showing that budget emphasis also has a role to play in SMEs, thereby supporting Giovannoni *et al.* (2011, p. 142) in finding that "formal management accounting practices are also relevant in small businesses…".

Our study also contributes by focusing on management's use of budgetary targets in relation to performance. We found that budget emphasis was positively and significantly related to the overall performance of the company. A possible explanation for this is the motivational effects of budget-target emphasis. The practical implication of this finding is that small and medium-sized production companies should consider emphasizing the budget in performance evaluations instead of just using the budget for planning purposes.

This study therefore also contributes to the practitioner-based discussion concerning the general usefulness of budgeting (Hope and Fraser, 2003; Bogsnes, 2016). This stream of

literature criticises the use of traditional budgets for performance evaluation. Our study shows that emphasis on budgets still has a role to play in SMEs when it comes to performance evaluation, and our results indicate that small and medium-sized production companies should not abandon the budget. Hence, even though there might be disadvantages connected with fixed budget targets, the advantages might outweigh these disadvantages, supported by the fact the even Beyond Budgeting inspired case studies actually find the use of fixed targets for control and performance evaluation (e.g. Bourmistrov and Kaarboe, 2013; Sandalgaard and Bukh, 2014). As a respondent pointed out in the study by Elmassri and Harris (2011, p. 283), the company's budget based evaluation system may not be perfect but, nevertheless, the most appropriate way of objectively evaluating performance.

Our findings show a positive relationship between the degree of decentralization and budget emphasis in SMEs. This result is in line with prior findings for larger companies. Nevertheless, we find that this result is interesting from a practical point of view as the Beyond Budgeting literature argues that organizations should abandon budgets in order to radically decentralize (Hope & Fraser, 2003). Future research could focus on the more specific role of budget emphasis when it comes to empowerment of the organization. Should the emphasis be on more aggregated budget targets that leave room for decentralized decision making regarding the individual line items, or should the emphasis be on the details in the budget?

Furthermore, our findings reveal a positive relationship between budget emphasis and the degree of interdependence between the budgeting units. One explanation for this result could be that budget emphasis leads to lower budget variance, which leads to budgets being more suitable for coordinating interdependent units in smaller production companies. However, in the Beyond Budgeting literature, it is often argued that forecasting should be used instead of budgeting because forecasting is believed to provide more unbiased estimates (see e.g. Bogsnes, 2016). Further research on the effect of forecasting could therefore be relevant, for example by asking: Are there negative consequences of forecasting? Does the use of forecasting (instead of budgeting) lead to larger performance variances?

Regarding environmental uncertainty, we found a positive (as suggested in hypothesis 2a) but not significant relationship between our PEU measure and the budgeting variable. As explained in section 4.3, we have also run the Structural Equation Model (SEM) with PEU as a manifest variable and there we found a positive and significant relationship between PEU and budget emphasis. This result is contrary to the claim in the Beyond Budgeting literature that budgets

are obsolete in an uncertain environment (Hope and Fraser, 2003). Our result should of course be interpreted with caution due to the methodological issues with the PEU measure mentioned in section 4.3.

Finally, it is important to stress that the usual limitations associated with survey-based research should be considered before drawing conclusions from our findings. In that regard, replications of our study could be useful, especially studies focused on the right-hand side of our causal model (the part focused on performance). This part of the model has the lowest power, which suggests that replication in a larger sample could be of value. Future research could also expand the present model by investigating the use of budgets in SMEs in non-production organizations, and by including strategy or business models as a contingency variable aimed at uncovering whether different strategies or different business model configurations affect the ways in which small and medium-sized production companies use budgets. In accordance with Hiebl *et al*. (2015), we also suggest that the influence of family ownership should be investigated. The influence of family ownership on budget emphasis in SMEs is interesting as the literature on management accounting in family businesses points to family businesses having more informal control mechanisms (Senftlechner and Hiebl, 2015; Songini and Gnan, 2015).

References

Alatar, J. M., Kouhy, R. and Innes, J. (2009), "Management accounting information in micro enterprises in Gaza", *Journal of Accounting & Organizational Change,* Vol 5 No. 1, pp. 81–107.

Anthony, R. N. and Govindarajan, V. (2006), *Management Control Systems,* McGraw-Hill, Boston, MA.

Armstrong, J. S. and Overton, T. S. (1977), "Estimating nonresponse bias in mail surveys", *Journal of Marketing Research,* Vol. 14 No. 3, pp. 396–402.

Atkinson, A., Kaplan, R. S., Matsumura, E. A. and Mark Young, S. (2012), *Management Accounting*, International edition, 6th edition, New Jersey: Pearson.

Bisbe, J., Batista-Foguet, J.-M. and Chenhall, R. (2007), "Defining management accounting constructs: A methodological note on the risk of conceptual misspecification", *Accounting, Organizations & Society*, Vol. 32 No. 7-8, pp. 789-820.

Bogsnes, B. (2016), *Implementing Beyond Budgeting – Unlocking the Performance Potential,* 2nd ed., Wiley, Hoboken, New Jersey.

Bourmistrov, A. and Kaarbøe, K. (2013), "From comfort to stretch zones: A field study of two multinational companies applying "beyond budgeting" ideas", *Management Accounting Research*, Vol. 24 No. 3, pp. 196-211.

Brinckmann, J., Grichnik, D. and Kapsa, D. (2010), "Should entrepreneurs plan or just storm the castle? A meta-analysis on contextual factors impacting the business planning–performance relationship in small firms", *Journal of Business Venturing,* Vol. 25 No. 1, pp. 24–40.

Browne, M. W. and Cudeck, R. (1993), "Alternative ways of assessing model fit", in Bollen, K. A. and Long, J. S. (Eds.), *Testing Structural Equation Models,* Sage, Beverly Hills, CA, pp. 136–162.

Bruns, W. J. and Waterhouse, J. H. (1975), "Budgetary Control and Organization Structure", *Journal of Accounting Research,* Vol. 13 No. 2, pp. 177–203.

Chenhall, R. H. (2007), "Theorizing Contingencies in Management Control Systems Research", in Chapman, C. S., Hopwood, A. G. and Shields, M. D. (Eds.), *Handbook of Management Accounting Research,* Oxford, Elsevier, UK, pp. 163-205.

Chenhall, R. H. and Morris, D. (1986), "The Impact of Structure, Environment and Interdependence on the Perceived Usefulness of Management Accounting Systems", *The Accounting Review,* Vol. 61 No. 1, pp. 16–35.

Chong, V. K. and Chong, K. M. (2002), "Budget Goal Commitment and Informational Effects of Budget Participation on Performance: A Structural Equation Modeling Approach", *Behavioral Research in Accounting,* Vol. 14, pp. 65-86.

Collis, J. and Jarvis, R. (2002), "Financial information and the management of small private companies", *Journal of Small Business and Enterprise Development,* Vol. 9 No. 2, pp. 100–110.

Covaleski, M. A., Evans III, J. H., Luft, J. L. and Shields, M. D. (2007), "Budgeting Research: Three Theoretical Perspectives and Criteria for Selective Integration", in Chapman, C. S., Hopwood, A. G. and Shields, M. D. (Eds.), *Handbook of Management Accounting Research,* Elsevier, Oxford, UK, pp. 587–624.

Davila, A. and Foster, G. (2005), "Management Accounting Systems Adoption Decisions: Evidence and Performance Implications from Early-Stage/Startup Companies", *The Accounting Review,* Vol. 80 No. 4, pp. 1039–1068.

Donaldson, L. (2001), *The Contingency Theory of Organizations*, Sage, Thousand Oaks.

Elmassri, M. and Harris, E. (2011), "Rethinking budgetary slack as budget risk management", *Journal of Applied Accounting Research*, Vol 12 No. 3, pp. 278-293.

Fullerton, R. R., Kennedy, F. A. and Widener, S. K. (2013), "Management accounting and control practices in a lean manufacturing environment", *Accounting, Organizations and Society,* Vol. 38 No. 1, pp. 50–71.

Garengo, P., Biazzo, S. and Bititci, U. S. (2005), "Performance measurement systems in SMEs: A review for a research agenda", *International Journal of Management Reviews,* Vol. 7 No. 1, pp. 25–47.

Gibbons, P. and O'Connor, T. (2005), "Influences on Strategic Planning Processes among Irish SMEs", *Journal of Small Business Management,* Vol. 43 No. 2, pp. 170–186.

Giovannoni, E., Maraghini, M. P., and Riccaboni, A. (2011), "Transmitting knowledge across generations: the role of management accounting practices", *Family Business Review*, Vol. 24 No. 2, pp. 126-150.

Gordon, L. A. and Narayanan, V. K. (1984), "Management accounting systems, perceived environmental uncertainty and organization structure: An empirical investigation", *Accounting, Organizations and Society,* Vol. 9 No. 1, pp. 33–47.

Hair, J. F., Black, W. C., Babin, B. J. and Anderson, R. E. (2010), *Multivariate Data Analysis*, 7th edition, Prentice Hall, Englewood Cliffs, NJ.

Hair, J. F., Hult, T. M., Ringle, C. and Sarstedt, M. (2013), *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM),* Sage Publication, Thousand Oaks.

Hansen, S. C. and Van der Stede, W. A. (2004), "Multiple facets of budgeting: an exploratory analysis", *Management Accounting Research,* Vol. 15 No. 4, pp. 415–439.

Hartmann, F. G. (2000), "The appropriateness of RAPM: toward the further development of theory", *Accounting, Organizations and Society,* Vol. 25 No. 4–5, pp. 451–482.

Hiebl, M. R. W., Feldbauer-Durstmüller, B., Duller, C. and Neubauer, H. (2012), "Institutionalisation of Management Accounting in Family Businesses – Empirical Evidence from Austria and Germany", *Journal of Enterprising Culture*, Vol. 20 No. 4 pp. 405-436.

Hiebl, M. R. W., Duller, C., Feldbauer-Durstmüller, B. and Ulrich, P. (2015), "Family Influence and Management Accounting Usage – Findings from Germany and Austria", *Schmalenbach Business Review,* Vol 67 No. 3, pp. 368-404.

Hirst, M. K. and Yetton, P. W. (1999), "The effects of budget goals and task interdependence on the level of and variance in performance: a research note", *Accounting, Organizations and Society,* Vol. 24, pp. 205-216.

Hope, J. and Fraser, R. (2003), *Beyond Budgeting: How managers can break free from the annual performance trap,* Harvard Business School Press, Boston, MA.

Hu, L. and Bentler, P. M. (1999), "Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria Versus New Alternatives", *Structural Equation Modeling,* Vol. 6 No. 1, pp. 1–55.

King, R., Clarkson, P. M. and Wallace, S. (2010), "Budgeting Practises and performance in small healthcare businesses", *Management Accounting Research,* Vol. 21 No. 1, pp. 40–55.

Kline, R. B. (2005), *Principles and Practice of Structural Equation Modeling,* The Guilford Press, New York.

Latham, G. P. (2007), *Work motivation: history, theory, research and practice,* Sage Publications, Thousand Oaks.

Lavia López, O. and Hiebl, M. R. W. (2015), "Management Accounting in Small and Medium-Sized Enterprises: Current Knowledge and Avenues for Further Research", *Journal of Management Accounting Research,* Vol. 27 No. 1, pp. 81-119.

Locke, E. A. and Latham, G. P. (2002), "Building a Practically Useful Theory of Goal Setting and Task Motivation – A 35-Year Odyssey", *American Psychologist,* Vol. 57 No. 9, pp. 705–717.

Lohr, M. (2012), "Specificities of Managerial Accounting at SMEs: Case Studies from the German Industrial Sector", *Journal of Small Business and Entrepreneurship,* Vol. 25 No. 1, pp. 35–65.

Marriott, N. and Marriott, P. (2000), "Professional accountants and the development of a management accounting service for the small firm: barriers and possibilities", *Management Accounting Research,* Vol. 11 No. 4, pp. 475–492.

Marsh, H. W., Hau, K-T. and Wen, Z. (2004), "In Search of Golden Rules: Comment on Hypothesis-Testing Approaches to Setting Cutoff Values for Fit Indexes and Dangers in Overgeneralizing Hu and Bentler's (1999) Findings", *Structural Equation Modeling,* Vol. 11 No. 3, pp. 320–341.

Masurel, E. and Smit, H. P. (2000), "Planning behavior of small firms in central Vietnam", *Journal of Small Business Management,* Vol. 38 No. 2, pp. 95–102.

Merchant, K. A. (1981), "The Design of the Corporate Budgeting System: Influences on Managerial Behavior and Performance", *The Accounting Review,* Vol. 56 No. 4, pp. 813–829.

Mitchell, F. and Reid, G. C. (2000), "Problems, challenges and opportunities: the small business as a setting for management accounting research", *Management Accounting Research,* Vol. 11 No. 4, pp. 385–390

Otley, D. T. (1978), "Budget Use and Managerial Performance", *Journal of Accounting Research,* Vol. 16 No. 1, pp. 122–149.

Otley, D. (2016), "The contingency theory of management accounting and control: 1980-2014", *Management Accounting Research*, Vol. 31, pp. 45-62.

Perry, S. (2001), "The relationship between written business plans and the failure of small businesses in the U.S.", *Journal of Small Business Management,* Vol. 39 No. 3, pp. 201–208.

Sandalgaard, N. and Bukh, P. N. (2014), "Beyond Budgeting and change: a case study", *Journal of Accounting & Organizational Change*, Vol. 10 No. 3, pp. 409-423.

Senftlechner, D., and Hiebl, M. R. W. (2015), "Management accounting and management control in family businesses", *Journal of Accounting & Organizational Change,* Vol. 11 No. 4, pp. 573-606.

Sholihin, M., Pike, R. and Mangena, M. (2010), "Reliance on multiple performance measures and manager performance", *Journal of Applied Accounting Research*, Vol. 11 No.1, pp. 24-42.

Songini, L. and Gnan, L. (2015), "Family Involvement and Agency Cost Control Mechanisms in Family Small and Medium-Sized Enterprises", *Journal of Small Business Management*, Vol 53 No. 3, pp. 748-779.

Zeffane, R. M. (1989), "Centralization or Formalization? Indifference Curves for Strategies of Control", *Organization Studies*, Vol. 10 No. 3, pp. 327-352.

Appendix A

Questions concerning organizational performance

- Which of the following best describes your company's economic performance in the last budget period? (Scale: 1 = substantially less profitable than competitors, 7 = substantially more profitable than competitors)
- Consider ideal performance as 100%. What percentage value would you assign to your company's actual performance in the last budget period? (Scale: 0-100%)
- Rate how well your company is performing in terms of its market performance (for example, sales growth and market share). (Scale: 1 = well below average relative to competitors, 7 = well above average relative to competitors)
- Rate how well your company is performing in terms of its internal operations (for example, effectiveness and quality). (Scale: 1 = well below average relative to competitors, 7 = well above average relative to competitors)

Questions concerning perceived environmental uncertainty (PEU)

- How intense is the competition in the following areas in your industry? (Scale: 1 = negligible, 7 = extreme)
    - Purchase of raw materials
    - Competition for manpower
    - Price
- How many new products and/or services have been marketed during the past five years in your industry? (Scale: 1 = none, 7 = many)
- How stable/dynamic is the external environment (economic and technological) facing your firm? (Scale: 1 = very stable/changing slowly, 7 = very dynamic/changing rapidly)
    - Economic
    - Technological
- How would you classify the market activities of your competitors during the past five years? (Scale: 1 = becoming more predictable, 7 = becoming less predictable)
- During the past five years, the tastes and preferences of your customers have become: (Scale: 1 = much easier to predict, 7 = much harder to predict)

- During the past five years, the legal, political, and economic constraints surrounding your firm have: (Scale: 1 = remained about the same, 7 = have proliferated greatly)
- How often do new scientific discoveries emerge in your industry? (Scale: 1 = seldom, 7 = frequently)

Questions concerning decentralization

- To what extent has authority been delegated to the appropriate managers for each of the following classes of decisions? (Scale: 1 = no delegation, 7 = complete delegation)
    - Development of new products or services
    - The hiring and firing of managerial personnel
    - Selection of large investments
    - Budget allocations
    - Pricing decisions
- Which of the following best characterizes the specification of actual job tasks in your firm? (Scale: 1 = tasks are clearly specified and have well-established performance criteria, 7 = no formal description of job tasks exists)
- Does your firm have an employee manual? No____ Yes____. If yes:
    - How complete is it? (scale: 1 = detailed descriptions of employee tasks and rights are provided, 7 = only the most basic tenets are outlined, leaving many questions unanswered)
- Most operating decisions are made at: (Scale: 1 = the senior executive level, 7 = the lowest managerial level)
- The managerial styles (modes of decision making) of your firm's managers are: (Scale: 1 = expected to conform to a uniform style, 7 = allowed to range from informal to very formal)

Questions concerning budget emphasis

- Indicate the extent to which you agree with the following statements: (Scale: 1 = strongly disagree, 7 = strongly agree)
    - Upper management constantly reminds the persons responsible of the need for them to meet aggregated budget targets (such as profit or (if a cost centre) total costs).

- Upper management chiefly controls the persons responsible by monitoring how well the unit's performance meets the aggregated budget targets (such as profit or (if a cost centre) total costs).
- Promotion of the persons responsible depends heavily on their ability to meet aggregated budget targets (such as profit or (if a cost centre) total costs).
- In the eyes of upper management, the achievement of aggregated budget targets (such as profit or (if a cost centre) total costs) is an accurate reflection of whether the responsible persons are succeeding.

Question concerning number of employees

- Please indicate the number of employees in your organization.

Question concerning interdependence

- To what extent are the activities in the budget units interdependent? (Scale: 1 = not at all, 7 = to a very high degree)

Table 1 - Descriptive statistics and loadings for measurement model items

Survey Item	*Standardized loadings*	*p.*	*Mean*	*Std. Dev.*	*min.*	*max.*
Organizational performance						
-Financial performance latest year compared to competitors	0,977	-[a]	4,85	1,28	1	7
-Actual results in latest budgetperiod	0,548	***	5,44	1,55	1	7
-Performance on markets compared to competitors	0,599	***	4,99	0,92	2	7
Perceived environmental uncertainty (PEU)						
-How many new products/services during last 5 years in your industry?	0,564	***	4,04	1,64	1	7
-How stable is the external environment - technological?	0,735	***	3,65	1,53	1	7
-How often is there new scientific discoveries in your industry?	0,781	-[a]	2,76	1,46	1	7
Decentralization						
The extent of delegation regarding:						
-Development of new products	0,533	***	4,23	1,62	1	7
-Hiring/firing of managerial staff	0,615	***	3,37	1,91	1	7
-Choice of large investment	0,685	***	2,49	1,53	1	7
-Budgetallocations	0,711	***	3,35	1,55	1	7
-Pricing decisions	0,654	-[a]	3,71	1,63	1	7
Budget emphasis						
-Upper management constantly reminds the persons responsible of the need for them to meet aggregated budget targets	0,652	***	4,55	1,80	1	7
-Upper management controls the persons responsible chiefly by monitoring how well the units performances meets aggregated budget targets	0,662	***	4,54	1,69	1	7
-Promotion of the persons responsible depends heavily on their ability to meet aggregated budget targets	0,717	***	3,21	1,55	1	7
-In the eyes of upper management, achieving aggregated budget targets is an accurate reflection of whether the responsible persons are succeeding	0,761	-[a]	3,92	1,65	1	7
Size	-	-	4,44	0,85	3	6
Interdependence	-	-	4,84	1,44	1	7

Note: [a] indicates that the item was fixed at 1.

*** P-value < 0.001 (two-sided).

Table 2. Correlations of all variables used as well as reliability and validity (Fornell Larcker criterion)

	Composite reliability	*Crohnbach's alpha*	*AVE*	*Correlations* 1	2	3	4	5
1 Performance	0,76	0,71	0,54	**0,73**				
2 Budget emphasis	0,79	0,79	0,49	0,16	**0,70**			
3 PEU	0,74	0,73	0,49	0,09	0,18	**0,70**		
4 Decentralization	0,78	0,77	0,41	0,06	0,25	0,16	**0,64**	
5 Interdependence	-	-	-	0,04	0,26	0,05	0,11	
6 Size	-	-	-	0,10	0,28	0,12	0,09	0,15

Note: The bold numbers on the diagonal are the square root of the AVE and should be greater than the highest correlation with any of the other constructs to asses discriminant validity (the Fornell-Larcker criterion, see Hair et al. (2013)).

Table 3. Fit of the measurement model and the structural model

		Measurement model	Structural model	
Fit index	Cut-off values	Actual value	Actual value - base model	Actual value - trimmed model
RMSEA	<0.08 (0.05)	0,07	0,06	0,05
IFI	>0.90 (0.95)	0,89	0,90	0,94
TLI	>0.90 (0.95)	0,86	0,87	0,93
CFI	>0.90 (0.95)	0,89	0,89	0,94
CMIN/DF	<2	1,68	1,63	1,41
AIC (saturated)	*AIC (default)* lower than	306,00	306,00	210,00
AIC (default)	*AIC (saturated)*	272,01	265,12	167,65

Table 4. Path coefficients

			Base model		Trimmed model	
Hypothesis	Path from…	…to	*B*[a]	*p*-value[b]	*B*[a]	*p*-value[b]
H1	Size…	...Budget emphasis	0,22	0,007	0,23	0,005
H2a/H2b	PEU…	...Budget emphasis	0,12	0,119		
H3	Decentralization…	...Budget emphasis	0,19	0,030	0,21	0,018
H4	Interdependence…	...Budget emphasis	0,20	0,012	0,20	0,012
H5	Budget emphasis…	...Performance	0,16	0,036	0,16	0,036

[a] Standardized estimate of path coefficient.
[b] *P*-values are one-sided.
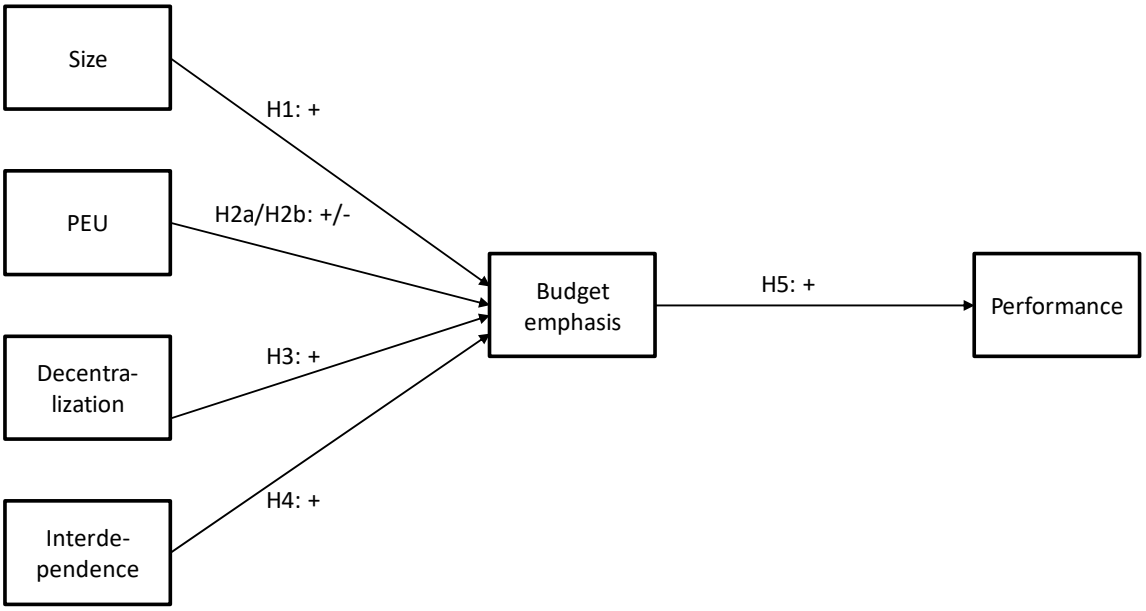
Figure 1 – The Model