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AN EXPERIMENTAL INVESTIGATION ON THE EFFECT OF FEEDBACK CONTROL POLICY AND NEED FOR ACHIEVEMENT ON SUBORDINATES' BUDGETARY SLACK CREATION

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Abstract

This paper examines the effects of one management control mechanism - namely, feedback control policy - on subordinates' budgetary slack creation. This paper also investigates the interaction effect of feedback control policy and the personality trait of 'need for achievement' on budgetary slack. A laboratory experiment was conducted and a 2x2 analysis of variance (ANOVA) was used to test the hypotheses formulated for this study. The independent variables were the feedback control policy and the personality trait of 'need for achievement'. The dependent variable was budgetary slack. The results indicate that the presence of a feedback control policy reduces the budgetary slack created by managers under private information conditions. The results further reveal that managers with a high need for achievement create less budgetary slack than those with a low need for achievement, when feedback control policy exists.

Keywords: Feedback Control Policy, Need for Achievement, Budgetary Slack Creation.

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Introduction

Budgets are an integral part of the management control systems for most organisations. Generally, organisations use budgets to motivate employees, allocate resources and evaluate performance (Walker and Johnson, 1999). Organisations motivate employees by promising a reward when they meet or exceed the budget. As a result, employees will try to negotiate a budget target to a level where it is easier to be achieved (Cyert and March, 1963; Onsi, 1973; Merchant 1985, 1989). Onsi (1973) stated in his research that 80 per cent of managers that he interviewed bargained for slack as a result of pressure from top management to meet the budget. A slack budget can be used as a buffer for uncertainty; however, it has negative implications for the company, such as causing managers to invest low effort, the misallocation of company resources and biased managers' performance evaluations (Lowe and Shaw, 1968; Dunk and Nouri, 1998).

Issues related to budgetary slack are some of the most researched topics in management accounting (e.g. Onsi, 1973; Merchant 1985; Young, 1985; Dunk, 1993; Stevens 2002; Webb, 2002; Hartmann and Maas, 2010). Budgetary slack is defined as a manager's action whereby he or she misrepresents his or her budget in order to have more scarce resources, or to have an easier budget to attain (Onsi, 1973; Young, 1985; Kren, 1993). Numerous studies have examined the determinants and the control mechanisms that can prevent or minimise budgetary slack behaviour (Onsi, 1973; Merchant, 1985; Young, 1985; Waller, 1988; Dunk, 1993; Kren, 1993; Fisher et al., 2002a, 2002b; Stevens, 2002; Webb, 2002; Maiga, 2005). Most of these studies have relied on agency theory to explain budgetary slack behaviour.

The agency theory posits that the principal and agent are bound by a contract in which the principal delegates some of his or her authority to the agent (Baiman, 1982, 1990). The agency theory assumes that agents' actions are driven solely by their self-interest. Problems occur when the organisation's (the principal) interest does not match the agent's personal interest (Baiman, 1982, 1990). As a result of this conflict, the agents may shift their action from company interest to personal interest, thus causing losses to the company.

Prior studies that relied on agency theory (Merchant, 1985; Young, 1985; Chow et al., 1988; Fisher et al., 2002a, 2002b) found that there are two circumstances in participative budgeting in which agents are likely to sacrifice the organisation's interests for self-interest (thus creating budgetary slack). The first circumstance occurs when the principal emphasises the budget as a performance evaluation and a basis for managers' rewards and compensations (see e.g. Merchant 1985, Chow et al., 1988; Fisher et al., 2002a, 2002b). When budgets are used as a performance evaluation and a basis for managers' rewards, managers may submit budgets below their performance capabilities, hence creating slack in order to have a good performance evaluation and maximise their rewards. The second circumstance occurs when managers possess private information about their performance capabilities (Young, 1985; Chow et al., 1988; Fisher et al., 2002a, 2002b). When managers possess private information about their performance capabilities, they have the chance to accommodate their personal interest (for example, gaining maximum compensation) because their superiors do not have information about their performance capabilities, and cannot determine whether or not the budget contains slack. Empirical evidence supports the notion that privately held information creates an ideal condition for agents to engage in opportunistic behaviour (Young, 1985; Chow et al., 1988; Fisher et al., 2002a, 2002b).

To date, prior literature has focused on explaining the determinants of budgetary slack (e.g. Onsi, 1973; Merchant, 1985; Young 1985; Waller, 1988; Chow et al., 1988; Fisher, 2002a, 2002b; Maiga, 2005). Other studies have sought to examine the formal and informal budgetary controls that can be used to mitigate this slack behaviour (see e.g., Chong and Ferdiansah, 2011; Kren, 1993; Stevens, 2002; Webb, 2002).[1] This paper aims to contribute to the current knowledge of the control mechanisms of budgetary slack behaviour by examining one form of budgetary control - namely, feedback control policy. This paper argues that feedback control policy acts as an effective formal control focused on reducing budgetary slack in an information asymmetry situation. Furthermore, this paper examines how

[1]Formal control refers to a mechanism that is structurally established by the organization as a part of organization procedures which aim to deter and detect any dysfunctional behaviors. Informal control refers to a control mechanism that is established through organization culture and environment which eventually affects the behavior of members of the organization to work towards organization's goals.

the interaction between feedback control policy and the personality trait of 'need for achievement' affects budgetary slack.

This paper proposes that the use of a feedback control policy as a formal budgetary control will reduce subordinates' budgetary slack behaviour.[2] By establishing a feedback control policy, it is expected that superiors will be able to acquire knowledge about subordinates' performance capabilities, and hence reduce information asymmetry between them and their subordinates. As a result of having information about subordinates' performance capabilities, superiors will have the ability to detect slack in the budget. Feedback control policy is also expected to exert pressure on subordinates, as a result of them being held responsible for the outcome. Being held responsible is expected to make subordinates cautious in setting their budget, as they will have to justify any deviations in production from the budget. When subordinates are held accountable, they are unlikely to engage in dysfunctional behaviour (such as creating slack) due to fear of being perceived as incompetent or a shirker. Therefore, it is expected that, when the feedback control policy is present, subordinates will not create slack in their budget in a private information situation.

Furthermore, this paper proposes that feedback control policy will interact with the personality variable of 'need for achievement' to affect budgetary slack. An individual with a high need for achievement can be described as a person who emphasises the accomplishment of his or her goals with a certain standard level of excellence (McClelland et al., 1953). Agency theory predicts that individuals with a high need for achievement will be more motivated to obtain the maximum reward. Therefore, they will be more likely to misrepresent their budget in order to maximise this reward. Therefore, this study expects that the interaction of these two variables will affect budgetary slack.

The remainder of this paper is organised as follows. In the next section, the theoretical model underlying the study is developed. The subsequent sections present the research method employed, the results and the conclusion of the study.

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[2]Feedback control policy is operationalized as subordinates' obligation to provide their superiors with quarterly report of current production activity in detail including any deviation of the actual production from the budgeted amount.

Hypothesis Development

Information Availability and Budgetary Slack

Agency theory suggests that agents' actions are driven solely by their self-interest (Baiman, 1982, 1990). When there is a conflict between the agents' goals and the principals' goals, the agents are likely to engage in dysfunctional behaviours known as 'adverse selection' and 'moral hazard' (Arrow, 1985; Baiman, 1982, 1990). Adverse selection is a pre-contractual problem in which agents possess private information about their job capabilities and hide this from their future employers. This condition creates an opportunity for agents to misrepresent their job capabilities in order to gain a more highly paid position. The moral hazard problem is a post-contractual problem in which agents possess private information about their actions, which is not known by their current employers. The focus of this paper is the moral hazard problem.

Prior studies suggest that the availability of information regarding subordinates' performance capabilities influences subordinates' decisions to create slack in their budget (Young, 1985; Chow et al., 1988; Fisher et al., 2002a). When subordinates' performance capabilities are publicly available, they are less likely to create slack in their budget. The rationale for such behaviour is that when subordinates' performance capabilities are publicly available, they do not possess local (private) information that can be used to cheat by intentionally creating budgetary slack. Such dysfunctional behaviour can easily be detected by the superior. Therefore, it is in the best interests of subordinates not to bias their budget by creating slack.

Private information has an opposite effect on subordinates' behaviour than publicly available information. When information regarding subordinates' performance is possessed only by the subordinates, dysfunctional behaviour (such as creating budgetary slack) is more likely to occur (Young, 1985; Chow et al., 1988; Fisher et al., 2002a). In private information conditions, superiors do not have information about subordinates' performance capabilities and, therefore, cannot fully monitor subordinates' behaviour. As a result, there is a greater chance for subordinates to engage in opportunistic behaviour, such as creating budgetary slack (Young, 1985; Chow et al., 1988; Fisher et al., 2002a).

Feedback Control Policy and Budgetary Slack

Prior literature shows that feedback plays a motivational role, as well as an informational or cognitive role (See Cook, 1967; Erez, 1977; Becker, 1978; Matsui et al., 1983; Hirst and Lowy, 1990; Chong and Chong, 2002). Feedback provides an opportunity for subordinates to acquire knowledge about their performance capabilities, which motivates them to exert more effort to perform better. Furthermore, feedback enables subordinates to gather more job-relevant information to improve their decision quality. However, these studies do not investigate the possibility of feedback to be used as a control mechanism against subordinates' dysfunctional behaviour in an organisation.

When subordinates' behaviour to create slack is intensified as a result of having private information, a feedback control policy can be established to reduce the effect of private information on budgetary slack creation behaviour. Feedback control policy in this paper is operationalised as subordinates' obligation to provide their superiors with quarterly reports about their production activity, detailing any deviation in production from the budgeted amount. This policy allows superior to have an insight into the current production performance of their subordinates, and to deter any manipulative activities in the production. Hence, the feedback control policy in this setting creates an opportunity for superiors to acquire information regarding subordinates' performance capabilities, which subsequently reduces the information asymmetry condition between superiors and subordinates. This provides superiors with the ability to detect any slack created by their subordinates. It has been suggested that the ability to detect slack can deter subordinates' budgetary slack behaviour (e.g. Onsi, 1973; Merchant, 1985; Young, 1985; Lal, Dunk and Smith, 1996).

Furthermore, feedback control policies encompass the notion of responsibility and justification for budget-setting decisions. It is expected that, when an individual is required to assume responsibility for and be prepared to justify his or her budget-setting decisions, he or she will experience increased pressure. Pressure that requires an individual to be accountable for his or her decisions is a consequence of having to provide feedback.

Subordinates will experience feedback pressure when they are obligated to provide quarterly reports about their production activity, including any deviation of actual production from the budget. Thus, when subordinates are held responsible for the outcome of current production, they have to explain any deviation in the actual production from the budget. It is expected that subordinates will experience feedback pressure when setting their budget knowing that they have to submit a report that will reveal their current production outcome. Consequently, it is expected that they will not set their budget target below their performance capabilities (by creating budgetary slack). Taken together, feedback control policy can be used as an effective control tool to mitigate the creation of budgetary slack because it enables the superior to obtain information about subordinates' performance capabilities, and exert feedback pressure on subordinates. The formal hypothesis is stated as follows:

H1: Subordinates will create less budgetary slack when feedback control policy is present than when it is absent under information asymmetry conditions.

Feedback Control Policy and Need for Achievement

'Need for achievement' is a personality trait in which individuals emphasise the accomplishment of goals with a certain standard of excellence (McClelland et al., 1953). Research in psychology has shown that need for achievement affects individual performance (Steers, 1975a, 1975b; Matsui et al., 1982), individual goals (Steers, 1975a; Matsui et al., 1982) and individual job satisfaction (Steers, 1975b). It is suggested that individuals with a high need for achievement tend to exert more effort to achieve their goals (McClelland et al., 1953; Atkinson, 1958). Agency theory predicts that individuals with a high need for achievement may place more emphasis on achieving their personal goals than those individuals with a low need for achievement. When a budget-based compensation scheme is used, it is reasonable to expect that agents with a high need for achievement would do anything necessary to gain maximum reward.

As noted earlier (in H1), it has been suggested that feedback control policy would be an effective formal control for subordinates' budgetary slack behaviour under private information conditions. It is expected that feedback

control policy will lessen the information asymmetry effect by allowing superior knowledge of subordinates' performance capabilities, which will reduce subordinates' opportunity to create budgetary slack. It is also expected that a feedback control policy will deter subordinates' engagement in opportunistic behaviour, such as creating budgetary slack. Therefore, this paper predicts that feedback control policy affects subordinates' extent of budgetary slack creation, subject to their personality trait of 'need for achievement'.

The reason for this expectation is that individuals' behaviour is not only determined by external factors (such as rules and social norms), but is also affected by personality traits. Erez (1977, p.625) suggested that 'behaviour is a function of the interaction between the individual and the environment'. Feedback control policy can be attributed as an environmental variable because it is a condition established by the company. The personality trait of 'need for achievement' can be attributed as an individual factor. The following sections discuss the interaction between feedback control policy and the personality trait of 'need for achievement' on subordinates' budgetary slack.

Low Need for Achievement and Feedback Control Policy

An individual with a low need for achievement is described as a person who does not place much emphasis on achieving goals to a standard of excellence (McClelleand et al., 1953). It is suggested that individuals with a low need for achievement are less motivated and subsequently likely to exert less effort to achieve a goal to a standard of excellence (Steers and Spencer, 1977). In the agency context, individuals with a low need for achievement would not be motivated to maximise their rewards. Therefore, agents with a low need for achievement are unlikely to create slack in their budget.

The establishment of a feedback control policy is expected to deter the creation of budgetary slack. Therefore, when a feedback control policy exists, subordinates should feel some hesitation towards creating budgetary slack. This is a result of feedback pressure exerted from the existence of such a policy, and the fear of being detected by their superior. However, as noted earlier, subordinates with a low need for achievement have less tendency to create budgetary slack. Thus, it is expected that feedback

control policy will not affect the decisions of individuals with a low need for achievement, in regard to creating slack.

High Need for Achievement and Feedback Control Policy

An individual with a high need for achievement refers to a person who emphasises the accomplishment of his or her goals with a certain level of excellence (McClelland et al., 1953). Individuals with a high need for achievement are usually motivated to exert more effort in order to obtain their goals with excellence. In the agency context, individuals with a high need for achievement are assumed to be motivated to achieve their reward. They can use their private information about their performance capability in order to obtain higher rewards. Thus, when a budget is used as the basis for a compensation scheme, it is reasonable to assume that agents with a high need for achievement may misrepresent their budget by creating budgetary slack to obtain maximum reward.

Thus, this paper predicts that subordinates with a high need for achievement will be more inclined to engage in opportunistic behaviour in order to maximise their reward under private information conditions and with the absence of a feedback control policy. This is possible because the superior does not know subordinates' performance capabilities, and there is no control mechanism to obtain such information in order for superiors to detect slack in the budget. On the other hand, when a feedback control policy is present, subordinates with a high need for achievement are limited in their ability to create budgetary slack. The reason for this is that subordinates' performance capabilities are provided to their superior through quarterly feedback reports about production outcome, which increases the likelihood of their behaviour being detected. Furthermore, subordinates with a high need for achievement will feel feedback pressure as a result of being responsible for the outcomes. Being held responsible means that they need to explain and justify any deviation of production from the budget. Therefore, it is expected that subordinates with a high need for achievement will create less budgetary slack when feedback control policy is present under information asymmetry conditions. Stated formally, the following hypothesis is to be tested:

H2: Subordinates with a high need for achievement will create less budgetary slack when feedback control policy is present than when it is absent under information asymmetry conditions.

Research Method

Subjects

The study subjects consisted of 58 undergraduate students enrolled in a Bachelor of Commerce at a large Australian university. The use of accounting students as surrogates for managers in behavioural accounting studies has been justified, particularly when the observed tasks in the study involve human information processing and decision-making (see Ashton and Kramer, 1980; Clinton, 1999). These students were considered to have sufficient background knowledge to play roles as managers in terms of processing information and making decisions for the purposes of this study. Four subjects failed to complete the decision tasks correctly and were excluded from the sample, which resulted in 54 usable subjects for the data analysis. The subjects consisted of 25 males and 29 females. The average age of these subjects was 21 years old. From 54 usable participants, 43 had working experience, in which 26 per cent (11 students) had accounting-related work experience, while 74 per cent (32 students) had worked in non-accounting jobs. Upon completion of the study, subjects were paid $15.00 (Australian Dollars) in cash as compensation for their time and effort.

Experimental Procedures

Subjects were randomly assigned to one of the two experimental treatment conditions. The two experimental treatment conditions were based on the manipulation of an independent variable - namely, feedback control policy (present or absent) under private information conditions. Subjects were asked to assume the role of division production managers at a hypothetical company, called Company X. They were told that one of their major responsibilities was to prepare annual division budgets, and that they were under the supervision of a senior production manager (see Appendix 1 for details of the case materials employed in this study). The experimental procedures consisted of the following.

Session One: Task Overview, Training and Trial

The objective of Session One was to establish the performance capabilities of the subjects. Each subject was given a booklet that contained a description of the decision task. An illustrative example was given to the subjects to familiarise them with the decoding task adapted from Chow (1983), which has been used widely in accounting studies (Fatseas and Hirst, 1992; Drake, Wong and Salter, 2007; Chong and Ferdiansah, 2011). All subjects were asked to conduct a decoding task, which involved transforming a series of letters into numbers, then adding the numbers. The decoding task was a representation of subject production activity. All subjects completed a training session to ensure that they understood the task. The subjects were then instructed to perform a five-minute trial session. They received feedback on their trial session and were awarded points for each code they correctly decoded. The performance feedback provided the subjects with knowledge regarding how well they performed in the decoding task in terms of how many reward points they earned. The subjects were then asked to state their best estimate of the number of reward points they expected to achieve in the forthcoming work session - a task that was similar in complexity to the trial session.

Session Two: The Budget-Setting Process

In Session Two, an employee's pay scheme was explained to the subjects. The employee's pay scheme formula was as follows:[3]

$$\begin{aligned} \text{Employee's pay scheme} &= \$5 && \text{if } A \leq B \\ &= \$5 + [\$2(A-B)] && \text{if } A > B \end{aligned}$$

Where: A = Actual performance
B = Budgeted amount

[3]The incentive scheme was a 'make-believe' scheme since it was not used as a real payment to the subjects. However, the subjects were told that the result of the pay scheme will be used to rank the subjects and the 6 highest scores will receive an extra bonus ($15, $10, $5; two person for each first, second and third rank) in addition from $15 payment. This was meant to give incentive to the subjects to exert more effort in doing the decoding task.

The subjects obtained a fixed payment of five dollars when their actual performance was less or equal to the budget amount they submitted. However, when subjects' actual performance exceeded their budget, they received an extra two dollars for each unit of production (that is, reward points) above the budget. Research has shown that this incentive scheme is a slack inducing pay scheme (Young, 1985; Chow et al., 1988; Waller, 1988; Webb, 2002). The subjects were then given an exercise to compute their payment according to the pay scheme formula to see whether they understand the incentive scheme.

After the explanation of the incentive pay scheme, the subjects were asked to make a decision regarding how much budget they would submit to their superior. In determining the budget, they needed to consider the incentive pay scheme and the likelihood of the company establishing a feedback control policy.

To capture the notion of the presence of feedback control policy, subjects in the 'feedback control policy' condition were advised that a professional consultant firm, hired by Company X, had given its recommendation for the company to establish a budget feedback control policy. The policy required each production manager to provide quarterly feedback to their senior manager regarding their ongoing budget performance. The aims of the policy were:

1. to give management an insight into current production performance;

2. to deter any irregular or manipulative activities in the production;

3. to analyse the ongoing production and make any necessary adjustments to the budget.

The subjects were further informed that Company X has endorsed this recommendation. As a result, all subjects had a responsibility to provide to their senior manager quarterly reports that detailed production activities, including the deviation of actual production from the budgeted amount. On the other hand, the subjects under the 'no feedback control policy' condition were given information that, despite the acknowledgment of the objective of feedback control policy, Company X did not have a feedback control policy established under its current management.

In both treatment conditions ('feedback control policy' and 'no feedback control policy') subjects were informed that their performance capabilities were not available to their superior. In other words, the subjects possessed private information about their performance capabilities. After the subjects had set their budget, they were asked to answer one manipulation check question. The manipulation question asked subjects to assess whether a feedback control policy was established or not.

In the last session, all subjects were asked to complete a five-minute session of a decoding task. At the end of the experiment, subjects were asked to fill a post-experimental questionnaires, which included a measurement scale of 'need for achievement' and demographic data.

The measurement scale of need for achievement was tested for validity and reliability. The Cronbach alpha coefficient (Cronbach, 1951) was 0.699, which indicated a moderate internal reliability for the scale (Nunnally, 1967). A factor analysis (principal components analysis) with varimax rotation was conducted. The results of the factor analysis are shown in Table 1.

Table 1
Factor analysis of need for achievement

Item No.	Question	Factor Loading
3	I take moderate risks and stick my neck out to get ahead at work.	0.811
2	I try very hard to improve on my past performance at work.	0.692
1	I do my best work when my job assignments are fairly difficult.	0.688
5	I try to perform better than my co-workers.	0.596
4	I try to avoid any added responsibilities on my job.	0.593

Eigenvalue = 2.318; Total variance explained = 46.4%; KMO = 0.753

[4]Need for achievement is a five items, 5-point Likert-type scale questionnaire asked as a post experimental questionnaire at the end of the experiment. The subject was divided based on average score to classify them into high or low need for achievement.

Results

A 2x2 between-subject analysis of variance (ANOVA) was used to test the hypotheses. The dependent variable was 'budget slack'. Budget slack was measured in this study as the variance between subjects' best estimates and their submitted budgets (Young, 1985; Webb, 2002; Stevens, 2002). The independent variables were 'feedback control policy' (absent or present) and 'need for achievement' (high or low).[4]

H1 predicts that subordinates will create less slack in their budget in the presence of feedback control policy under information asymmetry. The results in Table 2, panel A, show that the main effect of feedback control policy on budgetary slack was statistically significant ($F_{1,50} = 3.238$, $p < 0.039$, one-tailed), which supports H1. Further analysis, as shown in Table 2, panel B, shows that slack created by subordinates in the 'no feedback control policy' condition was greater than slack created by subordinates under the 'feedback control policy' condition (122.115 v. 83.928). An independent t-test was conducted to see whether the two means were statistically different. The results showed that the two means were significantly different (t-value 2.030, $p < 0.048$), which provides additional support for H1. These results suggest that a feedback control policy can be used as an effective formal control to reduce budgetary slack behaviour.

H2 predicts that subjects with a high need for achievement will create less budgetary slack when feedback control policy is present under information asymmetry. The results presented in Table 2, panel A, suggest that there is a marginally significant two-way interaction ($F_{1, 50} = 2.463$, $p < 0.062$, one-tailed) between feedback control policy and need for achievement. This result provides initial support for H2.

A further analysis of the mean of slack created by subordinates showed that subordinates with a high need for achievement created more slack when there was no feedback control policy established (139.063), compared to slack created by subordinates with a high need for achievement under the presence of feedback control policy (75.000) (see Table 2, panel C). Furthermore, a t-test showed that the difference between those two means (64.063) was statistically significant (t-value = 2.182, $p < 0.038$). This result suggests that, when a feedback control policy exists, subordinates

Table 2: Results for hypotheses 1 and 2
Panel A: Analysis of variance (ANOVA) Results

Source	Sum of squares	df	Mean Square	F-value	p-value (one-tailed)
Feedback Control Policy (FCP)	15190.351	1	15190.351	3.238	0.039
Need for Achievement (NFA)	2622.783	1	2622.783	0.559	0.229
FCP x NFA	11554.371	1	11554.371	2.463	0.062
Error	234554.688	50	4691.094		

Panel B: Mean and standard deviation for budgetary slack created by subordinates and independent t-test

Feedback Control Policy	N	Means	Std. Deviation
Absent	26	122.115	79.789
Present	28	83.928	57.419
Total	54		

Independent t-test		
t-value	p-value (Two-tailed)	Mean Difference
2.030	0.048	38.187

Panel C: Mean and standard deviation for budgetary slack created by *high* need for achievement subordinates across feedback condition and independent t-test

Feedback Control Policy	N	Means	Std. Deviation
Absent	16	139.063	92.181
Present	12	75.000	48.850
Total	28		

Independent t-test		
t-value	P-value (2-tailed)	Mean Difference
2.182	0.038	64.063

with a high need for achievement are more likely to create less slack than when a feedback control policy is absent. Taken together, these results provide support for H2.

Conclusions

The results of this study have a number of contributions. First, the results of this study reveal that a feedback control policy is an effective control mechanism to deter subordinates from creating budgetary slack. The possible explanation for this is that a feedback control policy exerts feedback pressure to subordinates, which deters them from creating budgetary slack. Another explanation is that a feedback control policy enables superiors to gain information about subordinates' performance capabilities, which enables them to detect slack created by subordinates. When such policy is designed to enforce subordinates to provide quarterly reports detailing current production activities, including any deviation from the budget, a feedback control policy achieves its objectives of exerting feedback pressure to subordinates. This enables superiors to obtain information about subordinates' performance capabilities.

Second, the results of this study provide insight regarding how environmental variables (such as a feedback control policy) interact with personality variables (such as a need for achievement) to affect subordinates' budgetary slack behaviour. This study found that subordinates with a high need for achievement reduce the slack in their budget when a feedback control policy is established. Third, the results of this study further reveal that a company can establish a feedback control policy to mitigate the problems (such as budgetary slack) that arise from information asymmetry conditions. It is concluded that a feedback control policy can be used as an effective formal control to reduce budgetary slack under information asymmetry.

This study had a number of limitations. First, this study used experimental design to examine the effects of a feedback control policy and trust in superiors on subordinates' creation of budgetary slack. Therefore, the case materials were meant to be a surrogate of real-world situations. However, the case materials in this study reflected a simplified budget-setting process that may not have captured all the variables in the real business environment. Second, while the use of experimental design increased the likelihood of high

internal validity by enabling decision-making behaviour to be studied in a controlled environment, generalising the results of this study into different situations should be undertaken cautiously (Swieringa and Weick, 1982).[5] In addition, the relatively small sample and use of student participants may also weaken the external validity of the findings. Notwithstanding the aforementioned limitations, the results of this study have enhanced understanding of the methods that can be used to control budgetary slack. While this study uses individual-level analysis, it would be useful to examine the effects of feedback control policy in a group setting. It has been suggested that the decisions made in groups are more extreme than the decisions made by individuals (Rutledge and Harrell, 1994). Another opportunity for future research would be to examine the effects of ethical decision-making on budgetary slack. It has been found that ethical concerns affect subordinates' tendency to create budgetary slack (Webb, 2002). Furthermore, it would be useful to examine ethical decision-making at the organisational level. It has been suggested that ethical decision-making not only comes from the individual level, but is influenced by the culture of the organisation (McCuddy et al., 1993; Chen et al., 1997). Therefore, it is expected that ethical decision-making in an organisational culture could be used as an informal control to prevent subordinates' propensity to create budgetary slack.

References

Arrow, K. J. (1985). The Economics of Agency, in Principals and Agents: the Structure of Business, eds J. W. Pratt and R. J. Zackhauser, Harvard Business School Press, Boston, MA, 37-51.

Ashton, R. H. and Kramer, S. S. (1980), Students as Surrogates in Behavioral Accounting Research: Some Evidence, *Journal of Accounting Research*, 18,1: 1-15.

Atkinson, J. W. (1958). Motives in Fantasy, Action, and Society, D. Van Nostrand Company Inc., New Jersey.

[5]Swieringa and Weick (1982) argue that when a study where its predictions are based on theory, is generalized, the generalizability of the theory itself should be determined first.

Baiman, S. (1982). Agency Research in Managerial Accounting: A Survey, *Journal of Accounting Literature,* 1: 152-213.

Baiman, S. (1990). Agency Research in Managerial Accounting: A Second Look, *Accounting, Organizations and Society*, 15(4): 341-371.

Becker, L. J. (1978). Joint Effect of Feedback and Goal Setting on Performance: A Field Study of Residential Energy Conservation, *Journal of Applied Psychology*, 63,4: 428-433.

Chen, A. Y. S., Roby, B. S. and Williams, P. F. (1997). Reinforcing Ethical Decision Making through Corporate Culture, *Journal of Business Ethics*, 16(8): 855-865.

Chong, V. K. and Chong, K. M. (2002). The Role of Feedback on the Relationship between Budgetary Participation and Performance, *Pacific Accounting Review*, 14,2: 33-55.

Chong, V. K. and Ferdiansah, I. (2011). The Effect of Trust-In-Superior and Truthfulness on Budgetary Slack: An Experimental Investigation, *Advances in Management Accounting,* 19: 55-73.

Chow, C. W. (1983). The Effects of Job Standard Tightness and Compensation Scheme on Performance: an Exploration of Linkages, *Accounting Review*, 58,4 : 667-685.

Chow, C. W., Cooper, J. C. and Waller, W. S. (1988). Participative Budgeting: Effects of a Truth-Inducing Pay Scheme and Information Asymmetry on Slack and Performance, *The Accounting Review*, 63, 1: 111-122.

Clinton, (1999). Antecedents of Budgetary Participation: The Effects of Organizational, Situational and Individual Factors. *Advances in Management Accounting*, 8: 45-70.

Cook, D. M. (1967). The Effect of Frequency of Feedback on Attitudes and Performance, *Journal of Accounting Research*, 5: 213-224.

Cronbach, L.J. (1951). Coefficient Alpha and the Internal Structure of Test. *Psychometrika*, 297-334.

Cyert, R. M. and March, J. G. (1963). A Behavioral Theory of the Firm, Prentice-Hall, Englewood Cliffs, NJ.

Drake, A. R., Wong, J. & Salter, S. P. (2007). Empowerment, Motivation, and Performance: Examining the Impact of Feedback and Incentives on Non-Management Employees, *Behavioral Research in Accounting*, 19, 1: 71-89.

Dunk, A. S. (1993). The Effect of Budget Emphasis and Information Asymmetry on the Relation Between Budgetary Participation and Slack, *The Accounting Review*, 68, 2 : 400-410.

Dunk, A. S. and Nouri, H. (1998). Antecedents of Budgetary Slack: A Literature Review and Synthesis, *Journal of accounting literature*, 17: 72-96.

Erez, M. (1977). Feedback: A Necessary Condition for the Goal Setting-Performance Relationship. *Journal of Applied Psychology*, 62,5 : 624-627.

Fatseas, V. A. and Hirst, M. K. (1992). Incentive Effects of Assigned Goals and Compensation Schemes on Budgetary Performance, *Accounting and Business Research*, 22: 347-355.

Fisher, J. G., Frederickson, J. R. and Peffer, S. A. (2002a). The Effect of Information Asymmetry on Negotiated Budgets: An Empirical Investigation, *Accounting, Organizations and Society*, 27, 1-2: 27-43.

Fisher, J. G., Maines, L. A., Peffer, S. A. and Sprinkle, G. B. (2002b). Using Budgets for Performance Evaluation: Effects of Resource Allocation and Horizontal Information Asymmetry on Budget Proposals, Budget Slack, and Performance, *The Accounting Review*, 77, 4: 847-865.

Hartmann, F. and Maas, V. S. (2010). Why Business Unit Controllers Create Budget Slack: Involvement in Management, Social Pressure, and Machiavellianism, *Behavioral Research in Accounting*, 22, 2: 27-49

Hirst, M. K. and Lowy, S. M. (1990). The Linear Additive and Interactive Effects of Budgetary Goal Difficulty and Feedback on Performance, *Accounting, Organizations and Society*, 15, 5: 425-436.

Kren, L. (1993). Control System Effects on Budget Slack. *Advances in Management Accounting*, 2: 109-118.

Lal, M., Dunk, A. S. and Smith, G. D. (1996). The Propensity of Managers to Create Budgetary Slack: A Cross-National Re-examination using Random Sampling, *The International Journal of Accounting*, 31, 4: 483-496.

Lowe, E. A. and Shaw, R. W. (1968). An Analysis of Managerial Biasing: Evidence from the Company's Budgeting Process. *Journal of Management Studies*, 304-315.

Maiga, A. S. (2005). The Effect of Manager's Moral Equity on the Relationship between Budget Participation and Propensity to Create Slack: A Research Note, *Advances in Accounting Behavioral Research*, 8: 139-165.

Matsui, T., Okada, A. and Kakuyama, T. (1982). Influence of Achievement Need on Goal Setting, Performance, and Feedback Effectiveness, *Journal of Applied Psychology*, 67,5 : 645-648.

Matsui, T., and Inoshita, O. (1983). Mechanism of Feedback Affecting Task Performance,*Organizational Behavior and Human Performance*, 31, 1: 114-122.

McCuddy, M. K., Reichardt, K. E. and Schroeder, D. L. (1993). Ethical Pressures: Fact or Fiction? *Management Accounting*, 74, 10: 57-61.

McClelland, D. C., Atkinson, J. W., Clark, R. A. and Lowell, E. L. (1953). The Achievement Motive, Appleton-Century-Crofts, Inc., New York.

Merchant, K. A. (1985). Budgeting and the Propensity to Create Budgetary Slack, *Accounting, Organizations and Society*, 10(2): 201-210.

Merchant, K. A. (1989). Rewarding Results: Motivating Profit Center Managers, Harvard Business School Press, Boston, MA.

Nunnally, J. C. (1967). Psychometric Theory, New York: McGraw-Hill.

Onsi, M. (1973). Factor Analysis of Behavioral Variables Affecting Budgetary Slack. *The Accounting Review*, 48, 3 : 535-548.

Rutlege, R. W. and Harrell, A. M. (1994). The Impact of Responsibility and Framing of Budgetary Information on Group Shift, *Behavioral Research in Accounting*, 6: 92-109.

Steers, R. M. (1975a). Task-Goal Attributes, Need for Achievement, and Supervisory Performance. *Organizational Behavior and Human Performance*, 13, 3: 392-403.

Steers, R. M. (1975b). Effects of Need for Achievement on the Job Performance-Job attitude Relationship, *Journal of Applied Psychology*, 60, 6 : 678-682.

Steers, R. M. and Spencer, D. G. (1977). The Role of Achievement Motivation in Job Design. *Journal of Applied Psychology*, 62, 4: 472-479.

Stevens, D. E. (2002). The Effects of Reputation and Ethics on Budgetary Slack. *Journal of Management Accounting Research*, 14: 154-171.

Swieringa, R. J. and Weick, K. E. (1982). An Assessment of Laboratory Experiments in Accounting. Supplement to *Journal of Accounting Research*, 20: 56-101.

Walker, K. B. and Johnson, E. N. (1999). The Effects of a Budget-Based Incentive Compensation Scheme on the Budgeting Behavior of Managers and Subordinates, *Journal of Management Accounting Research*, 11: 1-28.

Waller, W. S. (1988). Slack in Participative Budgeting: the Joint Effect of a Truth-Inducing Pay Scheme and Risk Preferences, *Accounting, Organizations and Society*, 13,1 : 87-98.

Webb, R. A. (2002). The Impact of Reputation and Variance Investigations on the Creation of Budget Slack. *Accounting, Organizations and Society*, 27: 361-378.

Young, S. M. (1985). Participative Budgeting: the Effects of Risk Aversion and Asymmetric Information on Budgetary Slack. *Journal of Accounting Research*, 23, 2: 829-842.

APPENDIX 1

Task Overview

You are a production manager (**employee**) at Company X. One of your major responsibilities is to prepare budgets. ***Reward points*** *reflect an employee's performance capability under* ***normal*** *efficient operating condition and are used as the basis to set* ***budget target***. Thus, high reward points reflect high employees' performance capabilities.

You are asked to decode a series of letters and transformed them into corresponding numbers based on a decoding key. When all letters are decoded into their proper numbers, you are required to add all the numbers. For each correct answer, you will be awarded reward points.

Training Session

Key to Codes Beginning with the Letter "A"	
Letter	Number
A	46
B	12
C	31
D	98
E	24
F	87
G	96
H	25
I	87
J	96
K	25
L	21
M	69
N	57
O	98
P	58
Q	36
R	45
S	36

Key to Codes Beginning with the Letter "Z"	
Letter	Number
A	5461
B	6125
C	8312
D	3985
E	8245
F	6878
G	1962
H	9252
I	4875
J	2966
K	2250
L	2211
M	8690
N	5575
O	9986
P	8584
Q	6367
R	5458
S	4369

T	34
U	11
V	89
W	86
X	32
Y	95
Z	53

T	2342
U	4113
V	4894
W	9865
X	1326
Y	1952
Z	3539

Training Session

Each correct answer to the codes beginning with the letter "A" is awarded **25** reward points and each correct answer to the codes beginning with the letter "Z" is awarded **50** reward points.

		Summary Total	FOR OFFICE USE
1.	A--LNVS L = 21 N = 57 V = 89 S = 36 Sum = 203	203	25 Reward points
2.	Z—QIUAS Q = 6367 I = 4875 U = 4113 A = 5461 S = 4369 Sum = 25185	25185	50 Reward points
3.	A--BEST B = 12 E = 24 S = 36 T = 34 Sum = 106	106	25 Reward points

4.	Z—GREAT G = 1962 R= 5458 E = 8245 A = 5461 T = 2342 Sum = 25185	23468	50 Reward points

Training Session - An Exercise

Each correct answer to the codes beginning with the letter "A" is awarded **25** reward points and each correct answer to the codes beginning with the letter "Z" is awarded **50** reward points.

		Summary Total	FOR OFFICE USE
5.	A—SAME		
6.	A—SOUR		
7.	Z—SMALL		

8.	Z—XYRAB		

Sample Only

Trail Run Session

Decoding Tasks: 5 Minutes

Each correct answer to the codes beginning with the letter "A" is awarded **25** reward points and each correct answer to the codes beginning with the letter "Z" is awarded **50** reward points.

		Summary Total	FOR OFFICE USE
1.	A—LAZY		
2.	Z—SALES		
3.	A—BALL		

4.	A—ZEAL			
5.	A—ODDS			

Trial Run Session

YOUR Trial Run Session Performance

	Letter "A"		Letter "Z"		Total
Number of Reward Points awarded:					

Your Best Estimate

You have now completed the training session. A summary of the total number of Reward Points awarded to you is shown above. This information indicates your performance capability in performing the above task.

Please **estimate** the number of Reward Points you expect to achieve in doing a similar task in the forthcoming **Work Session**.

My estimate is: [ ] Reward points

Employee's Pay Scheme

Employee's pay scheme consists of a fixed and a variable component.

The **fixed component** of $5 will be paid if the actual reward points (A) is less than or equal to the budget reward points (B) set.

The **variable component** depends upon performing at a level of reward points (A) above the budget level (B). They will be paid $2 per unit for reward points above B.

Hence employees are paid according to the following formula:

Employee's Pay Scheme = $5 if $A \leq B$
= $5 + [$2(A – B)] if $A > B$

Where A = Actual reward points; B = Budgeted reward points

To ensure you understand the employee's pay scheme, please complete the following questions:

If Budget (B) is set at 6:

What is the remuneration of employee for the following values of Actual good output (A)?

B=6	Employee's Pay Scheme
A= 6	
A= 9	

If Budget (B) is set at 8:

What is the remuneration of employee and supervisor for the following values of Actual good output (A)?

B=8	Employee's Pay Scheme
A=9	
A=12	

Feedback Control Policy Present

General information:
You are a division production manager for Company X in Perth. One of your responsibilities is to submit a budget about your production to your senior manager (your supervisor) of production.

Last year, a professional consultant firm, hired by Company X, had given its recommendation to establish a budget feedback control policy. Company X has endorsed this recommendation. The policy requires each production managers to give feedback quarterly to their senior manager about the ongoing budget performance.

The aims of the policy are:

1. to give management an insight about the current production performance

2. to deter any irregular and manipulative activities in the production.

3. to analyze the ongoing production and make any necessary adjustment to the budget

As a result, you are **responsible** to provide quarterly report to your senior manager detailing production activities including the **deviation** of actual production from the budgeted amount

Information Availability between Your Supervisor and You

Your superior will **not** receive your performance information. Therefore, it is unlikely that your superior will learn about your performance capability.

State Your (Individual) Budget Target

My (Individual) Budget Target is: [ ] Reward points

No Feedback Control Policy

General Information:
You are a division production manager for company X in Perth. One of your responsibilities is to submit a budget about your production to your senior manager (your supervisor) of production.

Management accounting practices acknowledge that a budget feedback control policy has the following objectives:

1. to provide management an insight about the current production performance.

2. to deter any irregular and manipulative activities.

3. to allow management to revise or make any necessary adjustments to their budget plan.

Company X, however, **does not** have a feedback control policy under the current management.

Information Availability between Your Supervisor and You.

Your superior will **not** receive your performance information. Therefore, it is unlikely that your superior will learn about your performance capability.

State Your (Individual) Budget Target

My (Individual) Budget Target is: [ ] Reward points

Manipulation-Check Question

Instruction: Please respond to the following questions:

Please tick (√) which of the following two descriptions best indicates the circumstances related to Company X.

[ ] A budget feedback control policy has established.

[ ] There is no budget feedback control policy under current management.

Need For Achievement Questionnaire

Please **circle** the number which you feel most accurately describes **your own behaviour** when you are at work with respect to the following statements.

		Never						*Always*
1.	I do my best work when my job assignments are fairly difficult.	1	2	3	4	5	6	7
2.	I try very hard to improve on my past performance at work.	1	2	3	4	5	6	7
3.	I take moderate risks and stick my neck out to get ahead at work.	1	2	3	4	5	6	7
4.	I try to avoid any added responsibilities on my job.	1	2	3	4	5	6	7
5.	I try to perform better than my co-workers	1	2	3	4	5	6	7