

# The Measurements of Budgetary Slack: The Empirical Evidence of Listed Companies in Thailand

Pornpan Damrongsukniwat, Danuja Kunpanitchakit, and Supol Durongwatana

**Abstract**—This study introduces an objective measurement of budgetary slack based on *ex post* measure of firm's annual budget achievability with the exclusion of earnings management through discretionary accruals rather than the traditional subjective measurement based on management's perceptions. Also, this study empirically examines the association between budgetary slack and its determinants under various budgetary slack measurements. This study uses data from survey questionnaires and data from the annual financial statements for the year ended 2009 of listed non-financial and non-rehabilitation companies in Thailand. The population covers 387 firms and there are 38 returned and usable questionnaires which is 10% response rate. Although the objective measurement of budgetary slack is statistically found to be positively related to the traditional subjective measurement, the suggested objective measurement is considered to be a superior one. Moreover, the association between budgetary slack and its determinants is relatively sensitive to the measurements of budgetary slack.

**Index Terms**—Budget achievability, budgetary slack, discretionary accruals, earnings management.

## I. INTRODUCTION

Although budgeting is the cornerstone of the management planning and control processes in nearly all organizations and is widely used, it is far from perfect. When organizations use budgets for performance evaluation, traditional budget-based compensation plans provide economic incentives for subordinates to misrepresent their productivity and build slack into the budgets. The slack then creates budget bias and can reduce firms' profits due to costly planning errors and greater compensation or perquisite consumption for subordinates.

Budgetary slack is created by managers who can manage to conceal some private information from their supervisors and deliberately misrepresent that information in order to maximize their own utility through the introduction of slack. Budgetary slack in this paper is defined as the subordinates' intentional biasing of performance targets below their expected levels which is consistent with [1]. Empirical evidence suggests that, in most entities, significant amounts of budgetary slack exist. Ref. [2], [3] Examine the determinants of budgetary slack and also report that, on average, manufacturing companies in Thailand have moderate level of budgetary slack.

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Traditional budgetary slack measurements are subjective measures based on respondents' subjective view, i.e., "managers' perception of the target achievability". These types of measurements have long been proposed and utilized in most budgetary slack studies even though they possess drawback, e.g., respondents may have different perceptions under the same environment. As such, an objective measurement of budgetary slack based on numerically measurable and insensitive to each respondent's perception is sought to ensure its reliability. Nevertheless, budgetary slack is not directly observable. Thus, this study intends to propose an objective measurement of budgetary slack in the hope to improve the reliability and the quality of such.

This study employs both primary data from mailed survey questionnaires and secondary data from the annual financial statements in the analysis. The sampled firms are companies listed on the Stock Exchange of Thailand (SET) and the Market for Alternative Investment (MAI) as of the year ended 2009, all of which use budget for performance evaluation. This study excludes companies in financial industry and companies under rehabilitation for the reason that their financial reporting requirements and their characteristics of business operation are different. Survey data on budget figures of the year 2009, perceived budget achievability, and all determinant factors are gleaned from the management at the corporate level of the listed companies to match their companies' annual financial statements. The final set of samples in this study consists of 38 firms, representing 10% of the total population (387 firms). The small sample size is due to the difficulty in obtaining the firm's internal and confidential data.

Generally, the results show that the suggested objective measurement of budgetary slack is significantly, positively correlated ( $r = 0.58$ ,  $p < 0.01$ ) with the subjective measurement (reversed score of perceived difficulty of budget achievability); however, the correlation between the suggested objective measurement and another subjective measurement (perceived ease of budget achievability) is insignificant. Although the objective and the subjective measurement of budgetary slack are significantly and positively correlated, we still believe that the objective approach of budgetary slack measurement suggested in this study do provide another objective measurement of slack. The inconclusive results of the association between budgetary slack and its determinants in prior research might result from the different measures of budgetary slack. Therefore, this study empirically examines the association between budgetary slack and its determinants by comparing the objective and the subjective slack measurements. The empirical results in our study corroborate the fact that the association between budgetary slack and its determinants is sensitive to slack measurements.

This study contributes to prior literature by adding to it an objective measurement of budgetary slack as prior survey studies usually measure slack from a subjective view, although it is a perceptual dependent variable. Besides, this study empirically examines the association between budgetary slack and its determinants by comparing the objective and the subjective slack measurements which the results reveal that the association between budgetary slack and its determinants is sensitive to the measurements of slack, i.e., subjective and objective measurements or even between the two subjective measurements.

## II. LITERATURE REVIEW

### A. Budgetary Slack

Budgetary slack has been defined in the literature under a variety of ways, e.g., it can be defined as the intentional biasing of performance targets below their expected levels [1]; the consumption of organizational resources by employees in excess of what is required [4]; the amount by which managers overstate their needs for resources to complete a task or understate their productive capability when given the opportunity to influence the standard against which their performance will be evaluated [5]; and the difference between the subjects' expected performance and chosen budget [6].

Consistent with [1], the definition of budgetary slack in this study is the subordinates' intentional biasing of performance targets below their expected levels.

Budgetary slack creation often takes place when tight results controls are in use. That is, when employees, mostly at management levels, are evaluated primarily on whether or not they achieve their budget targets [7]. Managers who miss their target face the prospect of interventions in their jobs, the loss of organizational resources, the loss of annual bonuses and pay raises, and sometimes even the loss of their job [8]. So they may look for ways to protect themselves from the downside risks of missing budget targets and the stigma attached to underachievers [9]. Possible ways of protection can be obtained by negotiating for highly achievable targets (i.e., budgetary slack creation).

A large body of archival research presents substantial evidence that significant amounts of budgetary slack exist in most business organizations, as estimated by the magnitude of slack to be as high as 20% - 25% of budgeted operating expenses [5], as well as by the prevalence of managers willing to admit that they engage in budgetary slack creation to be as high as 80% of the managers interviewed [10]. In Thailand, [2]-[3] perform survey research and also report that, on average, Thai manufacturing companies have moderate level (level four of seven-point Likert scale) of budgetary slack.

### B. Earnings Management

In accordance with General Accepted Accounting Principles (GAAP), financial accounting information is prepared based on the accrual basis. In the accrual basis, the effects of transactions and events are reported in the financial statements of the period to which they occur, rather than when cash or cash equivalent is received or paid. Accruals play an important role in financial reporting. There are two

aspects of accruals' role. In the first aspect, accruals play a role in producing a reliable and more timely measure of firm performance, so earnings are able to reflect firm performance better than cash flows and the discretionary component of accruals helps improve such ability. By contrast, in the second aspect, some studies find that earnings play a central role in measuring the enterprise's performance while accruals play an important role in obscuring true underlying firm performance via an introduction of discretionary accruals, which is commonly known as earnings management.

Earnings management can be defined as non-neutral financial reporting in which managers intervene intentionally in the financial reporting process to produce some private gains [11]. It occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports either to mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers [12]. In other words, earnings management is a strategy used by company's management to deliberately manipulate the company's earnings so that the figures match a pre-determined target.

Existing literature demonstrates that executives engage in earnings manipulation both upward and downward management through accruals for a number of incentives, e.g., to maximize their compensation, to avoid debt-covenant violation, to meet and beat earnings benchmarks, and to reduce political visibility (e.g., [13]-[16]).

### C. Determinants of Budgetary Slack

Prior literature suggests the association of certain factors with budgetary slack (e.g., [6], [17]-[20]). This study classifies those key factors into environmental factor (environmental factor), organizational factors (information asymmetry, budget emphasis evaluative style, participative styles, reward systems, and budget-based resource allocation), and individual factors (ethical concerns, reputation concerns, and fairness concerns).

## III. RESEARCH DESIGN

### A. Sample and Data

The sample used in this study consists of the companies listed on the Stock Exchange of Thailand (SET) and the Market for Alternative Investment (MAI) as of the year ended 2009, and all of them use budget for performance evaluation. The companies in financial industry and companies under rehabilitation are excluded since their financial reporting requirements and their characteristics of business operation are different. Also, this study chooses to employ the cross-sectional modified Jones (1995) model that is not applicable to measure discretionary accruals of the companies in financial industry. Besides, the companies must have been listed on the SET or MAI for at least 1 year before the end of 2009 since it is presumed that the listed companies usually use budget more effectively in planning, control, and performance evaluation than the non-listed companies. The population covers 387 firms and there are 38 returned and usable questionnaires which is 10% response rate. Detail of population and final sample firm breakdown by industry is presented in Part I of Appendix A and detail of returned

questionnaires is presented in Part II of Appendix A.

The survey questionnaires (Thai version) are administered and sent to the firms' management who held one of the following titles: Chief Financial Officer, Controller, Vice President, Managing Director, or Manager. These respondents have to work with the firms since or prior to 2009, involve extensively in budgeting process, and are accountable for the firms' performance. The annual financial statements are retrieved from the SET Market Analysis and Reporting Tool ("SETSMART").

387 mailed survey questionnaires are distributed during May–June 2011 and designed to elicit information on budget figures of the year 2009, respondents' perceptions of the achievability of their annual earnings targets, and all determinants of budgetary slack.

From the initial sample set, the firms with no or invalid data on actual or budgeted earnings are excluded. The final sample set comprises 38 firms (equivalent to 10% of total population). The small sample size is due to the difficulty in obtaining the firms' internal and confidential data. Demographic profile of respondents is presented in Appendix B.

### B. Measures

As budgetary slack is not directly observable, prior survey studies usually measure budgetary slack subjectively, i.e., "the achievability of performance targets as perceived by managers". Although it is a perceptual dependent variable, prior survey studies usually measure budgetary slack in this manner.

In this study, the *ex post* measure of annual firms' budget achievability has been introduced to objectively measure budgetary slack. The rationale behind using the achievability of annual performance targets (variances between actual and budget amounts) to proxy for budgetary slack is that the more the slack build into budget, the higher the propensity to easily achieve the budget.

When subordinates create slack into budget, they choose more easily attainable standard. The subordinates engage in this behavior in the hope that the standard or budget which their performance is evaluated would be more easily achieved. In other words, if the subordinates set the easily attainable budgets, they would generate the favorable variances. Hence, it could be said that the more favorable the variances, the more the budgetary slack.

Ref. [8] Measure budget achievability by comparing past and current-year performances with budget targets. Besides, [21] use prior year's performance relative to its target as a proxy for a prior period's organizational slack.

*The development of the proxy of budgetary slack in this study is as follows:*

Net Income = Cash Flow from Operations + Total Accruals = CFO + (Nondiscretionary Accruals + Discretionary Accruals)

Discretionary Accruals is identified as Earnings Management, EM. See more detail of earnings management models to estimate NDA and DA in Appendix C.

Budget achievability (including EM, if any) = Actual NI – Budgeted NI = (CFO + NDA + DA) – Budgeted NI

*Exclude DA from both sides*

Budget achievability – DA = (CFO + NDA + DA) – DA –

Budgeted NI

*Hence*

Budget achievability (excluding EM, if any) = (CFO + NDA) – Budgeted NI

Budget achievability (excluding EM, if any) is introduced in this study to proxy budgetary slack as it shows budget achievability before discretionary accruals in managing earnings. Next, dividing the budget achievability (excluding EM, if any) level by the original budget figure to obtain a percentage of budget achievability before earnings management. Then, rescaling the percentage values to be all positive numbers (for the reason of simple computation and reasonable value of slack; however, there is no effect on statistical analysis) to determine the objective measurement of budgetary slack (*SLACKNEW*).

For traditional subjective slack measurements, this study employs the survey questions used in prior studies to subjectively measure budgetary slack.

The first subjective measurement (*SLACK1*) is "perceived ease of budget achievability". The survey question is "the annual budget targets are generally (i) very easy to attain; (ii) attainable with reasonable effort; (iii) attainable with considerable effort; (iv) practically unattainable; or (v) impossible to attain". Each respondent is asked to specify the percentage of, rather than the five- or seven-point Likert scale, the level of perceived ease in achieving budget.

The second subjective measurement (*SLACK2*) is "perceived difficulty of budget achievability". The survey questions are (i) "annual budget targets induce high productivity in your business unit", and (ii) "budget targets require costs to be managed carefully in your business unit", both of which are reverse coded. Similar to *SLACK1*, each respondent is asked to specify the percentage of, rather than the five- or seven-point Likert scale, the level of perceived difficulty in achieving budget.

## IV. RESULTS

### A. Descriptive Statistics

Table I presents descriptive statistics of final sample. Cronbach's Alpha of all certain variables exceeds the conventional value of 0.7 [22], so that the reliability of measurements is ensured. Among the three measures of budgetary slack, the mean (median) of subjective budgetary slack measurements, *SLACK1*, is the highest at 61.71% (65%) and *SLACK2*'s is reasonably low at 25.64% (20%), while that of the objective measurement, *SLACKNEW*, is the lowest at 8.49% (7.40%).

With respect to environmental factor, the mean (median) of environmental uncertainty, *ENVI*, at 36.32% (33.33%) implies that, on average, the respondents perceive high predictability of firms' economic environment. For organizational factors, the mean (median) of information asymmetry, *INFO*, at 35.68% (34%) indicates moderate level of asymmetric information between respondents and their superiors, while those of budget emphasis evaluative style, *BUDEM*, and participative styles, *PARTI*, at 63.33% (62.50%) and 7.37 (8.13) of 10, respectively, reveal that superiors place considerably high emphasis on meeting the budget and they also allow their subordinates to actively participate in

budgeting process. For reward systems, *REWA*, the mean (median) of objective performance measures, *OBJ*, is 39.55% (50%), indicating that respondents' compensation is roughly equally weighted between objective and subjective measures, while those of financial, *FIN*, budget-based, *BUD*, and controllable, *CON*, performance measures are 67.42% (70%), 66.45% (70%), and 69.64% (70%), respectively, indicating that those performance measures are heavily weighted to respondents' total compensation. The indicating variable of budget-based resource allocation, *ALLO*, shows a mean of 0.95, indicating that 95% of the sample firms use budget for both planning and control purposes. With respect to individual factors, the mean (median) of ethical concerns, *ETHICS*, is 29.85% (28.33%) which implies that the respondents' ethical reasoning is moderately low, and that of reputation concerns, *REPU*, at 76.41% (80%) suggests respondents' obvious desire to appear honest and fair to their superiors. The mean (median) of fairness concerns, *FAIR*, at 36.09% (35%) shows respondents' perceived inconsiderable fairness of the budgeting environment.

TABLE I: DESCRIPTIVE STATISTICS

Variables	No. of questions	Alpha	Mean	Median	SD	Min	Max
<b>Budgetary Slack</b>							
<i>SLACK1</i>	1	NA	61.71	65.00	13.37	35	85
<i>SLACK2</i>	2	0.87	25.64	20.00	15.72	0	80
<i>SLACKNEW</i>	2	NA	8.49	7.40	8.42	0	54
<b>Environmental Factor</b>							
Environmental Uncertainty ( <i>ENVI</i> )	6	0.77	36.32	33.33	18.66	5	100
<b>Organizational Factors</b>							
Information Asymmetry ( <i>INFO</i> )	5	0.85	35.68	34.00	15.80	4	67
Budget Emphasis Evaluative Style ( <i>BUDEM</i> )	3	0.70	63.33	62.50	21.40	5	100
Participative Styles ( <i>PARTI</i> )	1	NA	7.37	8.13	3.60	0	10
<b>Reward Systems (<i>REWA</i>)</b>							
Objective Performance Measures ( <i>OBJ</i> )	1	NA	39.55	50.00	32.02	0	100
Financial Performance Measures ( <i>FIN</i> )	1	NA	67.42	70.00	20.81	20	100
Budget-based Performance Measures ( <i>BUD</i> )	1	NA	66.45	70.00	27.15	0	100
Controllable Performance Measures ( <i>CON</i> )	1	NA	69.64	70.00	23.49	10	100
Budget-based Resource Allocation ( <i>ALLO</i> )	2	NA	0.95	1.00	0.23	0	1
<b>Individual Factors</b>							
Ethical Concerns ( <i>ETHICS</i> )		NA	29.85	28.33	11.43	7	50
Reputation Concerns ( <i>REPU</i> )	4	0.85	76.41	80.00	15.67	30	95
Fairness Concerns ( <i>FAIR</i> )	4	0.94	36.09	35.00	16.37	10	88
<b>Control Variables</b>							
<i>Ln_size</i>			15.08	14.83	1.58	13.12	19.37
<i>LISTED</i>			0.08	0.00	0.27	0	1
<i>CONSOL</i>			0.29	0.00	0.46	0	1

*Slack 1*—traditional measurement of slack (perceived ease of budget achievability);

*Slack 2*—traditional measurement of slack (reversed score of perceived difficulty of budget achievability);

*Slack New*—New measurement of slack ([budget achievability - discretionary accruals] / original budget figure);

*Environmental Uncertainty*—reversed score of perceived predictability of firms' economic environment;

*Information Asymmetry*—level of information asymmetry between respondents and their superiors;

*Budget Emphasis Evaluative Style*—level of budget emphasis which respondents are evaluated by their superiors;

*Participative Styles*—level of participation in which respondents are allowed in budgeting process;

*Reward Systems*—relative weight on each type of reward systems which are based on (1) objective performance measures, (2) financial performance measures, (3) budget-based performance measures, and (4) controllable performance measures;

*Budget-based Resource Allocation*—indicator variable for firms that use budget for both planning and control purposes;

*Ethical Concerns*—respondents' ethical concerns level;

*Reputation Concerns*—respondents' desire to appear honest and fair to their superiors;

*Fairness Concerns*—perceived fairness of the budgeting environment;

*LnSize*—natural log of total assets at the beginning of the year;

*Listed*—indicator variable for company listed on MAI;

*Consolidated*—indicator variable for consolidated financial statements.

With respect to control variables, the mean of natural log of total assets at the beginning of the year, *Ln\_size*, of the sample firms is 15.08 (THB 15,746 million, not tabulated), while indicating variables of stock exchange of the firm listing, *LISTED*, and consolidated financial statements, *CONSOL*, present a mean of 0.08 and 0.29, respectively, indicating that 8% of the sample firms are listed on MAI and 29% of them evaluate respondents' performance based on the consolidated financial statements.

B. Correlation Matrix

Table II shows correlations among variables in this study. The Pearson's correlation coefficient between *SLACK2* and *SLACKNEW* is significantly positive ( $r = 0.58, p < 0.01$ ) as expected, but the correlation coefficients between *SLACK1* and *SLACKNEW* and between *SLACK1* and *SLACK2* are insignificant.

TABLE II: CORRELATION MATRIX

Variables		<i>SLACK1</i>	<i>SLACK2</i>	<i>SLACKNEW</i>
<i>SLACK1</i>	Correlation	1.00	0.11	-0.17
	p-value	-	(0.50)	(0.31)
	n	38	38	38
<i>SLACK2</i>	Correlation		1.00	<b>0.58***</b>
	p-value		-	<b>(0.00)</b>
	n		38	38
<i>SLACKNEW</i>	Correlation			1.00
	p-value			-
	n			38

Corresponding two-tailed p-values are reported in parentheses. \*\*\* indicates significance at the 1% level.

TABLE III: REGRESSION RESULTS OF *SLACK1*

Interesting Variables	Constant	Coeff.	<i>SLACK1</i>			Adj R <sup>2</sup>
			<i>Ln_size</i>	<i>LISTED</i>	<i>CONSOL</i>	
<i>ENVI</i>	<b>111.58***</b> (0.00)	<b>0.23*</b> (0.06)	-4.06 (0.13)	2.34 (0.81)	4.54 (0.51)	<b>1%</b>
<i>INFO</i>	<b>61.22**</b> (0.02)	<b>0.31**</b> (0.02)	-0.68 (0.69)	2.66 (0.76)	-0.58 (0.92)	<b>6%</b>
<i>BUDEM</i>	<b>66.47*</b> (0.06)	0.07 (0.61)	-0.57 (0.78)	3.73 (0.69)	-2.32 (0.72)	<b>4%</b>
<i>PARTI</i>	<b>58.44**</b> (0.03)	<b>-1.25*</b> (0.07)	0.90 (0.62)	7.80 (0.38)	-1.75 (0.75)	<b>11%</b>
<i>OBJ</i>	<b>67.61**</b> (0.04)	0.07 (0.39)	-0.59 (0.77)	6.50 (0.53)	-2.63 (0.67)	<b>7%</b>
<i>FIN</i>	<b>76.72*</b> (0.06)	0.16 (0.24)	-1.77 (0.49)	4.25 (0.68)	0.78 (0.92)	<b>10%</b>
<i>BUD</i>	<b>82.06**</b> (0.05)	0.01 (0.92)	-1.44 (0.58)	3.24 (0.75)	-0.98 (0.89)	<b>5%</b>
<i>CON</i>	<b>86.98**</b> (0.03)	0.20 (0.11)	-2.78 (0.32)	1.66 (0.87)	3.40 (0.66)	<b>0%</b>
<i>ALLO</i>	<b>89.84***</b> (0.00)	-10.39 (0.16)	-1.21 (0.50)	3.54 (0.70)	-1.19 (0.83)	<b>6%</b>
<i>ETHICS</i>	57.52 (0.11)	-0.09 (0.34)	0.43 (0.86)	5.49 (0.56)	1.32 (0.84)	<b>3%</b>
<i>REPU</i>	<b>81.88***</b> (0.01)	-0.04 (0.41)	-1.16 (0.52)	2.77 (0.77)	-0.51 (0.93)	<b>3%</b>
<i>FAIR</i>	<b>72.83***</b> (0.01)	-0.09 (0.30)	-0.51 (0.81)	4.58 (0.64)	-2.23 (0.73)	<b>4%</b>

C. Regression Results

Table III-Table V presents the regression results of the association between each budgetary slack measurement and its determinants. For *SLACK1*, the adjusted R<sup>2</sup> in general falls between 0% - 11%, which is slightly less than that of *SLACK2* which is in range of 1% - 21%. The highest adjusted R<sup>2</sup> belongs to *SLACKNEW* which falls between 2% - 24%. In sum, the adjusted R<sup>2</sup> of *SLACKNEW* in nearly all

models are far greater than those of both *SLACK1* and *SLACK2*, and the adjusted  $R^2$  of *SLACK2* in several models are more than those of *SLACK1*, which mean that explanatory variables are able to explain and predict the objective measurement of budgetary slack (*SLACKNEW*) better than those two traditional subjective measurements (*SLACK1* and *SLACK2*) and among the two subjective measurements, *SLACK2* is more superior than *SLACK1*.

TABLE IV: REGRESSION RESULTS OF *SLACK2*

Interesting Variables	<i>SLACK2</i>					Adj R <sup>2</sup>
	Constant	Coeff.	Control Variables			
			<i>Ln_size</i>	<i>LISTED</i>	<i>CONSOL</i>	
<i>ENVI</i>	19.78 (0.48)	<b>0.40***</b> (0.00)	-0.54 (0.78)	12.58 (0.21)	-5.84 (0.34)	14%
<i>INFO</i>	19.19 (0.46)	<b>0.23*</b> (0.08)	-0.19 (0.91)	15.06 (0.14)	0.05 (0.99)	1%
<i>BUDEM</i>	<b>81.29**</b> (0.04)	<b>-0.33**</b> (0.02)	-2.39 (0.29)	4.43 (0.66)	3.03 (0.67)	7%
<i>PARTI</i>	-34.77 (0.39)	-1.18 (0.17)	<b>4.88*</b> (0.10)	17.06 (0.14)	<b>-13.99*</b> (0.08)	3%
<i>OBJ</i>	-20.86 (0.54)	0.05 (0.52)	2.97 (0.19)	<b>16.78*</b> (0.08)	<b>-12.89**</b> (0.05)	6%
<i>FIN</i>	4.76 (0.89)	0.16 (0.17)	0.55 (0.81)	13.15 (0.13)	-7.24 (0.26)	7%
<i>BUD</i>	24.48 (0.59)	-0.12 (0.31)	0.76 (0.80)	8.52 (0.45)	-13.00 (0.12)	2%
<i>CON</i>	-5.80 (0.86)	0.05 (0.67)	1.90 (0.41)	12.74 (0.13)	-10.20 (0.13)	3%
<i>ALLO</i>	25.45 (0.37)	-2.05 (0.42)	0.05 (0.98)	8.45 (0.35)	-2.38 (0.67)	4%
<i>ETHICS</i>	-7.88 (0.85)	<b>-0.41*</b> (0.06)	3.15 (0.26)	12.75 (0.25)	-11.49 (0.15)	6%
<i>REPU</i>	<b>69.41***</b> (0.01)	<b>-0.44***</b> (0.00)	-0.81 (0.60)	3.30 (0.68)	1.04 (0.83)	21%
<i>FAIR</i>	23.75 (0.48)	0.02 (0.47)	0.13 (0.96)	6.98 (0.54)	-4.35 (0.56)	3%

Corresponding two-tailed p-values are reported in parentheses.

\*\*\*, \*\*, \* indicate significance at the 1%, 5% and 10% levels, respectively.

*Environmental Uncertainty*—reversed score of perceived predictability of firms' economic environment;

*Information Asymmetry*—level of information asymmetry between respondents and their superiors;

*Budget Emphasis Evaluative Style*—level of budget emphasis which respondents are evaluated by their superiors;

*Participative Styles*—level of participation in which respondents are allowed in budgeting process;

*Reward Systems*—relative weight on each type of reward systems which are based on (1) objective performance measures, (2) financial performance measures, (3) budget-based performance measures, and (4) controllable performance measures;

*Budget-based Resource Allocation*—indicator variable for firms that use budget for both planning and control purposes;

*Ethical Concerns*—respondents' ethical concerns level;

*Reputation Concerns*—respondents' desire to appear honest and fair to their superiors;

*Fairness Concerns*—perceived fairness of the budgeting environment;

*LnSize*— natural log of total assets at the beginning of the year;

*Listed*—indicator variable for company listed on MAI;

*Consolidated*— indicator variable for consolidated financial statements.

In summary, the determinant factor that significantly associates with all three measurements of budgetary slack is environmental uncertainty. In other words, the association between environmental uncertainty and budgetary slack is insensitive to the measurements of slack. The determinant factors that significantly associate with two (of three) measurements of budgetary slack are information asymmetry, budget emphasis evaluative style and participative styles. It could be said that the association between those factors and budgetary slack are relatively sensitive to the measurements of slack. Moreover, this study also reports that budget-based

resource allocation, *ALLO*, is insignificant regardless of budgetary slack measurements. For reward systems, only budget-based performance measure, *BUD*, is significantly associated with the objective measurement of budgetary slack, *SLACKNEW*. The determinant factors that significantly associate with only one measurement of budgetary slack are ethical concerns, reputation concerns and fairness concerns. It could be said that the association between those factors and budgetary slack are very sensitive to the measurements of slack. Overall, the association between budgetary slack and its determinants is sensitive to the measurements of slack, i.e., objective or subjective measurements or even between the two subjective measurements. However, the objective measurement of budgetary slack suggested in this study generates higher adjusted  $R^2$  than the two subjective measurements do. This may imply that the objective measurement suggested in this study is a better measurement of slack, and among those two subjective measurements, *SLACK2* is more superior than *SLACK1* seeing that *SLACK2* generally produce higher adjusted  $R^2$ .

TABLE V: REGRESSION RESULTS OF *SLACKNEW*

Interesting Variables	<i>SLACKNEW</i>					Adj R <sup>2</sup>
	Constant	Coeff.	Control Variables			
			<i>Ln_size</i>	<i>LISTED</i>	<i>CONSOL</i>	
<i>ENVI</i>	0.20 (0.97)	<b>0.05*</b> (0.08)	-0.14 (0.71)	<b>6.52***</b> (0.00)	0.37 (0.77)	24%
<i>INFO</i>	2.18 (0.74)	-0.01 (0.43)	-0.16 (0.70)	<b>6.16***</b> (0.01)	0.15 (0.91)	17%
<i>BUDEM</i>	20.64 (0.35)	<b>-0.17**</b> (0.03)	-0.59 (0.67)	5.17 (0.36)	0.61 (0.88)	7%
<i>PARTI</i>	-12.15 (0.55)	<b>-0.72*</b> (0.09)	1.28 (0.37)	8.85 (0.14)	-3.81 (0.33)	2%
<i>OBJ</i>	-1.19 (0.87)	0.01 (0.51)	0.03 (0.95)	<b>6.91***</b> (0.01)	-0.88 (0.53)	22%
<i>FIN</i>	-3.52 (0.69)	0.02 (0.53)	0.14 (0.81)	<b>6.98***</b> (0.01)	-0.98 (0.57)	21%
<i>BUD</i>	9.09 (0.71)	<b>-0.11*</b> (0.10)	0.06 (0.97)	4.27 (0.50)	-4.49 (0.33)	2%
<i>CON</i>	-2.87 (0.79)	-0.02 (0.56)	0.29 (0.71)	<b>6.86***</b> (0.01)	-1.69 (0.43)	19%
<i>ALLO</i>	2.81 (0.68)	-0.83 (0.36)	-0.17 (0.69)	<b>6.20***</b> (0.01)	0.18 (0.89)	17%
<i>ETHICS</i>	-7.12 (0.40)	0.07 (0.11)	0.34 (0.55)	<b>6.96***</b> (0.00)	-0.59 (0.72)	22%
<i>REPU</i>	1.64 (0.82)	-0.02 (0.34)	-0.06 (0.88)	<b>6.09***</b> (0.01)	0.59 (0.66)	18%
<i>FAIR</i>	-2.09 (0.74)	<b>-0.07**</b> (0.04)	0.28 (0.55)	<b>7.22***</b> (0.00)	-0.85 (0.55)	24%

## V. CONCLUSION

As prior survey studies usually measure budgetary slack from a subjective view which considered as a problematic measurement as it is sensitive to the respondents' judgment. Therefore, this study introduces an objective approach to measure budgetary slack, i.e., the *ex post* measure of firm's annual budget achievability with the exclusion of discretionary accruals.

The empirical results in this study are generated from both primary and secondary data of 38 firms in Thailand. The data on the budget figures of the year 2009, perceived budget achievability and budgetary slack's determinants are garnered from corporate executives of the listed non-financial firms in Thailand to match their firms' annual financial statements. In assessing discretionary accruals, the cross-sectional modified Jones (1995) model is employed, and for robustness test, the cross-sectional Jones (1991) model is utilized.

The results show that the objective measurement and the subjective measurement (reversed score of perceived difficulty of budget achievability) of budgetary slack are statistically positively correlated ( $r = 0.58, p < 0.01$ ). Even though the objective and the subjective measurement of budgetary slack are significantly and positively correlated, we still consider that the suggested objective approach of budgetary slack measurement proposed in this study makes available another objective measurement of slack. However, the other subjective measurement (perceived ease of budget achievability) is insignificantly correlated. The differences in measurements of budgetary slack might be the cause of inconclusive results of the association between budgetary slack and its determinants in prior research. This study; therefore, empirically investigates the association between budgetary slack and its determinants by comparing the objective and the subjective slack measurements. The results advocate that the association between budgetary slack and its determinants is sensitive to the measurements of slack, i.e., objective or subjective measurements or even between the two subjective measurements. However, the objective measurement of budgetary slack suggested in this study generates higher adjusted  $R^2$ , in nearly all models, than the two subjective measurements do. These results indicate that the explanatory variables could explain and predict the objective measurement of budgetary slack better than the two subjective measurements. The results imply that the objective measurement, i.e., the *ex post* measure of firm's annual budget achievability with the exclusion of discretionary accruals, suggested in this study is a better measurement of budgetary slack than the traditional subjective measurements utilize in prior studies. Among the two subjective measurements of budgetary slack, *SLACK2* (reversed score of the two questions about perceived difficulty of budget achievability) produces higher adjusted  $R^2$  than *SLACK1* (simple question about perceived ease of budget achievability), these empirical results not only again reveal that the results are sensitive to the measurements of slack but also point out that number or attribute of the questions (simple or reverse questions) might be the cause of sensitivity and inconclusiveness.

Nevertheless, this empirical study is subject to a number of limitations. First, this study covers only the non-financial institutions listed in Thailand and the final set of samples is merely 38 firms due to the difficulty in obtaining the firms' internal and confidential data; hence, limiting generalizability of the results. Second, implicit assumptions in this study are that the *ex post* measure of annual firms' budget achievability with the exclusion of discretionary accruals is a good proxy for budgetary slack as the more the slack build into budget, the higher the propensity to easily achieve the budget, and the cross-sectional Modified Jones (1995) model accurately partitions accruals into its discretionary and nondiscretionary components. Third, measurement errors, model misspecifications and omitted variables may limit the reliability of results. Fourth, by the very nature of the survey data, this study relies primarily on self-reported responses to the survey questions in which the respondents are asked to recall their perceptions on budget achievability from the past to measure budgetary slack.

Despite the limitations, we still believe that this study adds prior literature an objective measurement of budgetary slack. Future research should endeavor to increase the sample size to improve generalizability of the results. Rather than a subjective measurement of budgetary slack, an objective measurement should be employed for further investigation in future studies. For robustness test, other earnings management categories and approaches, i.e., real earnings management and other accruals models, should be employed in estimating discretionary accruals.

#### APPENDIX A

##### Part I: Detail of population and final sample firms breakdown by industry

<u>Industry</u>	<u>Population</u>	<u>%</u>	<u>Final Sample</u>	<u>%</u>
<b>SET</b>				
Agribusiness and Food	37	10%	5	14%
Consumer Products	32	8%	3	9%
Industrials	66	17%	5	8%
Property and Construction Resources	74	19%	8	11%
Services	23	6%	3	13%
Technology	80	21%	5	6%
<b>MAI</b>	<u>42</u>	<u>11%</u>	<u>3</u>	<u>7%</u>
<b>Total</b>	<b><u>387</u></b>	<b><u>100%</u></b>	<b><u>38</u></b>	<b><u>10%</u></b>

There are two types of exchanges for listed firms in Thailand: SET (Stock Exchange of Thailand) and MAI (Market for Alternative Investment). SET provides a market for large companies with more than THB 300 million in paid-up capital after IPO to raise long-term funds. MAI, on the other hand, is a source of funding for small- and medium-sized enterprises, having over THB 20 million in paid-up capital after IPO.

##### Part II: Detail of returned questionnaires

<b>Number of initially returned questionnaires</b>	84
<u>Less:</u> New joiners (Respondents who work in company after year 2009)	-11
Respondents who do not participate in budgeting process	-7
Respondents who do not provide budget figures of 2009	-16
Companies that start to use budget less than 3 years	-4
Budget figure of year 2009 is not the data in financial statement	<u>-8</u>
<b>Number of final questionnaires</b>	<b><u>38</u></b>

APPENDIX B

Demographic profile of respondents

Description		n	%	Mean	Median	SD	Min	Max
Sex	Male	18	47%					
	Female	20	53%					
Age	Average (years)			46	46	7.85	27	61
Education level	Bachelor	8	21%					
	Master	29	76%					
	Doctor	1	3%					
Experience	Current position	Average (years)		7	5	5.91	3	23
	Current company	Average (years)		12	10	7.86	3	30

APPENDIX C

Earnings Management

Total Accruals = Net Income – Cash Flow from Operations Measuring total accruals from the cash flows statement have less error than from the balance sheet account. [23] show an evidence of error and bias introduced by the balance sheet approach in estimated accruals to test for earnings management, particularly when non-operating events such as mergers and acquisitions or discontinuing operations occur. Therefore, measuring accruals directly from the statement of cash flows is a more appropriate measure.

Total accruals consist of two parts, nondiscretionary and discretionary accruals.

Total Accruals = Nondiscretionary Accruals + Discretionary Accruals (or TA = NDA + DA)

In this study, the cross-sectional modified Jones (1995) model is employed to measure discretionary accruals. We begin by estimating a cross-sectional variant of the Jones (1991) expected accruals model for all firms *i* in industry *j*,

$$TA_{ij} = \alpha_j + \delta_j(\Delta Rev) + \gamma_j(PPE) + \epsilon \quad (1)$$

where

TA<sub>ij</sub> is total accruals for firm *i* in industry *j* (Net Income before extraordinary items minus Cash Flow from Operations before extraordinary items);

ΔRev<sub>j</sub> is the change in revenues between year *t* and year *t*-1; and

PPE<sub>j</sub> is gross property, plant and equipment.

Note that we use the industry classification based on that by the Stock Exchange of Thailand.

Next, for each firm *ij* in the sample, we calculate the abnormal accruals, i.e., discretionary accruals (DA) which is defined as:

$$DA_{ij} = TA_{ij} - [\alpha_j + \delta_j(\Delta Rev) + \gamma_j(PPE)] \quad (2)$$

where

α<sub>j</sub>, δ<sub>j</sub>, and γ<sub>j</sub> are the fitted coefficients from Eq.(1).

All variables in all above equations are scaled by total assets at the beginning of the year.

Secondly, [24] propose the modified Jones model in which

$$DA_{ij} = TA_{ij} - [\alpha_j + \delta_j(\Delta Rev - \Delta Rec) + \gamma_j(PPE)] \quad (3)$$

The modification is that in the expected accruals model, revenue changes are adjusted for ΔRec<sub>j</sub>, the change in receivables between year *t* and year *t*-1. [24] calculate α<sub>j</sub>, δ<sub>j</sub>, and γ<sub>j</sub> from the original Jones (1991) model, by modifying Eq.(1) to include the adjustment for receivables. The resulting value of the modified Jones (1995) model quantifies discretionary accruals.

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