

CHAPTER 3

RESEARCH METHODOLOGY

This chapter examines the research methodology. Included are discussion of the overview of methodology, sampling procedures, research instruments, data collection, and data analysis.

3.1 Methodology

The research methodology in this study employs an empirical test in order to examine the extent to which budget-based performance evaluation is related to job performance and job satisfaction. In particular, the questionnaires are directly mailed to the branch managers of the selected ten Thai commercial banks located in Bangkok. The selected ten commercial banks are further classified into two groups of five large and five small banks.

The research instruments used in the questionnaires are developed in Thai based upon modified approaches employed in previous studies. The Analysis of Variance (ANOVA) and other statistical techniques are used to test the relationship among the budget-based performance evaluation, job performance, and job satisfaction.

3.2 Sampling Procedures

The population comprises all 15 Thai commercial banks. The total and average credits outstanding are shown in table 3.1 at 2,255 and 150 billion bahts, respectively. Moreover, the total and average deposits outstanding are shown in table 3.2 at 2,199 and 147 billion bahts, respectively.

The target population is purposively identified from bank branches based upon the following criteria. The area must have branches from each of the 15 Thai commercial banks in order to capture an unbiased sample selection. There are only three provinces - Bangkok, Chiangmai, and job performance and job t the first criterion. In addition, the area must locate at least 4 branches from each of the 15 Thai commercial banks. This is to ensure a large number and evenly distributed sample base for data analysis purpose. Bangkok is the only province to satisfy the second criterion.

Consequently, the bank branches of Thai commercial banks located in Bangkok are primarily selected because they provide a complete and competitive environment to study the budgeting process. The distribution of full-serviced branches between Bangkok and the provincial areas of the 15 Thai commercial banks is shown in Table 3.3 as 28% and 72%, respectively.

The selected bank branches are further classified into two groups in order to distinguish those from large and small banks based upon the hypothesized impact of firm size. In this study, three parameters used to classify firm size are as follows:

1. Total amount of credits outstanding
2. Total amount of deposits outstanding
3. Total number of full-serviced branches nationwide

The first two parameters are in accordance with the Fortune ranking of the world financial institutions. The last parameter is in line with the Money and Banking magazine and the Interest magazine for the ranking of Thai banking institutions. In this study, each of the three parameters is used to rank order all Thai commercial banks. The top five banks are classified into large-bank group, and the bottom five banks are classified into small-bank group.

According to the total amount of credits outstanding shown in table 3.1, the total amount of deposits outstanding shown in table 3.2, and the total number of full-serviced branches shown in table 3.3, the large-bank group comprises the top five banks as follows:

1. Bangkok Bank
2. Thai Farmers Bank
3. Siam Commercial Bank
4. Bank of Sriayudha
5. Thai Military Bank

Krung Thai Bank is excluded from the data analysis because its major shareholder is the Ministry of Finance, and this makes it the only state-controlled bank among the 15 Thai commercial banks. A state-controlled bank is viewed to have different budgeting characteristics from the other 14 private banks.

On the other hand, the small-bank group comprises the bottom five banks as follows:

1. Bank of Asia
2. Thai Danu Bank
3. Union Bank of Bangkok
4. Nakornthon Bank
5. Laem Thong Bank

The characteristics of the large and small bank groups are shown in Table 3.4 with respect to the average number of full-serviced branches in operation, the average credits outstanding, and the average deposits outstanding. For the large-bank group, the average credits outstanding are 291 billion bahts, the average deposits outstanding are 281 billion bahts, and the average number of branches is 291. For the small-bank group, on the other hand, the average credits outstanding are 30 billion bahts, the average deposits outstanding are 29 billion bahts, and the average number of branches is 53.

The subjects are hence identified as the branch managers of the specified five large and five small banks located in Bangkok. Branch managers are chosen because they are directly involved in the budgeting process, and hold the chief responsibility of their branch operations. Therefore, they possess the most relevant information concerning the budgeting activities of their branches. Table 3.5 indicates that there are 542 subjects in this study, of which 414 are from large-bank group and 128 are from small-bank group.

Table 3.1
Total Amount of Credits Outstanding
in Thai Commercial Banks at June 30, 1993

List of Banks	Credits (in millions)	Market Share (%)
Bangkok Bank	607,339	26.9
Thai Farmers Bank	323,839	14.4
Krung Thai Bank	292,998	13.0
Siam Commercial Bank	236,381	10.5
Bank of Sriayudha	155,871	6.9
Thai Military Bank	131,683	5.8
First Bangkok City Bank	113,651	5.0
Bangkok Metropolitan Bank	86,664	3.8
Siam City Bank	77,716	3.5
Bangkok Bank of Commerce	76,704	3.4
Bank of Asia	48,903	2.2
Union Bank of Bangkok	36,316	1.6
Thai Danu Bank	29,948	1.3
Nakornthon Bank	26,522	1.2
Leam Thong Bank	10,702	0.5
Total	2,255,237	100.0
Ratio in Percentages	150,349	72.0

Source : Department of Economic Research, Thai Farmers Bank

Table 3.2
Total Amount of Deposits Outstanding in
Thai Commercial Banks at June 30, 1993

List of Banks	Deposits (in millions)	Market Share (%)
Bangkok Bank	545,021	24.8
Thai Farmers Bank	324,455	14.7
Krung Thai Bank	323,218	14.7
Siam Commercial Bank	238,783	10.8
Bank of Sriayudha	158,307	7.2
Thai Military Bank	138,120	6.3
First Bangkok City Bank	96,153	4.4
Siam City Bank	80,654	3.7
Bangkok Metropolitan Bank	77,125	3.5
Bangkok Bank of Commerce	74,398	3.4
Bank of Asia	40,409	1.8
Union Bank of Bangkok	35,387	1.6
Thai Danu Bank	28,310	1.3
Nakornthon Bank	25,757	1.2
Leam Thong Bank	12,948	0.6
Total	2,199,045	100.0
Ratio in Percentages	146,603	72.0

Source : Department of Economic Research, Thai Farmers Bank

Table 3.3
The Numbers and Locations of Full-Serviced Branches
of Thai Commercial Banks at June 30, 1993

List of Banks	Bangkok	Provincial Areas	Total
Krung Thai Bank	70	334	404
Bangkok Bank	103	286	389
Thai Farmers Bank	101	279	380
Siam Commercial Bank	77	183	260
Bank of Sriayudha	85	161	246
Thai Military Bank	48	159	207
Bangkok Bank of Commerce	27	118	145
Siam City Bank	29	103	132
Bangkok Metropolitan Bank	50	76	126
Union Bank of Bangkok	36	57	93
Bank of Asia	25	40	65
First Bangkok City Bank	19	44	63
Thai Danu Bank	27	27	54
Nakornthon Bank	27	16	43
Leam Thong Bank	13	8	21
Total	737	1,891	2,628
Ratio in Percentages	28	72	100

Source : Department of Economic, Bank of Thailand

Table 3.4
Characteristics of the 10 Sample Banks Classified into
Large and Small Bank Groups

List of banks	Average Numbers of Full Branches Nationwide	Average Credits Outstanding (Million Baht)	Average Deposits Outstanding (Million Baht)
Large-Bank Sample	291	291,023	280,937
Small-Bank Sample	53	30,478	28,562
All-Bank Sample	175	150,349	146,603

Table 3.5
Number of Branches of the Selected Banks
Located in Bangkok at June 30, 1993

	Full Branches
Large-Bank Sample	
Bangkok Bank	103
Thai Farmers Bank	101
Siam Commercial Bank	77
Bank of Sriayudha	85
Thai Military Bank	48
Sub-Total	414
Small-Bank Sample	
Bank of Asia	25
Union Bank of Bangkok	36
Thai Danu Bank	27
Nakornthon Bank	27
Leam Thong Bank	13
Sub-Total	128
Total	542

Source : Department of Economic, Bank of Thailand



3.3 Research Instruments

In order to capture the impact of budget-based performance evaluation on job performance and job satisfaction, the research instruments used in the questionnaires are developed and discussed herein. Prior to the actual distribution of the questionnaires, personal interviews are conducted with chief managers in charge of the branch operations of Thai Farmers Bank and Thai Military Bank to seek their opinions concerning the research instruments in the questionnaires. The personal interviews are carried out to ensure the validity of the research instruments in the questionnaires.

The research instruments are developed to measure the impact of budget-based performance evaluation (independent variable) on job performance and job satisfaction (dependent variables). In other words, the three groups of variables are discussed below:

1. Budget-based performance evaluation
2. Job performance
3. Job satisfaction

3.3.1 Budget-Based Performance Evaluation

The two styles of budget-based performance evaluation being examined in this study are congruence and incongruence styles. It should be noted that there are two important aspects of budget-based performance evaluation that are used as a basis to classify it into the above two styles. They are:

1. Budget participation
2. Budget use

3.3.1.1 Budget Participation

There are various measures of budget participation in the literature (Vroom, 1960; Likert, 1961; Hofstede, 1967; Heller, 1967; Vroom and Yetton, 1973; and Milani, 1975). In this study, a measure of budget participation is developed based upon the concepts of the six-item Milani measure (1975). This is one of the most commonly used measure in the budget participation studies (Brownell, 1985; Brownell and Hirst, 1986; Brownell and McInnes, 1986; Leung and Dunk, 1991; Kren, 1992; Dunk, 1993). Therefore, its reliability and validity has already been extensively tested in these studies.

The reliability of the Milani measure is often demonstrated based upon the Cronbach alpha, which is the statistics to indicate that the multi-item measure is consistent within itself. For example, the Cronbach alphas are shown at satisfactory levels at 0.89 in Brownell and Hirst (1986), and at 0.67 for Dunk (1993). The validity of the Milani measure is often demonstrated based upon its relationship with the Hofstede measure, one of the equally most used measure of budget participation. The Hofstede measure is composed of only one item, with fully anchored eight-point scale. For example, the two measures correlate satisfactorily at 0.75 in Brownell (1982a), and at 0.74 in Brownell and Hirst (1986).

In this study, a measure of budget participation is developed in Thai to ask subjects to respond on a five-point Likert scale to six questions as follows:

1. The extent of involvement in budget setting
2. The extent of being informed of budget revisions by superiors
3. The extent of giving opinions on a regular basis about budget to superiors
4. The degree of influence on final budget
5. The degree of importance of input to budget
6. The extent of being asked for opinions on a regular basis about the budget

Subjects are asked to respond to the above questions for each of the major types of budget, identified to be within direct responsibility of the typical branch managers in Thai commercial banks. Three types of budgets are identified as being important in this study:

1. Loan budget (or loan target)
2. Deposit budget (or deposit target)
3. Expense budget

Table 3.6 reports the mean levels of participation to loan, deposit, and expense budgets. Expense budget seems to have higher mean level than the other two types of budgets. A set of t-tests are conducted to examine whether there are significant differences among the three mean levels of

participation. Results are shown in Table 3.6, which indicate that there are no significant differences ($p\text{-value} < 0.05$) in the mean levels of participation among the three types of budget. Thus, there is a logical basis to average the three types of budget.

Table 3.6
Comparisons of Mean Levels of Participation
among the Three Types of Budget

Comparisons	Means	t	p-value
Loan/Deposit Budget	3.47/3.41	0.14	0.890
Loan/Expense Budget	3.47/3.67	-1.71	0.088
Deposit/Expense Budget	3.41/3.67	-1.94	0.053

The use of Likert scales permits the scores obtained from responses to the six questions corresponding to the three types of budget to be aggregated. An overall measure of budget participation is thus developed as a basis to classify subjects into high and low budget participation groups.

A Cronbach alpha of a measure of budget participation used in this study is 0.84, which further attests to its reliability. The basic requirement of internal reliability is that there is consistency among the individual items in the multi-item structure of the measure.

3.3.1.2 Budget Use

Budget use is most often measured by the Hopwood measure (1972) and its variations thereof, such as Otley (1978) and Brownell (1982a). In this study, a measure of budget use is developed based upon the concepts of the eight-item index constructed by Hopwood (1972) and modified by Brownell (1982a).

One of the eight-item index identified by Hopwood is excluded in this study because it may not be directly relevant to the performance evaluation of branch managers in Thai commercial banks. Excluded is the cooperation with colleagues, which are identified as branch managers in this study. Branch managers usually have little work cooperation among themselves; necessary cooperation is instead with the district managers to provide link with their headquarters. Consequently, the remaining seven-item index are as follows:

- A. The effort I put into my job
- B. The relationship I have established with my staff
- C. My concern with quality
- D. How well I meet my budget
- E. How well I get on with group staff
- F. How efficiently I run my unit
- G. My attitude toward my work

The seven-item index above can be used in two complementary ways to measure budget use in this study. First, subjects are asked

in Thai to rank-order their opinions concerning the three most important from the index based on the relative importance to the viewpoint of their superiors. The ranking of the three most important is used to distinguish budget use into four groups. They are the budget-constrained (BC), budget-profit (BP), profit-conscious (PC), and non-accounting (NA).

The two criteria (from the seven-item index) that are chosen in the three most important are mainly used to classify budget use into four groups. The two are the ability to meet budget (item D) and the efficiency of branch operation (item F). They be used as follows. When item D and not item F appears on the top three, it is classified that the budget-constrained style is used to evaluate the performance of branch managers; when both items D and F appear on the top three, it is the budget-profit style; when item F and not item D appears on the top three, it is the profit-conscious style; when neither item D nor item F appears on the top three, it is the non-accounting style. Table 3.7 presents a comparison of the distribution of respondents classified into the four patterns between this study and other selected studies, including Hopwood (1972), Otley (1978), Brownell (1982a), and Brownell and Hirst (1986).

Table 3.7
Distribution of Budget Use Classified
into Four Groups (Unit Percentage)

	Budget- Constrained %	Budget- Profit %	Profit- Conscious %	Non- Accounting %	Total %
Hopwood (1972) (N = 167)	20	10	26	44	100
Otley (1978) (N = 39)	13	56	28	3	100
Brownell (1982a) (N = 38)	21	24	24	31	100
Brownell and Hirst (1986) (N = 76)	17	41	7	35	100
Present Study (N = 307)	65	19	3	13	100

The four groups are further classified for analysis purpose into the high and low budget use groups. The high budget use group is composed of the budget-constrained and budget-profit styles, while the low budget use group is composed of the profit-conscious and non-accounting styles. This is based upon the "collapsing technique," which is justified on the ground that the structure of the sample is not different before or after collapsing (Brownell, 1982a).

In the second method, subjects are also asked in Thai to indicate the degree of importance on a five-point Likert scale of the seven performance criteria identified above. This method should be used as an alternative measure of budget use in case a sufficient number of respondents fails to properly complete ranking of performance criteria in the first method (Brownell, 1982a; Dunk, 1993).

3.3.2 Job Performance

Conceptually, there are at least four possible ways to measure job performance, including self rating, superior rating, subordinate rating, and peer rating. However, self rating is used to measure performance in this study because it is concerned with the perceived performance by the branch managers themselves. A number of studies (Brownell, 1982a; Brownell, 1985; Brownell and Hirst, 1986; Brownell and Merchant, 1990) have cited evidence to support the use of self rating. In particular, Brownell and Merchant (1990,p.395) conclude that, "self-ratings of performance ... have been criticized on the grounds of objectivity, although alternative, more objective measures are not obvious."

A measure of job performance in this study is developed based upon the self-rated instruments of Mahoney, Jerdee, and Carroll (1963; 1965). The reliability and validity of the self-rated measure have extensively been tested by Heneman (1974) and Penfield (1974).

In this study, subjects are asked in Thai to rate their own performance on a five-point Likert scale along the nine dimensions of performance that are identified as important to branch managers in Thai commercial banks. The nine dimensions of performance are composed of the eight individual components of performance and the overall performance as follows:

1. Planning
2. Investigating
3. Coordinating
4. Evaluating
5. Supervising
6. Staffing
7. Negotiating
8. Representing
9. Overall effectiveness

The use of Likert scale permits the scores obtained from responses to the eight individual aspects of performance to be aggregated, and compared with the scores on responses to the overall performance as a check of consistency. The aggregation of the eight individual components is used to measure job performance since it contains a more comprehensive set of information.

3.3.3 Job Satisfaction

There exist a number of measures of job satisfaction in the literature, sixteen of which have at least been identified by a comprehensive survey of Robinson, Athanasiou, and Head (1969). In this study, a measure of job satisfaction is developed based upon the behavioral literature. An emphasis is placed upon how to develop such measure to capture the overall nature of job satisfaction, without introducing the problem of excessive dimensionality. Additional emphasis is to limit the length of such measure within reasonable time, without losing any significant meaning.

A measure of job satisfaction in this study is developed in Thai, with its formats and scoring methods based upon the Job Description Index (JDI) constructed and validated by Smith, Kendall, and Hulin (1969), one of the most published measure of job satisfaction. However, the types of questions asked in this study are different from those in the JDI. The questions in this study are aimed to measure the overall job satisfaction in general. The questions in the JDI are aimed to measure five areas of job satisfaction. They are satisfaction with work, satisfaction with pay, satisfaction with promotions, satisfaction with supervision, and satisfaction with co-workers.

In this study, subjects are asked to respond on a three-answer basis (i.e. yes, no, or uncertain) to measure their overall job satisfaction. Based upon the criteria of scoring discussed below, the scores on these questions are aggregated to provide an overall job satisfaction to be used for data analysis purpose. The criteria are explained as follows:

1. Three points are given to the answer "YES" on a positive item and to the answer "NO" on a negative item
2. One point to the answer "UNCERTAIN"
3. No point to the answer "YES" on a negative item and the answer "NO" on a positive item

A Cronbach alpha of a measure of job satisfaction used in this study is 0.75, which further attests to its reliability. The basic requirement of internal reliability is that there is consistency among individual items in the multi-item structure of the measure.

3.4 Data Collection Procedures

The questionnaires are addressed to the branch managers by their titles rather than by their names. The bank internal mail is used to administer the questionnaires together with the cover letters briefly explaining the purpose of this study on July 8, 1993. This procedure is to increase the confidence of the branch managers to respond because they realize that the questionnaires must have been accepted by their bank management prior to distribution. As a result, the non-response tendency to questionnaires is lessened.

Returned envelopes with stamps are provided so that the responses are directly returned to the researcher without intervention and scrutiny by bank management. This procedure is to ensure the confidentiality of returned questionnaires.

Of 542 questionnaires mailed, 229 (42%) are returned from July 8, 1993 to July 22, 1993. A follow up is conducted on August 1, 1993 and the following two weeks. This follow up procedure yields an additional of 78 responses, bringing the total unto 307 (57%) as of August 14, 1993. No other responses are received after this date.

3.5 Data Analysis

The main data analysis are involved with correlation analysis, analysis of variance (ANOVA), and multiple comparison tests. The data analysis used to test the two major sets of hypotheses related to job performance and job satisfaction are similar.

3.5.1 Data Analysis for Job Performance

Three hypotheses related to job performance are restated as follows:

Hypothesis 1.1 : There are no significant differences in job performance between the two styles of budget-based performance evaluation.

Hypothesis 1.2 : There are no significant differences in job performance between the two styles of budget-based performance evaluation in large and small banks.

Hypothesis 1.3 : There are no significant differences in job performance between the two styles of budget-based performance evaluation in owner-managed and professionally managed banks.

The three job performance hypotheses are tested via one-way Analysis of Variance (ANOVA). ANOVA is the main data analysis used in this study to examine the impacts of budget-based performance evaluation upon job performance. The ANOVA model is expressed as follows:

$$X = \mu + \tau + \varepsilon$$

where X = the overall job performance

μ = the constant term

τ = the impact of the congruence and incongruence styles of budget-based performance evaluation

ε = the error term

ANOVA is a form of analysis to study the impact of one group of factors (independent variables) upon the other groups of factors (dependent variables). The dependent variables are usually in the form of non-categorical nature, and independent variables are usually in the form of categorical nature. In this study, the independent variable is defined as budget-based performance evaluation, which is composed of two aspects 1) budget participation and 2) budget use.

Budget participation in this study is measured and categorized into high and low budget participation groups. To transform into a categorical variable, a mean of budget participation is initially calculated. Next, the middle range surrounding the mean of budget participation scores is eliminated in order to lessen noise in budget participation scores. The middle range is specified as plus and minus 0.5 standard deviation of the calculated mean. Finally, the scores above mean and plus 0.5 standard deviation are classified as in the high budget participation group. On the other hand, the scores below mean and minus 0.5 standard deviation are classified as in the low budget participation group. In this way, budget participation is now defined in terms of a categorical variable. Budget use in this study is already measured as a nominal variable into high and low budget use groups.

The key test of ANOVA involves F-statistic. If F-statistic is significantly high, then budget-based performance evaluation is significantly related to job performance. This implies that the hypothesized styles of budget-based performance evaluation have impacts upon job performance. The next step is to compare the mean responses of job performance to determine whether the congruence and incongruence styles have higher impacts on job performance.

If, on the other hand, F-statistic indicates that budget-based performance evaluation is not significantly related to job performance, then further analysis is conducted to test for the two separate aspects of budget-based performance evaluation. First, the relationship between budget participation and job performance is tested. Second, the relationship between budget use and job performance is tested. Third, the relationship between budget participation and use, and job performance is simultaneously tested. Lastly, multiple comparison

tests are used to test for differences in job performance when the relationship between budget participation and use is classified into four possible combinations:

1. High budget participation and high budget use
2. Low budget participation and low budget use
3. High budget participation and low budget use
4. Low budget participation and high budget use

The same procedure used to test hypothesis 1.1 in all-bank sample is followed to test hypothesis 1.2 in large-bank and small-bank samples, and to test hypothesis 1.3 in owner-managed bank and professional-managed bank samples. The results of ANOVA are used to determine if the effect of the congruence and incongruence styles of budget-based performance evaluation found in all-bank sample (hypothesis 1.1) would be different when they are tested in banks classified based on firm size (hypothesis 1.2), and banks classified based on firm ownership (hypothesis 1.3).

3.5.2 Data Analysis for Job Satisfaction

There are three hypotheses related to job satisfaction, and they are again stated as follows:

Hypothesis 2.1 : There are no significant differences in job satisfaction between the two styles of budget-based performance evaluation.

Hypothesis 2.2 : There are no significant differences in job satisfaction between the two styles of budget-based performance evaluation in large and small banks.

Hypothesis 2.3 : There are no significant differences in job satisfaction between the two styles of budget-based performance evaluation in owner-managed and professional-managed banks.

The three hypotheses related to job satisfaction are similarly tested as the three hypotheses related to job performance. The only exception is that job satisfaction is now treated as a dependent variable in a set of hypotheses related to job satisfaction, whereas job performance is treated as a dependent variable in a set of hypotheses related to job performance.