

## **CHAPTER FOUR**

### **RESEARCH METHODOLOGY**

#### **4.1 Introduction**

The study aims to investigate the relationship between budget participation and managerial performance in the presence of organisational fairness and motivation as intervening variables and organisational culture as a moderating variable.

This chapter discusses the methodology used to test the hypotheses developed based on the theoretical framework discussed in the previous chapter. It covers two methods of data collection: the questionnaire survey and semi-structured interviews. In the questionnaire survey section, the sample selection method is discussed, followed by the pilot testing and the questionnaire design. In the interview section, the respondents to the interview, the interview guide and the method for interview process is presented. This is then followed by the mode of data analysis for both types of data collection method.

#### **4.2 Research Design**

The research can be conducted in a few numbers of ways, but the main method is either through questionnaires, interviews or observation (Cavana et al. 2000; Sekaran, 2000). According to Sekaran (2000), the main advantage of questionnaire method is that the data can be obtained “more efficiently in terms of researcher time, energy and cost” (p. 222). Questionnaire method involves a series of questions that is distributed to the respondents, which require them to record their answer, either selecting several alternatives provided, or based on their own opinion. This approach is suitable if the researcher knows exactly what he or she wants to investigate and how to measure the variables used in the study (Sekaran,

2000). The questionnaire can be distributed either personally, through the mail or administered electronically.

Another method of data collection is through interview of respondents. The main advantage of interviewing method is the “flexibility in terms of adapting, adopting and changing the questions” (Sekaran, 2000, p. 222) as and when the researcher feels it is needed. This approach can be conducted through face-to-face, telephone or on-line interview. The interviewer will ask certain issues of interest either by following pre-formulated set of questions, or without any planned questions. The former normally is employed when the researcher knows what information to obtain and the latter normally is used to explore the preliminary issues before identifying variables that need further in-depth investigation (Cavana et al., 2001).

Observational survey involves the observation of the people in their actual work environment, or in a lab setting. Researcher will then record the activities or behaviour of these subjects based on predetermined issues of interest. (Sekaran, 2000). The researcher can observe the subjects either as part of the research setting, or without any interference.

According to Sekaran (2000), since all methods of data collections have their own strength and weaknesses, obtaining data through the mixed method “lends rigor to research” (p. 258). Further, collecting data through the mixed method and from multiple sources enhance the credibility and reliability of the data collected, thus increase the likelihood of the goodness of data (Cavana et al., 2001). For example, if there is inconsistency in the respondent’s answer on the same questions, asked through questionnaire and interview session, the trustworthiness of the data can be argued. Similarly, if the data obtained

through multiple sources are highly similar, then the data is highly reliable and it can be used with highly confidence (Cavana et al., 2001).

Thus, in this study, the mixed method that comprises of the mail questionnaire and face-to-face interview were used to obtain data. In addition to all benefits that can be obtained through the mixed method, it can also “build on each other’s strength and compensate for each other’s weaknesses” (Malhotra, 2007, p. 192). The mail questionnaire survey enables researcher to reach sample that is geographically dispersed and it is convenient for the respondents to complete the questions at their own pace (Cavana et al., 2001). This method also can avoid interviewer bias, which normally becomes a potential problem for face-to-face interview (Malhotra, 2007). However, the negative side of the mail questionnaire is that “any doubts the respondents might have cannot be clarified” (Sekaran, 2000, p. 234).

In contrast, the face-to-face interview enables researcher to clarify any doubts the respondents might encounter, to adapt and make adjustments to the questions ask whenever possible to ensure the questions are properly understood (Sekaran, 2000). This method provides rich information and can be used to better understand the phenomena. However, this method can introduce interviewer bias, for instance the wrong interpretations of responses given, the emphasising of certain words or through inappropriate suggestions (Sekaran, 2000).

The mixed method used in this study also serves different purposes. The questionnaire survey aimed to gather data for the purpose of hypothesis testing, while the interviews were conducted to gain more insight and in-depth understanding of the related issues of study.

Any doubt and unclear findings from the questionnaire survey can be further clarified from the information gathered through the interview process.

### **4.3 Questionnaire Survey**

According to Cavana et al. (2000), the questionnaire survey is an efficient data collection method with three types: personally administered questionnaires, mail questionnaires and electronic questionnaires. Personally administered questionnaires are given to a group of employees gathered by the companies according to the needs of the researcher. The questionnaires need to be completed at that time in the researcher's presence. Using this method, if there is any doubt regarding the questionnaire, it can be clarified immediately. All the questionnaires can be collected as soon as the employees have answered the questions.

Mail questionnaires, as the name implies, are distributed via mail or post, sent directly to the company. It is suitable to use when the sample is geographically dispersed. Unlike personally administered questionnaires, this method gives more time for the respondents to answer the questions and the respondents' data is kept confidential.

Electronic questionnaires are distributed using electronic devices or email. It can be used when the sample covers a wide geographical area and the respondents can answer it at their own pace.

This study attempts to investigate the effect of budget participation to managers working in the manufacturing and services industries in Malaysia. In order to reach a large number of respondents in a wide geographical area, mail questionnaires were used as the data collection method. Using this method, data can be gathered more efficiently in such a way that it can save the time and energy of the researcher (Sekaran, 2000).

#### **4.3.1 Respondents to the Questionnaire Survey**

The purpose of this study is to examine the extent of the involvement of Malaysian managers in setting up budget in enhancing their perception of fairness, motivation and performance. As such, the units of analysis are individual managers who have budget responsibilities. The use of individual managers in participative budgeting study is consistent with prior literature including Brownell (1982a; 1982b), Chong and Chong (2002), Lau et al. (2008), Nouri and Parker (1998) and Parker and Kyj (2006). To ensure that the results of this study would be comparable to the studies mentioned, the same approach was applied. These managers were selected by the Human Resource Manager in the organisation in which they work, chosen across functional areas, so long as they participate in the budget participation process.

The sampling design were companies listed in both Federation of Malaysian Manufacturers (FMM) in the 2009 directory and Bursa Malaysia, accessed through the web at [www.klse.com.my](http://www.klse.com.my). 335 listed companies were randomly selected comprising of manufacturing and services companies. Most of the studies in budgeting literature focused on manufacturing industries (for example, Brownell and Dunk, 1991; Brownell and McInnes, 1986; Chong and Chong, 2002; Lau and Tan, 2006), while others examine financial institutions (Lau and Tan, 1998) and the health sector (Lau et al., 2008, Wentzel,

2002). According to Lau and Lim (2002), the use of one industry is more manageable and less variable than if collecting data in various industries.

However, in order to provide more generalisability of the findings and to respond to suggestions by Chong and Chong (2002), Lau and Lim (2002), Lau and Tan (2006) and Maiga and Jacobs (2007), this study used data collected from both the manufacturing and services industries. The selection of a variety of industries was similar to the approach adopted by Frucot and Shearon (1991) and Mia (1989). This study was also done across functional areas, in order to examine the generalisation of the results in different functions as in other studies (Brownell, 1982b; Brownell and Dunk, 1991; Lau and Lim, 2002; Parker and Kyj, 2006).

The effectiveness of budgetary participation may be influenced by the differences in power distance at the organisational culture level (Frucot and Shearon, 1991; Hofstede, 1980; Lau and Tan, 1998; O'Connor, 1995). Frucot and Shearon (1991) also suggested that the diversities of cultures which are controlled by local and foreign interest may influence the management control system of the organisation. As this study examines the possibility of the cultural influence in Malaysian firms which are owned by local and foreign subsidiaries companies, the target samples were drawn from foreign and local companies operating in Malaysia. For foreign companies, only Anglo-American companies which Hofstede (1980) has identified as having low to moderate score of power distance, were selected.

### **4.3.2 Data Collection Procedures**

Data were collected using a mail questionnaire survey addressed to the Human Resource Manager of the randomly selected companies in Malaysia. Each questionnaire was accompanied by a cover letter, three sets of questionnaire surveys with the self-addressed envelopes.

The cover letter stated the purpose of the research undertaken, instructions for completing the survey and the assurance of the anonymity of the respondents. The Human Resource Manager was asked to distribute the questionnaires to three managers in his/her company. The managers selected must have budget responsibilities regardless of the departments, for instance from accounting, finance, marketing or production operations. The sample of the cover letter is attached in Appendix A.

After the four weeks of the distribution period, for each company which did not return the questionnaire, follow-up calls were made to the Human Resource Manager. The questionnaires were sent again if the questionnaires had not been received.

As the questionnaire survey has the disadvantage of a low response rate (Sekaran 2000), several measures need to be undertaken to improve the rates of response. This includes the wording of the questionnaire, avoiding ambiguous questions, the length of questions and the sequencing of the questions (Sekaran 2000). Thus, to improve the responses rate, the process of the survey involves two stages. The first stage is to conduct a pre-test to ensure that all questions asked are understandable and meet the purpose of the study. The second stage involves the distribution of the questions to manufacturing and services companies.

#### **4.3.2.1 Pre-Test**

A pre-test was conducted to ensure the questions are structured in a feasible way for the respondents to answer. It also aims to increase the comprehension of the questions used in the questionnaires in order to avoid the questions being misunderstood. Moreover the pre-test ensures the appropriate words are used and suitable measurements are applied.

The pre-test conducted comprises five academicians and five practising managers. The feedback obtained from the sample of the pre-test was used to rectify any inadequacies before the questionnaires were distributed to the respondents at large. Those who participated in the pre-test were excluded from the questionnaire survey.

#### **4.3.3 Questionnaire Design**

The questionnaire consists of three sections. Section A is related to budget participation and its role. This section aims to elicit responses from the managers on the extent of involvement in budget setting activity and the perceived fairness of budgeting processes and procedures as well as its outcome. This section also intends to capture the managers' opinion on the motivation aspect that drives the achievement of budgeted performance. Finally, this section also intends to obtain responses on the decision making or leadership style of the superior.

Section B covers the perceived managerial performance of the respondents on the basis of main managerial functions, while Section C contains background information about the respondents involved in the study.



Overall, a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) is used to measure responses in Section A. Similarly, the same response scale is also used in Section B but the Likert scale ranges from 1 (below average) to 5 (above average). Since Section C is related to the background information of the respondents, nominal and ordinal scale is used. The complete questionnaire is attached in Appendix A.

In this study, the questionnaire was designed based on the established measurements developed by previous studies. The research variables include budget participation, organisational fairness, motivation, organisational culture and managerial performance. The measurements for each of the variables are presented next.

#### **4.3.3.1 Section A: Budget Participation and Its Role**

##### **a) Budget Participation**

Budget participation is defined as the degree of involvement and influence managers have in the budget setting process. This definition is adapted from Shields and Shields (1998). To measure budget participation, the instrument which measures the influence and involvement of individuals in the budgeting process is employed. This instrument is developed by Milani (1975) and consists of a six-item scale. It measures the extent of managers' involvement in setting budget, superior explanations for budget revisions, frequent budget discussions with superiors, managers' influence of final budget, the importance of managers' contribution and superior initiative for frequent budget discussion while preparing the budget.

The responses are based on a five-point Likert scale, scored from 1 (strongly disagree) to 5 (strongly agree). This instrument has been used extensively and tested in management accounting studies of budget participation with high Cronbach alpha values, for instance: Brownell and Hirst (1986), Lau and Lim (2002), Lau and Tan (2006), Mia (1989), Nouri and Parker (1998), Parker and Kyj (2006), O'Connor (1995) and Wentzel (2002), which reported a Cronbach alpha coefficient between 0.84 and 0.94, which indicates high internal reliability. Table 4.1 below shows the instruments used to measure budget participation.

**Table 4.1: Budget Participation Instrument**

Budget participation is defined as the involvement and influence of managers in budget preparation. The following statements are concerned with budget participation. Please indicate to what extent you agree or disagree with each of the statements by marking (/) in the relevant boxes using the scale below:							
<p>Strongly Disagree ←————→ Strongly Agree</p> <p>1            2            3            4            5</p>							
		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>No Opinion</b>
1	I am involved in setting all of my department budget.						
2	My superior clearly explains budget revisions /adjustments.						
3	I have frequent budget-related discussions with my superior.						
4	I have a great deal of influence on my department's final budget.						
5	My contribution/inputs to the budget are very important.						
6	My superior initiates frequent budget discussions when the budget is being prepared.						

## **b) Organisational Fairness**

There are two dimensions of organisational fairness considered in this study: distributive fairness and procedural fairness. Distributive fairness relates to fairness of the final outcome of the budget allocated. Following Wentzel (2002) and Maiga and Jacobs (2007), distributive fairness is measured using a five-item scale.

Four-items are adapted from Magner and Johnson (1995) which deal with the distributive fairness judgment that includes deserved budget, budget needs, expected budget and fair budget. Another item is developed by Greenberg (1993) focusing on interpersonal aspect of distributive fairness.

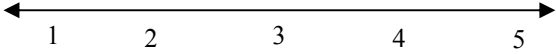
Procedural fairness refers to the fairness of the procedures employed to determine the budget outcome. It is measured using an eight-item scale used in Wentzel (2002) and Maiga and Jacobs (2007). Six-items are adapted from Magner and Johnson (1995) that assess the procedural fairness judgment of respondents according to Leventhal's (1980) six rules. It consists of consistency across responsibility areas, consistency across time, information accuracy, negotiation provisions, ethics and morality standards and bias suppression. The other two-items are developed by Wentzel (2002) that deal with the representative rule of Leventhal (1980) and the informational aspect of procedural fairness.

The response scale by both distributive and procedural fairness is a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Tables 4.2 and 4.3 present the instruments used to measure distributive fairness and procedural fairness, respectively.

**Table 4.2: Distributive Fairness Instrument**

Distributive fairness is defined as the fairness of budget allocated in each responsibility area. The following statements are concerned with distributive fairness. Please indicate to what extent you agree or disagree with each of the statements by marking (/) in the relevant boxes using the scale below:

Strongly Disagree Strongly Agree  


		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>No Opinion</b>
1	My responsibility area received the budget that it deserved.						
2	The budget allocated to my responsibility area adequately reflects my needs.						
3	My responsibility area's budget was what I expected it to be.						
4	I consider my responsibility area's budget to be fair.						
5	My supervisor expresses concern and sensitivity when discussing budget restrictions placed on my area of responsibility.						

**Table 4.3: Procedural Fairness Instrument**

Procedural fairness is defined as the fairness of procedures and processes used to allocate the budget. The following statements are concerned with procedural fairness. Please indicate to what extent you agree or disagree with each of the statements by marking (/) in the relevant boxes using the scale below:

Strongly Disagree ←————→ Strongly Agree  
 1            2            3            4            5

		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>No Opinion</b>
1	Budgeting procedures are applied consistently across all responsibility areas.						
2	Budgeting procedures are applied consistently across time.						
3	Budgetary decisions for my area of responsibility are based on accurate information and well-informed opinions.						
4	The current budgeting procedures contain provisions that allow me to appeal/negotiate the budget set for my area of responsibility.						
5	The current budgeting procedures conform to my own standards of ethics and morality.						
6	Budgetary decision makers try hard not to favour one responsibility area over another.						
7	The current budgeting procedures adequately represent the concerns of all responsibility areas.						
8	Budgetary decision makers adequately explain how budget allocations for my responsibility area are determined.						

**c) Motivation**

Motivation is related to engagement in a particular behaviour to achieve a desired goal. The motivation construct has been differentiated into extrinsic and intrinsic motivation (Dermer, 1975). In this study, however, intrinsic motivation is used as it relates to internal factors of individual satisfaction for the personal goals, growth, achievement and a feel of accomplishment. Unlike intrinsic motivation, extrinsic motivation is more related to extrinsic reward or external incentive upon fulfilment of good result or performance

(Dermer, 1975) including getting recognition, advancement and increased pay. As this study focuses on self-rated performance upon achieving budgeted goals, intrinsic motivation is more relevant and is used to conceptualise the motivation construct. This is consistent with studies by Kenis (1979) and Merchant (1981). Moreover, the current study uses goal setting theory, which works on the basis of the accomplishment of the goal that was set.

To operationalise the motivation construct, the three-item intrinsic motivation used in Dermer (1975) is applied in this study. It comprises of personal growth and development, a feeling of accomplishment and a sense of personal satisfaction. Measured on the basis of a five-point Likert scale anchored from 1 (strongly disagree) to 5 (strongly agree), this measurement has also been applied in Merchant (1981) and Kenis (1979).

Table 4.4 below shows the instruments used to measure motivation.

**Table 4.4: Motivation Instrument**

<p>Motivation refers to the effort extended for the achievement of one's purpose. The following statements are concerned with intrinsic motivation. Please indicate to what extent you agree or disagree with each of the statements by marking (/) in the relevant boxes using the scale below:</p>								
		Strongly Disagree		Strongly Agree				
		1	2	3	4	5		
		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>No Opinion</b>	
1	Doing my job well contributes to my personal growth and development.							
2	Doing my job well gives me a feeling of accomplishment.							
3	I feel a great sense of personal satisfaction when I do my job well.							

#### **d) Organisational Culture (Power Distance)**

Power distance is defined as “the degree of centralisation of authority and the degree of autocratic leadership” (Hofstede, 1983, p.81). Utilising Hofstede’s (1980) cultural dimensions, only the power distance dimension is used in this study. The measurement of power distance comprises three items. The first item addresses the perceptions of respondents’ preference of decision making style practised by their superior; second item involves the respondents’ perception of their superior’s decision making style; and the third item concerns the frequency of the managers’ fear of disagreeing with their superior. This measurement developed by Hofstede (1980; 2001) has also been employed in Harrison et al. (1994), Lau and Tan (1998), Lau and Buckland (2000) and O’Connor (1995).

For the first and second items, the perceptions of preferred superior leadership style and perceived superior leadership style are: (1) autocratic; (2) persuasive; (3) consultative; and (4) democratic. For the third item, the response scale is a five-point Likert-type scale scored from 1 (very frequently) to 5 (very seldom).

In order to determine the power distance index, the data is computed based on the adapted formula suggested by Hofstede (2001) as follows:

$$135 - 25 (\text{mean score managers afraid}) + (\% \text{ perceived superior 1 and 2}) - (\% \text{ preferred superior 3})$$

Specifically, the index is calculated based on the mean scores of the three items (Hofstede, 2001, p. 85):

- a. Managers' perception that they are afraid to disagree with their superiors;
- b. Managers' perception that their superiors tend to make decisions in an autocratic (1) or persuasive style (2);
- c. Managers' preference for anything but a consultative (3) style of decision making in their superior; that is for an autocratic (1), persuasive (2), or a democratic style (4).

According to Hofstede (1980; 2001), the mean score of "managers afraid" is multiplied by 25 to form their range and contribution to power distance index (Hofstede, 2001, p. 86). A constant 135 figure is also added to give the index values a range between 0 to 100, which indicates the low power distance and high power distance, respectively. The theoretical range of the power distance index lies from -90 (managers not afraid, no superior 1 and 2, all prefers superior 3) to +210 (all managers afraid, all superior 1 and 2, no one prefers superior 3).

Table 4.5 shows the instruments used to measure power distance and the way the questions were asked in the questionnaire.



**Table 4.5: Power Distance Instrument**

Power distance refers to the leadership style of an organisation. The descriptions below apply to four types of managers (superiors). First, please read through these descriptions:

<b>Manager 1</b>	Usually makes his/her decisions promptly and communicates them to his/her subordinates clearly and firmly. Expects them to carry out the decisions loyally and without raising difficulties.
<b>Manager 2</b>	Usually makes his/her decisions promptly, but, before going ahead, tries to explain them fully to his/her subordinates. Gives them the reasons for the decisions and answers whatever questions they may have.
<b>Manager 3</b>	Usually consults with his/her subordinates before he/she reaches his/her decisions. Listens to their advice, considers it, and then announces his/her decision. He/she then expects all to work loyally to implement it whether or not it is in accordance with the advice they gave.
<b>Manager 4</b>	Usually calls a meeting of his/her subordinates when there is an important decision to be made. Puts the problem before the group and tries to obtain consensus. If he/she obtains consensus, he/she accepts this as the decision. If consensus is impossible, he/she usually makes the decision him/herself.

1. Now, for the above types of manager, please mark (/) the one which you would prefer to work under (mark one answer only):

Manager 1	Manager 2	Manager 3	Manager 4

2. To which of the above four types of managers would you say your own superior most closely corresponds? Please mark (/) in the relevant box.

Manager 1	Manager 2	Manager 3	Manager 4

3. How frequently, in your work environment, are you afraid to express disagreement with your superiors? Please mark (/) in the relevant box using the scale below:



1	2	3	4	5	No Opinion

#### **4.3.3.2 Section B: Perceived Managerial Performance**

Managerial performance refers to the respondents' perceived performance. A self-rated, nine-item scale developed by Mahoney et al. (1965) is used to measure managerial performance. This performance instrument is consistent with prior research (for example, Chong and Chong, 2002; Brownell, 1985; Brownell and McInnes, 1986; Lau and Lim, 2002; Frucot and Shearon, 1991).

The response scale is a five-point Likert scale ranging from 1 (below average) to 5 (above average). It consists of eight performance dimensions; planning, investigating, coordinating, evaluating, supervising, staffing, negotiating and representing; and also a single overall performance rating. To validate the single overall rating, following procedures suggested by Brownell (1985) and Brownell and Hirst (1986), it should be regressed on the eight performance dimensions. The regression should explain about 55% of the variances in the overall performance rating, while the remaining 45% are related to job specific factors (Brownell, 1985; Brownell and Hirst, 1986).

This study successfully achieved the coefficient of determination ( $R^2$ ) of 71%. However, for the purpose of data analysis, hypothesis tests were based on the eight performance dimensions.

Table 4.6 displays the instruments used to measure managerial performance and the way the data is captured.

**Table 4.6: Managerial Performance Instrument**

Managerial performance can be measured by evaluating the extent to which the managers have successfully achieved the target for the following functions. Please indicate your performance on the following functions by marking (/) in the relevant boxes using the scale below:

Below Average ←—————→ Above Average  
 1      2      3      4      5

		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>No Opinion</b>
1	Planning						
2	Investigating						
3	Coordinating						
4	Evaluating						
5	Supervising						
6	Staffing						
7	Negotiating						
8	Representing						
9	Your overall performance						

**4.4 Semi-Structured Interview**

In addition to collecting data through questionnaire survey, semi-structured interviews were also conducted with selected respondents. The objective of the interview is to gain further insights and in-depth understanding of the issues highlighted from the survey findings. Through interview, any doubts about the questions asked can be clarified and adapted as necessary (Sekaran, 2000). Furthermore, interview is a very valuable tool to obtain in-depth information and clarifications for any unexpected survey findings (Brenner, 1985; Sekaran, 2000).

According to Flick (2006), there are three types of interview: structured interview, semi-structured interview and unstructured interview. Structured interview is conducted using the structured questions which are prepared similar to the questionnaire survey. During the interview, the questions asked follow exactly the prepared questions, with the same words and in the same order. Respondents have to choose one answer from the several answers provided which also mean as forced-choice or “closed” questions (Brenner, 1985).

Semi-structured interviews are interviews conducted based on open-ended questions (Flick, 2006) but which follow a certain interview guide. The method in which the questions were asked is based on the respondent’s understanding. For example, if a respondent does not understand the meaning of a particular question, the same question would need to be rephrased.

For an unstructured interview, no questions or interview guides are prepared in advanced. The questions are nondirective or unstructured questions (Flick, 2006). The questions asked correspond to the reaction of the respondent within a general framework.

As this interview process is conducted after the data were collected from the questionnaire survey, the semi-structured interview is chosen. These face-to-face interviews are conducted in which each respondent need to answer the same question based on the prepared list in the interview guide. As the questions are open-ended, the respondents need to answer the questions in their own words which are then transcribed by the researcher. This is to ensure that every related issue is understood clearly. In addition, the interview process is beneficial as there is control on the people answering the questions. It also

ensures that the responses given are valid based on the acts and gestures of respondents while providing the answers.

#### **4.4.1 Respondents to the Interview**

Respondents to the interview are chosen based on the firms that returned the questionnaires for both types of manufacturing and services companies. Due to the cost and time constraints, only respondents from the Klang Valley are targeted to be interviewed. The respondents must be the managers that are involved in the preparation of budget and who have budget responsibility, regardless of the departments they are attached to.

Since the interview is conducted to gain further insights and in-depth information for the earlier findings from questionnaire survey, only companies from local companies are selected. This is because the findings of the survey showed inconsistent evidence regarding the cultural value of local companies.

#### **4.4.2 Interview Guide**

An interview guide is prepared as guidance on the questions to ask the respondents (Brenner, 1985). It is also prepared to ensure that all issues that require further explanation are covered in each interview. In this study, the interview guide comprises three parts. Part One is related to the general introduction of the researcher, information about the objective of both the research and the interview, and a request to voice record the interview. Part Two deals with the list of questions asked which are related to the budget and budget participation issues that the researcher needs to gain further understanding. In particular, the respondent was asked about the type of budget prepared, the budget cycle, the budgeting process, and the action taken if there are variances in the actual and budgeted amount.

Furthermore, the respondent was also asked about the necessity of budget participation in his firm, the benefits and weaknesses of budget participation. Information about the effect of organisational culture, particularly power distance difference in local and foreign companies, is also listed as a pertinent issue that requires further explanation. Finally, the opinion and comments of the respondent based on the results of the survey questionnaires are also asked. In the final section of the interview guide, Part Three relates to the demographic information of the respondent and their firm.

#### **4.4.3 Semi-Structured Interview Method**

The respondents for the interview were randomly selected from the returned questionnaire survey. The managers were contacted directly, and asked to participate in the interview. To encourage participation, confidentiality is assured and no identification of the firm will be revealed. An appointment was arranged and the interview session was conducted at the respondent office.

Before the interview was conducted, consent from the respondent to record the interview session needed to be gained. During the interview, if the respondent agreed, a tape-recorder was used and notes were taken. The interview was conducted based on the interview guide and demographic data of respondents and the firm were then noted. The interview took between 45 minutes to 1 hour. After the interview was conducted, the recorded data was immediately transcribed to prevent any loss of data.

## **4.5 Data Analysis Process**

### **4.5.1. Questionnaire Survey**

#### **4.5.1.1 Coding and Labelling**

This study employs a questionnaire survey in collecting data for hypotheses testing. Prior to the recording of data, each of the items of all the variables in the questionnaires needs to be coded and labelled. This is done to facilitate the researcher to properly identify and locate the variables, whenever required. The items were coded and labelled by assigning numbers to each of the items of each variable in an unused questionnaire that serve as a codebook. Based on the codebook, the responses can then be recorded for further analysis.

#### **4.5.1.2 Preliminary Analysis of Data**

Prior to analysing the data, it needs to be screened and cleaned to identify any out of range data or missing data. Frequency distribution and descriptive statistics are used to check for any unusual distribution of data and to ensure valid responses are obtained from the respondents.

T-test was also undertaken to examine the existence of non-response bias. First, the data were separated into two: the early and late responses. Early responses were those questionnaires returned within three weeks after the questionnaires were distributed. Late responses were those questionnaires that were received after the third week in which these late responses are considered as a proxy of non-respondents (Armstrong and Overton, 1977). T-test was conducted by comparing the mean scores of early responses and those from late responses. No significant differences were found, indicating the absence of a non-response bias in this study.

T-test and analysis of variance also were conducted to examine any differences in the research variables under study across demographic variables, to ensure the validity of data to test the hypotheses.

#### **4.5.1.3 Hypothesis Testing**

There are 13 hypotheses developed in this study, which comprise of direct (6 hypothesis), mediating (4) and moderating (3) relationships. As such, three methods of data analysis were used in this study; correlation analysis, partial least squares analysis and hierarchical regression analysis.

Following Lau and Tan (2006), Lau et al. (2008) and Wentzel (2002), correlation analysis was used to examine the direct relationship of the variables. Generally, correlation analysis refers to the analysis that examines the strength and the direction of the relationships between variables (Hair et al., 2006). The correlation coefficient can vary between -1, which indicates a perfectly negative relationship, to +1, which indicates a perfectly positive relationship (Hair et al., 2006; Gujarati, 2006).

Partial least squares analysis was used to examine the mediating effect of organisational fairness and motivation in the relationship between budget participation and managerial performance. Partial least squares analysis enables the estimation of parameters for both measurement and structural model simultaneously. Further details of this method are provided in the next section.



Hierarchical regression analysis was used to test the moderating relationship. This analysis was employed to examine whether organisational culture has interaction with budget participation in affecting organisational fairness, motivation and managerial performance. The interaction exists if the inclusion of the interaction variable improves the model, through the significance results of the F change.

#### **4.5.1.4 Partial Least Squares Analysis**

##### **4.5.1.4.1 Overview of Partial Least Square**

In this study, structural equation modelling (SEM) is used to analyse the hypothesis developed in this study. SEM analysis was chosen because it enables the simultaneous assessment of “the reliability and validity of the measures of theoretical constructs and estimating the relationships among these constructs” (Barclay et al., 1995, p. 287).

In this study, component-based SEM, which is known as Partial Least Squares (PLS) is employed to estimate the structural model. PLS has been used extensively in the area of marketing (Sharma et al., 1981), information system (Komiak and Benbasat, 2006; Igbaria et al., 1994) and management literature (Sarkar et al., 2001, Hulland, 1999). Thus this method of analysis may adequately work well in other domains, specifically in the management accounting discipline.

PLS can be used to estimate a complex model which consists of many latent variables (or constructs) and many manifest variables (or indicators). It can also be appropriately used in a study with small data samples (Henseler et al., 2009), unlike other types of SEM, for instance LISREL, AMOS and EQS which generally need a larger sample. PLS do not require multivariate normal distribution and any distribution assumption, in which all types

of measurement scales can be employed in the same model (Chin, 1998; Ghazali, 2006; Hulland, 1999). Another advantage of PLS is that it can have both types of measurement model, reflective and formative, in the same model. The other type of SEM can only have a reflective measurement model (Hsu et al., 2006). PLS can also be used to predict whether the relationship between latent variables may or may not exist in the model (Chin, 1998).

PLS path modelling consists of two sets of linear equations, the structural model (or inner model) and the measurement model (or outer model) (Henseler et al., 2009). While the structural model indicates the relationship between latent variables (constructs), the measurement model indicates the relationship between the latent variable and its manifest variables (indicators or items).

Further, there are two modes in the measurement model, the reflective mode and the formative mode. The choice over the mode to use depends on the causal relationship between the latent variable and its manifest variables in the measurement model. The causal relationship of the reflective model is from the latent variable to the manifest variables. Any changes in the latent variable are expected to have some changes in manifest variables. On the other hand, the causal relationship for the formative model is from the manifest variable to the latent variables. It means a change in a manifest variable may change the score for the latent variable. Similarly, if any of the manifest variables being excluded from the analysis, the meaning of the latent variable will change.

In this study, the causal relationship between all latent variables and their manifest variables are from the latent variables to the manifest variables. That means all latent variables consist of manifest variables in a reflective mode.

#### **4.5.1.4.2 Evaluation of the PLS Model**

The PLS model conveniently enables the estimation of parameters for both measurement and the structural model simultaneously. Even though PLS does not have any goodness-of-fit criterion (Henseler et al., 2009), there is a systematic approach to evaluate the PLS model (Chin, 1998). The systematic approach involves two sequential stages: (1) evaluation of the measurement model, and (2) evaluation of the structural model. This approach is adopted to ensure the latent variables have fulfilled sufficient reliability and validity, before evaluating the structural model.

##### **a) Evaluation of Measurement Model**

In this stage, the assessment of the model is focused on the reliability and validity of the measurement used in the study. The criteria to observe include internal consistency reliability, convergent validity and discriminant validity.

##### **Internal Consistency Reliability**

Internal consistency reliability is evaluated based on the individual item reliability and composite reliability.

Individual item reliability is assessed by examining the measures of each manifest variable to the respective latent variable or construct (outer loadings). According to Hulland (1999), the outer loadings should be 0.7 or more in order to retain that indicator in the analysis. However, loadings of 0.5 and 0.6 can also be acceptable but it must be interpreted with caution because it “can attenuate the estimated relationships between constructs” (Hulland, 1999, p.199) If the loading is less than 0.5, that indicator should be omitted from the analysis (Hulland, 1999).

Another way to observe internal consistency reliability is through the value of Cronbach's  $\alpha$  and composite reliability of the latent variables. Like individual item reliability, the same rule of thumb applies in which both coefficients should be more than 0.7 to be regarded as sufficiently reliable, otherwise if it is below 0.6, the latent variable has a lack of reliability (Fornell and Larcker, 1981; Nunnally, 1978).

### **Convergent Validity and Discriminant Validity**

Convergent validity is assessed by examining average variance extracted (AVE) value (Fornell and Larcker, 1981). AVE measures the amount of variance that a latent variable captures from its indicators relative to the amount of variance due to measurement error (Chin, 1998; Fornell and Larcker, 1981). The value of 0.5 and more is the suggested benchmark that signifies the adequacy of convergent validity (Fornell and Larcker, 1981).

To assess discriminant validity, there are two ways to examine it. The first way is through the loadings of each indicator to its latent variable versus its cross-loadings to the other variables. The loadings of each indicator to their latent variable should be higher than all of its cross-loadings (Chin, 1998). The second approach is the comparison of the square roots of AVE and the correlations among the latent variables. The square root of AVE values of each latent variable should be greater than the respective correlations among different latent variables. It signifies that more variance is shared between each latent variable and its manifest variables than it shares with other latent variables in the same model (Fornell and Larcker, 1981).

## **b) Evaluation of Structural Model**

Structural model is assessed based on the coefficient of determination ( $R^2$ ) of the endogenous latent variable (dependent variable), which provides the explanatory power of a structural model.  $R^2$  is described as substantial, moderate and weak if the values show 0.67, 0.33 and 0.19 respectively (Chin, 1998).

The significance of path coefficients ( $\beta$  estimates) also needs to be examined. The examination of each path coefficient can be assessed through bootstrapping procedure which provides the significance value (p-values) of the path coefficient.

### **4.5.2 Data from Semi-Structured Interview**

Data from the interview process is in the form of handwritten notes and transcribed text from a tape recorder. A total of ten interviews were conducted which comprise of an equal number of manufacturing and services companies. Due to the limited number of interviewees, data gathered are analysed manually. Analysis done includes frequency analysis calculation, summation and percentage.

## **4.6 Summary**

In this chapter, the discussions related to the data collection method were presented. The methodology used in designing the data collection method, which comprised of the questionnaire survey and the semi-structured interview were also discussed.

This study adopted questionnaire survey techniques distributed to managers working in the manufacturing and services sector. The units of analysis were individual managers attached to a variety of functional areas. All measurements used in this study were taken from established studies. This study has used correlation analysis, Partial Least Squares (PLS) technique and hierarchical regressions to analyse the data.

For the semi-structured interview, selected respondents were chosen from returned questionnaires. The questions asked were based on the interview guide to ensure all pertinent issues were covered in each interview. The collected data in forms of handwritten notes and transcribed text is analysed manually.

In the next chapter, the process of preparing the data prior to analysing it will be explained. Later, the findings of all the hypotheses will be discussed.