3.1 THEORETICAL FRAMEWORK

Based on the literature reviewed, the following theoretical framework was developed:-

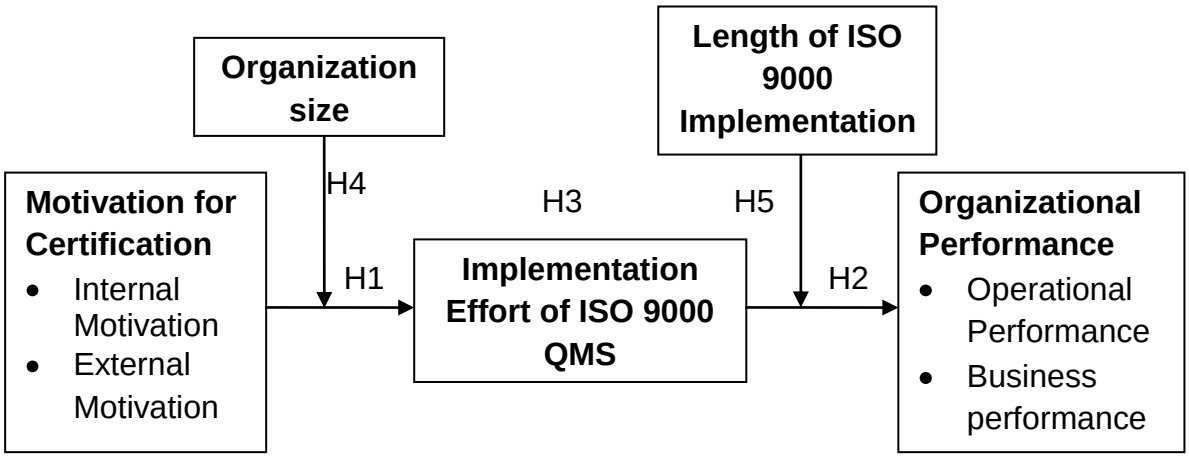

Figure 3.1 Theoretical Framework

Within the theoretical framework, the motivation for certification, the implementation effort of ISO 9000 QMS and the organizational performance are the three main variables. The motivation for certification includes internal motivation and external motivation. The organizational performance includes operational performance and business performance. The organization size and length of ISO 9000 implementation are the two moderating variables. Causal analysis was used by this study to examine the relationships between motivation for certification, implementation effort of ISO 9000 QMS and organizational performance as shown in Figure 3.1.

3.2 DEVELOPMENT OF HYPOTHESES

Based on the theoretical framework in Figure 3.1, hypotheses were developed.

3.2.1 MOTIVATION FOR CERTIFICATION AND IMPLEMENTATION EFFORT OF ISO 9000 QMS

The motivation for certification will determine how much of commitment, efforts and resources of an ISO 9000 certified organization will put in for ISO 9000 implementation (Leung *et al*, 1999; Gotzamani & Tsiotras, 2002). Based on the literature reviewed, the motivation for ISO 9000 certification is categorized into internal motivation and external motivation. Studies by Singels *et al* (2001), Gotzamani & Tsiotras (2002), Llopis & Tari (2002), William (2004), Terziovski & Power (2007) and Zaramdini (2007) showed that internally motivated ISO 9000 certified organizations will gain greater benefits than externally motivated certified organizations. Internal motivation for certification can provide a conducive context and internal improvement focus for an organization to implement ISO 9000 QMS effectively (Prajogo, 2011). Internal motivation for certification is more likely to motivate the top management and employees for the full commitment of ISO 9000 implementation (Leung *et al*, 1999; Williams, 2004; Jang & Lin, 2008; Kemenade *et al*, 2011). The findings of Jang and Lin (2008) and Prajogo (2011) showed that there is a positive relationship between internal motivation for certification and the implementation of ISO 9000 QMS. On the other hand, some studies (Llopis & Tari, 2002; Ahmed *et al*, 2005; Terziovski & Power, 2007; Lee, 1998; Lo, 2002; Dissanayaka *et al*, 2001) found that external motivation is the main motivation for their sampling organizations to get ISO 9000 certification. Most of the studies showed that external motivation for certification had no or less impact on the performance of the ISO 9000 certified organizations. External motivation for certification can only cause the

ISO 9000 certified organizations to gain external benefits such as competitive advantage from a good image and an improvement of market penetration from certification requirement (Kemenade *et al*, 2011). Prajogo (2011) found that external motivation for certification has a positive impact on the implementation process of ISO 9000. Jang and Lin (2008) found that internal motivation for certification mediates the relationship between external motivation for certification and the depth of ISO 9000 implementation. Thus, the following hypotheses are posed to be examined in the context of Malaysian construction firms:-

H1: There is a positive relationship between motivation for certification and implementation effort of ISO 9000 QMS.

H1a: There is a positive relationship between internal motivation for certification and implementation effort of ISO 9000 QMS.

H1b: There is a positive relationship between external motivation for certification and implementation effort of ISO 9000 QMS.

3.2.2 IMPLEMENTATION EFFORT OF ISO 9000 QMS AND ORGANIZATIONAL PERFORMANCE

Based on the studies by Feng *et al* (2008) and Lin & Jang (2008), the organizational performance is categorized into operational performance and business performance. Some of the reviewed research studies (Huarng *et al*, 1999; Sun, 2000; Said *et al*, 2006; Bayati & Taghavi, 2007; Wu & Liu, 2010; Zaramdini, 2007) found that ISO 9000 certification can improve the organizational performance which includes operational performance and

business performance. The studies by Han *et al* (2007), Jang & Lin (2008) and Kong *et al* (2010) showed that the registration or implementation effort of ISO 9000 QMS has a positive effect on operational performance and business performance directly or indirectly. Feng *et al* (2008) found that ISO 9000 certification practices can directly affect the operational performance and business performance of certified organizations. Thus, the following hypotheses are proposed to be examined:-

H2: There is a positive relationship between implementation effort of ISO 9000 QMS and organizational performance.

H2a: There is a positive relationship between implementation effort of ISO 9000 QMS and operational performance.

H2b: There is a positive relationship between implementation effort of ISO 9000 QMS and business performance.

3.2.3 MEDIATING EFFECT OF IMPLEMENTATION EFFORT OF ISO 9000 QMS

The motivation for certification of an ISO 9000 certified organization will determine the implementation effort of ISO 9000 QMS, which in turn determines the improvement of organizational performance (Leung *et al*, 1999; Williams, 2004; Jang & Lin, 2008; Prajogo, 2011). Jang & Lin (2008) developed a conceptual framework which showed the depth of ISO 9000 implementation mediating the relationship between motivation for certification and firm performance. However, they did not examine the mediating effect of

the depth of ISO 9000 implementation in their study. Thus, the following hypothesis is formulated to be examined:-

H3: Implementation effort of ISO 9000 QMS mediates the relationship between motivation for certification and organizational performance.

3.2.4 MODERATING EFFECT OF ORGANIZATION SIZE AND LENGTH OF ISO 9000 IMPLEMENTATION

The studies of Leung *et al* (1999), Gotzamani & Tsiotras (2001), Yong & Wilkinson (2001), Llopis $ Tari (2003), Bayati & Taghavi (2007), Feng *et al* (2008), Mady (2009), Fotopoulos & Psomas (2009a) and Dissanayaka *et al* (2010) used comparative analysis to test the effect of the organization size and length of ISO 9000 implementation on the benefits and implementation of ISO 9000 QMS. Mixed results were found in the above studies.

Larger companies have more funds and resources to implement ISO 9000 QMS (Yong & Wilkinson, 2001; Mady, 2009). Large companies can implement quality management practices better than small companies (Yong & Wilkinson, 2001; Mady, 2009; Fotopoulos & Psomas, 2009a). Thus, for larger organizations, motivation for certification shall have a stronger positive effect on the implementation effort of ISO 9000 QMS. The following hypothesis is proposed to examine the moderating effect of the organization size on the relationship between motivation for certification and implementation effort of ISO 9000 QMS:-

H4: Organization size has a moderating effect on the relationship between motivation for certification and implementation effort of ISO 9000 QMS.

A longer length of ISO 9000 implementation will make the quality management system more mature (Gotzamani & Tsiotras, 2001; LIopis & Tari, 2003). Organizations with a longer length of ISO 9000 implementation will have a higher level of quality management practices due to a higher level of quality commitment (Gotzamani & Tsiotras, 2001; LIopis & Tari, 2003). Thus, for organizations with a longer length of ISO 9000 implementation, the implementation effort of ISO 9000 QMS shall have a stronger positive effect on the organizational performance. The following hypothesis is posed to examine the moderating effect of length of ISO 9000 implementation on the relationship between implementation effort of ISO 9000 QMS and organizational performance:-

H5: Length of ISO 9000 implementation has a moderating effect on the relationship between implementation effort of ISO 9000 QMS and organizational performance.

3.3 RESEARCH INSTRUMENT

Based on the literature reviewed, most of the studies on ISO 9000 used a quantitative analysis with questionnaire surveys and the respondents for the surveys were specified to be those managers or staffs who manage the system (Inaki *et al*, 2006; Sampaio *et al*, 2008). However, some researchers

contended that the analysis from subjective information (perception of the respondents) may be distorted due to the bias of respondents (Heras, Dick & Casadesu, 2002; Inaki *et al*, 2006). Therefore, some researchers used objective information such as sales growth and return of assets (ROA) to study the performance of ISO 9000 certified organizations (Heras *et al*, 2002; Dick et al, 2008; Costa & Lorente, 2007).

This study adopted the questionnaire survey technique, as most commonly used by researchers in the field, to collect subjective information due to the following reasons:-

1) Improvement of financial performance is not easy to be justified whether it is due to the effect of ISO 9000 implementation or other business factors such as local and global economic performance and material price. In addition, an organization can plan and develop financial results according to the wishes of top management (Haversjo, 2000).
2) It is difficult to get objective information for the operational performance, such as quality improvement, customer satisfaction and cost reduction percentage, from Malaysian construction firms because of lack of monitoring efforts.
3) As suggested in Llopis & Tari (2002), managers or staffs who manage the quality management system will have a better understanding and justification on how well those studied variables' relationships are developed in their organizations, from a quality management perspective.

There are three sections in the questionnaire. The first section is to gather the background information of sampling organizations regarding the organization name, scope of business, area of operations, number of full time staff, CIDB registration grade, number of years in construction business and number of years been ISO 9000 certified. The number of years been ISO 9000 certified indicates the length of ISO 9000 implementation of a certified organization. The choices of answer to the number of full time employees are developed based on the definition of small and medium enterprise (SME) for the sector of "Services, Primary Agriculture and Information & Communication Technology (ICT)" from SMECORP Malaysia official website. For the construction organizations with more than 50 full time employees, the organizations are considered as large-sized organizations. The construction organizations with 20 to 50 employees are considered as medium-sized organizations. The construction organizations with 5 to 19 employees are considered as small-sized organizations. The construction organizations with less than 5 employees are considered as micro-sized organizations. The second section of questionnaire is to gather the background information of the respondents. The third section is to gather the data regarding the variables, as discussed at the next section, based on the respondents' perception.

3.4 SELECTION AND OPERATIONALIZED MEASURES OF VARIABLES

The questions and the measure items of the variables in the questionnaire of this study were basically adopted from the global survey instrument of Corbett & Luca (2002) and Pan (2003). This global survey instrument was developed

by Professor Charles Corbett from Anderson School of Business, University of California, Los Angeles, with the assistance of Dr Jeh-Nan Pan from National Cheng-Kung University, Tainan, Taiwan (Corbett & Luca, 2002). According to Corbett & Luca (2002), this global survey instrument had been administered in fifteen countries. Jang & Lin (2008), Lin & Jang (2008) and Feng *et al* (2008) also developed their survey instruments based on this global survey instrument and all the measure items in the survey instruments of the three studies passed the validity and reliability tests. One of the reasons for this study to adopt the measure items from this global survey instrument is because it can show a better comparison of the findings with other studies which also used similar survey instrument for other countries. However, some of the measure items in the global survey instrument of Corbett & Luca (2002) and Pan (2003) are not applicable to Malaysian construction firms. Therefore, some measure items or description of measure items in the questionnaire of this study were also adopted from the studies of Low & Yeo (1997), Dissanayaka *et al* (2001), Zaramdini (2007) and Prajogo (2011) as these items are more applicable and can be easily understood by Malaysian construction firms.

3.4.1 MOTIVATION FOR CERTIFICATION - INTERNAL MOTIVATION AND EXTERNAL MOTIVATON

Based on the studies of Llopis & Tari (2003), Zaramdini (2007), Sampaio *et al* (2008), Jang & Lin (2008) and Prajogo (2011), this study classified the motivation for getting ISO 9000 certification into internal motivation and external motivation. Taking into consideration the applicability and

understanding of Malaysian construction firms, the items for measuring internal motivation for certification and external motivation for certification in this study were adopted from Low & Yeo (1997), the global survey of Corbett & Luca (2002) and Pan (2003), Jang & Ling (2008), Dissanayaka *et al* (2001), Zaramdini (2007) and Prajogo (2011). Jang & Lin (2008) used only three items each for the measurement of internal and external motivation for their empirical study. Thus, this study also selected and used three items each for measuring internal motivation for certification and external motivation for certification. The three items for measuring internal motivation for certification are: 1) to improve the quality of work done, 2) to reduce the cost of operations, 3) to increase efficiency and productivity in all areas of operation. The three items for measuring external motivation for certification are: 1) to meet local and oversea customer's demands, 2) to improve corporate image and gain marketing advantage, 3) to comply with government (such as CIDB) regulation. The respondents were asked to indicate how important each motivation measurement item is for their organizations in seeking and maintaining ISO 9000 certification. The items were assessed on a five-point Likert scale, where one represented 'not important at all' and five represented 'extremely important'.

3.4.2 IMPLEMENTATION EFFORT OF ISO 9000 QMS

The quality management system of all the ISO 9000 certified organizations must comply with the requirements of ISO 9000 QMS, which contains certain prescribed practices, tools and techniques (Feng *et al*, 2008; Lin & Jang, 2008; Poksinska *et al*, 2010; Prajogo, 2011). Thus, ISO 9000 certified organizations

must put in efforts to implement the required practices, tools and techniques. Taking into consideration the applicability and understanding of Malaysian construction firms, ten items were selected and adopted from the global survey of Corbett & Luca (2002) and Pan (2003), Feng *et al* (2008), Jang & Lin (2008) and Lin & Jang (2008) to measure the implementation effort of ISO 9000 QMS. These ten items are: 1) identification of quality aspects, 2) defining standard procedures, 3) documentation, 4) training, 5) capital investment, 6) top management commitment, 7) employee involvement, 8) periodic internal audits, 9) following standard procedures, 10) implementation of corrective action. The respondents were asked to indicate the perceived level of effort their organizations had to put into each ISO 9000 implementation's measure items. The items were assessed on a five-point Likert scale, where one represented 'no effort' and five represented 'very high effort'.

3.4.3 ORGANIZATIONAL PERFORMANCE – OPERATIONAL PERFORMANCE AND BUSINESS PERFORMANCE

Feng *et al* (2008) and Lin & Jang (2008) identified the operational performance and business performance as two dimensions for measuring the organizational performance. Both studies had the same definition for both operational and business performances. Those performances which are related to the organizations' internal operations are referred to as operational performance; those performances which are related to the organizations' finance and marketing are referred to as business performance (Feng *et al*, 2008). Taking into consideration the applicability and understanding of

Malaysian construction firms, items for measuring the operational and business performance were selected and adopted from Low & Yeo (1997), the global survey of Corbett & Luca (2002) and Pan (2003), Lin & Jang (2008), Feng *et al* (2008), Dissanayaka *et al* (2001) and Zaramdini (2007). Seven items were selected to measure the operational performance, namely: 1) reduction of cost of operation, 2) increase of efficiency and productivity in all areas of operation, 3) improvement of the quality of work done, 4) improvement of internal processes and procedures, 5) improvement of employee morale and motivation, 6) increase of on-time delivery to customers, 7) increase of customer satisfaction. Two items were selected to measure the business performance, namely increase of market share and increase of the organization's profit. The profit and market share are the two items that were most commonly used to measure a company's business performance (Han *et al*, 2007, Jang & Ling, 2008; Prajogo, 2011; Feng *et al*, 2008; Kong *et al*, 2009). The respondents were asked to indicate the perceived benefit level from ISO 9000 implementation for each performance measure items. The items were assessed on a five-point Likert scale, where one represented 'no benefits' and five represented 'very substantial benefits'.

3.5 SAMPLING DESIGN

The samples of this study consist of only Malaysian ISO 9000 certified construction organizations. According to Act 520 clause 25 (1), for carrying out and completing any construction works in Malaysia, all construction organizations, regardless of the scope of business or size of the organization, must register with the CIDB Malaysia. Table 3.1 shows the number of ISO

9000 certified construction organizations in each state with different grades mentioned, according to CIDB's ISO certified organizations directory dated 29 January 2011.

Table 3.1 Number of ISO 9000 certified construction firms, by Grade

Grade	G7	G6	G5	G4	G3	G2	G1	total
Wilayah Perseketuan	599	11	26	5	12	7	2	**662**
Selangor	431	6	22	5	4	7	1	**476**
Johor	122	5	8	1	4	4	0	**144**
Kedah	75	3	1	1	1	0	1	**82**
Kelantan	20	0	0	0	1	1	0	**22**
Labuan	3	0	1	0	1	1	0	**6**
Melaka	38	3	2	0	1	1	2	**47**
Negeri Sembilan	2	0	1	1	0	1	0	**5**
Pahang	14	2	0	1	0	0	0	**17**
Perak	46	1	3	0	0	2	1	**53**
Perlis	8	0	0	0	0	0	0	**8**
Pulau Pinang	131	5	7	1	4	5	0	**153**
Sabah	129	4	5	1	3	1	0	**143**
Sarawak	184	5	10	0	6	1	0	**206**
Trengganu	59	1	1	0	1	0	0	**62**
Malaysia	**1861**	**46**	**87**	**16**	**38**	**31**	**7**	**2086**

Source: CIDB Malaysia Official Portal

A total of 2086 ISO 9000 certified construction organizations were listed in CIDB's ISO certified construction organizations directory on 29 January 2011. Based on the minimum sample calculation formula from Saunders, Lewis & Thornhill (2007), the minimum sample size for this study shall be 324 number of ISO 9000 certified construction organizations with 95 per cent level of certainty and 5 per cent margin of error. The response rate for the survey in Malaysia is always below 20 per cent (Othman *et al*, 2001; cited by Zadry & Yusof, 2006). With an estimated response rate of 20 per cent, this study needs to have a larger sample size of 1620.

3.6 DATA COLLECTION PROCEDURE

Prior to the distribution of questionnaires, the pilot survey to review the clarity, relevancy and applicability of questionnaire was conducted with two quality management representatives (QMR) from two different ISO 9000 certified construction firms, one QMR from ISO 9000 certified manufacturing firm, one External Auditor from ISO 9000 accreditation body and one academic personnel with the experience of ISO 9000 implementation and Total Quality Management from the University of Malaya. Therefore, a total of five relevant field experts participated in the pilot survey. After conducting the pilot survey and gathering the comments, the questionnaire was slightly amended and the Mandarin version of the questionnaire was prepared to cater for the Mandarin speaking respondents in the Malaysian construction firms. Both versions of questionnaires were distributed to the targeted respondents and respondents can then select any version of the questionnaire to complete and return.

The respondents for this survey must be the quality management representative (QMR) of ISO 9000 QMS or the manager or higher level personnel who are responsible for the implementation of ISO 9000 QMS. Similar to the reason for Han *et al* (2007) to select the ISO 9000 champions as the respondent of each organization, these are the persons who understand the implementation process of ISO 9000 QMS the most and they would know better the impact of ISO 9000 on company performance.

The samples of this study were randomly selected from the CIDB's ISO 9000 certified construction organizations directory. Based on the contact details of the companies in CIDB directory, the questionnaires of this study were sent out by email or fax to selected organizations. As done by Kong *et al* (2010), questionnaires were sent out with care to avoid sending out multiple questionnaires to those organizations which have the same address or are under the same group of organizations. A total of 1650 questionnaires were successfully distributed from 1 March 2011 to 10 April 2011. Only 130 questionnaires were returned back and the response rate is only 8%. After the verification, only 125 out of 130 questionnaires were valid for analysis. The number of valid return questionnaire is less than the minimum required sample size of 324. However, according to some previous ISO 9000 studies, locally or overseas, which focused on the construction industry, their sample sizes were also small. In 100 distributed questionnaires, Lo (2002) and Lau & Tang (2009) received 25 and 40 valid questionnaires back respectively for their studies on the Hong Kong ISO 9000 certified contractors. In a sample of 125 Hong Kong ISO 9000 certified contractors, Dissanayaka *et al* (2001) collected 33 questionnaires back. In the study by Kong *et al* (2010), 456 questionnaires were sent out to the Malaysian ISO 9000 certified organizations within the value chain of construction industry, including 303 contractors, but only 108 questionnaires were returned back. Therefore, it is reasonable for this study to carry out the empirical analysis with 125 valid collected questionnaires.

3.7 DATA ANALYSIS TECHNIQUES

All the collected data was keyed into the computer and Statistical Package for Social Scientists (SPSS) was used for analyzing the data.

3.7.1 SCALE RELIABILITY AND VALIDITY

Before carrying out the descriptive analysis for variables and regression analysis for hypotheses, reliability and validity tests were conducted for the measurement of studied variables. These tests are used to assess the goodness or quality level of the survey instrument being developed and to make sure the instruments truly measure the variables that are set out to be measured and with accuracy (Sekaran, 2003; Feng *et al*, 2008; Jang & Lin, 2008;). With the necessary reliability and validity tests, it can avoid the important items of measure from being left out and to exclude those irrelevant items of measure from the developed survey instrument (Sekaran, 2003). In this study, an inter-item consistency reliability test and two validity tests which are content validity and construct validity were performed.

The inter-item consistency reliability test is to examine the degree of consistency with which multi-items measure a variable (Sekaran, 2003; Feng *et al*, 2008). The most popular method for measuring the internal consistency of all the items in each variable is Cronbach's alpha reliability test (Sekaran, 2003, Coakes, Steed & Ong, 2010). The range of Cronbach's alpha reliability coefficients is between 0.00 and 1.00. The reliability coefficients that have a value closer to 1.00 are better and the reliability coefficients that are lower than 0.6 are considered poor reliability of measurement (Cavana, Delahaye and Sekaran, 2001).

The content validity test is to make sure the items for measuring the variables are adequate and are representative to tap the variables. The questionnaire for this study was developed not only based on the global survey of Corbett & Luca (2002) and Pan (2003) but also based on the studies of Low & Yeo (1997), Dissanayaka *et al* (2001), Feng *et al* (2007), Zaramdini (2007), Jang & Lin (2008), Lin & Jang (2009) and Prajogo (2011). Therefore, it is expected that the survey instrument used in this study will have a very strong content validity. The survey instrument was also sent to the relevant field experts for comment before the formal survey was sent out for data collection.

The construct validity test is to determine whether the results from the use of survey instrument actually measure the variables that the survey instrument has been designed to measure. The principal component factor analysis in SPSS was used to evaluate the construct validity of variables. If all the items in a variable have a component loading of more than 0.5, it is considered that the measure of the variable has a good construct validity (Hair *et al*, 1995; cited by Feng *et al*, 2007; Anderson & Gerbing, 1988; cited by Prajogo, 2011).

3.7.2 DESCRIPTIVE STATISTICS

Descriptive statistics were used to explore some background information of the organizations and respondents of the organizations participating in this study. In addition, descriptive statistics, used in this study for the studied variables and their measure items, included means, standard deviations, normality and bi-variate correlation. By using bi-variate correlation analysis,

any significant linear relationship between any two of the studied variables can be explored and be used to explain the regression (Naser *et al*, 2004).

3.7.3 REGRESSION ANALYSIS

For examining hypotheses H1a and H1b, a multiple regression analysis was used to test the relationship between a single dependent variable (implementation effort of ISO 9000 QMS) and two independent variables (internal motivation for certification and external motivation for certification). The strength of the effect of internal motivation for certification and external motivation for certification on the implementation effort of ISO 9000 QMS can be compared from the regression analysis.

For examining hypotheses H2a and H2b, two simple regression analyses were used to test the relationship between the single independent variable and the single dependent variable. The results of the two simple regression analyses can show whether the same independent variable has any significant effect on the two different dependent variables and also what the strength of this effect is.

For examining hypothesis H3, three testing steps using the regression and calculation of z score presented in the studies by Baron & Kenny (1986) and Frazier, Tix & Barron (2004) were performed for testing the mediating effect of the implementation efforts of ISO 9000 QMS on the relationship between motivation for certification and organizational performance. The three testing

steps using regression analyses and the requirements for proving the mediating effect are shown in Figure 3.2.

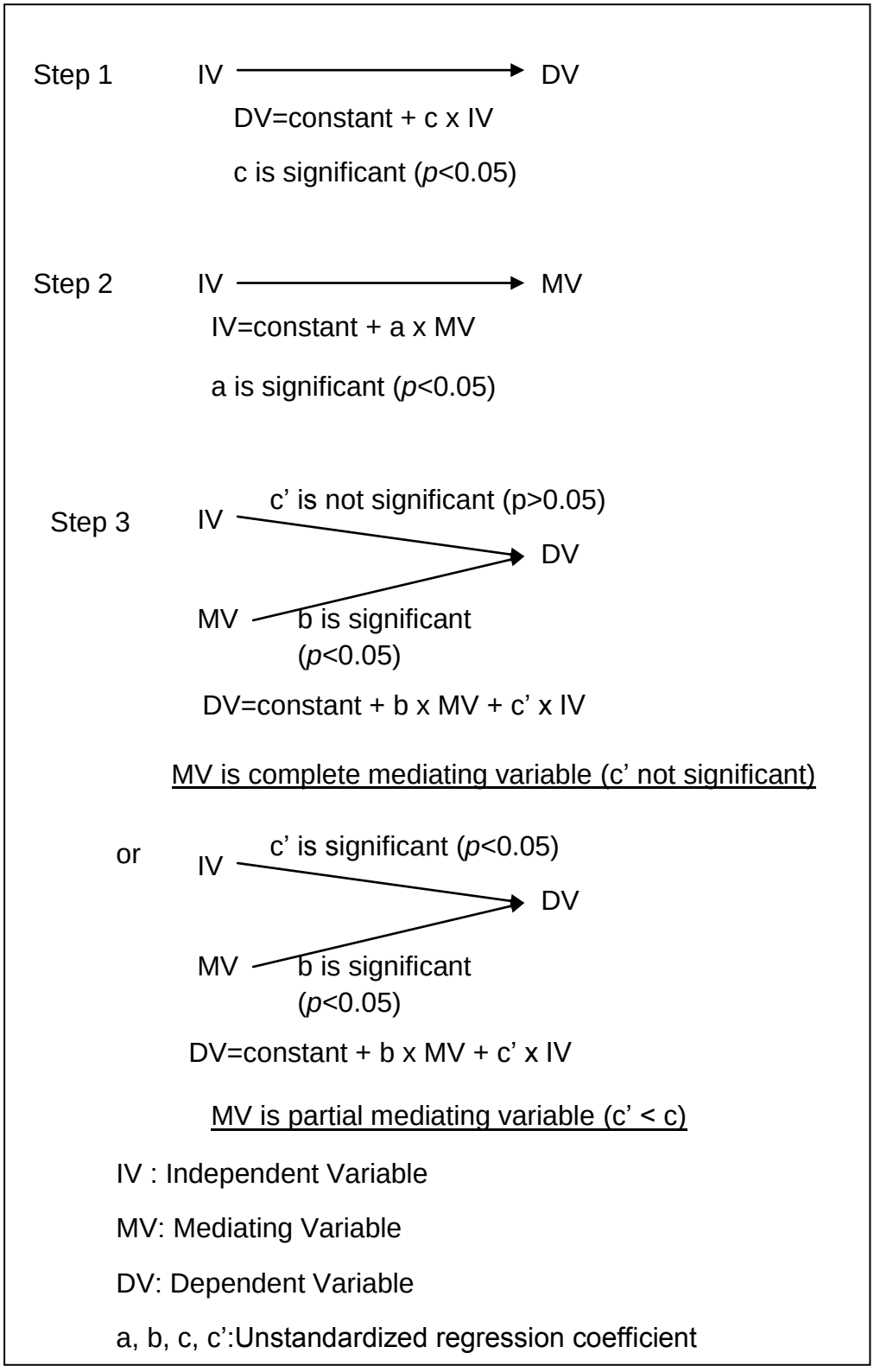

Figure 3.2 Testing of Mediating Effect and Requirements (Source: Baron & Kenny, 1986; Frazier *et al*, 2004)

The z score of mediating effect was calculated based on the equation as highlighted in the studies by Baron & Kenny (1986) and Frazier *et al* (2004):

$z = \frac{ab}{\sqrt{b^2 sa^2 + a^2 sb^2 + sa^2 sb^2}}$, where a and b are unstandardized regression coefficients (as shown in Figure 3.2) and sa and sb are their standard errors. There is a significant mediating effect ($p<0.05$) if z score of mediating effect is greater than 1.96.

For examining the moderating effects of the organization size and length of ISO 9000 implementation in hypotheses H4 and H5 respectively, two separate hierarchical regression analyses were conducted. Both hierarchical regression analyses had three steps for the entries of independent variable, moderator variable and interaction effect variable (product term of independent variable and moderator variable). The independent variable was entered in Step 1. The moderator variable was entered in Step 2. The interaction effect variable was entered in Step 3. The organization size is a categorical variable and categorized based on the number of full time employee. The dummy coding must be conducted for creating dichotomous variables to represent the categorical variable entering the regression analysis (Frazier *et al*, 2004). Based on the data collected from the questionnaire survey, there are only three categories of organization sizes which are small (5-19 full time employees), medium (20-50 full time employees) and large (over 50 full time employees). Therefore, two dichotomous variables were constructed for representing the variable of organization size to enter the hierarchical regression analyses. For avoiding the multicolinearity problem in

both hierarchical regression analyses of testing moderating effects, the interaction effect variables were generated by multiplying the standardized independent and moderator variables (Haar & Spell, 2008; Prajogo, 2011). Only when the standardized Beta coefficient of interaction effect variable is at the significance level (*p*) less than 0.05, the proposed moderator variable has a significant moderating effect on the proposed relationship. These moderating effect tests can further improve the understanding of the relationship between independent variable and dependent variable (Frazier *et al*, 2004). According to Frazier *et al* (2004), the hierarchical regression analysis is better than the comparative analysis for investigating the moderating effect of a variable (continuous variable or categorical variable).

All the relevant results from the above data analysis are presented in next chapter.