

## **Chapter 3**

### **Research Methodology**

#### **3.0 Introduction**

This chapter covers the research methodology and the design of the study. The theoretical framework developed for this study will be explained and discussed in depth. The research hypotheses will also be formulated and put forth. The operationalization of the research will be explained. The methodologies used and the actual process followed to conduct the research ie. for sampling, measuring instruments, data collection and analysis shall be discussed at length and justified appropriately in this chapter.

#### **3.1 Theoretical Framework of the Study**

The theoretical framework proposed encapsulates the questions and objectives as stipulated earlier in Chapter 1 of this study. The theoretical framework which forms the foundation of this research study is presented in Figure 3.1 below.

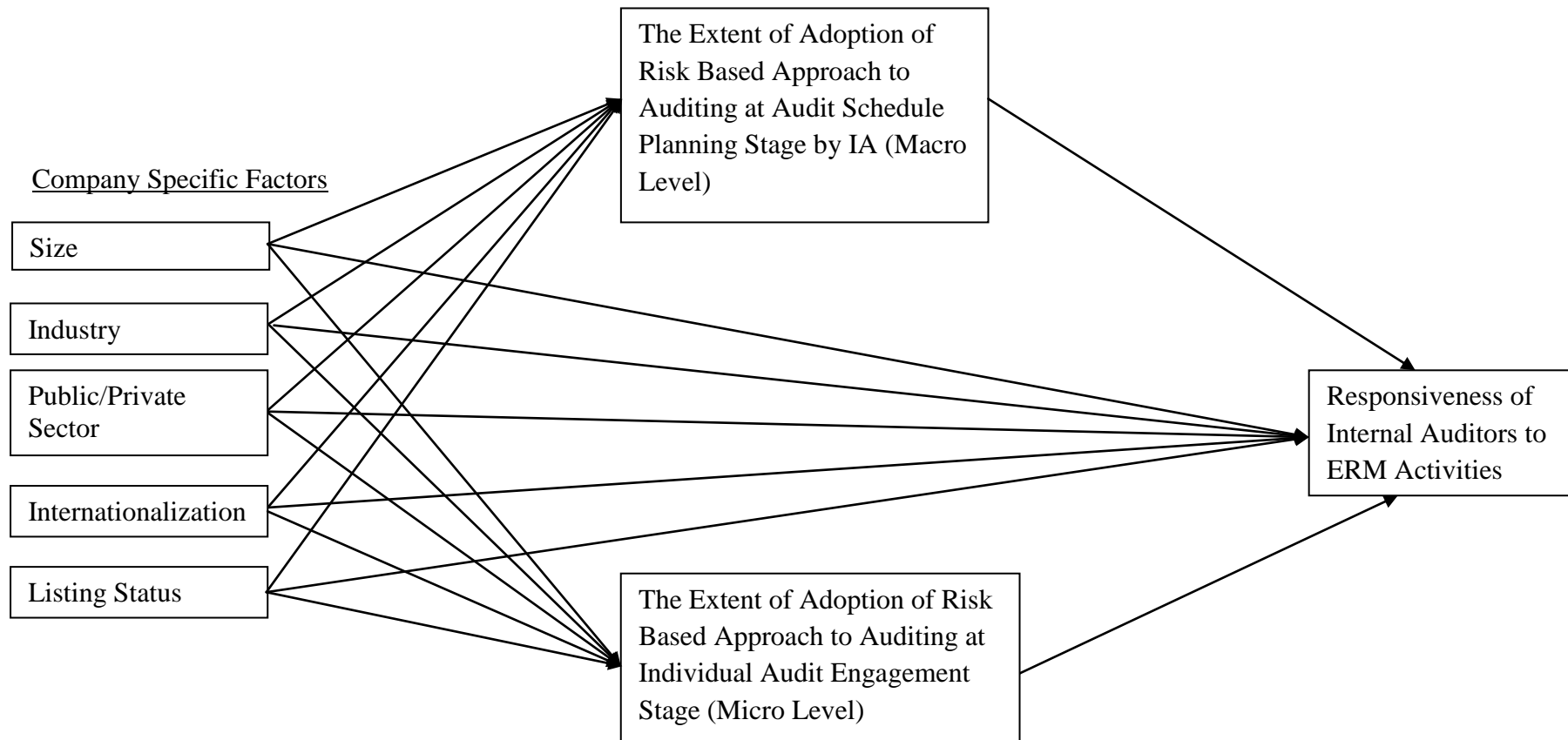


Figure 3.1 Theoretical Framework

*The above framework is further subdivided into 3 parts. See*

- (1) Figure 3.2;
- (2) Figure 3.3;
- (3) Figure 3.4

Following from the literature review in the previous chapter, various determinants have been identified with their proposed relationships represented in the theoretical framework developed in figure 3.1.

### *3.1.1 Company Specific Factors Influencing the Adoption of Risk Based Auditing (RBA) Approach*

Company specific determinants or factors that influence the adoption of RBA approach by internal auditors were identified by Castanheira, Rodrigues & Craig (2009) in their study conducted on Portuguese entities. The company specific factors identified are i) size of the organisation; ii) the industry which the organisation is in; iii) the sector ie. public or private sector within which the organisation belongs; iv) the extent of internationalisation of the organisation and v) listing status. This study shall adopt the same factors and assess the influence of these factors individually on the adoption of RBA by internal auditors in the Malaysia context. The factors that influence the adoption of RBA by internal auditing shall be discussed in greater depth below.

### *3.1.2 Organisation Size*

RBA to internal auditing is found to have contributed to effective risk management in a study conducted by McNamee and Selim (1998). In fact, company size has been employed as a proxy to measure risk (Cheng and McNamara, 2000). With the size of organisation increases, the scope of its operation would also increase and the events that threatens the organisation are likely to be more varied and differ in nature, timing and extent (Beasley, Clune and Hermanson, 2008). The complexity of organisational controls

and the regulatory requirements imposed on it are also likely to increase (Mihret, James and Mula, 2010). Goodwin-Stewart and Kent (2006) found in their study of the Australian companies that the organisation size appears to have strong association internal auditing and risk management. Large companies are also found to be more likely to adopt integrated risk management processes than smaller companies (Colquitt et. al., 1999). It is also expected that larger organisations are likely to have greater internal audit presence (Carcello et. al., 2005).

### *3.1.3 Industry*

Some industries are more likely to influence the type of approach internal auditors adopt in their work. Financial industry is one of such industries due to the nature of its business activities. It is argued that the finance industry is more mature in terms of business risk management (Za'rate, 2001). Financial institutions are more likely to have greater resources invested in the internal auditing function (Wallace and Kreutzfeldt, 1991) since they are faced with significant regulatory and financial reporting risks (Bearsley et. al., 1999) as well as needing to comply with the Basel II Accord. Also, in a survey carried out in the Taiwan banking industry, over 60% of the respondents reported that their internal auditing activities were risk oriented (Shui & Yeh, 2008). In this respect, it is expected that the finance industry would have a higher propensity to adopt the RBA to internal auditing.

### *3.1.4 Public or Private Sector*

The objectives, operating practices and stakeholders of organisations could vary in different sectors due to different institutional pressures are applied in different sectors

(Mihret, James and Mula, 2010). With the ever increasing business competition in this globalised world, companies in private sector are under pressure to stay competitive and likely to go international in the effort to be profitable as in the case with many companies in Malaysia as compared to those in the public sector. These companies are exposed to high business risks and with the limited resources that they possess, they have to optimise the allocation of these limited resources amongst competing opportunities available. Internal audit could play a vital role to add value by helping the organisations to achieve economy, efficiency and effectiveness (Al-Twaijry et al., 2003) through providing consulting services and assisting in the management of risk faced by the organisation (Spira and Page, 2003). In this respect, private sector companies are more likely require to manage their risks effectively. On the same token, privately owned companies are more likely to adopt the risk based approach in developing internal auditing than public sector companies. RBA approach allows Internal auditing resources to focus on high risks that could materially affect organisation success (Colbert & Alderman,1995).

### *3.1.5 Internationalization*

Allegrini and D'Onza (2003) in their study examined risk assessment and internal auditing in Italian organisations, found variations in internal audit approaches among organisations. It suggests that the level of risk in an organisation may influence internal audit practices (Goodwin-Stewart and Kent, 2006). Therefore, as businesses increases in complexity, the nature, orientation and extent of internal auditing's work may be influenced. The companies that venture abroad for wider market for their products or services may be faced with risks of great diversity and increasing degree. Hence, companies that are part of an international group would be exposed to greater business

risks and are more likely to adopt an effective method to manage risks eg. risk based auditing approach (McNamee and Selim, 1998). Castanheir, Rodrigues & Craig (2009) in their study found that the adoption of RBA is statistically strong in international companies.

### *3.1.6 Listed companies*

It is widely recognised most financial and corporate scandals lie in the lack of a sound internal control system. As a result, corporate governance codes all around the world explicitly require disclosures by companies on the soundness of their internal control system. In US, the Sarbanes-Oxley Act under Section 404 requires annual reports to include a statement that Management is responsible for internal control as well as requiring an assessment to be reported of the effectiveness of the internal control structure and procedures for financial reporting (Allegrin, et. al., 2009). In Malaysia, corporate governance reforms have been incorporated in the Malaysia Code of Corporate Governance with similar mandatory disclosures by the Management have to be made as part of the Listing Requirements for companies listed in Bursa Malaysia (Che Haat, Rahman and Mahenthiran, 2008). Hence, with the close scrutiny by the stock exchange regulators as well as the regulatory obligations to identify principal risks and ensure implementation of appropriate control measures to manage the risks, it is more likely to encourage the practice of risk based approach for internal auditing amongst listed companies.

### *3.1.6 Responsiveness of Internal Auditor to ERM Activities*

International Professional Practice Framework, IPPF in its Practice Advisory 2100-4: Internal Auditing's Role in Organization without a Risk Management Process, encourages internal auditors to play a proactive consulting role in assisting with the initial

establishment a risk management process. Internal audit professional standards which adopt a risk based approach has drawn interest from the internal auditor profession in the enterprise risk management process (IASB, 2004). By virtue of the call to assume a proactive role in risk management particularly for those organisations without a risk management process to supplement the traditional assurance activities, internal auditors would find themselves more receptive to provision of consulting services related to risk management activities. After all, internal audit's use of a risk-based approach easily lends itself to an interest in the ERM process (Beasley, Clune and Hermanson , 2004). The internal auditor's opinion as to how the RBA would impact their involvements in ERM activities would serve as a good indication of their responsiveness to ERM activities. The guide issued by IIA position paper (2004) on internal auditing's involvement in 'Core', 'Legitimate' and 'Inappropriate' ERM activities should serve as a good indication of the extent of their involvements in ERM process. It is expected that the more extensive internal auditors adopt risk based auditing approach, the more responsive they are to participating in risk management activities. This lends themselves to greater actual involvements in risk management activities and the extent of this involvement is expected to be reflected in the degree of their participation in 'legitimate activities' and 'inappropriate activities' as opposed to just core risk management activities.

### **3.2 Research Hypotheses**

Figure 3.1 provided a diagrammatic representation of the overall theoretical framework discussed earlier. For ease of explanation of the relationships between variables involved, this theoretical framework can be broken down into 3 distinct parts. Figure 3.2

depicts the influence of the company specific factors identified on the extent of adoption of risk based auditing approach by the internal auditors

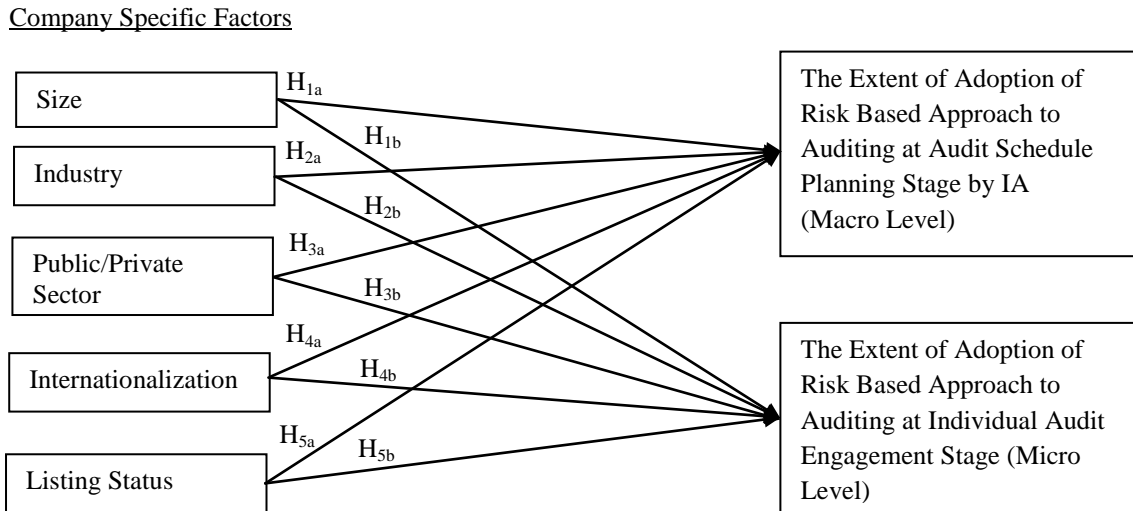


Figure 3.2 Company Specific Factors Impacting Adoption of Risk Based Auditing Approach (Part 1).

The objective of risk based internal auditing is to provide independent assurance to the board that there is a sound risk management framework within the organisation and risks that may affect the organisation's business objectives and strategies are being identified, managed and reduced to a level acceptable to the board. With the new definition of internal auditing, risk based internal auditing is viewed as an approach that can help to add value to the organisation in terms of risk management and corporate governance (IIA, 2003). The adoption of risk based approach in internal auditing covers both the planning processes of the audit scheduling ie. at the macro level as well as at the individual audit assignment or engagement which includes establishing of objectives for individual audit assignment, audit program design and testing, audit execution and reporting ie. at micro level. For organisations that adopt a risk based approach at micro level, the internal



auditing process should be based on 3 risk management concepts ie. the audit objective is to assess how management deals with risks; the audit is designed to test risk management techniques; and that the audit reporting to management is in terms of risk management principles (McNamee, 1997). Based on the diagrammatic representation in Figure 3.2, the hypotheses proposed on the company specific factors identified that influence internal auditors' adoption of the risk based approach shall cover both these levels. In this respect, the variables involved and the hypotheses to be examined for this research are as follows,

Independent variables:

1. Size of the Organisation,
2. Industry of the Organisation
3. Sector of the Organisation ie. Public or Private Sector
4. Internationalisation of the Organisation
5. Listing Status

Dependent variables:

1. The Extent of Adoption of RBA to Auditing at Audit Schedule Planning Stage by IA (Macro Level)
2. The Extent of Adoption of RBA to Auditing by Internal Auditors at Individual Audit Engagement Stage (Micro Level)

## Hypotheses

- H<sub>1a</sub>: The adoption of RBA approach for planning the audit schedule at macro level is positively associated with the size of the organization.
- H<sub>1b</sub>: The adoption of RBA approach for each individual audit engagement is positively associated with the size of the organization.
- H<sub>2a</sub>: There are more firms in the finance industry adopting RBA approach for planning the audit schedule at macro level than those in non-finance industries.
- H<sub>2b</sub>: There are more firms in the finance industry adopting RBA approach for each individual audit engagement than those in non-finance industry.
- H<sub>3a</sub>: There is a positive association between the adoption of RBA approach for planning the audit schedule at macro level and companies in the private sector.
- H<sub>3b</sub>: There is a positive association between the adoption of RBA approach for each individual audit engagement and companies in the private sector.
- H<sub>4a</sub>: The adoption of RBA approach for planning the audit schedule at macro level is positively associated with the internationalization of a company.
- H<sub>4b</sub>: The adoption of RBA approach for each individual audit engagement is positively associated to the internationalization of a company
- H<sub>5a</sub>: The adoption of RBA approach for planning the audit schedule at macro level is positively associated to companies listed in the Stock Exchange.
- H<sub>5b</sub>: The adoption of RBA approach for each individual audit engagement is positively associate to companies listed in the Stock Exchange.

The second part of the theoretical framework developed as represented by figure 3.3 examines the association between the adoption of RBA approach and the responsiveness of internal auditing to ERM related activities. It is expected that the extent of adoption of RBA approach would cause internal auditors would have a positive impact on their responsiveness to risk management activities due to their inclination to RBA approach.

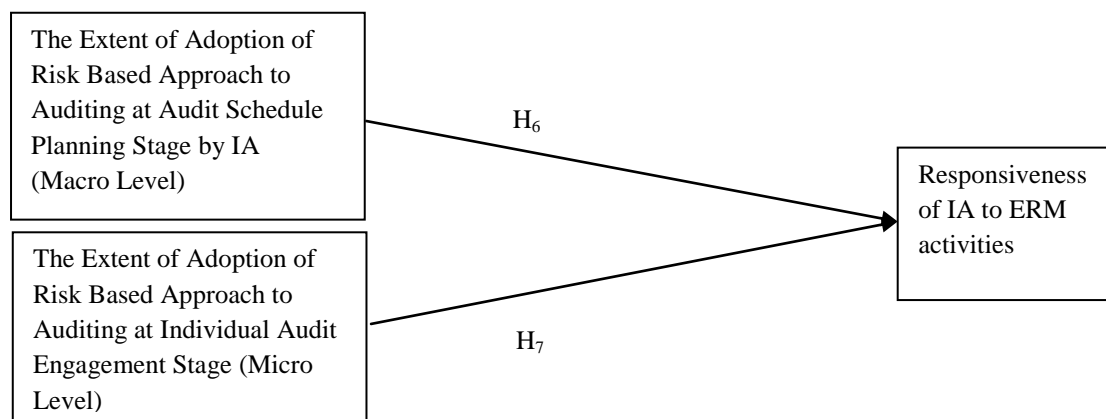


Figure 3.3 Relationship Between Adoption of RBA and Involvement in ERM Activities (Part 2).

Hence, the independent and dependent variables identified as well as the associated hypotheses developed are as follow,

Independent variables:

1. The Extent of Adoption of RBA Approach to Auditing at Planning Stage (Macro Level)
2. The Extent of Adoption of RBA Approach to Auditing by Internal Auditors at Individual Audit Engagement Stage (Micro Level)

Dependent variables:

1. Responsiveness of Internal Auditors to ERM Activities

Hypotheses:

Since there is a lacking of existing literature in the respect, it could be contended that there are no associations exist between the extent of adoption of RBA approach both at macro and micro levels and the responsiveness of IA to ERM activities as proposed in H<sub>6b</sub> and H<sub>7b</sub>. In this respect, null hypotheses are formulated as follows,

H<sub>6</sub>: There is no association between the extent of adoption of RBA approach by internal auditing at audit schedule planning stage (Macro Level) and the responsiveness of internal auditors to ERM activities.

H<sub>7</sub>: There is no association between the extent of adoption of RBA approach by internal auditing at individual audit engagement stage (Micro Level) and the responsiveness of internal auditors to ERM activities.

The third and final part of the theoretical framework developed as represented by figure 3.4 examines the association company specific factors ie. Size, Industry, Sector, Listing Status and Internationalisation, have with the responsiveness of internal auditing to ERM related activities. It is expected that would have a positive impact on their responsiveness to risk management activities due to their inclination to RBA approach.

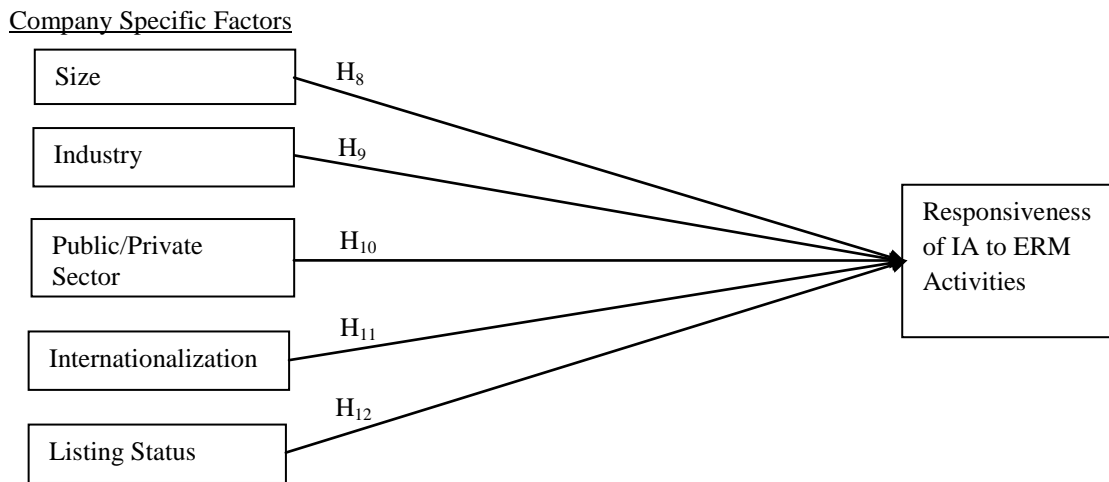


Figure 3.4 Association between Company Specific Factors and Responsiveness of IA to ERM Activities (Part 3).

Independent variables:

1. Size of the Organisation,
2. Industry of the Organisation
3. Sector of the Organisation ie. Public or Private Sector
4. Internationalisation of the Organisation
5. Listing Status

Dependent variables:

1. Responsiveness of Internal Auditors to ERM Activities

## Hypotheses

It is contended that due to the lack of resources in smaller organisations, internal auditors are more inclined to take a proactive role in ERM (Jackson, 2005). In this regard, the following hypothesis is proposed.

H<sub>8</sub>: There is a negative association between the size of the organisation and the responsiveness of IA to ERM activities.

Due to the higher risk exposures in the finance industry, internal auditors are greater responsibilities for core activities than other industries eg. manufacturing (Gramling and Myers, 2006) and IA should be more inclined to involvement in ERM activities in the finance industry more than other industries. However, since there is lack of previous literature found to support the above assertion, it is contended that internal auditor's responsiveness to ERM activities is not influenced by the industry which their organisation is in including those in the finance industry. Hence, it is proposed that,

H<sub>9</sub>: There is no association between the finance industry and the responsiveness of IA to ERM activities.

Similarly, due to the lack of literature to examine the impact of 'Sector', 'Internationalisation' and 'Listing Status' on IA's responsiveness to ERM activities, it is contended that their responsiveness to ERM activities is likely to be independent of the sector the organisation is located, whether the organisation is listed or not, and the internationalisation of the organisation's operations. 3 null hypotheses are therefore proposed as follows.

H<sub>10</sub>: The responsiveness of IA to ERM activities has no association whether the organisation is in private or public sector.

H<sub>11</sub>: There is no association between internationalisation of an organisation and the responsiveness of IA to ERM activities.

H<sub>12</sub>: There is no association between listing in the stock exchange and the responsiveness of IA to ERM activities.

### **3.3 Research Design**

With the development of the theoretical framework and the identification of the relevant variables, proper planning of the research design is paramount to ensure accuracy, confidence and generalisability of the study. The empirical objectives of this research are two-folds. Firstly, it is to examine whether the five company specific factors identified ie. independent variables, influence the adoption of RBA approach by the internal auditors in the Malaysia context both at macro and micro levels. Secondly, the research also seeks to establish if the extent of adoption of RBA approach for internal auditing would positively influence the responsiveness of internal auditors to ERM related activities. As the research undertaken in this study is descriptive in nature, the study seeks to describe the answers to questions enquiring the extent of the respondents' adoption of RBA approach to auditing as well as in the form of statements, enquired into their responsiveness to ERM activities and examining the hypotheses proposed.

The study undertakes a quantitative design approach. As commented by Leedy (1993), quantitative research is impersonally experimental, manipulating variables and

controlling natural phenomena, by constructing hypothesis and testing them against the hard facts of reality. It is most appropriate approach to describe the degree of relationship which exists between variables (Christensen, 1985) which this study seeks to examine. The study is conducted using the survey method where primary research data is obtained directly from respondents from organisations across various industries in Malaysia.

### **3.4 Sampling Design**

Using the general rule that the sample size should be at least ten times as large as the number of variables in the study, a pre-planned sample of 200 subjects was targeted taking into consideration of missing or incompleted answers as well as low response rate. The internal auditors working in the internal audit department at various establishments in Malaysia form the population from which the respondents were selected. The sample covered those holding various positions from Audit Assistants to Audit Managers to Chief Audit Executives in Malaysia across various industries.

The sampling procedure adopted in this study for data collection was convenience sampling method via questionnaire survey. The distribution of the questionnaire survey was administered by disseminating to the respondents via email ie. to the contacts of the researcher, researcher's supervisor and researcher's friends', as well as with assistance from the Malaysia's Institute of Internal Auditors (IIA), hardcopy questionnaires were disseminated to members during their internal auditing workshops and social group gatherings in the months of March 2011 and April 2011.



### **3.5 Instrument**

Questionnaire method was adopted as the main instrument for this survey. This method provides an efficient way to collect research data related to the variables of interests in a quick, structured and cost effective manner. The questionnaire design used for this research was adapted from the questionnaire used by IIA Research Foundation in a survey on the internal auditing's role in ERM in October 2005 (Gramling and Myers, 2006) as well as the questionnaire used by Castanheira, Rodrigues and Craig (2009) in their study of the factors associated with the adoption of risk-based internal auditing on Portuguese entities. Similar questionnaire to the one adopted for this research was used in an earlier coursework assignment by the researcher. Based on the responses from the initial questionnaire circulation, slight modifications were made to facilitate the measurement of variables and eliminate misunderstanding in the wordings and terms used. Closed questions were mainly used to avoid ambiguous interpretation as well as to make answer coding easier and to facilitate statistical analysis.

The structured questionnaire comprises 7 sections in total. Sections A and B of the questionnaire established the respondents' and their organisation's profiles, setting out the characteristics (factors) of the samples under study. Sections C and D are structured in a manner enabling the extent of adoption of risk based auditing in the planning of the annual audit schedule as well as planning, execution and reporting of individual audit engagements by internal auditors to be respectively ascertained. Section E establishes the status of risk management practice and implementation at the respondents' organisations whilst Section F measures the actual and ideal degree of involvement of internal auditors in risk management activities of the enterprise with a series of statement based on risk

management roles /activities set out in IIA's 'ERM fan'. A 5-point Likert-type scale ranging from "No Responsibility = 1" to "Total Responsibility = 5" is used for each of the statement. The final section ie. Section G serves to collect information about the respondents responsiveness to risk management activities / roles with a series of statements coined to measure the dependent variables. 6 activities were each selected from 'Legitimate' and 'Inappropriate' categories of the ERM fan to examine the responsiveness of IA to ERM activities. A 7-point Likert-type scale ranging from "Strongly Disagree = 1" to "Strongly Agree = 7" is used for each of the statement. Each degree on the Likert type scale is given a numerical value and the scale is chosen to measure the variables identified for the research in terms of their magnitude and orientation of the relationship proposed.

### **3.6 Data Collection and Analysis**

The collected data is firstly screened and where necessary is cleaned to ensure consistency as well as to check on outliers and missing values. Any questionnaire with more than 25% left blank on Sections B, C, D and G shall be discarded ie. excluded from the data set for analysis. Blank responses are handled as missing responses and would be ignored from the analysis. The data gathered is then analysed using the SPSS Windows Version 16.0. Data analysis techniques used to analyse the questionnaire data collected include descriptive analysis, normality test, reliability test, factor analysis to test the construct validity and multiple regression. Frequency distribution, means, standard deviations, skewness and kurtosis are tabulated for respondent's profiles and all the variables identified to describe the characteristics of the population and responses collected respectively. At the initial stage, normality test is carried out to determine if the variables examined are normally distributed as well as to ascertain if the parametric or non

parametric tests would be conducted on the study.. Multiple linear regression, discriminant analysis, bivariate correlation analysis and Pearson Chi Square for non parametric testing, are used to examine the relationships between the variables identified.

### **3.7 Validity and Reliability**

Reliability and validity in the measurement scales are very important. The internal consistency of indicators for a construct can be measured via reliability analysis (Hair et. al 1998). Reliability analysis is basically used to determine how well a set of items taps into some common sources of variance (Viswanathan, 2005) and it is often measured by Cronbach's coefficient alpha. Cronbach's coefficient alpha estimates the true variance to the sum of all elements in the variance-covariance matrix of measures which is equivalent to the observed variance (Nunnally and Bernstein, 1994, pp 212). Validity, on the other hand, measures the extent of which a set of measures or scale accurately represents the concept of interest. Content validity (Devellis, 2003 pp 49) was established during the preparation of the questionnaire by using the scales already validated in the literature.

There was no pilot study formally conducted on this research. The final version of the content of questionnaire was further verified by the researcher's supervisor and the technical manager of IIA Malaysia, before being forwarded to the respondents via the mode as explained earlier.

### **3.8 Conclusion**

Effectively, this chapter overall presents the theoretical framework developed for the research and linked up the research questions to the research methodology of this study. The research strategy and design, sampling and survey methods, research instruments and data analysis methods were also explained and duly justified in this chapter.

The next Chapter, Chapter 4, provides an analysis of the qualitative data obtained from the survey as well as to examine the results of the analysis in the light of the hypotheses proposed.