

CHAPTER SEVEN: RESEARCH DESIGN AND METHODOLOGY

If we knew what it was we were doing, it would not be called research, would it? A man should look for what is, and not for what he thinks should be. Information is not knowledge.

(Albert Einstein, in Einstein-quotes, n.d:n.p.).

7.1 INTRODUCTION

Research has been defined as the process of intellectual discovery which has the potential to transform people's knowledge and understanding of the world (Ryan, Scapens & Theobald, 2002). In this study, the research design and methodology were chosen in order to address the problem statement, which highlights the apparent diversity in socio-cultural frameworks between the Western and African environments. The research design refers to the blueprint or the way in which a study is structured to conduct it successfully (Babbie & Mouton, 2007:74). Research methodology highlights the methods and tools that are used during the research process. In response to the research problem statement, the research design and methodology also aimed to address the research objectives, research questions and research hypotheses of the study.

This chapter focuses on the research design, methodology and procedures that are used in this study. The chapter begins with background information about the study, details development of the conceptual framework, discusses the general quantitative and qualitative research design methods considered and explains in detail the development of the structured questionnaire that was used in the primary data collection.

Furthermore, the chapter details the selection of the population for the study and the criteria used, describes the profiles of the survey participants, discusses the sample selection and sampling procedures used, the quantitative instrumentation

used during the study, data validity and data reliability, the data collection methods, the statistical techniques that were used during data analysis, and ethical considerations, which include the approval of the survey and its instrument by the University of Pretoria Research Ethics Committee.

Finally, the chapter gives details on the tools that were used during the data analysis. Data analysis was conducted using the Statistical Package for Social Sciences (SPSS), Version 16.0. The analytical techniques used in the data analysis include descriptive statistics, bivariate correlation analysis, and multivariate analysis, which was conducted using exploratory factor analysis.

7.2 RESEARCH BACKGROUND

The study aimed at redesigning the Balanced Scorecard model so that it becomes more suitable for an African framework. In order to explore insights about overall corporate performance and the use of the Balanced Scorecard model, the researcher initially used an exploratory research approach in his earlier studies on these and related topics. An exploratory approach was chosen, based on the description by Babbie and Mouton (2007:80). There was general curiosity and a desire for a better understanding of the Balanced Scorecard model's application in an African environment. The study also provided a platform for validating the Balanced Scorecard model in a more extensive study that involved companies from the African continent.

Initially, exploratory research was conducted in Malawi to ascertain the general impact of the Balanced Scorecard model's perspectives on corporate performance as measured by economy, efficiency and effectiveness. During this earlier study, 112 large Malawian companies were visited through questionnaires and interviews with business executives. The results indicated that, in general, African organisations need a special orientation on management systems that are in line with an Afro-centric business environment.

The researcher also familiarised himself with the topic by means of a detailed literature review and analysis, an analysis of case studies and interviews with key informants on corporate planning and performance measurement systems. This was also based on Babbie and Mouton's (2007:81) advice that exploratory approach is necessary where the subject of study itself is relatively new. As Since its inception, the Balanced Scorecard model has aroused a lot of debate with regard to whether it is universally applicable, especially within the African context. Hence, the researcher undertook an extensive review of relevant and related theories and practices on the Balanced Scorecard model perspectives, including other pertinent literature, as already discussed in the literature review chapters (Chapters Two to Six). The researcher also interviewed people who have vast knowledge and experience of corporate planning and performance measurement systems, as recommended by Selltitz and Cook (1964). It was necessary for these new insights to be fully comprehended before embarking on the process of redesigning the Balanced Scorecard model for organisations based in Africa.

7.3 DEVELOPMENT OF A CONCEPTUAL FRAMEWORK OF STAKEHOLDER RELATIONSHIPS AND NETWORKS

In order to understand the African environment better, a conceptual framework of stakeholder relationships and networks was developed. The conceptual framework was developed on the basis of the researcher's understanding of business complexities and relationships. The researcher was also guided by the literature on corporate planning and performance measurement systems to understand the relevance of systems and the interconnectedness of their subsystems in a more scientific way (Capra & Pauli, 1995; Mitrof, Betz, Pondy, & Sagasti, 1974; Stead & Stead, 2004). The literature demonstrated that a scientific model must constitute a set of either qualitative or quantitative logical relationships that link relevant features of the reality that the study is investigating. After several revisions and updates on the interconnectedness and interdependence of business activities, the final conceptual framework of

stakeholder networks and relationships for the study was developed, as reflected in Figure 1 (on p. 8), in the first chapter of the study.

The conceptual framework was developed on the understanding that every business engages in a series of complex activities involving different constituents that are linked for organisational success. The conceptual framework recognises the interconnectedness and relationships of corporate activities with those of other stakeholders, and also of the relationships and interdependence of the stakeholders themselves. The conceptual framework depicts organisational interactions and stakeholder relationships at different systems layers.

Using different colours in an onion-like layering arrangement, there are four systems layers in the conceptual framework. The first is the corporate level, representing internal activities, including those of management and employees. The second is the industry level, representing the boundary within which similar businesses run by different companies operate. At the industry level, there are customers, shareholders, government, suppliers, regulatory bodies and competitors. The third is the Ubuntu community, which represents a larger grouping of all industries and where different final consumers reside. The fourth is the ecological (natural environmental) level for the largest ecosystems, where natural resources are sourced from. On a daily basis, and in a very complex way, different stakeholders interact with an organisation for different business transactions.

In the African context, government provides business financing, infrastructure and legislation, so that it is also recognised as a critical stakeholder. Other stakeholders include customers and final consumers, suppliers for production inputs, competitors for information and benchmarking, and local communities for labour and final consumers. The framework further recognises four sources of capital, namely financial capital from shareholders, debt capital from debt financiers, human resources capital from the labour force, and natural resources

capital from the natural environment. The four capital sources are integrated through the intellectual capital for the creation of maximum organisational wealth.

From the conceptual framework, a summary of the relationships of different stakeholders has been grouped into six strategic themes representing identifiable areas that would affect corporate planning and performance measurement within an African context strategically. The strategic themes have been identified as, first, the culture and relationships strategic theme; second, the stakeholder strategic theme; third, the processes and practices strategic theme; fourth, the intellectual capital strategic theme; fifth, the value creation strategic theme; and sixth, the corporate conscience strategic theme.

7.3.1 The relationships and culture strategic theme

This theme explains the culture and relationships that exist between an organisation and its stakeholders. In this context, (organisational) culture has been translated as referring to organisational values, norms or philosophies that govern the behaviour of people for organisational improvements (Flamholtz, 2001:271; Flamholtz, 2005:86; Gregory, Harris, Amenakis & Shook, 2009:674-675). At the organisational level, culture plays a big role in influencing corporate performance in terms of financial and other returns (Flamholtz & Kannan-Narasimhan, 2005:64; Otley, 2003:323). Thus, the organisational relationship with different stakeholders is the foundation of corporate success.

7.3.2 The stakeholder strategic theme

The stakeholder strategic theme captures the contributions that individual stakeholders make to the internal operations of an organisation, as perceived by the senior management team. Stakeholders make contributions towards the survival of an organisation in different forms, for instance, the natural environment provides the raw materials, whilst the local community provides the labour for production, and constitutes the final consumer of the organisation's products and services (Neville & Menguc, 2006:387-389; Rossouw, 2010e:137).

Therefore, the existence of stakeholder relationships has to be managed by balancing the interests of different constituencies, each with a genuine stake in the business (Drucker, 1993:80; Ferreira & Otley, 2009:277; Rossouw, 2010e:135-138). However, this stakeholder-centred and balanced approach to management has been distorted by an overemphasis on the maximisation of shareholders' wealth, forcing corporations to disregard other stakeholders and to focus on short-term financial gains which benefit only the shareholders. Thus, the Balanced Scorecard model, which follows a shareholder-centred approach, often alienates the very stakeholders that the business's activities depend on.

7.3.3 The processes and practices strategic theme

The processes and practices strategic theme has been developed to explain the level of relationships surrounding the internal business processes and practices of various organisations in terms of their economy, efficiency and effectiveness (the 3Es). Traditionally, the 3Es are regarded as determining factors of corporate performance (Neely *et al.*, 1995:80-85). For an organisation to achieve best performance, all 3Es must be individually present to the maximum. As Drucker (2006:3), "there is surely nothing quite so useless as doing with great efficiency what should not be done at all". This strategic theme focuses on factors within the business processes and practices of an organisation to show how such activities can be linked with corporate planning and performance measurement systems.

Recent developments indicate that there are emerging issues in business management related to ethics and equality, or what the researcher describes it as "an E of a fourth kind". Apart from undertaking business in an economical, efficient and effective way, corporate operations are also expected to be conducted in an ethical and equitable manner (Lutz, 2009; Newbert, 2003; West, 2009). Issues regarding ethics and equality are discussed under the **corporate conscience** strategic theme below).

7.3.4 The intellectual capital strategic theme

This strategic theme represents relationships in respect of intellectual capital attributes and corporate performance. The strategic theme describes the extent to which intellectual capital, which links all other sources of capital, is valued by an organisation as a strategic asset that can assist in its operations.

Intellectual capital is classified as the primary source: the other traditional factors of production such as land, capital and labour become secondary, for they can be obtained quite easily, provided that the organisation has specialised knowledge (Drucker, 1992:95). The intellectual capital strategic theme recognises the significant contributions that non-financial kinds of capital, especially intellectual capital, make towards corporate performance (Ghosh & Wu, 2007:229-231; Kong, 2008:728; Vergauwen, Roberts & Vandemaele, 2009:239). Intellectual capital acts as a catalyst for innovations in value creation processes and activities.

7.3.5 The value creation strategic theme

The value creation strategic theme encapsulates the critical ingredients for the value creation of an organisation. It is necessary to assess perspectives that managers feel underpin the creation of value for their organisation (Moeller, 2009; Zhang et al., 2010). The value creation strategic theme thus focuses on factors that could be considered critical in the maximisation of organisational wealth or value. Value creation implies that those who are involved in such activities should also have a share in the wealth allocation and distribution process (corporate conscience).

7.3.6 The corporate conscience strategic theme

This theme focuses on how the organisational wealth that is created is allocated and distributed to those who were involved in the process of value creation directly or indirectly. To be in line with the Ubuntu philosophy of caring and sharing (Lutz, 2009; Mbigi & Maree, 2005), and also that of the universal modern

thinking about business ethics (Newbert, 2003; West, 2009), the conceptual framework incorporates issues of business ethics, corporate governance, and corporate conscience as part of the corporate planning and performance measurement systems.

The corporate conscience strategic theme highlights the need for the organisational wealth that is created to be shared equitably amongst all the stakeholders that are involved in the value creation processes. Therefore, every corporation must have a conscience regarding its obligation to share the value created or resources with different stakeholders in an equitable and ethical manner (Carroll, 1979; Morgan, Ryo & Mirvis, 2009; Rasche & Esser, 2006:263-265). Contributions to corporate social responsibility in local communities, and the protection and enhancement of the natural environment are clearly areas where organisations can show their corporate citizenship and corporate conscience.

The six strategic themes as discussed above elaborate on the conceptual framework that highlights the social interconnectedness and interrelationships that exist between an organisation and different stakeholders in an African context, where such solidarity of members of the stakeholder groups is considered paramount for the success of an organisation (Mangaliso, 2001; Mbigi & Maree, 2005). Other determining factors include the socio-cultural underpinnings of local communities, such as the African Ubuntu philosophy, direct government interventions in the form of the provision of business infrastructure, business financing through grants and debts, reliance on debt providers from other financiers as a major source of business capital, and the protection of the natural environment. It is the socialist nature of such relationships that makes the African environment different from Western society.

The six strategic themes of the conceptual framework as discussed above formed the foundation of this study. Thus, the research design and methodology are premised on the conceptual framework and its six strategic themes.

7.4 RESEARCH DESIGN

This study is based on the primary (field survey) data collection that was conducted at the start of the study period. Primary data represents original data that is collected by the researcher for the purpose of his or her own study (Welman, Kruger & Mitchell, 2005:149). There was a need to select an appropriate research methodology for this study carefully in order to satisfy the information needs of the study (Babbie & Mouton, 2007:72-80). Thus, there was proper selection of the research methods used for data collection and data analysis in this study. This study used a quantitative research method – this choice is justified in detail below.

There are two distinct research approaches involving the collection of data in any research project – these are the qualitative and quantitative research approaches (Welman *et al.*, 2005:6). Quantitative and qualitative research methodologies are governed by different paradigms in the social studies.

7.4.1 Qualitative research approach

The qualitative research approach is associated with the interpretive social sciences paradigm, where forms of investigation are based on the significance of the subjective, experiential realm of human beings. Such reflection is the province of phenomenological reports (Babbie & Mouton, 2007:53-58). Qualitative research provides avenues that can lead to the discovery of the deeper levels of meaning and understanding of the participants. Qualitative research captures what people say and do as a product of how they interpret the complexity of their living world in the real sense (Bryman & Bell, 2007; Ryan *et al.*, 2002; Welman *et al.*, 2005). The qualitative research method also enables the researcher to comprehend the social events from the participants' perspective or understanding.

The qualitative research method draws on data collection through such methods as participants' observations, in-depth interviews with individuals or focus groups

(Babbie & Mouton, 2007). Because of its underlying paradigms, the qualitative research method is subjective – it relies heavily on the texts and discourses of the participants under study. A qualitative research method would usually involve a small number of participants in the research process, as a result of the in-depth gathering of information that is required for the study (Hofstee, 2006).

The qualitative research method is limited in several respects. A major limitation of qualitative research is its inability to use large samples representative of the targeted population. Because of the small number of participants that can be reached in in-depth surveys, qualitative research does not presume to represent the wider population (Babbie & Mouton, 2007; Bryman & Bell, 2007; Hofstee, 2006). It can also be argued that the qualitative research method would be applicable for a smaller geographic coverage where the participants would be concentrated in that small geographic area, which is not the scenario in this study. Thus, qualitative research enables researchers to present data in snapshots of the participants under study.

Another important limitation of qualitative research method is that it requires a considerable amount of time and financial resources for the data collection, data analysis of research findings and interpretation of results (Babbie & Mouton, 2007). The researcher has to invest a lot of time and resources in research settings in order to examine and holistically aggregate the human interactions, responses, reactions and activities of different participants, who usually have varied responses and behaviours. Furthermore, qualitative research is subjective, and the reports are not presented in a statistical manner, but rather adopt a more descriptive and narrative style. Consequently, qualitative research was not suited for the current study.

Generally, there has also been a problem of adequate validity and reliability in qualitative research methods. Because of the subjective nature of qualitative data and its origin in single contexts, it is difficult to apply conventional standards of reliability and the validity tests that are provided by many computer programs

such as SPSS (Babbie & Mouton, 2007; Bryman & Bell, 2007). Participants' responses in the form of contexts, situations, events, conditions and interactions cannot be replicated to any extent, as they can change any time. Generalisations on the research findings cannot be made to a wider context than the one studied with any degree of confidence. The unique attributes for each participant, coupled with the subjectivity of the researcher's judgement, are not amenable to the usual scientific and objective criteria of evaluating validity.

Based on the above limitations, many scholars describe the qualitative research method as not being empirical. Nevertheless, the argument is not true, since the term "empirical" has nothing to do with figures or the manipulation of variables, but refers instead to whether phenomena are capable of being found in the real world and assessed by means of the senses (Welman *et al.*, 2005; Babbie & Mouton, 2007). Because of the inherent limitations of qualitative research methodology discussed above, the researcher preferred to rely on quantitative research, targeting participants from different African countries and reporting objectively on the data in a scientific manner, and ascertaining the validity and reliability of the data statistically.

7.4.2 Quantitative research approach

A quantitative research approach is based on the philosophical approach known as logical positivism, which is a common paradigm in the social sciences (Babbie & Mouton, 2007; Saunders, Lewis & Thornhill, 2003; Welman *et al.*, 2005). The positivist approach underlies the natural scientific method in human behaviour research and holds that research must be limited to what one can observe and measure objectively – that which exists independently of the feelings and opinions of the participants. This positivist paradigm adopts a deductive approach to the research process. Within the framework of the social sciences, quantitative research commences with theories, and research questions or hypotheses about a particular phenomenon, gathers data from a real-world

setting and then analyses that data statistically to support or reject the stated research hypotheses (Field, 2009; Ryan *et al.*, 2002; Welman *et al.*, 2005).

In quantitative research, a deductive theory approach is used to guide the design of the study and the interpretation of the results (Field, 2009; Welman *et al.*, 2005). The overall objective is to test and verify a theory, rather than to develop one. Thus the theory offers a conceptual framework for the entire study, also serving as an organising model for the research questions or hypotheses and for the entire data collection procedure (Babbie & Mouton, 2007; Cooper & Schindler, 2006). A quantitative research method abstracts data from the participants into statistical representations, rather than textual pictures, of the phenomenon. The entire research process is objectively constructed and the findings are usually generalised to represent the entire population under study.

A study qualifies for a quantitative research method when there is an emphasis on the quantification of constructs, because the researcher believes that the best or only way of measuring the properties of phenomena is through quantitative measuring, achieved by assigning numbers to the perceived qualities of things (Babbie & Mouton, 2007:49). A quantitative approach may also be applicable where variables play a central role in describing and analysing human behaviour, also referred to as variable or correlation analysis. However, a correlation between variables does not necessarily imply any causality of that correlation. Finally, the quantitative approach can be deployed where sources of error can be controlled through statistical controls, such as multivariate analysis.

The main strengths of the quantitative approach lie in precision and control. Control is achieved through the sampling and design techniques, and the precise and reliable quantitative measurement of data collected. A further strength is that experimentation can lead to statements about causation, since the systematic manipulation of one variable can be shown to have a direct causal effect on another when other variables have been eliminated or controlled for (Babbie & Mouton, 2007; Field, 2009). Furthermore, hypotheses are tested using a

deductive approach, and the use of quantitative data permits statistical analyses to be conducted (Cooper & Schindler, 2006; Welman *et al.*, 2005). Thus, the quantitative research method provides answers which have a much firmer basis than a layperson's common sense, intuition or opinion.

When researchers use a quantitative research methodology, they should also take cognisance of a number of criticisms, as reported by some scholars. Many researchers are concerned that the scientific quantitative approach fails to distinguish people and social institutions from the natural sciences (Schutz, 1962). Thus, they argue that the quantitative research approach denigrates or ignores human individuality and people's ability to think independently (Hofstee, 2006). For instance, an analysis of relationships between variables creates a static paradigm of social life that is independent of the lives of human beings (Blumer, 1956:685). Correlation analysis omits the process of interpretation or definition that is associated with human groups, including their behaviours at a particular time.

Furthermore, the quantitative research method is mechanistic, in that its ethos tends to exclude notions of freedom, choice and moral responsibility (Cicourel, 1964). Quantification can become an end in itself, rather than a human endeavour seeking to explore the human condition. A quantitative research method fails to take account of the unique ability of people to interpret their knowledge and experiences, construct their own meanings and act on these (Babbie & Mouton, 2007; Hofstee, 2006). The measurement process is said to claim an artificial and spurious sense of accuracy and precision; and its measures are assumed rather than real (Cicourel, 1964:108). It is worth noting, moreover, that people do not interpret key terms in exactly the same way. Thus, a scientific approach cannot in fact be totally objective, since subjectivity is involved in the very choice of a problem as worthy of investigation, as well as in the interpretation of the research findings. A reliance on instruments and

procedures can hinder the connection between research and everyday life (Cicourel, 1982).

However, based on the ability of statistical paradigms to test the research hypotheses about a particular phenomenon empirically and report the results in a more scientific manner, a quantitative research method has been used in this study to analyse the data and statistically support or reject the stated hypotheses. A quantitative method, in the form of a structured questionnaire, enabled the researcher to achieve wider coverage of participants in different countries in Africa without physical contact. The wider and deeper coverage of the research raised confidence in the research sample, as suggested by Hofstee (2006:133). Thus a bigger representative sample was achieved through quantitative research. Finally, the questionnaire administration also enabled the study to offer confidentiality to respondents; and it has generally been easier to analyse and turn the research findings into quantitative results.

The quantitative research method also met the ten-point criteria for selecting a proper method for a study, as recommended by Hofstee (2006:110-111):

1. The quantitative method covers and addresses issues raised in the problem statement. The problem statement has been adequately considered through the quantitative method and thus achieves completeness in data provision.
2. The quantitative method validates research hypotheses that have been developed to address the research problem statement. The method enabled the researcher to draw reliable conclusions from the primary data collected during the study.
3. As a university scholar and statistician, the researcher is familiar with the quantitative research methods that were employed during the study.
4. In the study, reliability of data was readily confirmed through statistical measurements such as Cronbach's alpha coefficient, as discussed below.

5. The formulated questionnaire statements use Likert-scale ratings and these statements also form variables of the study that were analysed by using SPSS Version 16.0.
6. Through the use of the survey instrument (a structured questionnaire) that was administered in electronic and hardcopy formats, it was easy to get data from different participants in different countries in Africa.
7. The quantitative research method used in the study also enabled the researcher to comply with the University of Pretoria's Research Ethics Committee's requirements, as shown in the approval and clearance letter from the Committee (see Appendix D).
8. The quantitative method also allowed the researcher to reach many participants from different geographic areas in Africa without physically meeting them, by means of postal services and email. The data collection was therefore affordable without compromising on the quality of the data collected.
9. Research participants were also able to respond within a period of eight weeks (two months), which was acceptable within the timeframe of the study.
10. Finally, the quantitative research method also enabled the researcher to analyse the data that was collected and to report the findings in the study.

7.5 DATA COLLECTION METHODS USED IN THE STUDY

This study depended on the primary (field survey) research methods for data collection. In the literature review, the researcher also used secondary (desk) research methods to supplement the primary data collected.

7.5.1 Primary research methods for data collection

The primary data collection method was a field survey methodology, using correlational research design. A cross-sectional (correlational) research design studies some phenomenon by investigating different constructs at a single time (Babbie & Mouton, 2007:92-93; Welman *et al.*, 2005:94). Exploratory and

descriptive studies are often correlational in nature. Generally, correlational research provides researchers with a very natural view of the research questions they are investigating, because they do not influence what happens during data collection and the variance of measures of variables is thus unbiased (Field, 2009:12). When a correlational design is used, a single group of the unit of analysis is obtained, preferably randomly. Thereafter, each instrument is measured by using different variables at more or less the same time. The relationship between these variables is then statistically analysed.

The inherent problem with correlational research designs is that they are time-constrained, in that their conclusions are based on observations made at only one time, creating a snapshot of the issue at hand only (Babbie & Mouton, 2007:92). By contrast, longitudinal studies are designed to permit researchers to observe constructs over an extended period. A longitudinal research design involves examining the same group at different time intervals (Welman *et al.*, 2005:95). Longitudinal studies are relevant when a researcher wants to investigate changes due to the passage of time and the sample period may extend from weeks to years of the events under review. However, longitudinal studies can be difficult in quantitative studies such as large-scale surveys. By their very nature, longitudinal studies are time-consuming and therefore expensive undertakings (Welman *et al.*, 2005:96; Babbie & Mouton, 2007:93)

This study is basically about the relationships of different variables, as reflected in the conceptual framework (see Figure 1, on p. 7). Thus, the study was conducted at a single point in time using a correlational research design, by means of the administration of a structured questionnaire (see Appendix A). A structured questionnaire was designed on the basis of the literature review, the research problem, the research objectives, the research questions, and the research hypotheses. The main focus of the survey was the relevance of issues surrounding the application of the Balanced Scorecard model within an African framework.

A structured questionnaire was chosen because of the strengths of this method. A structured questionnaire allows all the participants to respond to the same statements, as participants are offered the same options on each statement (Hofstee, 2006:132). Open-ended questions, which allow respondents to answer in their own words, were avoided in the design of the questionnaire. The avoidance of open-ended questions was necessitated by the reality that people differ in their ability and willingness to write answers and that open-ended questions can be difficult to interpret statistically.

Furthermore, using a structured questionnaire allowed the researcher to reach out to more participants in more different areas than would be the case if personal interviews and personal observation methods were used (Hofstee, 2006:133). That is why the researcher was able to reach several participants from different countries in Africa. A structured questionnaire also provides confidentiality to the respondents to enable them complete the questionnaire honestly; and its use also tends to increase the response rate (Welman *et al.*, 2005:153). Finally, a structured questionnaire is generally easier to analyse statistically and simplifies turning the data analysis into quantitative results that can be used for decision-making.

One of the weaknesses of structured questionnaires is their lack of in-depth data collection from participants, as the researcher does not physically interact with or even observe the participants (Hofstee, 2006:133). However, the researcher has in-depth knowledge of Africa's socio-cultural underpinnings, as he has interacted with different Bantu-speaking people from across Africa. In addition, the researcher is a university scholar who has majored in strategic management and finance and had industrial work experience before he joined the university. Moreover, the primary data collection method was supplemented by the secondary data collection method to achieve completeness of data collection.

7.5.2 Secondary research methods for data collection

To supplement the primary data, secondary data was used in the form of the data already available, as collected through desk research. Secondary research data is data found in primary and secondary resources that already exist, as information has already been collected by individuals or agencies and institutions other than the researcher him- or herself (Babbie & Mouton, 2007; Field, 2009; Welman *et al.*, 2005). Secondary data, which formed the literature review, was collected from different sources, including stock exchanges, registrars of companies, companies' published annual reports, organisational constitutions, national statistical offices, government publications, the Internet, university publications, chambers of commerce and industry from different countries, and other academically accepted sources.

During the study, the researcher also physically and/or electronically collected literature on various African countries including Malawi, South Africa, Lesotho, Swaziland, Mauritius, Mozambique, Egypt, Namibia, Botswana, Zambia, Zimbabwe, Tanzania, Uganda, Nigeria, Ghana, Eritrea, the Seychelles, Sudan, Libya, Djibouti, the Democratic Republic of Congo, Burundi and Kenya.

7.6 THE STRUCTURED QUESTIONNAIRE (LIKERT SCALE METHOD)

A Likert scale survey questionnaire was used as the main instrument to gather quantitative data for this study. The questionnaire was designed around a range of formulated statements as a means to explore respondents' perceptions of a wide range of corporate planning and performance measurement systems. A Likert scale provides a measurement technique based on standardised response categories (Babbie & Mouton, 2007:160). This kind of questionnaire has also been used by other researchers on corporate performance and measurement systems or similar studies, including those of Flamholtz (2005) and Kennerley & Neely (2002a).

A Likert standard scale provides social scientists and other researchers with a tool for measuring the perceptions of participants on perspectives surrounding issues such as corporate performance in different industries in the commercial sector. Used consistently in the measurement instrument, the Likert standard scales provide a valid basis for adequate comparative analysis of the data collected (Babbie & Mouton, 2007; Cooper & Schindler, 2006; Dillman, 2000). The development of a scale of this kind responds to the call for the establishment of standardised instrumentation for use in business management research.

The survey targeted senior and middle executives in various organisations in Africa, with the main focus on Malawian and South African companies, so it was necessary to tailor the questionnaire to make it as user-friendly as possible. In order to do so, the researcher formulated statements to which the participants had to respond by using nominal settings (Middle/Senior Management, Yes/No) and interval settings (based on the Likert-style rating scales, with the rankings signifying the degree of agreement, ranging from a scale of “1” referring to “Strongly Disagree” to a scale of “5” referring to “Strongly Agree” on a five-point rating scale of the structured questionnaire). A five-point scale was used to assess the validity of the extent of agreement about statements that were formulated on issues surrounding corporate planning and performance measurement systems. The full questionnaire is shown in Appendix A.

In Likert scales, no judges are used to rank the scale statements, as it is assumed that all participants will perceive “Strongly Agree” as expressing greatest favour or agreement towards the attitude statements, as opposed to “Somehow Agree” and “Strongly Disagree” (Babbie & Mouton, 2007; Saunders *et al.*, 2003; Welman *et al.*, 2005). The statements were framed in such a way that some of the statements could be expressed positively and some negatively, to encourage respondents not to respond automatically, but to think about every item.

Using descriptive statistics, the individual items were then analysed by counting how many respondents (both absolute and relative) gave a particular response to a particular item. A subject's score is tabulated by assigning a numerical value to each of the answers, ranging from 1 for the alternative at one end of the scale to 5 for the alternative at the other, and then calculating the sum of the numerical values of the answers to all questions (Babbie & Mouton, 2007; Field, 2009). However, the principal objective is to arrive at an overall score for all the items combined.

For researchers, especially those from social sciences, the Likert scale method is ideal, in that the method is based entirely on empirical data regarding participants' responses, rather than the subjective opinions of judges (Babbie & Mouton, 2007; Saunders *et al.*, 2003; Welman *et al.*, 2005). The method also produces more homogeneous scales from participants and thus increases the probability that a unitary attitude is measured. It follows that the Likert scale method enhances the data validity and data reliability of the survey.

7.7 DESIGN OF THE LIKERT SCALE STRUCTURED QUESTIONNAIRE

The design of the survey questionnaire went through three main phases, as discussed below. The phases comprised the initial development process of the questionnaire, thereafter the pre-testing process, and finally the production of the final questionnaire for data collection.

7.7.1 Development of the questionnaire

The researcher followed the basic procedures that are employed when developing a Likert scale questionnaire to measure different perceptions (in this case, those of managers from the commercial sector). The formulated statements on the structured questionnaire were based on the procedures recommended by Saunders *et al.* (2003). The main steps that were followed when formulating the questionnaire included the identification and generation of perspectives surrounding corporate performance, a careful review of the

literature on the topic, a review of similar questionnaires that were used in prior surveys, and insights gained from an examination of the latest information gathered through the academic journals, internet, magazines, newspapers, television and radio broadcasts. All these culminated in the formulation of 64 attitudinal statements that represent the main variables of the study.

The design of the questionnaire also took into account the premise that the length of a questionnaire and test statements has a direct (and often a negative) impact on the quality of responses – the shorter and more precise the questionnaire and its statements, the better the results (Babbie & Mouton, 2007; Mouton, 2001; Saunders *et al.*, 2003). Both the statements in the structured questionnaire and the instrument itself were kept as short as possible, and all the statements were responded to using the Likert scale rating style as discussed above.

7.7.2 Pre-testing the initial questionnaire

After the researcher had designed the questionnaire, it was pre-tested by means of several personal interviews with business executives, primarily to check the clarity of the statements that formed the variables for measurement and to test whether the questionnaire could be completed within a reasonable length of time – in this case, about 20 minutes. The pre-testing was also aimed at eliciting some comments about the content validity, as the sampled respondents were asked to describe any difficulties they had in completing the questionnaire accurately. It was deemed necessary to pre-test the validity and reliability of the content of formulated statements that would measure the underlying hypotheses of the study.

Pre-testing involved the construction of variables based on the theoretical nature of the constructs under review. An extensive pre-testing process was undertaken to iron out any errors that remained after the initial questionnaire formulation. A convenience sample of 20 initial respondents was used during the questionnaire

pre-testing process. These respondents included six university scholars in social research, four MBA students, and ten business executives from the commercial sector, in Malawian and South African companies.

After the questionnaire had been validated, the pre-testing interviews allowed the researcher to clarify and redefine the survey variables and rectify any potential deficiencies of the statements where necessary. The survey instrument was modified on the basis of comments and suggestions made by the pre-test respondents. Some rewording of the questionnaire statements was necessary in order to remove any unnecessary technical jargon, inconsistencies or leading statements. The pre-testing process also assisted the researcher in checking on variables with similar distributional properties; hence, he could improve the reliability of data, as suggested by Field (2009). Twelve of the initial variables were removed at this stage; and several runs of SPSS were done without affecting the factor structure. The wording of the final survey questionnaire, with 52 statements, is provided in Appendix A.

7.7.3 Construction of the final questionnaire

After the pre-testing exercise, the final questionnaire was redesigned by incorporating the relevant changes, as discussed above. The structured questionnaire consists of two sections. Section A elicits general information about the participant regarding the person's home country, the industry in which the organisation operates, whether or not an organisation uses the Balanced Scorecard model and, if yes, what the level of its usefulness is, the employment levels of the organisation, the management position of the respondent, and finally a choice of listed stakeholders, with the option of adding more organisational stakeholders.

Section B requires the assessment of different corporate scorecards, as perceived by the managers of an organisation. The section is divided into six subsections representing the six strategic themes that are identified under the

conceptual framework. The respondents were asked to rate all the 52 statements by indicating their level of agreement on a scale of 1 to 5, using the Likert scale style, as explained above.

7.8 VALIDATION STATEMENTS OF THE QUESTIONNAIRE (SECTION B)

Section B of the questionnaire is comprised of statements that were used to validate the conceptual framework's six strategic themes. Each subsection contains statements that are used to measure constructs related to each strategic theme of the conceptual framework. The following sections describe each of the six scales that were used during the primary data collection.

7.8.1 The relationships and culture strategic theme

The first subsection of Section B, Section B1, consists of 15 statements focusing on relationships and the corporate culture of participating organisations. Under the relationships and culture scale, statements were formulated with the aim of assessing corporate culture within an organisation, and also the way an organisation interacts with its stakeholders, especially those from outside the organisation. The statements under the relationships and culture strategic theme are listed in Table 10, overleaf.

7.8.2 The stakeholder strategic theme

The second subsection consists of seven statements focusing on organisational stakeholders. The statements were formulated to assess the level of stakeholder contributions towards corporate performance, as perceived by the participant. The statements under the stakeholder strategic theme are listed in Table 11, overleaf.

Table 10: Statements relating to the relationships and culture strategic theme

- | |
|--|
| 1. We recognise the interdependence of relationships of our stakeholders |
| 2. Our managers listen to and openly communicate with our stakeholders regarding their concerns and contributions |
| 3. Our primary goal of external reporting is to contribute to an ongoing stakeholder dialogue |
| 4. Our financial reports are constructed towards meeting interests of our external stakeholders |
| 5. Our external financial reporting system takes into account our social obligations towards local communities |
| 6. Our external financial reporting system takes into account our environmental obligations |
| 7. Our external financial reporting system integrates economic, social and environmental dimensions (triple bottom line reporting) |
| 8. Our financial statements are prepared based on the generally accepted accounting principles (GAAP) |
| 9. Our financial statements are verified by the appointed external auditors for external reporting |
| 10. We are committed in making decisions with the customer's perspectives in mind |
| 11. We treat our suppliers as an integrated part of our business |
| 12. We demonstrate mutual respect with our competitors |
| 13. Our organisation is highly respected for maintaining and promoting environmental protection |
| 14. We constantly interact with and help the local community in which we operate |
| 15. We treat employees as the most valuable asset of our organisation |

Table 11: Statements relating to the stakeholder strategic theme

- | |
|---|
| 1. Our organisation puts more emphasis on maximisation of shareholders' wealth than of other stakeholders' wealth |
| 2. Our customers comprise the most important element of our business |
| 3. We make profits because of our efficient labour force |
| 4. Our operations rely on debt provisions from our financiers |
| 5. Our organisation runs on the premise that community care is paramount |
| 6. Our organisation focuses on protection of the natural environment as a stakeholder |
| 7. Government contributions are foundational to our business operations |

7.8.3 The practices and processes strategic theme

The third subsection assesses the internal business processes and practices of the participating organisation in terms of economy, efficiency, effectiveness and ethics. In line with the business ethics and corporate governance discussion, ethics has been interpreted as meaning organisational morality and rights with regard to operations. The eight statements under the processes and practices strategic theme are listed in Table 12, below.

Table 12: Statements relating to the practices and processes strategic theme

1. We adopt processes that address concerns of our stakeholders
2. We use benchmarking to continuously improve our business processes
3. We are able to objectively measure the social impact of our operations
4. We are able to objectively measure the impact of our operations on the natural environment
5. Our sustainability programmes take into account economic, social and environmental issues
6. Customer feedback is key to our performance appraisal systems
7. We work cooperatively with our business partners
8. Our corporate performance indicators are geared towards future corporate performance

7.8.4 The intellectual capital strategic theme

The fourth subsection consists of six statements focusing on the assessment of the intellectual capital as one of the valuable assets of an organisation. Intellectual capital has been translated as the collective knowledge of individuals in an organisation that is supposed to add value to organisational operations. Statements under the intellectual capital strategic theme are listed in Table 13, overleaf.

Table 13: Statements relating to the intellectual capital strategic theme

- | |
|--|
| 1. Intellectual capital is our main source of profitability |
| 2. Emphasis on human capital development improves our corporate performance |
| 3. Innovation is promoted through our good knowledge management systems that we pursue |
| 4. Knowledge about local culture promotes marketing through customer satisfaction |
| 5. Knowledge about the local culture improves our corporate performance |
| 6. Our organisation invests heavily in supporting employee knowledge |

7.8.5 The value creation strategic theme

This subsection assesses perspectives that would be considered critical ingredients for the internal operations that are involved in the creation of maximum organisational value (wealth). The value creation subsection contains five statements. The statements under the value creation strategic theme are listed in Table 14, below.

Table 14: Statements relating to the value creation strategic theme

- | |
|---|
| 1. Our profitability success is a result of inputs from various stakeholders |
| 2. We are competitive because of our customer oriented activities |
| 3. Our internal business processes contribute a lot towards organisational profitability |
| 4. Our profitability is a result of the abundant natural resources capital that we get from the environment |
| 5. Our profitability is a result of the social values that we get from local communities |

7.8.6 The corporate conscience strategic theme

Finally, this subsection evaluates issues surrounding the allocation of organisational wealth to different stakeholders, based on equitable and ethical principles. The statements were formulated to focus on the corporate orientation towards the allocation of organisational wealth to stakeholders such as the local community and natural environment, which are, in most cases, treated as

secondary. In line with the previous definitions, ethics refers here to the notion of dealing with morals and the rights of individual groups. The eleven statements under the corporate conscience strategic theme are listed in Table 15, below.

Table 15: Statements relating to the corporate conscience strategic theme

1. We recognise the interdependence of efforts and rewards among our stakeholders
2. Organisational wealth is allocated to each stakeholder based on their relative contributions towards the overall corporate performance
3. All stakeholders receive sufficient benefits to assure their continued collaboration with our organisation
4. Equitable distribution of organisational wealth to our stakeholders enables us to gain continued corporate reputation
5. We are open in disclosing wealth distribution to our stakeholders through corporate reporting
6. Our managers do not practice corruption that deprives our valuable stakeholders
7. We pay our suppliers fairly by offering competitive prices in the industry
8. We are involved in financially supporting educational projects for our future business operations
9. We take direct responsibility for social problems that we have caused
10. Our organisation reserves funds for natural environmental (ecological) preservation projects
11. We contribute substantially to the overall welfare of the society

The full structured questionnaire containing all the sections discussed above is shown in Appendix A

7.9 PROFILE OF RESPONDENTS

In order to collect data that represented the activities of various organisations involving corporate planning and performance measurement systems, the sample was randomly selected from big corporations that are registered with the Registrar of Companies or the Malawi Stock Exchange in Malawi and from companies registered with the Johannesburg Stock Exchange or the Johannesburg Chamber of Commerce in South Africa. A limited number of

companies from other countries were reached via their diplomatic missions, either in Malawi or in South Africa.

To elicit objective comparable information from the respondents, only members of the company that are associated with and are considered to be knowledgeable on corporate strategy and financial management issues were approached. Thus, the study targeted various business executives at the selected corporations. The choice of participants was guided by the observation that, in social research, the homogeneous composition of the participant pool reduces the amount of survey variations, and that survey results are then more comparable and conclusive (Bryman & Bell, 2007:19).

Therefore, the participants of the study included business executives, such as board members, chief executive officers (CEOs), chief financial officers (CFOs) or financial directors and financial controllers, management accountants, financial managers, and company secretaries. These business professionals represented their companies by completing the questionnaire on all issues regarding organisational relationships and culture, organisational stakeholders, organisational processes and practices, intellectual capital, organisational value creation activities, and the allocation of wealth that the study mainly focused on during the conceptualisation of the study.

7.10 SAMPLING DESIGN AND SAMPLING METHODS

The main purpose of sampling is to achieve representativeness; the sample should be assembled in such a way as to be representative of the population from which it is taken (Babbie & Mouton, 2007; Field, 2009; Welman *et al.*, 2005). The sample represents the segment of the population that is selected for investigation (Bryman & Bell, 2007:17). To achieve representativeness in the sample for this study, the sampling units were randomly selected by using the simple random sampling technique.

7.10.1 Geographic coverage of primary research

The primary research was conducted within the Southern African region, which the researcher comes from. From the literature review, it seems that the region represents an African environment that has different social and cultural features from those found in Western society. However, other African regions were also targeted during the primary research of this study. The structured questionnaire was administered mainly in Malawi and South Africa. It was easier for the researcher to collect data from Malawi, where the researcher comes from and where he works at the University of Malawi. The researcher also conducted this study at the University of Pretoria, in South Africa. To supplement the data collected from Malawi and South Africa, some questionnaires were sent to other African countries through their diplomatic missions, which are resident in Malawi or South Africa. In this study, 48.3% of respondents were from Malawi, 43.8% from South Africa and 8.3% from other African countries.

7.10.2 Population and sampling frame

The population represents the universe of units from which the sample is selected (Bryman & Bell, 2007:17). In this case, the units were the total number of large companies in operation. The sampling frame, which lists all the units in the population from which the sample is selected, consisted of all the industries in the commercial sector, as summarised on the structured questionnaire (Appendix A). All eleven industries and others participated in this study, as indicated in the results and analysis of the research findings in Chapter Eight (see Table 21, on p. Table 21).

Because the study aimed at ascertaining general corporate performance issues, the sample consisted of a cross-section of organisations that may or may not be using the Balanced Scorecard model or similar measurement systems that use multiple performance measures. For example, the survey statistics showed that 51.7% of the respondents used the Balanced Scorecard model, whilst 48.3% did not. The sample also included both local and multinational companies operating

in different countries. The study received responses from multinationals operating in most African countries, including Malawi and South Africa. Such multinationals include Unilever, Illovo Sugar, Shoprite, CTM Tiles and Standard Bank, as summarised in Appendix C. The inclusion of such companies enabled the researcher to achieve African continental representativeness in the study.

7.10.3 Sample size and sample adequacy

The sample size was determined by considering the representativeness of the sample of the target population of corporations. In correlational studies, an analysis of at least 100 respondents is considered ideal (Bryman & Bell, 2007; Field, 2009). The larger the sample, the more conclusive the study findings and reported results are. Based on this premise and considering the wide geographic coverage of the study, the researcher aimed at receiving at least 250 responses, which is more than double the minimum criterion of 100 respondents. The researcher also considered response rates in similar studies that he had been conducting, where the response rate was pegged at 45%. Thus the initial sample size was calculated as follows:

$$\text{Sample size} = \frac{\text{Targeted number of final respondents}}{\text{Expected response rate}}$$

$$\text{Sample size} = \frac{250}{45\%}$$

$$\text{Sample size} = \underline{556 \text{ (rounded up to 600) participants}}$$

During data collection, a total of 620 questionnaires were dispatched to various organisations in the commercial sector in Malawi, South Africa and other African countries. Out of the 620 questionnaires sent out, 387 responses to the questionnaire were received, giving a final response rate of 62.4%. The sampling statistics show that the Kaiser-Meyer-Olkin measure of sampling adequacy is 0.824, which is a “great” value for the verification of sampling adequacy for the analysis, according to Field (2009:659). Thus, the above analysis confirms the

factorability of items and adequacy of the sample for conclusive results, according to the criteria set by Chenhall (2005), Field (2009) and Hanafizadeh and Sorousha (2008).

Further analysis indicates that there are uniformly high communalities of above 0.50, with an average communality of 0.705. On the use of multivariate analysis, the extracted factorial components show that several items loaded strongly on each component, without cross-loadings, as recommended by Costello and Osborne (2005). The above statistics indicate that the sample was adequate, and that it can reasonably be relied upon (the principles of these statistical techniques are discussed in the data analysis section in Section 7.12, below).

7.11 DATA COLLECTION PROCEDURES

Structured questionnaires were administered in both a hard copy and electronic format. A total of 518 questionnaires were transmitted electronically to the sampled participants and then followed up for any feedback. For non-responses, electronic reminders were sent via e-mail every two weeks for the two months of the questionnaire survey. The reminders increased the response rate significantly.

A total of 102 hard copy questionnaires were administered through the deployment of research assistants who collected data from targeted companies. The research assistants delivered the hard copies to the business executives concerned, and thereafter collected them at an agreed time. The hard copy administration proved to be more effective in terms of response rate than the electronic copy administration. This is largely because the follow-ups were more personalised than was the case with electronic administration via e-mail. The electronic administration had a response rate of 58.5% (303 responses out of 518 transmissions), whereas the hard copy realised a response rate of 82.4% (84 responses out of 102 remittances).

7.12 DATA ANALYSIS

The survey data was captured and analysed using SPSS Version 16.0. The SPSS package was chosen because of its statistical capabilities and popularity in social sciences research (Babbie & Mouton, 2007; Bryman & Bell, 2007; Field, 2000, 2005, 2009). It was necessary to code the data collected using popular statistical software for future retrieval and use by other researchers as well. SPSS was also chosen because the researcher is competent in using the statistical functions and capabilities of the software package.

SPSS's statistical capabilities include its spreadsheet-like *Data Editor* environment for entering, modifying and viewing data files. SPSS has statistical tools that include the production of descriptive statistics, such as frequency tables, cross-tabulation, custom tables, correlation analysis on both bivariate and multivariate analyses, using Pearson correlation and exploratory factor analysis respectively. The SPSS also has integrative graphic capabilities that allow users to change or add chart elements and variables dynamically. In summary, SPSS enables social researchers to enter and store data, utilise its retrieval capabilities, engage in different statistical analyses, generate graphs and statistical reports, manage research projects, and write project reports, as has been done with this study's results and analysis of research findings of this study.

For data analysis purposes, respondents were asked to rank their responses to the questions in a Likert scale format, as already described in Section 7.6 above. The responses for each of the response sets of the structured questionnaire were codified. During the codification process, unique numerical codes were assigned to each response, ranging from 1 to 387 (Babbie & Mouton, 2007; Field, 2009). All the data were then turned into a series of numbers for data capture using SPSS for further statistical analyses. Before the statistical analyses, the researcher first checked and cleaned up the data by examining the coded data for accuracy. Any errors that emerged were immediately corrected by

comparing with original data on the questionnaires, as recommended by Bryman and Bell (2007) and Babbie and Mouton (2007).

Data analysis was done mainly through the descriptive statistics and correlation analysis using the bivariate and multivariate correlations. Each statistical technique is described below.

7.12.1 Descriptive statistics

Descriptive statistics are concerned with the description or summary of data obtained for a group of individual units of analysis (Saunders *et al.*, 2003:351; Welman, *et al.*, 2005: 231). If only one variable is involved, it is called univariate analysis; if there are two variables, it is called bivariate analysis; and if more than two variables are involved, it is called multivariate analysis. Each of the three analysis categories is described below.

7.12.2 Univariate analysis (frequency tables and graphs)

Under this study, the analysis of one variable at a time (univariate analysis) was done by producing frequency tables, and their corresponding graphs in some cases. A frequency table as extracted from the data statistics provides the number of respondents and the percentage for each of the categories for the variable under consideration (Bryman & Bell, 2007:357). Frequency tables are used in relation to all the different types of the variable. The researcher extracted frequency tables summarising the extent of respondents' agreement on each of the statements in the questionnaire. Using different colours, graphs were used to give a pictorial presentation of some research findings. Statistical means were also calculated to measure the average ratings of responses on each statement in the conceptual framework strategic theme.

It was necessary to validate the statements to address the first research question of the study: "To what extent do organisations agree with each statement on the strategic themes of the conceptual framework?" The detailed frequency tables

and corresponding percentages, accompanied by interpretations, are presented in Chapter Eight (Results and analysis of research findings). Apart from undertaking the univariate analysis, the researcher also determined whether or not relationships exist between variables through bivariate analysis and multivariate analysis, in line with the hypotheses of the study.

7.12.3 Bivariate analysis (correlation analysis)

As indicated above, a bivariate analysis is concerned with two variables at a time in order to uncover whether or not the two variables are related. If there is a relationship between variables, it means that one variable coincides with a variation of another variable (Bryman & Bell, 2007; Field, 2009; Welman *et al.*, 2005). The bivariate analysis was conducted to address the second research question (“What is the strength of relationships between variables of individual strategic themes of the conceptual framework?”), the third research question (“What is the strength of relationships between the six strategic themes of the conceptual framework?”), as well as the fourth research question (“What are the foundational elements of the new African Balanced Scorecard model?”). As this is a correlational study, bivariate analysis takes up the significant part of the analysis of research findings section discussed in Chapter Eight.

The correlation analysis of the relationships of variables does not imply that one variable causes the other variable (Bryman & Bell, 2007:361, Hofstee, 2006:215). Stated differently, correlation does not imply causality. There have been cases when what appears to be a causal influence working in one direction actually works the other way. Causality tests require experimental or longitudinal research methods, where the survey data is collected and analysed over a long time (Babbie & Mouton, 2007; Field, 2009; Mouton, 2001; Welman *et al.*, 2005). The hypotheses are then tested through the manipulation of the variable that the researcher thinks is the cause, referred to as an independent variable, because its value does not depend on other variables (Field, 2009:7). Thereafter, research results are obtained by looking at the variables that the researcher thinks are

effects, referred to as dependent variables, because their values would depend on the cause or independent variable(s).

In cross-sectional and correlational research designs, such as the current study, there would be no usable evidence of cause-and-effect relationships between variables. In cross-sectional studies (Bryman & Bell, 2007; Hofstee, 2006), researchers do not make any causal statements about the relationships between variables; hence, there is no validity in the distinction between independent and dependent variables, because all variables are considered to be dependent variables, in a sense. During the bivariate analysis of the study, the degree of variable relationships was designated and interpreted through different correlation coefficients using the statistical guidelines discussed below.

a) Nature of a correlation coefficient

The correlation coefficient is either positive or negative, indicating the direction of the relationship (Bryman & Bell, 2007; Field, 2009). Thus, the correlation coefficient lies between -1 and +1 for all cases of the bivariate analysis. If the correlation coefficient is 1 (a perfect positive correlation), this means that when one variable increases or decreases, the other variable increases or decreases by the same amount (Saunders *et al.*, 2003:363). This combination would also indicate that no other variable is related to either of the two perfectly correlated variables. If the correlation coefficient is below 1, it means that two variables are also related with other variables within the analysis. A correlation coefficient of -1 (a perfect negative correlation) indicates that as one variable increases, the other variable decreases by the same amount, and the vice versa. Under this scenario, no other variable is related to the two perfectly correlated variables. The correlation coefficient is 0 when there is no correlation between variables, meaning that the variables are not related in any way.

In summary, very high correlation coefficients indicate that two variables are strongly related to each other, implying that the variables involved measure

almost the same construct (Bryman & Bell, 2007; Field, 2009; Flamholtz, 2005; Saunders *et al.*, 2003). Moderate correlations between different variables would indicate that the variables measure different constructs that are related to one another. Finally, very low correlation coefficients indicate that variables are not much correlated with one another and probably measure unrelated constructs.

b) Statistical significance testing

There is always some difficulty in working with samples, even those that are randomly drawn, regarding the generalisation of findings from that sample to a larger population. Significance testing provides a tool that provides researchers with an indication of how confident they can be that their sample findings are representative of the entire population (Bryman & Bell, 2007; Field, 2009; Saunders *et al.*, 2003). When examining statistical significance regarding the relationship between two variables, significance testing discloses the risk of concluding that there is a relationship in the population when in fact there is none. If an analysis reveals a statistically significant finding, this does not mean that the finding is intrinsically significant or important. However, statistical significance is solely concerned with the confidence researchers can have in their findings.

The level of statistical significance is the level of risk that the researcher is prepared to take when inferring that there is a relationship between two variables in a population from which a sample was drawn, when in fact no such relationship exists (Bryman & Bell, 2007:369). Levels of statistical significance are expressed as probability levels of risk taken. The level of acceptable risk is conventionally pegged at $p < 0.05$ or $p < 0.01$ (where p denotes the *probability* of risk) meaning that one is prepared to accept a level of risk of 5% or 1% respectively that the results could have arisen by chance (due to sampling error). Thus, the smaller the significance level reported, the lower the risk, and the more conclusive the results are for the sample (Bryman & Bell, 2007; Field, 2009).

In this study, correlations of different variables have been assessed at both levels ($p < 0.05$ and $p < 0.01$), where correlation matrices are automatically generated by SPSS and the program flags significance levels (* for the $p < 0.05$ level and ** for the $p < 0.01$ level).

c) Use of parametric and non-parametric statistics

Another challenge in doing bivariate analysis is the choice of an appropriate method from a range of correlation analysis methods available. Which method is chosen depends on whether the variables are parametric or non-parametric. Parametric statistics are used when the researcher assumes that the population is normally distributed, there is homogeneity of variance within different groups and data are interval or rational in scale (Lunenburg & Irby, 2008:77). If these criteria are not satisfied, non-parametric statistics should be used to compute correlation figures.

However, for most parametric procedures, a corresponding non-parametric test can be used. The interpretation of results is similar with both kinds of test (Bryman & Bell, 2007; Field, 2009; Lunenburg & Irby, 2008). What differs is the computational equation and tables determining the significance level. Both parametric and non-parametric statistics report on the test of the stated hypothesis at a given level of significance. However, in contrast to parametric tests, non-parametric techniques do not test hypotheses about the characteristics of a population. Rather, non-parametric procedures test hypotheses about relationships between categorical variables, the shape of the distribution, and the normality of the distribution. While parametric procedures use means, non-parametric procedures use frequencies, percentages and proportions.

Generally, parametric statistics are more powerful in detecting significant differences and are used frequently, even when all the parametric assumptions cannot be met (Lunenburg & Irby, 2008:67). For the bivariate analysis, the correlation of variables is tested by means of a Pearson correlation for

parametric statistics and a Spearman correlation for non-parametric statistics (Field, 2009:177-181). Because of the random sampling, homogeneity and interval scale assumptions of the study, coupled with the statistical computational power of the technique, as discussed above, the researcher used the parametric Pearson correlation technique to test for relationships between the different variables within the identified strategic themes of the study. Finally, the intercorrelation between the strategic themes of the conceptual framework was determined through computations of scale means that were later subjected to Pearson correlation analysis, a statistical method that is adopted from Flamholtz & Kannan-Narasimhan (2005:54). Details about the Pearson correlation analysis and its respective interpretations are reported on in Chapter Eight.

7.12.4 Multivariate analysis (exploratory factor analysis)

The multivariate analysis was done by means of exploratory factor analysis. This statistical method analyses the intercorrelations among a large set of measures to identify a small number of common factors or components (Babbie & Mouton, 2007; Field, 2009; Lunenburg & Irby, 2008; Saunders *et al.*, 2003). Exploratory factor analysis also indicates the extent to which survey instruments measure the same thing, thereby enabling researchers to deal with a smaller number of constructs. The method involves the selection of variables subjected to multivariate correlation analysis by developing a correlation matrix that shows the correlation of each measure with every other measure (Cooper & Schindler, 2006). The correlation matrix is then subjected to computations that produce clusters of variables that intercorrelate highly within each cluster, but have low correlations with other clusters. These clusters are factors that can account for a covariation among a large number of variables within a measuring instrument.

There are several variations of factor analysis. For instance, exploratory factor analysis can be done to yield an orthogonal solution, where the resulting factors are uncorrelated with each other (Field, 2009; Lunenburg & Irby, 2008; Saunders *et al.*, 2003). An orthogonal solution is appropriate where a researcher seeks a

pure set of factors, each measuring a construct that does not overlap with constructs measured by other factors. Another method of exploratory factor analysis is an oblique solution that is practised where factors are intercorrelated.

In this study, exploratory factor analysis was conducted by means of the principal component extraction method. The 52 variables were subjected to promax rotation with Kaiser normalisation, which grouped or factored the variables into components (factors) for further observation. Oblique rotation using the promax method was chosen, based on the understanding that the variables selected might correlate with one another (Field, 2009; Lunenburg & Irby, 2008). Indeed, correlation of variables exists, as shown in the results of the bivariate analysis in the next chapter. During this research, data was collected and analysed with an *a priori* assumption of variable interconnectedness. Therefore, the analysis identified and analysed the extent to which variables affected each other. The universal correlation or relationship of variables is explained by communalities that were extracted using the data. As noted above, all variables have communality loadings of above 0.50 each and an average communality of 0.705, which is a healthy situation, according to Field (2009:662). Communalities for all 52 variables are shown in Appendix F.

The eigenvalues of the extracted components were examined. The eigenvalue for a given component measures the variance in all variables that is accounted for by that component (Field, 2009:660). Each eigenvalue above 1 as extracted from the statistical analysis is shown in Appendix K. Multiple factor rotations were then run by setting factor loadings at six, five, four and three, to come up with the optimum number of factors to be considered for further observations (Costello & Osborne, 2005). After several rotations, the factor loadings at four produced the best factor structure, where the pattern matrix clearly loaded each variable on a specific component without any cross-loadings. The four extracted components translated into the four perspectives of the new African Balanced Scorecard

model. A detailed analysis of the results on the exploratory factor analysis is reported in Chapter Eight.

7.13 DATA VALIDITY AND DATA RELIABILITY

In any given survey, the measuring instrument measures three components, namely the construct intended, irrelevant constructs and random measurement errors (Welman *et al.*, 2005:142). The construct intended and irrelevant constructs are systematic sources of variation, because they remain constant for any given individual, giving rise to problems with data validity. Random measurement errors refer to accidental factors that may vary from one measuring occasion to the other in a completely haphazard way. Thus, they are unsystematic and give rise to problems with the data reliability.

7.13.1 Data validity

Data validity represents a research mechanism that ensures that the process implemented to collect data has indeed collected the intended data successfully. Data validity represents the extent to which the research findings accurately demonstrate what is really happening in a given situation (Welman *et al.*, 2005:142-144). Stated differently, data validity refers to whether or not an indicator (or set of indicators) that is devised to measure a concept really measures that defined concept (Bryman & Bell, 2007:165). The instrument that is used to measure variables must measure that which the instrument is supposed to measure; and this is referred to as construct validity.

The construct validity of a measuring instrument refers to the extent to which the instrument measures the intended construct rather than an irrelevant construct or measurement errors. Thus, data validity refers to the extent to which an empirical measure adequately reflects the real meaning of the subject under investigation (Babbie & Mouton, 2007:122). Data validity can be undermined by research errors such as poor samples, faulty research procedures and inaccurate or misleading measurements on the instrument.

In this study, several steps were followed to ensure that the data collected was valid. An extensive literature review was undertaken to understand the best methods for undertaking quantitative research to collect data from senior business executives in different industries (Babbie & Mouton, 2007; Bryman & Bell, 2007; Field, 2009; Welman *et al.*, 2005). The construction of the instrument commenced with the generation of statements from the literature review regarding the subject area, as discussed from Chapter Two to Chapter Six, and suggestions from the supervisors of this research project. The formulation of questionnaire statements was done in full consultation with two University of Pretoria professors, Professor F.N.S. Vermaak and Professor D.G. Gouws, who are experts in the field of study, and who supervised this thesis. The measurement instrument was designed in such a way as to ensure the best possible understanding of the statements by the respondents, and was enhanced by the inclusion of clear instructions that enabled the thorough completion of the questionnaire.

The purpose and topic of the study were clearly explained to the respondents and general issues of concern were pointed out in the questionnaire subsections. Each subsection of the questionnaire contained guidelines and definitions relevant to statements included in the survey instrument. Lastly, respondents were assured of the anonymity and confidentiality of the data, as their personal identification was not relevant to the study. This encouraged respondents to complete the questionnaires openly, honestly and frankly. The above steps also ensured that the questionnaires were completed under conditions that are conducive to responding and that the environment was acceptable to the respondents as well. Thus, the entire data collection process was trustworthy.

The researcher was also careful in sampling the targeted population. Although the sampling was random, the questionnaire was targeted at large corporations by focusing on business executives at senior management level (60.7% of respondents) and middle management level (37.0% of respondents), and other

business executives, including the board members (2.3%). Such business executives included chief executive officers (CEOs), chief financial officers (CFOs), financial managers, management accountants, and company secretaries, who are all conversant with the issues raised in the study. Hence, homogeneity was maintained in the sample. Furthermore, a total of 71.3% of the respondents had industrial work experience of more than six years.

All the statements in Section B of the questionnaire were subjected to construct validity measurement through the use of principal components analysis. In this type of statistical analysis, it is expected that each measure or variable within a component should have a significant correlation with other variables of the same component and a low correlation with others (Bryman & Bell, 2007; Field, 2009). The objective of construct validity analysis is to verify whether all the statements that translate the concept under study are unifactorial. If this happens, the group is considered homogeneous. The statistics indicate that the Bartlett's test of sphericity $X^2 (1326)=10479.92$, $p<0.001$ was significant for all factors, indicating that one can be confident that there is no multicollinearity among these survey data and that factor analysis is appropriate, according to Field's (2009:661) criteria. All 52 variables achieved communalities of above 0.50, with an average of 0.705, which is a "great" value, according to Field (2009:659). The extracted communalities on the 52 variables, as shown in Appendix F, signify that there is significant intercorrelation of variables.

7.13.2 Data reliability

Reliability is concerned with the findings of the research and relates to the credibility of the findings. Reliability of data signifies the degree to which an instrument consistently measures whatever it is measuring (Lunenburg & Irby, 2008:182-183; Welman *et al.*, 2005:145). Thus, data reliability represents a condition in which the same results will be achieved whenever the same technique is repeated to do the same study after a given time (Babbie & Mouton,

2007:119). As described above, the anonymity and confidentiality of the data allowed respondents to provide information strictly for the purposes of the study.

There is also the issue of generalisation when one looks at reliability. The requirements for generalisation relate to the reliability of the scores obtained, in that generalisation implies consistency of the ranking of the scores that are assigned to individual objects, irrespective of the timing of the measuring instrument, in which form it was used, and by whom it was administered or scored (Welman *et al.*, 2005:145). Thus, reliability refers to the extent to which the scores that were obtained may be generalised to different measuring occasions, measurement forms and measurement administrators. The scores assigned to individuals should therefore be consistent, irrespective of the time of measurement, the test used, and the person administering the test.

The reliability of the questionnaire was achieved through the measures' internal consistency, in other words, the consistency of the constructs. The internal consistency reliability was studied by determining the Cronbach's alpha (α) coefficient, which determines how all the items on an instrument relate to all other instrument items and to the total instrument as well. A computed alpha coefficient should range between 1 (denoting perfect internal reliability) and 0 (denoting no internal reliability) of the instrument (Bryman & Bell, 2007:164; Field, 2009:677). The Cronbach's alpha coefficient shows the degree to which all the items in the questionnaire measure the same attribute (Welman *et al.*, 2005:147). In this method, an internal consistency coefficient of 0.80 is considered a good value for an instrument with more than 40 items (Field, 2009:677; Lunenburg & Irby, 2008:183). However, instruments with fewer items typically have smaller reliability coefficients. In such cases, a coefficient of 0.70 or slightly lower would be considered reliable (Bryman & Bell, 2007; Costello & Osborne, 2005). In this study, the Cronbach's alpha coefficient for the 52 statements was 0.902, which is "excellent" news, according to Field (2009).

One most important element of the Cronbach's alpha coefficient calculations is the "Scale if item deleted" tool (Field, 2009:677). This statistical tool provides a value for the Cronbach's alpha coefficient for each variable in the questionnaire, reflecting what the Cronbach's alpha coefficient value would be if that variable were deleted. A questionnaire remains reliable when the removal of one variable does not affect the overall original Cronbach's alpha coefficient. In other words, no variable on the questionnaire should cause a substantial decrease in the Cronbach's alpha coefficient. If it does, then dropping that variable to maintain or increase data reliability should be considered.

A further analysis of the Cronbach's alpha coefficients for the "Scale if item deleted" gave values that were not significantly different from the original $\alpha=0.902$. The new values of the "Scale if item deleted" ranged from $\alpha=0.898$ to $\alpha=0.907$, as shown in Appendix F. This statistical analysis shows that the questionnaire is reliable and that the deletion of any variable did not significantly increase or decrease the original Cronbach's alpha coefficient. Overall, the internal consistency coefficient of 0.902 as obtained for the 52 variables of the survey structured questionnaire signified that the data collected are generally reliable and that conclusions drawn from the results can therefore be depended upon.

7.14 ETHICAL CONSIDERATIONS

The questionnaire was constructed in such a way that it did not transgress against any ethical requirements. For example, individual respondents could not be identified during the data collection and data analysis, as the survey was anonymous. Through both the questionnaire instructions section and in a covering letter, the participants were assured that the study involved an anonymous survey, where their names were not to appear on the questionnaires.

Participants were also assured that the answers they gave would be treated as strictly confidential and that they could not be identified in person based on the

answers they gave (see instructions section of the questionnaire in Appendix A and the covering letter of introduction to participants in Appendix B). Participants were also reminded of the significance of their participation in the study, as it was very important to get their input to complete the project. The survey documentation, together with the structured questionnaire, had to go through the normal clearance and approval processes of the University of Pretoria's Research Ethics Committee, as shown in a letter of clearance and approval from the Committee, in Appendix D.

7.15 CONCLUSION

This chapter has discussed the research design and methodology used in this study. The research design and methodology has been based on the conceptual framework that identified six strategic themes that formed the foundation of this study. Issues surrounding both quantitative and qualitative research methods have been detailed. Based on the attributes of this study, the quantitative research method was selected as the most appropriate for this study. The design of the structured questionnaire as a research instrument was based on a Likert scale rating method. Finally, the chapter has discussed the profiles of respondents, sampling methods, data collection and data analysis, providing the rationale for the choice of each method. Statistical issues relating to sampling, data validity and data reliability have also been reported upon in this chapter.

The next chapter discusses in detail the research findings and analysis of the research results based on the data collected during this study..