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SUPERIOR PERFORMANCE, MANAGERIAL COMPREHENSION AND
RESOURCE-BASED STRATEGIES.



by

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Doctor of Philosophy in Industrial and Business Studies in the faculty of Social
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Abbreviations

CZI	Confederation of Zimbabwean Industries
IOE	Industrial Organisation Economics
MBA	Master of Business Administration
MVMI	Motor Vehicle Manufacturing Industries
RBV	Resource-based View
ROA	Return on assets
SIC	Standard Industrial Codes
SMMT	Society of Motor Manufacturers and Traders Ltd
TDM	Total Design Method
UZ	University of Zimbabwe

Dedication

This thesis is dedicated to Mabel, Simbarashe and Nyasha Zvobgo. I have set the standard, it's now over to you! Praise God!

Acknowledgements

When I left Zimbabwe in 1992, the objective was to do a Diploma in Business Administration and a Master of Business Administration at the University of Birmingham's Business School. At the end of the Master's programme I found myself faced with a choice of spending three more years in studying. Hence I enrolled at Warwick Business School in 1995. I had heard about the reputation of Warwick University in Zimbabwe but I never imagined that I would be a student there. Thus being admitted at such a reputable University was a dream come true. I found the environment friendly. I later realised that the person who was assigned to me as my supervisor, Professor Robin Wensley, was another reputable scholar. Thus my greatest thanks go to Professor Wensley. He was extremely helpful. I found the whole research process a valuable learning process because he never allowed me to proceed to the next step if he wasn't sure I had understood what I was doing. Because of his wide experience in supervising PhD students, he strengthened me throughout the entire study, and he kept my fire burning when things looked bleak to me.

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Gilbert Zvobgo,
Birmingham, January 2000

Summary

The cross-sectional study looks at how firms develop superior performance using their internal resources. It is a study based on the resource-based view of the firm. The study looks at firms in the Motor Vehicle Manufacturing Industry in UK. It was initially planned as a comparative study with firms in the same industry in Zimbabwe. The study argues that for resources to be potential sources of superior performance, managers have to comprehend the strategic concepts that are concerned with these resources. The study further hypothesises that Comprehension itself is affected by Experience and Functional Expertise/Training & Development

The data was analysed using SPSS programme (Version 8). The main methods of analyses were factor analysis, correlational analysis, moderated regression & subgroup analyses, and regression analysis. The results suggest that Comprehension, defined as either Knowledge, or Applicability of intangible resources, or Applicability of capabilities, contributes to developing superior performance. The results also show that Experience, and Training & Development contribute to developing superior performance

The results however, did not support the hypothesis that managers with more experience had better comprehension of strategic concepts. The results seem to suggest that Experience has a negative effect on Comprehension. A possible explanation to this negative relationship could be that those managers who had been in the managerial position for many years were not familiar with the RBV concepts, which are relatively new concepts. The results did not also support the hypothesis that managers who attended more training and development programmes had better comprehension of strategic concepts. Instead, the results show that Training & Development has a negative effect on Comprehension. These results suggest that although many managers have on-going management training and development programmes, these programmes do not seem to improve their comprehension of strategic concepts.

CHAPTER ONE

INTRODUCTION

This chapter begins with a discussion of the background to the research. This is then followed by an explanation of the research objectives. A conceptual framework is then developed to guide this research. This framework also operationalises the variables considered for this study and develops the research hypotheses. This is followed by an explanation of the significance of the research. The last section highlights the structure of the thesis.

1.1 Background to the Research

Looking at both the number and speed of firms going out of business, one is bound to wonder why new ones emerge so fast as well. With reference to the motor vehicle industry, there are some organisations that have survived for more than 50 years, when others have not been so fortunate. There have been a lot of joint-production ventures and take-overs in this industry. It is of interest then to find out why some firms can live so long, while others fail to survive. Of more interest is why firms, even in the same industry, are more successful than others. There are no easy answers as is evidenced by the number of contributors, theoretically and empirically. This reminds us of John Godfrey Saxe's "The Six Blind Men and the Elephant" fable. Each man believed the part he touched represented the whole elephant! Mintzberg et al. (1998) likened strategy to a guided tour in the strategic management jungle. In a review of Mintzberg et al. (1998), Voss (1998) argues that strategy "is not just one type of animal, it is neither a spider, a lone wolf, an owl, nor a troop of monkeys". We are in an economic environment that is dynamic.

Studies on organisational performance have attracted interest and attention of people from several disciplines, each contributing part of the story. No one is able to contribute the whole picture. A major limitation to having the whole picture is the fact that what we currently know is to a large extent determined by other people's contributions. We are building on the work of others, and each contribution is like a brick. We do not aim to present the whole picture, but to contribute in the building of knowledge. Thus by undertaking this study, we are not aiming to destroy the work of others, but to add to the knowledge others brought to our attention.

The notion of competitive advantage is the concern of strategy theorists. Consequently, the understanding of the sources of sustainable competitive advantage has been a major concern for researchers in Strategic Management. Ghemawat (1986) identifies three interacting sources of sustainable advantage as size in the targeted market, superior access to resources or customers, and restrictions on competitors' options. The concepts of competitive advantage and sustainability have driven business strategy, for firm survival certainly depends on the attainment of some form of sustainable competitive advantage. It is by achieving competitive advantage that a firm develops superior performance. It is therefore not surprising that these two concepts have received considerable attention from several disciplines. Traditional strategy scholars relied on ideas and theories taken from Industrial Organisation Economics (IOE); Organisation Theory; and Organisational Behaviour (Barney and Zajac, 1994).

Much of contemporary thinking about strategy is dominated by industry analysis. According to Lado et al. (1992), the underlying premises is that the market or industry

imposes selective pressures to which the firm must respond. Industrial organisation economics helped firms to focus their attention on their strengths to exploit opportunities and neutralise threats in the environment (Black and Boal, 1994). The belief was that those firms that could adapt to those industry/market requirements would survive, and those that failed to adjust would be eliminated from the industry/market. Porter's five forces model particularly helped firms to analyse industry structure to assess the rent generating potential of the industry based on entry and exit barriers (Black and Boal, 1994). IOE attracted a lot of researchers and they concentrated on the "OT" of the SWOT analysis (Black and Boal, 1994). IOE-based research, in Barney's (1991) view, was based on two assumptions. First, that firms in the same industry had the same resources and pursued similar strategies. Second, if firms develop heterogeneous resources, (for example, through new entry), this heterogeneity would not last long because the resources that firms use to implement their strategies are highly mobile. The assumption was that because industry structure determines performance, we could ignore conduct and look directly at industry structure in trying to explain firm performance (Porter, 1981). In this context, competitive advantage is industry driven rather than proactively created by firms through accumulation of unique, valuable and imperfectly imitable resources (Lado et al., 1992).

Several factors shifted attention from the industry level analysis to the firm level analysis. For example, some writers note that the turbulence and globalisation of many markets has meant that stable attractive industries and profitable positions can show very rapid changes. These writers argue that portfolio models, and their underlying logic of strong market positions in attractive industries, are no longer necessarily

sufficient as descriptive routes to firms' superior performance. Competitive advantage expressed in terms of a firm's position in an industry may not be inherently sustainable (Robins and Wiersema, 1995). Barney (1991) criticises the two assumptions of industry analysis, mentioned above, for failing to view heterogeneity and resource immobility as sources of sustainable competitive advantage. This was evidenced by failure of particular organisations to sustain competitive advantage. Such poor organisational performances led to challenges to traditional strategy theories in general, and IOE in particular. According to Lado et al. (1992), IOE-based analysis of competitive advantage has not heavily emphasised the managerial and organisational components of competition that may play crucial roles in creating and sustaining competitive advantage. They further argue that such analysis tends to offer little understanding of the proactive structuring of sustainable competitive advantage. In addition, industry-based researchers do not examine how unique firm resources that generate quasi-rents can be protected from imitation by competitors.

A lot of criticism was directed against Porter's popular contention that competitive structures determined firm performance, with the implication that managers' strategic choices mattered little to outcomes once they chose an industry in which to compete. Many strategy writers felt this was very limiting and the implication raised conflicts with commonly observed experience (Schendel, 1994). Black and Boal (1994), in particular, observe three weaknesses in Porter's five forces model. First, they see the model as tautological, when it says firms in attractive industries are successful, because they are in attractive industries. Second, they argue that the model is silent on how firms get into the advantageous positions in the first place, and why some firms are able to sustain

these positions and others are not. Third, they argue that by basing strategies on the industry analysis we are misdirecting managers to expend their resources on influencing the industry structure which might not benefit the firms. Put differently, the authors argue that because industry analysis is based on the wrong diagnosis, it therefore gives the wrong prescriptions to managers. An earlier study by Hansen and Wernerfelt (1989) had shown that economic factors account for only 15 - 40 percent of firm performance, the rest of variance may be explained by such heterogeneous factors as managerial competencies and organisational culture or climate. Rumelt's (1991) empirical study had also shown that industry structure accounts for 8-15 percent of variance in firm performance. Levinthal and Myatt (1994) also provide evidence that shows that the choice of industry may be less critical to firm performance than the presence of distinctive capabilities to operate within a given industry.

The limitations of the traditional models therefore forced strategy theorists to seek new approaches as alternative theoretical frameworks to explain how firms could create and sustain their competitive advantages. This led to the emergence of a new school of thought, or paradigm, known as the Resource-based view (RBV) of the firm. Strategy theorists concentrated on the firm's resources, capabilities, and competencies. In other words, attention was mainly shifted to the "SW" of the SWOT analysis. This entails the firm to look at its internal resources in order to develop superior performance.

The resource-based view of the firm, founded on the ideas developed by Penrose (1959), suggested that what was really more important than industry structure was the resources possessed by the firm, deployed by the manager, and used and further developed by the

firm (Schendel, 1994). Andrews (1971) further developed the Penrosian ideas by arguing that organisational competencies and resources, which are superior relative to those of rivals, may become the sources of competitive advantage if they are appropriately matched to environmental opportunities. Viewed this way, strategy starts properly, not with an assessment of the firm's external environment, but with a firm's resources. Rivals should then protect these resources against imitation or substitution. RBV continues to build upon these ideas. Other important contributors to the theory include Lippman and Rumelt (1982); Teece (1980,1982); Rumelt (1984, 1987); Wernerfelt (1984, 1988, 1994); Barney (1986, 1991); Dierickx and Cool (1989); Castanias and Helfat (1991); Conner (1991); Mahoney and Pandian (1992); Peteraf (1993); Amit and Schoemaker (1993); Black and Boal (1994); Collis and Montgomery (1995). Chapter 2 contains more work of important contributors to this theory.

Proponents of RBV see many strengths in the theory. For example, they argue that it is able to explain how firms enter into advantages positions in the first place, and why some firms are able to sustain these positions, and others are not, which traditional theories failed to do. As will be shown, RBV does not seek to displace traditional models, but builds on them. Hence its terminology comes from several disciplines, but mainly from economics, organisation theory, and organisation behaviour. It has no language of its own. Appendix 1.1 shows terminology related to RBV.

Conner (1991) identifies five influential schools of thought related to IOE. They are neo-classical perfect competition theory; the Bain-type IOE; the Schumpeterian; the Chicago School; and the Coase/William Transaction Cost Economics (TCE). A

common feature is that each of the five schools of thought takes as a given that the ultimate purpose of the firm is to maximise profits. Each theory addresses a single problem seen as paramountly affecting firm performance: what a firm must solve in order to earn above normal returns, or superior performance, in the language of this study. The schools, however, differ on the primary means of maximising those profits, or, in the language of this research, how firms primarily develop superior performance. In the neo-classical perfect competition theory, a firm exists to combine resources to produce end products by teaming two inputs:- labour and capital. Perfect competition is based on four assumptions. First, the right input mix can be readily obtained. Second, the marginal contribution of each input is easily calculated. Third, all firms have perfect and complete information. As a result, firms are identical because perfect information together with specifiable production function assures that each firm has equal access to product technology. Fourth, resources are completely mobile and divisible. Resource mobility and divisibility assure that each firm is able to obtain exactly the right inputs. Thus no firm achieves superior performance, because all firms are equally able to team the proper inputs. Hence no performance differentials will exist. The resource-based view (RBV) rejects the neo-classical assumption of freely available information, as well as costless resource mobility across uses and infinite resource divisibility.

Bain-type firms develop superior performance by restraining product output and selling them at “artificially” high market prices. Firms are not identical, but differences that matter are market share and industry concentration. Industries in which output is produced by a few dominant firms may, “in the long run, earn higher rates of return --- than-- the normal or complete rate of return” (Mann, 1996). Firms are viewed as

heterogeneous and it is this heterogeneity that enables the development of superior performance. According to this theory, more superior performance can be created through monopoly power, by preventing another firm from gaining monopoly control, or through collaborating with other firms. RBV shares the Bain-type theory of the firm being an input provider. Although RBV agrees with the Bain-type that persistent above-normal earnings are possible, it views such earnings as rents accruing to assets that cannot be imitated (Rumelt, 1987) and not resulting from monopoly power.

Schumpeterian firms develop superior performance through two ways. First, by creating innovative products, which consequently destroy rivals' positions. Second, by adopting innovative products thereby destroying rivals' positions. Hence the Schumpeterian firm develops superior performance through "creative destruction". According to this theory, firms should not fear competition (as in the Bain-type), but should take advantage of it by creating or adopting innovations that destroy the rivals' positions. Firms having monopoly power are seen to have a greater incentive to develop revolutionary innovations. Whilst the RBV supports the power of the revolutionary evolution, it rejects the necessity of pre-existing monopolistic earnings to support such initiatives. It also supports the view that less than revolutionary innovations, well protected by resource barriers (Wernerfelt, 1984), can yield above normal returns. It however rejects the idea that innovation is the only way firms can develop superior performance.

The Chicago School argues that firms exist to enhance efficiency in production and distribution of the end products. According to this theory, firms differ because of efficiency differences in production and distribution. Superior performance therefore

results from a firm's efficiency differential in production and distribution, in comparison to rivals. Production and distribution are therefore viewed as the crucial determinants of both firm size and firm competitiveness. Efficiency-based superior performance is lost when a firm ceases to be efficient. RBV sees above normal-returns as resulting primarily from acquiring, combining, and deploying resources, rather than from the structure of the industry in which the firm finds itself (Bain-type theory). RBV however rejects the idea that efficiency in production and distribution are the only sources of superior performance.

Transaction Cost Economics (TCE) firms exist to avoid (economise on) the costs of conducting the same exchange between autonomous contractors. Williamson (1975, 1989) expanded Coase's theory by analysing exchanges in which opportunistic potential is significant. He argues that such potential exists when three conditions are met. First, there should be asset specificity. Asset specificity imposes a dependence condition because the value on one asset (which he calls *A*) depends upon the presence of another input (which he calls *B*). Second, there should be a small number of potential transactors. This reinforces the dependence because *A* cannot costlessly find a replacement for *B* if *B* decided to withdraw his services. Third, there should be imperfect information. This means that without perfect information complete contracts cannot be written, and with incomplete contracts *priori* knowledge of *B*'s latter actions cannot be fully incorporated in determining *A*'s *ex ante* high price. Thus *A* cannot nullify the risk of later opportunism by *B* by *ex ante* adjustments of the price of *A*'s services.

Transaction cost theory assumes that the same productive activity can be carried on either within the firm or by a collection of autonomous contractors: that is, except for problems of opportunism, the same inputs can be used equally productively in a firm or a market context. In a resource-based view of the firm, team-specific assets within the firm will be more specific to other teams inside the firm than to teams outside the firm, and hence more productive. Table 1.1 summarises the similarities and differences between RBV and the five IOE theories.

Table 1.1 Similarities and differences between IOE theories and RBV

	Similarities	Distinctions
Neoclassical	<ul style="list-style-type: none"> • Firm as input combiner • Emphasises physical production of goods 	<ul style="list-style-type: none"> • No “given” production algorithm; identification of resources and resource combinations is problematic • Critical resources may be immobile (not available for purchase, or not easily jettisoned if no longer productive); may be by-products of teamwork • Firm size and scope are important issues
Bain-type	<ul style="list-style-type: none"> • Firm’s environment (other firms/public policy) poses critical constraints on strategy • Persistent above-normal returns are possible 	<ul style="list-style-type: none"> • Restraints on output through monopolistic or collusive action, or investments in “artificial” entry deterrence, are not primary sources of persistent above-normal returns • The firm (not the industry) is the appropriate unit of analysis for understanding sources of above-normal returns • The internal organisation of firms is a critical variable • Firms’ behaviour may be at least as much the result of conscious choice as it is a foregone conclusion for industry structure
Schumpeterian	<ul style="list-style-type: none"> • Spectacular above-normal returns can result from new ways of competing • Entrepreneurial vision is at the heart of the firm • Potential imitators always exist 	<ul style="list-style-type: none"> • Feasibility of new ways of competing does not rest on monopolistic (output-restraining) practices • Imitators are constrained by costly-to-copy resources • Exogenous shocks can be critical to “creative destruction” • Healthy earnings can result from less than “revolutionary” innovation
Chicago	<ul style="list-style-type: none"> • Firms are production and distribution efficiency-seekers • Size and scope of the firm reflect extent to which production efficiencies are achieved 	<ul style="list-style-type: none"> • Focus more on the intermediate (not long) term, so entry need not dissipate above-normal returns in the time span relevant to the firm and its strategic choice problem • Efficiency seeking goes beyond current products, extending also to new products
Coase/William Transaction Costs	<ul style="list-style-type: none"> • Asset specificity and small numbers are critical concepts constraining the firm’s strategic options 	<ul style="list-style-type: none"> • The heart of the firm centres on deployment and combination of specific inputs rather than on avoidance of opportunism

Source: Conner (1991)

Collis and Montgomery (1995) argue that RBV, being grounded in economics, does not displace IOE models, but builds on them, by combining internal and external perspectives. In RBV, as in IOE, the firm's ultimate objective is above normal returns. But RBV then argues that this is through unique or costly-to-imitate inputs (Conner, 1991). RBV gives managers a unique role of identifying and developing those resources that are potential sources of sustainable competitive advantage, thereby developing superior performance.

A shared view among RBV writers is that not all resources are sources of superior performance. A resource that is a source of superior performance must meet four rigorous conditions. First, it must be valuable. This means that the resource must enable a firm to conceive of or implement strategies that improve the firm's efficiency or effectiveness (Barney, 1991). Second, the resource must be rare. If a resource is possessed by a number of competitors or potential competitors, it no longer represents a source of superior performance. Third, the resource should not be tradable. Where resources are easily traded (imperfectly mobile), no competitive advantage can be maintained. Fourth, a resource must be imperfectly imitable. For a firm to be in a position to exploit a valuable and rare resource, there must be a resource advantage barrier preventing imitation by other firms (Wernerfelt, 1984). Such barriers include casual ambiguity (Reed and DeFillipi, 1990) and uncertain imitability (Lippman and Rumelt, 1982), where the drivers of success are difficult to identify.

Resource-based writers note three major assumptions of RBV. First, firms are seen as bundles of heterogeneous resources that provide the basis upon which a competitive

advantage can be pursued. The normative implication of this view is that the firm should base its strategy on its own resources and capabilities (Fahy, 1996). It should be noted that RBV shares the Bain-type school perspective in terms of resource heterogeneity. Differences in firm performance then results from differences in the possession of these heterogeneous resources. Heterogeneity is important because it gives the conditions of imperfect mobility (Peteraf, 1993). A view shared by many RBV writers is that imperfectly mobile resources are those resources that are tradable but more valuable within the firm that currently employs them than they would be in other employ. Such resources remain bound to the possessing firm and can be sources of sustainable competitive advantage.

The second assumption is that to continue to be sources of competitive advantage, heterogeneity must be preserved for a long time. This is important because if differences in firm resources are not stable over time these resources may not be perfectly immobile across firms, and heterogeneity cannot be lasting. Resources are perfectly immobile if they cannot be traded, and when they are idiosyncratic to the extent that they have no other value outside the firm (Collis, 1991; Peteraf, 1993). Other ways of preserving heterogeneity include casual ambiguity, tacit knowledge, social complexity, asset interconnectedness and asset stock efficiencies (Rumelt, 1987; Dierickx and Cool, 1989; Barney, 1991; Verdin and Williamson, 1994). As can be noted, there are two problems related to the complex RBV terminology. First, it makes communication between writers very difficult. Second, it makes it difficult to operationalise empirical studies involving these concepts.

The third assumption is that there should be limited competition before a firm establishes a superior position (Peteraf, 1993). This is because competition is undesirable as it increases the costs of implementing a firm's strategy position. In Barney's (1991) view, competition is desirable if the cost of implementing a firm's strategy is less than the returns from that strategy. This was in support of Rumelt (1987) who had argued that superior performance is achieved if the *ex-post* value of a venture exceeds the *ex-ante* of acquiring the necessary resources.

Having discussed the background to RBV, the next section explains the objectives of this research. It also discusses the variables considered for this research, and their operational definitions. Hypotheses for this research are also developed in this section.

1.2 Research Objectives.

Wernerfelt (1994), the one credited for coining the term "resource-based view", notes that significant progress has been made on the theory part of RBV, but that it suffers from limited empirical evidence. The purpose of this research is to contribute empirically to the resource-based view of the firm.

The specific objectives of this research are twofold. The first objective is to find out how managers describe their causes of success. As will be noted, according to resource-based literature, rare and difficult to imitate internal firm resources are the key to the firm's acquisition and maintenance of sustainable competitive advantage (Castanias and Helfat, 1991). In the language of this research, these resources will be referred to as resource advantages. To find out to what managers ascribe the sources

of their success, annual company reports were analysed (See Chapter 4). In addition, part of the common language was used to construct the questionnaire used to collect data for this study.

The second objective of this research is to understand how managers try to manage these resource advantages, and to find out what impact these superior resources have on firm performance. This objective arose from the concern raised by some writers that the possession of resource advantages alone will not result into superior performance. These writers argue that how managers view these resources is the secret to the development of resources into sources of superior performance.

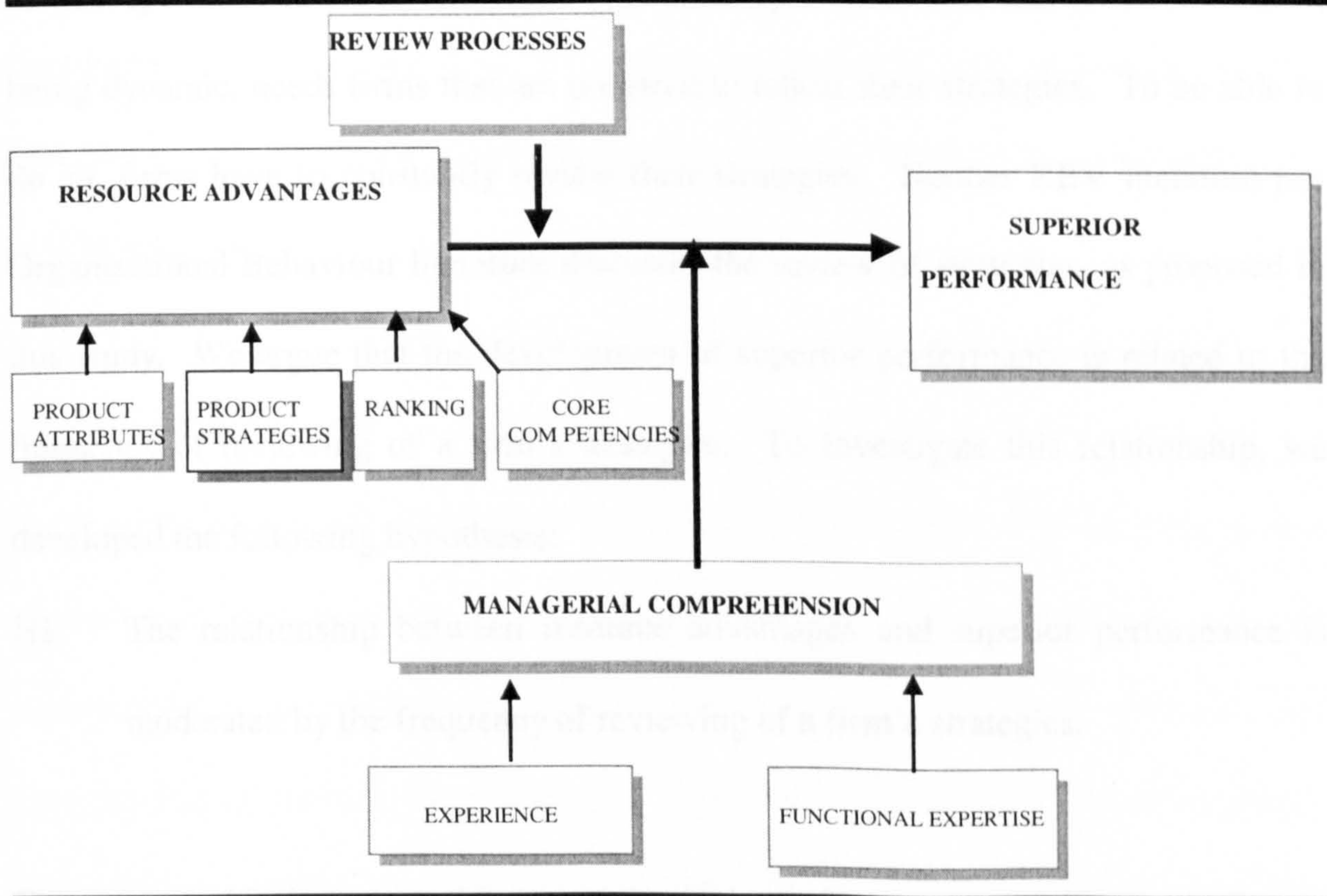
Much of the research on the nature of managers has sought to identify the traits and skills of managers and to understand the determinants of effective leadership (Castanias and Helfat, 1991). There has been little attention to the relationship between comprehension of managers and superior performance. The objective of this research is that by identifying and understanding characteristics of the management comprehension process, we can understand the nature of superior management which then leads to superior performance. Comprehension is fundamental in determining which resources are more important than others, which resources need to be developed, and how much time will be required to develop these resources into sources of superior performance

If comprehension is important in developing resource advantages, then research into the process by which comprehension takes place can, in turn, contribute to a fuller understanding of how firms identify, develop, and protect their resource advantages.

In addition, in order to be able to influence the development of superior resources, it is necessary to understand the comprehension process of managers. The advantage of looking at it this way is that it opens up the opportunity for contemporaneous empirical study of the process underlying the emergence of advantage, rather than limiting us to *ex post* assessments of how a firm obtained an advantage in the past (McGrath et al, 1995).

Having discussed the research objectives, the next section discusses the conceptual framework, as shown in Figure 1.1.

Figure 1.1 Superior Performance and Resource-Based Strategies



1.3 Conceptual Framework

To carry out an empirical investigation on how managers try to manage these resource advantages, and to find out what impact these resource advantages have on firm performance, we developed a conceptual framework depicted in Figure 1.1. According to this framework, the relationship between resource advantages and superior performance is moderated by two factors: managerial comprehension and frequency of reviewing strategies. The reviewing concept introduced in this study is concerned with reviewing product attributes, marketing & firm factors, and customer strategies. We assume that firms that frequently review their strategies will be in a better position to adapt their strategies, in response to changes in consumer demands, or in response to introduction of new products by rivals. The market environment, being dynamic, needs firms that are prepared to adjust their strategies. To be able to do so, firms have to constantly review their strategies. Neither RBV literature nor Organisational Behaviour literature discusses the review of strategies, as proposed in this study. We argue that the development of superior performance is related to the frequency of reviewing of a firm's strategies. To investigate this relationship, we developed the following hypothesis:

H1: The relationship between resource advantages and superior performance is moderated by the frequency of reviewing of a firm's strategies.

This relationship is expected because the review of processes enables managers to adjust their strategies in response to environmental changes. The processes to be reviewed include Delivery Capabilities, Customer Loyalty, Product Performance, Manufacturing Flexibility, and Workforce Management. This means that firms that

constantly review their strategies will develop better resource advantages, thereby contributing to developing superior performance.

Review Processes was measured by twenty different variables. Factor analysis was used to reduce these variables to five factors. The factors were named Delivery Capabilities, Customer Loyalty, Workforce Management, Manufacturing Flexibility, and Product Performance.

A review of the literature on RBV (Chapter 2) shows that managers contribute indirectly to a firm's superior performance. This study also argues that the development of superior performance is influenced by managers' comprehension of the firm's resource advantages. This **comprehension** is also influenced by two factors, namely, **functional expertise**, and **experience**. Each of these variables will now be explained.

1.3.1 Comprehension

It is important to clarify what this study means by "managers". There are three groups of managers: senior managers, middle managers and junior managers. Senior managers are responsible for establishing organisational goals, plans, strategies, and broad operating policies and guidelines. Their titles can be chief executive officer, executive vice president, vice president. Middle managers translate the executive orders into operation, implement plans, and directly supervise lower-level managers. Their titles include general manager, area manager, plant manager. Junior managers are responsible for directing first-line, non-supervisory employees, evaluating day-to-

day performance indicators such as volume produce, quality control, inventory, and preventive maintenance. Their titles include sales manager, clerical supervisor. The main target of this study was the senior manager, or top manager.

Penrose (1959) observed the importance of managers and notes that a firm could achieve rents not because of possessing better resources, but because it could make better use of its resources, especially the managerial resources. This is so because it is managers who can understand and describe the economic potential of a firm's endowments (Mahoney, 1995). Viewed this way, managers therefore play an important role in providing explanations that legitimate patterns of the firm's activities. According to Pettinger (1997), managers carry the burden of success or failure of the organisation's direction and future, and the path required to take it there. He further notes there is a wide range of choices available to the organisation and the manager is responsible for ensuring that the choice finally taken is successful. Everyday evidence seems to support the view that managers are very important in the success of any business, and that certainly when things go wrong in an organisation, the first person to be blamed is the top manager.

Many resource based writers share the view that the importance of managers is that they are a superior resource not controlled by the firm, but they share the resource with the firm. Flood et al. (1996) argue that senior managers meet the four conditions of resources that are sources of superior performance: valuable, unique, imperfectly imitable, and non-substitutable. In their view, although both industry specific skills and firm specific skills are both rare, firm specific skills are more likely to provide

sustainable competitive advantage than industry (generic) skills. A high level of behavioural integration makes senior managers imperfectly imitable and non-substitutable resources. Hambrick (1994) notes three major elements of behavioural integration in senior managers: quantity and quality of information exchange; collaborative behaviour; and joint decision making. What has not yet been considered by organisational and strategy researchers is the possibility that the failure of an organisation to develop superior performance may sometimes be the failure of organisations to comprehend the concepts they face in their daily duties. In view of this, it is therefore necessary to understand how the firm can make the most from the managerial resource. This research will argue that the comprehension of managers is an important factor in the development of resource advantages. Put differently, managers' behaviour is based on their comprehension of resource advantages, and that it is this comprehension that heavily influences the resources that a firm possesses at a given period, and how they are used.

Managers enable firms, even in the same industry, to perform differently. In addition to noting that firms are different because they have different managers, Gilbert and Strebel (1989) argue that it is the comprehension of these managers which then determines a firm's fate. The comprehension process is crucial because it impedes or enhances firm performance. For Sutcliffe (1994), comprehension is important because it determines the degree to which firm resources will be developed into superior performance. Whipp and Pettigrew (1989) see firm survival as dependent not only on managers' capacity to comprehend the current competitive forces but the ability to mobilise and manage the chosen competitive response. Comprehension is

seen as a process which affects the quality of all decisions made by firms.

From the preceding discussion it can be inferred that a lot of writers see a connection between comprehension of managers and the development of those resources that are potential sources of superior performance. It is further argued that in order to harness the potential of these resources, managers must understand the necessary resource combinations, a process McGrath et al. (1995) refer to as comprehension. The process by which comprehension develops is therefore crucial in understanding the development of superior performance. In fact, McGrath et al. (1995), argue that superior comprehension itself can be a source of sustainable competitive advantage.

For the purpose of this research, **managerial comprehension** (used interchangeably with **comprehension**) is measured by the managers' familiarity with certain strategic concepts that are believed to be potential sources of superior performance, and how easy they find these concepts to apply to their organisations. The basic argument of this study is that the development of superior performance depends upon the comprehension of strategic concepts.. To investigate this relationship, the following hypothesis was developed:

H2: The development of resource advantages into superior performance is moderated by managers' **comprehension** of strategic concepts.

The reason comprehension is expected to moderate the relationship between resource advantages and superior performance is that comprehension enables managers to develop resources into resource advantages, thereby contributing to developing superior performance. This means that managers with more comprehension of

strategic concepts will develop more superior performance than firms with managers with less comprehension.

Comprehension was measured by twenty-two variables. Factor analysis was used to reduce these variables to three factors. These factors were named Knowledge, Applicability of intangible resources, and Applicability of capabilities. Moderated regression analysis was used to investigate the effect of comprehension on the link between resource advantages and superior performance.

1.3.2 Experience

Experience is the first factor this study argues influences **comprehension** of managers. **Experience** in this study will refer to experience gained on the job.

Like managerial comprehension, there is very limited empirical work on the effects on Experience on firm performance. The importance of experience is supported in literature. For example, many instances have been reported in which highly experienced employees turn ambiguous (or uninterpretable) instructions from their leader into organisational advantage (Howell et al, 1986). Margerison (1991) argues that planned experience is essential if people are to be helped to move forward.⁵ In connection with managerial experience, Mahoney (1995) argues that the experience of managers will affect the productive services that all resources are capable of rendering. This is partly because managers' interpretations of those resources which are potential sources of superior performance is influenced by experience (Isabella and Waddock, 1994). Aaker et al. (1994) argue that internally accumulated resources are

the most important source of assets that will remain imperfectly imitable. This study argues that experienced managers may be such resources. It is through experience that managers learn to identify, develop and convert such resources into superior performance. Inexperienced managers are likely to fail to identify, develop and protect such resources and therefore are often doomed to fail (Wernerfelt, 1994).

To investigate this relationship we developed the following hypothesis:

H3: The more **experienced** managers are, the better their **comprehension** of strategic concepts.

This relationship is expected because experience increases managers' comprehension of strategic concepts. This increased comprehension, in turn, is related to more superior performance. Thus comprehension affects superior performance through its relationship with experience.

Experience was measured by the period a manager has been in the managerial position.

1.3.3 Functional Expertise

Functional expertise is the second factor that this study argues influences **managerial comprehension**. A distinguished feature is that there is very limited work on both the theoretical and empirical aspects of the contribution of functional expertise, as we define it in this study. We want to argue that the failure of firms to achieve superior performance may be due to lack of functional expertise.

The manager cannot carry out his duties effectively unless he has received some form of training. This is because, as observed by Hoffman and Hegarty (1993) the manager is both a functional expert and a technical expert who cannot lead without a sound knowledge of work, technology, and the professional and technological expertise. There is a responsibility incumbent on the organisation either to train the technically-oriented functionaries for management before giving them a managerial position; or to induct and ground those already trained as managers in the technical environment (Pettinger 1997). In line with Hoffman and Hegarty (1993), we define **functional expertise** as the ability to perform managerial functions well. It is further assumed that managerial training and development increase managers' functional expertise. Henderson and Cockburn (1994) argue that functional expertise is fundamental to day-to-day problem-solving and may be related to enduring competitive advantage. This study argues that functional expertise, increases **managerial comprehension**, thereby contributing to developing superior performance.

Some writers argue that functional expertise moderates the relationship between resource advantages and superior performance. For example, Howell et al (1986) argue that expertise could also occur in organisations as either an enhancer (positive moderating effect) or a neutralizer (negative moderating effect). This would mean that a high degree of functional expertise could increase managerial comprehension, thereby contributing to developing superior performance. Gronhaug and Dordhaug (1994) argue that functional expertise enables managers to identify added values customers seek and revitalise existing, or develop new, strategic resources that can be used in both existing and new markets. This then enables managers to continually

improve and extend firm resources into new value-generating activities. When managers do this, they develop “forward-looking” competencies to help their firms anticipate competitive attacks (Werther Jr and Kerr, 1995). Hoffman and Hegarty (1993) see functional expertise as an important source of innovation in firms. In their view, focusing on functional expertise of managers offers generalisable guidelines on identifying which managers can be more capable of identifying, developing, and protecting a firm’s superior resources. The explanation is found in earlier work by Castanias and Helfat (1991), when they argued that such resources work as isolating mechanisms because they are casually ambiguous, intangible, unique, firm-specific and difficult to codify.

The investigate the relationship between functional expertise and **Comprehension**, the following hypothesis was developed:

H4: Managers with more functional expertise will demonstrate a greater comprehension of strategic concepts.

This relationship is expected because functional expertise increases managers’ comprehension of strategic concepts. This increased comprehension, in turn, is related to more superior performance. Thus comprehension affects superior performance through its relationship with functional expertise.

Functional expertise was measured by the frequency of attending training and management development programmes.

1.3.4 Superior Performance

Superior performance in this conceptual framework is seen to be influenced by the possession of resource advantages. The belief that resource advantages lead to superior performance is consistent with resource-based writers. This perspective, however, undermines the importance of managerial comprehension. That is why this conceptual framework considers managerial comprehension as a moderating factor in the development of a firm's resource advantages. It should be realised that there are different indicators of success. For this research, superior performance was measured by four financial indicators: Profitability, Return on assets (ROA), Sales volume, and Growth. Although there is a good deal of debate over the use of accounting measures of performance in strategy, there are a number of reasons for using them for a study of this type. Accounting indicators especially, Return on assets, have been used in a number of studies in strategy research. For example, Robins and Wiersema (1995), and Mehra (1996) used ROA. The use of accounting measures helps to preserve consistency with other research. In addition, according to Robins and Wiersema (1995) the use of accounting measures allows the results of the analysis to be directly compared with a substantial body of work on related topics in strategy. All this helps to make the research replicable and cumulative.

1.3.5 Resource Advantages

Resource advantages refer to those resources believed to be sources of superior performance. As will be shown in the following chapter, this study has grouped these resources into four categories: Strategic resources, Strategic assets, Organisational capabilities, and Core competencies. These factors are covered in the literature

review, in Chapter 2.

1.4 Type of Study

This study is a cross-sectional one and is based on only one industry. According to some writers, for example Sekaran (1992), a cross-sectional analysis is useful for understanding that, in order to achieve sustainable competitive advantage and the subsequent superior performance, firms have to develop an adequate bundle of unique, valuable and costly to imitate resources. Put differently, the origins of sustainable advantages in a cross-sectional setting are heavily determined by the possession of strategic resources.

Some resource-based writers argue that for empirical studies to be more helpful, they should concentrate on only one industry. Collis (1991), for example, argues that sources of superior performance are dependent on the context of the industry and the time. Godfrey and Hill (1995) support this view. In their view, the description of the firm found in RBV is complex, deep and historical. They believe this could be simplified by studying a collection of firms that face a similar environment to establish how they differ with regard to their resources, and to link these differences to barriers to imitation across time. This study will therefore concentrate on one industry. It is possible to identify sources of superior performance in any industry, but these sources of superior performance can not be applied across industries. By implication, they are industry-specific and apply only at a certain time. Time makes some sources of superior performance obsolete, that is, through imitation or creation of substitute products. This view seems to be in support of the Schumpeterian theory of “constructive destruction”.

Recent studies by Werther Jr and Kerr (1995) argue that product quality is no longer a source of competitive advantage, but a prerequisite for competing. The consumer takes product quality for granted. As such, they argue, it becomes a strategic minimum, and offers no competitive advantage, though its absence means failure.

In view of the above, the Motor Vehicle Manufacturing Industry (MVMI) was chosen because it is an extremely complex one and mirrors a wide range of business characteristics. For example, low to high technology processes; small and large firms; sectors where some firms have sustainable competitive advantage and others have short-term advantages (Carr, 1991). Carr (1991) further observed that dominant car manufacturers have seen their market share taken by smaller competitors. Customer expectations are increasingly becoming complicated. They are expecting increasingly reliable products, and they expect new forms of value to be added to, not substituted for, those developed earlier (Werther Jr and Kerr, 1995).

The study sought to compare the UK firms in the Motor Vehicle Manufacturing Industry with the Zimbabwean firms in the same industry. This approach was felt appropriate for two main reasons. First, it was hoped that the comparative approach would increase the response rate as information would come from a wider and diverse sample. Second, it was the contention of the study that comparative study would be more valuable than a study based solely on one country. It was felt that we would learn more from the two countries in terms of the variables of interest.

Having provided a conceptual framework, and formulated research hypotheses, the

following section explains the importance of the research.

1.5 Significance of the Study

This study is considered important for three main reasons.

1.5.1 The study provides additional linkages with research on mainstream RBV.

The study aims to supply a more detailed understanding of the dynamics of managerial comprehension in the development of those firm resources which are seen as potential sources of superior performance. This study is considered important because, to date, no study of this nature has been carried out yet. RBV literature, though it acknowledges the strategic role of managers, does not develop the analysis further. This study then aims to contribute by exploring empirical evidence for the impact of managerial comprehension.

1.5.2 The study aims to show how firms actually describe the causes of their success and what is seen to influence the development of such success factors. The study will show to what extent managers understand the concepts of resource based terminology; and whether they understand what particular resources make their firm successful in the market place. Data was obtained from managers with different amounts and kinds of experience. The assumption was that managers with more experience, or more relevant experience, would have more **comprehension of strategic concepts.**

1.5.3 To find out how managers manage those resources they think are commercially and competitively important. Once we know the sources of

superior performance, in managerial terms, we can then help firms to develop those resources that are potential sources of sustainable competitive advantage.

1.6 Structure of the Research

Chapter 2 looks at the resource-based literature. The literature is discussed under four broad categories: Strategic Resources, Strategic Assets, Organisational Capabilities, and Core Competencies. Each category attempts to answer each of the following questions: What are they? How are they developed? How do firms protect these resources to develop superior performance? A distinctive feature in this chapter is the diversity of language used. As discussed, this diversity reflects the wide range of interest in the theory of different writers.

Chapter 3 begins by discussing why research is important in social enquiry. It then discusses some of the things considered important in determining the type of research to be undertaken. The different types of methodologies are then discussed, followed by sampling procedures. Again the variety of research methods shows that no method is superior to others. The choice of a method is dependent on a number of factors, which are discussed in this chapter.

Chapter 4 details the survey process for this study. It begins by looking at common survey errors in social research, and then discusses the strategies adopted for reducing some of the survey errors. The chapter then discusses how the questionnaire was constructed, and how the respondents were selected. The process of data collection is

also discussed in detail.

Chapters 5 and 6 look at data analysis and discuss the results. Chapter 5 deals with descriptive data analysis. Chapter 6 looks at four multivariate data analysis methods used: Factor analysis, Correlational analysis, Moderated regression analysis & Subgroup analysis, and Regression analysis. Chapter 7 provides the main conclusions of this study, and the contribution of this study. It then discusses the limitations of this study, and concludes by suggesting areas for further research.

CHAPTER TWO

LITERATURE REVIEW

This chapter begins by explaining why there is such a diversity of terminology in classifying those resources that are believed to be the sources of superior performance. It will then review the literature on the Resource-based view (RBV) of the firm under four broad categories. Under each category, an attempt is made to answer each of the three questions: what these resources are, how firms identify them, and how they are developed into sources of superior performance. Because of their importance in developing superior performance, Section 2.5 again, looks more broadly at how these resources are developed into sources of superior performance.

Looking through the RBV literature, one is particularly struck by the diversity of terminology and associated definitions used in reference to many facets of firm resources which might seem both confusing and misleading (See Appendix 1.1). This diversity of terminology indicates the broad interest in the theory, but it has also made communication across authors more difficult (Peteraf, 1993). One explanation for the diversity of terminology, according to Barney (1991), and Mahoney and Pandian (1992), is the fact that RBV has attracted attention from a variety of different perspectives, for example, Industrial Organisation Economics, and Organisation Behaviour.

RBV writers are agreed that certain resources are the real sources of superior performance. For example, some resources are valuable and difficult to imitate thereby enabling the possessing firm to generate rents for a long time. It is these resources Day and Wensley (1988) refer to as superior resources. In their view,

analysis of a firm's opportunities for competitive advantage should revolve around the analysis of customer benefits. In the absence of such analysis they doubt whether a firm can leverage its resources into positional advantage. Wernerfelt (1989) shares this view and goes further to suggest that managers themselves should be viewed as the critical resource that enables other firm resources to be transformed into superior performance.

For the purposes of this thesis, these superior resources are referred to as resource advantages and are classified into four broad categories: **Strategic Resources; Strategic Assets; Organisational Capabilities; and Core Competencies.**

Each of these categories is now discussed below.

2.1 Strategic Resources

A firm is viewed as a bundle of resources (Dierickx and Cool, 1989; Barney, 1991; Peteraf, 1993; Godfrey and Hill, 1995). It is this heterogeneity that leads to differences in firm performance, and differences in sustainable competitive advantage (Black and Boal, 1994). The understanding of the factors that produce and preserve resource heterogeneity is crucial for identifying sustainable competitive advantage and the development of sound strategies (Day and Wensley, 1988; Peteraf, 1993). The shared view is that superior performance results from those resources that have the potential to produce rents. The first question that comes to the reader is "What are these resources?" There is no one answer. Teece (1992) calls such resources "dynamic capabilities". Day and Wensley (1988) and Black and Boal (1994) call them "strategic resources"; Helfat (1994) calls them "firm-specific" resources. The

second question is “How do firms develop these resources?” According to Helfat (1994), firms create such rent-yielding resources by focusing on skill acquisition, learning and accumulating capabilities.

According to Peteraf (1993) not all resources are potential sources of superior performance. In her view, resources that are potential sources of superior performance should meet the following four conditions. First, the resources must be heterogeneous. These are resources that are imperfectly mobile, thus making them difficult for rivals to either imitate or substitute. These resources reduce competition for available rents and thus the firm possessing these resources develops superior performance. Many writers share this notion of imitability. For example, Bharadwaj and Varadarajan (1993) are of the opinion that the sustainability of a firm’s competitive advantage is dependent on barriers to imitation of its superior resources. Thus the primary focus of the RBV is on imperfectly mobile resources, or, according to Mahoney and Pandian (1994), the “rent-generating resources” and “resource combinations” which cannot be easily imitated or substituted. Black and Boal (1994) urge firms to develop system resources which they define as socially created complex network of firm resource factors.

Second, there must be forces to limit the competition for such resources once a firm gains the superior position. This is because competition reduces the rent-generating capability of a resource. It may be wise for a firm to move in an area where there is less competition or shift the battleground. For example, Ohmae (1997) argues that the strategy of changing the battleground is a very basic habit of Japanese companies, which he sees as the effective way to compete against Western companies with their

larger markets and greater cumulative experience in technology, production, and marketing. Third, before a firm gains this superior position, there must be limited competition for that superior position. Peteraf (1993) argues that competition increases the costs of implementing a firm's strategy. Fourth, there must be imperfect resource mobility to ensure that rents are bound to the firm and shared by it. By implication, if resources are perfectly mobile, imitation is easier, and no advantage can be sustained.

A number of writers share Peteraf's (1993) view that not all resources are potential sources of superior performance. However, Ginsberg (1994) argues that to be potential sources of superior performance, such resources should fulfil four conditions. First, they should be valuable to the possessing firm, and have no value outside the firm. Second, these resources must be rare. Third, they must be imperfectly inimitable. Fourth, these resources must be unique, that is, they must be difficult to have substitutes. Black and Boal (1994) argue that the simpler it is to identify a resource bundle, the easier it is to imitate or find close substitutes and the greater the opportunity for decrease in rent generation of the resource.

The general belief among RBV writers is that heterogeneous resources are the potential sources of superior performance. Godfrey and Hill (1995) however have a different view. They do not believe that heterogeneous resources are always potential sources of superior performance. They argue that these resources can be sources of competitive disadvantage as well. In their view, the RBV is only powerful if there are unobservable resources. They believe that for heterogeneous resources to be potential sources of superior performance, they must meet three conditions: they must reduce

the cost structure of the possessing firm; they must help differentiate the firm's product offering; and they must be unique in relation to those resources possessed by competition. They further argue that even if the above three conditions are met, then the sustainability of the resultant competitive advantage also depends on three factors: the rate of resource obsolescence due to environmental change, the availability of substitutes for the resource, and the inimitability of the resource. Resources are argued to be observable if they are diffused throughout the organisation. The inimitability of a resource depends on the height of barriers to imitation, which in turn is a function of the extent to which the target resource is observable. The core proposition of the RBV with regard to sustainability proceeds on the logic that, other things being equal, the more unobservable a value resource, the higher are the barriers to imitation, and the more sustainable will be a competitive advantage based upon that resource. Once a resource is observable, it immediately erodes the height of the barrier to imitation.

While they acknowledge the importance of having strategic resources, Collis and Montgomery (1995) note that deploying these resources in a well-conceived strategy is equally important. In their view, like many others before them, to be a source of superior performance, a resource (tangible or intangible) should be imperfectly mobile, imperfectly imitable, specialised, imperfectly substitutable, and not entirely appropriable by others. Such factors, they argue, become resource position barriers which should simultaneously translate into isolating mechanisms. In an earlier work, Wernerfelt (1994) had argued that firms should identify and develop those resources which can sustain a resource position barrier.

Hall (1992) carried out an empirical study to investigate the link between intangible resources and sustainable advantage. The results showed that intangible resources are uniquely associated with capabilities. Company reputation was rated the most important intangible resource. A major weakness of the study is that it only looked at six firms in six different industries, i.e., one firm per industry. In spite of this, Helfat (1994) supports Hall (1992) by arguing that the results should be viewed as a building block toward a comprehensive resource-based theory of the firm both conceptually and empirically.

Rao (1994) carried an empirical study to investigate the impact of intangible resources on the survival of firms in the American automobile industry. The results showed that the reputation of individual firms influenced their survival. An RBV explanation of these results is that the reputation of individual firms is difficult to accumulate, imitate, substitute, or transfer. The reputation of individual firms was therefore seen as a critical resource. A limitation of the study is that it lacked data from all firms, hence the results had to be read “with caution” (Rao 1994).

An empirical study to assess whether research and development (R&D) could be used as a potential source of superior performance by Helfat (1994) showed that R&D can be a potential source of superior performance. This is because it exhibits a number of isolating mechanisms, like casual ambiguity, making it firm-specific. Firm-specificity, in particular, provides protection from imitation and retards diffusion of technical knowledge across firms.

The foregoing discussion of strategic resources shows them as resources which are valuable, scarce and can not be imitated easily. One problem with these definitions, as is common with the RBV terminology in general, is that it is not clear what a resource is. This study shares the view that a resource should be seen as an input, and hence “strategic resources” for the purposes of this thesis will be defined as those firm-specific inputs (Barney, 1991) that are valuable, unique or costly-to-copy (Conner, 1991).

2.2 Strategic Assets

This section will briefly outline the major literature concerned with strategic assets. Itami (1987) believes invisible assets are the real sources of sustainable competitive advantage. In his view, they are hard to accumulate, they are capable of simultaneous multiple uses, and they are both inputs and outputs of business activities. He argues that their accumulation requires on-going, conscious, and time-consuming efforts. As a result, competitors cannot easily imitate invisible assets. He further views people as an example of such unique and valuable invisible assets because they are accumulators as well as producers of invisible assets.

Dierickx and Cool (1989) suggest that resources should be differentiated as either asset flows (firm resources that can be obtained or adjusted immediately) or asset stocks (firm resources which cannot be adjusted immediately and which are built up over time from asset flows). Their main objective was therefore to explain why all resources cannot always be sources of superior performance. They argue that asset stocks can only be sources of sustainable competitive advantage if they are non-tradable, non-imitable, and non-substitutable. Assets that possess these characteristics

are what they refer to as strategic assets or non-tradable assets. In their view, these assets are built hierarchically out of elementary assets. As such, these resource bundles are interrelated resources, capabilities, and competencies. Sustainability of a firm's asset position therefore depends on how easily it can be replicated. The authors assigned management the tasks of identifying, developing (internal asset accumulation) and protecting these strategic assets. In their view, this is important because most assets erode over time, and as such they see internal asset accumulation as the most important source of strategic assets which are either difficult to imitate or substitute easily. In addition rents may only be sustained if this internal asset accumulation and regeneration processes are private but "knowable" within the firm (Williams, 1994).

Barney (1991) talks of tradable and non-tradable factors. By definition, a tradable factor is one that can be specifically identified and its monetary value determined through a "strategic factor market". By implication, a non-tradable factor will be firm specific and will not directly have its monetary value determined through a "strategic factor market". Black and Boal (1994) combine Dierickx and Cool (1989) and Barney's (1991) terminology to produce four groups of strategic assets: tradable asset flows; non-tradable asset flows; tradable asset stocks; and non-tradable asset stocks. They argue that non-tradable asset stocks can have the strongest impact on sustained competitive advantage. Though the authors use different terminology, what is important is that once a firm develops these strategic assets, they, in turn, can give the firm important competitive advantages in subsequent markets (Barney and Zajac, 1994).

Reacting to Dierickx and Cool (1989), Collis (1991) argues that possession of asset stocks alone does not mean a firm will obtain above normal rents. This is because costs incurred by the firm in developing these assets may be more than the economic returns. Conner (1991) was however more supportive of Dierickx and Cool (1989). She argues that inputs that cannot be purchased are likely to be more specific to the firm than purchasable inputs and hence have the potential of being more significant rent generators. This is the view of Prahalad and Hamel (1990) who talk of collective learning as a core competence; and Teece and Pisano (1990), who emphasise mechanisms by which firms learn and accumulate new skills and capabilities.

Given the importance of strategic assets, Aaker (1989) argues that management has two primary tasks. First, to identify and develop a firm's strategic assets. This is achieved by developing and implementing programmes and procedures to develop, enhance, or protect these strategic assets. Second, to identify those strategic assets of the firm's competitors that should be neutralised. According to Amit and Schoemaker (1993), a firm should protect and deploy these specialised resources in a way that provides it with a sustainable competitive advantage, and thereby a superior return on capital. In their view, the more firm-specific, durable, and scarce strategic assets are, the more valuable to the firm can be their deployment. They argue that a firm obtains sustainable competitive advantage when existing and potential competitors lack either the ability or desire to imitate the rent-producing strategic assets. A firm's managers can lessen the incentives of competitors to imitate or develop close substitutes by, for example, building entry or mobility barriers, or by building isolating mechanisms (Rumelt, 1987) or, by continually investing in skills and capabilities that are casually ambiguous, or non-tradable (Dierickx and Cool, 1989).

Some RBV writers treat assets and resources as synonyms. Consequently, they use terms like “Strategic assets” and “Strategic resources” interchangeably. For this study, an asset will be viewed as something a firm possesses, so strategic assets are those things a firm possesses which are scarce, durable (that is, lasting) and are difficult to imitate. Defined this way, it becomes easier to see how strategic assets cause strategic resources to be unique and casually ambiguous, a view shared by Mahoney (1995).

2.3 Organisational Capabilities

This section discusses Organisational Capabilities. According to Grant (1992), capabilities are important because they are the main source of a firm’s competitive advantage. The implication is that capabilities can be used as the basis for broadening a firm’s product range. Once this happens, firms can create forward-looking competencies. According to Williams (1992), this is achieved by pushing a firm’s strategy slightly beyond the limits of its present capabilities. The management task is then to link their firm’s core capabilities to different types of strategies across time. In support of this view, Verdin and Williamson (1994) argue that successful strategies should forge links between the firm’s strategic assets and the market.

Collis (1991) views an organisational capability as the managerial capability to continually improve and upgrade firm efficiency and effectiveness. He argues that this is achieved when a firm creates dynamic routines that facilitate innovation, foster collective learning and transfer information and skills within the organisation. The implication is that successful firms should be flexible as they undergo periodic organisational re-adaptations in order to sustain their organisational capabilities.

Leonard-Barton's (1992) view is that at any given point in time in a firm's history, core capabilities are evolving, and corporate survival depends upon successfully managing that evolution. Core capabilities are viewed as a collection of knowledge sets, and that they are distributed and are being constantly enhanced from multiple sources. According to Leonard-Barton (1992) a firm achieves superior performance when it identifies its key business processes, and then bases its strategy on its own resources and capabilities (Fahy, 1996). This may even lead to a situation where the firm will choose to compete in inherently less structurally attractive markets if it possesses resources that are valuable in serving those markets (Collis, 1991).

Schoemaker (1992) argues that firms can achieve and sustain their competitive advantage by distinguishing core from non-core capabilities. A firm identifies its core capabilities by identifying which activities determine its essence or core and which are at the periphery. He sees a strong relationship between resource complexity or uniqueness and resource overlap (what Grant, 1991, refers to as resource transparency), hence his argument that the more unique the capabilities and the more they overlap, the greater and more complex are their synergies. Consequently, the more complex the synergies, the more difficult it is for competitors to imitate or find close substitutes. This view of resource complexity is shared by Stalk et al. (1992). Referring to business processes, Stalk et al. (1992) argue that the more complex they are, the harder it is to transform them into a capability - but the greater the value that capability once it is built because competitors find it more difficult to imitate it. Many RBV writers share this view. For example, Bartness and Cerny (1993) refer to these difficult to develop capabilities as "critical capabilities". These critical capabilities, they argue, reside in the firm's people and are supported by its

procedures, culture, and infrastructure. Black and Boal (1994), however have a word of caution on complexity as a desirable strategy of developing superior performance by confounding competitors. In their view, complexity makes it difficult for firms to create, manage, exploit and nurture their resources.

Ulrich and Lake (1991) see superior performance as a function of four capabilities: financial, strategic, technological, and organisational. Superior performance results when managers are able to understand and integrate all the four capabilities. To achieve this, managers have to do four things: develop a shared mindset within and outside the organisation, develop management practices that enable the development of this shared mindset, establish an atmosphere that encourages change and innovation, and empower all employees to think as leaders.

Kay (1993) argues that strategy should start by assessing a firm's distinctive capabilities. He then develops a capability framework that he terms "architecture" which is based on relational contracts. He identifies three types of architecture. First, internal architecture, which is a relationship established between the firm and its employees and among employees. Second, external architecture, which he defines as a relationship between the firm and its suppliers or customers (See also Lado et al., 1992). Third, networks, which are relationships between the firm and other firms.

Kay (1993) argues that there is only one organisational capability - architecture - that adds value to the firm. In his view architecture adds value in three ways. First, it creates organisational knowledge, which is also shared by all employees. This had been observed earlier by Prahalad and Hamel (1990) when they argued that

organisational knowledge, when it is unique and appropriable to the firm, is a potential source of superior performance. Second, architecture adds value by establishing a co-operative ethic. Third, it enables the firm to be flexible and responsive to changing circumstances.

Some RBV writers view organisational learning as a very important critical capability. For example, Mahoney (1995) argues that organisational learning is a unique competence that directs the resource conversion activities of the firm. His opinion is that firms should constantly reinvest to maintain and expand existing capabilities in order to prevent imitability. He argues that it is mainly through organisational learning that organisations can respond consistently to changing markets. This response is necessary because many organisational capabilities emerge, are refined, or decay as a result of, or an absence of, product market activity (Levinthal and Myatt, 1994; Bartness and Cerny, 1995). Given the importance of organisational learning, Nervis et al. (1995) argue strongly for learning to be seen as part of the production process. In their view, learning builds a firm's core competencies, fosters the right attitudes, and renews the firm's values.

Collis (1994) is however critical of the value of organisational capabilities as sources of superior performance. To be sources of superior performance, resources have to fulfil four requirements: valuable, rare, imperfect imitability, and substitutability. Similarly, to be sources of sustainable competitive advantage, organisational capabilities have to be immune to imitation, substitution, dissipation, and appropriation. Even if these conditions are met, he insists, they are certainly not the "ultimate" source and firms should not stop the search for sources of sustainable

competitive advantage. His advice is that firms should constantly use their capabilities to create new offerings in the market which are much superior in terms of the value perceived by the customers. This is what Strebel (1995) refers to as “industry breakpoints” which are achievable through capable management, because it is capable of creating different types of capabilities.

A number of RBV writers are agreed that the possession of both strategic resources and strategic assets will not by itself lead to superior performance. Successful firms have to go a step further and use their skills and capabilities to transform resources and assets into potential sources of superior performance. The general feeling among these RBV writers is that without capabilities, strategic resources and strategic assets have no value. This thesis will define organisational capability as “the ability to perform an activity in a way that is unique, valuable, and difficult to imitate”. This ability enables the combinations of strategic resources and strategic assets, thereby enabling the firm to outperform competition (Day, 1994). Like strategic assets, organisational capabilities are built over time. This too enables the firm to perform its activities more efficiently than competitors with otherwise similar resource endowments (Collis, 1994).

2.4 Core Competencies

According to Prahalad and Hamel (1990), competitiveness derives from a firm’s ability to build, at lower cost and more speedily than competitors, the core competencies that spawn unanticipated products. Put differently, they argue that competitive advantage is achieved if a firm uses its core competencies to develop products which customers have not yet imagined. In their view, management

develops core competencies by consolidating a firm's technologies and production skills, thereby enabling the firm to adapt quickly to changing opportunities. They argue that imitation is made more difficult if core competencies are used to produce core products. In their opinion, management has two central tasks. First, to identify the people who embody these critical competencies (or competence carriers) and move them across organisational boundaries. Second, to establish a strong "behavioural integration" (Flood et al., 1996) among the competence carriers, for example, by regularly bringing them together to share ideas.

Verdin and Williamson (1994) see two potential and critical functions of core competencies. First, the power of core competencies is that they may allow a firm to quickly achieve a desirable positioning within a new market by helping it to rapidly accumulate assets which are necessary but otherwise difficult to access. Viewed this way, core competencies are not substitutes for asset accumulation, but they act as catalysts in the asset accumulation process, and their value increases if used in developing those assets which are otherwise slow and costly to build. Second, core competencies may allow a firm to maintain or extend its competitive advantage by enabling it to augment its non-tradable, industry specific assets more quickly than its competitors.

Developing superior performance is achieved in two ways. First, by identifying and building those competencies that enable the firm to build assets or capabilities that are slow or costly for competitors to imitate. To determine the specific competencies that are potential sources of superior performance, a firm must identify those added values customers seek, a point that had been raised by Prahalad and Hamel (1990). Once

firms have identified their core competencies, they should then choose product market positions that represent the best application of their core competencies (Collis, 1991). Core competencies, in this sense, should then provide a guiding vision of strategy that is defined internally, by reference to competitors and relative product market position. Prahalad and Hamel (1990) further suggest that successful strategies should be based on a foundation of multiple competencies, which are developed through learning and continuous improvements in systems and people, as well as in products and services. In their view, such a competitive advantage is more difficult and more expensive to dislodge or match, and hence is more likely to be sustainable.

The second strategy for developing superior performance is to continually map and analyse competencies, and always seek to improve, and extend them into new value-generating activities (Gronhaug and Dordhaug, 1994). Thus by identifying alternative applications of their competencies, firms are able to develop forward-looking competencies that anticipate competitive attacks (Werther Jr and Kerr, 1995).

Collis (1991) argues that while every firm may aspire to develop core competencies, it is important to recognise that any such competence will only be valuable if it is distinctive. He further argues that the competence should be evaluated against those held by competitors so that the firm can choose product market positions that represent the best application of its core competencies. Accordingly, the task facing managers is to create dynamic routines that facilitate innovation, foster collective learning and transfer information and skills within the organisation. In Lado et al.'s (1992) view, management must focus on developing and nurturing those firm's distinctive competencies that inhibit imitability. These are what Mahoney and

Pandian (1992) refer to as imperfectly imitable and imperfectly substitutable resources that enable the heterogeneous firm to generate and sustain rents. A shared view among RBV writers is that the sustainability of rents depends on the barriers to imitation.

Henderson and Cockburn (1994) are of the view that to be potential sources of superior performance, a competence must meet three conditions. First, it must be heterogeneously distributed within an industry. Second, it must be impossible to buy or sell in the available factor market at less than its true marginal value. Third, it must be difficult or costly to replicate. Henderson and Cockburn (1994) carried out an empirical study to explore the role of competence in pharmaceutical research. They obtained data from 10 major pharmaceutical firms. They drew qualitative data about the history of research at each of the 10 firms to construct a variety of measures of competence. They analysed two broad classes of competence, namely, component competence and architectural competence. The results provided considerable support for the importance of competence as a source of advantage in research productivity. Architectural competence was seen to be a source of enduring competitive advantage which may provide useful insights into the sources of enduring firm differences in firm performance. The results also supported the view that the ability to integrate knowledge both across boundaries of the firm and across disciplines and product areas within the firm is an important source of strategic advantage.

There are two major problems with Henderson and Cockburn's (1994) empirical study. First, they admit that despite collecting unusually detailed data, they failed to separate convincingly the effects of local competence in a particular field from other

sources of unobserved heterogeneity. Second, the measures of architectural competence are subject to problems of misinterpretation. The research failed to show whether the variables used were measures of *symptoms* of architectural competence or measures of *causes* of architectural competence.

Having discussed the four categories of superior resources, the next section will now summarise how these resource advantages can be developed into potential sources of superior performance.

Of the four categories of resource advantages, core competencies are the most difficult to define. This probably explains why very few firms attributed their success to the possession of core competencies in their annual company reports. This study adopts Prahalad and Hamel's (1990) definition of core competencies as "an integrated collection of skills that should be difficult for competitors to imitate". Defined this way, core competencies could be viewed as an accumulation of organisational capabilities that span and support multiple lines of business (Day, 1994). This is why Verdin and Williamson (1994) argue that core competencies are not substitutes for asset accumulation, but catalysts in asset accumulation. It also becomes clearer why core competencies should be used to build assets and capabilities that are slow or costly for competitors to imitate.

2.5 Developing resources into sources of superior performance

This section discusses literature on how firms can make it difficult for competitors to imitate their resource advantages. In a way, it puts together what was discussed under

each category of resource advantages. We will discuss three main sources of barriers to imitation: isolating mechanisms; uncertain imitability; and resources/skill stocks.

2.5.1 Isolating Mechanisms as barriers to imitation

Resource-based writers argue that lack of similarity in resources of competing firms increases the costs associated with imitating resources. Some resource-based writers argue that firms should constantly strive to maintain these differences in resources so as to sustain their competitive advantages. According to Bharadwaj et al. (1993), barriers to imitation are even greater when casual ambiguity exists over the factors responsible for a firm's superior performance. In their view, casual ambiguity is contributed by tacitness, complexity, and specificity. They define tacitness as the implicit and non-codifiable accumulation of skills that result from learning by doing. Complexity results from interrelationships between various skills and assets. Lado et al. (1992) define specificity as the extent to which resources and skills are idiosyncratic, that is, not easily transferable to alternative use without substantial costs. Any of the three sources of casual ambiguity can produce ambiguity regarding the firm's actions and outcomes and in turn create barriers to imitation (Reed and DeFillipi, 1990).

A central theme of RBV is that there must be a condition to make resources imperfectly mobile, that is, the resources must not be easily tradable between competitors. Whether imitation of a particular resource will be time consuming, costly, or both depends on the relative ease with which rival firms are able to accumulate a similar resource of their own. Imperfectly mobile resources include those resources that are idiosyncratic to the firm and have no value outside it

(Williamson, 1979), those for which property rights are not well defined (Dierickx and Cool, 1989), or those co-specialised assets (Teece, 1986).

Collis (1995), however, argues that ultimately casual ambiguity cannot be a source of superior performance because it “contains the seeds of its own destruction”. In his view, it requires that no one, except the entire firm itself tacitly understands the causes of its capability. The argument is that once individuals understand it, it becomes tradable, what he refers to as “horizontal substitution”. Conversely, if individuals do not understand what causes it they will not develop it, and so no competitive advantage results.

Peteraf (1993) sees heterogeneous resources as sources of imperfectly mobile resources, thus making them difficult to either imitate or substitute. In Mahoney and Pandian’s (1992) view, valuable resources are often imperfectly imitable, and imperfectly substitutable and hence enable the heterogeneous firm to generate and sustain rents.

According to Williams (1992, 1994), resource sustainability depends on what he terms “resource classes”. He identified three classes of resources: Class 1: Slow-Cycle; Class 2: Standard-Cycle; and Class 3: Fast-Cycle. According to the author, Class 1 resources have durable and enduring mechanisms. Duplication of such resources can be difficult. This is because they have strong core capabilities that include patents, geography, complex buyer/supplier relationships and highly durable brand names. Class 2 resources are typically standardised for production at high volume, for example, automobiles, and are shaped by extended rivalry. These

resources have higher resource-imitation pressures. Firms using Class 3 resources are like the Schumpeterian firm. Resources are idea-driven, that is, based on a concept, technology, or idea alone detached from isolating mechanisms. The products do not benefit from strongly-shielded resources, hence isolating mechanisms are especially weak. This class therefore faces the highest resource-imitation pressures. There is rapid imitation. Consequently, even a strong brand name, if based on a Class 3 resource position, may not be especially sustainable.

2.5.2 Uncertain imitability as a barrier to imitation

For a resource to be a source of superior performance, it must be imperfectly imitable (Barney, 1991). For a firm to be in a position to exploit a valuable resource, there must be a resource position barrier preventing imitation by other firms (Wernerfelt, 1984). Isolating mechanisms are required to sustain a competitive advantage. Such barriers include causal ambiguity, (Reed and DeFillippi, 1990), and uncertain imitability (Lippman and Rumelt, 1982), where the drivers of success are difficult to identify.

2.5.3 Resource/Skill stocks as barriers to imitation

Barriers of this type result from the nature of the production process itself (Bharadwaj et al., 1993). Dierickx and Cool (1989) identify three major sources in the production process: time compression diseconomies; resource/skill stock; and asset interconnectedness. Time compression diseconomies refers to the accumulation process of the resource in question. A firm may follow a certain procedure that makes it difficult for competitors to imitate. Resource/skill mass efficiencies refers to the existing amount of resource/skill, which then facilitates further acquisition of other

resources/skills. For example, they argue that firms with low level stock may find it difficult to build further resources/skills. Asset interconnectedness, since it provides complementary resources/skills, makes it easier for a firm to compete in a product market.

2.6 Summary

The chapter has shown why there is such a diversity of terminology in the RBV of the firm. It was also shown that one reason the resource-based theory has no language of its own is because it attracted attention from several disciplines.

A common feature in the RBV literature is the idea that certain resources are the real potential sources of superior performance. These resources were termed “resource advantages” in this chapter and were discussed under four different categories, namely, strategic resources, strategic assets, organisational capabilities, and core competencies.

The various types of definitions of resources are shown in Appendix 1.1. For this study, strategic resources were defined as those inputs that are valuable, unique, or costly to copy. Strategic assets were defined as those superior possessions that a firm has acquired over time and are therefore firm-specific, and difficult to imitate. It is the strategic assets that cause strategic resources to be unique and casually ambiguous.

Organisational capabilities were defined as the ability to perform specific tasks in a way that is unique, valuable and difficult to imitate. It is through organisational

capabilities that strategic resources are combined with strategic assets to outperform competition. Like strategic assets, organisational capabilities are built over time. Core competencies were defined as an integrated collection of skills. To be potential sources of superior performance, these skills too should be difficult to imitate. The core competencies were viewed as catalysts to the building of strategic assets that are difficult for competitors to copy.

It was also pointed out that the success of RBV depends on resource heterogeneity and the protection against imitation by competitors. Without these two features, the RBV loses its power. Thus, all the four categories of resource advantages emphasise the importance of either protecting resources from imitation, or the importance of increasing costs of imitating resources. According to RBV, imitation reduces rents on the firm possessing the resource advantages.

Having reviewed the literature on RBV, the next chapter discusses the methodologies considered for this thesis. The purpose of the chapter is to choose an appropriate methodology to address the research problem.

CHAPTER THREE

RESEARCH METHODOLOGIES

This chapter begins by showing the importance of research and how this process is carried out. This is followed by a discussion of factors to be considered when choosing a research methodology. The chapter then discusses types of methodologies and the method chosen for this study. The implementation and details of questionnaire construction, pilot study and fieldwork will be discussed in Chapter 4.

3.1 Why Research?

We propose to begin the discussion by first showing the importance of research. Writers have different reasons for carrying out research. However, the primary function of research shared by many authors, for example, Sekaran (1992), Black (1993), Preece (1994), Sharp and Howard (1996) is to increase human knowledge. There are several ways of fulfilling this objective, for example, by reviewing existing knowledge, or describing and explaining social phenomena to construct something new.

3.2 How to design the Research

Writers are agreed that research, as a scientific method, has to be conducted in a systematic and organised way. The problem arises when one wants to choose the method of enquiry. It is easier in the natural sciences because they mainly use the

experimental method because some variables can be controlled whilst others are manipulated. However, it is a problem in the social sciences. Black (1993) identifies two problems associated with social science research. The first problem results from the fact that carrying out social science research involves considering many more variables, some of which are often difficult, if not impossible to control.

The second problem is that there is less widespread agreement about underlying theories and appropriate methods for resolving issues in the social sciences than in many disciplines. This probably explains the presence of many different classifications of approaches to social science research. There seems to be disagreement in the research literature regarding the definition of terms like “approaches”, “method”, and “technique”, “studies”, “designs” and it appears that some authors use these terms synonymously. In our view, a possible explanation of the terminological problem might be because the language used has been borrowed from many disciplines, for example, philosophy, psychology, and sociology. Section 3.4 discusses this in more detail.

From the above, several points considered important for this study can be observed. The first point is that there are several approaches in carrying out a research project. Secondly, there is no universally accepted methodology in the social sciences, and that there is no approach which is generally better or worse than another. The diversity of terminology reflects the interest in the research process, and the approaches are different because they are used for different purposes. A researcher has several options to consider, for example, in terms of methodology, methods, and techniques. This terminology is explained in Section 3.4. In choosing the appropriate

methodology, the researcher has to consider such factors as resource availability, and time, for example.

Thirdly, the basic characteristic shared by all these different approaches is that they are all scientific, and thus aim to be planned, cautious, systematic and reliable ways of increasing human understanding. Blaxter et al. (1996) identify four distinct characteristics of a scientific approach. First, its hypotheses are derived from theory and can be measured by observing certain variables. Second, it explains causality. The main task is to isolate cause(s) and to tell whether, and to what extent, “causes” result in effect. This issue is discussed in more detail under the Experimental Method, in Section 3.4. 3. Third, it extends particular results by generalising to the population. This is important because it is not possible to study the entire population. Fourth, it allows the same study to be repeated to get the same or very similar results.

3.3 Methodological Considerations

What is observed from the above is that the choice of the appropriate methodology should not merely list methods, but should be a convincing argument to carry out the research in a particular way (Cryer, 1996). Put differently, a research design should be appropriate for the research problem and should be justified. Another important point raised is that no methodology is superior to another. The success of any methodology results from focusing on scientific principles and practical considerations that are taken before making a series of key decisions.

3.3.1 Purpose of Research

A number of writers share the view that the purpose of the research will influence the choice of a research method (Sekaran, 1993; Black, 1993; Ragin, 1994; Ghauri, 1995; Herzog, 1996). For example, a researcher interested in theory building would use a qualitative approach. On the other hand, a researcher interested in proving a hypothesis or generalising results would use a quantitative approach. The researcher could also combine a qualitative and a quantitative method. In some cases, the researcher could use a non-conventional approach, for example, if he wants to develop original and creative thinking.

Our view of research is that it is a process of compromise. For example, we were aware that other methods could have produced better quality research, but we compromised quality with other considerations. This is in line with the thinking of research writers. For example, Sekaran (1992) argues that quality is higher in a longitudinal study than in a cross-sectional one, but because of the effort, time, and costs involved in collecting data over several time periods, most field studies are cross-sectional in nature. Sudman (1976) is of the opinion that researchers should not be guided by the pursuit of the highest quality feasible, but be realistic and be guided by what is both necessary and achievable.

3.3.2 The Research Question

According to Sekaran (1992), a study based on a rigorous method enables the researcher to collect the right kinds of information from appropriate sample with the minimum amount of bias. Most writers are of the view that the higher the extent of

rigour, the better the research method. However, Bryman and Cramer (1990) argue that, whilst it is desirable to have the highest level of rigour, considerations of research objectives, costs, and time, for example, can force researchers to settle for a lower level of rigour. Bryman and Cramer (1990) also observe that pursuing increased rigour for its own sake may not be an advantage. The extent of rigour should therefore be determined by considerations of the purpose of the research and costs, for example.

Using the terminology of research design (that is, the overall plan of the study), Ghauri et al. (1995) argue that a research design should be appropriate for the research problem. For example, they argue that a correlational design (that is, cross-sectional) is suitable when data on the independent and dependent variables are gathered at the same point in time.

3.3.3 Personal Factors

Many researchers have discussed the importance of personal factors in doing a research project. For example, writes argue that a researcher should consider three things: whether he is good at talking to people, whether he is good at observing people, or whether he wants to develop a skill he will use later in life. Each of the answers to the three considerations calls for a different research approach. After considering this and other constraints, like time and money, we ruled out personal interviewing, and observational methods.

3.3.4 Demographic Characteristics

Demographic characteristics, for example, sex, class, have been found to affect the outcome of a research project. Writers argue that demographic characteristics are mainly influential in qualitative approaches. We wanted to choose a methodology that would enable us to have a high response rate. We had to evaluate the strengths and weaknesses of either having or avoiding direct contacts with respondents. We found a quantitative approach more appropriate for this study. Blaxter et al. (1996) are also of the opinion that the researcher can be forced to consider quantitative approaches, which might not give him the results he wanted. They view this as a problem because the researcher can do very little to avoid the influence of emotions between him and the researched.

We found the characteristics of the target population equally important. Our respondents were very literate, so we considered a data collection technique that would ensure a high response rate. According to the research literature, the literacy of the targeted population affects the degree of motivation, and that the data collection technique should suit the literacy level. For example, Fowler (1993) argues that the more educated the respondents are, the more motivated they are, and the more willing they are to respond. In his view, questionnaires are appropriate if the literacy level of the respondents is high. He further argues that interviews are applicable when the respondents are less educated or are likely to be less motivated.

3.3.5 Academic Community

A number of writers argue that the academic community should be considered

seriously. Of particular concern were the questions “How will the academic community react to our completed work?” and “What contribution will our work make to the academic community?” In Salmon’s (1992) view, whatever choices are made, some inner accommodation must be created with the intellectual establishment. This is because research is a collaborative activity. Our intention was therefore to build on the work of others. Thus the choices we made accommodated the intellectual establishment. According to Salmon (1992), this intellectual establishment uses both direct and indirect social relationships. Examples of direct social relationships include departmental boards, supervisors, external examiners and other people who should find the researcher’s work acceptable. This is important because the whole dissertation process is a ritual of socialisation into the academic community, so mastery of the scholarly procedures is important (Rudestam and Newton, 1992). Indirect social relationships are in the form of “professional” media such as journals, training programmes and conferences, which constitute the general “discourse” in a specific discipline (Salmon 1992).

3.3.6 Available Resources

The importance of this consideration is that research approaches differ in terms of resources they require, and that available resources may force the researcher to use a method he did not want. Generally, qualitative approaches tend to be more expensive than quantitative approaches. In view of the resources we had (financially and in terms of personnel) we found a quantitative approach appropriate for this study. It was cheaper and faster than a qualitative approach.

Having discussed the purpose of research, how to design the research and factors to be considered in choosing a research methodology, the next section discusses the three levels of the research process.

3.4 Types of Methodologies

Before discussing the methodological issue, we feel it proper and fitting to clarify the research design of this study. Writers differ as to what is meant by research design. We found the definition of a research design by Churchill Jr. (1995), Ghauri et al. (1995), and Black (1996) clearer than other definitions. They define a research design as a framework or overall plan for a study that is used as a guide in both collecting and analysing data. They identified three common types of designs: exploratory, descriptive, and causal.

An exploratory design was found inappropriate because it would have been ideal if the objective was to develop a theory. An experimental design was also inappropriate because it is ideal when the objective is to determine a cause-and-effect relationship. We found a descriptive design appropriate because this study was concerned with relationships among variables. Churchill Jr. (1995) identifies two common types of descriptive designs; cross-sectional and longitudinal. Because we were going to measure the sample elements only once, we therefore adopted a cross-sectional approach.

Having clarified the research design issue, we now discuss the methodological issue. As already indicated, there are many ways of thinking about, and categorising the wide variety of methods available for designing, carrying out and analysing the results

of research. What do research writers mean by “methodology”? Bryman (1988), for example, refers to methodology as an “intellectual tradition” or “intellectual position”. Ragin (1994) refers to methodologies as “broad strategies”; and Blaxter et al. (1996) refer to them as “research families”. The methodological issue is better dealt with in the philosophical sciences.

Our intention is therefore, not to contribute to the philosophical debate, but to offer a simplified approach to the research process. We share the view that a methodology involves the rules of interpretation and criteria for admissible explanation, as well as research designs, data collection techniques, and data processing routines that have been developed from these rules and criteria. We share the view that considering the significance and merits of the different “logics of research” (Morgan, 1983) available is more valuable than being engaged in a philosophical debate. Morgan (1983) too suggested that the research writers should avoid abstract debate about what is meant by methodology and view research as a process that involves decisions from available practices. We therefore propose to discuss the methodology of this thesis as comprising three successive levels: research families; research methods and research techniques.

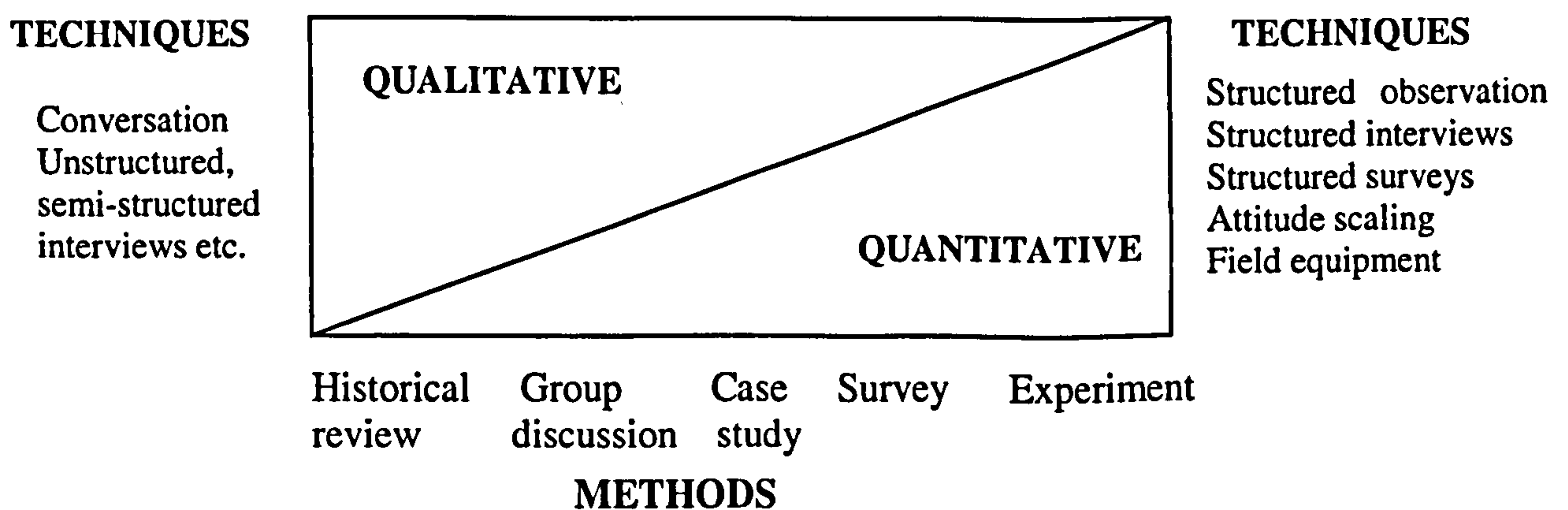
3.4.1 Level One : Research Families

After identifying the research problem and the research design, we considered the general strategy we would use to solve the problem. Research writers use different terminology to refer to this general strategy, for example, qualitative, quantitative, and comparative. According to Blaxter et al. (1996), the choice of the strategy can be

made from what they refer to as “research families”. We will use the term “approach” synonymously with “research families”. Consequently, we grouped the research approaches into qualitative or quantitative; comparative or non-comparative; and ascending or descending. According to Ragin (1994), the approaches range from intensive (qualitative and ascending) to comprehensive (comparative) to extensive (quantitative and descending).

The two major research categories are qualitative and quantitative. These distinctions have been the subject of many philosophical debates in the social sciences. The central goals of qualitative methods are to attempt to see and understand situations as they are seen by the individuals being studied (Preece, 1994); to interpret historical or cultural significance, and advancing theory (Ragin, 1994). These methods are very flexible since they do not use statistical methods to arrive at their findings. They use such methods as conversation and unstructured and semi-structured interviews. Many scholars however claim that the two methods are complementary. According to this view, no method is entirely qualitative or quantitative. However, the techniques can be either qualitative or quantitative, as depicted in Figure 3.1

Figure 3.1 Qualitative and Quantitative Methods



Source: Adapted from Ghauri et al. (1995)

Quantitative methods are valued for being able to identify general patterns and relationships, hypothesis testing, for their logical rigour, for universal argument, and making predictions (Preece, 1994, Ragin 1994). In other words, it is claimed that quantitative methods allow for both generalisability and replicability of research findings.

Ragin (1994) categorises research methodologies into descending and ascending methodologies. In his view, these two categories should replace the out-dated distinction between “qualitative” and “quantitative” methodologies, which is no longer tenable in research efforts. He argues that ascending methodologies permit intensive study and involve strategies elaborated at a community or local level and specifically adapted to the study of selected social groups, for example, a hidden population. In his view, the more a survey targets a sensitive social phenomenon, the more the population is hidden, and the more essential it is to use an ascending methodology. A major weakness of ascending approaches is that they involve an uncontrollable selection bias that limits the external validity of the sample. Hence ascending approaches are very low in generalisability. Ascending approaches are therefore, in a way, similar to qualitative approaches. The main advantages of ascending approaches are that they are flexible, and are most suitable when the objectives of the study demand in-depth insight into the phenomenon (Ghauri et al., 1995).

Descending approaches, on the other hand, permit extensive study and involve strategies elaborated and executed at the level of general populations. Such an approach necessitates highly standardised questionnaires and rigorous population

samples and involves traditional statistical analysis. The major advantage of this approach is that it is highly generalisable. The major disadvantage of descending approaches is that, because of their interest in testing hypotheses derived from theory, they tend to ignore complexity. Ragin (1987) notes that the goal of descending approaches is to produce explanations that are general, but at the same time they recognise that social phenomenon are complex and that a general explanation is a partial explanation at best. Thus, generality and complexity often compete with each other. An appreciation of complexity sacrifices generality; an emphasis on generality encourages a neglect of complexity. Generality is given precedence over complexity. Arguably, these approaches are similar to quantitative methodologies.

According to Hantrais et al. (1985), a comparative research is carried out to explain social phenomena by controlling the conditions and the causes of the variance in these phenomena. These comparisons are mainly of data collected from case studies (Armer and Granshaw, 1973) obtained from large macrosocial units (Ragin, 1989, 1994). The unit of analysis is the nation state or data categories, as opposed to the individual or the organisational level in non-comparative research.

Ragin (1987) argues that comparative research embodies elements of both qualitative and quantitative approaches and research can adopt either approach. However there are still differences between a quantitative comparative research and a qualitative comparative research. For example, there are different responses when an initial hypothesis is rejected. A quantitative comparative researcher would accept if the critical hypothesis is rejected. On the other hand, a qualitative comparative researcher would try more intricate arguments or he may attempt different specifications of the

same argument in the hope that one will support the favoured theory. The qualitative comparative researcher does this by adding and subtracting control variables, reconceptualising the key concepts to be tested, devising new measures, or redefining control variables as theoretical variables.

3.4.2 Research Approach for this Study

What can be deduced from the above discussion of research approaches is that they can mainly be reduced to the qualitative and quantitative dichotomies. A comparative approach, in the sense of the above discussion, was found inappropriate for this study. The study is not case-oriented, and the unit of analysis is the individual manager.

Thus, in view of the above, we have adopted a quantitative approach. The primary purpose of the study was to test a theory, so a quantitative approach was considered appropriate. Before designing the questionnaire we analysed annual company reports. The objective of this analysis was to identify the language managers use to describe the causes of their success. Appendix 3.1 summarises these findings. This managerial language was then used in the construction of the questionnaire. This approach was taken in line with Starbuck and Mezias' (1996) recommendation that academics should suit their language to the level of practitioners.

3.4.3 Level Two : Research Methods

After deciding the research approach, our next task was to decide a feasible method of investigating the research problem. By adopting a quantitative approach, our choices were also reduced. Consequently, time and space will not be wasted by discussing qualitative and comparative methods. Quantitative methods considered for this study

were experimental and survey methods.

3.4.3.1 The Experimental Method

Writers argue that experimental methods are ideal when the research aims to find out the effect of one variable to another. This is achieved by manipulating some variables, and controlling others. This then enables the researcher to draw causal inferences and observe whether or not the independent variable changes in the dependent variable (Frankfort-Namchias and Namchias, 1992). However, in order to establish a casual relationship, certain criteria have to be fulfilled. The first criterion is to establish that there is a relationship between the two variables. The strength of the relationship is also important, because the stronger it is, the stronger the evidence of causation (Anderson et al., 1980).

The second criterion is to demonstrate that there is a true relationship, that is, to show that no other factors caused the observed relationship between the variables under investigation. The third criterion is to find out whether there is consistency of association. The fourth criterion is a coherence of the association (Anderson et al., 1980). This criterion refers to whether the results conflict with known facts or conditions being studied.

The fifth criterion is to establish a time order. It is necessary to establish that the cause precedes the effect, that is, there has to be a time order of the two related variables. Frankfort-Namchias (1992) refers to this as manipulation. She argues that manipulation requires the researcher to show that the assumed cause occurs first prior

to the assumed effect. Bryman and Cramer (1990) argue that because in surveys, in addition to inability to control the variables, data is simultaneously collected it is not possible to establish a time order to the variables in question.

3.4.3.2 The Survey Method

Survey methods are scientific but they are different from experimental methods in that the variables are beyond the researcher's control, and as such, they do not explain causality. Despite this weakness, and others discussed in Section 3.4.4.2, we still considered them appropriate for this study. We found them suitable to the nature of the problem, time and resources available. In line with a lot of survey writers, we defined a survey as a process that involves the collection of data by asking a set of questions (structured or unstructured) to a selected number of people. Surveys can be longitudinal or cross-sectional. Longitudinal surveys allow the collection of more data, and provide direct evidence of a time-ordering of variables, thus giving more credibility to casual inferences (Sapsford and Jupp, 1996). The major disadvantages of such studies are that they are very costly, variables developed at the beginning of the study may change, and the sample may be reduced due to sample attrition, thus threatening the representativeness of the sample.

This study adopted a cross-sectional approach. Sekaran (1992) argues that this is the most common and appropriate design in the social sciences, especially when doing survey research. The major advantage of correlational studies is that they can be generalised to real-life situations (since they are carried in natural settings to begin with) and they allow the same study to be repeated to get the same or very similar

results. The method's disadvantage is that the researcher cannot establish a time order of events using statistical analysis, but only by using theoretical and logical considerations (Sekaran 1992).

3.4.4 Level Three: Research Techniques

Having decided the method, the next step was to consider the appropriate research technique. We share Ghauri et al.'s (1995) definition of a research technique as a step-by-step procedure followed when collecting data. We considered three survey techniques for this study: personal interviewing, telephone, and questionnaire.

3.4.4.1 Personal Interviewing

Writers argue that this technique is appropriate when the sample is relatively small. According to Sekaran (1992), interviews can be structured or unstructured, and can be administered face to face, by telephone, or through computer-assisted techniques. Unstructured interviews are ideal for exploring several factors in a situation that might be central to the problem under investigation. In structured interviews, the interviewer prepares questions beforehand and all the interviewees will be asked the same questions. The advantage of this method is that it allows the interviewer to adjust questions during the interview, clarify doubts, and ensure questions are clearly understood. However, interviews cannot be used to cover wide geographical areas. In addition, they are very costly.

3.4.4.2 Telephone Techniques

Writers who favour this method argue that it is ideal when the sample is not widely dispersed. The main advantage of telephone techniques is that of reaching many people in relatively short periods of time. Another advantage is that many people would be free to give information over the telephone. However the telephone technique has four major disadvantages. First, the interviewee can terminate the survey at any moment without explaining, by hanging up the telephone. Second, time has to be adhered to, for the survey cannot be prolonged beyond the originally agreed time. Third, the researcher cannot read non-verbal communication. Fourth, the method could be expensive, especially phoning across national boundaries.

More recently however, new telephone techniques using computer technology have emerged. They include Computer-assisted telephone interviewing (CATI), Computer-assisted personal interviewing (CAPI), and Touchtone data entry (TDE). These methods obtain information from the respondents, and some edit the information as well. However, they are very expensive techniques and are mainly used by survey agencies, so we will not therefore discuss them in this study.

3.4.4.3 Questionnaires

Personal interviewing and telephone techniques were not considered appropriate for this study. Having considered personal factors, costs, and time, a questionnaire technique was considered appropriate.

Questionnaires are most useful as a data-collection method, especially when large

numbers of people are to be reached in different geographical areas. Questionnaires can either be personally administered, sent through the mail, or electronically administered. Personally administered questionnaires are suitable when the survey is confined to local area. It is a quick method of collecting data. Questions can be explained on the spot, and the researcher can motivate the respondents to give honest answers.

3.4.4.3.1 Assumptions researchers have when designing questionnaires

This section was considered very important because of the common problem of low response rate or non-response. It is a shared view that the low response rate of questionnaire results mainly from the assumptions researchers have in both designing and asking respondents to complete the questionnaires. Of importance to this study are four assumptions.

First, the researcher assumes that the informant is a competent source of data and will provide it willingly. Thus, in designing the questionnaire, the researcher makes a second assumption, that the topic about which information is required has been clearly defined. In Sekaran's (1992) view, researchers fail to clarify their questionnaires when questions are: leading; double-barrelled; ambiguous; and when some responses are missing.

As the researcher sends out the questionnaire, a third assumption is made. This is the assumption that the informant has the ability to understand the questions asked, as intended by the researcher, and that the respondent has answered them in the form

intended and with integrity. Related to this is the fourth assumption, that the answers that different respondents give to a particular question can be meaningfully compared with one another. Foddy (1992) argues that when a question is difficult to understand, the respondent is likely to modify it in such a way as to be able to answer it more easily. If this happens, answers cannot be meaningfully compared since the different answers are like answers to different questions.

3.4.4.3.2 Disadvantages of Questionnaires

Some survey writers oppose the use of questionnaires and, as such, they argue that questionnaires cannot be a reliable form of data collection method. This study has taken into consideration four major limitations of questionnaires. First, documented evidence shows that questionnaires produce the lowest response rate among the three survey techniques (that is, Personal interviewing, Telephone techniques, and Questionnaires). Chapter 4 considers the strategies we adopted to increase the response rate.

Second, many survey writers argue that questions should be simple, general and short to increase the response rate. There is no agreement as to what constitutes a “long” questionnaire. However, short questionnaires have their disadvantages as well. For example, Starbuck and Mezias (1996) argue that such questionnaires may overlook information managers use to understand their world. As a result managers may find the questionnaires less meaningful and find it difficult to produce meaningful answers. We took two steps to avoid this problem. First, we analysed 55 annual company reports to find the language used by practitioners when describing the

causes of their success. This managerial language was then used in the construction of the questionnaire. Second the questionnaire was pilot tested twice. These procedures are discussed in detail in Chapter 4.

A third limitation of questionnaires is that the answers have to be accepted as they are. There is no opportunity for probing beyond the answer; ambiguous questions can not be clarified; and the researcher can not encourage respondents to answer questions (Moser 1993). Fourth, the researcher has no control over who responds, implying that anyone can complete the questionnaire (Bourque and Fielder, 1995). In line with Erdos (1970), we reduced this problem by specifying in the introductory letter that a senior manager should be the respondent.

3.4.4.3 Advantages of Questionnaires

Writers who favour the use of questionnaires argue that their advantages outweigh their disadvantages. Because of the following advantages we found questionnaires appropriate for this study. First, questionnaires are generally quicker and cheaper than other survey methods (Moser, 1993). For example, a mailed questionnaire has a lower unit costs (Bourque and Fielder, 1995) compared to interview and telephone techniques. Respondents complete the questionnaires at their own convenience.

Second, the mail questionnaire is best suited (and perhaps the only alternative open to the researcher) when a substantial amount of information is to be obtained through structured questions, at minimal costs, from a sample that is widely dispersed geographically (Sekaran, 1992). Because this study covered a wide geographical area

and we had limited time, we found questionnaires appropriate.

Third, questionnaires are standardised. There are two advantages of standardisation. One was that the responses would be easier to analyse. The second was that standardisation would make it possible to compare the results between the two countries. This would enable us to generalise from the results.

Fourth, because the questions demanded considered rather than immediate answers, the questionnaire was found to be the ideal technique, in line with recommendations from many writers.

Fifth, having considered the personnel advantage of other survey techniques, it was felt that questionnaires would be easier to implement. They do not need a lot of personnel to administer them.

Having dealt with the three levels of the research process, the next section discusses the sampling procedures, the factors considered in determining the sample size, and the sampling procedure adopted for this study.

3.5 The Sampling Procedures

Before discussing the sampling procedures, it is appropriate to explain the reasons for sampling. There are two main reasons for sampling: to avoid selection bias and costs. We took great care to reduce selection bias. First, we reduced the bias resulting from selecting the sample by avoiding non-random sampling methods. Second, we strove

to make the sampling framework represent the population. This is discussed in Section 3.5.1. Third, we implemented a lot of recommendations aimed at reducing non-response, thus trying to motivate all sections of the targeted population to cooperate. This last source of bias is discussed more fully in Unit non-response, in Section 4.2 (Chapter 4).

The second major reason for sampling is to reduce costs of studying large populations. We took great care in selecting the sample. According to Dixon et al. (1991) careful sampling not only makes the task possible, but it often produces more accurate results. From such accurate results, it is then possible to generalise, what Frankfort-Namchias and Namchias (1992) refer to as external validity.

3.5.1 Factors to consider when determining the sample size

Research writers are agreed that the size of the sample should be chosen by considering a lot of factors. For example, Herzog (1996) urges researchers to consider resources available to do the research; the size of the relationship one wishes to detect as statistically significant; the size of the population; and the loss of data from refusals or unusable data. This study found sample representativeness to be the most important consideration.

Herzog (1996) sees an intimate relationship between generalisability and sampling. In his view, the sample must be unbiased and must be truly representative. This happens when relevant characteristics of the objects sampled are present in the sample in exactly the same way as they are in the population. Sedlack and Stanley (1992)

define sample representativeness as the degree to which the sample is similar to the population on those characteristics the investigator is interested in. The more heterogeneous (dissimilar) on one or more of the characteristics in which the researcher is interested in the population, the larger the sample must be to achieve representativeness. Sekaran (1992) argues that the properties of the population should not be either over-represented or under-represented in the sample. If properties of the population are over-represented in the sample, the sample mean will be higher than the population mean. Conversely, if the properties of the population are under-represented in the sample, the sample mean will be lower than in the population mean. The problem is that if the sample is not representative, we cannot generalise from the sample results (Herzog, 1996).

One threat to sample representativeness is non-participation (or sample mortality). There are several reasons why not all respondents are prepared to participate. Some of the reasons for non-participation include refusal by some participants to return their questionnaires, and misdirected questionnaires. In line with documented evidence, we therefore anticipated losses of between 10 to 20 percent of the targeted respondents. Thus the target sample was large enough to accommodate these losses.

3.5.2 Types of Samples

There are two basic types of sampling procedures: random (probability) and non-random. Random sampling procedures are used when the representativeness of the sample is of importance for the purposes of wider generalisability. According to Dixon et al. (1991), a random sampling procedure provides the greatest assurance that

those selected are a representative sample of the population. The aim of this study was to generalise from sample results. A non-random sampling procedure would not have been representative and its results would not have been generalisable beyond the sample studied. As a result we do not discuss them in this study.

The various types of random sampling procedures are discussed next.

3.5.3 Random Sampling Procedures

There are a number of techniques that employ randomness at some point. In this section we describe four types of random sampling procedures: simple random sampling; systematic sampling; stratified sampling; and cluster sampling.

3.5.3.1 Simple Random Sampling

Simple random sampling is ideal when generalisability of the findings to the whole population is the objective of the study. In simple random sampling, each element has an equal chance of being selected. In addition, each selection is made independently of every other selection. The method has two main advantages. First, the method has the least sampling bias. Second, the method is highly representative if all subjects participate, thereby offering the most generalisability.

Simple random sampling procedures have a number of limitations. Sekaran (1992) and Black, (1999) observe three major limitations of a simple random procedure. First, for a simple random sampling procedure to succeed, a complete list of members should be available. Second, it is potentially uneconomical to achieve.

Third, it can be disruptive to isolate members from a group.

3.5.3.2 Systematic Random Sampling

Systematic random sampling is best fitted when the population frame is large, and a listing of the elements is conveniently in one place (as in The Directory of Motor Vehicle Manufacturers). In systematic sampling, the researcher selects every n^{th} element from a sampling frame. It is a quick and easy method to use.

However, systematic random sampling has a number of disadvantages. First, it breaks the rules of simple random sampling, so inferential statistics cannot be used. Second, the nature of the order of the list may create selection bias. Third, there can be systematic bias. According to Sekaran (1992), the problem of systematic bias is that it increases the likelihood of drawing incorrect conclusions from such data. Fourth, if some of the selected elements do not participate then the study cannot be representative and results cannot be generalisable.

3.5.3.3 Stratified Random Sampling

Stratified random sampling is ideal when differentiated information is needed regarding various strata within the population. In stratified random sampling, the researcher looks at different subcategories that are relatively homogeneous. Once the population has been stratified in some meaningful way, a sample from each stratum can be drawn using either simple random sampling or a systematic random sampling procedure. Probability sampling is then done to obtain either proportional stratified or disproportional stratified samples. The advantage of proportional stratified

sampling is that one can be assured that specific groups are represented in proportion (Black, 1999). In addition, it provides more information on each stratum and on the population as a whole.

There are disadvantages in that the procedure is more complex than simple random sampling and requires greater effort in defining strata and identifying population components of each. Strata must be carefully defined to avoid unintended imbalances as a result of selection, since there is need to acquire homogeneity of some factors across strata to minimise variability among other variables. Accurate information on the stratification dimensions is needed, and such information may not be available easily.

Disproportional sampling decisions are made either when some stratum or strata are too small or too large. Disproportional stratified sampling uses different sampling fractions, thus guaranteeing sufficient numbers of elements under study to permit comparative studies. Even those strata with fewer elements will be represented. However, as with proportional stratified sampling, accurate information on the stratification dimensions is needed, and may not be available easily. Sedlack and Stanley (1992) argue that disproportional stratified sampling tends to complicate problems of analysis and should not therefore be used unless it is clearly to one's advantage to do so.

3.5.3.4 Cluster Sampling

Cluster sampling is best fitted when a heterogeneous group of elements is to be

studied at one time. In cluster sampling, the researcher selects groups of elements that, ideally, would have heterogeneity among members within each group for study. When homogenous groups are found, then simple random sampling can be done with information gathered from each of the members in the randomly chosen clusters. Clustering is geographically based and elements are thus studied in their natural setting. If an interviewing technique is used, cluster sampling can therefore save survey costs.

According to Sedlack and Stanley (1992), cluster sampling has three major disadvantages. First, elements in the same geographic setting tend to have similar characteristics, so variety cannot be guaranteed. Second, cluster sampling generates a larger sampling error than a simple random of the same size. Third, successive sampling of even smaller clusters violates the general criteria of independence of choice and of equiprobability of choice, which are so important to the assessment of random chance fluctuation.

3.5.3.5 Sampling Procedure For This Study

The sampling frame was developed from a list of firms in the Motor Vehicle Manufacturing Industry obtained through SIC, and with turnover of £75000 per year, for UK firms; and those listed in CZI Export Guide, for Zimbabwean firms. This is detailed in Chapter 4.

It was felt that a sample of 1890 of these firms would provide sufficient information, because these categories represented relatively successful firms in both countries.

This is because the resource-based theory argues that firms develop superior performance if they possess resource advantages. Thus the logical step was to look at firms that were successful and find out to what they attribute their superior performance.

The sample was chosen through a simple random sampling procedure. We saw three advantages in the procedure. First, it would have been both costly and impossible, within the time constraints of the study, to look at the whole population. Second, generalisability of findings was considered important for this study. A simple random sampling procedure was therefore appropriate for this study, as it is used when the representativeness of the sample is of importance. According to Sekaran (1992) and Black (1999), a simple random design is the best fitted when generalisability of the findings to the whole population is the objective of the study. Non-random sampling procedures provide a weak basis for generalisation. In addition, non-random procedures are not good for comparison purposes, which is crucial for the success of this study. Third, a simple random procedure reduces sampling error. Fourth, it reduces sampling bias. Writers note the strength of the simple random sampling procedure. For example, Herzog (1996) considers simple random sampling superior to non-random sampling.

3.6 Summary

The main purpose of a research project is to increase human knowledge. There are however several ways of carrying out research. It was shown that differences in

research terminology reflect differing interest in the subject rather than superiority of some approaches to others.

We adopted a descriptive design because our aim was to test a theory. Consequently, a quantitative approach was found appropriate and a survey method adopted. A structured questionnaire technique was found appropriate for collecting data. The sample was drawn from firms in the Motor Vehicle Manufacturing Industry with an annual turnover of £75000 and above, for UK firms; and those listed in the CZI Export Guide, for Zimbabwean firms. It was felt these firms represented relatively successful firms. A simple random procedure was used because of the importance of representativeness and the generalisability of the results, both of which were considered important in this thesis.

The next chapter discusses survey errors, strategies followed to reduce non-response, questionnaire development and pilot-testing, and the data collection process.

CHAPTER FOUR

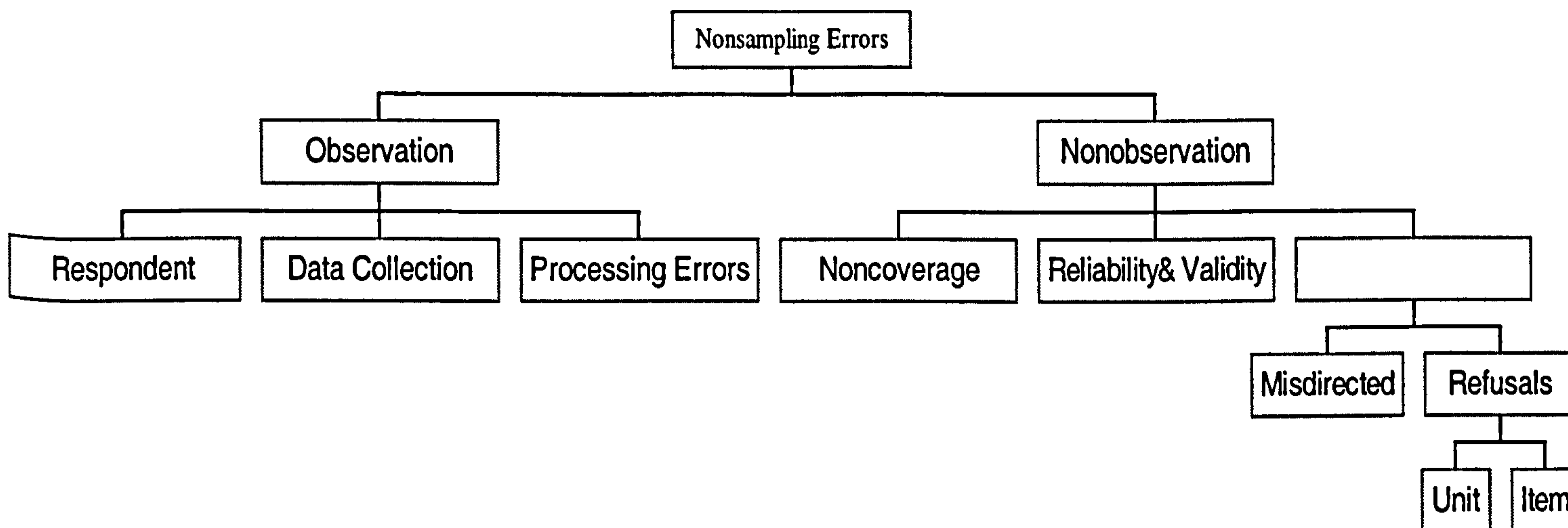
THE SURVEY

This chapter begins by looking at two common types of survey errors namely, sampling error and non-sampling errors. It then discusses steps followed to minimise these errors, sample identification, and questionnaire construction. The last part highlights the data collection procedure.

4.1 Survey Errors

An observation in reading survey literature is that there is no common language on survey errors. Groves (1989) attributes this absence of a common language to the evolution of survey research through independent and uncoordinated contributions of researchers trained as statisticians, psychologists, economists, political scientists, and sociologists. He notes that survey error relies heavily on languages of errors associated with statistics (for example, sampling error); psychology (for example, reliability and validity); and economics (for example, selection bias). Figure 4.1 summarises errors considered for this thesis.

Figure 4.1 Types of Survey Errors



Research writers note two main categories of survey errors: sampling error and non-sampling errors. We share Grooves' concern with this categorisation of survey errors because it combines very different kinds of problems concerned with non-sampling errors.

4.1.1 Sampling Error

In sampling, certain members of the population are selected and measured with the intention of generalising the results to the population. This, however, results in sampling error. The error arises because of the population's heterogeneity. If the population were homogeneous, then all samples would yield the same value for the survey statistic, and consequently, there would be no sampling error (Grooves, 1989). Sampling error therefore arises because sample units are different from one another and because only a subset of the population is measured in a sample.

A common technique used to reduce sampling error, which we also used, is to increase the sample size of the randomly chosen sample. Survey writers are agreed

that random sampling eliminates selection bias. According to Sekaran (1992), this is important because a biased sample can not be representative (internal validity), and therefore the results cannot be generalisable (external validity).

4.1.2 Non-sampling Errors

Errors do not arise merely because a subset of the population is measured. There are also errors in conception by the respondents, misinterpretation of replies, in processing responses, and errors in reporting the results. The problem with non-sampling errors is that they do not decrease with increases in sample size, but may actually increase (Churchill Jr., 1995). The purpose of this section, therefore, is to understand the causes of non-sampling errors in order to minimise them. Attention is therefore drawn to the two types of non-sampling errors: observation errors and non-observation errors.

4.1.2.1 Observation Errors

Grooves (1989) terms these errors “measurement errors”. Observation errors arise while collecting the data; or while processing the data. He identifies four sources of observational error as the interviewer, the respondent, the questionnaire, and the mode of data collection.

The respondent can be a source of error if he fails to answer the question well. In answering the question the respondent goes through a five stage process: encoding of stored information, comprehension (giving meaning to interviewer’s question), retrieval (searching for relevant memories to the question), judgement

(choosing alternative response to question), and communication (articulating the response chosen). Any of the five stages can be a source of error. The questionnaire becomes a source of error if it is poorly constructed. When this happens it produces specification errors. Documented evidence also shows that each of the several types of data collection techniques can be a source of error.

4.1.2.2 Non-observation Errors

These errors result from a failure to obtain data from parts of the survey population. This can happen when the sample is not representative (errors of non-coverage) or when some elements in the sample did not respond (errors of non-response). This study considered three non-observation errors: non-coverage, reliability and validity, and non-response. These errors are now discussed below, together with the measures we took to reduce the non-observation errors.

4.1.2.2.1 Reliability and Validity

These are error terms borrowed from psychology. Reliability refers to whether the researcher has measured the variable of interest with precision. A scale is therefore said to be reliable if it produces similar responses from different people.

Herzog (1996) identifies three ways of increasing reliability of measures. First, by making sure that items used to measure variables are clearly worded. Like many others before him, Herzog (1996) shares the view that ambiguity leads to several interpretations of the same thing. According to Foddy (1992), reliability is reduced if

respondents produce varying responses of the same items. When this happens, comparability will not be possible.

The second way of increasing the reliability of measures is by having clear instructions. If instructions are unclear, respondents are more likely to answer the question (s) wrongly. If this happens, comparability of responses will not be possible. Thus in questionnaire construction we clarified the wording of items so that all respondents could interpret the questions in the same way.

A third way of increasing reliability is to have many items covering the same concept. As shown in Appendix 4.9, most of the concepts have many items. In addition, the final questionnaire was tested for lack of clarity or bias. Cronbach's alpha, and a cut-off point of .70, was used to test the reliability of the questionnaire measures. Table 4.1 shows that all of the measures are reliable, except Questions 9, 10 and 11.

Table 4.1 Reliability of Questionnaire Measures

Question	No. of Items	Alpha
Ques 3 Indicators of Superior Performance	6	.7507
Ques 5 Comprehension of Strategic Concepts	11	.9541
Ques 6 Applicability of Strategic Concepts	11	.9066
Ques 7 Contribution of Products Attributes	8	.7453
Ques 8 Ease of Matching Product Attributes	8	.7206
Ques 9 Contribution of Product Strategies	6	.6520
Ques 10 Review of Product Strategies	5	.5247
Ques 11 Contribution of Resources	7	.6694
Ques 12 Contribution of Strategies	8	.7434
Ques 13 Superior Factors	19	.8622
Ques 14 Review of Performance Factors	9	.8291
Ques 15 Core Competencies	8	.7907
Ques 16 Strengths and Weaknesses in Customer Care	5	.7646
Ques 17 Common Comments From Lost Customers	6	.7359
Ques 18 Review of Customer Strategies	6	.7849

A scale is valid if it performs in accordance with theoretical predictions (Herzog, 1996). In other words, it is concerned with what construct or variable was measured

and whether it was the intended construct or variable. There are different approaches to assessing validity. Herzog (1996) categorises them into judgmental and empirical approaches. There are two types of judgmental validity; namely, face validity and content validity. A measure is argued to have face validity if it appears to measure the intended construct. A measure has content validity if it adequately samples the construct one is trying to measure.

There are two types of empirical validity - criterion and construct. A measure is said to have criterion validity if it is strongly correlated to another existing measure that is known to be a valid measure of the variable in question. This is important for predicting future behaviour. A measure is said to have construct validity if it produces empirical evidence predicted by the theory.

Validity is increased mainly by having clear wording, and arrangement of questionnaire. Thus wording of the questionnaire is considered very important, as poor wording produces bias. Many writers urge researchers to avoid questions that are double-barrelled. For example, the question "Do you think management training is related to superior performance, and, if so, how often do you attend management training programmes?" is difficult to answer. Such a question needs two answers, and so it should be separated into two questions. Questionnaire wording is discussed in Section 4.3.

4.1.2.4 Non-response in Mail Survey

Many writers are of the opinion that although non-response cannot be avoided, it can

be minimised in the mail survey.

The ideal in survey is to get a 100 percent response. But in reality this is not possible. The acceptable response rate therefore varies with the method of data collection, and the population studied. For example, Frankfort-Namchias and Namchias (1992) suggest that there is a higher response rate if the respondents are more educated and when the topic is of interest to the respondents. Lessler and Kalsbeek (1992) would consider a 75 percent response rate in mail survey quite acceptable, but not acceptable in telephone interview. Non-response is the major problem of mail questionnaires. Lessler and Kalsbeek (1992) define non-response as the failure to obtain useful data on all questionnaire items from all members of the sample. According to Moser (1993), non-response is a problem because of the likelihood that non-respondents significantly differ from the respondents. Lessler and Kalsbeek (1992) identify two types of non-response - unit non-response and item non-response. In unit non-response, a unit of importance to the survey fails to participate. Reasons for unit non-response include unlocated respondents, communication problems between data collector and respondent, scheduling difficulties. In item non-response, the unit participates, but for some reasons, data on particular items of the questionnaire are unavailable for analysis.

4.2 Strategies for reducing Unit non-response.

Having discussed non-response in mail survey, this section highlights the procedures we followed to minimise unit non-response (that is, some respondents failing to participate).

A recommended strategy is to send personalised letters to all respondents. The purpose of the letters is to inform, assure, and motivate the respondents. But to minimise costs, this was only done to the Zimbabwean sample.

In October 1997, 600 questionnaires and 34 questionnaires were sent to UK and Zimbabwean firms respectively. We took three steps to increase the response rate. First, we enclosed stamped, and self-addressed envelopes for the return of the completed questionnaires. A number of survey writers argue that this measure can reduce unit non-response. Second, in line with recommendations from several writers, we enclosed cover letters aimed at convincing the respondents to fill out the questionnaires and mail them back. The cover letters explained the purpose of the study; how the respondents were selected and why their participation was important; how the questionnaires were to be returned. The letters provided the deadline for returning completed questionnaires. Respondents were also assured that their answers would be held in strict confidence. Appendix 4.1 shows the cover letter for UK firms, and Appendices 4.2 and 4.3 show the cover letters for Zimbabwean firms.

Third, we sent four follow-up reminders, to remind and persuade those who had not yet responded to the initial questionnaires. These reminders were letters and the same questionnaires. Appendices 4.4 to 4.8 show the reminder letters for UK firms, and Appendix 4.8 shows the reminder letter for Zimbabwean firms respectively. This subject is discussed in Section 4.6.

4.3 Strategies for reducing Item non-response

Having discussed the procedures we took to reduce unit non-response, this section looks at the procedures we took to minimise item non-response (that is, missing data on particular items of the questionnaire). These measures were intended to reduce item non-response, and thereby increase usable data for all questionnaire items. There are two issues we considered important: questionnaire construction and the data collection technique.

In constructing the questionnaire we considered two things. First, as already noted in Chapter 3, we used the language used by managers in describing their causes of success. Second, we avoided sensitive questions, as these are argued to produce higher item non-response rates than non-sensitive questions. Further, we also avoided questions which are double-barrelled, ambiguous, leading, and offensive (Bell, 1993). In line with survey writers, for example, Foddy (1992), we clarified the meaning of key concepts. In Herzog's (1996) view, this clarity of definitions influences the process of generalisation during gathering the data and during the data analysis. The whole idea in constructing the questionnaire was to gain the interest of the respondents with the hope that once they were interested they would fill them in and return them.

In constructing the questions we used closed questions. The key issues of this thesis were representativeness and comparability of responses. Open-ended questions were not appropriate for this study as it would have been difficult to code and analyse the responses. According to Bourque and Fielder (1995), respondents are motivated if the researcher avoids open-ended questions and restrictive responses. The advantage

of closed questions is that they allow respondents to answer the same questions and responses can also be coded easily. Consequently, coded answers can be meaningfully compared. In addition, closed questions do not burden respondents' memories, thereby motivating them to answer. According to Foddy (1992), a major disadvantage of closed questionnaires is that providing response options may cause respondents to give answers which they would not think of if they had to supply answers themselves. This makes it impossible to evaluate the validity of their answers.

The second important source of item non-response is the data collection technique. Survey writers are agreed that the type of data collection technique has a strong influence on the size of the response rate. For this study, we used a mail questionnaire because it has lower missing items than in either the telephone technique or the personal interview. Item non-response is therefore reduced by improving the data collection technique. This increases the likelihood of obtaining useful data from the respondents.

The questionnaire was pilot tested two times. The purpose of the pilot studies was to check three things: the percentage of returns; how well questions were understood and answered; and the usefulness of the information received. The first draft questionnaire was given to 25 Executive MBA students at the University of Warwick. The use of students in piloting is recommended by Czaja and Blair (1996). The main purpose of this trial run was to find out whether the wording and format of questions would present any difficulties when the main data are analysed. The respondents were asked five things: to complete the questionnaire as it was; to say whether the

instructions were clear; to say which questions were unclear or ambiguous; to indicate questions to be deleted; and to comment on any issue they willed.

Twenty students returned the draft questionnaire, making an 80% response rate. Most of the respondents' suggestions and recommendations were used to improve the second draft questionnaire.

The second draft questionnaire was given to another group of Executive MBA students. Executive MBA students were felt to be appropriate because they were the people in the field. We did not want to tamper with the actual sample, which is why we chose groups that were similar to the population. The 18 respondents were asked to do exactly like in the first pilot test. Very few changes to the final questionnaire were made as a result of this second pilot test. The final questionnaire is shown in Appendix 4.9. A problem we faced was how to find a big group of Zimbabwean MBA students in the UK. We ended up trying students doing different masters' programmes at the University of Warwick. Because of the confidentiality code, we could not have direct access to the students. Communication was through the International Office. We received only two completed questionnaires.

4.4 Questionnaire Construction

UK and USA annual company reports (1996-97) of firms in the motor vehicle manufacturing industry were analysed to find out the language managers use in describing the sources of their superior performance. These results are summarised in Table 4.2.

Table 4.2 Summary of firms' attribution of their superior performance

Source of Superior Performance	UK Only	USA Only	Total Number of cases
Restructuring	15	16	31
Products	13	16	29
Fulfilling customer needs	18	3	21
Workforce	15	5	20
Acquisitions	3	14	17
Core Competencies		15	15
Strategic partnerships	9	5	14
Networks	11	2	13
Low-cost development strategies	11		11
Organisational resources	10		10
Organisational capabilities	8	2	10
Technology	4	5	9
Management	2	6	8
Engaging in Core Business	2	5	7
Manufacturing efficiency	7		7
Manufacturing Adaptability		7	7
Manufacturing Flexibility		7	7
Focusing on Quality		4	4
Innovation	3		3
Assets	1		1
Capital Assets		1	1
High entry barriers	1		1
Task forces		1	1

The choice of annual reports deserves comment. The UK has attracted motor vehicle manufacturers from Europe, Scandinavia, Japan, and the USA. USA annual company reports were analysed because its firms in the motor vehicle manufacturing industry play a major role in the UK motor vehicle manufacturing industry. Examples are Ford and General Motors (GM). Thus the objective of analysing their annual reports was to find out the extent of the resource-based language used. The assumption was that the USA firms would be more aware of the language than UK firms because the theory originated in the USA.

Annual company reports for Zimbabwean firms were not analysed because we could

not get hold of them. Retrospectively, it was felt that if these reports were analysed probably the response rate from Zimbabwe might have been increased. It could be that they found the language used in the questionnaire too complicated and the comparison with the UK rather uncomfortable. One UK pilot test respondent remarked "Unless the targeted audience is well versed in strategy theory, this questionnaire would probably be too elaborate." A total of 55 reports were analysed. Of these 30 were UK firms and 25 were USA firms. Appendix 3.1 shows the remarks made by firms in describing the sources of their superior performance.

A number of interesting findings are shown in Table 4.2. First, looking at individual countries, the results show that only three (out of twenty-three) concepts were rated as sources of superior performance in more than 50 percent of the UK reports. These concepts are *fulfilling customer needs*, *restructuring*, and *workforce*. In contrast, four concepts were rated as sources of superior performance in more than 50 percent of the USA reports.

Second, the results show that some concepts were never rated as sources of superior performance in each country. For example, UK reports never rated *core competencies*, *manufacturing adaptability*, *manufacturing flexibility*, *capital assets*, and *task forces* as sources of superior performance. In contrast, USA reports never rated *low-cost development strategies*, *organisational resources*, *manufacturing efficiency*, *innovation*, *assets*, and *high entry barriers* as sources of superior performance.

Third, more UK firms attributed their superior performance to *fulfilling customer*

needs, workforce, and networks, whilst more USA firms made remarks on *products, acquisitions, management, and engaging in core business*. It is interesting to note that reports from both countries did not identify managers as an important source of superior performance. A possible explanation could be that it is difficult to measure the contribution of managers in quantitative terms, and they are taken as an obvious resource in the firm.

The fourth observation regards the overall usage of the resource-based language. Out of the 23 sources, only *high entry barriers* could be seen as purely external factors, thus supporting the resource-based view. It can even be argued that the high entry barriers are developed by the relevant firm, thereby making them “internal” factors as well. Analysis of the reports showed that it is clear from Table 4.2, that although practitioners and academics use different language to describe the sources of firm superior performance, these sources are internal and controlled by the firms.

A seven-page questionnaire was developed, using an interval scale. There are four basic types of scales: nominal; ordinal; interval; and ratio. The power of the scales increases as one moves from a lower scale (for example, nominal) to a higher one (for example, ordinal) because more detailed information can be obtained on the variables under study. An interval scale categorises variables, and rank-orders the categories. In addition, the scale allows the researcher to compute the means and the standard deviations of the responses. In other words, the interval scale not only groups individuals according to certain categories, it also measures the magnitude of the differences in the preferences among the individuals (Sekaran, 1992). In view of these advantages, this study used interval scales.

The responses were to be answered on a five-point Likert scale. The respondents indicated the extent to which they agreed or disagreed to different statements in Questions 3 to 18. For example, in Question 3, “Very strong” is 5 points, and “Very weak” 1 point.

3 How would you rate your firm in terms of the following performance measures? Please tick your response to each item in the appropriate box.

	Very weak	Weak	Moderate	Strong	Very strong
Profitability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Return on Assets	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sales Volume	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Growth	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

In most of the questions, the middle point was a “neutral”. There has been some discussion in the literature as to the desirability of having a neutral point on a scale, with the suggestion that respondents will tend to choose the centre. Black (1999) contends that while this might be true in some situations, this tendency can be reduced by a careful construction of the questionnaire. We followed the Total Design Method (TDM) in constructing our questionnaire. TDM is a standardised way comprising two parts: questionnaire construction and survey implementation. TDM attempts to combine numerous elements in a way that favourably influences respondents and maximises the likelihood of response. It therefore pays attention to such details as the layout of the questions, the design of the front cover, order of questions, advance notifications and follow-up procedures. Section 4.3, discusses the measures we took

to reduce item non-response in constructing the questionnaire.

The questionnaire had eight sections. The major constructs covered by the questionnaire were **superior performance**, measures of **resource advantages**, **comprehension**, **review processes**, **product attributes**, **strategy contribution**, **resource importance**, and **core competencies**.

Section A asked respondents to indicate the annual turnover of their firms, rate their firms in terms of four financial measures, and rate their firms' financial performance relative to competition. Section B asked respondents to indicate their familiarity with strategic concepts, and also indicate how easy they thought these concepts were to apply. These questions were used as the measure for **managerial comprehension**.

In section C, respondents were asked to rate their firms, product attributes, strategies, and resources and competencies relative to competition. These variables were used as measures of **product attributes**, **strategy contribution**, **resource importance**, and **core competencies** respectively. Section D asked respondents to rate their firms' performance in terms of specific factors. These variables were used as measures of **resource advantages**. Section E asked respondents to indicate their job status, how long they had been in the management position and how often they had attended management training programmes. The period in management position was used as a measure of **experience**, and frequency of management training was used as a measure of **functional expertise**, as argued in Chapter 1.

4.5 Identification of Data Sources

A database of firms in the Motor Vehicle Manufacturing Industry (MVMI) was needed. There were three sources for the UK sample. First, contacts were made with The Society of Motor Manufacturers and Traders Ltd (SMMT). In addition to sending us a list of firms in this industry, they advised us to use their directory, the Motor Industry Directory, for more firms. A number of firms were identified. The second database was the Dun and Bradstreet International (1996) Volume 4. The two methods generated 2500 firms. Third, to reduce the sample to a cost-effective size, all firms that were either not available on One Source (Volumes 1 and 2) or whose annual turnover was below £75 000 were deleted from the sample. A total of 1890 firms were obtained using the following Standard Industrial Classification (SIC)

Codes:

- 3711 Motor Vehicle Manufacturers
- 3713 Truck and Bus Body Manufacturers
- 3714 Vehicle Parts & Accessories Manufacturers
- 3715 Truck Trailer Manufacturers

Of the 1890 firms, 600 firms were selected randomly.

The study of one industry was based on the assumption that a homogeneous group would be more helpful than studying heterogeneous groups. As can be recalled, it was shown in Chapter 1 that sources of superior performance can not be applied across industries, because they are dependent on the context of the industry and time. It was therefore felt that these four SIC codes represented the core of the Motor Vehicle Manufacturing Industry. The Motor Vehicle Manufacturers consists of firms

manufacturing passenger cars; commercial vehicle; chassis; and vehicle bodies. Truck and Bus Body Manufacturers also includes coach manufacturers. Vehicle Parts & Accessories Manufacturers includes vehicle engine manufacturers.

The Zimbabwe sample was selected from the CZI Register and Buyers' Guide 1997/98. A total of 86 firms were obtained. The objective was to remain with a sample that closely resembled the UK one. A total of 52 firms were removed from the sample because they did not resemble the four UK codes. They were manufacturing tyres and tubes; vehicle security systems; gaskets; automotive batteries; and radiators. A number of them were distributors, agents, dealers, and importers. These types of firms were not included in the UK sample. Thus the sample that closely resembled the UK was reduced to only 34.

4.6 Data Collection Process

4.6.1 Mailing and Response Pattern

A popular method of reducing non-response is to send advance letters. This technique was however not used in the UK sample because it would have severely increased the survey costs. However, for Zimbabwean firms, we used the University of Zimbabwe's Department of Business Studies as the collection point. The Department had already established a research group with the Coca-Cola Company, Zimbabwe (The UZ-Coca Cola). The UZ-Coca Cola secretary contacted all the firms asking them for their addresses and the persons to be contacted. Advance letters were then sent to the target firms, from Warwick University (See Appendix 4. 1). This method was also preferred as it would reduce survey costs, but at the expense of the response

rate, as was later realised.

On the 3rd of October 1997, 600 questionnaires were despatched to UK firms. A covering letter (See Appendix 4.2) and a pre-paid envelope for returning the completed questionnaire were mailed to the 600 UK firms.

On the 27th October, 34 questionnaires were mailed to Zimbabwean firms. A covering letter (See Appendix 4.3) and a pre-paid envelope were also included. The completed questionnaires were mailed to the University of Zimbabwe, to be posted all at once to Warwick Business School. The University of Zimbabwe made three follow-ups (See Appendix 4.8). Only 7 usable responses were received from Zimbabwe.

4.6.2 Follow-up Procedures (UK)

After the despatch of the questionnaires, 45 usable responses were received. On 27 October 1997, the first follow-up was made (See Appendix 4.4). A second questionnaire with a new cover letter was sent to 535 firms that had failed to respond to the first questionnaire, and 28 usable responses were received. On 10 November 1997, we sent a follow-up letter (See Appendix 4.5) to 507 UK firms. The letter stressed the importance of the response and purpose of the study). A total of 22 usable responses were received. On 20 November 1997, a third questionnaire was sent to 470 UK firms (See Appendix 4.6), and 10 usable responses were received. On 8 December 1997, a fourth and final questionnaire was sent to 460 UK firms (See Appendix 4.7), and 15 usable responses were received. A total of 120 usable responses was received (a 20% response rate

. Table 4.3 shows the response pattern.

Table 4.3 Response Pattern

Response Type	Number of Cases	Percentage
Usable Responses	120	20.0
Refusal, expressed in writing	41	6.8
Firm not in MVMI	30	5.0
Addressee gone away	21	3.5
Business was acquired	5	0.8
Business was liquidated	1	0.2
Addressee unknown	1	0.2
Address incomplete	1	0.2
No response at all	380	63.3
TOTAL	600	100

As shown in Table 4.3, the overall response rate for this survey including refusals was 30%

4.6.3 Non-Response Analysis

A common worry with questionnaires is whether the respondents are very different from those who fail to respond to the questionnaire (Lessler and Kalsbeek, 1992; Foddy, 1993; Herzog, 1996). To test whether the respondents were different from the non-respondents, we performed a non-response analysis following the methods recommended by Armstrong and Overton (1977). In line with this approach, we selected 104 firms that did not respond and them compared them with the 120 firms that sent back questionnaires using the five variables in the original Dun & Bradstreet database. Table 4.4 shows the means and standard deviations of the respondents and non-respondents of the different variables selected for comparison.

Table 4.4 Comparison of Respondents and Non-Respondents

	Respondents		Non-Respondents	
	Mean	S.d	Mean	S.d
Turnover	320948	1169503	305177	1092180
Profitability	6850	42565	2936	6091
ROA	4.25	10.14	6.33	11.48
Sales Volume	379428	1291621	354863	1193594
Growth	9.07	26.29	9.35	26.06

When we compare the means and standard deviations of each of the five performance indicators, we realised that there are no significant differences between respondents and non-respondents in terms of annual turnover, return on assets, sales volume and growth. The absence of significant differences in terms of these four performance indicators suggest that the initial Dun & Bradstreet information on the respondents was of the same quality as the information provided by non-respondents.

The results in Table 4.4 show that firms that responded had more profits than firms that did not respond. The mean profits for firms that responded is higher than that for firms that did not respond. The lower mean score among non-respondents indicates a systematic bias in favour of firms that did not respond. A possible reason for the low mean among the non-respondents is that the Dun & Bradstreet database did not have a lot of the profit figures for most of the non-respondents. A closer analysis of the number in the categories shows that only 43 (42%) firms that did not respond had information available for profits, as compared to 84 (70%) firms that responded.

A total of 22 questionnaires were returned. This group of questionnaires comprises

respondents who were not known at the given addresses and those who had gone away from the target firms. For those respondents who were not known at the given addresses, the Royal Mail returned these questionnaires unopened. Similarly, for those respondents who had gone away from the target firm, the target firm returned the uncompleted questionnaire. Table 4.5 summarises some of the reasons for refusing to participate in this study.

Table 4.5 Reasons for Refusals

Response Type	Number of Cases
Addressee in Prison	1
Addressee left the Company	1
Not interested taking part	5
Pressure of Work	6
No explanation	9
Company Policy forbids us from responding	9
Questionnaire irrelevant to our business	12
Firm not in MVMI	30
TOTAL	73

Four things in Table 4.5 deserve comment. First, it is interesting to note that after going through three data sources, there is still a high number of firms that indicated that they were not in the motor vehicle manufacturing industry. A further analysis showed that 15 of them were actually in the industry. A possible explanation for this type of refusal was the clause in the covering letter: "If you are not in the industry, please do not complete the questionnaire". It looks like quite a number of respondents took advantage of this clause, making it difficult to know the actual reason for their refusal to participate. Second, we failed to understand what the 12

respondents meant when they said the questionnaire was not relevant to their type of business, because they too were in the motor vehicle manufacturing industry. Again, it could be another polite way of refusing to participate.

Third, some firms indicated that they were subsidiaries whereby only the top executive was allowed to communicate with the “external world”. We discovered that once the chief executive of the holding company filled in the questionnaire, the subsidiaries did not complete the questionnaires sent to them. Such questionnaires were mailed back to us, with a note explaining why the questionnaires could not be completed. This was not only a problem for responding firms. It was a common observation that once the holding company refused to fill in the questionnaire, the subsidiaries also refused to fill in the questionnaires.

Fourth, some firms have a section that deals with the “external world”, and the only form of information they are allowed to give out is in the form of brochures. Therefore there were questionnaires returned with brochures enclosed. The 9 responses, under the “Company Policy forbids us from responding” group fall under this category.

4.7 Summary

It was observed that there is no universal language for the types of survey errors because of contributions by researchers trained in several disciplines, each with its language. Two common types of survey errors considered important for this study were discussed. These were sampling error and non-sampling errors. Sampling error

is caused by not studying the entire population. It can be reduced by increasing the size of the sample. Non-sampling errors arise when the sample is not representative (non-observation errors) and while collecting the data (observation errors). There are different types of non-observation errors, but survey writers argue that non-observation errors are the most problematic non-observation errors. In view of this, we took measures to reduce non-observation errors.

The measures we took to reduce non-response included a careful construction of the questionnaire, which followed a Total Design Method (TDM). The Likert scale was used to measure the responses because it was felt it would enable comparison of findings between the two countries. The questionnaire was pilot tested twice.

Advance letters were sent to all Zimbabwean respondents before the initial questionnaires were despatched. Covering letters were enclosed in all the questionnaires. The aim of the covering letters was to motivate the respondents to fill in the questionnaires and return them.

Follow-up letters and the same questionnaires were sent to those who had not responded to the initial questionnaires.

For some constructs, for example, Comprehension, Training & Development, and Experience, the unit of analysis was the individual manager. Similarly, for other concepts, for example, Resource advantages and Superior Performance, the unit of analysis was the individual firm.

The data was analysed using multivariate methods. These are discussed in Chapters 5

and 6. Chapter 5 discusses the descriptive analysis and interpretation of the results. Chapter 6 discusses the multivariate data analysis and interpretation of those results. Factor analysis was used to reduce the different variables into a few factors. The key concepts had sixty-five different variables. Factor analysis reduced these variables to seventeen factors. These seventeen factors were then used in further multivariate techniques, like correlation analysis, moderated regression analysis and subgroup analysis, and regression analysis.

A Pearson correlation was used to investigate the nature, direction, and significance of the relationships between resource advantages and superior performance. According to Hair et al (1998), two variables are said to be correlated if changes in one variable are associated with changes in the other variable. In this way, as one variable changes, we know how the other variable is changing.

Multiple regression is appropriate when the problem involves a single criterion variable assumed to be related to two or more predictor variables (Hair et al., 1998). The objective of multiple regression is to predict changes in the criterion variable accounted for by each predictor variable. For example, we used multiple regression analysis to find out whether experience and training & development are related to comprehension, and if related, which of them would have a greater influence on comprehension.

Moderated regression analysis identifies different types of variables that affect the relationship between a predictor and a criterion variable. There are cases when predictor variables are only related to the criterion variable when certain conditions

are present. The identification of the different types of moderator or mediator variables is important when it comes to recommending managerial actions and possible future research areas.

There are two types of moderator/mediator variables. One type affects the degree of a relationship between the predictor and the criterion variable. If a moderator affects the degree of the relationship, it does not imply any casual relationship between the criterion, nor does it imply that the predictor and the moderator interact in determining the criterion variable (Arnold, 1982). What such a relationship means is that the degree or strength of the bivariate predictor-criterion relationships varies with the moderator variables. In this study, it would imply that the relationship between resource advantages and superior performance is influenced by managerial comprehension. The second type of moderator affects the form of the relationship between the predictor and criteria variable. If a moderator affects the form of the relationship, it implies that the predictor and moderator variables “interact” in determining the criterion variable (Arnold, 1982). In this study, it would mean that resource advantages interact with comprehension in determining firm superior performance.

CHAPTER FIVE

DESCRIPTIVE DATA ANALYSIS AND INTERPRETATION

Tables organise data, and graphs present a vivid overall picture. But more specific aspects of data such as their average and their variability are most succinctly summarised by a few well-chosen numbers. This chapter provides some basic descriptive analysis and discussion of the results. The data was submitted for computer analysis using SPSS programme. In discussing these analyses and their interpretation, this chapter looks at frequencies, *means*, and standard deviations (SD) obtained for the interval scale independent and dependent variables. In describing the results, the terms “managers” and “firms” will be used interchangeably.

The results discussed in this chapter are for the UK respondents only. As indicated in Chapter 4, the response from the Zimbabwean firms was so low (7 out of 34) that a comparative study could not be possible. The UK target sample was 600 firms. A total of 120 usable responses were received, making a response rate of 20%.

5.1 Descriptive Data Analysis: Introductory Questions

5.1.1 Annual turnover of firms

The question asked managers to indicate their annual turnover of their firms. A summary of the responses to this question is given in Table 5.1.

Table 5.1 Firms' Annual Turnover

	Frequency	Mean	SD
Less than £1 million	5 (4.2%)	2.95	1.31
£1 million - £10 million	61 (50.8)		
£10 million - £20 million	18 (15%)		
£20 million -£30 million	7 (5.8)		
Over £30 million	29 (24.2)		
Total	120 (100)		

The *mean* and standard deviation are 2.95 and 1.31 respectively. The distributions are slightly skewed to the left. The results show that only 5 firms had an annual turnover below £1 million, and 61 firms had an annual turnover of between £1 million and £10 million. The results show that altogether, more than half (66) of the firms have an annual turnover of less than £10 million. This phenomenon is expected in such distributions. It is also interesting to note that 24% (29) of the firms have annual turnover of above £30 million.

5.1.2 Rating firms in terms of financial performance

The question asked managers to rate their firm performance in terms of four financial performance measures: Profitability, Return on assets, Sales volume, and Growth. Their responses are summarised in Table 5.2, and Table 5.3 shows the *means* and standard deviations.

Table 5.2 Frequencies: Measures of financial performance

	Very Weak	Weak	Moderate	Strong	Very Strong
Profitability	6 (5%)	16 (13.3%)	52 (43.3%)	39 (32.5%)	7 (5.8%)
Return on Assets	5 (4.2%)	11 (9.2%)	46 (38.3%)	45 (37.5%)	13 (10.8%)
Sales Volume	2 (1.7%)	7 (5.8%)	47 (39.2%)	58 (48.3%)	6 (5%)
Growth	2 (1.7%)	13 (10.8%)	57 (47.5%)	35 (29.2%)	13 (10.8%)

Scale 1= Very Weak, 5 = Very Strong

Table 5.3 *Means & SDs: Measures of financial performance*

	Mean	S.D
Profitability	3.21	.92
Return on Assets	3.42	.95
Sales Volume	3.49	.76
Growth	3.37	.88

All the *means* are above the average (3, on a five-point scale), suggesting that firms are strong in all the four measures. However, the standard deviation shows that these distributions are slightly skewed to the right. Frequencies show that altogether only 64 (53%) firms rated themselves strong in terms of sales volume. These results would seem to indicate that sales volume is the strongest financial performance variable for firms in this industry. This is followed by return on assets, and then growth. These results also seem to indicate that the weakest measure of superior performance for firms in this industry is profitability. This shows that overall, firms in this industry rated sales volume and return on assets as measures of superior performance. This is interesting because, when later rotated (in the following Chapter), these two measures loaded into different factors.

5.1.3 Rating the firm's financial performance relative to competition

This section is concerned with the responses to the question "How would you rate your financial performance relative to competition?" The responses to this question are shown in Tables 5.3 and 5.4. As expected, the results are slightly skewed to the right, as most of the firms showing either moderate or strong positions. Frequencies show that there is only a 3% (58% - 53%) difference between those firms in the

“Strong” category and those in the “Moderate” category in terms of their financial performance.

Table 5.4 Rating firm performance relative to competition

	Very Weak	Weak	Moderate	Strong	Very Strong	Mean	SD
Rating financial performance	1 (8%)	8 (6.7%)	53 (44.2%)	46 (38.3%)	12 (10%)	3.80	.80

The results in Table 5.4 show that the highest number of firms (53) rated themselves moderate relative to competition. The *mean* also shows that most of the respondents performed well in relation to competitors.

5.2 Descriptive Analysis: Strategy Concepts

5.2.1 Familiarity with Strategic Concepts

This section concerns the responses to the question “How familiar are you with the following distinctive or inter-related concepts?” Table 5.4 summarises the responses to this question, and Table 5.5 shows the means and the standard deviations.

Table 5.5 Frequencies: Familiarity with strategic concepts

	Not very Familiar	Not Familiar	Neutral	Familiar	Very Familiar
Firm resources	16 (13.3%)	26 (21.7%)	22 (18.3%)	46 (38.3%)	10 (8.3%)
Strategic resources	16 (13.3%)	16 (13.3%)	18 (15%)	55 (45.8%)	15 (12.5%)
Superior resources	18 (15%)	33 (27.5%)	32 (26.7%)	32 (26.7%)	5 (4.2%)
Intangible resources	18 (15%)	32 (26.7%)	29 (24.2%)	33 (27.5%)	8 (6.7%)
Strategic assets	16 (13.3%)	18 (15%)	22 (18.3%)	48 (40%)	16 (13.3%)
Intangible assets	14 (11.7%)	19 (15.8%)	25 (20.8%)	48 (40%)	14 (11.7%)
Core competencies	12 (10%)	15 (12.5%)	19 (15.8%)	45 (37.5%)	29 (24.2%)
Distinctive competencies	14 (11.7%)	30 (25%)	23 (19.2%)	33 (27.5%)	20 (16.7%)
Managerial competencies	7 (5.8%)	7 (5.8%)	18 (15%)	60 (50%)	28 (23.3%)
Distinctive skills	10 (8.3%)	18 (15%)	24 (20%)	47 (39.2%)	21 (17.5%)
Managerial capabilities	7 (5.8%)	6 (5%)	12 (10%)	61 (50.8%)	34 (28.3%)

Scale 1= Not Familiar, 5 = Very Familiar

Table 5.6 Means & SDs: Familiarity with Strategic Concepts

	Mean	SD
Firm resources	3.07	1.21
Strategic resources	3.31	1.24
Superior resources	2.78	1.13
Intangible resources	2.84	1.18
Strategic assets	3.25	1.25
Intangible assets	3.24	1.20
Core competencies	3.53	1.26
Distinctive competencies	3.13	1.29
Managerial competencies	3.79	1.05
Distinctive skills	3.43	1.19
Managerial capabilities	3.91	1.05

The *means* of 9 of the 11 concepts are above average, suggesting that managers are on average familiar with these strategic concepts. These distributions are skewed to the right. Managers were familiar with **managerial capabilities, managerial competencies, core competencies, strategic resources, distinctive skills, intangible assets, and strategic assets**. Most of the managers were not familiar with only four concepts: **intangible resources, superior resources, distinctive competencies, and firm resources**. This is not very surprising because managers never used these four concepts when describing their causes of success in the annual company reports. These results seem to confirm that managers are not aware of some of the key variable terminology of the resource-based view of the firm.

5.2.2 Rating the Applicability of strategic concepts

In addition to asking managers to indicate their familiarity with the strategic concepts, managers were asked to rate how easy it was to apply these concepts. This section therefore is concerned with responses to the question “As far as you can judge, how would you rate these strategic concepts in terms of their applicability in your firm?”

Table 5.7 summarises the frequencies, and Table 5.8 shows the *means* and the standard deviations of the responses to this question.

Table 5.7 **Frequencies: Applicability of Strategic Concepts**

	Very Difficult to apply	Difficult to apply	Neutral	Easy to apply	Very Easy to apply
Firm resources	4 (3.3%)	21 (17.5%)	52 (43.3%)	36 (30.3%)	7 (5.8%)
Strategic resources	5 (4.2%)	21 (17.5%)	47 (39.2%)	43 (35.8%)	4 (3.3%)
Superior resources	5 (4.2%)	22 (18.3%)	60 (50%)	30 (25%)	3 (2.5%)
Intangible resources	7 (5.8%)	34 (28.3%)	62 (51.7%)	16 (13.3%)	1 (0.8%)
Strategic assets	5 (4.2%)	24 (20%)	50 (41.7%)	36 (30%)	5 (4.2%)
Intangible assets	7 (5.8%)	27 (22.5%)	66 (55%)	16 (13.3%)	4 (3.3%)
Core competencies	3 (2.5%)	15 (12.5%)	49 (40.8%)	40 (33.3%)	13 (10.8%)
Distinctive competencies	3 (2.5%)	24 (20%)	57 (47.5%)	29 (24.2%)	7 (5.8%)
Managerial competencies	2 (1.7%)	10 (8.3%)	41 (34.2%)	55 (45.8%)	12 (10%)
Distinctive skills	5 (4.2%)	11 (9.2%)	46 (38.3%)	45 (37.5%)	13 (10.8%)
Managerial capabilities	2 (1.7%)	11 (9.2%)	31 (25.8%)	56 (46.7%)	20 (16.7%)

Scale 1= Very Difficult to apply, 5 = Very Easy to apply

Table 5.8 **Means & SDs: Applicability of Strategic Concepts**

	Mean	SD
Firm resources	3.17	.90
Strategic resources	3.17	.90
Superior resources	3.03	.84
Intangible resources	2.75	.79
Strategic assets	3.10	.91
Intangible assets	2.86	.84
Core competencies	3.37	.93
Distinctive competencies	3.11	.88
Managerial competencies	3.54	.85
Distinctive skills	3.42	.95
Managerial capabilities	3.68	.92

The *means* of the measures show that managers found the concepts applicable and yet a skewness test shows that the distributions are skewed to the left. Frequencies show that although many managers are familiar with 7 concepts, there is a very different picture when it comes to applicability of these concepts. The concepts of **managerial**

competencies and managerial capabilities were rated easy to apply. Most managers rated all the remaining concepts very difficult to apply. The most difficult concepts to apply were **intangible assets, strategic assets, distinctive competencies, strategic resources, superior resources and firm resources**. An interesting phenomenon is that most managers found even some of those concepts they were most familiar with very difficult to apply. These results would seem to suggest that being familiar with the concepts does not necessarily mean the concepts can be easily applied. Moreover, being unable to apply the concepts does not mean that managers cannot manage in ways that develop superior performance.

It should be noted that there is a high percentage of managers who were neutral. For example, 60 (50%) managers did not say whether **superior resources** were difficult to apply or not. Going back to annual company reports, this should not be surprising because, as can be noted, managers never used these concepts in describing their causes of success.

5.3 Descriptive Statistics: Product Characteristics

5.3.1 Rating product attributes relative to competitors

This section concerns responses to the question “How would you rate the following attributes relative to competitors?” The responses to this question are shown in Tables 5.9 and 5.10. The *means* show that most of the managers rated their product attributes very high relative to competitors. However, the distributions are slightly skewed to the right.

Table 5.9 **Frequencies: Rating product attributes relative to competition**

	Very Low	Low	Neutral	High	Very High
Price	2 (1.7%)	12 (10%)	43 (35.8%)	50 (41.7%)	13 (10.8%)
Quality		2 (1.7%)	16 (13.3%)	60 (50%)	42 (35%)
Performance		1 (0.8%)	24 (20%)	58(48.3%)	37(30.8%)
Durability		1(0.8%)	25 (20.7%)	59 (49.2%)	35 (29.2%)
Reliability		3 (2.5%)	19 (15.8%)	57 (47.5%)	41 (34.2%)
Convenience	1 (0.8%)	3 (2.5%)	38 (31.7%)	54 (45%)	24 (20%)
Delivery patterns		9 (7.5%)	38 (31.7%)	53 (44.2%)	20 (16.7%)
After sales service	1 (0.8%)	8 (6.7%)	20 (16.7%)	55 (45.8%)	36 (30%)

Scale 1 = Very Low; 5 = Very High

Table 5.10 Means & SDs: Rating product attributes relative to competition

	Mean	SD
Price	3.50	.88
Quality	4.18	.72
Performance	4.09	.73
Durability	4.07	.73
Reliability	4.13	.77
Convenience	3.81	.81
Delivery patterns	3.70	.84
After sales service	3.98	.90

Frequencies show that managers rated themselves high in terms of all the variables, with, **reliability, performance, and durability** rated highest. It is interesting to see firms rating themselves strong on these attributes, showing that they are believed to be the cornerstones of superior performance in this industry.

It is a bit surprising to find such a high proportion of managers who were neutral in terms of **convenience and delivery patterns**. This makes it difficult to know the contributions of these product attributes to developing superior performance.

5.3.2 Matching product attributes

In addition to rating their products relative to competitors, managers were asked to say how easy they thought it was for these competitors to match their product attributes. Therefore this section concerns responses to the question “How easy is it for competitors to match your products’ attributes?” A summary of these responses is given in Tables 5.11 and 5.12. The theoretical justification for the inclusion of these questions is the RBV literature’s argument that firms gain competitive advantage (which then leads to superior performance) if their resources are difficult to imitate.

Table 5.11 **Frequencies: How easy it is to match products attributes**

	Very Easy	Easy	Neutral	Difficult	Very Difficult
Price	3 (2.5%)	19 (15.8%)	32 (26.7%)	46 (38.3%)	20 (16.7%)
Quality	5 (4.2%)	18 (15%)	35 (29.2%)	51 (42.5%)	11 (9.2%)
Performance	3 (2.5%)	17 (14.2%)	40 (33.3%)	47 (39.2%)	13 (10.8%)
Durability	4 (3.3%)	16 (13.3%)	53 (44.2%)	40 (33.3%)	7 (5.8%)
Reliability	4 (3.3%)	18 (15%)	39 (32.5%)	50 (41.7%)	9 (7.5%)
Convenience	2 (1.7%)	32 (26.7%)	55 (45.8%)	26 (21.7%)	5 (4.2%)
Delivery patterns	7 (5.8%)	38 (31.7%)	41 (34.2%)	29 (24.2%)	5 (4.2%)
After sales service	5 (4.2%)	26 (21.7%)	42 (35%)	38 (31.7%)	9 (7.5%)

Scale 5= Very Easy, 1 = Very Difficult

Table 5.12 **Means & SDs: How easy it is to match products attributes**

	Mean	SD
Price	3.51	1.03
Quality	3.38	.99
Performance	3.42	.95
Durability	3.25	.88
Reliability	3.35	.94
Convenience	3.00	.85
Delivery patterns	2.89	.88
After sales service	3.17	.99

The *means* of seven variables are above the average, suggesting that managers believed that all product attributes are difficult for competitors to match. Frequencies however give a different picture. The combined figures for “Difficult” and “Very difficult” shows that Quality is the most difficult product attribute for competitors to match, as shown by 62 (58)% firms. The attributes of **performance** and **reliability** were also rated difficult for a competitor to match. These results seem to suggest that these product attributes are valuable intangible resources in this industry.

These results also seem to show that the easiest product attributes to copy are **price** and **delivery patterns**. From the above section, it is interesting to note that although managers rated themselves high in terms of **price** and **delivery patterns**, they still find these two product attributes very easy to match. It is a bit surprising to see that although **price** is an important factor in the marketing mix, managers did not rate it as of paramount importance. It is also interesting to note that a high percentage of managers did not say how easy or difficult for competitors to copy some of their product attributes. It is more surprising when it is considered that the majority of the respondents (103, representing 86% of the total respondents) were senior managers, 55 (46%) of whom had been in the position for over 10 years.

5.3.3 Contribution of product attributes in developing superior performance

This section concerns responses to the question “How would you rate the contribution of the following product attributes in the development of superior performance in your firm?” The frequencies and *means* & standard deviations are shown in Tables 5.14 and 5.15, respectively. The *means* of all the variables are above average, suggesting

that managers rated these attributes' contribution in developing superior performance is high.

Table 5.13 **Frequencies: Contribution of product attributes in developing superior performance**

	Very Low	Low	Neutral	High	Very High
Product design	7 (5.8%)	13 (10.8%)	18 (15%)	47 (39.2%)	35 (29.2%)
Product reputation	1 (0.8%)	6 (5%)	11 (9.2%)	53 (44.2%)	49 (40.8%)
Product line extensions	4 (3.3%)	11 (9.2%)	41 (34.2%)	50 (41.7%)	14 (11.7%)
Improving product quality	1 (0.8%)	5 (4.2%)	21 (17.5%)	66 (55%)	27 (22.5%)
High margin/premium offerings	1 (0.8%)	14 (11.7%)	44 (36.7%)	49 (40.8%)	12 (10%)
Lowering new product prices	8 (6.7%)	19 (15.8%)	52 (43.3%)	37 (30.8%)	4 (3.3%)

Scale 1 = Very Low; 5 = Very High

Table 5.14 **Means & SDs: Contribution of product attributes in developing superior performance**

	Mean	SD.
Product design	3.75	1.16
Product reputation	4.19	.86
Product line extensions	3.49	.93
Improving product quality	3.94	.80
High margin/premium offerings	3.47	.86
Lowering new product prices	3.08	.93

Frequencies show that all the attributes, except **lowering new product prices**, were seen as very important contributors in developing superior performance. This is not surprising in view of the competitive nature of the motor vehicle manufacturing industry. **Product reputation** was rated as the most important contributor in developing superior performance. This seems to suggest that **product reputation** should receive constant managerial attention. Managers did not rate **lowering new product price** as a viable strategy in developing superior performance. It should be noted that this attribute has the highest number of managers who were neutral.

5.3.4 Reviewing product attributes

This section concerns responses to the question “How often do you review the following product strategies?” The responses to this question are summarised in Tables 5.15 and 5.16. The rationale for including this section was the expectation that firms that reviewed their product strategies more often, were likely to be those with better superior products, thereby contributing to developing superior performance.

Table 5.15 **Frequencies: Frequency of formally reviewing product attributes**

	Ongoing	Twice a year	Annually	5+ years	Longer
Product price	87 (72.5%)	16 (13.3%)	15 (12.5%)	2 (1.7%)	-
Quality improvements	102 (85%)	8 (6.7%)	10 (8.3%)	-	-
Product performance	98 (81.7%)	11 (9.2%)	9 (7.5%)	1 (0.8%)	1 (0.8%)
New product development	92 (76.7%)	13 (10.8%)	11 (9.2%)	2 (1.7%)	2 (1.7%)
After sales service	100 (83.3%)	11 (9.2%)	7 (5.8%)	1 (0.8%)	1 (0.8%)

Scale 1 = Longer than 5 years; 5 = Ongoing

Table 5.16 **Means & SDs: Frequency of formally reviewing product attributes**

	Mean	SD
Product price	1.43	.77
Quality improvements	1.23	.59
Product performance	1.30	.72
New product development	1.41	.85
After sales service	1.27	.68

The *means* for all the variables are below the average, suggesting that reviewing of product attributes was relatively neglected. However, the distributions of all the variables are skewed to the left. Frequencies show that managers review their product attributes on on-going basis (that is, continuously).

It is important to note that even managers who were not sure whether after sales service was difficult to match or not, still review it continuously. As shown under

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Table 5.19 Frequencies: Strategy contribution in developing superior performance

	Not Very Important	Not Important	Neutral	Important	Very Important
Firm reputation -				48 (40%)	72 (60%)
Distribution channels		6 (5%)	26 (21.7%)	58 (48.3%)	30 (25%)
Strategic partnerships	8 (6.7%)	13 (10.8%)	34 (28.3%)	41 (34.2%)	24 (20%)
Supplier networks	2 (1.7%)	13 (10.8%)	30 (25%)	51 (42.5%)	24 (20%)
Dealer networks	8 (6.7%)	13 (10.8%)	24 (20%)	45 (37.5%)	30 (25%)
Long-term/ suppliers		3 (2.5%)	6 (5%)	57 (47.5%)	54 (45%)
Long-term/ dealers	3 (2.5%)	4 (3.3%)	21 (17.5%)	45 (37.5%)	47 (39.2%)
After sales service	1 (0.8%)		8 (6.7%)	47 (39.2%)	64 (53.3%)

Scale 1 = Not Very Important; 5 = Very Important

Table 5.20 Means & SDs: Strategy contribution in developing superior performance

	Mean	SD
Firm reputation -	4.60	.49
Distribution channels	3.93	.82
Strategic partnerships	3.50	1.13
Supplier networks	3.68	.97
Dealer networks	3.63	1.17
Long-term/ suppliers	4.35	.69
Long-term/ dealers	4.08	.96
After sales service	4.44	.70

The *means* of all the eight variables are above average, suggesting that managers rated all the variables as contributing in developing superior performance in their firms.

Frequencies too show that managers rated all the variables important in the development of superior performance. **Firm reputation, long-term relationships with suppliers, and after sales service** were rated as the highest contributors to developing superior performance. Of these three, **firm reputation** was rated the most important contributor of superior performance. This shows the importance of reputation as a resource in developing superior performance in this industry.

Strategic partnerships, although felt to be important, were rated the least important contributor of superior performance. It should be recalled that in the annual company reports, **strategic partnerships** were shown to be an important source of superior performance.

5.4.3 Contribution of Resource advantages

This section concerns responses to the question “How would you rate your firm’s performance in terms of the following factors?” These were the factors believed to be sources of superior performance, and were used as the independent predictors in this study. The responses to this question are summarised in Tables 5.21 and 5.22

Table 5.21 Frequencies: Contribution of Resource advantages

	Very Weak	Weak	Neutral	Strong	Very Strong
Marketing Factors					
Product quality		2 (1.7%)	10 (8%)	65 (54.2%)	43 (35.8%)
Speed of NPD	5 (4.2%)	16 (13.3%)	42 (35%)	41 (34.2%)	16 (13.3%)
Customer base		5 (4.2%)	19 (15.8%)	63 (52.5%)	33 (27.5%)
Customer loyalty		5 (4.2%)	27 (22.5%)	59 (49.2%)	29 (24.2%)
Dealer loyalty	2 (1.7%)	10 (8.3%)	41 (34.2%)	44 (36.7%)	23 (19.2%)
Supplier know-how		6 (5%)	36 (30%)	61 (50.8%)	17 (14.2%)
Supplier reliability		7 (5.8%)	33 (27.5%)	61 (50.8%)	19 (15.8%)
Long-term /Suppliers		7 (5.8%)	19 (15.8%)	64 (53.3%)	30 (25%)
Long-term /Dealers	3 (2.5%)	10 (8.3%)	40 (33.3)	46 (38.3%)	21 (17.5%)
Manufacturing Factors					
Innovative designs	5 (4.2%)	10 (8.3%)	39 (32.5%)	47 (39.2%)	19 (15.8%)
Economies of scale	4 (3.3%)	21 (17.5%)	36 (30%)	45 (37.5%)	14 (11.7%)
Manufacturing flexibility	4 (3.3%)	18 (15%)	34 (28.3%)	48 (40%)	16 (13.3%)
Technical skills	2 (1.7%)	4 (3.3%)	27 (22.5%)	67 (55.8%)	20 (16.7%)
Delivery capabilities	1 (0.8%)	13 (10.8 %)	33 (27.5%)	55 (45.8%)	18 (15%)
Supplier sourcing flexibility	4 (3.3%)	16 (13.3%)	50 (41.7%)	40 (33.3%)	10 (8.3%)
Firm Factors					
Managerial capabilities		2 (1.7%)	25 (20.8%)	72 (60%)	21 (17.5%)
Ability to innovate	1 (0.8%)	9 (7.5%)	33 (27.5%)	51 (42.5%)	26 (21.7%)
Adaptability		6 (5%)	26 (21.7%)	59 (49.2%)	29 (24.2%)
Workforce management		7 (5.8%)	32 (26.7%)	56 (46.7%)	25 (20.8%)

Scale 1 =Very Weak; 5 =Very Strong

Table 5.22 Means & SDs: Contribution of Resource advantages

	Mean	SD
Marketing Factors		
Product quality	4.24	.67
Speed of NPD	3.39	1.01
Customer base	4.03	.78
Customer loyalty	3.93	.80
Dealer loyalty	3.63	.94
Supplier know-how	3.74	.76
Supplier reliability	3.77	.79
Long-term /Suppliers	3.98	.80
Long-term /Dealers	3.60	.96
Manufacturing Factors		
Innovative designs	3.54	.99
Economies of scale	3.37	1.01
Manufacturing flexibility	3.45	1.01
Technical skills	3.83	.81
Delivery capabilities	3.63	.90
Supplier sourcing flexibility	3.30	.92
Firm Factors		
Managerial capabilities	3.93	.67
Ability to innovate	3.77	.91
Adaptability	3.93	.81
Workforce management	3.82	.83

The *means* of all the variables are above the average, suggesting that managers rated their performance in terms of these same factors high. It is important to look at each category of factors, for a better picture.

5.4.3.1 Marketing Factors

Product quality was rated the highest contributor in developing superior performance in this industry, with 108 firms rating themselves strong on this factor. It should be recalled that **quality** was also rated a very important source of superior performance. **Customer base** is also seen as very important in this competitive industry. Contrary to expectations, **speed of new product development** was not seen as a very important source of superior performance. Only 57 managers rated it as a source of superior performance.

5.4.3.2 Manufacturing Factors

Relatively, these factors were not rated as high as **Marketing Factors**. Managers rated only three **Manufacturing Factors** as sources of superior performance: **Technical skills, Delivery capabilities, and Innovative designs**. **Technical skills** was rated as the highest contributor to developing superior performance. Managers rated themselves weak in terms of **manufacturing flexibility, economies of scale, and supplier-sourcing flexibility**.

The results show that **supplier-sourcing flexibility** was rated the lowest contribution to developing superior performance. A possible explanation could be that firms in this industry do not change their suppliers frequently, and so suppliers, who take time to develop, are kept for long periods of time. It should be recalled that **Long-term relationships with suppliers** was rated as a high contributor to superior performance.

5.4.3.3 Firm Factors

Although all managers rated their firms strong in terms of all the four firm factors, they were not very strong in terms of **ability to innovate**. Hence they rated **managerial capabilities** as having the highest contribution to developing superior performance. It should be recalled that managers were both familiar with this concept, and found it easy to apply.

5.4.4 Reviewing Resource advantages

In addition to rating their firm performance in terms of measures of resource advantages, managers were also asked to indicate how often they formally review these resource advantages. The responses to this question are summarised in Tables 5.23 and 5.24. The *means* of all the eight measures are below the average (3.0), suggesting that these performance factors were not reviewed continuously. These distributions are slightly skewed to the left.

Table 5.23 Reviewing of Resource advantages

	Ongoing	Twice a year	Annually	Once in 5 Years	Longer
Scale economies	91 (75.8%)	12 (10%)	14 (11.7%)	1 (0.8%)	2 (1.7%)
Manufacturing flexibility	86 (71.7%)	13 (10.8%)	19 (15.8%)	1 (0.8%)	1 (0.8%)
Technical skills	75 (62.5%)	18 (15%)	21 (17.5%)	3 (2.5%)	3 (2.5%)
Delivery capabilities	76 (63.3%)	24 (20%)	11 (9.2%)	4 (3.3%)	5 (4.2%)
Managerial capabilities	83 (69.2%)	20 (16.7%)	12 (10%)	3 (2.5%)	2 (1.7%)
Ability to innovate	92 (76.7%)	9 (7.5%)	14 (11.7%)	4 (3.3%)	1 (0.8%)
Adaptability	83 (69.2%)	13 (10.8%)	20 (16.7%)	2 (1.7%)	2 (1.7%)
Workforce commitment	85 (70.8%)	15 (12.5%)	14 (11.7%)	3 (2.5%)	3 (2.5%)
Training programmes	98 (81.7%)	8 (6.7%)	8 (6.7%)	3 (2.5%)	3 (2.5%)

Scale 1 = Longer than 5 years; 5 = Ongoing

Table 5.24 Means & SDs: Reviewing of Resource advantages

	Mean	SD
Scale economies	1.67	1.01
Manufacturing flexibility	1.65	1.06
Technical skills	1.51	.90
Delivery capabilities	1.44	.89
Managerial capabilities	1.56	.94
Ability to innovate	1.53	.97
Adaptability	1.37	.91
Workforce commitment	1.43	.86
Training programmes	1.48	.85

Frequencies show that most managers reviewed the factors on on-going basis. The most reviewed resources were training programmes, scale economies, and

manufacturing flexibility. It should be recalled that most managers rated the performance of their firms “Weak” in terms of **scale economies, and manufacturing flexibility** (See Contribution of Resource Advantages, Section 5.4.3). It is important to note that even though managers rated themselves low in these two resources, they reviewed these two resources continuously as well. It is of further interest to note that some resources are reviewed either once in five years or after five years.

5.5 Descriptive Statistics: Core competencies

This section concerns responses to the question “How would you rate your firm in terms of its performance in specific areas which are seen as helping to build and protect core competencies?” Tables 5.25 and 5.26 summarise the responses to this question. The *means* of four variables are below the average, and four are above the average. The results are not very different from those shown in the frequencies.

Table 5.25 **Frequencies: Building and protecting core competencies**

	Never	Rarely	Occasionally	Usually	Always
Produce inventory	5 (4.2%)	9 (7.5%)	24 (20%)	57 (47.5%)	25 (20.8%)
Clarity on competencies	3 (2.5%)	14 (11.7%)	25 (20.8%)	59 (49.2%)	19 (15.8%)
Stable management teams	3 (2.5%)	4 (3.3%)	5 (4.2%)	58 (48.3%)	50 (42.7%)
Using similar competencies	26 (21.7%)	19 (15.8%)	21 (17.5%)	42 (35%)	12 (10%)
Promote collective learning	10 (8.3%)	20 (16.7%)	34 (28.3%)	40 (33.3%)	16 (13.3%)
Competence review meetings	18 (15%)	26 (21.7%)	38 (31.7%)	23 (19.2%)	15 (12.5%)
Competence acquisition goal	22 (18.3 %)	33 (27.5%)	25 (20.8%)	34 (28.3%)	6 (5%)
Benchmarking competence	25 (20.8%)	35 (29.2%)	25 (20.8%)	28 (23.3%)	7 (5.8%)

Scale 1 = Never; 5 = Always

Table 5.26 Means & SDs: Building and protecting core competencies

	Mean	SD
Produce inventory	3.73	1.01
Clarity on competencies	3.64	.97
Stable management teams	4.23	.88
Using similar competencies	2.96	1.34
Promote collective learning	3.37	1.14
Competence review meetings	2.92	1.23
Competence acquisition goals	2.74	1.20
Benchmarking competence	2.64	1.21

Frequencies show that **having stable senior management, being able to produce an inventory of what the firm does best, and making everyone clear on the firm's core competencies** were rated as highest contributors in building and protecting core competencies. A key function of senior management teams in this industry has been shown to be that of making everyone clear on the firm's core competencies.

The remaining performance measures were rated as having low contribution in building and protecting core competencies, with **benchmarking core-competence building efforts against rivals**, being rated as having the lowest contribution. A notable feature is the number of firms in the "Occasionally" category in terms of **having competence review meetings, promoting collective learning, benchmarking competence building efforts against rivals, and setting competence acquisition goals**. A small number of firms did not see these strategies as having any importance at all in building and protecting core competencies. A possible explanation could be that the concept of core competencies is not a familiar one with UK managers. As shown in Table 4.2 (Chapter 4), no UK company report attributed its superior performance to core competencies. Further, a pilot study respondent made this remark in terms of core competencies "Who would know what this means?" In

addition, Table 5.4 shows that managers' familiarity with competency-related terminology is not very high.

5.6 Descriptive Analysis: Customer care

5.6.1. Strengths and weaknesses in Customer care.

The questions in this section were intended to find out the strengths and weaknesses of firms in terms of customer care. The responses to these questions are summarised in Tables 5.27 and 5.28. The *means* of all the five variables are below the average. These distributions are slightly skewed to the left.

Table 5.27 **Frequencies: Strengths and weaknesses in Customer care**

	Always	Usually	Occasionally	Rarely	Never
Knowledge of customers	54 (45%)	61 (50.8%)	4 (3.3%)	1 (0.8%)	-
Clarity of skills	56 (46.7%)	49 (40.8%)	12 (10%)	3 (2.5%)	-
Customer feedback	62 (51.7%)	39 (32.5%)	14 (11.7%)	5 (4.2%)	-
Meeting customer needs	40 (33.3%)	61 (50.8%)	16 (13.3%)	3 (2.5%)	-
Surveying former customers	33 (27.5%)	26 (21.7%)	33 (27.5%)	21 (17.5%)	7 (5.8%)

Scale 1 = Never; 5 = Always

Table 5.28 **Means & SDs: Strengths and weaknesses in Customer care**

	Mean	SD
Knowledge of customers	1.60	.60
Clarity of skills	1.68	.76
Customer feedback	1.68	.84
Meeting customer needs	1.85	.74
Surveying former customers	2.52	1.23

Frequencies show that firms are strong in terms of all, but one, measures. **Knowledge of customers** was rated as the highest strength in customer care. This seems to suggest that knowing customers is very important in this industry. It should be

recalled that both **customer base and customer loyalty** were also rated as high contributors to developing superior performance (See Resource advantages). **Surveying former customers** had the lowest rating, suggesting that more than half of firms (51%) survey customers now lost, as compared to 58 (49%) firms that **always surveyed customers now lost**. The results seem to suggest that a major weakness of many firms in this industry is that they do not survey their customers. They are only concerned with looking after their current customers.

5.6.2 Most common comments from customers now lost.

This section concerns responses to the question “If you interview customers now lost, what are the most common comments they have about your products?” By customers now lost, it was meant customers who no longer bought the firm’s products. This included dealers, other firms, and individual customers. The rationale for including these questions was that firms that have superior performance take care of both present and past customers. They take care of customers now lost by listening to their views and then use these views to prevent more “customer leakage”. The responses to this question are summarised in Tables 5.29 and 5.30. The *means* of all, but one, variables are below the average, suggesting that customers are not satisfied with the firm’s products. These observations are slightly skewed to the left.

Table 5.29 **Frequencies: Most common comments from customers now lost**

	Very Satisfactory	Satisfactory	Neutral	Not Satisfactory	Not very Satisfactory
Price	11 (9.2%)	24 (20%)	39 (32.5%)	26 (21.7%)	20 (16.7%)
Product quality	41 (34.2%)	41 (34.2%)	27 (22.5%)	7 (5.8%)	4 (3.3%)
Product performance	35 (29.2%)	49 (40.8%)	26 (21.7%)	7 (5.8%)	3 (2.5%)
Product warranty	32 (26.7%)	37 (30.8%)	32 (26.7%)	15 (12.5%)	4 (3.3%)
Delivery	21 (17.5%)	38 (31.7%)	32 (26.7%)	16 (13.3%)	13 (10.8%)
After-sales service	25 (20.8%)	33 (27.5%)	43 (35.8%)	10 (8.3%)	9 (7.5%)

Scale 1 = Not Very Satisfactory; 5 = Very Satisfactory

Table 5.30 **Means & SDs: Most common comments from customers now lost**

	Mean	SD
Price	3.17	1.20
Product quality	2.10	1.05
Product performance	2.12	.98
Product warranty	2.35	1.10
Delivery	2.68	1.22
After-sales service	2.54	1.14

Product quality, product performance, and product warranty were rated as the highest satisfactory common comments from customers now lost. It should be recalled that firms rated the contribution of **product quality** to developing superior performance high. It should be recalled that **product quality** was rated as a high contributor to developing superior performance (See Rating Product attributes, Contribution of Strategies to developing Superior Performance). In addition, 107 (96%) firms said they reviewed it on on-going basis, and 94 (78%) firms said they reviewed **product performance** on on-going basis (See Contribution of Marketing Factors), showing that these two are important factors to developing superior performance. These results seem to suggest that firms in this industry lose customers due to problems mainly related to product delivery, after-sales service, and price.

Table 5.29 shows that none of the factors received rating higher than 60 (half of the firms being analysed). But judging from **product attributes** responses, it would seem

that customers now lost found the price too high. In terms of **after-sales service**, it is recalled that 91% (100) of the managers believed it was very important in developing superior performance. In addition, 83% (99) of the managers reviewed **after-sales service** continuously. One would expect less adverse comments from customers now lost in terms of **after-sales service**.

In terms of **delivery**, it is also surprising because 57% (68) of the managers rated their firms strong in terms of this factor. Again, the high number of those undecided managers makes it difficult to draw reasonable conclusions about **delivery**.

5.6.3 Reviewing Customer strategies

This section concerns responses to the question “How often do you review the following Customer Strategies?” These were strategies intended to improve their customer care. Tables 5.31 and 5.32 summarise the responses to this question. The *means* of all the six variables are below the average, suggesting that managers do not review customer strategies continuously.

Table 5.31 **Frequencies: Reviewing Customer strategies**

	Ongoing	Twice a year	Annually	Once in 5 years	Longer
Customer profiles	80 (66.7 %)	14 (11.7%)	16 (13.3%)	5 (4.2%)	5 (4.2%)
Customer complaints	110 (91.7%)	6 (5%)	4 (3.3%)		
Customer needs	101 (84.2%)	4 (3.3%)	13 (10.8%)	2 (1.7%)	
Customer loyalty	85 (70.8%)	15 (12.5%)	14 (11.7%)	4 (3.3%)	2 (1.7%)
Information systems	73 (60.8%)	13 (10.8%)	29 (24.2%)	3 (2.5%)	2 (1.7%)
Distribution networks	76 (63.3%)	11 (9.2%)	27 (22.5%)	2 (1.7%)	4 (3.3%)

Scale 1 = Longer than 5 years; 5 = Ongoing

Table 5.32 Means & SDs: Reviewing Customer strategies

	Mean	SD
Customer profiles	1.68	1.12
Customer complaints	1.12	.41
Customer needs	1.30	.73
Customer loyalty	1.53	.94
Information systems	1.73	1.02
Distribution networks	1.72	1.08

Frequencies show that all the managers review all their customer care strategies continuously. **Customer complaints, customer needs, and customer loyalty** were rated as the most formally reviewed strategies, with **customer complaints** receiving the highest rating (90%). It should be recalled that most of the firms indicated that they were strong in terms of **knowledge of customer, customer feedback, and meeting customer needs** (See Strengths and Weaknesses in Customer Care). These results seem to suggest that **customer complaints, customer feedback, and customer loyalty** were seen as key sources of developing superior performance in this industry, which seems to be driven by dynamic customer needs.

Although important, **information systems** were rated as the least formally reviewed strategy. Only 71 firms (59%) said they reviewed them on on-going basis. This seems to suggest that although information systems are important, improving customer care is more important. It takes time to build a reliable customer base, and if not properly taken care of these customers are easily lost and a firm's superior performance is lost to competitors.

5.7 Descriptive Statistics: Personal Information

This section contains personal information we mainly used for the two variables of **experience and functional expertise (training and development)**.

5.7.1 Job Status

This section concerns responses to the question “What is your job status?” Table 5.33 summarises the responses to this question. The table shows that three groups of managers who responded to the questionnaire.

Table 5.33 Job status

	Frequency	Mean	SD
Top management	103 (85.8%)	1.17	.44
Middle management	14 (11.7%)		
Junior management	3 (2.5%)		

The results show that almost 86% of the respondents was top managers. This was in line with our expectation. The main target of the questionnaire was the top manager. As stated in Chapter 1, senior managers are responsible for establishing organisational goals, plans, strategies, and broad operating policies and guidelines.

5.7.2 Years in the position (Experience)

This section concerns responses to the question “How many years have you have been in this position?” Table 5.34 shows the responses to this question.

5.7.3 Training & Development

This section concerns responses to the question “How often do you have management training programmes?” Table 5.35 summarises the responses to this question.

Table 5.35 Frequency of Training & Development

	Frequency	Mean	SD
Ongoing	62 (52.5%)	2.03	1.22
Once in 6 months	15 (12.5%)		
Once a year	18 (15%)		
Longer than one year	24 (20%)		

A total of 62 (52%) managers had management training programmes on on-going basis, 20 % of the respondents stayed longer than 1 year before going to the next management training programmes. Twelve percent (15 managers) of all respondents have management training programmes once in 6 months and once a year.

It is interesting to note that a fairly big proportion of the managers (20%) attended training programmes after “1 year and longer”. One wonders whether this could partly be explained by the biggest percentage (46%) of those managers whose managerial experience is over 10 years (see Section 5.7.2).

5.8 Additional Comments

The last section of the questionnaire asked respondents to make any comments as to what they thought were the determining factors in the performance of their firm. These comments are summarised in Table 5.36. The full comments are shown in Appendix 5.1.

Table 5.36 Additional comments

Source of Superior Performance	No. of Firms
Bulk Buying	1
Delivery	1
Expansion	1
IT	1
Suppliers	1
Locality	1
Culture	1
Lack of standard build design	1
Niche-marketing	2
External Factors	3
Organisational Factors	3
Successful marketing	4
Manufacturing knowledge	4
Price	5
Quality Service	6
Adaptability	8
Investing in people	8
Workforce	11
Customers	16
Products	18

It should be noted that most of the factors seen as sources of superior performance were covered in the questionnaire. It is not surprising then that many respondents did not have any more factors, apart from reiterating those in the questionnaire. This seems to indicate that the two pilot tests were very helpful, since the test target closely resembled the target respondents.

It is interesting to note that **products, customers, and workforce** were also viewed as sources of superior performance in the annual company reports. They were rated high by 18 firms, 16 firms, and 11 firms respectively.

5.9 Summary

In selecting firms for the survey, an annual turnover of £75 000 was used as a cut-off for selecting potential respondents in this study. A total of 600 firms were selected as the sample, and 120 usable responses were received. Of the 120 firms, 45% (54) had annual turnover of £10 million and above. Of the 120 respondents, 103 (86%) were top managers, 14 (12%) were middle managers, and 3 (3%) were junior managers. Of the 103 top managers, 55 (46%) had been in the managerial position for over 10 years, and 62 (52%) indicated that they had on-going management training programmes.

The above descriptive results suggest that there is some support for the theoretical claims that superior resources are related to superior performance. According to RBV, for resources to be potential sources of superior performance they must be difficult to imitate, difficult to develop and be useful only within the possessing firm.

Most of the managers were familiar with the strategic concepts associated with the resource-based language. Applicability of these concepts however showed that most of the concepts were difficult to apply. What is interesting is that if most of the managers are familiar with these strategic concepts, why do they find them difficult to apply? The results show that being unable to apply the concepts does not mean that managers cannot manage in ways that develop superior performance.

Most managers rated their product attributes high relative to competitors. **Quality, performance, and reliability** were rated as the most difficult product attributes for competitors to match. These product attributes are reviewed on on-going basis. This

shows that these attributes are important contributors to developing superior performance in this industry.

The questionnaire had three questions concerning the contribution of **product strategies, resources, and resource advantages** to developing superior performance. In terms of the **contribution of product strategies**, most managers rated **product design, product reputation, improving product quality and having high margin/premium offerings** as important to developing superior performance. In terms of resources, most managers rated **managerial teams, skilled workforce, availability of capital, and profitability** as important in developing superior performance.

In terms of **resource advantages**, most managers found most of the resource advantages important to developing superior performance. In terms of strategies, managers rated all the eight strategies as contributing to developing superior performance. They rated **firm reputation, long term-relationships with suppliers, and after sales service** to be important to developing superior performance.

Managers were asked how frequently they formally reviewed their product attributes, resource advantages, and customer strategies. Managers indicated that they reviewed their entire product attributes, resource advantages, and customer strategies on on-going basis.

Managers were asked to rate their firm performance in terms of eight specific areas which were seen as helping to build and protect core competencies. Managers rated **stable senior management teams, producing an inventory of what the firm does**

best, and making everyone clear on the firm's core competencies as contributing to developing superior performance. This shows that the concept of core competencies is not a familiar one with the UK managers. Table 5.5 also shows that managers' familiarity with competency-related terminology is not very high.

We also asked questions to find out firms' strengths and weaknesses in terms of customer care. Managers indicated that they were strong in terms of **knowledge of customers, clarifying the skills required by their staff in meeting customer needs, seeking customer feedback, and accurately anticipating and planning for meeting customer needs**. About half of the managers indicated that they did not survey former customers. For those who surveyed former customers, it was not clear as to what these customers complained of most because the number of the undecided (neutral) managers was big.

Having discussed the descriptive analysis, the next chapter details the multivariate methods used to analyse the data. It should also be noted that because we measured **functional expertise** only by the frequency of attending training and development programmes, from now on, we will only refer to it as **training and development**.

CHAPTER SIX

DATA ANALYSIS AND INTERPRETATION

This chapter will present the statistical tests, findings and analyses of the data used in this study. In discussing these analyses and their interpretation, this chapter examines, in particular factor analysis, correlational analysis, moderated regression analysis & subgroup analysis, and regression analysis.

6.1 Factor Analysis

Three groups of questions were selected for factor analysis. It should be recalled that the model developed for this study, shown in Figure 1.1 (Chapter 1), had these three groups of questions. The first group of questions is concerned with measures of superior performance. This group has four variables. The second group of questions is related to constructs believed to be sources of superior performance. These constructs are **Product Performance, Product Attributes, Strategy Contribution, Review Processes, Resource Importance, Resource advantages, and Core Competencies**. Each of these constructs has several variables. Altogether, these seven constructs have sixty-eight variables. The third group of twenty-two variables is related to **managerial comprehension**. The number of variables in each group shows why factor analysis was necessary. The new variables resulting from factor analysis were then used in multivariate analyses.

There are three basic assumptions of data to be submitted for multivariate analysis: normality, homoscedasticity, and linearity. According to Hair et al. (1998) these assumptions are more conceptual than statistical when it comes to factor analysis. In their view, the departures from the three assumptions are only important if they

diminish the observed correlations. They argue that only normality is necessary if a statistical test is applied to the significance of the factors, which is rarely used. They further argue that some multicollinearity is desirable, because the objective is to identify interrelated sets of variables. In their view, the basic assumption of factor analysis is that some underlying structure does exist in the set of selected variables. They therefore recommend that researchers ensure that the data matrix has sufficient correlations to justify the appropriateness of factor analysis.

In line with Hair et al. (1998), we assessed the factorability of the correlation matrix in three steps. First, we looked at the correlation matrices for each question in the questionnaire. Appendix 6.1 shows that most of the correlation matrices are significant at the .01 level. Table 6.3 summarises the correlation matrices for Questions 3, 5 & 6, 10, 14, & 18, and 13, which are concerned with measures of superior performance, managerial comprehension, review processes and resource advantages, respectively.

Table 6.1 Correlation matrices of key variables

Question	Number of Variables	Number of Correlations	Correlations significant at .01
Ques..3.Superior Performance	4	12	9
Ques.5 Comprehension	11	110	104
Ques.6 Comprehension	11	110	105
Ques.10 Review Processes	5	8	6
Ques.14 Review Processes	9	67	50
Ques.18 Review Processes	6	30	28
Ques.13 Resource Advantages	19	342	182
TOTAL	65	679	484

Appendix 6.1 shows that 400 of the 574 correlations (69%) are significant at .01 level. Second, we examined the overall significance of all correlations within correlation matrices. A Bartlett test of sphericity is used for this test. Appendix 6.2 shows that all the variables are significant at the .0001 level. This shows that the matrices have significant correlations to enable factor analysis. The third step we took was to measure the degree of intercorrelations among the variables. The measure of sampling adequacy (MSA) is used for this test. To be appropriate for factor analysis, the values for either the entire matrix or individual variables should be above .50. These results are summarised in Appendix 6.2. MSA shows that all the matrices were above .50, thus making them appropriate for factor analysis.

Table 6.2 Guidelines for identifying significant factor loadings based on sample size

Factor Loading	Sample size needed for Significance
.30	350
.35	250
.40	200
.45	150
.50	120
.55	100
.60	85
.65	70
.70	60
.75	50

Adapted from Hair et al. (1998).

In determining the criteria for the number of factors to extract, we considered, first, the practical significance of the factors. To ensure practical significance, a loading of greater than .50 was used as a cut-off. To ensure statistical significance, we used Hair et al.'s (1998) guidelines, as shown in Table 6.2. The table shows the sample sizes necessary for each factor loading value to be considered significant, at the .05 significance level. Because the sample size for this study was 120, the factor loading considered statistically significant was .50.

According to Hair et al. (1998), eigenvalues indicate the relative importance of each factor in accounting for the variance associated with the set of variables being analysed. Factors having eigenvalues greater than 1 were considered significant, and all factors with eigenvalues less than 1 were considered insignificant and were disregarded.

It is important that the measures are assessed for validity (that is, whether they can be generalisable) before they can be submitted for factor analysis. Three methods were used to check the validity of these measures. First, all the measures were subjected to a Cronbach reliability test, with a cut-off of .70. Appendix 6.3 shows that most of the measures are very reliable. Second, Factor analysis obtained nineteen factors. These factors were tested for validity, and Appendix 6.4 shows that only six out the nineteen variables were not valid. Third, to test for comparability of the factors, the sample in the original data was split into two equal samples, of 60 respondents each, and the factor models were re-estimated. The results in Appendix 6.5 show that the two **Varimax** rotations were quite comparable in terms of both loadings and communalities for all factors. The results show that the factors are valid. The third method was the use of Correlational analysis to establish both the validity and reliability of the measures. This is discussed in Section 6.2. The two factors of superior performance were correlated with the different independent measures. The results in Table 6.3 show that there is a significant correlation between **Growth & Sales Volume** and a number of independent measures.

6.1.1 Indicators of superior performance

The factor solution was derived from a rotation of four variables. Two significant factors were generated: Factor 1 and Factor 2. Figure 6.1 shows that Factor 1 accounts for 57.4% of the variance, and Factor 2 accounts for 27.1% of the variance. The factor solution also shows that 84.5% of the total variance is explained by these two factors.

As a first step in interpreting the results, it is useful to look at the proportion of variance for each variable which is accounted for by the obtained factors. This statistic is known as the communality. Variables with communalities less than .50 are considered to have insufficient explanation.

Figure 6.1 Final Statistics of measures of superior performance:

Variable	Communality *	Factor	Eigenvalue	Pct of Var	Cum Pct
Q3A1	.89726 *	1	2.29590	57.4	57.4
Q3A2	.89357 *	2	1.08285	27.1	84.5
Q3A3	.78743 *				
Q3A4	.80050 *				

The results in Figure 6.1 show that the 2-factor model does not account for all the variance in the data. The two factors account for 89% of the variance in the variable *Profitability* (Q3a1), and 89.3% of the variance in the variable *Return on Assets* (Q3a2). Figure 6.1 shows that all the variables are well-described by the two factors (Over 80% of the variance in each variable is accounted for).

Figure 6.2 Rotated Factor Matrix of measures of superior performance:

	Factor 1	Factor 2
Q3A1 Profitability	.93449	
Q3A2 Return on Assets	.92677	
Q3A3 Growth		.86756
Q3A4 Sales Volume		.88438

Prof 1.2 : Profitability & Return on Assets (Factor 1)

Grow 2. 2 : Growth & Sales Volume (Factor 2)

The factor loadings show the contribution made by each factor to the communality score. Factor 1 has two significant loadings: *Profitability* and *Return on Assets*. Both variables have the same sign, suggesting that these perceptions are quite similar among respondents and do not act in differing directions. In other words, as *Profitability* increases, so does *Return on assets*. This factor was named **Profitability & Return on assets**. Sales volume and Growth load significantly on Factor 2. This factor was named **Growth & Sales volume**.

All the loadings in both factors are very high, making them more representative of each of the factors. It is also noted that no variable loads significantly on more than one factor.

The reliability coefficients of the two factors were .8829 and .7343 respectively.

6.1.2 Managerial comprehension

The factor solution was derived from a rotation of twenty-two variables concerning concepts to do with familiarity and application of strategic concepts. Three significant factors were generated: Factor 1, Factor 2, and Factor 3. These factors are

shown in Figure 6.3. Factor 1 accounts for 49.2% of the variance. Factor 2 accounts for 12.5% of the variance, and Factor 3 accounts for 7.6% of the variance. Together the three factors account for 69.3% of the variance.

Figure 6.3 Final Statistics of Comprehension:

Variable	Communality *	Factor	Eigenvalue	Pct of Var	Cum Pct*
Q5A1	.68469 *	1	10.82629	49.2	49.2
Q5A2	.81811 *	2	2.73942	12.5	61.7
Q5A3	.69590 *	3	1.67358	7.6	69.3
Q5A4	.73287 *				
Q5A5	.76658 *				
Q5A6	.71738 *				
Q5A7	.68327 *				
Q5A8	.65557 *				
Q5A9	.74613 *				
Q5A10	.65501 *				
Q5A11	.76670 *				
Q6A1	.53189 *				
Q6A2	.59330 *				
Q6A3	.58215 *				
Q6A4	.80797 *				
Q6A5	.63975 *				
Q6A6	.75096 *				
Q6A7	.64999 *				
Q6A8	.58871 *				
Q6A9	.71345 *				
Q6A10	.73028 *				
Q6A11	.72862 *				

The results in Figure 6.3 show that the three-factor model does not account for all the variance in the data. The three factors account for 68.4% of the variance in *Firm resources* (Q5a1), 81.8% of the variance in *Strategic resources* (Q5a2), and 69.5% in of the variance in *Superior resources* (Q5a3). On the whole, all the communalities are high, showing that the variables are well explained by the three factors.

Figure 6.4 shows that eleven variables loaded on Factor 1, and that every variable has a high loading. This factor represents managers' familiarity with all the strategic concepts. This factor was named **Knowledge**. Eight variables loaded significantly on Factor 2. This factor shows how easy managers find it to apply intangible assets and

resources. It was named **Applicability of intangible resources**. Factor 3 has three significant loadings. This factor shows how easy managers find it to apply distinctive competencies and capabilities, and it was named **Applicability of capabilities**. All variables load on a factor, and no variable loads significantly on more than one factor.

The reliability coefficients of the three factors were .9541, .9090, and .8393 respectively.

Figure 6.4 Rotated Factor Matrix of Comprehension:

	Factor 1	Factor 2	Factor 3
Q5A1 Firm Resources	.73710		
Q5A2 Strategic Resources	.84387		
Q5A3 Superior Resources	.77172		
Q5A4 Intangible Resources	.79288		
Q5A5 Strategic Assets	.81929		
Q5A6 Intangible assets	.80069		
Q5A7 Core competencies	.79636		
Q5A8 Distinctive Competencies	.77620		
Q5A9 Managerial Competencies	.79233		
Q5A10 Distinctive Competencies.	.72365		
Q5A11 Managerial capabilities .	.73169		
Q6A1 Firm Resources		.54284	
Q6A2 Strategic Resources		.61999	
Q6A3 Superior Resources		.69224	
Q6A4 Intangible Resources		.88871	
Q6A5 Strategic Assets		.74574	
Q6A6 Intangible assets		.84293	
Q6A7 Core competencies		.68434	
Q6A8 Distinctive Competencies		.66616	
Q6A9 Managerial Competencies			.78007
Q6A10 Distinctive Competencies			.75058
Q6A11 Managerial capabilities			.82666

- Know 1.3 : Knowledge (Factor 1)**
- Apply2.3 : Applicability of intangible resources (Factor 2)**
- Apply3.3 : Applicability of capabilities (Factor 3)**

6.1.3 Product attributes

The factor solution was derived from a rotation of eight variables concerning rating of product attributes relative to competition. Three significant factors were generated: Factor 1, Factor 2, and Factor 3. Factor 1 accounts for 40.5% of the variance, Factor

2, 15%, and Factor 3, 13.9%. The three factors account for 70.3% of the variance (Figure 6.5).

Figure 6.5 Final Statistics Product Attributes:

Variable	Communality *	Factor	Eigenvalue	Pct of Var	Cum Pct*
Q7A1	.79351 *	1	3.24241	40.5	40.5
Q7A2	.71646 *	2	1.27277	15.9	56.4
Q7A3	.69680 *	3	1.11018	13.9	70.3
Q7A4	.75199 *				
Q7A5	.74779 *				
Q7A6	.60028 *				
Q7A7	.81475 *				
Q7A8	.50377 *				

The communalities in Figure 6.5 show the three factors explain 79.3% of the variance in *Price* (Q7a1), 71.6% of the variance in *Quality* (Q7A1), and 69.6% of the variance in *Performance* (Q7a3). There was a moderate association with *Convenience* (Q7A6), which is 60%. The weakest association was with *After Sales Service* (Q7A8), which is 50%. The low communalities of *After Sales Service* show that half of the variance was unaccounted for by the three factors.

Figure 6.6 Rotated Factor Matrix of Product Attributes:

	Factor 1	Factor 2	Factor 3
Q7A1 Price			.88922
Q7A2 Quality	.75022		
Q7A3 Performance	.78987		
Q7A4 Durability	.85973		
Q7A5 Reliability	.84093		
Q7A6 Convenience		.64090	
Q7A7 Delivery patterns		.90215	
Q7A8 After sales service		.60236	

Durb 1.4 : Durability (Factor 1)
Del 2.4 : Delivery (Factor 2)
Price 3.4 : Price (Factor 3)

As shown in Figure 6.6, Factor 1 has four significant loadings. This factor represents managers' rating of *quality, performance, product durability* and *reliability* relative to

competitors. This factor was named **Durability**. Factor 2 has three significant loadings. This factor represents managers' rating of *convenience, delivery patterns* and *after sales service* relative to competitors. It was named **Delivery**. Factor 3 has only one significant loading, and it was named **Price**. All variables load significantly on a factor, and no variable loads significantly on more than one factor.

The reliability coefficients of **Durability** and **Delivery** were .8491, and .5890 respectively. The reliability of **Price** could not be calculated because it was the only item. **Delivery** and **Price** were therefore not used in subsequent analyses.

6.1.4 Product attribute contribution

The factor solution was derived from a rotation of six variables concerning the contribution of product attributes in developing superior performance. Two significant factors were generated: Factor 1, and Factor 2. Factor 1 accounts for 40.3% of the variance, and Factor 2 accounts for 18.4% of the variance. The two factors account for 58.7% of the variance. The results are shown in Figure 6.7.

Figure 6.7 Final Statistics of Product Attributes Contribution:

Variable	Communality *	Factor	Eigenvalue	Pct of Var	Cum Pct
Q9A1	.58401 *	1	2.41855	40.3	40.3
Q9A2	.59362 *	2	1.10346	18.4	58.7
Q9A3	.52853 *				
Q9A4	.68949 *				
Q9A5	.44973 *				
Q9A6	.67663 *				

Communalities in Figure 6.7 show that the two-factor model does not explain much of the variance in the data. The two factors account for 58.4% of the variance in *Product Design* (Q9a1), and 59.3% of the variance in *Product reputation* (Q9A2). It is noted

that there are no strong associations between all the variables and the two factors. Moderate associations were with *Improving product quality* (Q9A4) and *Lowering new product price* (Q9A6), which are 69% and 68% respectively. The weakest association was *High margin/premium offerings* (Q9A5), which is 45%.

Figure 6.8 Rotated Factor Matrix of Product Attributes Contribution

	Factor 1	Factor 2
Q9A1 Product design	.76394	
Q9A2 Product reputation	.76241	
Q9A3 Product line extensions		.63730
Q9A4 Improving product quality	.79286	
Q9A5 High margins	.59903	
Q9A6 Lowering new product price		.81022

Prod 1.5 : Product Design (Factor 1)
NPP 2.5 : New Product Price. (Factor 2)

Factor 1 loads significantly on four variables. This factor represents managers' rating the contribution of *product design*, *product reputation*, *improving product quality* and *high margins* to the development of superior performance. This factor was named **Product Design**. Factor 2 has two significant loadings. This factor represents managers' rating the contribution of *product line extensions* and *lowering product price* to developing superior performance. This factor was named **New Product Price**. All variables load significantly on a factor, and no variable loads significantly on more than one factor.

The reliability coefficients of the factors were .7230 and .2688 respectively. Because the reliability coefficient of **New Product Price** is well below .70, it was not used in subsequent analyses.

6.1.5 Review Processes

The factor solution was derived from a rotation of twenty variables concerning rating the contribution of frequency of formally reviewing processes to developing superior performance. The results are shown in Figure 6.9. Six significant factors were generated. Factor 1 accounts for 27% of the variance. Factor 2 accounts for 11.8% of the variance, and Factor 3 accounts for 9.1% of the variance. Factor 4 accounts for 6.9% of the variance, and Factor 5 accounts for 6.4% of the variance. Factor 6 accounts for 5.3% of the variance. Together, the six factors account for 66.5% of the variance.

Figure 6.9 Final Statistics of Review Processes:

Variable	Communality *	Factor	Eigenvalue	Pct of Var	Cum Pct*
Q10A1	.83773 *	1	5.40872	27.0	27.0
Q10A2	.60137 *	2	2.36782	11.8	38.9
Q10A3	.77059 *	3	1.81971	9.1	48.0
Q10A4	.34665 *	4	1.37788	6.9	54.9
Q10A5	.59601 *	5	1.27330	6.4	61.2
Q14A1	.61304 *	6	1.05350	5.3	66.5
Q14A2	.74012 *				
Q14A3	.65050 *				
Q14A4	.60947 *				
Q14A5	.62045 *				
Q14A6	.81598 *				
Q14A7	.75965 *				
Q14A8	.78600 *				
Q14A9	.81127 *				
Q18A1	.70847 *				
Q18A2	.43854 *				
Q18A3	.60558 *				
Q18A4	.75580 *				
Q18A5	.70578 *				
Q18A6	.52793 *				

In terms of communalities, the results in Figure 6.9 show that the 6-factor model does not account for all the variance in the data. The highest explained variance is that of *Product price* (Q10A1), which is 84%, and lowest explained variance is that of *New product development* (Q10A4), which is 34.6%. The low percentage suggests that the greater portion of these variables have not been explained by the six factors.

Figure 6.10 Rotated factor matrix of Review Processes

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Q10A2 Quality improvements					.61584
Q10A3 Product performance					.80409
Q10A4 New product development					.55564
Q10A5 After sales service					.52287
Q14A1 Technical skills	.72131				
Q14A2 Delivery capabilities .	.84132				
Q14A3 Managerial capabilities.	.76241				
Q14A4 Ability to innovate	.75562				
Q14A5 Adaptability		.69828			
Q14A6 Workforce management			.86946		
Q14A7 Training programmes			.83070		
Q14A8 Scale economies				.76261	
Q14A9 Manufacturing flexibility				.81330	
Q18A1 Customer profiles		.67319			
Q18A2 Customer complaints		.62528			
Q18A3 Customer needs		.63891			
Q18A4 Customer loyalty		.78354			
Q18A5 Distribution networks		.68285			

- Skil 1.6 : Delivery Capabilities (Factor 1)**
- Custm 2.6 : Customer Loyalty (Factor 2)**
- Work 5.6 : Workforce Management (Factor 3)**
- Manu 4.6 : Manufacturing Flexibility (Factor 4)**
- Prod 3.6 : Product Performance (Factor 5)**

As shown in Figure 6.10, Factor 1 has four significant loadings. This factor represents rating the contribution of frequency of formally reviewing *technical skills, delivery capabilities, managerial capabilities, and ability to innovate* to developing superior performance. This factor was named **Delivery Capabilities**. Factor 2 has six significant loadings. This factor represents rating the contribution of frequency of reviewing *customer loyalty, adaptability, distribution networks, customer profiles, customer needs, and customer complaints* in developing superior performance. This factor was named **Customer Loyalty**. Factor 3 has two significant loadings. This factor represents rating the contribution of *frequency of reviewing workforce management and training programmes* to developing superior performance. This factor was named **Workforce Management**. Factor 4 has two significant loadings. This factor represents rating the contribution of *frequency of reviewing manufacturing flexibility, and scale economies* to developing superior performance. This factor was

named **Manufacturing Flexibility**. Factor 5 has four significant loadings. This factor represents rating the contribution of frequency of reviewing *product performance, quality improvements, new product development* and after sales service to developing superior performance. This factor was named **Product Performance**. Only *Product price* loaded significantly on Factor 6, and was not named, and no other variable loaded significantly on more than one factor. It is further noted that only *Distribution networks* did not load significantly on any factor.

The reliability coefficients of the five factors were .8089, .7635, .5902, .8331, .8369. Because of its low reliability, **Workforce Management** was not used in subsequent analyses.

6.1.6 Resource Importance

The factor solution was obtained from a rotation of seven variables concerning ranking the contribution of resources in developing superior performance. Two significant factors were generated, Factor 1 and Factor 2. Factor 1 accounts for 36 % of the variance. Factor 2 accounts for 18 % of the variance. The two factors account for 54.1 % of the variance.

Figure 6.11 Final Statistics of Resource Importance:

Variable	Communality *	Factor	Eigenvalue	Pct of Var	Cum Pct*
Q11A1	.13956 *	1	2.52245	36.0	36.0
Q11A2	.69208 *	2	1.26281	18.0	54.1
Q11A3	.68823 *				
Q11A4	.50602 *				
Q11A5	.42859 *				
Q11A6	.74954 *				
Q11A7	.58125 *				

The results in Figure 6.11 show that the two factors account for 13.9% of the variance in *Location* (Q11a1), and 69.2% of the variance in *Managerial skills* (Q11a2). These results show that the variables are not well-described by the two factors.

Figure 6.12 Rotated Factor Matrix of Resource Importance

	Factor 1	Factor 2
Q11A2 Managerial teams	.82002	
Q11A3 Skilled workforce	.82715	
Q11A4 Equipment	.67320	
Q11A5 Know-how		.53222
Q11A6 Availability of capital		.86184
Q11A7 Profitability		.72243

Manu 1.7 : Team Work (Factor 1)
Capit 2.7 : Availability of Capital (Factor 2)

It is noted that, because of its low communality, *Location* (Q11A1) did not load significantly on any factor. No variable loaded significantly on more than one factor. Factor 1 has three significant loadings. This factor represents ranking the contribution of *skilled workforce, managerial teams* and *equipment* to developing superior performance. This factor was named **Team Work**. Factor 2 has three significant loadings. This factor represents ranking the contribution of *availability of capital, profitability*, and *know-how* to developing superior performance. This factor was named **Availability of Capital**.

The reliability coefficients of the two factors were .7023 and .5889 respectively. Because of its low reliability, **Availability of Capital** was not used in subsequent analyses.

6.1.7 Resource Advantages

The factor solution was derived from a rotation of nineteen variables concerning rating the contribution of resource advantages in developing superior performance. Figure 6.13 shows these results. Five significant factors were generated. Factor 1 accounts for 29.3% of the variance. Factor 2 accounts for 10.9% of the variance. Factor 3 accounts for 10.5% of the variance, Factor 4 accounts for 7.4% of the variance, and Factor 5 accounts for 6%. The five factors account for 64.1% of the variance.

Figure 6.13 Final Statistics of Resource advantages:

Variable	Communality *	Factor	Eigenvalue	Pct of Var	Cum Pct*
Q13A1	.38146 *	1	5.56692	29.3	29.3
Q13A2	.26875 *	2	2.07052	10.9	40.2
Q13A3	.58806 *	3	1.99302	10.5	50.7
Q13A4	.75114 *	4	1.40655	7.4	58.1
Q13A5	.68433 *	5	1.13307	6.0	64.1
Q13A6	.66303 *				
Q13A7	.76571 *				
Q13A9	.52131 *				
Q13A10	.76768 *				
Q13A11	.69605 *				
Q13A12	.71851 *				
Q13A13	.64340 *				
Q13A14	.72324 *				
Q13A15	.56778 *				
Q13A16	.55990 *				
Q13A17	.78984 *				
Q13A18	.75964 *				
Q13A19	.68842 *				

The communalities in Figure 6.13 show that the 5-factor model does not account for all the variance in the data. The five factors account for 38.1% of the variance in *Product quality* (Q13a1), 26.8% of the variance in *Speed of new product development* (Q13a2), 58.8% of the variance in *Customer base* (Q13a3), 75.1% of the variance *Customer loyalty* (Q13a4), and 68.4% of the variance in *Dealer loyalty* (Q13a5). Figure 6.13 shows that the variables are not well-described by the five factors.

Figure 6.14 Rotated Factor Matrix of Resource advantages

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Q13A3 Customer base			.72929		
Q13A4 Customer loyalty			.83911		
Q13A5 Dealer loyalty			.75602		
Q13A6 Supplier know-how				.74463	
Q13A7 Supplier reliability				.75192	
Q13A8 Relationship with suppliers				.86136	
Q13A9 Relationship with dealers	.53140				
Q13A10 Innovative designs	.81967				
Q13A11 Economies of scale	.74584				
Q13A12 Manufacturing flexibility	.72831				
Q13A13 Technical skills	.51986				.59118
Q13A14 Delivery capabilities					.77319
Q13A15 Supplier sourcing flexibility					.66872
Q13A16 Managerial capabilities		.56153			
Q13A17 Ability to innovate		.76585			
Q13A18 Adaptability		.82176			
Q13A19 Workforce management		.78378			

- Opera 1.8 : Operations & Designs (Factor 1)**
- Mang 2.8 : Management & Labour (Factor 2)**
- Custm 3.8 : Customer & Dealer Loyalty (Factor 3)**
- Supp 4.8 : Supplier Relationships (Factor 4)**
- Perf 5.8 : Delivery Performance (Factor 5)**

Figure 6.14 shows that Factor 1 has five significant loadings. This factor represents managers' rating the contribution of *innovative designs, economies of scale, manufacturing flexibility, relationship with dealers* and *technical skills* to developing superior performance. This factor was named **Operations & Design**. Factor 2 has four significant loadings. This factor represents managers' rating the contribution of *adaptability, workforce management, ability to innovate*, and *managerial capabilities* to developing superior performance. This factor was named **Management & Labour**. Factor 3 has three significant loadings. This factor represents managers' rating the contribution of *customer loyalty, dealer loyalty*, and *customer base* to developing superior performance. This factor was named **Customer & Dealer Loyalty**. Factor 4 has three significant loadings. This factor represents managers' rating the contribution of *relationships with suppliers, supplier reliability*, and *supplier know-how* to developing superior performance. This factor was named

Supplier Relationships. Factor 5 has three significant loadings. This factor represents managers' rating the contribution of *delivery capabilities*, *supplier sourcing flexibility*, and *technical capabilities* to developing superior performance. This factor was named **Delivery Capabilities**.

It is noted that *Product quality* (Q13A1) and *Speed of new product development* (Q13A2) did not load on any factor. Figure 6.13 shows that these variables were the least explained by the five factors. These results seem to suggest that *Product quality* and *Speed of new product development* are not related to superior performance. *Technical skills* (Q13A13) loaded significantly on Factor 2 and Factor 5.

The reliability coefficients of the five factors were .8103, .8103, .7416, .7814 and .7292 respectively.

6.1.8 Core Competencies

The factor solution was derived from a rotation of eight variables concerning rating of core competencies' contribution to developing superior performance. These results are summarised in Figure 6.15. Two significant factors were generated: Factor 1 and Factor 2. Factor 1 accounts for 41.6% of the variance, and Factor 2 accounts for 16% of the variance. The two factors account for 57.6% of the variance.

Figure 6.15 Final Statistics of Core Competencies:

Variable	Communality *	Factor	Eigenvalue	Pct of Var	Cum Pct*
Q15A1	.42844 *	1	3.32776	41.6	41.6
Q15A2	.69359 *	2	1.27741	16.0	57.6
Q15A3	.78350 *				
Q15A4	.25799 *				
Q15A5	.56869 *				
Q15A6	.59294 *				
Q15A7	.70177 *				
Q15A8	.57824 *				

It is important to note that the communalities in Figure 6.15 are not very high. The two factors account for 42.8% of the variance in *Produce inventory* (Q15a1), and 69.3% of the variance in *Clarity of firm's competencies* (Q15a2).

Figure 6.16 Rotated Factor Matrix of Core Competencies

	Factor 1	Factor 2
Q15A1 Produce inventory		.57903
Q15A2 Clarity of firm' competencies		.74782
Q15A3 Stable management		.88193
Q15A5 Collective learning	.70198	
Q15A6 Competence review meetings	.74875	
Q15A7 Competence acquisition goals	.83736	
Q15A8 Competence-building	.74036	

Comp1.9 : Competence Goals (Factor 1)
Stabl 2.9 : Management Teams (Factor 2)

Factor 1 has four significant loadings. This factor represents managers' rating of their firm performance in terms of *competence acquisition goals, having regular competence review meetings, benchmarking competence-building efforts against rivals, and promoting collective learning*. This factor was named **Competence Goals**. Factor 2 has three significant loadings. This factor represents managers' rating of their firm performance in terms of *having stable senior management teams, ensuring that everyone is clear on the firm's competencies, and ability to produce an inventory of what their firm does best*. This factor was named **Management Teams**.

None of the variables loaded significantly on more than one factor. *Using similar competencies* (Q15A4) could not load on any factor.

The reliability coefficients of the factors were .7883 and .6673 respectively. Because of its low reliability, **Management Teams** was not used in subsequent analyses.

6.1.9 Summary

To summarise this section, Factor analysis reduced the four performance variables into two factors; the sixty-eight variables believed to be sources of superior performance into only nineteen factors; and the twenty-two **comprehension** variables into only three factors. Having obtained the factors, we carried out a Correlational analysis to establish the validity of these factors. This is detailed in the section below.

6.2 Correlational Analysis

In this section, we discuss the correlational analysis of the two measures of superior performance with all the independent measures associated with resource advantages. One assumption of correlational analysis is that the data be obtained from a random sample selected from the population (Black, 1993) if the results are to be generalisable. In addition, it is important that these measures be validated. This is the objective of this section.

In section 6.2.1, the two factors of superior performance (**Profitability & Return on assets** and **Growth & Sales volume**) were correlated with both the nineteen factors related to superior performance and the three comprehension factors. The results of this analysis are summarised in Table 6.3.

Table 6.3: Correlation between Superior Performance and independent factors

Measures related to Superior performance	Profitability & ROA		Growth & Sales Volume	
	Correl. (r)	Sign.(p)	Correl.(r)	Sign.(p)
Comprehension				
Knowledge	-.041	.656	.209*	.022
Applicability of Intangible resources	.093	.314	.048	.603
Applicability of capabilities	.044	.634	.048	.603
Product Attributes				
Durability	.208*	.023	.258**	.005
Delivery***	.202*	.027	-.085	.356
Price***	-.014	.876	-.015	.869
Strategy Contribution				
Product Design	.048	.930	.357**	.000
New Product Design***	.008	.930	.060	.104
Review Processes				
Delivery Capabilities	.090	.328	-.215*	.018
Customer Loyalty	-.179	.050	-.142	.121
Product Performance	-.066	.471	-.145	.115
Manufacturing Flexibility	.055	.550	.018	.848
Workforce Management***	-.030	.741	.162	.077
Resource Importance				
Team Work	-.022	.815	-.156	.089
Availability of Capital***	-.243**	.007	.263**	.004
Resource advantages				
Operations & Design	-.033	.720	.189*	.039
Management & Labour	.190*	.038	.263**	.004
Customer & Dealer Loyalty	.105	.252	.276**	.002
Supplier Relationships	.042	.653	.043	.637
Delivery Performance	.073	.428	.211*	.021
Core Competencies				
Competence Goals	-.029	.755	.278**	.002
Management Teams***	.094	.307	.060	.512
Experience	-.114	.214	-.068	.461
Training & Development	-.124	.177	-.162	.078

* Correlation is significant at the 0.005 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

***These factors had low reliability (See Factor analysis))

6.2.1 Profitability & Return on Assets

It is noted that there is significant correlation between **Profitability & Return on assets** and only four of the nineteen factors believed to be potential sources of superior performance. There is no correlation between **Profitability & Return on assets** and factors relating to **Comprehension, Strategy Contribution, Review Processes, and Core Competencies, Experience, and Training & Development.**

The results in this sample seem to suggest that these factors are not related to **Profitability & Return on assets**.

6.2.1.1 Profitability & Return on assets and Product attributes

There is a significant positive moderate correlation between **Profitability & Return on assets** and **Durability**. **Durability** is concerned with rating of such product attributes as quality, performance, durability, and reliability relative to competition. It would appear from these results show that management efforts designed to improve product quality, performance, durability, and reliability develop a firm's superior performance.

6.2.1.2 Profitability & Return on assets and Resource importance

There is a negative correlation between **Profitability & Return on assets** and **Availability of capital**. **Availability of capital** is concerned with ranking the contribution of know-how, availability of capital, and profitability to developing superior performance. These results suggest that as **Availability of capital** increases, both profitability and return on assets decrease.

6.2.1.3 Profitability & Return on assets and Resource advantages.

There is a significant positive correlation between **Profitability & Return on assets** and **Management & Labour**. **Management & Labour** is concerned with rating the contribution of *managerial capabilities, ability to innovate, adaptability* and

It is also interesting to note that although not significant, **Growth & Sales volume** has a negative correlation with both **Delivery** and **Price**.

6.2.2.3 Growth & Sales volume and Strategy contribution

Growth & Sales volume correlates with one factor of **Contribution of Strategies**.

This factor, labelled **Product Design**, includes measures relating to rating the contribution of *product design, product reputation, improving product quality, and having high profit margins* to developing superior performance.

6.2.2.4 Growth & Sales volume and Review Processes

There is a significant negative correlation between **Growth & Sales volume** and **Delivery Capabilities**. **Delivery Capabilities** is concerned with rating the contribution of reviewing of *technical skills, delivery capabilities, managerial capabilities, and ability to innovate* to developing superior performance. It is also interesting to note that although not significant, **Growth & Sales Volume** has a negative correlation with both **Customer Loyalty** and **Product Performance**.

6.2.2.5 Growth & Sales volume and Resource Importance

There is a positive correlation between **Growth & Sales volume** and one factor of **Resource Importance**. This factor, labelled **Availability of Capital**, includes measures relating to ranking the contribution of *know-how, availability of capital, and profitability* to developing superior performance.

6.2.2.6 Growth & Sales volume and Resource advantages.

There is a positive correlation between **Growth and Sales volume** and four resource advantages: **Operations & Design; Management & Labour; Customer & Dealer Loyalty; and Delivery Performance**. The results seem to suggest that firms with these resource advantages develop more superior performance than firms that do not have these resource advantages. These results seem to suggest that there is no relationship between **Supplier Relationships** and superior performance. This lack of relationship is discussed in Section 6.3.3.2.

Growth & Sales volume also correlates with **Management & Labour, Customer & Dealer Loyalty**.

6.2.2.7 Growth & Sales volume and Core competencies

There is a positive correlation between **Growth & Sales Volume** and one factor of **Core Competencies**. This factor, named **Competence Goals**, represents managers' rating the contribution of *setting competence acquisition goals, having regular competence review meetings, benchmarking competence building efforts against rivals, and promoting collecting learning*, to developing superior performance.

6.2.3 Comprehension, Experience and Training & Development

In this section we look at the results of Correlational analysis between the three factors of **Comprehension and Experience and Training & Development**. These results are summarised in Table 6.4.

Table 6.4 Correlation between Comprehension, Experience and Training & Development.

Predictor Variables	Criterion Variables: Factors of Comprehension					
	Know1.2		Apply2.3		Apply3.3	
	Corr.	Sign.	Corr	Sign.	Corr	Sign.
Experience	-.207*	.023	-.040	.667	.021	.771
Training & Development	-.195*	.033	-.043	.642	-.114	.214

*Correlation is significant at the 0.005 level (2-tailed)

6.2.3.1 Comprehension and Experience

The results in Table 6.4 show that **Experience** is related to **Comprehension**, when it is defined as **Knowledge**. The negative relationship shows that as managers' experience increases, their knowledge of strategic concepts decreases. The results also show that **Experience** is not significantly related to both **Applicability of intangible resources** and **Applicability of capabilities**.

6.2.3.2 Comprehension and Training & Development

The results in Table 6.4 show that **Training & Development** is related to **Comprehension**, when it is defined as **Knowledge**. The negative relationship shows that as managers' **Training & Development** increases, their knowledge of strategic concepts decreases. Although not significant, the same pattern is observed with both **Applicability of intangible resources** and **Applicability of capabilities**.

6.2.4 Summary of Correlational Analysis

The results in Table 6.5 summarise the relationships between the two factors of superior performance and the independent measures. The results show that

Profitability & Return on Assets is related to two factors of **Product Attributes**, one factor of **Resource Importance**, and only one measure of **Resource advantages**.

Table 6.5 Correlation between Superior Performance and independent factors.

Measures related to Superior performance	Profitability and ROA		Growth and Sales Volume	
	Correl.(r)	Sign.(p)	Correl.(r)	Sign.(p)
Comprehension				
Knowledge			.209*	.022
Product Attributes				
Durability	.208*	.023	.258**	.005
Delivery	.202*	.027		
Strategy Contribution				
Product Design			.357**	.000
Review Processes				
Reviewing Delivery Capabilities			-.215*	.018
Resource Importance				
Availability of Capital	-.243**	.007	.263**	.004
Resource advantages				
Operations & Design			.189*	.039
Management & Labour	.190*	.038	.263**	.004
Customer & Dealer Loyalty			.276**	.002
Delivery Performance			.211*	.021
Core Competencies				
Competence Goals			.278**	.002

* Correlation is significant at the 0.005 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

A second important finding is that **Profitability & Return on assets** is not well correlated with factors of superior performance but **Growth & Sales volume** is. **Growth & Sales volume** correlates with ten of the nineteen factors related to superior performance. Of the five resource advantages, **Growth & Sales volume** correlates with four factors: **Operations & Designs**, **Management & Labour**, **Customer & Dealer Loyalty**, and **Delivery Performance**.

6.3 Moderated regression analysis and Subgroup analysis

The factors obtained from Factor analysis were submitted for moderated regression analysis (MRA) and Subgroup analysis. It was felt this approach was appropriate to identify the effect of the three **Comprehension factors (Knowledge, Applicability of intangible resources and Applicability of capabilities)**, on the relationship between resource advantages and superior performance.

6.3.1 Identifying Specification Variables

Literature on specification variables identifies five main categories of specification variables: intervening, antecedent, extraneous (exogenous), suppressor, homologizers, moderators (quasi-moderators, and pure moderators). These specification variables are summarised in Table 6.6.

There are different ways of identifying the different types of specification variables. Two common ways of identifying these variables are moderated regression analysis and subgroup analysis. Each method identifies different types of specification variables. MRA identifies mediating variables (independent, intervening, antecedent, exogenous and suppressor variables), and moderators (quasi-moderator and pure moderator variables). Subgroup analysis is used mainly to identify homologizer moderators.

Building on the work of two previous researchers (Larzsarsfeld, 1955; and Rosenberg, 1968), Sharma et al. (1981) combined MRA and Subgroup analysis to develop a typology of specification variables. They argue that by combining these two methods

all the different types of specification variables can be identified. A specification (test) variable is one that specifies the form or strength, or both, of the relationship between a predictor variable and a criterion variable (Prescott, 1988).

Table 6.6 Different types of Specification Variables

Type of Variable	Description	MRA
		Equation
		$Y = a + b_1x$ (1) $Y = a + b_1x + b_2z$ (2) $Y = a + b_1x + b_2z + b_3xz$ (3)
Intervening/Predictor/ Suppressor/ Exogenous /Antecedent	<p>z does not interact with the predictor variable</p> <p>z is related to criterion and/or predictor .</p>	When Equations 2 and 3 are not significantly different.
Moderator (Homologizer)	z operates by identifying the strength of the relationship between the predictor and criterion variables. The moderator influences the strength* of the relationship, does not interact with the predictor variable, and it is not significantly related to either the predictor or criterion variable.	MRA does not identify homologizers because they operate through an error term.
Moderator (Quasi Moderator)	<p>z influences the form** of the relationship between the predictor and criterion variables.</p> <p>z is a predictor variable and enters the equation through an interaction term. That is, it does not only interact with the predictor variable, but it is a predictor variable itself.</p> <p>z is related to criterion variable.</p>	When Equations 1, 2, and 3 are different from each other.
Moderator (Pure Moderator)	<p>z influences the form** of the relationship between the predictor and criterion variables.</p> <p>z is not related to either the predictor or criterion variable. It interacts with the predictor variable to modify the form of the relationship between the criterion and predictor variables. That is, it affects the criterion variable through an interaction with the predictor variable.</p>	When Equations 1 and 2 are not significantly different but different from Equation 3

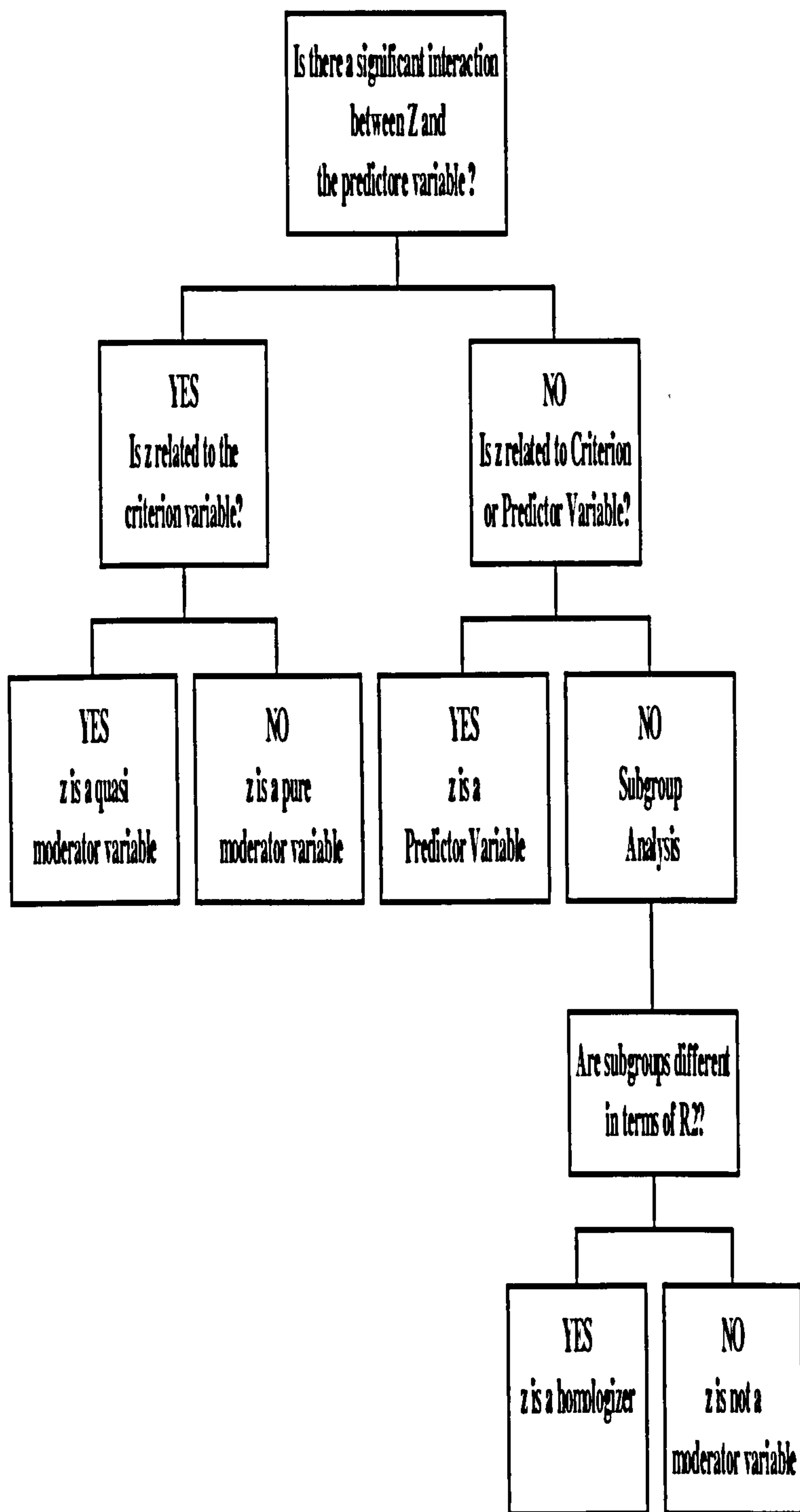
Adapted from Sharma et al. (1981)

- * The moderation hypothesis is supported when statistically significant differences in the value of the correlation coefficients exist between/among the subgroups (Ven Katraman, 1989)

** The moderation hypothesis is supported if the unstandardised coefficient (b_3) in Equation 3 differs significantly from zero, attesting the effects of fit between X and Z on Y (Ven Katraman, 1989).

The MRA approach determines whether there is a significant **interaction** between the hypothesised moderator and the predictor variable. If there is, then it is determined whether the moderator is a pure or quasi moderator. If there is no significant interaction, it is determined whether the hypothesised moderator is **related** to either predictor or criterion variable. If related, the hypothesised moderator is an independent predictor. If the hypothesised moderator is not related to either the predictor or criterion variable subgroup analysis is done. The sample is divided into subgroups on the basis of the hypothesised moderator. The purpose of subgrouping the sample is to get homogeneous groups on the basis of the hypothesised variable, hence the term “homologizer.” The identification of a homologizer variable is based on the concept of partial variance in the subgroups. A test of significance for differences in the predictive validity (R^2) across the subgroups is done. If there are significant differences between the subgroups, the hypothesised moderator is a homologizer variable operating through an error term. If there are no significant differences, then the hypothesised moderator is not a moderator. Figure 6.17 summarises the procedure of identifying the different specification variables according to the framework proposed by Sharma et al. (1981).

Figure 6.17: Framework for identifying specification variables



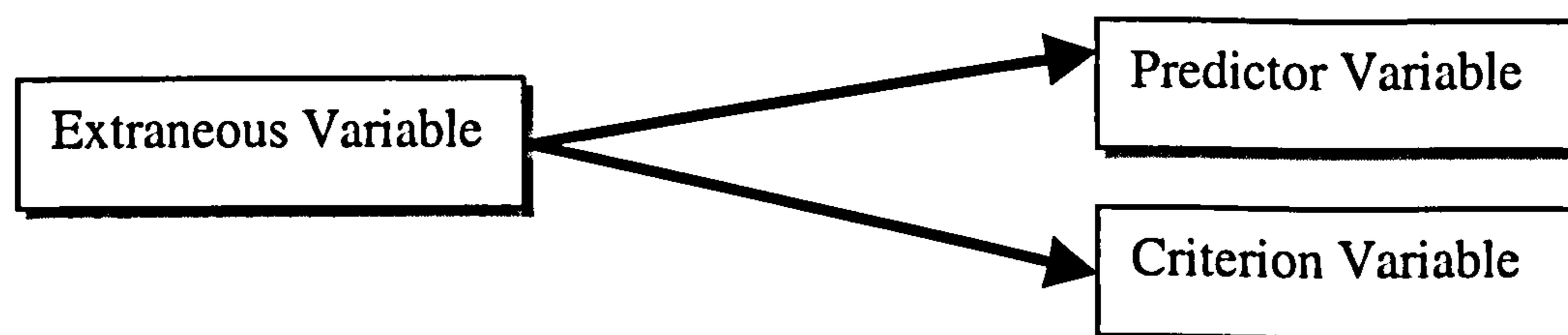
Adapted from Sharma et al. (1981)

The major strength we saw in this framework was its ability to identify the particular type of specification variable. This was felt to be very important when it comes to managerial implications and recommendations for future research. The framework was appropriate for this study because our model intended to test whether **Comprehension** moderated the relationship between resource advantages and

superior performance. In addition, we hypothesised that **Experience and Functional Expertise (Training & Development)** affect **Comprehension** itself.

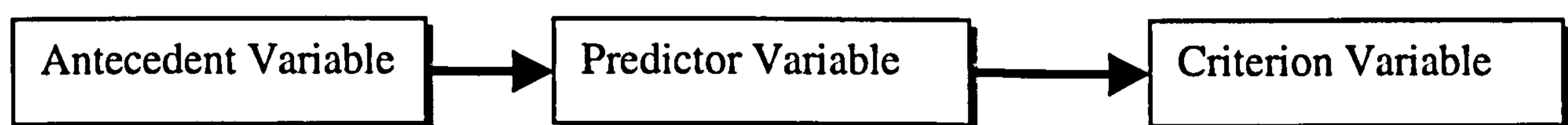
It should be noted that there are no clear guidelines in Sharma et al.'s (1981) framework on identifying intervening, extraneous (exogenous), antecedent, and suppressor variables. For this we turned to Rosenberg (1968). He argues that the distinctions between variables which look similar should be based on logical and theoretical grounds rather than on statistical ones. Examples are similarities between an intervening variable (Figure 6.21) and extraneous variable (Figure 6.18); and between an intervening variable and an antecedent variable (Figure 6.19). The problem is compounded by the fact that the process of identifying them is the same, one controls for the test variable in both cases. In terms of extraneous and antecedent variables, there are two ways of identifying them. First, there are identified on logical grounds. **Experience** is an example in this study that could be argued to be either an extraneous or antecedent variable. As an extraneous variable, this would mean that **Experience** is a resource advantage; and also contributes to developing superior performance. A more logical argument would be that **Experience** (antecedent variable) influences resource advantages, thereby developing superior performance.

Figure 6.18 A test factor as an Extraneous Variable.



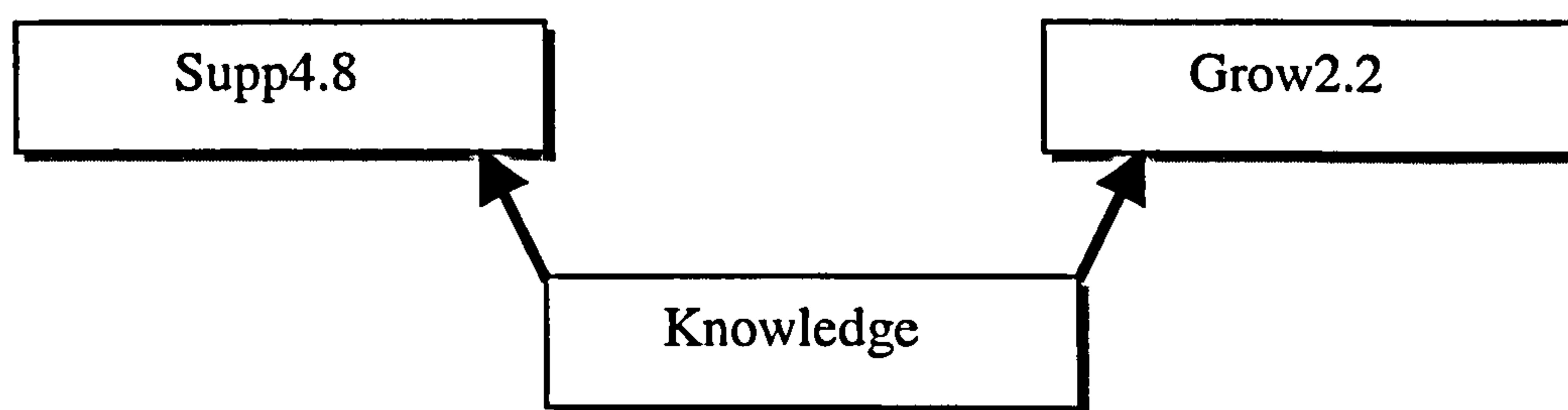
In Figure 6.18, the specification variable is related to both the predictor and criterion variables. It should be noted that the predictor variable does not lead to the criterion variable - there is no inherent link between the predictor and the criterion variables. Using three separate regression analyses, three conditions must hold for a specification variable to be considered an extraneous variable. First, all the three variables must be related, in the same direction. Second, when the extraneous variable is controlled, the relationship between the predictor and the criterion variable should not vanish. Third, when the predictor variable is controlled, the relationship between extraneous and the criterion variable should vanish (Rosenberg, 1968; James and Brett, 1984; and Baron and Kenny, 1986). In such cases the conclusion is that both the predictor and the criterion variables are not related to one another, but happen to be consequences of a common determinant (the extraneous variable). In this study, we do not have hypotheses that suggest there is no direct relationship between a predictor and the criterion variable.

Figure 6.19 A test variable as an Antecedent Variable



In Figure 6.19, the specification variable is related to the predictor variable. The antecedent variable is a true effective influence, it does not explain the relationship between the predictor and criterion variable but clarifies the influence which preceded this relationship. It leads to the predictor variable that then leads to the criterion variable. According to this framework, **Experience and Training & Development**, are examples of antecedent variables identified in this study.

Figure 6.20 Suppressor Variable



Another type of specification variable identified by Rosenberg (1968) is a suppressor variable. He argues that among suppressor variables, the specification variable is related positively to one of the variables and negatively to the other. A statistical relationship does not exist in the basic model, implying that there is no relationship between the predictor and the criterion variables. By controlling the test factor, a relationship emerges in the contingent associations. According to Bryman and Crammer (1997) this is a spurious relationship. They argue that a spurious relationship exists when the relationship between two variables is not a “true” relationship, in that it only appears because a third variable causes each of the variables making up the pair. Figure 6.20 shows a diagrammatical representation of a suppressor adapted from them. According to Rosenberg (1968), for suppressor variables a relationship emerges in the contingent associations, even though none existed in the original relationship. He argues that one may be misled in assuming that an absence of relationship between the predictor and criterion variables is real, whereas in effect the absence of a relationship may be suppressed by a third variable. One problem related to such an analysis is that it misleads interpretations.

It should be noted that Factor analysis obtained ten factors (shown in Table 6.3) which were expected to be related to superior performance. Of these ten factors, only five factors were directly related to superior performance. It should further be noted that,

despite the lack of its correlation with the two measures of superior performance, **Supplier Relationships** was still used in MRA and subgroup analysis. We wanted to carry out further tests to find out whether there was any variable suppressing the relationship between **Supplier Relationships** and superior performance. Rosenberg (1968) argues that suppressor variables will usually be sought when there is an absence of relationship between two variables. This means that without introducing a third variable, it is possible to conclude that there is no relationship between two variables when in reality there is. A summary table of the variables used in MRA is presented in Table 6.7. A detailed list of the variable names used in all the analyses (i.e. Factor analysis, MRA & Subgroup, and multiple regression analysis) is shown in Appendix 6.6.

Table 6.7: Summary of Variables used in MRA

Variable	Name	Measurement
Criterion/Dependent		
Prof.1.2	Profitability & Return on Assets	Factor Score
Grow2.2	Growth & Sales Volume	Factor Score
Predictor/Independent		
Opera1.8	Operations & Design	Factor Score
Mang2.8	Management & Labour	Factor Score
Custm3.8	Customer & Dealer Loyalty	Factor Score
Supp4.8	Supplier Relationships	Factor Score
Perf5.8	Delivery Performance	Factor Score
Moderator Variables		
Know1.3	Knowledge	Factor Score
Apply2.3	Applicability of Intangible Resources	Factor Score
Apply 3.3	Applicability of Capabilities	Factor Score
Exper.	Experience	5-point Lickert scale
Fun Exp.	Functional Expertise	5-point Lickert scale

We will now present the results of the various moderated regression models used to identify the three types of moderator variables. According to the MRA approach, we used the following three regression equations:

$$\begin{aligned} \text{Equation 1} & \quad Y = a + b_1x \\ \text{Equation 2} & \quad Y = a + b_1x + b_2z \\ \text{Equation 3} & \quad Y = a + b_1x + b_2z + b_3xz \end{aligned}$$

Where y is the criterion variable, x is the predictor variable, and z is the hypothesised moderator variable, and a , b are constants.

As discussed above, the three equations identify different variables. Having produced the three MRA models it can be difficult to know where to begin in terms of identifying the specification variables. As can be noted, MRA is not a commonly used technique, so there is little guidance on this. Following Zedeck (1971), we have summarised Figure 6.17 into the following steps:

Step 1: Identify intervening /extraneous /antecedent /suppressor effect. This is identified when Equations 2 and 3 are not significantly different.

Step 2: Identify quasi-moderator effect. This is identified when Equations 1, 2, and 3 are different from each other.

Step 3: Identify pure moderator effect. This is identified when Equations 1 and 2 are not significantly different.

Step 4: Identify homologizer effect. This is identified when there is no significant interaction between the hypothesised moderator and the predictor variable. Sub-group analysis is then performed.

In all the models, Equation 1 is the validation model. It should also be recalled that **Prof.1.2** was subjected to moderated regression analysis with **Management and Labour** as the only significant predictor variable (Table 6.9). The overall results of these models are shown in Tables 6.8 to 6.14. Table 6.8 shows the results of the framework when **Operations & Design** is the predictor variable; Tables 6.9 and 6.10,

when **Management & Labour** is the predictor variable; Table 6. 11, when **Customer & Dealer Loyalty** is the predictor; Tables 6.12 and 6.13 when **Supplier Relationships** is a predictor variable, and Table 6.14, when **Delivery Performance** is the predictor variable. It should be noted that in all the models, except those in Table 6.9, **Growth & Sales volume** is the criterion variable.

6.3.2 MRA Model Results

The models in Tables 6.8 to 6.14 were meant to investigate whether the three **Comprehension** factors moderate the relationship between five resource advantages and two measures of superior performance. In addition, we also wanted to test whether **Experience** and **Training & Development** had any moderating effect on the relationship between resource advantages and superior performance. As can be recalled, some management theorists argue that **Comprehension** itself can be a superior factor. McGrath et al. (1995) argue that superior comprehension can be a source of competitive advantage. Thus these two moderators were included in all the models.

6.3.2.1 Operations & Design as a predictor variable

Operations & Design represents managers' rating contribution of *adaptability*, *workforce management*, *ability to innovate*, and *managerial capabilities* to developing superior performance. We regressed **Growth & Sales Volume** with **Operations & Design** and each of the five hypothesised moderators. The results are summarised in Table 6.8.

Table 6.8: Results when Operations & Design is a predictor variable

EQUATION 1			EQUATION 2			EQUATION 3		
Reg	Coef	Sign.	Reg	Coef	Sign	Reg	Coef	Sign
Opera1.8	.189	.039	+Know1.3	.209	.022	+Know1.3+Opera9	.209	.022
			+Apply2.3	.189	.039	+Apply2.3+Opera10	.189	.039
			+Apply3.3	.189	.039	+Apply3.3+Opera11	.189	.039
			+Exper	.189	.039	+Exper. +Opera	.049	.027
			+Tran-Dev	.189	.039	+Tran-Dev. +Opera	.088	.025

The results in Table 6.8 show that there are three ways **Comprehension** contributes to developing superior performance when **Operations & Design** is a predictor variable. First the results show that **Comprehension**, defined as **Applicability of intangible resources** contributes as an intervening variable. Second, **Comprehension**, defined as **Applicability of capabilities** contributes as an intervening variable. Third, **Comprehension**, defined as **Knowledge**, contributes as a quasi-moderator variable. The results in Table 6.8 also show that **Experience** and **Training & Development** are pure moderator variables when **Operations & Design** is a predictor variable.

6.3.2.2 Management & Labour as a predictor variable

Management & Labour represents managers' rating of adaptability, workforce management, ability to innovate, and managerial capabilities in developing superior performance. It should be recalled that **Prof.1.2** correlated with only **Management & Labour**. We therefore regressed it with **Management & Labour** and each of the hypothesised moderator variables. The results are summarised in Table 6.9.

Table 6.9: Management & Labour as a predictor variable (Prof.1.2, Criterion)

EQUATION 1			EQUATION 2			EQUATION 3		
Reg	Coef	Sign.	Reg	Coef	Sign.	Reg	Coef	Sign.
Mang2.8	.190	.038	+Know1.3	.190	.038	+Know1.3+Mang9	.190	.038
			+Apply2.3	.190	.038	+Apply2.3+Mang10	.190	.038
			+Apply3.3	.190	.038	+Apply3.3+Mang11	.190	.038
			+Exper	.190	.038	+Exper. +Mang12	.190	.038
			+Tran-Dev	.190	.038	+Tran-Dev+Mang13	.245	.007

The results in Table 6.9 show that **Comprehension** contributes to developing superior performance as intervening variable when **Management & Labour** is a predictor and **Profitability & Return on assets** is the criterion variable. **Experience** is shown to contribute to developing superior performance as an antecedent variable. The results also show that **Training & Development** contributes to developing superior performance as a pure moderator variable.

Growth & Sales Volume was regressed with **Management & Labour** and each of the five hypothesised moderators. The results are summarised in Table 6.10.

Table 6.10: Management & Labour as a predictor variable (Grow1.2, Criterion)

EQUATION 1		EQUATION 2		EQUATION 3			
Reg	Coef	Reg Coef	Sign.	Reg Coef	Sign.		
Mang2.8	.263	.004					
		+Know1.3	.334	.001	+Know1.3+Mang9	.334	.001
		+Apply2.3	.263	.004	+Apply2.3+Mang10	.263	.004
		+Apply3.3	.263	.004	+Apply3.3+Mang11	.263	.004
		+Exper.	.263	.004	+Exper. +Mang12	.263	.004
		+Tran-Dev	.263	.004	+Tran-Dev+Mang13	.263	.004

The results in Table 6.10 show that **Comprehension** contributes to developing superior performance in three different ways when **Management & Labour** is a predictor variable: two ways as an intervening variable, and one way as a quasi-moderator variable. First, the results show that **Comprehension**, defined as **Applicability of intangible resources**, contributes to developing superior performance as an intervening variable. Second, **Comprehension**, defined as **Applicability of capabilities**, contributes to developing superior performance as an intervening variable. Third, **Comprehension**, defined as **Knowledge**, contributes to developing superior performance as a quasi-moderator variable.

The results also show that **Experience** and **Training & Development** they contribute to developing superior performance as antecedent variables.

6.3.2.3 Customer & Dealer Loyalty as a predictor variable.

Customer & Dealer Loyalty represents rating contribution of *relationships with suppliers, supplier reliability, and supplier know-how* to developing superior performance. We regressed **Growth & Sales Volume** with **Customer & Dealer Loyalty** and each of the five hypothesised moderators. The results are summarised in Table 6.11

Table 6.11: Results when Customer & Dealer Loyalty is a predictor variable

EQUATION 1			EQUATION 2			EQUATION 3		
Reg Coef	Sign		Reg.Coef			Reg.Coef	Sign.	
Custm3.8	.276	.002	+Know1.3	.328	.001	+Know1.3+Custm9.	.328	.001
			+Apply2.3	.276	.002	+Apply2.3+Custm10	.276	.002
			+Apply3.3	.276	.002	+Apply3.3+Custm11	.276	.002
			+Exper	.276	.002	+Exper. +Custm12	.276	.002
			+Tran-Dev	.276	.002	+Tran-Dev +Custm13	.276	.002

The results in Table 6.11 show that **Comprehension** contributes to developing superior performance in three different ways when **Customer & Dealer Loyalty** is a predictor variable: two ways as an intervening variable, and one way as a quasi-moderator variable. First, the results show that **Comprehension**, defined as **Applicability of intangible resources**, contributes to developing superior performance as an intervening variable. Second, **Comprehension**, defined as **Applicability of capabilities**, contributes to developing superior performance as an

intervening variable. Third, **Comprehension**, defined as **Knowledge**, contributes in developing superior performance as a quasi-moderator variable.

In terms of **Experience and Training & Development**, the results in Table 6.11 show that they contribute to developing superior performance as antecedent variables.

6.3.2.4 Supplier Relationships as a predictor variable

Supplier Relationships represents managers' rating of *delivery capabilities*, *supplier sourcing flexibility*, and *technical capabilities* to developing superior performance.

We regressed **Growth & Sales Volume** with **Supplier Relationships** and each of the five hypothesised moderators. The results are summarised in Table 6.12.

Table 6.12: Results when Supplier Relationships is a predictor variable

EQUATION 1		EQUATION 2		EQUATION 3	
Reg Coef	Sign.	Reg. Coef	Sign.	Reg. Coef	Sign.
Supp4.8.	Not Entered	+Know1.3	.209 .022	+Know1.3+Supp9	.209 .022
		+Apply2.3	Not Entered	+Apply2.3+Supp10	Not Entered
		+Apply3.3	Not Entered	+Apply3.3+Supp11	Not Entered
		+Exper.	Not Entered	+Exper. +Supp12	Not Entered
		+Tran-Dev	Not Entered	+Tran-Dev +Supp13	Not Entered

An examination of the validation model (Equation 1) in Table 6.12 appears to indicate that there is no relationship between **Supplier Relationships** and superior performance. However, by controlling **Supplier Relationships** (Equations 2 & 3) it emerges that **Knowledge** is related to superior performance. These results seem to suggest **Knowledge** contributes to develop superior performance as a suppressor variable when **Supplier Relationships** is a predictor variable. The discussion in

Section 6.3.3.2 however shows that **Knowledge** does not contribute to developing superior performance when **Supplier Relationships** is a predictor variable.

These results seem to show that **Comprehension**, defined as **Applicability of intangible resources and capabilities; Experience; and Training & Development** are not related to superior performance when **Supplier Relationships** is a predictor variable.

Subgroup Analysis

There was no significant interaction between **Supplier Relationships** and **Applicability of intangible resources, Applicability of capabilities, Experience, and Training & Development**. We created dummy variables for **Supplier Relationships** and each of the four moderators. We then divided the sample into two subgroups on the basis of each moderator: familiarity with, and applicability of, the strategic concepts. These results are summarised in Table 6.13.

Table 6.13: Results when Supplier Relationships is a predictor variable

	SUBGROUP 1		SUBGROUP 2				WHOLE SAMPLE
EQUATION 1	EQUATION 2		EQUATION 1		EQUATION 2		
R ² Sign	R ² Sign		R ² Sign	R ² Sign	R ² Sign		R ² Sign
Supp4.8 Not Ent	+Apply2.3	Not Entered	Supp4.8	Not Entered	+Apply2.3	Not Entered	Not Entered
	+Apply3.3	.Not Entered		Entered	+Apply3.3	Not	Not Entered

Subgroup analysis showed no significant statistical differences between the two groups in terms of **Applicability of intangible resources (Apply2.3)**, and **Applicability of capabilities (Apply3.3)**. The results show that these variables are

neither predictor variables nor moderators when **Supplier Relationships** is a predictor variable.

6.3.2.5 Delivery Performance as a predictor variable

Delivery Performance represents managers' rating contribution of *customer loyalty*, *dealer loyalty*, and *customer base* to developing superior performance. We regressed **Growth & Sales Volume** with **Delivery Performance** and each of the five hypothesised moderators. The results are summarised in Table 6.14.

Table 6.14: Results when Delivery Performance is a predictor variable

EQUATION 1			EQUATION 2			EQUATION 3		
Reg Coef	Sign.		Reg Coef	Sign.		Reg.Coef	Sign	
Perf5.8	.211	.021	+Know1.3	211	.021	+Know1.3+Perf9	211	.021
			+Apply2.3	211	.021	+Apply2.3+Perf10	211	.021
			+Apply3.3	211	.021	+Apply3.3+Perf11	211	.021
			+Exper	211	.021	+Exper. +Perf12	.214	.019
			+Tran-Dev	211	.021	+Tran-Dev +Perf13	211	.021

The results in Table 6.14 show that **Comprehension**, defined as **Knowledge**, **Applicability of intangible resources**, and **Applicability of capabilities**, contributes to developing superior performance as an intervening variable when **Delivery Performance** is a predictor variable.

The results in Table 6.14 also show that **Training & Development** contributes to developing superior performance as an antecedent variable. In terms of **Experience**, the results show that it contributes to developing superior performance as a pure moderator variable.

6.3.3: Discussion of the Results

Our findings confirm our hypothesis, which states that the development of resource advantages into superior performance is moderated by **managerial comprehension**. The results indicate that all the three factors of **Comprehension (Knowledge, Applicability of intangible resources, and Applicability of capabilities)** are moderating variables. Table 6.15 summaries the different specification variables identified. We shall refer to intervening and antecedent variables as mediating variables, in order to distinguish them from quasi-moderator and pure moderator variables.

Table 6.15: Summary of the identified specification variables.

Predictor Variable	Intervening	Pure Moderator	Quasi-Moderator	Antecedent
Operations & Design	Applicability of Intangible Resources Applicability of Capability	Experience Training & Development	Knowledge	
Management & Labour (and Prof.1.2 as Criterion Variable)	Applicability of Intangible Resources Applicability of Capability Knowledge	Training & Development		Experience
Management & Labour (and Grow2.2 as Criterion Variable)	Applicability of Intangible Resources Applicability of Capability		Knowledge	Experience Training & Development
Customer & Dealer Loyalty	Applicability of Intangible Resources Applicability of Capability		Knowledge	Experience Training & Development
Delivery Performance	Knowledge Applicability of Intangible Resources Applicability of Capability	Experience		Training & Development

All the three **Comprehension** factors had, by and large, the expected effect on superior performance. These three factors of **Comprehension** are summarised Table 6.16.

Regression coefficients (Table 6.17) show that the contribution of **Knowledge** is highest when it interacts with **Management & Labour**, and **Growth & Sales Volume** is the criterion variable; and lowest when it interacts with **Management & Labour** when **Profitability & Return on assets** is a criterion variable.

The results also show that the contribution of both **Applicability of intangible resources** and **Applicability of capabilities** is highest when they interact with **Customer & Dealer Loyalty**. Table 6.16 gives an overview of the hypothesised and identified relationships.

Table 6.16 Summary of the hypothesised and identified relationships.

	Expected Relationship with IDs					Identified Relationship with IDs				
	Know 1.3	Apply2.3	Apply 3.3	Exper.	Tran- Dev	Know 1.3	Apply 2.3	Apply 3.3	Exper.	Tran -Dev
Opera1.8	SR	SR	SR	NSR	NER	SR	SR	SR	SR	N/S
Mang2.8	SR	SR	SR	NER	NER	SR	SR	SR	SR	N/S
Cust3.8	SR	SR	SR	NER	NER	SR	SR	SR	SR	SR
Sup4.8	SR	SR	SR	NER	NER	NER	NER	N/S	N/S	N/S
Perf5.8	SR	SR	SR	NER	NER	SR	SR	SR	SR	SR
Know1.3				SR	SR				SR	N/S
Apply2.3				SR	SR					N/S
Apply3.3				SR	SR					N/S

SR = Significant relationship at $p < .05$; N/S = Not Significant; NER = We were not expecting any relationship.

6.3.3.1 Factors of Comprehension as specification variables

The moderating effect of **Comprehension** can be explained in three different ways, as shown in Table 6.17.

Table 6.17 Comprehension factors as Specification Variables

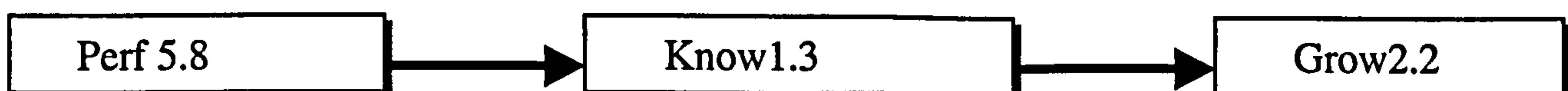
Predictor Variable	Knowledg e 1.3		Apply 2.3		Apply 3.3	
	Specification Variable Type	Reg. Coef.	Mediator Type	Reg. Coef	Mediator Type	Reg. Coef
Opera1.8	Quasi-moderator	.209	Intervening	.189	Intervening	.189
Mang 2.8 (with Prof1.2)	Intervening	.190	Intervening	.190	Intervening	.190
Mang 2.8 (with Grow2.2)	Quasi-moderator	.334	Intervening	.263	Intervening	.263
Custm 3.8	Quasi-moderator	.328	Intervening	.276	Intervening	.276
Perf 5.8	Intervening	.211	Intervening	.211	Intervening	.211

Table 6.17 shows that **Comprehension** contributes to developing superior performance either as an intervening variable, or as a quasi-moderator variable, when it is defined as either **Applicability of intangible resources**, **Applicability of capabilities**, or **Knowledge**. We now discuss how each of the factors of **Comprehension** contributes in developing superior performance.

6.3.3.1.1 Knowledge as a mediating variable

Results of the models show that **Knowledge** contributes to developing superior performance either as an intervening variable or as a quasi-moderator variable. An inspection of **Knowledge** shows that it is concerned with familiarity with strategic concepts, like resources, assets, competencies, and capabilities. This relationship is represented diagrammatically in Figure 6.21.

Figure 6.21 An Intervening Variable

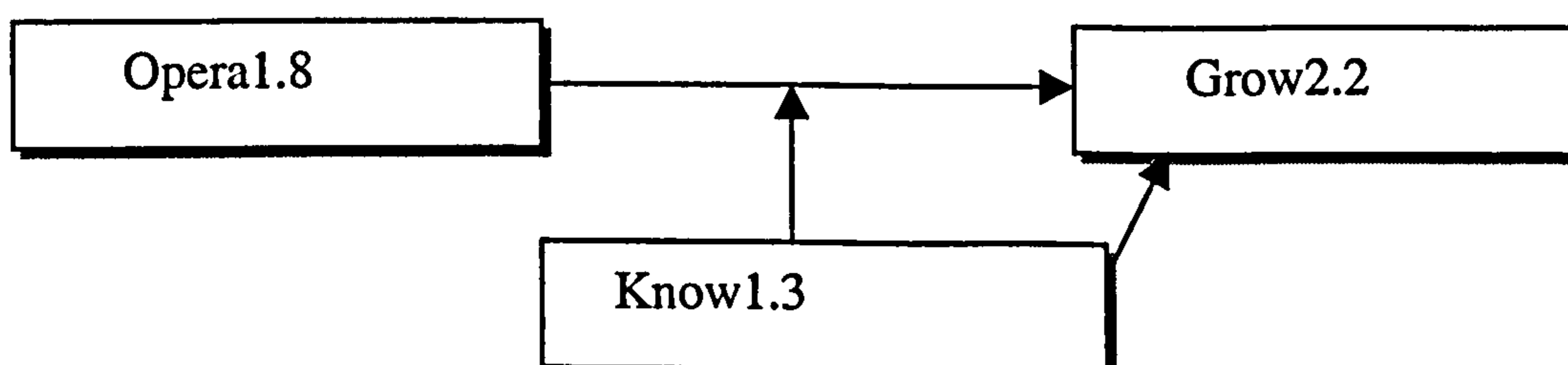


Knowledge is an intervening variable when **Growth & Sales volume** is the criterion and **Delivery Performance** is the predictor variable. The sequence in Figure 6.21 suggests that **Delivery Performance** affects **Knowledge** of strategic concepts, which in turn affects superior performance. These results suggest that there is an indirect relationship between **Delivery Performance** and superior performance. A possible explanation could be that firms with delivery capabilities, technical capabilities, and that are flexible with their suppliers, have managers who become more knowledgeable of the strategic concepts, thereby contributing to developing superior performance.

Knowledge is also an intervening variable when **Profitability & Return on assets** is the criterion and **Operations & Design** is the predictor variable. This suggests that firms with innovative designs, economies of scale, manufacturing flexibility, relationship with dealers and technical skills have managers who become more knowledgeable of the strategic concepts.

The second way in which **Knowledge** contributes to developing superior performance is when it is a quasi-moderator. It is recalled that a quasi-moderator both interacts (pure moderator effect) with the predictor variable and is related to (predictor variable effect) the criterion variable. This relationship is shown in Figure 6.22.

Figure 6.22 A Quasi-Moderator Variable



Knowledge is a quasi-moderator variable when **Growth & Sales volume** is the criterion and **Operations & Design** is the predictor variable. The results suggest two things about **Knowledge**. First, that it increases the contribution of **Operations & Design** to developing superior performance. This suggests that firms that have managers with more knowledge of strategic concepts have more superior performance. Second, the results show that apart from interacting with **Operations & Design** to develop superior performance, **Knowledge** itself contributes to developing superior performance. This would seem to imply that successful firms are those with managers who have knowledge of strategic concepts.

Knowledge is also a quasi moderator when **Management & Labour, Customer & Dealer Loyalty** are predictor variables. These results show the importance of knowledge in developing superior performance.

6.3.3.1.2 Knowledge as a suppressor variable

An examination of Table 6.12 appears to indicate that **Knowledge** is an example of a suppressor variable when **Supplier Relationships** is a predictor variable. However, **Knowledge** failed to meet the suppressor variable requirements as proposed by Rosenberg (1968), James and Brett (1984), Baron and Kenny (1986). They argue that for a third variable to be a suppressor variable it must be positively correlated with the predictor variable and negatively with the criterion variable (or vice versa). The correlational results summarised in Table 6.18 show that **Knowledge** is positively correlated with **Growth & Sales volume**, and that although it is negatively correlated to **Supplier Relationships**, the relationship is not significant.

Table 6.18 Correlations: Knowledge, Grow2.2 and Supp4.8

		Knowledge	Growth and Sales Volume	Supplier Relationships
Knowledge	Pearson Correlation	1.000	0.209	-0.027*
	Sig. (2-tailed)	-	0.022*	0.769
	N	120	120	120
Growth and Sales Volume	Pearson Correlation	0.209	1.000	0.043*
	Sig. (2-tailed)	0.022*	-	0.637
	N	120	120	120
Supplier Relationships	Pearson Correlation	-0.027*	0.043*	1.000
	Sig. (2-tailed)	0.769	0.637	-
	N	120	120	120

* Correlation is significant at the 0.05 level (2-tailed).

Thus, based on these results, **Knowledge** is neither a mediator nor a predictor variable when **Supplier Relationship** is a predictor variable. These results therefore seem to suggest that **Supplier Relationships** does not contribute to developing superior performance.

6.3.3.1.3 Applicability of intangible resources as a mediating variable

The results show that **Applicability of intangible resources** contributes to developing superior performance as an intervening variable when **Operations & Design, Management & Labour, and Delivery Performance** are predictor variables. These results also show that there is an indirect relationship between the three resource advantages and superior performance. A possible explanation could be that firms with more resource advantages (in terms of **Operations & Design, Management and Labour, and Delivery Performance**) have managers who become more knowledgeable of intangible resources, thereby contributing to developing superior performance.

6.3.3.1.4 Applicability of capabilities as a mediating variable

Applicability of capabilities is an intervening variable when **Operations & Design Management & Labour, Customer & Dealer Loyalty, Delivery Performance** are predictor variables. These results also show how possession of specific resource advantages influences the development of knowledge, which then contributes to developing superior performance.

Based on these results, we reach the following conclusion with regard to Hypothesis 1, which states that **Comprehension** moderates the relationship between resource advantages and superior performance. This hypothesis was not supported. The results, however, show that **Comprehension**, defined as **Knowledge, Applicability of intangible resources, and Applicability of capabilities**, contributes to developing superior performance as an intervening variable, when four of the five resource advantages are predictor variables.

The results also suggest that **Comprehension**, defined as **Knowledge**, contributes to developing superior performance as a quasi-moderator, when three resource advantages are predictor variables. These results seem to suggest that there is both a direct and an indirect relationship between resource advantages and superior performance. This means that firms with managers with more knowledge of strategic concepts develop better resource advantages thereby contributing to develop more superior performance.

6.3.3.2 Experience as a Specification Variable

It is interesting to note that **Experience** contributes to developing superior performance. These results are summarised in Table 6.19.

Table 6.19 Experience and Training & Development as Specification Variables

	Experience	Training & Development
Antecedent Variable	<ul style="list-style-type: none"> • Management & Labour • Customer & Dealer Loyalty 	<ul style="list-style-type: none"> • Operations & Design • Management & Labour • Customer & Dealer Loyalty • Delivery Performance • Knowledge
Pure Moderator	<ul style="list-style-type: none"> • Operations & Design • Delivery Performance 	<ul style="list-style-type: none"> • Operations & Design

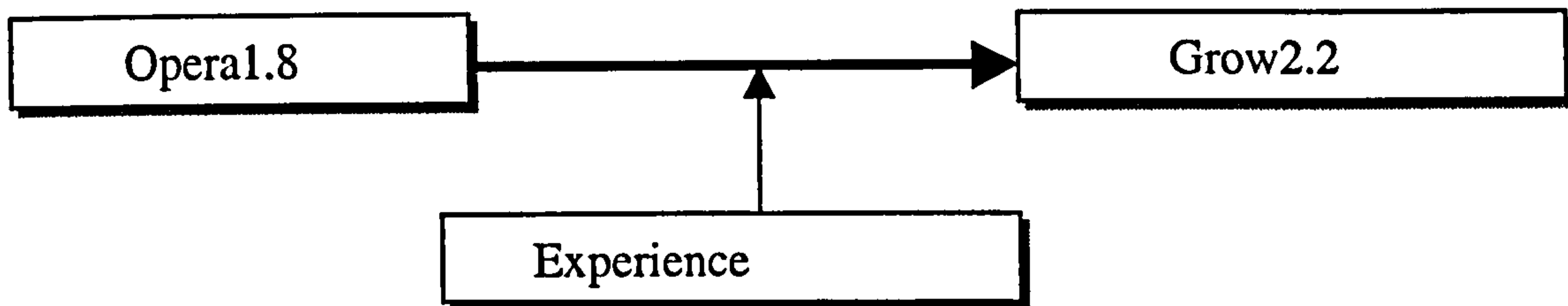
6.3.3.2.1 Experience as an antecedent variable

The results show that **Experience** contributes to developing superior performance as an antecedent variable when either **Management & Labour** or **Customer & Dealer Loyalty** is a predictor variable. The results seem to suggest that managers with more experience are more inclined to rate their firm as having more resource advantages. A possible explanation could be that managers with more experience are more likely to rate their firm as having more resource advantages in terms of **Management & Labour**, and **Customer & Dealer Loyalty**.

6.3.3.2.2 Experience as a pure moderator variable

The results show that **Experience** contributes to developing superior performance as a pure moderator variable. **Experience** is a pure moderator when **Operations & Design** is a predictor variable.

Figure 6.23 Experience as a Pure Moderator



These results seem to suggest that **Operations & Design** alone is a weak form of resource advantage. Its contribution to developing superior performance is increased if managers are experienced. This seems to suggest that experience increases the contribution of *innovative designs, economies of scale, manufacturing flexibility, technical skills, and managerial capabilities* to developing superior performance. This means that managers with more experience tended to be in those firms with more superior performance. The results seem to suggest that the identification and development of resources, in terms of **Operations & Design**, is influenced by managers' experience.

Experience is also a pure moderator variable when **Customer & Dealer Loyalty** is a predictor variable. This seems to suggest that experience is not directly related to superior performance.

6.3.3.3 Training & Development as a specification variable

It should be recalled that **Functional Expertise** refers to the ability to perform managerial functions well. It was assumed that one of the major ways of increasing

managerial ability was to constantly provide them with management training/development programmes.

6.3.3.3.1 Training & Development as an antecedent variable

The results in Table 6.19 that show **Training & Development** is an antecedent variable when **Management & Labour, Customer & Dealer Loyalty, and Delivery Performance** are predictor variables. These results suggest that management training and development programmes have an effect on some resource advantages, thereby contributing to developing superior performance. A possible explanation could be that managers with more training are more likely to rate their firm as having more resource advantages (in terms of **Management & Labour, Customer & Dealer Loyalty, and Delivery Performance**).

Training & Development also contributes to developing superior performance as an antecedent variable when **Knowledge** is a predictor. These results suggest that management development affects **Knowledge** of intangible resources and capabilities, thereby developing superior performance. A logical conclusion could be that in order to develop superior performance in this industry, firms have to concentrate on increasing the number of management development programmes in order to improve and increase managers' knowledge of the firm's intangible resources and capabilities. These results suggest that those firms that invest in developing their managers are indirectly contributing to developing superior performance.

It should be noted, however, that **Training & Development** does not always contribute to developing superior performance. The results show that **Training &**

Development does not contribute to developing superior performance when **Applicability of intangible resources** and **Applicability of capabilities** are predictor variables. These results seem to suggest that management training does not help managers to understand how to apply intangible resources and capabilities.

6.3.3.3.2 Training & Development as a pure moderator variable

The results show that **Training & Development** contributes in developing superior performance as a pure moderator. **Training & Development** is a pure moderator when **Operations & Design** is a predictor variable. These results seem to suggest that **Operations & Design** alone is a weak resource advantage. Its contribution to developing superior performance is increased if managers are experienced. This seems to suggest that **Training & Development** increases the contribution of *innovative designs, economies of scale, manufacturing flexibility, technical skills, and managerial capabilities* to developing superior performance. This means that managers with more **Training & Development** tended to be in those firms with more superior performance. The results seem to suggest that the identification and development of resources, in terms of **Operations & Design**, is influenced by managers' **Training & Development**. In other words, managers use their functional expertise to develop and protect those resources they are comfortable with.

6.3.3.4 Factors of Review Processes as Specification Variables

The results of this study show that **Review Processes** are related to superior performance. It should be recalled that four factors of **Review Processes** used in

these analyses are: **Delivery Capabilities (Skil 1.6), Customer Loyalty (Custm 2.6), Manufacturing Flexibility (Manu 4.6), and Product Performance (Prod 3.6)**. The results of MRA and Subgroup analysis are summarised in Tables 6.20 – 6.24, and the results of these five tables are summarised in Table 6.25

Table 6.20: Results when Operations & Design is a predictor variable

EQUATION 1			EQUATION 2			EQUATION 3		
Reg	Coef	(B)	Reg	Coef (B)	Sign	Reg	Coef (B)	Sign
Sign.								
Opera1.8	.189	.039	+ Skill1.6	-.215	.018	+ Skill1.6 +Opera1	.161	.014
			+Custm2.6	.189	.039	+Custm2.6+Opera1	.189	.039
			+Prod3.6	.189	.039	+Prod3.6 +Opera3	.189	.039
			+Manu4.6.	.189	.039	+Manu4.6+Opera4	-.300	.013
			+Durb1.4	.189	.039	+Durb2.4 +Opera5.	.189	.039
			+Prod1.5	.375	.000	+Prod1.5 +Opera6	.375	.000
			+Manu1.7	.189	.039	+Manu1.7 +Opera7	.189	.039
			+Comp1.9	.278	.002	+Comp1.9+Opera8	.278	.002

Table 6.21: Management and Labour as a predictor variable

EQUATION 1			EQUATION 2			EQUATION 3		
Reg	Coef (B)	Sign.	Reg	Coef (B)	Sign.	Reg	Coef (B)	Sign.
Mang2.8	.263	.004	+ Skill1.6	.271	.020	+ Skill1.6 +Mang1	.263	.004
			+Custm2.6	.263	.004	+Custm2.6+Mang2	.263	.004
			+Prod3.6	.263	.004	+Prod3.6 +Mang3	.263	.004
			+Manu4.6	.263	.004	+Manu4.6+Mang4	.263	.004
			+Dub1.4	.263	.004	+Durb2.4 +Mang5	.263	.004
			+Prod1.5	.334	.000	+Prod1.5 +Mang6	.263	.004
			+Manu1.7	.263	.004	+Manu1.7 +Mang7	.263	.004
			+Comp1.9	.229	.020	+Comp1.9+Mang8	.263	.004

Table 6.22: Results when Customer & Dealer Loyalty is a predictor variable

EQUATION 1			EQUATION 2			EQUATION 3		
Reg	Coef(B)	Sign	Reg	Coef (B)	Sign.	Reg	Coef (B)	Sign.
Custm3.8	.276	.002	+ Skill1.6	.196	.002	+ Skill1.6 +Custm1	.205	.022
			+Custm2.6	.276	.002	+Custm2.6+Custm2	.276	.002
			+Prod3.6	.276	.002	+Prod3.6 +Custm3	.276	.002
			+Manu4.6	.276	.002	+Manu4.6+Custm4	.276	.002
			+Durb1.4	.276	.002	+Durb2.4 +Custm5	.276	.002
			+Prod1.5	.305	.032	+Prod1.5 +Custm6	.276	.002
			+Manu1.7	.276	.002	+Manu1.7 +Custm7	.276	.002
			+Comp1.9	.232	.009	+Comp1.9+Custm8	.276	.002

Table 6.23: Results when Supplier Relationships is a predictor variable

EQUATION 1	EQUATION 2		EQUATION 3	
Reg Coef(B) Sign.	Reg. Coef (B)	Sign.	Reg. Coef (B)	Sign.
Supp4.8. Not Entered	+ Skill1.6	-.215 .018	+ Skill1.6 +Supp1	Not Entered
	+Custm2.6	Not Entered	+Custm2.6+Supp2	Not Entered
	+Prod3.6	Not Entered	+Prod3.6 +Supp3	Not Entered
	+Manu4.6	Not Entered	+Manu4.6+Supp4	Not Entered
	+Dub1.4	Not Entered	+Durb1.4 +Supp5	Not Entered
	+Prod1.5	.357 .000	+Prod1.5 +Supp6	Not Entered
	+Manu1.7	Not Entered	+Manu1.7 +Supp7	Not Entered
	+Comp1.9	.278 .002	+Comp1.9+ Supp8	Not Entered

Table 6.24: Results when Delivery Performance is a predictor variable

EQUATION 1	EQUATION 2		EQUATION 3	
Reg Coef(B) Sign.	Reg Coef (B)	Sign.	Reg. Coef (B)	Sign.
Perf5.8 .211 .021	+ Skill1.6	.196 .034	+ Skill1.6 +Perf1	211 .021
	+Custm2.6	.211 .021	+Custm2.6+Perf2	211 .021
	+Prod3.6	211 .021	+Prod3.6 +Perf3	211 .021
	+Manu4.6	211 .021	+Manu4.6+Perf4	211 .021
	+Durb1.4	211 .021	+Durb2.4 +Perf5	211 .021
	+Prod1.5	.357 .000	+Prod1.5 +Perf6	211 .021
	+Manu1.7	211 .021	+Manu1.7 +Perf7	.307 .003
	+Comp1.9	.278 .039	+Comp1.9+Perf8	211 .021

The model, developed in Chapter 1, shows that **Review Processes** have a moderating effect on the relationship between resource advantages and superior performance. The results of MRA support our hypothesis that the relationship between resource advantages and superior performance is moderated by the frequency of review of a firm's strategies. The results of MRA and Subgroup analysis summarised in Table 6.25 show that **Review Processes** have varying effects on the relationship between resource advantages and superior performance. Like **Comprehension**, the results show that **Review Processes** contribute to developing superior performance as an intervening variable, as a quasi-moderator variable, and as a pure moderator variable. It should be noted that these results seem to suggest that **Product performance** does not contribute to developing superior performance.

Table 6.25 Factors of Review Processes as specification variables.

Predictor Variable	Intervening	Pure Moderator	Quasi-Moderator
Operations & Design	Customer Loyalty	Manufacturing Flexibility	Delivery Capabilities
Management & Labour	Customer Loyalty		Delivery Capabilities
Customer & Dealer Loyalty	Customer Loyalty		Delivery Capabilities
Supplier Relationships	Customer Loyalty		Delivery Capabilities
Delivery Performance	Customer Loyalty		Delivery Capabilities

6.3.3.4.1 Review Processes as an intervening variable

The results in Table 6.25 show that **Review Processes** is an intervening variable when **Operations & Design, Management & Labour, Customer & Dealer Loyalty, Supplier Relationships, and Delivery Performance** are predictor variables.

Customer loyalty is an intervening variable when **Operations & Design** is a predictor variable. These results seem to indicate that firms with more resource advantages review more frequently their *customer loyalty, adaptability, distribution networks, customer profiles, customer needs, and customer complaints*, thereby contributing to developing superior performance. If these results are accepted, they suggest that there is a relationship between **Operations & Design** and superior performance, but the relationship is not direct. A possible explanation may be because those firms with more resource advantages (in terms of *relationship with suppliers, manufacturing flexibility, innovative designs, economies of scale, and technical skills*) provide an environment that makes it easy for managers to review their customer strategies, thereby contributing to developing superior performance.

Customer loyalty is an intervening variable when **Management & Labour** is a predictor variable. These results seem to indicate that firms with more resource advantages review more frequently their *customer loyalty, adaptability, distribution networks, customer profiles, customer needs, and customer complaints*, thereby contributing to developing superior performance. If these results are accepted, they suggest that there is a relationship between **Management & Labour** and superior performance, but the relationship is not direct. A possible explanation may be because those firms with more resource advantages (in terms of *adaptability, workforce management, ability to innovate, and managerial capabilities*) provide an environment that makes it easy for managers to review their customer strategies, thereby contributing to developing superior performance.

Customer loyalty is an intervening variable when **Customer & Dealer Loyalty** is a predictor variable. These results seem to indicate that firms with more resource advantages review more frequently their *customer loyalty, adaptability, distribution networks, customer profiles, customer needs, and customer complaints*, thereby contributing to developing superior performance. If these results are accepted, they suggest that there is a relationship between **Customer & Dealer Loyalty** and superior performance, but the relationship is not direct. A possible explanation may be because those firms with more resource advantages (in terms of *Customer loyalty, Dealer loyalty, and Customer base*) provide an environment that makes it easy for managers to review their customer strategies, thereby contributing to developing superior performance.

Customer loyalty is an intervening variable when **Delivery Capabilities** is a predictor variable. These results seem to indicate that firms with more resource advantages review more frequently their *customer loyalty, adaptability, distribution networks, customer profiles, customer needs, and customer complaints*, thereby leading to superior performance. If these results are accepted, they suggest that there is a relationship between **Delivery Capabilities** and superior performance, but the relationship is not direct. A possible explanation may be because those firms with more resource advantages (in terms of *delivery capabilities, supplier sourcing flexibility, and technical skills*) provide an environment that makes it easy for managers to review their customer strategies, thereby contributing to developing superior performance.

The results tend to support the view that **Review Processes** are related to both resource advantages and superior performance. These results have shown that **Review Processes** increase the contribution of resources, thereby contributing to developing superior performance.

6.3.3.4.2 Review Processes as a quasi-moderator variable

Delivery Capabilities is a quasi-moderator when **Operations & Design, Management & Labour, Customer & Dealer Loyalty, Supplier Relationships, and Delivery Performance** are predictor variables. **Delivery Capabilities** is concerned with reviewing the contribution of *technical skills, delivery capabilities, managerial capabilities, and ability to innovate*, to developing superior performance.

These results seem to indicate that reviewing **Delivery Capabilities** continuously on its own contributes to developing superior performance.

These results also seem to show that **Delivery Capabilities** interacts with each of the five factors, to develop superior performance. **Delivery Capabilities** on its own is related to superior performance, but its contribution is increased if it interacts with each of the five predictor variables. For example, **Delivery Capabilities** increases managers' ability in their **Operations & Design**. An inspection of **Operations & Design** shows that it is concerned with *relationships with dealers, innovative designs, economies of scale, manufacturing flexibility, and technical skills*. The results seem to suggest that **Delivery Capabilities** helps managers in the development of these resources, thereby contributing to developing superior performance. Apart from interacting with **Operations & Design** to develop superior performance, these results seem to suggest that **Delivery Capabilities** itself contributes to developing superior performance. If these results are accepted, they show that **Delivery Capabilities** is a superior resource advantage that contributes to developing superior performance.

Delivery Capabilities interacts with **Management & Labour**, thereby contributing to developing superior performance. **Management & Labour** is concerned with rating the contribution of *adaptability, workforce management, ability to innovate, and managerial capabilities* to developing superior performance. These results seem to suggest that **Delivery Capabilities** helps managers to improve the development of these resources, thereby leading to the development of superior performance. **Delivery Capabilities** is also shown to be a superior resource advantage that contributes to the development of superior performance.

Delivery Capabilities interacts with **Customer & Dealer Loyalty**, thereby contributing to developing superior performance. **Customer & Dealer Loyalty**

represents managers' rating the contribution of *customer loyalty*, *dealer loyalty*, and *customer base* to developing superior performance. What this means is that when it comes to *customer base*, *customer loyalty*, and *dealer loyalty*, **Delivery Capabilities** is needed to improve these skills, thereby contributing to developing superior performance.

Delivery Capabilities interacts with **Supplier Relationships**, thereby contributing to developing superior performance. **Supplier Relationships** concerns such factors as *supplier know-how* and *supplier reliability*. This seems to suggest that **Delivery Capabilities** helps managers improve relationships with their suppliers. These results also seem to show that **Delivery Capabilities** itself is partly a superior resource advantage that contributes to the development of superior performance.

Delivery Capabilities interacts with **Delivery Performance**, thereby contributing to developing superior performance. **Delivery Performance** is concerned with such issues as *delivery capabilities*, *supplier sourcing flexibility*, and *technical skills*. This seems to suggest that **Delivery Capabilities** helps managers improve their delivery capabilities, technical skills, and also helps them to be flexible in their choice of suppliers. These results also seem to show that **Delivery Capabilities** itself is partly a superior resource advantage that contributes to the development of superior performance.

6.3.3.4.3 Review Processes as a pure moderator variable

Manufacturing flexibility is a pure moderator when **Operations & Design** is a predictor variable. This seems to show that although **Operations & Design**

contributes to developing superior performance, its contribution is increased if a firm frequently reviews scale economies and training programmes. The results seem to suggest that firms that frequently review these factors have more resource advantages than firms that do not.

These results seem to suggest that **Operations & Design** alone is a weak form of resource advantage. Its contribution to developing superior performance is increased if firms have a flexible manufacturing strategy. This seems to suggest that **Manufacturing flexibility** increases the contribution of *innovative designs, economies of scale, manufacturing flexibility, technical skills, and managerial capabilities* in developing superior performance. This means that firms with a more flexible manufacturing strategy tended to be in those firms with more superior performance. The results seem to suggest that the identification and development of resources, in terms of **Operations & Design**, is influenced by the flexibility of a firm's manufacturing strategy.

Having obtained the results of MRA, the following section details the procedure we took to examine the relationship between (a) **resource advantages** and superior performance; and (b) superior performance and **Experience and Training & Development**.

6.4 Regression Analysis

6.4.1 Resource advantages on Superior performance

To investigate which of the five measures of resource advantages would be the best predictor of superior performance, we regressed superior performance with these five resource advantages. Figure 6.24 summarises these results.

Figure 6.24 Resource advantage on Superior performance

Figure 6.24a Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.276 ^a	.076	.069	.9651351
2	.382 ^b	.146	.131	.9321615
3	.436 ^c	.190	.169	.9114776
4	.475 ^d	.226	.199	.8949999

a Predictors: (Constant), Customer & Dealer Loyalty

b Predictors: (Constant), Customer & Dealer Loyalty, Management & Labour

c Predictors: (Constant), Customer & Dealer Loyalty, Management & Labour,

d Delivery Performance

d Predictors: (Constant), Customer & Dealer Loyalty, Management & Labour, Delivery Performance, Operations & Design

Figure 6.24 b ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.085	1	9.085	9.753	.002
	Residual	109.915	118	.931		
	Total	119.000	119			
2	Regression	17.336	2	8.668	9.975	.000
	Residual	101.664	117	.869		
	Total	119.000	119			
3	Regression	22.628	3	7.543	9.079	.000
	Residual	96.372	116	.831		
	Total	119.000	119			
4	Regression	26.882	4	6.721	8.390	.000
	Residual	92.118	115	.801		
	Residual	92.118	115	.801		
	Total	119.000	119			
	Total	119.000	119			

a Predictors: (Constant), Customer & Dealer Loyalty

b Predictors: (Constant), Customer & Dealer Loyalty, Management & Labour

c Predictors: (Constant), Customer & Dealer Loyalty, Management & Labour, Delivery Performance

d Predictors: (Constant), Customer & Dealer Loyalty, Management & Labour, Delivery Performance, Operations & Design

e Dependent Variable: Growth and Sales Volume

Figure 6.24c **Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients		t	Sig.
		B	Std. Error	Beta			
1	(Constant)	-1.121E-16	.088			.000	1.000
	Customer and Dealer Loyalty	.276	.088	.276		3.123	.002
2	(Constant)	-1.750E-16	.085			.000	1.000
	Customer and Dealer Loyalty	.276	.085	.276		3.233	.002
3	Management and Labour	.263	.085	.263		3.082	.003
	(Constant)	-1.800E-16	.083			.000	1.000
4	Customer and Dealer Loyalty	.276	.084	.276		3.307	.001
	Management and Labour	.263	.084	.263		3.151	.002
5	Delivery Performance	.211	.084	.211		2.524	.013
	(Constant)	-1.570E-16	.082			.000	1.000
6	Customer and Dealer Loyalty	.276	.082	.276		3.368	.001
	Management and Labour	.263	.082	.263		3.209	.002
7	Delivery Performance	.211	.082	.211		2.570	.011
	Operations and Design	.189	.082	.189		2.304	.023

a Dependent Variable: Growth and Sales Volume

The results in Figure 6.24a show that, in terms of individual measures, the R^2 shows that the four measures account for 48 per cent of the variance in superior performance. All the F-values, in Figure 6.24b, are significant, showing that there is a positive relationship between each of the four resource advantages and superior performance. The regression coefficients (Beta), in Figure 6.24c show that a positive increase in each of the four measures has a positive impact on superior performance. These results suggest that **Customer & Dealer Loyalty** is the best predictor of superior performance.

These results suggest that **Supplier Relationship** is not a predictor of superior performance.

6.4.2 Experience and Training & Development on Comprehension

To investigate the impact of Experience and Training & Development on Comprehension, we regressed each of the three factors of Comprehension with Experience and Training & Development. Experience and Training & Development could not be entered with both Applicability of intangible resources and Applicability of capabilities. These results suggest that both Experience and Training & Development are not related to Applicability of intangible resources and Applicability of capabilities. Hence the only regression results presented in Figures 6.25 and 6.26 are those for Knowledge.

6.4.2.1 Regression of Experience on Knowledge

Knowledge was regressed on Experience. The results are summarised in Figure 6.25.

Figure 6.25 Experience and Knowledge

Figure 6.25a ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.085	1	5.085	5.267	.023*
	Residual	113.915	118	.965		
	Total	119.000	119			

a Predictors: (Constant), Years in position

b Dependent Variable: Knowledge

Figure 25b Coefficients

Model		Unstandardized Coefficients	Standardized Coefficients	t	Sig.
		B	Beta		
1	(Constant)	.624		2.180	.031
	Years in position	-.160	-.207	-2.295	.023
	Years in position	-.160	-.207	-2.295	.023

a Dependent Variable: Knowledge

The results in Figure 6.25a show that **Experience** affects **Comprehension**, defined as **Knowledge**. The F-value of 5.267 shows that **Experience** accounts for 5 percent of the variance in **Knowledge**. The coefficient, in Figure 6.25b, show the effect that each predictor variable has on the criterion variable. The coefficient for **Experience** shows that for each unit increase in experience, knowledge of strategic concepts decreases by an average $-.207$, a relationship that is significant at the 5 percent significance level ($p=.023$). To investigate whether this negative relationship is related to the levels of experience, we carried two further multivariate tests: Chi-square, and Scheffe tests.

The Chi-square test showed that a statistical difference existed between those managers who had been in the managerial position for more than 6 years and those managers who had been in the position for less than 6 years. Those who had been in the position for less than 6 years had more knowledge of strategic concepts than those who had been in the position for more than 6 years. A Scheffe test with significance level of .05 was used to find out whether there was a statistical difference between years in position (**Experience**) and **Knowledge**. The test showed that there is a statistical difference between the *means* of those managers who had been in the position for less than 6 years (3.6) and those who had been in the position for over 6 years (3.0).

Based on these results the hypothesis that the more **experienced** managers are, the better their **comprehension** of strategic concepts was not supported. These results seem to suggest that as managers become more experienced, their knowledge of strategic concepts decreases.

6.4.2 2 Training & Development and Comprehension

Knowledge was regressed on Training & Development. The results are summarised in Figure 6.26.

Figure 6.26 Regression of Knowledge on Training & Development.

Figure 6.26a ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.530	1	4.530	4.670	.033*
	Residual	114.470	118	.970		
	Total	119.000	119			

a Predictors: (Constant), Management training programmes
b Dependent Variable: Knowledge

Figure 6.26b Coefficients

Model		Unstandardized Coefficients	Standardized Coefficients	t	Sig.
		B	Beta		
1	(Constant)	.324		1.853	.066
	Management training programmes	-.160	-.195	-2.161	.033

a Dependent Variable: Knowledge

The results in Figure 6.26a show that **Training & Development** affects **Comprehension**, when defined as **Knowledge**. The F-value of 4.670 shows that **Training & Development** accounts for 4 percent of the variance in knowledge. The coefficient for **Training & Development**, in Figure 6.26b, shows that for each unit increase in **Training & Development**, knowledge of strategic concepts decreases by an average -.169, a relationship that is not significant at the 5 percent significance level ($p=.062$). To investigate whether this negative relationship is related to the levels of frequency of attending management training programmes, we carried two further multivariate tests: Chi-square, and Scheffe tests.

A Chi-square showed that there were statistical differences between those managers who had frequent training and those who did not have frequent training. Those who did not have frequent training had more knowledge of strategic concepts than those who had frequent training.

A Scheffe test with significance level of .05 was used to find out whether there was a statistical difference between frequency of training and knowledge of strategic concepts. The results showed a statistical difference between the *means* of those who had frequent training and those who did not have frequent training.

Based on these results the hypothesis that managers who attended more training and development programmes will demonstrate a greater **comprehension** of strategic concepts was not supported. These results seem to suggest that as managers attend more training and development programmes, their knowledge of strategic concepts decreases.

6.4.2.3 Experience and Training & Development on Comprehension

The simple regression equations above suggest that both **Experience** and **Training & Development** are predictors of **Comprehension**, defined as **Knowledge**. Having established this, we wanted to find out which of the two was a better predictor of **Knowledge**. We therefore regressed **Knowledge** with the two predictors. The results are summarised in Figure 6.27.

Figure 6.27 Regression of Knowledge on Experience and Training & Development.

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.085	1	5.085	5.267	.023*
	Residual	113.915	118	.965		
	Total	119.000	119			

a Predictors: (Constant), Years in position

b Dependent Variable: Knowledge

Coefficients

Model		Unstandardized Coefficients	Std. Error	Standardized Coefficients	t	Sig.
1	(Constant)	.624	.286		2.180	.031*
	Years in position	-.160	.070	-.207	-2.295	.023*

a Dependent Variable: Knowledge

Excluded Variables

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance
1	Management training programmes	-.169	-1.882	.062	-.171	.980

a Predictors in the Model: (Constant), Years in position

b Dependent Variable: Knowledge

*Correlation is significant at the 0.005 level (2-tailed)

The results in Figure 6.27 show that when the two predictors are included in a multiple regression analysis, the effect of **Training & Development** is subdued. This seems to suggest that experience is a better predictor of knowledge.

These results show that **experience** is a better predictor of **managerial comprehension** than **training and development**. The results seem to suggest that managers benefit more from on-the-job experience than they do from training and development programmes. Two things should be remembered when interpreting these results. First, that the responses were dominated by those of senior managers.

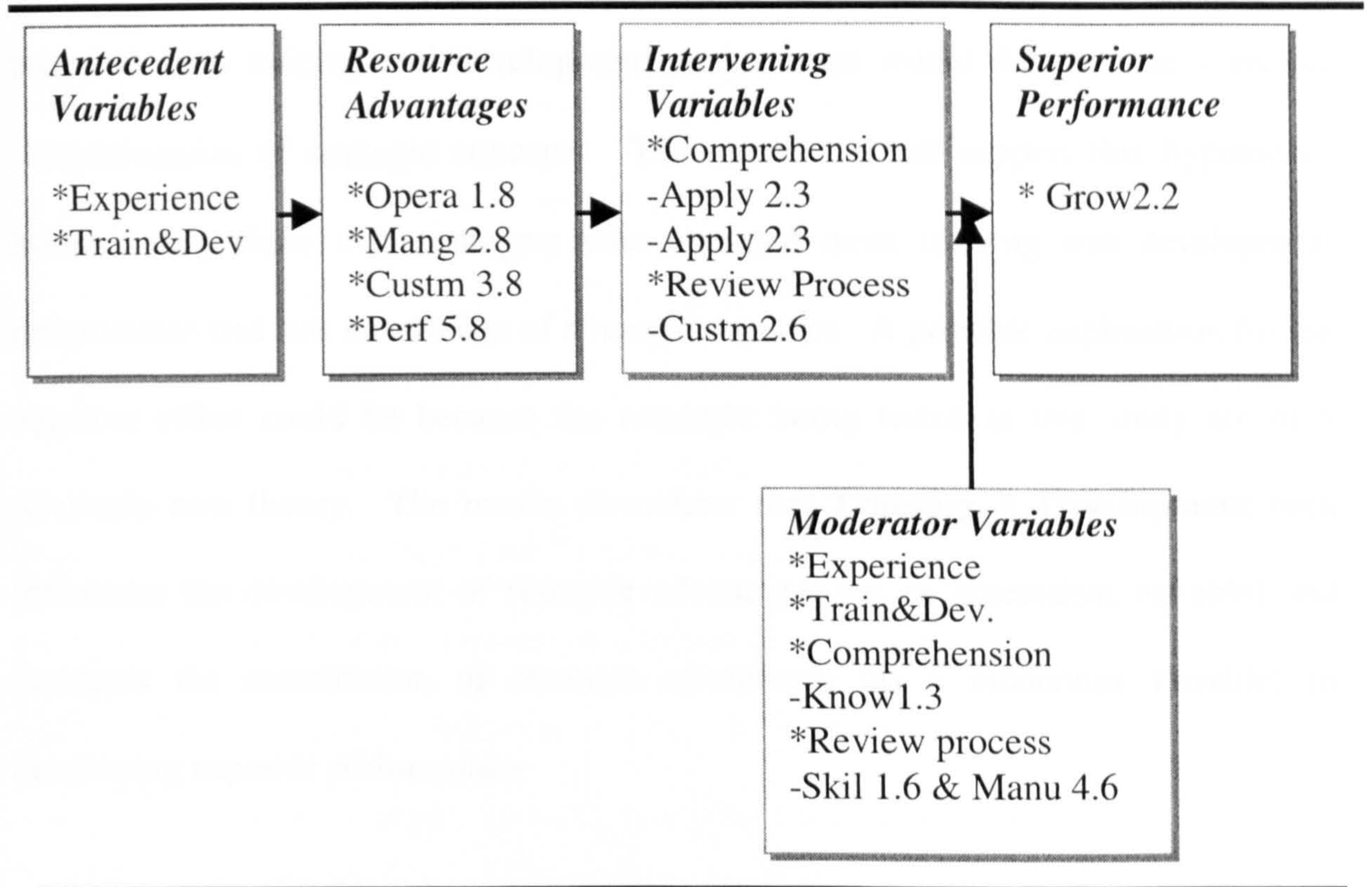
Second, the concepts being tested in this study are from a new theory, therefore those managers who had been in the managerial post for over 6 years are more likely to be unaware of these concepts.

6.4 Summary

The results of the MRA & Subgroup and regression analyses show a number of interesting results. The results show that managers in this industry do not use **Profitability** and **Return on assets** as performance indicators, but that they use **Growth** and **Sales volume**. In terms of resource advantages, the results show that not all resource advantages contribute to developing superior performance. Of the five resource advantages, only **Supplier Relationships** did not contribute in developing superior performance. A possible explanation could be that suppliers in this industry are fragmented. The results also show that **Customer & Dealer Loyalty** is the best predictor of superior performance.

In terms of **Comprehension, Experience, Training & Development** and **Review Processes**, the results are different from our original model. Figure 6.24 shows how our original model should be adapted to the results of this study.

Figure 6.28 Superior Performance and Resource-based strategies Models results



In our original model we hypothesised that **Comprehension** moderates the relationship between resource advantages and superior performance. The results of the analyses show that **Comprehension** both mediates and moderates the relationship between resource advantages and superior performance. Two factors of **Comprehension** (**Applicability of intangible resources**, and **Applicability of capabilities**) contribute to developing superior performance as intervening variables. **Knowledge**, as a moderator variable, contributes to developing superior performance by increasing the contribution of resource advantages.

As regards **Experience**, our hypothesis was that managers with more experience would have a better comprehension of strategic concepts. The results did not support our hypothesis. Instead, they show that managers with more experience had less knowledge of strategic concepts. The results also show that **Experience** both influences the development of resource advantages (as an antecedent variable) and increases the contribution of resource advantages (as a moderator variable) in developing superior performance.

As regards **Training & Development**, our hypothesis was that managers who attended more training and development programmes would demonstrate a greater comprehension of strategic concepts. The results did not support this hypothesis. Instead, they show that managers who attended more training and development programmes had less knowledge of strategic concepts. A possible explanation for the negative effect could be because the concepts being tested in this study are of a relatively new theory. The results also show that **Training & Development** both influences the development of resource advantages (as an antecedent variable) and increases the contribution of resource advantages (as a moderator variable) in developing superior performance.

Finally, the results also show that **Review Processes** indirectly contributes in developing superior performance. **Customer loyalty** (Custm 2.6) contributes to developing superior performance as an intervening variable. **Delivery capabilities** (Skil 1.6) and **Manufacturing flexibility** (Manu 4.6) contribute to developing superior performance as moderator variables.

CHAPTER SEVEN

DISCUSSION, IMPLICATIONS, LIMITATIONS, AND CONCLUSIONS

We started this research by pointing out that the RBV approach derives from general statements about the idiosyncratic nature of the firm's resources. This has meant that empirical analysis has been limited by the difficulty of producing reliable operationalisations and measurements of particular resource bundles. There are two main reasons why our study was focused on RBV. First, unlike other studies that were multi-industry, ours was carried out in only one industry. This was in line with Collis (1995) who argues that sources of superior performance vary from industry to industry. He therefore urged researchers to focus their attention on only one industry at a time. In addition, Godfrey and Hill (1995) argue that more benefits from research could be gained if researchers studied a collection of firms that face a similar environment. We argued that the Motor Vehicle Manufacturing Industry was appropriate because it is an industry that is complex, and where firms can lose competitive advantage easily (Carr, 1991). It would seem to show that the sources of competitive advantage in this industry are highly dependent on the internal resources possessed by individual firms.

A second reason is that most of the empirical studies on RBV ignore the contribution of managers. Thus our study hypothesised that the transformation of superior resources into sources of superior performance is moderated by **managerial comprehension**. By **Comprehension**, it should be recalled, we meant being both familiar with strategic concepts and being able to apply them for the benefit of the firm. We further hypothesised that **Experience and Training & Development** affect **Comprehension** itself.

We indicated that one of the major problems in carrying out empirical work on RBV is that most of the concepts are difficult to operationalise. We developed a questionnaire comprising six main groups of questions: measures of superior performance; measures of resource advantages; measures of **Comprehension; Review Processes, Experience, and Training & Development**. Resource advantages were used as predictor variables, **Comprehension and Training & Development** were used as the moderator variables. We also used financial performance measures: profitability, return on assets, sales volume, and growth, as criterion variables.

A common problem with questionnaires is that they tend to use language that managers do not understand. To avoid this, we analysed annual company reports and used the language commonly found in these reports in describing causes of firm success. Starbuck and Mezias (1996) argue that for research findings to be meaningful and useful, researchers need to collect data from experienced, practising managers – especially senior managers.

The questionnaire was pre-tested two times. The final draft was mailed to 600 UK firms and 30 Zimbabwean firms. After four follow-ups, the total number of usable UK responses was 120, making a 20 percent response rate. Only 7 usable responses were received from Zimbabwean firms, making a meaningful comparison not possible.

Different research methods were discussed in Chapter 3. In choosing a survey method, we considered such things as the nature of the problem, the time available,

and the available financial resources. It should be admitted that it had its weaknesses, but like any method of enquiry, problems are always part of social investigations. We chose the survey method because we felt its advantages outweighed its disadvantages. We were able to contact more than 600 potential respondents in three months. The method gave our respondents both the freedom to respond or not; and even whether to respond to all the questions or to only a few.

The statistical analysis of the data collected in this study relied mainly on four statistical techniques: Factor analysis; Correlational analysis; Moderated regression analysis & Subgroup analysis; and Regression (simple and multiple) analysis. A principal components factor analysis (**VARIMAX** rotation) of the items in each question was used to reduce the data for use in further analysis. Although some data analysts argue that the choice of type of rotation is a matter of taste, an oblique rotation method was employed because the factors themselves are correlated. A correlational analysis was used. Correlational analysis is appropriate when interest is focused primarily on the exploratory task of finding out which variables are related to a given variable. Two multivariate methods were used: moderated regression analysis and regression (simple and multiple) analysis. The rationale for using moderated regression analysis was its power to identify different types of specification (test) variables. We used multiple regression analysis to find out which of the five resource advantages would be the best predictor of superior performance; and which of the two factors (**Experience and Training & Development**) would be a better predictor of **Knowledge**. Section 7.1 discusses the results of these analyses.

7.1 Discussion

7.1.1 Resource advantages and superior performance

The results of this study show that the relationship between resource advantages and superior performance is more complex than might appear at first. RBV writers hold that having superior resources (what we refer to as **resource advantages**) leads to superior performance. However, this relationship is not quite so simple. Three interesting patterns deserve comment. First, the results show that particular resource advantages have varying potential for developing superior performance. This means that although they contribute to developing superior performance, some resource advantages are more important than others.

We asked managers to rank how difficult it is for competitors to match key product attributes. Results of descriptive analysis show that *product quality* is the most difficult attribute for competitors to match, followed by *product performance*, and *product reliability*. *Price* was the easiest product attribute to copy. Hall's (1992) empirical study also showed that *quality* is a difficult attribute to match, and hence it could be a potential source of competitive advantage. *Quality, performance, and reliability* meet the requirements of resources that are difficult to accumulate, imitate, substitute or transfer (Rao, 1994; and Peteraf, 1995). This suggests that customers in this industry consider product quality, performance, and reliability more than they do product price and that firms in this industry base their competition on product quality, performance, and reliability.

In terms of the contribution of product attributes to developing superior performance, the results of descriptive analysis show that *product reputation*, *improving product quality*, and *product design*, were considered to contribute most. *Lowering product price* was not seen as a source of superior performance.

We also asked managers to rate the contribution of strategies in developing superior performance. The results of descriptive analysis show that most of the respondents rated *firm reputation*, *long term relationships with suppliers*, and *after sales service* as having the most contribution in developing superior performance. The results concerning *firm reputation* confirm the results found by Hall (1992). He found out that *firm reputation* was considered an important intangible resource. A study by Rao (1994) also shows that the reputation of individual organisations influences their survival. The reputation of an organisation is a resource advantage that is difficult to accumulate, imitate, substitute or transfer. These results again show that customers in this industry do not buy because of price cuts, but because the product is of high quality, has a high performance, and is reliable.

The results of multiple regression, shown in Figure 6.24, suggest that not all resource advantages are potential sources of superior performance. Of the five resource advantages, four of them are related to superior performance. **Operations & Design**, **Management & Labour**, **Customer & Dealer Loyalty**, and **Delivery Performance** contribute to developing superior performance. The results suggest that **Supplier Relationships** does not contribute to developing superior performance. A possible explanation might be that **Supplier Relationships** is not viewed as a source of competitive advantage, but a prerequisite for competing. As such it becomes a

strategic minimum, and offers no competitive advantage, though its absence means failure. Our results do not support Dyer's (1996) results, but his explanation might be suitable for the lack of correlation between **Supplier Relationships** and superior performance. He found a low significant positive correlation between supplier relationships and firm performance (Return on Assets as one of the performance indicators). He traces the low positive correlation to geographic concentration of suppliers. He argues that the more dispersed suppliers are, the more difficult it becomes for them to be efficient, hence the low positive correlation. Proximity, he further argues, facilitates the formal and informal dissemination of information and technology across the firms. Saxenian, (1994) claims that proximity greatly facilitates the collaboration required for fast-changing and complex technologies that involve on-going interaction, mutual adjustment, and learning.

The second interesting finding is that although the overall effect of resource advantages on superior performance is substantial (48 per cent, Figure 6.24a), the highest individual variance (F-value) on superior performance explained by these factors is 10 per cent (Figure 6.24b). This variance is explained by **Customer & Dealer Loyalty** and **Management & Labour**. The lowest individual variance (8 per cent) in superior performance is explained by the combined effect of the four measures. The good news for managers is that the results suggest that a positive increase in each of the four resource advantages would have a material effect on superior performance. However, as indicated earlier, the low correlation between the predictor and criterion variables shows that other factors are also related to superior performance. For example, the results of company reports analysis summarised in

Table 4.2, (Chapter 4), show that managers also attribute the causes of their success to restructuring, networks and strategic partnerships.

The third finding of interest concerns measures of superior performance. Although four of the five resource advantages have positive and significant effect on **Growth & Sales Volume**, their effect on **Profitability & Return on Assets** is positive but non-significant. This raises the question regarding the validity of **Profitability & Return on Assets** as an indicator of superior performance. Financial performance measures have also been used in strategy research (Rao, 1994; Robbins and Wiersema, 1995). One advantage of using financial performance measures is that they help consistency with other research that has been carried out in strategic management. In addition, the measures allow results of the analysis to be directly compared with a substantial body of work on related topics in strategy, thereby helping to make the research replicable and cumulative (Robins and Wiersema, 1995).

The lack of relationship between **Profitability and Return on Assets** and resource advantages, however, is not entirely unexpected, in light of the non-significant and mixed findings in prior strategy research. There are two possible explanations. First, it is important to realise that profit depends on many other factors that are exogenous to the firm compared with growth, hence we can expect less strong results. Second, it might be that managers do not always report profits correctly. Donaldson (1999) argues that managers under-report profits during good times and over-report profits during bad times. They do this to protect themselves.

7.1.2 Comprehension

Factor analysis obtained three components of **Comprehension: Knowledge, Applicability of intangible resources, and Applicability of capabilities**. This shows that managers in this industry did not view **Comprehension** as a unitary concept. As pointed out earlier, managers do not distinguish between different types of resources in terms of familiarity. When it comes to applicability of these strategic concepts, they then distinguish them in terms of applicability of intangible resources and applicability of capabilities.

The idea that resource advantages lead to improved organisational performance has been the subject of much theory. Little attention has been given to the effects of comprehension on the relationship between resource advantages and superior performance. The key objective of this study was to examine the role that **Comprehension** plays in the context of the relationship between resource advantages and superior performance. There is no previous empirical evidence to support our results. It should be noted that the concept of **Comprehension** developed for this study has never been used in any empirical study before. This study provides perhaps the first body of evidence that comprehension is indirectly related to superior performance. Hence, We therefore hope this exploratory study will be the beginning of more work on this important subject.

In this study, we provide some empirical evidence that **Comprehension** has both a direct effect and an indirect effect on the relationship between resource advantages and superior performance. Our hypothesis was that **Comprehension** moderates the relationship between resource advantages and superior performance. Results of MRA

and Subgroup analysis show that **Comprehension** contributes in developing superior performance in two distinct ways. First, MRA results show that **Comprehension**, defined as **Knowledge**, directly contributes to developing superior performance. The results show that **Knowledge** contributes to developing superior performance as a quasi-moderator variable when **Operations & Design, Management & Labour, and Customer & Dealer Loyalty** are predictor variables. These results partly support our hypothesis that **Comprehension** moderates the relationship between resource advantages and superior performance. These results suggest that managers with more resource advantages are more likely to have more knowledge of strategic concepts, thereby developing superior performance.

Second, MRA results show that **Comprehension**, defined as **Knowledge, Applicability of intangible resources, and Applicability of capabilities**, indirectly contributes to developing superior performance as an intervening variable when **Operations and Design, Management & Labour, Customer & Dealer Loyalty, and Delivery Performance** are predictor variables.

The findings that **Comprehension** has an impact on superior performance seem very reasonable. Indeed, we would expect firms with managers with more **Comprehension** to have more superior performance. The evidence that **Comprehension** mediates and/or moderates the relationship between of resource advantages and superior performance sheds light on the importance of managers in developing resources into potential sources of superior performance. The resource-based literature argues that superior resources lead to superior performance. The precept that **Comprehension** facilitates the development of superior performance has

gained wide recognition among practitioners (Han et al., 1998). However, the manner in which it helps remains somewhat unclear. Our study attempts to bridge that gap between superior resources and superior performance by showing how **Comprehension** contributes in developing superior performance. Our study directs attention to one of the linkages between superior resources and superior performance. It suggests, first, that firms with resource advantages enable managers to become more knowledgeable of the firm's strategic concepts, thereby contributing in developing superior performance. Second, the results suggest that apart from interacting with resource advantages, **Comprehension**, defined as **Knowledge**, contributes in developing superior performance. This further suggests that knowledge of strategic concepts is itself a strategic resource.

The value of this study is that it increases one's understanding with regard to the process that can explain why comprehension is related to superior performance. **Comprehension** is associated with superior performance, probably because it increases managers' understanding of strategic concepts and helps them to apply these concepts, which then leads to increased superior performance.

However, it should be noted that it cannot be concluded that comprehension influences superior performance. First, although the evidence is rather strong that the relationship between resource advantages and superior performance is mediated by comprehension, no casual inferences can be made on the basis of cross-sectional data. Second, the link between resource advantages and superior performance may be caused by other variable. Third, there are no valid indicators that resource advantages are the only indicators of superior performance.

7.1.3 Experience

Our hypothesis was that more experienced managers have a better comprehension of strategic concepts. The results of simple regression analysis and Chi-square test did not support this relatively straightforward hypothesis. This lack of support for our hypothesis maybe explained in two ways. First, on methodological grounds. The study was a cross-sectional one. Perhaps future research should examine the link between Experience and Comprehension over a substantial time period. As stated earlier, to our knowledge, there are no studies on Comprehension as we defined it in this study. An empirical study by Storey et al. (1997) showed that managers put considerable stress on the importance of experience in the development of managers. The second possible explanation is related to the composition of the respondents. The responses were dominated by those of managers who had been in the managerial position for over 6 years. Descriptive analysis shown in Table 5.19 (Chapter 5) show that 37 managers (31%) had been in the position for less than 6 years, and 83 (69%) had been in the position for over 6 years. Results of Chi-square and Scheffe tests show that managers who had been in the position for more than 6 years had less knowledge of strategic concepts than those managers who had been in the position for less than 6 years. It should be noted that these results are not suggesting that experience is not necessary in this industry. It should be recalled that the resource-based theory is a relatively new theory, and hence most of the managers who had been in the position for over 6 years might not have come across the concepts. The results seem to show that more experience in itself does not make someone more knowledgeable of strategic concepts. These results suggest that organisations should spend more resources on increasing knowledge of strategic concepts for those managers who have been in the position for over 6 years. This does not mean that

experience becomes obsolete quickly, but it might mean that, in a dynamic environment, managers have to be introduced to new ways of doing things constantly. One manager suggested that “Static experience is harmful to any organisation, so what is important is “evolving experience”, “new experience”, or “refreshed experience”. This would seem to suggest that time makes experience obsolete.

The results of MRA show that Experience indirectly contributes to developing superior performance. First, it contributes to developing superior performance as an antecedent variable when two of the resource advantages are predictor variables. Second, it contributes to developing superior performance as a pure moderator variable when two of the five resource advantages are predictor variables. These results seem to show that providing on-the-job experience benefits the organisation.

7.1.4 Training & Development

It should be recalled that we defined functional expertise as the ability to carry out managerial functions well. We further assumed that functional expertise is increased by management training and development. We therefore measured functional expertise only by the frequency of attending management training and development programmes, hence our usage of the term Training and Development. Our hypothesis was that managers with more functional expertise (as indicated by the frequency of attending management training and development) have more Comprehension of strategic concepts. On the contrary, the results show that managers who attended more training and development programmes had less knowledge of strategic concepts.

The results of simple regression analysis and Chi-square test indicate that **Training and Development** has a weak and negative effect on **Comprehension**. These results, although negative, however shed light on the contribution of **Training and Development on Comprehension**, which indirectly affects superior performance. These results are not very surprising because there are mixed results on both the value of management training and development, and the appropriate method of improving managerial performance. As we indicated earlier, this study is not an attempt to contribute to the controversies in management training and development, but we feel this might have a bearing on the negative and low correlation between **Training & Development and Comprehension**. Our objective was to investigate whether training and development had an effect on **managerial comprehension**. Organisation writers are not agreed as to the appropriate method of improving managerial performance. For this study, we looked for a theory that encompasses the concepts of education, training, development, and learning. Management learning seems to encompass these four concepts. Some organisation writers also support such a view. For example, Margerison (1991), identified five ways in which managers are trained or developed as:- formal programmes; learning from other managers; learning from other organisations; and self-development. Storey et al (1997) argue that training, development and education are some of the innumerable ways in which managers' performance can be improved.

Our results show that **Training & Development** has a negative impact on firm performance. A possible explanation for the negative effect is that those managers who had been in the managerial position for more than 6 years did not benefit from the training and development programmes. Another possible explanation might be it

is very difficult to separate the contribution of **Training & Development**. Burgoyne and Jackson (1997) observed two things regarding the contribution of training and development programmes. First, that within a corporate setting, it is hard to distinguish clearly between the contribution resulting from improved learning and other aspects of managers' work. Second, that it is similarly difficult to isolate the contribution of each method of management learning, such as training and development, outdoor management development, and natural processes of learning. This study concentrated on frequency of formal management development programmes. Hence it could be argued that although it had a limited view of management development, it shows that formal management development programmes are weakly and negatively related to organisational performance. There were statistical differences between those managers who had frequent training and development and those who did not have frequent training and development. Those who did not have frequent training and development had more knowledge of strategic concepts than those who had frequent training and development. Our results however do not confirm Fox and McLeavy's (1992) findings that showed a positive relationship between management development and superior performance. A possible explanation for the negative relationship between training and development programmes and knowledge of strategic concepts might be because these programmes do not focus on the relatively new RBV concepts. Most of the managers did not understand how to apply these strategic concepts.

The results of MRA and Subgroup analysis also show that **Training & Development** indirectly contributes to developing superior performance. First, it contributes to developing superior performance as an antecedent variable when three of the resource

advantages are predictor variables. Second, it contributes to developing superior performance as a pure moderator variable when one of the five resource advantages is a predictor variable. These results seem to show that training and development programmes benefit the organisation. One way of showing whether training and development programmes benefit an organisation is to look at the firm's performance. Although we are aware that several factors affect the overall firm's financial performance, our results show that training and development programmes are related to improved firm performance. Humble (1973) however argues that although managers may be given the right training, the problem is difficult to show that the new behaviour will last. Our study was a cross-sectional one. Probably, future work might evaluate the effectiveness of training and management development programmes in a longitudinal study. This might be a logical first step before more studies are done on why development programmes fail.

7.2 Theoretical Implications

It is interesting to note the impact of our measures of superior performance, **resource advantages, Comprehension, Experience, and Training & Development**. This research has identified eight theoretical implications. First, as regards measures of superior performance, the results show that some of the measures of superior performance are not valid measures of firm performance in this industry. Of the four performance measures, only two (Growth and Sales Volume) were found to be valid measures of superior performance. These results seem to suggest that other forms of performance indicators should be considered, at least in this industry.

There are, however, no agreed measures of firm performance. The irony is that in order to evaluate firm performance, performance requires a precise definition, how it is to be measured, when and by whom (Humble, 1973). A number of organisation writers criticise the use of financial performance measures. For example, Humble (1973) and Donaldson (1999) argue that when financial measures are used as performance measures, it becomes very difficult to separate the influence of such large forces as the growth of the economy, market conditions, and credit availability, and so forth. We believe this is even more difficult in a cross-sectional study.

The second theoretical implication is related to **resource advantages**. The results contribute to RBV of the firm. The results show that of the five resource advantages, four of them are related to superior performance. The low correlation between the predictor variables and the criterion variable does not really seem to matter, because other factors are also related to superior performance. What is important is that this study has shown that resource advantages are related to superior performance. These results also show that not all resource advantages contribute to developing superior performances. These resource advantages have the characteristics of resources that are sources of superior performance: rare, difficult to accumulate, imitate, substitute or transfer (Rao, 1994, and Peteraf, 1995). **Supplier Relationships** is one such resource. A possible explanation could be that suppliers in this industry are very fragmented and hence are not viewed as a source of superior performance.

Third, in terms of resource based theory, there is need to provide narrower definitions of concepts in order to aid understanding. The definition of **firm resources**, for example, is a too wide. When it comes to empirical studies operationalisation of such

terms becomes difficult. Appendix 1.1 shows the complex nature of the resource-based theory terminology. For research to be cumulative, it is necessary that future work be built on a similar foundation. This is difficult if concepts are complex.

Fourth, despite its potential importance, experience has received little attention to date. It has been largely ignored in both Strategic Management and Organisation Behaviour. The results support our hypothesis that **Comprehension** moderates the relationship between **resource advantages** and superior performance. The results show that **Comprehension**, defined as **Knowledge**, contributes to developing superior performance as a quasi-moderator variable when three of the resource advantages are predictor variables. These results seem to suggest that knowledge of strategic concepts is important in developing resources into sources of superior performance. **Knowledge** possesses the characteristics of a resource that is a potential source of superior performance. Like **resource advantages**, **Knowledge** is difficult to accumulate, imitate, substitute or transfer.

The results also show that **Comprehension** indirectly contributes to developing superior performance. **Comprehension**, defined as **Applicability of intangible resources** and **Applicability of capabilities**, contributes to developing superior performance as an intervening variable. More work needs to be done in order to improve managers' ability to apply both the firm's intangible resources and capabilities. **Applicability of intangible resources** and **Applicability of capabilities** possess the characteristics of resources that are potential sources of superior performance: difficult to accumulate, imitate, substitute or transfer.

Fifth, the results did not support our hypothesis that managers with more experience have more comprehension of strategic concepts. The results of simple regression analysis show that there is a negative relationship between **Experience** and **Knowledge**, suggesting that managers who had more experience had less knowledge of strategic concepts. There is need to provide more knowledge of strategic concepts to the more experienced managers.

The results of MRA, however, show that **Experience** indirectly contributes in developing superior performance. **Experience** is both an antecedent and pure variable. As an antecedent variable, the results seem to suggest that managers are likely to rate highly the contribution of their resource advantages in developing superior performance. As a moderator variable, the results seem to suggest that the identification and development of resources into sources of superior performance is influenced by managers' experience. **Experience** possesses the characteristics of resources that are potential sources of superior performance.

The sixth theoretical implication is related to **Training & Development**. The results of simple regression analysis did not support the hypothesis that managers with more training and development have more **Comprehension** of strategic concepts. Instead, the results show that managers who attended more training and development programmes had less knowledge of strategic concepts. These results suggest that both the design and implementation of training and development programmes should take into account the different levels of managerial levels.

The results of MRA show that training and development indirectly contributes to developing superior performance both as an antecedent variable and as a moderator variable. These results suggest that **Training & Development** is positively related to superior performance.

Seventh, there is need to develop measures to evaluate the effectiveness of management training/development programmes or management learning if investment in these programmes is to be justified. According to Humble (1973), assessing the long-term value of management training/development programmes is that although the behaviour of trainees may have changed by the end of the learning period, there is no guarantee that the behaviour will remain changed on the job. He further argues that even if the behaviour changes remain on the job, it may reflect the combined influence of training and other factors, or the behaviour changes could be entirely the results of other factors than training. This shows the importance of a unifying theory, like management learning. People learn through various ways, it is therefore unwise to expect a single theory to explain such a complex issue.

Eighth, there is need to develop a good theory of management training/development. As indicated earlier, at the moment writers talk of management training, education, development, organisation learning, action learning, and recently, management learning.

7.3 Managerial Implications

A number of managerial implications can be identified from this research. First, resource advantages are not automatically developed into superior performance. Managers have to understand how these resources are developed into superior performance. The results show that **knowledge** of strategic concepts contributes in developing superior performance. Managers found most of the strategic concepts difficult to apply. This seems to suggest that if managers find strategic concepts difficult to apply they can still use the resources but they cannot use such strategic concepts to assist them to develop superior performance. Thus a key in converting these resources into sources of superior performance might be to increase the applicability of these concepts. About 52 per cent (62) of the managers said they have on-going training programmes. This seems to suggest that despite the training they get, most of them still can not apply the concepts for the benefit of their organisations. Some organisation writers, for example, Mumford (1997), argue that if managers are not involved in developing the content of the development programmes they find these programmes unusable.

Second, the results of MRA show that resource advantages have varying potential for developing superior performance. What this means is that the protection of resources should be proportional to their power to develop superior performance. For example, the results in Figure 6.24 show that **Customer and Dealer Loyalty** contributes most in developing superior performance. Descriptive statistics (Table 5.13) show that **Product quality, Product reputation, and Product design** contribute most to developing superior performance. This suggests that managers should build their strategies on resources that are difficult to imitate, durable, and are difficult to

substitute. Managers should also balance the protection of valuable resources with the development of new ones.

Third, this study has shown that **Experience** is related to superior performance, but not to **Comprehension**, as hypothesised. In terms of superior performance, the results of MRA show that **Experience** indirectly contributes to developing superior performance as an antecedent variable. Our results show that **Experience** increases the contribution of resource advantages in developing superior performance. This is good news for organisations. The results also suggest **Experience** contributes to developing superior performance indirectly (as a moderator variable) and directly (as a directly (as a quasi-moderator variable).

In terms of **Comprehension**, the results show that managers with more experience have less **knowledge (Comprehension)** of strategic concepts. As indicated earlier, these results are not very surprising because the RBV is a relatively new theory. This seems to suggest that those managers with more experience need to be exposed to the strategic concepts in this industry. One way of increasing the knowledge of the experienced managers could be covering the strategic concepts in training and management programmes.

Fourth, this study has shown that **Training & Development** is positively related to both superior performance and negatively to **Comprehension**, defined as **Knowledge**. In terms of superior performance, the results of MRA show that **Training & Development** indirectly contributes to developing superior performance as an antecedent variable. As a quasi-moderator, the results show that firms with

more superior performance were those with managers who attended more training and development programmes. This too is good news for organisations.

However, in terms of **Comprehension**, the results of simple regression analysis show that managers who attended more training and development programmes had less **knowledge** of strategic concepts. These results seem to suggest that frequent training and development programmes do not benefit the organisations in this study. A possible explanation might be the content of the training and development programmes is not suitable for the experience managers. In a study of senior managers, Mant (1970), recommended that training of managers should be related to their experience. His definition of an experienced manager is:

a man who has probably had at least five years in management and has reached his position largely through success in jobs below his current one.

Fifth, **Review Processes** indirectly contributes to developing superior performance both as a mediating variable and as a moderator variable. The results of MRA summarised in Table 6.25 show that **Review Processes** have varying positive effects on superior performance.

Sixth, strategy requires managers to look forward as well. Companies that are fortunate enough to have truly distinctive competence must also be wise enough to realise that its value is eroded by time and competition (Collis and Montgomery, 1995). Hence the importance of constantly reviewing product attributes and product strategies. Managers must therefore continually invest in and upgrade their resources, however good they are today. There are two advantages of reviewing strategies constantly. First, changes which have occurred are quickly identified, for example,

changes in customer care, changes brought by regulation, and changes brought by economic movements. The second advantage of constantly reviewing strategies is that it identifies changes that will occur if different strategies are pursued.

7.4 Limitations of the Study and Future work

The interpretation of these results must obviously be affected by the realisation that this study has limitations. The first limitation regards the use of financial performance measures. As indicated earlier, some organisation writers, for example, Donaldson (1999) argue that financial performance measures do not reflect the true performance of the firm. Thus, future work could use such performance measures like market share, customer loyalty, customer satisfaction, and customer franchise.

Second, our findings should be considered in light of a single-industry and a cross-sectional study. In critique of a cross-sectional study, Mosakowski (1993) argues that the timing of the returns of particular resources will be complicated by many factors, all of which may change over time. In his view, a firm's early source of less superior resources may grow over time, such that a small lead may escalate into a source of superior performance. In addition, the returns generated by a resource will depend on conditions in a firm's competitive and general environment.

Although focusing on a single industry allows us to control extraneous variation and create accurate, context-specific measures, it limits generalisability (Dyer, 1996). It is therefore unclear if the results will generalise to samples from other industries. The present study was carried out in only one industry, and in one developed country. It

would be interesting to carry out a similar study in a different developed country. Alternatively, in-depth case studies may be carried out in different countries to get a deeper understanding of the relationships identified by the survey. Such a study would also avoid the use of a single information source.

The third limitation is that the sampling technique used only looked at successful firms. Although the theory on which the study is based looks at successful firms, it would be interesting to see the responses from less successful firms. One must therefore be cautious in making generalisations about firms that do not meet the basic sampling criteria that were specified. Probably, future work could look at a balanced sample, for example, by using a stratified sampling procedure.

The fourth limitation is that the definitions of some constructs are not clear. Future work might try to refine the constructs and operational definitions of resource advantages. In the present study, for example, five factors from nineteen different items, were used as measures of resource advantages. The constructs of Training & Development and Experience too need to be improved. For example, "Ongoing" is not a clear measure of the frequency of Training & Development. Managers could be asked whether their training & development covers specific things related to the resource-based view of the firm.

The fifth limitation is that the resource advantages fail to isolate the contribution of other factors that improve organisational performance. The resource advantages only explain 48 per cent of the variance in superior performance. Other factors account for the remaining 52 per cent of the variance in firm performance.

The sixth limitation concerns the method of data collection. It is argued that in a survey questionnaire method it is difficult to control bias (artifact bias) in respondents (Greenley, 1999). There are several sources of artifact bias. It could be the design of the questionnaire, or the bias resulting from respondents trying to give the answers they think the researcher is looking for. Following the TDM in designing the questionnaire, we took steps to reduce the bias originating from questionnaire design. It is argued that a properly constructed questionnaire also reduces the chances of respondents trying to give the answers they think the researcher is looking for (Foddy, 1992). According to Greenley (1999), the problem with artifact bias is that it makes it difficult to verify the responses given by respondents, especially when the independent and dependent variables are measured with the same people, through the same people, a problem referred to as common method variance. This view is also shared by Campell and Fiske (1959), Fiske (1982).

The seventh limitation of this study was that the responses were dominated by those of senior managers. As indicated earlier, 103 (86 per cent) respondents were senior managers; 14 (12 per cent) were middle managers; and 3 (1 per cent) were junior managers. One would argue that the responses might have been different if there were a proportional response. It is possible that our sample, which had relatively a high number of managers who had been in the managerial position for more than 10 years, might have been biased. The strategic concepts covered in this study are from a relatively young theory. This might mean that managers who had been in the position for longer than 10 years might not be aware of the concepts. It is likely that those managers who had been in the managerial post for less than 6 years are younger, and had come across the concepts at higher educational institutions. If many are not

highly educated, for example up to MBA level, one might assume that they are not aware of these concepts. In fact, one of the respondents in the two pilot studies (which incidentally were carried out on MBA students) commented on the level of the concepts. He said, “----unless one is highly educated, the concepts are very difficult to understand”. Future research might investigate how these concepts are understood in a balanced sample, probably in a stratified sample. Even the managerial language used in company reports is mainly that of the Chief Executive Officers. The pilot testing too should be carried out to MBA students. A few firms could be selected to test the draft questionnaire.

7.5 Conclusion

Even with these limitations, however, this study contributes to our understanding of **managerial comprehension, Experience and Training & Development**. No work had been done on how these separate factors influence each other. As such, we developed an integrated model to investigate the ways in which they work together. Our development and testing of this integrated model begins to draw together literature that has been diffuse to date. An important lesson of this study is the importance of the appropriate tools of analysis. Using MRA and Subgroup analysis, we identified a large number of specification variables. As discussed in Chapters 1 and 2, a core element of resource-based perspective is the proposition that superior resources significantly contribute to performance differences among organisations because they are rare, socially complex, and difficult to trade and imitate (Itami, 1987; Barney, 1991; Amit and Schoemaker, 1994; Rao, 1994; and Peteraf, 1995).

The results of this study make an important contribution to theory building. We have shown that not all resource advantages contribute to developing superior performance. Of the five resource advantages, only **Supplier Relationships** does not contribute to developing superior performance.

A significant contribution this study makes to the literature was the examination of the effects of different specification variables on the relationship between resource advantages and superior performance. The findings show that **Comprehension** contributes to developing superior performance as an intervening variable, and as a quasi-moderator variable. The results of MRA also show that **Experience** and **Training & Development** both indirectly and positively contribute to developing superior performance. In terms of **Comprehension**, the results of simple regression analysis show that managers with more experience have less knowledge of strategic concepts; and that managers who attended more training and development programmes had less knowledge of strategic concepts. The fact that there are low correlations means that there are other factors related to superior performance. As indicated, the results show that although resource advantages are related to superior performance, they are part of the many forces that develop firm superior performance. No single factor then is likely to have much impact on firm performance on its own (Child, 1975; Donaldson, 1999). As Mosakowski (1993) argues, understanding how managers help in the development of resources into potential sources of superior performance may be more important than understanding the long-run stable level of returns. We feel our results represent an important step in the process of building empirical support for a very important contemporary body of theoretical work on strategic management.

The results also show that both **Experience** and **Training & Development** negatively affect **Comprehension** itself. This study represents a first step toward our understanding of **managerial comprehension**. However, more work is needed to understand the ways in which individual influences combine to create managerial comprehension. The results show that more complex and potentially useful models of examining mediating/moderating effects must be considered. The typology in this study suggests that future work on the relationship between **managerial comprehension** and **resource advantages** research and theory building should carefully distinguish among the types of specification variables. Failure to distinguish among the specific nature of variables makes communication among researchers difficult. The methods of identifying each type of specification variable used in this study should increase the comparability of future mediator/moderator research and should result in a more organised accumulation of knowledge.

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Appendix 1.1 Terminology related to RBV

The resource-based literature has a large diversity of labels and definitions of closely related concepts. As stated in Chapter 1, this is mainly because the RBV theory does not displace traditional models, but actually builds on them (Collis and Montgomery, 1995). Hence, the RBV terminology comes from several disciplines, for example, economics, organisation theory, and organisation behaviour.

ASSETS

- Something that your firm possesses that is superior to the competition (Aaker, 1989).
- Inputs required to implement a given strategy. There are two types of assets: **asset stocks and asset flows** (Dierickx and Cool, 1989).

Asset stocks are a cumulative result of adhering to a set of consistent policies over a period of time.

Asset flows are related to spending

- Things that a firm owns or has (Hall, 1992)
- Resource endowments the business has accumulated and are sources of advantage (Day, 1994).

Intangible Assets

- That what adds to the company's economic value (Johnson and Kaplan, 1987).
- Things that a firm owns or have (Hall, 1992).

Invisible Assets

- Are what causes resources to be unique and casually ambiguous (Mahoney, 1995).

Strategic Assets

- Set of firm-specific resources and capabilities (1) which are difficult to imitate; (2) which are scarce, durable, and with few substitutes, and (3) whose returns are appropriable to the firm (Amit & Schoemaker, 1993).

Strategic or Critical Asset Stocks

- Those assets which are non-tradeable (that cannot be acquired in the market and need to be built), non-imitable, and non-substitutable (Dierickx and Cool, 1989).

CAPABILITIES

- These are services of resources, i.e., refers to function or an activity (Penrose, 1959).
- What a firm can do a result of teams of resources working together (Grant, 1991).
- A capability is a set of business process strategically understood (Stalk et al., 1992).
- There are a company's proficiency in the business process which allow it to constantly distinguish itself along the dimensions that are important to its customers (Bartness and Cerny, 1993).
- Refer to a firm's capacity to deploy resources, usually in combination, using organizational processes, to effect a desired end (Amit and Schoemaker, 1993).
- They are complex bundles of individual skills, other output factors, assets, and accumulated knowledge exercised through organizational processes, that enable firms to co-ordinate activities and make use of their resources (Day, 1994; Shulze, 1994).
- Capabilities are a company's proficiency in the business process, which allow it to constantly distinguish itself along the dimensions that are important to its customers (Amit and Shoemaker, 1993).

Core Capabilities

- Capabilities are considered core if they differentiate a company strategically. Other authors refer to them as distinctive competencies, organizational competencies, firm-specific competencies (Leonard-Barton, 1992).
- Unlike a product, a core capability (or competence) is not a stand-alone sellable service or commodity (Schoemaker, 1992).

Cultural Capability

- Incorporates the habits, beliefs and values, which permeate the individuals and groups which comprise the organisation (Hall, 1992).

Distinctive Capabilities

- Is a form of the organizational character definition that are originated in the commitments that have been accepted in the course of adaptation to internal and external pressures (Selznick, 1957).
- Capabilities that are superior and support a market position that is valuable and difficult to match, allowing the firm to outperform competition. They provide a disproportionate contribution to customer value, resist imitation, and are robust (Day, 1994).

Functional Capability

- Refers to the ability to do specific things. Results from the skills and experiences of employees, suppliers, distributors, etc. Collis (1994) refers to functional capability as static capability (Hall, 1992).

Organizational Capabilities

- They refer to the managers' proficiency in understanding principles and applying processes consistent with the principles for managing people for competitive advantage (Ulrich and Lake, 1991).
- It is the ability of firms to perform an activity more effectively than competitors with otherwise similar resource endowments. There are three types of organizational resources: **static, dynamic, and functional** (Collis, 1994).

Static capabilities refer to the ability to do specific things.

Dynamic capabilities refer to those capabilities that share the common dynamic improvement to the activities of the firm.

Functional capabilities concern those capabilities that enable the firm to recognise intrinsic value of other resources or capabilities that enable the firm to develop creative strategies before competitors.

- Include the skills of middle and top management, and those of lower management and the work force; and the facilities of production and distribution acquired to exploit fully economies of scale and scope (Mahoney, 1995).

Positional Capability

- Results from past actions that have produced certain reputation with customers (Hall, 1992).

Regulatory Capability

- Results from the possession of legal entities, such as intellectual property rights, contracts, trade secrets (Hall, 1992).

COMPETENCIES

- Competence is the potential to solve tasks that need to be solved. Competence encompasses the collective resources built into technologies, routines, planning and problem solving mechanisms, organizational structure, products and services (Roos, and Krogh, 1992).
- Things that a firm does (Hall, 1992).
- The glue that brings the assets together and enables them to be deployed advantageously. Cannot be given a monetary value, and are deeply embedded in the

organizational routines and practices, so they cannot be traded or imitated (Day, 1994).

Core Competencies

- They are the collective learning in the organization, especially how to co-ordinate diverse production skills and integrate multiple stream technologies. An integrated collection of skills that should be difficult for competitors to imitate (Prahalad & Hamel, 1990).
- Core competence be thought of as a purposive combination of firm-specific assets(resources) which enables it to accomplish a given task (Teece, 1991).
- Represents a combination of the tangible and intangible assets held by the firm (Collis, 1991).
- Refer to a synthesis between tasks and knowledge systems (Roos and Krogh, 1992).
- Core competence emphasizes the technological and production expertise at specific points along the value chain (Stalk at al., 1992).
- Core competence refers to what a firm is able to perform with excellence compared to competitors (Gronhaug and Nordhaug, 1992).
- Those capabilities of an organization that span and support multiple lines of business (Day, 1994).
- Core competencies can be viewed as the pool of experience, knowledge and systems, etc., that exit elsewhere in the same corporation which can be deployed to reduce the cost or time required either to create a new, strategic asset or expand the stock of an existing one (Markides & Williamson, 1994).

Distinctive Competencies

- It is a form of the organizational character definition that are originated in the commitments that have been accepted in the course of adaptation to internal and external pressures (Selzinck, 1957).
- Is more than what a company can do, it is what a firm can do particularly well (Andrews, 1971).

COMPETITIVE ADVANTAGE

- It is the positional advantage in terms of lower cost or differentiation vis-a-vis competitors, at a given moment in time (Porter, 1985, 1991).

SUSTAINABLE COMPETITIVE ADVANTAGE

- It is a competitive advantage that is not easily replicated or eliminated, that can be maintained over a certain period of time, and therefore, is the origin of a firm's superior performance (Anonymous, 1995).

RENTS

- Rents can be broadly defined as the difference between returns and the opportunity costs of resource. For example, if a firm hires a manager for £ 90,000 a year, and the manager “produces” £ 190,000 for the firm, then the firm is earning £100,000 in rents from this resource (Anonymous, 1995). There are two types of rents concerned with superior performance: Economic/Ricardian rents and Monopolistic rents (Peteraf, 1993).
- **Economic Rents** is the excess return of a resource over its opportunity cost, i.e., the payment received above and beyond the amount necessary to retain, or call the resource into use (Rumelt, 1987).
- **Ricardian Rents** refer to excess returns due to efficiency differences between resources of the same type (Anonymous, 1995).
- **Monopolistic Rents** result from the deliberate restriction of output. Only monopoly rents based on the heterogeneity of firm resources are expected to be sustainable over time (Anonymous, 1995).
- **Organizational Rents** are economic rents that stem from the organizational resources and capabilities, and that can be appropriated by the organization (Amit and Schoemaker, 1993).

RESOURCES

- Anything which could be thought of as a strength or weakness of a given firm. More formally, it refers to those assets (tangible or intangible) which are tied semi-permanently to the firm (Wernerfelt, 1984).
- Strengths that firms can use to conceive of and implement their strategies. Can be classified into three categories: physical capital, human capital, and organizational capital (Barney, 1991).
- Inputs used to produce a product (Conner, 1991).
- Inputs underlying production (Peteraf, 1993).

- They are stocks of available factors that are owned or controlled by a firm (Amit and Schoemaker, 1993).
- Include all assets, capabilities, organizational processes, information, knowledge, reputation, etc. (Helfat, 1994).
- They consist of a bundle of potential services and can, for most part, be defined independently of their use, while services cannot be so defined (Mahoney, 1995).
- May be physical, intangible, or organizational capability (Collis and Montgomery, 1995).

Intangible Resources

Non physical resources (assets and competencies) that are the sources of relevant capacity differentials (Hall, 1992).

Normal Resources

- Are those resources that are only able to generate normal returns, i.e., returns similar to their opportunity costs, or similar to what was expected by the previous owners of the resources (Barney, 1991).

Strategic Resources

- Refers to superior assets and distinctive capabilities (Day and Wensley, 1988, 1994).
 - Inputs that are valuable, unique or costly-to-copy resources. In other words, inputs able to generate rents, especially long-lived rents (Conner, 1991).
- Are those firm-specific resources (especially assets and capabilities) that are valuable, scarce, imperfectly imitable, non-substitutable, and therefore able to generate rents (Barney, 1991).
 - Are the set of difficult to trade or imitate, scarce, appropriable and specialised resources and capabilities that bestow the firm's competitive advantage (Amit & Schoemaker, 1993).

Strategic System Resource

- It is a socially created complex network comprised of tradeable and non-tradeable factor stocks and flows and their relationship with each other (Black and Boal, 1994).

Superior Resources

- Tangible requirements for advantages that enable a firm to exercise its capabilities (Bharadwaj and Varadarajan, 1993).
- Those resources, limited in supply, that allow firms to earn rents, i.e. abnormal-returns (Peteraf, 1993).

SKILLS

- Something that a firm does better than competitors (Aaker, 1989).
- Systemic property that involves both human skill and organizational factors. Skills are dynamic in nature. There are four types of skills: **raw skills, dedicated skills, core skills, and metaskills** (Klein et al., 1991).

Raw Skills are skills in their raw state that can be acquired externally, and have never been applied to the organizational business.

Dedicated Skills are raw skills applied to a particular project or product.

Core Skills are strategic combinations of dedicated skills, but not bound up with a project. They are achieved through learning, and must be applied to specific projects through innovation.

Metaskills are those skills involved in managing the skill lifecycle (i.e. the transformation of raw skills into dedicated skills, then into core skills, and the application of core skills to new projects). They are about behaviour rather than knowledge.

Distinctive Skills

- Distinctive capabilities of a firm's personnel that set them apart from the personnel of competing firms (Day & Wensley, 1988).

Appendix 3.1 Annual Company Reports

Differentiating Causes of Superior Performance

Do academics and practitioners use the same terminology when they talk of sources of superior performance, which leads to success? To answer this question we analysed 55 annual company reports of firms in the Motor Vehicle Manufacturing Industry. Of these 30 were based in the U.K, 25 in the USA. The quotes below were copied from these reports, and show to what organisations attribute their sources of superior performance. The first group of quotes are from UK firms.

3.1 U.K MANUFACTURING INDUSTRIES (30)

3.1.1 Organisations thrive to fulfil customer needs

Organisations (18) made remarks on the need to satisfy customer needs. The quotes below contain these remarks.

"What is perhaps the most important factor for (Organisation's) success is the precession and speed with which we anticipate and deal with changes in customer's demands."

(Organisation) "calls on sophisticated management, development planning and execution skills to carry out the customer's mandates successfully."

(Organisation) "managed to maintain domestic sales by (amount) by identifying and satisfying customer needs and addressing market trends."

"All in all we are continuing to work on setting up our structures in such a way that we can react more rapidly, more efficiently, and more forcefully to the requirements of, and changes to the market."

"The efficiency and customer-orientation of (organisation) was instrumental in assuring the company's success."

"Today the creativity and innovative strength of the global (organisation' s) structure ---are geared even more to customer requirements----."

(Organisation) "is dedicated to creating automobiles that please its customers. We look forward to the continued support of our customers -----"

"We will continue to strive to create a unique and diverse line of automobiles that meet customer's demands for improved quality, safety, and comfort."

"We will continue to promote our strategy of meeting customer needs and preferences around the world ---."

"In the area of marketing, we remain committed to continually enhancing customer value."

(Organisation) "can build on the strength of an extensive network of offering a broad range of services to car owners."

"The customer forms the focus of our efforts."

"We recognised that we have to make substantial improvement in the quality of service we offer to our customers if we are to retain their loyalty ----."

"The formulation throughout the corporation of small units close to the market and with a high degree of responsibility has noticeably improved the flexibility of our organisational structures."

"Our focus on customer service will enable us to provide satisfaction to our customers".

"Our quality, customer service and dedication to investing wisely for the long-term will continue to position (Organisation) as one of the world's truly great engineering companies."

"Satisfying customers' needs is the most important requirement for survival in a competitive world."

"To remain competitive, we need to improve our customer service, product quality, delivery times and innovations."

3.1.2 Products are a potential source of superior performance

Organisations (13) made remarks on the importance of products. The remarks are in the quotes below.

(Organisation) "strove to improve product lines and expand sales."

"We have been trying to make products that meet customer needs."

"Our wide range of products --- allows us to offer the comprehensive mobility ---".

(Organisation) "had an aggressive product development."

(Organisation) "will continue to broaden its product base and pay even more attention to what customers really want."

"We continued to develop unique, high-quality products --".

"We will continue supplying high value-added products ---".

(Organisation) "continued to renew its product line."

"The key to our future success lies in our ability to bring new and competitive products to the market-place."

"We have made great efforts to heighten the appeal of our products and increase sales."

"We offer top-quality, competitively priced products backed by comprehensive service."

"Several (Organisation)'s companies have well-deserved reputations for designing and manufacturing innovative products."

"We have the most attractive product line in our industry."

"We increased our efforts to improve product quality - by reinforced application of the Continuous Improvement Process."

3.1.3. Restructuring was seen as a source of superior performance.

Organisations (15) made remarks on the importance of restructuring. The quotes below show these remarks.

"A major restructuring resulted in an increase of (amount)."

"We have restructured many of our divisions."

"Increased efficiency and flexibility resulted from the completion of a sweeping process of organisational change and restructuring."

(Organisation) "broadened the scope of delegation, simplified control procedures and redesigned the structures and operating mechanisms of the organisation."

"The ultimate objective of our restructuring program is to create a corporate body that will maximise earnings".

"The new organisational structures established for manufacturing operations and will lead to a further reduction in the cost base, thereby enhancing (organisation's) competitiveness".

"The new organisational framework means that design is process-driven, with process engineering playing a guiding role right from the design stage."

"The major restructuring program is nearing completion and should increase our performance."

"The business moved forward purposefully and most divisions reported improved profitability, taking advantage of the leaner structure and new culture introduced a year earlier."

"We have carried out a significant restructuring of (Organisation's) head office and dealership management in order to reduce operating costs and bring management closer to our customers."

"Our much improved results could not have been achieved without substantial restructuring of an competitive operations or businesses."

"Globalization and restructuring have become permanent factors for success in (Organisation)'s strategy".

"Non-core businesses and assets were sold during the year, and we will continue to sell businesses or assets which are peripheral to our mainstream activities."

"We combined three divisions under a single management."

"Now that we have simplified our structures and refocused on our core businesses, we can see our future clearly."

3.1.4 Success resulted from a committed workforce.

Below are quotes showing remarks from organisations (15) about the importance of the workforce.

"With our strongly motivated employees we achieved highly attainable objectives."

"Throughout the year (organisation) has developed invaluable know how and an enviable pool of experts".

"We have implemented career planning and successor identification programs - to recruit, develop and retain management team of very high professional calibre."

"---- thanks to their know how and willingness to work, our employees laid foundations for a good future."

"----- and we depend on the commitment of our employees who share our objectives."

"At the same time, the strong commitment of all (organisation's) team members will help maintain manufacturing efficiency and flexibility in a period of erratic and unpredictable demand."

(Organisation) "places particular emphasis on teamwork and effective co-operation among its staff members."

"It is the company's personnel, their skills and their know-how that have made (organisation) what it is today."

"Success resulted from participative management and workforce."

"We have a strong management team".

"A great sense of togetherness is one cause of our rising morale."

"The positive result for the year under review was mainly achieved because of the extraordinary efforts and commitment of our employees throughout the world."

"(Organisation)'s continuing success is an unequivocal tribute to the dedication, commitment and hard work by management and all employees."

"I would like to thank employees world-wide for their hard work."

"We can count on our 9,000 team members in 130 countries and our very high quality management to provide a convincing response in a complex and global marketplace."

3.1.5. Superior performance resulted from low-cost development strategies.

Below are quotes showing the remarks of organisations (11) on cost structures.

"The sole reason why we were able to take advantage of the trend to such an extraordinary degree is that we created the necessary conditions in terms of cost structures, productivity, and --strategy."

"At the same time, the creativeness and initiative of the company's workforce and suppliers will be used to achieve further cost reductions."

"----we are also implementing low-cost development strategies to enhance our competitiveness".

"We have created a slimmer fixed cost structure."

"Actions taken to improve efficiency and reduce costs throughout the company resulted in ordinary income of (amount), the highest level to date."

"The programs carried in prior years to cut production costs were pursued. Also reduced were administrative costs, technical costs, purchasing costs --."

"The measures we are taking are making (organisation) a more cost-competitive manufacturer, more aggressive marketer."

(Organisation) "continues to pursue training, cost reduction and continuous improvement programmes."

"We have carried out a significant restructuring of (organisation's) head office and dealership management in order to reduce operating costs ---."

"Tighter control of costs has enabled us to pursue a more flexible pricing policy of our own".

"We have improved our cost structure, and we have become a more efficient and responsive organisation."

3.1.6 Supplier and dealer networks are sources of superior performance

Organisations (11) made remarks on improved supplier and dealer networks. The quotes below contain these remarks.

(Organisation) "will continue to broaden its product base and - in close liaison with the dealer network -in order to continue to succeed."

"The creativeness of our suppliers, our workforce and our dealer network is sure to make us more efficient."

"----purchasing strategy in 1994 was also focused on integrating suppliers --."

"In another initiative, we have begun reinforcing our dealership to enhance the company's sales capabilities ---."

"Our Parts Operations achieved record revenues, better productivity and our service levels to our dealers improved."

"The cost reduction policy led to the widespread introduction of joint productivity enhancement plans over the last three years."

"--the solid partnerships established with suppliers will lead to a further reduction in the cost base, thereby enhancing (organisation's) competitiveness."

"We had already recognised the need to change the way we operate our dealerships to improve significantly the quality of service we give our customers, and thus gain market share, particularly of the profitable after-sales market."

"We are expanding sales of certain vehicles through multiple channel, as well as discussing with dealers the possibility of closing those not doing well."

"We also create value in our relationship with customers, employees, suppliers and the community in which we operate."

"Our core competencies are electrical distribution and industrial control."

3.1.7 Manufacturing efficiency, adaptability and flexibility lead to superior performance.

Organisations (7) made remarks on manufacturing efficiency, adaptability and organisational flexibility. The remarks are quoted below.

"At the same time, the strong commitment of all (organisation's) team members will help maintain manufacturing efficiency and flexibility in a period of erratic and unpredictable demand."

(Organisation) "continues to pursue training, cost reduction and continuous improvement programs"

"The continuous improvement process should remain an integral part of our operations."

"To an increasing degree (organisation) as a company must also come to present customer orientation, the ability to adapt, and flexibility."

"We aim to ensure (organisation's) adaptability in the face of great changes in its operating environment."

"Increased efficiency and flexibility throughout the corporate system were served by the third objective - organizational change and restructuring."

"The formulation throughout the corporation of small units close to the market and with a high degree of responsibility has noticeably improved the flexibility of our organisational structures".

3.1.8 Success resulted from the use of the organisation's resources.

Below are remarks from organisations (10) on resources.

"The mobilization of resources within the framework of the (organisation) action program during the past three years has yielded results."

(Organisation) "pools the necessary resources to provide the best products in a framework ~ optimization is key."

"The enhancement of our competitive capability also requires a steady improvement in the organisation and management of our human resources."

(Organisation) "decided to concentrate a maximum of its energy and resources on those sectors in which it has the best chances of holding its own against increasingly fierce competition."

"By streamlining work processes, (organisation) will be able to allocate its resources far more efficiently."

"The focus on innovation and training in human resources management will become more important if we are to continue to succeed."

"Our corporate strategy identifies an appropriate competitive position and then focuses virtually all the corporation's resources on attaining and holding that position."

(Organisation) "has maintained its policy of investing significant resources in research and development and advanced engineering applications".

"The philosophy of continuing the development of (organisation)'s significant resources will enable us to provide satisfaction to our customers through the years ahead."

3.1.9. Strategic partnerships lead to superior performance.

The quotes below show remarks from organisations (9) about strategic partnerships.

"We therefore attach the greatest importance to expanding our long-term co-operative arrangements with partners around the world."

(Organisation) "co-ordinated new development of and production processes in close co-operation with partners - centred around growing customer expectations in respect of the quality, safety ---."

"Through co-operative relationships with other automakers, (organisation) is expanding its global presence and improving its competitiveness."

"Throughout our overseas activities, we will continue our strategy of selecting competing and co-operating with local automotive companies for the benefit of local communities."

"I firmly believe that the acquisition of (company), along with successful joint ventures such as (company) place (organisation) in a much better position to compete in this changing environment."

"If (organisation) is to be a competitive company,---it must form strategic partnerships with other companies."

(Organisation) has entered into a collaborative agreement with (company) to supply engines for (company)."

(Organisation's) "subsidiaries continued to emphasise customer partnership programmes which have been underpinned by our dedication to "best in class" quality, delivery and service."

"We formed several joint ventures with national partners."

3.1.10 Organisational capabilities are sources of superior performance.

Reproduced below are remarks from organisations (8) on capabilities.

(Organisation) "relies on sound and advanced capabilities : such as product design and development, mechanical engineering, assembly and distribution techniques."

"Our future rests on our manufacturing capabilities-----".

(Organisation) "strengthened its capabilities in all areas including research and development, production, sales and service."

"We will continue supplying high value-added products backed by our reliable technology and superior product development capabilities."

(Organisation) "confirms its strengths in auto design, striking out in new directions."

"We have strengthened our marketing capabilities - we are working to improve the performance and quality of our sales channels."

"We shall maintain and strengthen our core expertise in development, production, logistics, and in sales and marketing."

3.1.11 Technology leads to superior performance.

The quotes below from organisations (4) show remarks on the importance of technology.

"Success depended on advances in car technology."

"We continued to develop unique, high-quality products that incorporated the latest technological advances."

"We will continue supplying high-value added products backed by our reliable technology -".

"With outstanding technological skills,(organisation) is a world leader in its chosen products fields---.. Our new engines benefit from our technological strengths and incorporate the features of quality, reliability and value for money expected of (organisation) products".

3.1.12 Innovation is a source of superior performance.

Organisations (3) made remarks on innovation as a source of superior performance.

"-----the measures we are taking are making (organisation) a more innovative developer ---."

"The focus on innovation and training in human resources management will become more and more important----."

"Numerous product innovations as well as customer oriented service strategies were the key features."

3.1.13 Engaging in core business is a source of superior performance.

The remarks below show how organisations (2) view core business as a source of superior performance.

"The development of core businesses therefore entails a strategy of continually improving our structural competitiveness".

"The focus on core businesses --- resulted in large capital gains."

3.1.14 Assets are a source of superior performance.

The quote below shows how one organisation values its assets.

"The company personnel is a heritage that constitutes one of our strongest assets of the future."

3.1.15 High barriers to entry are sources of superior performance

The quote below shows how one organisation values barriers to entry.

"Both groupings of (organisation) contain excellent businesses with strong market positions, high barriers to entry."

3.1.16 Management is a source of superior performance

The quotes below show how organisations (2) see management as a source of superior performance.

"---the high calibre of the management at many of our companies is becoming apparent too."

(Organisation's) "continuing success is an unequivocal tribute to the dedication, commitment and hard work by management and all employees."

3.1.17 Success came from acquisitions

Organisations (3) achieved superior performance through acquisitions. The quotes below contain these remarks.

"But to achieve sufficient scale in some of our core businesses. (Organisation) will have to grow by acquisitions as well as organically."

(Organisation) "has taken the opportunity to strengthen our manufacturing, marketing and engineering base with the four acquisitions within Europe."

"We formed new companies and extended business activities through acquisition."

3.1.18 Observations From The U.K. Annual Reports

None of the reports made remarks on the following terminology

- Competencies
- Distinctive Competencies
- Core Capabilities
- Distinctive Capabilities
- Strategic Resources
- Strategic Assets
- Isolating Mechanisms
- Resource Barriers

3.2 U.S.A MANUFACTURING INDUSTRIES (25)

3.2.1 Several product introductions increased revenues

The quotes below from organisations (12) contain remarks on the importance of several product introductions.

"How we got from there to here and from then to now is a matter of record outstanding new products, and continuous improvement is the cornerstone of (Organisation)' s product development strategy".

"Several successful product introductions and product line acquisitions also increased revenues."

"Our emphasis was on top-line growth through product development, efficiency improvement and cost control."

"Our progress came from continuing the steady application of customer-led quality efforts achieved through lowering prices on new products to meet competition."

(Organisation) "carried out a product and price realignment on its light commercial vehicles."

"We focused on more resources based on proven New Product Program."

(Organisation) "has been particularly pleased with the response to the company's new product introductions."

"The pace of new product introductions continued to increase in fiscal 1995--."

"Our core competencies include components, products and systems".

"We accelerated the introduction of new products and services to help customers gain competitive advantage."

"We made modifications and improvements to match today's demands".

"We have managed to introduce products that will have a positive impact on the environment."

3.2.2 Technology is recognised and managed as a strategic resource

The quotes below from organisations (5) contain remarks on the importance of technology.

"As far as technology is concerned we are stimulating innovation through centres of excellence."

"----and the proper harnessing of technology continue to be the key input to our strategy."

"Technology is recognized and managed as a **strategic asset** and (organisation) has a strong technological reputation."

"We have strategic advantages in the development of new technologies, redirection of existing technologies and the combination of technologies in innovative ways."

"We made considerable progress during the year developing new technologies to achieve the product differentiation."

3.2.3 Supplier relations are sources of superior performance

Organisations (2) made remarks on improved supplier networks. The quotes below contain these remarks.

"We are creating relationships with our suppliers that provide closeness without control."

"We have a large and excellent car and dealer network."

3.2.4 Acquisitions enhanced core competencies.

Organisations (14) attributed superior performance to acquisitions. The quotes below contain these remarks.

"We acquired companies whose programs and capabilities fit our own, thereby reinforcing (Organisation)'s leadership in our core businesses."

"Acquisitions accounted for much of our 1994 revenue growth."

(Organisation) "has announced further acquisitions plans."

"Recent acquisitions of (Name) resulted in (organisation's) successful business."

"The acquisitions made in the last two years have all been fully integrated and are achieving returns on sales and on investment well in line with our expectations".

"Several successful product introductions and product acquisitions also increased revenues."

"Our emphasis was on complementary acquisitions, efficiency improvement and cost control.

"As part of this new operating approach, we acquired the remaining 36% of (Name) last June."

"We will continue to strengthen the focus on top-line growth through internal development and on bolt-on acquisitions."

"The acquisition of (Name) enables us to provide the services necessary technology." -

"We also are expanding the use of acquisitions - to broaden market penetration."

"We plan to make carefully selected acquisitions while maintaining leadership in our core businesses---.

(Organisation) "intends to participate in this process through acquisitions that make sense and enhance our **core competencies** or establish positions in important new markets".

"The acquisition of (Name) added new technology and leadership; and a new core growth business."

3.2.5 Joint ventures are sources of superior performance

The quotes below contain remarks from organisations (5) about joint ventures.

(Name) "remains an important partner for (Organisation) in our ---joint venture."

"In addition to our core businesses, (Organisation) has large equity positions in two successful enterprises which are also leaders in their respective industries."

"We focused on more resources based on expansion through acquisitions and joint ventures."

"We are also expanding the use of acquisitions, joint ventures, and alliances both to broaden market penetration and to speed the introduction of new products."

3.2.6 Engaging in core businesses creates superior performance.

The remarks below show how organisations (5) view core business as a source of superior performance. The quotes below contain these remarks."

(Organisation's) "future lies in building on our current businesses, for they provide ample opportunity for excellent performance and growth."

"Success resulted from balancing our basic businesses."

"We are developing new businesses related to our core strengths, which we expect to grow into core businesses themselves."

"We will continue to focus our efforts in these (current) businesses and in others that are closely related."

(Organisation) "has demonstrated that these investments in our core businesses consistently produced increased annual earnings growth."

3.2.7 High investment leads to superior performance

Organisations (5) viewed high investment as a source of superior performance. The quotes below contain these remarks.

"High investment --continue to be the key input to our strategy."

"The company benefited from substantial investment in new plant and equipment."

"The improvement in performance has been assisted by our continued investment in developing new products and new processes."

"We increased and then maintained a strong commitment to company-sponsored research and development."

"We also will continue to strengthen (Organisation) by investing prudently in research and capital assets."

3.2.8 Customer Service is fundamental to success

Organisations (3) attributed their superior performance to their ability to serve their customers as contained in the quotes below.

"Customer-service is a fundamental part of (Organisation)'s commercial strategy."

"Products benefited from efficient operations and from a renewal focus on customer service."

"We build on customer enthusiasm by focusing our people and our processes on teamwork and continuous improvement in all areas of the business."

3.2.9 Restructuring was seen as a source of superior performance

Organisations (16) made remarks on the importance of restructuring. The quotes below contain these remarks.

"The streamlining of (organisation) in recent years has resulted in several exceptional profits."

"We sold unprofitable businesses and restructured business units to enable them to provide employee incentives base on performances."

"Success was due to structural changes to revitalise (organisation)."

"We have reorganized our company structure and finances to strengthen the balance sheet and improve operating profitability."

"We restructured the organisation to enable better decision making."

(Organisation) "initiated a global-reorganisation which aims to make it the world's leading automobile company."

"At the beginning of the year we decided to consolidate our activities into three basic activities--."

"The company took a number of actions including cumulative restructuring investments, divestment of companies--."

(Organisation) "has been making further progress with its branch restructuring program-- ."

"We had to reduce the size of our work force in line with competitive realities."

"We consolidated five formerly separate car platform organizations into three."

"The company's repositioning has yielded great success."

"We responded to this (competitive) challenge by completing a massive reorganization--."

"We created new organizational structure and cultivated a culture equipped to meet commercial market demands--."

"We changed the way we do business to serve our customers better and reduce costs."

3.2.10 Focusing on quality leads to superior performance

The quotes below contain remarks from organisations (4) on the importance of quality as a source of superior performance.

"Quality is the primary focus of our business world-wide - through attention to this quality will come the superior performance for which our Group business strive."

"Our progress came from continuing the steady application of customer-led quality efforts achieved through repositioning the company's products."

"At the heart of our strong performance was Best Cost producer strategy based on the objective to be the quality manufacturer with the lowest world-wide cost."

"Through continuous improvement initiatives, we maintain or increase high levels of sales."

3.2.11 A strong management team is a source of superior performance

The quotes below contain remarks from organisations (6) showing the importance of management as a source of superior performance.

(Organisation) "has long been known for its depth of managerial and its ability to attract, develop and retain strong management."

"We have a strong corporate and divisional management team."

"We have a management team with a broad international experience."

"We have an experienced and capable board of directors, and a strong management team committed to meeting the challenges ahead."

"Strong decentralized management --continue to be the key input to our strategy."

3.2.12 Superior performance results from creative marketing programs

Organisations (2) attributed their superior performance to marketing. The quotes below contain these remarks.

"Our emphasis was on creative marketing programs and complementary acquisitions--."

"We work from needs-based market segmentation."

3.2.13 Task forces are potential sources of superior performance

One organisation attributed their success to task forces. The quote below contains the remark.

"We established task forces to study the internal and external issues we were facing and determine where we were, and where we want to be."

3.2.14 Success resulted from a committed workforce

Below are quotes showing remarks from organisations (5) about the importance of the workforce in achieving superior performance.

"We set a scheme designed to provide financial assistance for employees to undertake a wide range of courses and other opportunities for personal development, education and training."

"We wish again to extend our gratitude to our employees for their outstanding contribution-".

"We have a world-wide team of diverse, capable, and motivated employees."

"We have talented employees--."

"We aligned employee and shareholder interests through stock ownership and profit sharing programs."

3.2.15 Union co-operation aids superior performance

One organisation made remarks on the importance of co-operating with the Unions. The quote below contains the remark.

"We have worked closely with our unions to improve focus on (Organisation) people and their job security."

3.2.16 OBSERVATIONS FROM THE U.S.A. ANNUAL REPORTS

None of the reports made remarks on the following terminology

Distinctive Competencies

Distinctive Capabilities

Strategic Assets

Isolating Mechanisms

Resource Barriers

Appendix 3.2 Covering Letter to the Pilot Test

Warwick Business School
University of Warwick
Coventry
CV4 7AL
13 January, 1997

Dear (Participant)

I hope as a current member of the Warwick MBA you will kindly help us in some research we are doing in terms of strategy and strategy development within organisations that are part of the motor vehicle industry.

We have tried to develop a survey which relates a range of strategy concepts to both competitive actions and management processes within the organisation. We now need your help in the final testing of this survey. Could you please both fill in the survey itself and also and very importantly provide us with any advice in terms of the way in which it could be modified and improved? As our side of the bargain we will provide every respondent with a report and set of comments on the results of this final pilot and later of course a report on the results of the full survey.

I do appreciate how busy you are but hope that you can find the time to help us in what we think will be an important piece of research.

Many thanks

Prof.R.Wensley

Appendix 4.1 Advance letter to Zimbabwean firms

Warwick Business School
University of Warwick
Coventry
CV4 7AL
3 October, 1997

Dear

You have been randomly selected from the 1997 CZI Exporter's Guide to take part in a survey about developing sources of superior performance in Resource-based strategies. I have chosen firms in the Motor Vehicle Manufacturing Industry. Your participation in the survey is very important. When you see the questionnaire in the mail from the University of Warwick, please fill it in and return it as soon as possible. Please do not fill in the questionnaire if you are not in the Motor Vehicle Manufacturing Industry.

The study I am carrying out is based on a theory that successful firms develop internal resources. The empirical study is aimed at finding out whether successful firms actually have better internal resources than the less successful firms. Thus the questionnaire asks questions about your comprehension of specific concepts in strategy, how you actually describe the causes of your success, and how you develop, and protect, those resources you feel are commercially and competitively valuable.

The results of the study will help us improve the comprehension process of managers so that they can better develop, and protect, those resources likely to be sources of superior performance.

Your co-operation is thanked in advance. If you have any questions or concerns about this survey, please feel free to contact Mr Z. Muranda, or write him on the following address:

University of Zimbabwe
P.O. Box M.P. 167
Mount Pleasant
Harare

Thank you for your help.

Your Sincerely

Gilbert Zvobgo
PhD Student

Appendix 4.3 Covering Letter to Zimbabwean firms

University of Zimbabwe
P.O. Box M.P. 167
Mount Pleasant
Harare
27 October, 1997

Dear

The study I am carrying out is based on a theory that successful firms develop internal resources. I have chosen the Motor Vehicle Manufacturing Industry. The empirical work is aimed at finding out whether this is so. The questionnaire asks questions about your comprehension of specific concepts in strategy, how you actually describe causes of your success, and how you develop, and protect, those resources that you see as potential sources of superior performance. Results from this study will help to improve the comprehension process of managers.

I need your help. Enclosed is a copy of the questionnaire for this study. Please take the time to complete the questionnaire and return it in the enclosed addressed stamped envelope. It would be very helpful to have your completed questionnaires by 6 November 1997. Please do not fill in the questionnaire if you are not in the Motor Vehicle Manufacturing Industry.

I want to assure you that your responses will be held in confidence. If you have any questions or concerns about any aspect of this study, please feel free to contact Mr Z. Miranda or write him on the address above.

Thank you for help.

Yours Sincerely

Gilbert Zvobgo
PhD Student

Appendix 4.4. First reminder letter to UK Firms

«Most_Senior1»
«Company_Name»
«Address_Line_1»
«Address_Line_2»
«Address_Line_3»
«Address_Line_4»
«Address_Lin_5»

27 October 1997

Dear Mr «Name»

I am studying the ways in which individual firms in the Motor Vehicle Manufacturing Industry manage and develop their internal resources to achieve superior performance. The attached questionnaire asks about your knowledge of specific strategy concepts and how you ascribe the causes of your success and how you develop and protect those resources that you see as sources of better performance.

Results from this study, which will be circulated to all those who express an interest, should help us understand the links between the strategy concepts in theory and the management of strategic resources in practice and ways in which these links can be used for strategic improvement.

Obviously this can only be achieved with your help in completing the questionnaire. On the 3rd of October I sent you a copy of the questionnaire. Maybe you did not receive this copy. Enclosed, please find another copy of the same questionnaire. I would be very grateful if you took the time to do this and return it in the enclosed pre-paid envelope. It would be very helpful to have your completed questionnaire by 6 November 1997. Please do not fill it in if your company is not in the Motor Vehicle Manufacturing Industry but return it blank with a note to this effect.

All responses will be held in strict confidence and coded to avoid individual identification. If you have any questions or concerns about any aspect of this study, please feel free to contact myself or my supervisor Professor Robin Wensley.

Thank you for your help.

Yours sincerely,



Gilbert Zvobgo
PhD Student

Appendix 4.5. Second reminder letter to UK firms

«Most_Senior1»
«Company_Name»
«Address_Line_1»
«Address_Line_2»
«Address_Line_3»
«Address_Line_4»
«Address_Lin_5»

10 November 1997

Dear Mr «Name»

I am studying the ways in which individual firms in the Motor Vehicle Manufacturing Industry manage and develop their internal resources to achieve superior performance. The attached questionnaire asks about your knowledge of specific strategy concepts and how you ascribe the causes of your success and how you develop and protect those resources that you see as sources of better performance.

Results from this study, which will be circulated to all those who express an interest, should help us understand the links between the strategy concepts in theory and the management of strategic resources in practice and ways in which these links can be used for strategic improvement.

Obviously this can only be achieved with your help in completing the questionnaire. On the 3rd of October I sent you a copy of the questionnaire. Maybe you did not receive this copy. Enclosed, please find another copy of the same questionnaire. I would be very grateful if you took the time to do this and return it in the enclosed pre-paid envelope. It would be very helpful to have your completed questionnaire by 20 November 1997. Please do not fill it in if your company is not in the Motor Vehicle Manufacturing Industry but return it blank with a note to this effect.

All responses will be held in strict confidence and coded to avoid individual identification. If you have any questions or concerns about any aspect of this study, please feel free to contact myself or my supervisor Professor Robin Wensley.

Thank you for your help.

Yours sincerely,



Gilbert Zvobgo
PhD Student

Appendix 4.6. Third reminder letter to UK firms

«Most_Senior1»
«Company_Name»
«Address_Line_1»
«Address_Line_2»
«Address_Line_3»
«Address_Line_4»
«Address_Lin_5»

20 November 1997

Dear Mr «Name»

I am studying the ways in which individual firms in the Motor Vehicle Manufacturing Industry manage and develop their internal resources to achieve superior performance. The attached questionnaire asks about your knowledge of specific strategy concepts and how you ascribe the causes of your success and how you develop and protect those resources that you see as sources of better performance.

Results from this study, which will be circulated to all those who express an interest, should help us understand the links between the strategy concepts in theory and the management of strategic resources in practice and ways in which these links can be used for strategic improvement.

Obviously this can only be achieved with your help in completing the questionnaire. On the 3rd of October I sent you a copy of the questionnaire. Maybe you did not receive this copy. Enclosed, please find another copy of the same questionnaire. I would be very grateful if you took the time to do this and return it in the enclosed pre-paid envelope. It would be very helpful to have your completed questionnaire by 26 November 1997. Please do not fill it in if your company is not in the Motor Vehicle Manufacturing Industry but return it blank with a note to this effect.

All responses will be held in strict confidence and coded to avoid individual identification. If you have any questions or concerns about any aspect of this study, please feel free to contact myself or my supervisor Professor Robin Wensley.

Thank you for your help.

Yours sincerely,



Gilbert Zvobgo
PhD Student

Appendix 4.7. Fourth reminder letter to UK firms

«Most_Senior1»
«Company_Name»
«Address_Line_1»
«Address_Line_2»
«Address_Line_3»
«Address_Line_4»
«Address_Lin_5»

8 December 1997

Dear Mr «Name»

I am studying the ways in which individual firms in the Motor Vehicle Manufacturing Industry manage and develop their internal resources to achieve superior performance. The attached questionnaire asks about your knowledge of specific strategy concepts and how you ascribe the causes of your success and how you develop and protect those resources that you see as sources of better performance.

Results from this study, which will be circulated to all those who express an interest, should help us understand the links between the strategy concepts in theory and the management of strategic resources in practice and ways in which these links can be used for strategic improvement.

Obviously this can only be achieved with your help in completing the questionnaire. On the 3rd of October I sent you a copy of the questionnaire. Maybe you did not receive this copy. Enclosed, please find another copy of the same questionnaire. I would be very grateful if you took the time to do this and return it in the enclosed pre-paid envelope. It would be very helpful to have your completed questionnaire by 31 December 1997. Please do not fill it in if your company is not in the Motor Vehicle Manufacturing Industry but return it blank with a note to this effect.

All responses will be held in strict confidence and coded to avoid individual identification. If you have any questions or concerns about any aspect of this study, please feel free to contact myself or my supervisor Professor Robin Wensley.

Thank you for your help.

Yours sincerely,



Gilbert Zvobgo
PhD Student

Appendix 4.8 Reminder Letter to Zimbabwean Firms

Managing Director
Company Name
Address 1- Line 1
Address 2-Line 2
Address 3- Line 3
Address 4- Line 4

27 October 1997

Dear Dr/Mr/Mrs

I am studying the ways in which individual firms in the Motor Vehicle Manufacturing Industry manage and develop their internal resources to achieve superior performance. The attached questionnaire asks about your knowledge of specific strategy concepts and how you ascribe the causes of your success and how you develop and protect those resources that you see as sources of better performance.

Results from this study, which will be circulated to all those who express an interest, should help us understand the links between the strategy concepts in theory and the management of strategic resources in practice and ways in which these links can be used for strategic improvement.

Obviously this can only be achieved with your help in completing the questionnaire. I would be very grateful if you took the time to do this and return it in the enclosed pre-paid envelope. It would be very helpful to have your completed questionnaire by 21st November 1997. Please do not fill it in if your company is not in the Motor Vehicle Manufacturing Industry but return it blank with a note to this effect.

All responses will be held in strict confidence and coded to avoid individual identification. If you have any questions or concerns about any aspect of this study, please feel free to contact Mr. Z. Muranda, at the University of Zimbabwe (Tel.303211).

Thank you for your help.

Yours sincerely,



Gilbert Zvobgo
PhD Student Tel. : +44 (0) 01203 572545
E-Mail: phdgz@wbs.warwick.ac.uk

SECTION A INTRODUCTORY QUESTIONS

1. In which country is your firm operating from? Please tick the appropriate box.

- UK
Zimbabwe

2. Please indicate the annual turnover of your firm, by ticking the appropriate box.

- Less than £1 million
£1 million - £10 million
£10 million - £20 million
£20 million - £30 million
Over £30 million

3 How would you rate your firm in terms of the following performance measures? Please tick your response to each item in the appropriate box.

	Very weak	Weak	Moderate	Strong	Very strong
Profitability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Return on Assets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sales Volume	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Growth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4 How would you rate your financial performance relative to competition? Please tick your response in the appropriate box.

Very weak	Weak	Moderate	Strong	Very strong
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION B STRATEGY CONCEPTS

These questions are intended to assess your understanding of the distinctive or inter-related concepts which have been suggested as sources of superior performance.

5. How familiar are you with the following distinctive or inter-related concepts? Please tick your response to each item in the appropriate box.

	Not Very Familiar	Not Familiar	Neutral	Familiar	Very Familiar
Firm resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Strategic resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Superior resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intangible resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Strategic assets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intangible assets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Core competencies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Distinctive competencies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Managerial competencies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Distinctive skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Managerial capabilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. As far as you can judge, how would you rate the concepts in terms of their applicability in your firm? Please tick your response to each item in the appropriate box.

	Very Difficult to apply	Difficult to apply	Neutral	Easy to apply	Very Easy to apply
Firm resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Strategic resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Superior resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intangible resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Strategic assets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intangible assets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Core competencies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Distinctive competencies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Managerial competencies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Distinctive skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Managerial capabilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION C PRODUCT

These questions are concerned with how you view your products relative to competing products.

7. How would you rate the following attributes relative to competitors? Please tick your response to each item in the appropriate box.

	Very Low	Low	Neutral	High	Very High
Price	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Durability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reliability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Convenience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Delivery patterns	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
After sales service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. How easy is it for competitors to match your product attribute? Please tick your response to each item in the appropriate box.

	Very Easy	Easy	Neutral	Difficult	Very Difficult
Price	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Durability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reliability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Convenience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Delivery patterns	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
After sales service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. How would you rate the contribution of the following strategies in the development of superior performance in your firm? Please tick your response to each item in the appropriate box.

	Very Low	Low	Neutral	High	Very High
Product design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Product reputation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Product line extensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improving product quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
High margin/premium offerings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lowering new product prices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. How often do you formally review the following?
Please tick your response to each item in the appropriate box.

	Ongoing	Twice a year	Once a year	Once in 5 years	Longer
Product price	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Quality improvements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Product performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
New product development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
After sales service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION D FIRM RESOURCES AND CAPABILITIES

These questions are intended to assess how you identify, develop, and protect your resources and capabilities.

11. How would you rank the following resources in terms of their contribution to superior performance in your organisation? Please tick your response to each item in the appropriate box.

	Very Low	Low	Neutral	High	Very High
Physical					
Location	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Human					
Managerial teams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Skilled workforce	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Technological					
Equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Know-how	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Financial					
Availability of capital	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Profitability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. How important do you believe are the following in developing superior performance in your firm? Please tick your response to each item in the appropriate box.

	Not very Important	Not Important	Neutral	Important	Very Important
Firm reputation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Distribution channels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Strategic partnerships	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Supplier networks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dealer networks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Long-term relationships with					
- suppliers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- dealers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
After sales service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13. How would you rate your firm's performance in terms of the following? Please tick your response to each item in the appropriate box.

	Very Weak	Weak	Neutral	Strong	Very Strong
Marketing Factors					
Product quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Speed of new product development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Customer base	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Customer loyalty	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dealer loyalty	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Supplier know-how	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Supplier reliability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Long-term relationships with					
Suppliers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dealers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Manufacturing Factors					
Innovative designs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Economies of scale	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Manufacturing flexibility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Technical skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Delivery capabilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Supplier sourcing flexibility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Firm Factors					
Managerial capabilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ability to innovate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adaptability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Workforce management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. How often do you formally review the following?
Please tick your response to each item in the appropriate box.

	Ongoing	Twice a year	Once a year	Once in 5 years	Longer
Manufacturing Factors					
Scale economies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Manufacturing flexibility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Technical skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Delivery capabilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Firm Factors					
Managerial capabilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ability to innovate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adaptability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Workforce commitment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Training programmes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION E CORE COMPETENCIES

Questions in this section are designed to find out what you can do well, in particular, how you identify, develop and protect your so-called core competencies.

15. How would you rate your firm in terms of its performance in specific areas which are seen as helping to build and protect core competencies? Please tick the appropriate box.

	Never	Rarely	Occasionally	Usually	Always
Are you able to produce an inventory of what your firm does best?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is everyone clear on the firm's competencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you have stable senior management teams?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you use similar competencies across multiple businesses?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you promote collective learning?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you have regular "competence" review meetings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you set competence acquisition goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you benchmark competence-building efforts against rivals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION F CUSTOMERS

Questions in this section are intended to find out how you look after your customers.

16. The following items are intended to find out your strengths and weaknesses in customer care. Please tick your response to each item in the appropriate box.

	Always	Usually	Occasionally	Rarely	Never
Do you know your customers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you clearly define the skills required by your staff in meeting customer needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you seek feedback from customers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you accurately anticipate and plan for meeting customer needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you survey former customers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

17. If you interview customers now lost, what are the most common comments they have about your products? Please tick your response to each item in the appropriate box.

	Very Satisfactory				Not Satisfactory
Price	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Product quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Product performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Product warranty	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Delivery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
After-sales service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

18. How often do you review the following? Please tick your response to each item in the appropriate box.

	Ongoing	Twice a year	Once a year	Once in 5 years	Longer
Customer profiles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Customer complaints	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Customer needs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Customer loyalty	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Information systems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Distribution networks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PERSONAL INFORMATION

I would be grateful if you could answer the following personal questions. (This is to help us analyse the survey results usefully).

1 What is your job status? Please tick the appropriate box.

- | | |
|-------------------|--------------------------|
| Top management | <input type="checkbox"/> |
| Middle management | <input type="checkbox"/> |
| Junior management | <input type="checkbox"/> |
| Non-managerial | <input type="checkbox"/> |

2 How many years have you been in this position?

- | | |
|-------------|--------------------------|
| Less than 1 | <input type="checkbox"/> |
| 1 - 2 | <input type="checkbox"/> |
| 3 - 5 | <input type="checkbox"/> |
| 6 - 10 | <input type="checkbox"/> |
| Over 10 | <input type="checkbox"/> |

3. How often do you have management training programmes?

- | | |
|----------------------|--------------------------|
| Ongoing | <input type="checkbox"/> |
| Once in 6 months | <input type="checkbox"/> |
| Once a year | <input type="checkbox"/> |
| Longer than one year | <input type="checkbox"/> |
-

In the space provided below, please make any comments as to what you think are the determining factors in the performance of your firm. Your suggestions will be very much appreciated.

I sincerely appreciate your time and cooperation. Please return the questionnaire in the enclosed addressed envelope. If you would like a copy of the results, please tick in the box.

Thank you.

The last section of the questionnaire asked firms to comment on any factors they thought were the sources of their superior performance. Although the respondents were supposed to add factors that were not covered by the questionnaire, some felt writing them would indicate their importance. Hence very few new factors were added. This shows that the two pilot tests were very helpful in the design of the questionnaire. The following are the factors to which firms attributed their superior performance to. The bracketed is the firm number.

5.1.1 Expansion

Looking for an opportunity to expand and develop the business (92)

5.1.2 Information Technology

- We need to invest in IT to meet customer requirements

5.1.3 Bulk buying

- Bulk buying allows us to compete against the giants (520)

5.1.4 Lack of Standard build designs

- Price/delivery/quality – in that order dominate the truck body industry in which we operate. There are no “Standard build designs” as each defining fleet engineer has his own ideas.(192)

5.1.5 Locality

- Being located in (Place) made us successful (195)

5.1.6 Suppliers

- Having good suppliers (361)

5.1.7 Delivery

- Our success was based on good delivery systems we had (527)

5.1.8 Good services

- Good services (69)
- Our after sales service are of the highest quality (552)

5.1.9 Culture

Sound base culture with a willingness to develop, change, learn new ideas and innovate (16)

5.1.10 Niche-Marketing

- We have identified a niche-marketing segment. This niche we call “tier-zero” supply. It is rapidly gaining acceptance among GM divisions and other OEM’s are considering this service to help their competitive position (274)
- It is the development of a niche-market, which is marginal to most motor dealers, which has been the main contributing factor to our success (568).

5.1.11 Organisational Factors

- Continuous improvement throughout all operational/functional areas (684)
- Strong technical skills (705)
- Non-aggressive approach (706)

5.1.12 External Factors

- Government feelings for business decisions (389)
- Contribution of factors do not take into account human resource but only a formula of standards. These factors affect firm performance (400)
- The firm is owner-managed and this is recognised by our vehicle manufacturing (Company) as being more desirable than part of a group/chain (636)

5.1.13 Successful Marketing

- Successful marketing, and a non-aggressive approach (706)
- Marketing strengths (85)
- Development of class leading distribution networks (532)
- Innovative brand marketing (16)

5.1.14 Service

- Service quality (527)
- Being able to maintain quality of services (562)
- Good services (69)
- ...prompt/responsive service backed by programme and support that help customers do business with us (192)

5.1.15 Price

- Price (361)
- Price (610)
- We attempt to offer the best price (2)
- A competitive Price is extremely important (451)
- Family run business with competitive prices (570)

5.1.16 Manufacturing Knowledge

- Knowledge of manufacturer (389)
- We are placed in a very volatile highly competitive market which is static to survive and prosper. We have to be better and more skilled than our opponents (2)
- A strong technical base (28)
- Knowing your capabilities (291)

5.1.17 Communication with Customers

- Response (enquiry, quote, delivery) very important plus communication on design/build progress very, very important factor in maintaining customer satisfaction (610)
- Family run business with good customer contacts (570)
- Superior customer service allows (520)
- Customer satisfaction at all times (689)

5.1.18 Adaptability

- Ability to adapt quickly to change (92)
- A family of firm with some management team, leading to ongoing review and analysis. Decisions can be made quickly allowing for flexibility (1)

- Flexibility and adaptability to changes both in external market forces and in the internal structuring of the industry to which we link (1).
- Speed of response (JIT) (499)
- Being adaptable (591)
- Response is very important (610)
- Flexibility and reliability (684)
- Flexible labour force (705)

5.1.19 Investing in People

- Awareness of what makes up a successful sales team (92)
- Our company invests in people (497)
- Our people are the single most important factor in the business, and we recognise this through ongoing performance appraisal presentation (519)
- Our firm is a small family run business relying on the principle expertise on product knowledge and packaging presentation (520)
- Ongoing company development will improve managerial skills which we realistically lack (520)
- My husband and I have taken over the running of the family business – the company was doing badly with many problems. We are slowly addressing the difficulties with training programmes, etc, (696)
- We rely on strong technical skills, flexible labour force, and innovative management (705)
- Total involvement of all employees in producing the customer with the quality product they expect (658)

5.1.20 Workforce

- Staff (195)
- Stable workforce (591)
- Personal contact (361)
- Hands on approach (389)
- Stable highly skilled workforce (420)
- Striving daily to stay on top in a very competitive industry
- Innovative workforce and management (705)

- Total involvement of all employees in providing the customer with the quality product they expect (658)
- Stable workforce coupled to improving, better trained and motivated, management team (92)
- Ongoing company development will improve managerial skills which at present we realistically lack (520)
- The commitment and dedication of all our employees to the brand of (company) and its products is a major contribution to our success. This has allowed us to make the best of our excellent products (391)

5.1.21 Customers

- Customer service (49)
- Knowing the customer (291)
- Customer understanding (451)
- Listening to customers (591)
- Long-term relationships with customers (316)
- Customers like to deal with a family business (636)
- Superior customer service allows us to compete favourably against the “giants” (520)
- We have a wonderful customer relations programmes and know each and every one (192)
- We offer a support customer service and back-up – sometimes not appreciated when price is considered the most important factor by some customers (43)
- Personal efforts and genuine interest in and desire to meet satisfactorily (excellently where possible) the ever changing needs of our customers understanding (451)
- Total involvement of all employees in producing the customer with the quality product they expect (658)
- We work with the customers developing quality engines on future products from the initial vehicle concept stage (451)

5.1.21.1 Product

- Product (195)
- Product quality (361)
- Product quality (85)
- Quality of products (291)
- Product quality (2)
- Product quality (610)
- Knowing your products (570)
- Product range and availability (527)
- Pride in the organisation's products (499)
- Our strength is based on excellent product quality (C3)
- We offer the best products (C1)
- Product quality and improvement (684)
- Of course we are in a unique market and the goals - through their name sell themselves (192)
- Our firm is a small family run business relying on the principal expertise on product knowledge (705)
- We work with the customers developing quality engines on future products from the initial vehicle concept stage (451)
- We are dealers in classic (Types of cars), which we restore to the highest standard both mechanically and cosmetically, adhering where possible to originality (458)
- Total involvement of all employees in producing the customer with the quality product they expect (658)
- We operate in almost a one product environment where we have 80% of one national market (660)

Appendix 6.1 Correlation Coefficients for Questions used in Factor Analysis

Question 3

	Q3A1	Q3A2	Q3A3	Q3A4
Q3A1	1.0000 (120) P=.	.7907 (120) P=.000	.3090 (120) P=.001	.2671 (120) P=.003
Q3A2	.7907 (120) P=.000	1.0000 (120) P=.	.3212 (120) P=.000	.2990 (120) P=.001
Q3A3	.3090 (120) P=.001	.3212 (120) P=.000	1.0000 (120) P=.	.5867 (120) P=.000
Q3A4	.2671 (120) P=.003	.2990 (120) P=.001	.5867 (120) P=.000	1.0000 (120) P=.

(Coefficient / (Cases) / 2-tailed Significance)

". ." is printed if a coefficient cannot be computed

Question 5

	Q5A1	Q5A2	Q5A3	Q5A4	Q5A5	Q5A6
Q5A1	1.0000 (120) P=.	.8387 (120) P=.000	.7362 (120) P=.000	.6461 (120) P=.000	.6965 (120) P=.000	.5588 (120) P=.000
Q5A2	.8387 (120) P=.000	1.0000 (120) P=.	.7529 (120) P=.000	.7725 (120) P=.000	.8309 (120) P=.000	.6813 (120) P=.000
Q5A3	.7362 (120) P=.000	.7529 (120) P=.000	1.0000 (120) P=.	.7564 (120) P=.000	.6959 (120) P=.000	.6984 (120) P=.000
Q5A4	.6461 (120) P=.000	.7725 (120) P=.000	.7564 (120) P=.000	1.0000 (120) P=.	.7602 (120) P=.000	.7551 (120) P=.000
Q5A5	.6965 (120) P=.000	.8309 (120) P=.000	.6959 (120) P=.000	.7602 (120) P=.000	1.0000 (120) P=.	.7580 (120) P=.000
Q5A6	.5588 (120) P=.000	.6813 (120) P=.000	.6984 (120) P=.000	.7551 (120) P=.000	.7580 (120) P=.000	1.0000 (120) P=.
Q5A7	.5793 (120) P=.000	.7245 (120) P=.000	.5754 (120) P=.000	.6091 (120) P=.000	.6377 (120) P=.000	.6947 (120) P=.000
Q5A8	.6237 (120)	.6906 (120)	.6225 (120)	.6323 (120)	.6219 (120)	.5831 (120)

P=.000 P=.000 P=.000 P=.000 P=.000 P=.000

Q5A9 .6028 .6731 .5486 .6088 .6841 .6446
(120) (120) (120) (120) (120) (120)
P=.000 P=.000 P=.000 P=.000 P=.000 P=.000

Q5A10 .6513 .6520 .5442 .5525 .6467 .5640
(120) (120) (120) (120) (120) (120)
P=.000 P=.000 P=.000 P=.000 P=.000 P=.000

Q5A11 .5831 .6192 .4926 .5422 .6230 .5752
(120) (120) (120) (120) (120) (120)
P=.000 P=.000 P=.000 P=.000 P=.000 P=.000

(Q5A7 Q5A8 Q5A9 Q5A10 Q5A11

Q5A1 .5793 .6237 .6028 .6513 .5831
(120) (120) (120) (120) (120)
P=.000 P=.000 P=.000 P=.000 P=.000

Q5A2 .7245 .6906 .6731 .6520 .6192
(120) (120) (120) (120) (120)
P=.000 P=.000 P=.000 P=.000 P=.000

Q5A3 .5754 .6225 .5486 .5442 .4926
(120) (120) (120) (120) (120)
P=.000 P=.000 P=.000 P=.000 P=.000

Q5A4 .6091 .6323 .6088 .5525 .5422
(120) (120) (120) (120) (120)
P=.000 P=.000 P=.000 P=.000 P=.000

Q5A5 .6377 .6219 .6841 .6467 .6230
(120) (120) (120) (120) (120)
P=.000 P=.000 P=.000 P=.000 P=.000

Q5A6 .6947 .5831 .6446 .5640 .5752
(120) (120) (120) (120) (120)
P=.000 P=.000 P=.000 P=.000 P=.000

Q5A7 1.0000 .7082 .7291 .4982 .6119
(120) (120) (120) (120) (120)
P=. P=.000 P=.000 P=.000 P=.000

Q5A8 .7082 1.0000 .6398 .6587 .5293
(120) (120) (120) (120) (120)
P=.000 P=. P=.000 P=.000 P=.000

Q5A9 .7291 .6398 1.0000 .7382 .8697
(120) (120) (120) (120) (120)
P=.000 P=.000 P=. P=.000 P=.000

Q5A10 .4982 .6587 .7382 1.0000 .7447
(120) (120) (120) (120) (120)
P=.000 P=.000 P=.000 P=. P=.000

Q5A11 .6119 .5293 .8697 .7447 1.0000
(120) (120) (120) (120) (120)
P=.000 P=.000 P=.000 P=.000 P=.

Question 6

Q6A1	Q6A2	Q6A3	Q6A4	Q6A5	Q6A6	
Q6A1	1.0000	.5103	.5235	.5079	.4069	.4957
	(120)	(120)	(120)	(120)	(120)	(120)
	P=.	P=.000	P=.000	P=.000	P=.000	P=.000
Q6A2	.5103	1.0000	.5479	.5421	.6753	.5179
	(120)	(120)	(120)	(120)	(120)	(120)
	P=.000	P=.	P=.000	P=.000	P=.000	P=.000
Q6A3	.5235	.5479	1.0000	.5946	.4570	.6004
	(120)	(120)	(120)	(120)	(120)	(120)
	P=.000	P=.000	P=.	P=.000	P=.000	P=.000
Q6A4	.5079	.5421	.5946	1.0000	.6527	.7904
	(120)	(120)	(120)	(120)	(120)	(120)
	P=.000	P=.000	P=.000	P=.	P=.000	P=.000
Q6A5	.4069	.6753	.4570	.6527	1.0000	.6968
	(120)	(120)	(120)	(120)	(120)	(120)
	P=.000	P=.000	P=.000	P=.000	P=.	P=.000
Q6A6	.4957	.5179	.6004	.7904	.6968	1.0000
	(120)	(120)	(120)	(120)	(120)	(120)
	P=.000	P=.000	P=.000	P=.000	P=.000	P=.
Q6A7	.5028	.5485	.5241	.6105	.5625	.5850
	(120)	(120)	(120)	(120)	(120)	(120)
	P=.000	P=.000	P=.000	P=.000	P=.000	P=.000
Q6A8	.4419	.4552	.5427	.5962	.5119	.5322
	(120)	(120)	(120)	(120)	(120)	(120)
	P=.000	P=.000	P=.000	P=.000	P=.000	P=.000
Q6A9	.4774	.4520	.3989	.2533	.3747	.2724
	(120)	(120)	(120)	(120)	(120)	(120)
	P=.000	P=.000	P=.000	P=.005	P=.000	P=.003
Q6A10	.5214	.4880	.4360	.3190	.4373	.4105
	(120)	(120)	(120)	(120)	(120)	(120)
	P=.000	P=.000	P=.000	P=.000	P=.000	P=.000
Q6A11	.3828	.4113	.3521	.1880	.3606	.2765
	(120)	(120)	(120)	(120)	(120)	(120)
	P=.000	P=.000	P=.000	P=.040	P=.000	P=.002
(Q6A7	Q6A8	Q6A9	Q6A10	Q6A11		
Q6A1	.5028	.4419	.4774	.5214	.3828	
	(120)	(120)	(120)	(120)	(120)	
	P=.000	P=.000	P=.000	P=.000	P=.000	
Q6A2	.5485	.4552	.4520	.4880	.4113	
	(120)	(120)	(120)	(120)	(120)	
	P=.000	P=.000	P=.000	P=.000	P=.000	
Q6A3	.5241	.5427	.3989	.4360	.3521	
	(120)	(120)	(120)	(120)	(120)	

P=.000 P=.000 P=.000 P=.000 P=.000

Q6A4 .6105 .5962 .2533 .3190 .1880
(120) (120) (120) (120) (120)
P=.000 P=.000 P=.005 P=.000 P=.040

Q6A5 .5625 .5119 .3747 .4373 .3606
(120) (120) (120) (120) (120)
P=.000 P=.000 P=.000 P=.000 P=.000

Q6A6 .5850 .5322 .2724 .4105 .2765
(120) (120) (120) (120) (120)
P=.000 P=.000 P=.003 P=.000 P=.002

Q6A7 1.0000 .7147 .4340 .4421 .3915
(120) (120) (120) (120) (120)
P=. P=.000 P=.000 P=.000 P=.000

Q6A8 .7147 1.0000 .4169 .5610 .2944
(120) (120) (120) (120) (120)
P=.000 P=. P=.000 P=.000 P=.001

Q6A9 .4340 .4169 1.0000 .6457 .6589
(120) (120) (120) (120) (120)
P=.000 P=.000 P=. P=.000 P=.000

Q6A10 .4421 .5610 .6457 1.0000 .6100
(120) (120) (120) (120) (120)
P=.000 P=.000 P=.000 P=. P=.000

Q6A11 .3915 .2944 .6589 .6100 1.0000
(120) (120) (120) (120) (120)
P=.000 P=.001 P=.000 P=.000 P=.

Question 7

Q7A1 Q7A2 Q7A3 Q7A4 Q7A5 Q7A6

Q7A1 1.0000 .2649 .1238 .0000 .0249 -.0412
(120) (120) (120) (120) (120) (120)
P=. P=.003 P=.178 P=1.000 P=.787 P=.655

Q7A2 .2649 1.0000 .6508 .5028 .5329 .1751
(120) (120) (120) (120) (120) (120)
P=.003 P=. P=.000 P=.000 P=.000 P=.056

Q7A3 .1238 .6508 1.0000 .5691 .5464 .3541
(120) (120) (120) (120) (120) (120)
P=.178 P=.000 P=. P=.000 P=.000 P=.000

Q7A4 .0000 .5028 .5691 1.0000 .7048 .2624
(120) (120) (120) (120) (120) (120)
P=1.000 P=.000 P=.000 P=. P=.000 P=.004

Q7A5 .0249 .5329 .5464 .7048 1.0000 .3653
(120) (120) (120) (120) (120) (120)
P=.787 P=.000 P=.000 P=.000 P=. P=.000

Q7A6 -.0412 .1751 .3541 .2624 .3653 1.0000

(120) (120) (120) (120) (120) (120)
P=.655 P=.056 P=.000 P=.004 P=.000 P=.

Q7A7 .0229 .1894 .1960 .1018 .1941 .4464
(120) (120) (120) (120) (120) (120)
P=.804 P=.038 P=.032 P=.268 P=.034 P=.000

Q7A8 .1006 .2523 .3209 .2958 .2479 .1309
(120) (120) (120) (120) (120) (120)
P=.274 P=.005 P=.000 P=.001 P=.006 P=.154

Q7A7 Q7A8

Q7A1 .0229 .1006
(120) (120)
P=.804 P=.274

Q7A2 .1894 .2523
(120) (120)
P=.038 P=.005

Q7A3 .1960 .3209
(120) (120)
P=.032 P=.000

Q7A4 .1018 .2958
(120) (120)
P=.268 P=.001

Q7A5 .1941 .2479
(120) (120)
P=.034 P=.006

Q7A6 .4464 .1309
(120) (120)
P=.000 P=.154

Q7A7 1.0000 .4020
(120) (120)
P=. P=.000

Q7A8 .4020 1.0000
(120) (120)
P=.000 P=.

Question 9

Q9A1 Q9A2 Q9A3 Q9A4 Q9A5 Q9A6

Q9A1 1.0000 .4675 .1838 .4532 .3388 .0117
(120) (120) (120) (120) (120) (120)
P=. P=.000 P=.044 P=.000 P=.000 P=.899

Q9A2 .4675 1.0000 .1635 .5019 .2161 -.0200
(120) (120) (120) (120) (120) (120)
P=.000 P=. P=.074 P=.000 P=.018 P=.828

Q9A3 .1838 .1635 1.0000 .3523 .2926 .1553
 (120) (120) (120) (120) (120) (120)
 P=.044 P=.074 P=. P=.000 P=.001 P=.090

Q9A4 .4532 .5019 .3523 1.0000 .4670 .0741
 (120) (120) (120) (120) (120) (120)
 P=.000 P=.000 P=.000 P=. P=.000 P=.421

Q9A5 .3388 .2161 .2926 .4670 1.0000 .0341
 (120) (120) (120) (120) (120) (120)
 P=.000 P=.018 P=.001 P=.000 P=. P=.711

Q9A6 .0117 -.0200 .1553 .0741 .0341 1.0000
 (120) (120) (120) (120) (120) (120)
 P=.899 P=.828 P=.090 P=.421 P=.711 P=.

Question 10

Q10A1 Q10A2 Q10A3 Q10A4 Q10A5

Q10A1 1.0000 .0710 .0665 .0351 .0974
 (120) (120) (120) (120) (120)
 P=. P=.441 P=.470 P=.704 P=.290

Q10A2 .0710 1.0000 .3494 .1093 .1779
 (120) (120) (120) (120) (120)
 P=.441 P=. P=.000 P=.235 P=.052

Q10A3 .0665 .3494 1.0000 .2919 .5218
 (120) (120) (120) (120) (120)
 P=.470 P=.000 P=. P=.001 P=.000

Q10A4 .0351 .1093 .2919 1.0000 .1862
 (120) (120) (120) (120) (120)
 P=.704 P=.235 P=.001 P=. P=.042

Q10A5 .0974 .1779 .5218 .1862 1.0000
 (120) (120) (120) (120) (120)
 P=.290 P=.052 P=.000 P=.042 P=.

Question 11

Q11A1 Q11A2 Q11A3 Q11A4 Q11A5 Q11A6

Q11A1 1.0000 .2155 .0834 .1665 .2279 .0338
 (120) (120) (120) (120) (120) (120)
 P=. P=.018 P=.365 P=.069 P=.012 P=.714

Q11A2 .2155 1.0000 .5985 .4106 .2022 .0971
 (120) (120) (120) (120) (120) (120)
 P=.018 P=. P=.000 P=.000 P=.027 P=.292

Q11A3 .0834 .5985 1.0000 .3737 .2163 .0104
 (120) (120) (120) (120) (120) (120)
 P=.365 P=.000 P=. P=.000 P=.018 P=.910

Q11A4 .1665 .4106 .3737 1.0000 .4236 .1449

(120) (120) (120) (120) (120) (120)
P=.069 P=.000 P=.000 P=. P=.000 P=.114

Q11A5 .2279 .2022 .2163 .4236 1.0000 .2810
(120) (120) (120) (120) (120) (120)
P=.012 P=.027 P=.018 P=.000 P=. P=.002

Q11A6 .0338 .0971 .0104 .1449 .2810 1.0000
(120) (120) (120) (120) (120) (120)
P=.714 P=.292 P=.910 P=.114 P=.002 P=.

Q11A7 .1335 .3939 .1833 .1801 .2452 .4381
(120) (120) (120) (120) (120) (120)
P=.146 P=.000 P=.045 P=.049 P=.007 P=.000

Q11A1 .1335
(120)
P=.146

Q11A2 .3939
(120)
P=.000

Q11A3 .1833
(120)
P=.045

Q11A4 .1801
(120)
P=.049

Q11A5 .2452
(120)
P=.007

Q11A6 .4381
(120)
P=.000

Q11A7 1.0000
(120)
P=.

Question 13

Q13A1 Q13A2 Q13A3 Q13A4 Q13A5 Q13A6

Q13A1 1.0000 .2783 .1129 .3123 .1803 .2047
(120) (120) (120) (120) (120) (120)
P=. P=.002 P=.220 P=.001 P=.049 P=.025

Q13A2 .2783 1.0000 .1857 .1781 .1162 .1755
(120) (120) (120) (120) (120) (120)
P=.002 P=. P=.042 P=.052 P=.206 P=.055

Q13A3 .1129 .1857 1.0000 .6011 .3837 .2703
(120) (120) (120) (120) (120) (120)
P=.220 P=.042 P=. P=.000 P=.000 P=.003

Q13A4 .3123 .1781 .6011 1.0000 .5154 .3040
 (120) (120) (120) (120) (120) (120)
 P=.001 P=.052 P=.000 P=. P=.000 P=.001

Q13A5 .1803 .1162 .3837 .5154 1.0000 .2414
 (120) (120) (120) (120) (120) (120)
 P=.049 P=.206 P=.000 P=.000 P=. P=.008

Q13A6 .2047 .1755 .2703 .3040 .2414 1.0000
 (120) (120) (120) (120) (120) (120)
 P=.025 P=.055 P=.003 P=.001 P=.008 P=.

Q13A7 .1392 .0945 .2193 .2435 .1557 .5305
 (120) (120) (120) (120) (120) (120)
 P=.129 P=.305 P=.016 P=.007 P=.089 P=.000

Q13A8 -.0043 .2283 .1627 .1549 .0543 .5522
 (120) (120) (120) (120) (120) (120)
 P=.963 P=.012 P=.076 P=.091 P=.556 P=.000

Q13A9 .1122 .1974 .1877 .2185 .5535 .3070
 (120) (120) (120) (120) (120) (120)
 P=.222 P=.031 P=.040 P=.016 P=.000 P=.001

Q13A10 .2921 .2874 .1395 .1308 .2582 .1974
 (120) (120) (120) (120) (120) (120)
 P=.001 P=.001 P=.129 P=.154 P=.004 P=.031

Q13A11 .2018 .1944 .1126 .0619 .1861 .1349
 (120) (120) (120) (120) (120) (120)
 P=.027 P=.033 P=.221 P=.502 P=.042 P=.142

Q13A1 Q13A2 Q13A3 Q13A4 Q13A5 Q13A6

Q13A12 .2091 .3099 .0556 .1419 .1568 .0758
 (120) (120) (120) (120) (120) (120)
 P=.022 P=.001 P=.546 P=.122 P=.087 P=.410

Q13A13 .2488 .2077 .1301 .0864 .2244 .1037
 (120) (120) (120) (120) (120) (120)
 P=.006 P=.023 P=.157 P=.348 P=.014 P=.260

Q13A14 .3563 .2604 .2586 .3065 .2171 .1799
 (120) (120) (120) (120) (120) (120)
 P=.000 P=.004 P=.004 P=.001 P=.017 P=.049

Q13A15 .1935 .2325 .2087 .1762 .2338 .2429
 (120) (120) (120) (120) (120) (120)
 P=.034 P=.011 P=.022 P=.054 P=.010 P=.008

Q13A16 .3338 .1869 .1495 .1490 .1205 .2294
 (120) (120) (120) (120) (120) (120)
 P=.000 P=.041 P=.103 P=.104 P=.190 P=.012

Q13A17 .1898 .2924 .0470 .0948 .0761 .2289
 (120) (120) (120) (120) (120) (120)
 P=.038 P=.001 P=.610 P=.303 P=.409 P=.012

Q13A18 .2180 .2707 .1373 .1743 .0297 .3221

(120) (120) (120) (120) (120) (120)
P=.017 P=.003 P=.135 P=.057 P=.748 P=.000

Q13A19 .2124 .2226 .0746 .1098 .0140 .1679
(120) (120) (120) (120) (120) (120)
P=.020 P=.015 P=.418 P=.233 P=.879 P=.067

Q13A7 Q13A8 Q13A9 Q13A10 Q13A11 Q13A12

Q13A1 .1392 -.0043 .1122 .2921 .2018 .2091
(120) (120) (120) (120) (120) (120)
P=.129 P=.963 P=.222 P=.001 P=.027 P=.022

Q13A2 .0945 .2283 .1974 .2874 .1944 .3099
(120) (120) (120) (120) (120) (120)
P=.305 P=.012 P=.031 P=.001 P=.033 P=.001

Q13A3 .2193 .1627 .1877 .1395 .1126 .0556
(120) (120) (120) (120) (120) (120)
P=.016 P=.076 P=.040 P=.129 P=.221 P=.546

Q13A4 .2435 .1549 .2185 .1308 .0619 .1419
(120) (120) (120) (120) (120) (120)
P=.007 P=.091 P=.016 P=.154 P=.502 P=.122

Q13A5 .1557 .0543 .5535 .2582 .1861 .1568
(120) (120) (120) (120) (120) (120)
P=.089 P=.556 P=.000 P=.004 P=.042 P=.087

Q13A6 .5305 .5522 .3070 .1974 .1349 .0758
(120) (120) (120) (120) (120) (120)
P=.000 P=.000 P=.001 P=.031 P=.142 P=.410

Q13A7 1.0000 .5494 .2103 .3135 .1825 .2179
(120) (120) (120) (120) (120) (120)
P=. P=.000 P=.021 P=.000 P=.046 P=.017

Q13A8 .5494 1.0000 .2383 .0906 .1353 .1070
(120) (120) (120) (120) (120) (120)
P=.000 P=. P=.009 P=.325 P=.141 P=.245

Q13A9 .2103 .2383 1.0000 .3180 .3439 .3354
(120) (120) (120) (120) (120) (120)
P=.021 P=.009 P=. P=.000 P=.000 P=.000

Q13A10 .3135 .0906 .3180 1.0000 .5773 .5826
(120) (120) (120) (120) (120) (120)
P=.000 P=.325 P=.000 P=. P=.000 P=.000

Q13A11 .1825 .1353 .3439 .5773 1.0000 .6585
(120) (120) (120) (120) (120) (120)
P=.046 P=.141 P=.000 P=.000 P=. P=.000

Q13A7 Q13A8 Q13A9 Q13A10 Q13A11 Q13A12

Q13A12 .2179 .1070 .3354 .5826 .6585 1.0000
(120) (120) (120) (120) (120) (120)
P=.017 P=.245 P=.000 P=.000 P=.000 P=.

Q13A13 .1340 -.0198 .2573 .5069 .4502 .5716
(120) (120) (120) (120) (120) (120)
P=.145 P=.830 P=.005 P=.000 P=.000 P=.000

Q13A14 .1875 .2084 .2193 .2713 .4361 .4796
(120) (120) (120) (120) (120) (120)
P=.040 P=.022 P=.016 P=.003 P=.000 P=.000

Q13A15 .2250 .2255 .2992 .2427 .3494 .3226
(120) (120) (120) (120) (120) (120)
P=.013 P=.013 P=.001 P=.008 P=.000 P=.000

Q13A16 .2734 .2308 .1940 .1680 .2841 .2802
(120) (120) (120) (120) (120) (120)
P=.003 P=.011 P=.034 P=.067 P=.002 P=.002

Q13A17 .2300 .2229 .1826 .5149 .2777 .2993
(120) (120) (120) (120) (120) (120)
P=.011 P=.014 P=.046 P=.000 P=.002 P=.001

Q13A18 .2887 .3192 .1235 .2694 .1464 .2873
(120) (120) (120) (120) (120) (120)
P=.001 P=.000 P=.179 P=.003 P=.111 P=.001

Q13A19 .2083 .1451 .0702 .1877 .0673 .2357
(120) (120) (120) (120) (120) (120)
P=.022 P=.114 P=.446 P=.040 P=.465 P=.010

Q13A13 Q13A14 Q13A15 Q13A16 Q13A17 Q13A18

Q13A1 .2488 .3563 .1935 .3338 .1898 .2180
(120) (120) (120) (120) (120) (120)
P=.006 P=.000 P=.034 P=.000 P=.038 P=.017

Q13A2 .2077 .2604 .2325 .1869 .2924 .2707
(120) (120) (120) (120) (120) (120)
P=.023 P=.004 P=.011 P=.041 P=.001 P=.003

Q13A3 .1301 .2586 .2087 .1495 .0470 .1373
(120) (120) (120) (120) (120) (120)
P=.157 P=.004 P=.022 P=.103 P=.610 P=.135

Q13A4 .0864 .3065 .1762 .1490 .0948 .1743
(120) (120) (120) (120) (120) (120)
P=.348 P=.001 P=.054 P=.104 P=.303 P=.057

Q13A5 .2244 .2171 .2338 .1205 .0761 .0297
(120) (120) (120) (120) (120) (120)
P=.014 P=.017 P=.010 P=.190 P=.409 P=.748

Q13A6 .1037 .1799 .2429 .2294 .2289 .3221
(120) (120) (120) (120) (120) (120)
P=.260 P=.049 P=.008 P=.012 P=.012 P=.000

Q13A7 .1340 .1875 .2250 .2734 .2300 .2887
(120) (120) (120) (120) (120) (120)
P=.145 P=.040 P=.013 P=.003 P=.011 P=.001

Q13A8 -.0198 .2084 .2255 .2308 .2229 .3192

(120) (120) (120) (120) (120) (120)
P=.830 P=.022 P=.013 P=.011 P=.014 P=.000

Q13A9 .2573 .2193 .2992 .1940 .1826 .1235
(120) (120) (120) (120) (120) (120)
P=.005 P=.016 P=.001 P=.034 P=.046 P=.179

Q13A10 .5069 .2713 .2427 .1680 .5149 .2694
(120) (120) (120) (120) (120) (120)
P=.000 P=.003 P=.008 P=.067 P=.000 P=.003

Q13A11 .4502 .4361 .3494 .2841 .2777 .1464
(120) (120) (120) (120) (120) (120)
P=.000 P=.000 P=.000 P=.002 P=.002 P=.111

Q13A13 Q13A14 Q13A15 Q13A16 Q13A17 Q13A18

Q13A12 .5716 .4796 .3226 .2802 .2993 .2873
(120) (120) (120) (120) (120) (120)
P=.000 P=.000 P=.000 P=.002 P=.001 P=.001

Q13A13 1.0000 .4913 .3990 .3204 .1279 .1725
(120) (120) (120) (120) (120) (120)
P=. P=.000 P=.000 P=.000 P=.164 P=.060

Q13A14 .4913 1.0000 .5300 .3641 .1835 .2620
(120) (120) (120) (120) (120) (120)
P=.000 P=. P=.000 P=.000 P=.045 P=.004

Q13A15 .3990 .5300 1.0000 .3181 .1853 .2662
(120) (120) (120) (120) (120) (120)
P=.000 P=.000 P=. P=.000 P=.043 P=.003

Q13A16 .3204 .3641 .3181 1.0000 .3620 .4852
(120) (120) (120) (120) (120) (120)
P=.000 P=.000 P=.000 P=. P=.000 P=.000

Q13A17 .1279 .1835 .1853 .3620 1.0000 .6512
(120) (120) (120) (120) (120) (120)
P=.164 P=.045 P=.043 P=.000 P=. P=.000

Q13A18 .1725 .2620 .2662 .4852 .6512 1.0000
(120) (120) (120) (120) (120) (120)
P=.060 P=.004 P=.003 P=.000 P=.000 P=.

Q13A19 .2689 .3092 .2458 .5095 .4841 .6193
(120) (120) (120) (120) (120) (120)
P=.003 P=.001 P=.007 P=.000 P=.000 P=.000

Q13A1 .2124
(120)
P=.020

Q13A2 .2226
(120)
P=.015

Q13A3 .0746
(120)

P= .418

Q13A4 .1098
(120)
P= .233

Q13A5 .0140
(120)
P= .879

Q13A6 .1679
(120)
P= .067

Q13A7 .2083
(120)
P= .022

Q13A8 .1451
(120)
P= .114

Q13A9 .0702
(120)
P= .446

Q13A10 .1877
(120)
P= .040

Q13A11 .0673
(120)
P= .465

Q13A19

Q13A12 .2357
(120)
P= .010

Q13A13 .2689
(120)
P= .003

Q13A14 .3092
(120)
P= .001

Q13A15 .2458
(120)
P= .007

Q13A16 .5095
(120)
P= .000

Q13A17 .4841
(120)
P= .000

Q13A18 .6193
(120)
P=.000

Q13A19 1.0000
(120)
P=.

Question 14

Q14A1 Q14A2 Q14A3 Q14A4 Q14A5 Q14A6

Q14A1 1.0000 .6292 .4413 .4694 .2532 .3830
(120) (120) (120) (120) (120) (120)
P=. P=.000 P=.000 P=.000 P=.005 P=.000

Q14A2 .6292 1.0000 .5247 .4973 .1555 .2080
(120) (120) (120) (120) (120) (120)
P=.000 P=. P=.000 P=.000 P=.090 P=.023

Q14A3 .4413 .5247 1.0000 .5281 .1881 .1975
(120) (120) (120) (120) (120) (120)
P=.000 P=.000 P=. P=.000 P=.040 P=.031

Q14A4 .4694 .4973 .5281 1.0000 .2053 .1049
(120) (120) (120) (120) (120) (120)
P=.000 P=.000 P=.000 P=. P=.024 P=.254

Q14A5 .2532 .1555 .1881 .2053 1.0000 .5545
(120) (120) (120) (120) (120) (120)
P=.005 P=.090 P=.040 P=.024 P=. P=.000

Q14A6 .3830 .2080 .1975 .1049 .5545 1.0000
(120) (120) (120) (120) (120) (120)
P=.000 P=.023 P=.031 P=.254 P=.000 P=.

Q14A7 .2978 .2339 .2280 .2204 .5293 .7922
(120) (120) (120) (120) (120) (120)
P=.001 P=.010 P=.012 P=.016 P=.000 P=.000

Q14A8 .3249 .1840 .2848 .2818 .3283 .4027
(120) (120) (120) (120) (120) (120)
P=.000 P=.044 P=.002 P=.002 P=.000 P=.000

Q14A9 .2716 .1710 .2589 .2272 .4263 .3984
(120) (120) (120) (120) (120) (120)
P=.003 P=.062 P=.004 P=.013 P=.000 P=.000

Q14A7 Q14A8 Q14A9

Q14A1 .2978 .3249 .2716
(120) (120) (120)
P=.001 P=.000 P=.003

Q14A2 .2339 .1840 .1710
(120) (120) (120)
P=.010 P=.044 P=.062

Q14A3 .2280 .2848 .2589
 (120) (120) (120)
 P=.012 P=.002 P=.004

Q14A4 .2204 .2818 .2272
 (120) (120) (120)
 P=.016 P=.002 P=.013

Q14A5 .5293 .3283 .4263
 (120) (120) (120)
 P=.000 P=.000 P=.000

Q14A6 .7922 .4027 .3984
 (120) (120) (120)
 P=.000 P=.000 P=.000

Q14A7 1.0000 .4092 .3402
 (120) (120) (120)
 P=. P=.000 P=.000

Q14A8 .4092 1.0000 .7196
 (120) (120) (120)
 P=.000 P=. P=.000

Q14A9 .3402 .7196 1.0000
 (120) (120) (120)
 P=.000 P=.000 P=.

Question 15

Q15A1 Q15A2 Q15A3 Q15A4 Q15A5 Q15A6

Q15A1 1.0000 .4169 .2796 .1223 .3677 .3014
 (120) (120) (120) (120) (120) (120)
 P=. P=.000 P=.002 P=.183 P=.000 P=.001

Q15A2 .4169 1.0000 .5150 .2155 .3907 .4284
 (120) (120) (120) (120) (120) (120)
 P=.000 P=. P=.000 P=.018 P=.000 P=.000

Q15A3 .2796 .5150 1.0000 .2592 .1806 .1176
 (120) (120) (120) (120) (120) (120)
 P=.002 P=.000 P=. P=.004 P=.048 P=.201

Q15A4 .1223 .2155 .2592 1.0000 .3482 .2176
 (120) (120) (120) (120) (120) (120)
 P=.183 P=.018 P=.004 P=. P=.000 P=.017

Q15A5 .3677 .3907 .1806 .3482 1.0000 .4563
 (120) (120) (120) (120) (120) (120)
 P=.000 P=.000 P=.048 P=.000 P=. P=.000

Q15A6 .3014 .4284 .1176 .2176 .4563 1.0000
 (120) (120) (120) (120) (120) (120)
 P=.001 P=.000 P=.201 P=.017 P=.000 P=.

Q15A7 .2063 .3033 .0099 .3445 .5046 .5107
 (120) (120) (120) (120) (120) (120)
 P=.024 P=.001 P=.915 P=.000 P=.000 P=.000

Q15A8 .3049 .4043 .1107 .2753 .4204 .5101
 (120) (120) (120) (120) (120) (120)
 P=.001 P=.000 P=.229 P=.002 P=.000 P=.000

Q15A7 Q15A8

Q15A1 .2063 .3049
 (120) (120)
 P=.024 P=.001

Q15A2 .3033 .4043
 (120) (120)
 P=.001 P=.000

Q15A3 .0099 .1107
 (120) (120)
 P=.915 P=.229

Q15A4 .3445 .2753
 (120) (120)
 P=.000 P=.002

Q15A5 .5046 .4204
 (120) (120)
 P=.000 P=.000

Q15A6 .5107 .5101
 (120) (120)
 P=.000 P=.000

Q15A7 1.0000 .4899
 (120) (120)
 P=. P=.000

Q15A8 .4899 1.0000
 (120) (120)
 P=.000 P=.

Question 18

Q18A1 Q18A2 Q18A3 Q18A4 Q18A5 Q18A6

Q18A1 1.0000 .3739 .3687 .5383 .4035 .3725
 (120) (120) (120) (120) (120) (120)
 P=. P=.000 P=.000 P=.000 P=.000 P=.000

Q18A2 .3739 1.0000 .3010 .3800 .2938 .1858
 (120) (120) (120) (120) (120) (120)
 P=.000 P=. P=.001 P=.000 P=.001 P=.042

Q18A3 .3687 .3010 1.0000 .5512 .3917 .3631
 (120) (120) (120) (120) (120) (120)
 P=.000 P=.001 P=. P=.000 P=.000 P=.000

Q18A4 .5383 .3800 .5512 1.0000 .5317 .3419

(120) (120) (120) (120) (120) (120)
P=.000 P=.000 P=.000 P=. P=.000 P=.000

Q18A5 .4035 .2938 .3917 .5317 1.0000 .5073
(120) (120) (120) (120) (120) (120)
P=.000 P=.001 P=.000 P=.000 P=. P=.000

Q18A6 .3725 .1858 .3631 .3419 .5073 1.0000
(120) (120) (120) (120) (120) (120)
P=.000 P=.042 P=.000 P=.000 P=.000 P=.

(Coefficient / (Cases) / 2-tailed Significance)

". " is printed if a coefficient cannot be computed

Appendix 6.2 Assumptions of Factor Analysis

Superior Performance : Question 3

Correlation Matrix:

	Q3A1	Q3A2	Q3A3	Q3A4
Q3A1	1.00000			
Q3A2	.79069	1.00000		
Q3A3	.30902	.32119	1.00000	
Q3A4	.26714	.29899	.58668	1.00000

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .59742
Bartlett Test of Sphericity = 180.17637, Significance = .00000

Product Attributes : Question 7

Correlation Matrix:

	Q7A1	Q7A2	Q7A3	Q7A4	Q7A5	Q7A6	Q7A7
Q7A1	1.00000						
Q7A2	.26488	1.00000					
Q7A3	.12381	.65083	1.00000				
Q7A4	.00000	.50283	.56908	1.00000			
Q7A5	.02495	.53294	.54638	.70481	1.00000		
Q7A6	-.04116	.17506	.35405	.26242	.36527	1.00000	
Q7A7	.02286	.18941	.19598	.10184	.19412	.44643	1.00000
Q7A8	.10060	.25226	.32093	.29580	.24790	.13090	.40200

Q7A8

Q7A8 1.00000

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .71794
Bartlett Test of Sphericity = 306.50473, Significance = .00000

Product Attributes Contribution : Question 9

Correlation Matrix:

	Q9A1	Q9A2	Q9A3	Q9A4	Q9A5	Q9A6
Q9A1	1.00000					
Q9A2	.46753	1.00000				
Q9A3	.18383	.16348	1.00000			
Q9A4	.45322	.50188	.35230	1.00000		
Q9A5	.33882	.21613	.29256	.46702	1.00000	
Q9A6	.01166	-.02005	.15528	.07406	.03412	1.00000

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .72647
Bartlett Test of Sphericity = 126.31987, Significance = .00000

Comprehension : Questions 5/6

Correlation Matrix:

	Q5A1	Q5A2	Q5A3	Q5A4	Q5A5	Q5A6	Q5A7
Q5A1	1.00000						
Q5A2	.83870	1.00000					
Q5A3	.73617	.75289	1.00000				
Q5A4	.64611	.77252	.75642	1.00000			
Q5A5	.69652	.83090	.69588	.76017	1.00000		
Q5A6	.55875	.68126	.69842	.75514	.75796	1.00000	
Q5A7	.57928	.72450	.57538	.60910	.63770	.69467	1.00000
Q5A8	.62372	.69058	.62252	.63229	.62194	.58315	.70815
Q5A9	.60280	.67315	.54863	.60877	.68409	.64456	.72910
Q5A10	.65131	.65200	.54416	.55248	.64675	.56398	.49821
Q5A11	.58306	.61921	.49259	.54222	.62302	.57515	.61189
Q6A1	.53260	.40042	.32777	.30940	.33958	.25448	.27071
Q6A2	.48885	.51669	.45121	.41182	.48410	.31927	.33462
Q6A3	.40173	.36883	.49686	.44609	.32783	.38329	.29216
Q6A4	.32361	.30996	.30414	.38892	.33510	.34674	.26906
Q6A5	.34329	.43288	.34149	.36623	.50831	.35365	.30373
Q6A6	.32942	.33094	.38211	.42455	.36026	.38226	.33982
Q6A7	.38845	.51213	.43596	.44643	.49816	.51403	.61042
Q6A8	.37968	.41636	.43313	.42220	.40360	.42115	.41758
Q6A9	.42111	.42994	.28671	.34602	.39331	.30700	.29252
Q6A10	.48616	.38914	.33221	.31428	.37843	.29402	.26873
Q6A11	.29093	.33913	.18062	.23112	.26136	.20878	.19418
	Q5A8	Q5A9	Q5A10	Q5A11	Q6A1	Q6A2	Q6A3
Q5A8	1.00000						
Q5A9	.63981	1.00000					
Q5A10	.65867	.73822	1.00000				
Q5A11	.52928	.86972	.74472	1.00000			
Q6A1	.30593	.35650	.38456	.26403	1.00000		
Q6A2	.32237	.42674	.35776	.35264	.51033	1.00000	
Q6A3	.32276	.32181	.31487	.26961	.52355	.54791	1.00000
Q6A4	.30326	.25987	.29333	.13362	.50792	.54205	.59460
Q6A5	.26871	.33739	.31810	.24607	.40689	.67535	.45700
Q6A6	.33396	.32635	.31289	.23131	.49567	.51791	.60035
Q6A7	.43962	.47731	.35859	.34560	.50278	.54852	.52406
Q6A8	.50886	.43423	.39157	.27459	.44193	.45521	.54273
Q6A9	.26818	.37187	.34533	.44128	.47742	.45205	.39887
Q6A10	.32853	.42423	.46860	.45894	.52141	.48797	.43599
	Q5A8	Q5A9	Q5A10	Q5A11	Q6A1	Q6A2	Q6A3
Q6A11	.20533	.32069	.31317	.45558	.38279	.41126	.35213
	Q6A4	Q6A5	Q6A6	Q6A7	Q6A8	Q6A9	Q6A10
Q6A4	1.00000						
Q6A5	.65273	1.00000					
Q6A6	.79045	.69678	1.00000				
Q6A7	.61049	.56248	.58502	1.00000			
Q6A8	.59621	.51194	.53216	.71473	1.00000		
Q6A9	.25329	.37473	.27243	.43402	.41693	1.00000	
Q6A10	.31896	.43732	.41049	.44210	.56103	.64574	1.00000
Q6A11	.18796	.36059	.27653	.39147	.29444	.65886	.60999
	Q6A11						
Q6A11	1.00000						

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .88773
 Bartlett Test of Sphericity = 2342.3392, Significance = .00000
 Review Processes : Questions 10, 14 & 18

Correlation Matrix:

Q10A1 Q10A2 Q10A3 Q10A4 Q10A5 Q14A1 Q14A2

Q10A1	1.00000						
Q10A2	.07103	1.00000					
Q10A3	.06653	.34937	1.00000				
Q10A4	.03509	.10933	.29192	1.00000			
Q10A5	.09742	.17793	.52177	.18619	1.00000		
Q14A1	.11658	.05757	.05432	.11560	.05342	1.00000	
Q14A2	-.03893	.01076	.06200	.18712	-.02093	.62924	1.00000
Q14A3	.03099	.04385	-.01696	.04478	-.00365	.44135	.52467
Q14A4	.07377	.05832	.12024	.13696	.08142	.46940	.49734
Q14A5	.18380	.20200	.21023	.19451	.15854	.25319	.15551
Q14A6	.11482	.14780	.08218	.06961	.12610	.38297	.20800
Q14A7	.08956	.11758	.05807	.08253	.13555	.29779	.23389
Q14A8	-.06456	.01828	.16004	.08232	.17817	.32485	.18398
Q14A9	-.01446	-.02568	.28401	.15399	.25391	.27158	.17095
Q18A1	.30012	.12878	.37470	.20182	.40131	.13604	.11628
Q18A2	.07689	.12847	.22093	.14928	.27571	.11119	.01727
Q18A3	.11011	.28520	.30872	.17937	.32766	.11032	.08280
Q18A4	.03103	.15541	.08818	.19038	.22440	.25894	.16873
Q18A5	-.05465	.17423	.20247	.14538	.35688	.28968	.15434
Q18A6	.07353	.03570	.29279	.12302	.15778	.27927	.36469

Q14A3 Q14A4 Q14A5 Q14A6 Q14A7 Q14A8 Q14A9

Q14A3	1.00000						
Q14A4	.52813	1.00000					
Q14A5	.18814	.20529	1.00000				
Q14A6	.19751	.10490	.55451	1.00000			
Q14A7	.22797	.22044	.52928	.79221	1.00000		
Q14A8	.28480	.28179	.32830	.40268	.40916	1.00000	
Q14A9	.25888	.22724	.42631	.39837	.34025	.71962	1.00000
Q18A1	.27509	.15468	.21395	.13819	.17925	.13685	.14036
Q18A2	.06521	.08742	.11177	-.00978	.03915	.02490	.02948
Q18A3	.04750	.10532	.30481	.30684	.23492	.15749	.13024
Q18A4	.25760	.20263	.35766	.29764	.36660	.27268	.14200
Q18A5	.26883	.21520	.20903	.28136	.27256	.49694	.29572
Q18A6	.45866	.37473	.24383	.23830	.17514	.24625	.21995

Q18A1 Q18A2 Q18A3 Q18A4 Q18A5 Q18A6

Q18A1	1.00000					
Q18A2	.37389	1.00000				
Q18A3	.36872	.30103	1.00000			
Q18A4	.53831	.38000	.55121	1.00000		
Q18A5	.40347	.29381	.39169	.53165	1.00000	
Q18A6	.37247	.18585	.36309	.34189	.50730	1.00000

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .73670

Bartlett Test of Sphericity = 958.66573, Significance = .00000

Resource Advantage : Question 13

Correlation Matrix:

Q13A1 Q13A2 Q13A3 Q13A4 Q13A5 Q13A6 Q13A7

Q13A1	1.00000							
Q13A2	.27830	1.00000						
Q13A3	.11291	.18573	1.00000					
Q13A4	.31228	.17813	.60108	1.00000				
Q13A5	.18033	.11616	.38368	.51538	1.00000			
Q13A6	.20467	.17552	.27030	.30397	.24143	1.00000		
Q13A7	.13920	.09448	.21928	.24353	.15572	.53048	1.00000	
Q13A8	-.00427	.22835	.16274	.15487	.05430	.55216	.54938	
Q13A9	.11221	.19742	.18773	.21851	.55347	.30702	.21028	
Q13A10	.29207	.28745	.13948	.13081	.25820	.19736	.31353	
Q13A11	.20177	.19444	.11255	.06187	.18606	.13487	.18248	
Q13A12	.20910	.30988	.05560	.14191	.15682	.07585	.21786	
Q13A13	.24879	.20773	.13012	.08640	.22437	.10371	.13400	
Q13A14	.35629	.26043	.25862	.30646	.21705	.17993	.18747	
Q13A15	.19346	.23253	.20872	.17622	.23380	.24294	.22499	
Q13A16	.33378	.18692	.14949	.14903	.12051	.22941	.27337	
Q13A17	.18977	.29244	.04700	.09483	.07613	.22886	.23005	
Q13A18	.21798	.27069	.13729	.17429	.02965	.32206	.28870	
Q13A19	.21241	.22259	.07456	.10978	.01401	.16788	.20829	

Q13A8 Q13A9 Q13A10 Q13A11 Q13A12 Q13A13 Q13A14

Q13A8	1.00000							
Q13A9	.23829	1.00000						
Q13A10	.09061	.31800	1.00000					
Q13A11	.13530	.34390	.57729	1.00000				
Q13A12	.10697	.33545	.58256	.65855	1.00000			
Q13A13	-.01977	.25730	.50688	.45017	.57161	1.00000		
Q13A14	.20844	.21933	.27133	.43607	.47957	.49130	1.00000	
Q13A15	.22554	.29924	.24272	.34938	.32259	.39905	.52996	
Q13A16	.23077	.19405	.16801	.28411	.28017	.32038	.36409	
Q13A17	.22289	.18256	.51486	.27771	.29933	.12786	.18345	
Q13A18	.31918	.12349	.26938	.14637	.28730	.17251	.26196	
Q13A19	.14508	.07016	.18774	.06730	.23571	.26892	.30918	

Q13A15 Q13A16 Q13A17 Q13A18 Q13A19

Q13A15 1.00000

Q13A15 Q13A16 Q13A17 Q13A18 Q13A19

Q13A16	.31811	1.00000			
Q13A17	.18527	.36201	1.00000		
Q13A18	.26620	.48522	.65123	1.00000	
Q13A19	.24581	.50955	.48410	.61928	1.00000

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .77681

Bartlett Test of Sphericity = 922.27137, Significance = .00000

Resource Importance : Question 11

Correlation Matrix:

Q11A1 Q11A2 Q11A3 Q11A4 Q11A5 Q11A6 Q11A7

Q11A1	1.00000					
Q11A2	.21545	1.00000				

Q11A3	.08340	.59846	1.00000				
Q11A4	.16647	.41057	.37371	1.00000			
Q11A5	.22790	.20218	.21631	.42362	1.00000		
Q11A6	.03381	.09708	.01043	.14487	.28100	1.00000	
Q11A7	.13346	.39388	.18328	.18009	.24516	.43809	1.00000

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .65166

Bartlett Test of Sphericity = 167.57555, Significance = .00000

Core Competencies : Question 15

Correlation Matrix:

	Q15A1	Q15A2	Q15A3	Q15A4	Q15A5	Q15A6	Q15A7
Q15A1	1.00000						
Q15A2	.41687	1.00000					
Q15A3	.27956	.51503	1.00000				
Q15A4	.12233	.21550	.25924	1.00000			
Q15A5	.36773	.39074	.18058	.34821	1.00000		
Q15A6	.30135	.42843	.11758	.21760	.45630	1.00000	
Q15A7	.20631	.30327	.00986	.34447	.50457	.51069	1.00000
Q15A8	.30493	.40428	.11073	.27526	.42044	.51014	.48992

Q15A8

Q15A8	1.00000
-------	---------

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .79676

Bartlett Test of Sphericity = 263.19130, Significance = .00000

Appendix 6.3 Reliability Analysis of the Measures

Question 3

Number of Cases = 120.0 Number of Items = 4

Alpha = .7507

Question 5

Reliability Coefficients

Number of Cases = 120.0 Number of Items = 11

Alpha = .9541

Question 6

Reliability Coefficients

Number of Cases = 120.0 Number of Items = 9

Alpha = .9066

Question 5&6

Reliability Coefficients

Number of Cases = 120.0 Number of Items = 20

Alpha = .9494

Question 7

Reliability Coefficients

Number of Cases = 120.0 Number of Items = 8

Alpha = .7453

Question 8

Reliability Coefficients

Number of Cases = 120.0 Number of Items = 8

Alpha = .7206

Question 9

Reliability Coefficients

Number of Cases = 120.0 Number of Items = 6

Alpha = .6520

Question 10

Number of Cases = 120.0 Number of Items = 5

Alpha = .5247

Question 11

Reliability Coefficients

Number of Cases = 120.0 Number of Items = 7

Alpha = .6694

Question 12

Reliability Coefficients

Number of Cases = 120.0 Number of Items = 8

Alpha = .7434

Question 13

Reliability Coefficients

Number of Cases = 120.0

Number of Items = 19

Alpha = .8622

Question 14

Reliability Coefficients

Number of Cases = 120.0

Number of Items = 9

Alpha = .8291

Question 15

Reliability Coefficients

Number of Cases = 120.0

Number of Items = 8

Alpha = .7907

Question 16

Reliability Coefficients

Number of Cases = 120.0

Number of Items = 5

Alpha = .7646

Question 17

Reliability Coefficients

Number of Cases = 120.0

Number of Items = 6

Alpha = .7359

Question 18

Reliability Coefficients

Number of Cases = 120.0

Number of Items = 6

Alpha = .7849

Question 10, 14, & 18

Reliability Coefficients

Number of Cases = 120.0

Number of Items = 20

Alpha = .8513

Appendix 6.4 Reliability of Factors

RELIABILITY ANALYSIS - SCALE (ALPHA)

Fac1.1

Reliability Coefficients

Number of Cases = 120.0 Number of Items = 2

Alpha = .8829

Fac2.1

Reliability Coefficients

Number of Cases = 120.0 Number of Items = 2

Alpha = .7343

Fac1.2

Reliability Coefficients

Number of Cases = 120.0 Number of Items = 11

Alpha = .9541

Fac2.2

Reliability Coefficients

Number of Cases = 120.0 Number of Items = 8

Alpha = .9090

Fac2.3

Reliability Coefficients

Number of Cases = 120.0 Number of Items = 3

Alpha = .8393

Fac1.3

Reliability Coefficients

Number of Cases = 120.0 Number of Items = 4

Alpha = .8491

Fac2.3

Reliability Coefficients

Number of Cases = 120.0 Number of Items = 3

Alpha = .5890

Fac3.3

Could not be entered, Q7A1 is the only item.

Fac1.4

Reliability Coefficients

Number of Cases = 120.0 Number of Items = 3

Alpha = .7125

Fac2.4

Reliability Coefficients

Number of Cases = 120.0 Number of Items = 2

Alpha = .2688

Fac1.5

Reliability Coefficients

Number of Cases = 120.0 Number of Items = 4

Alpha = .8089

Fac2.5

Reliability Coefficients

Number of Cases = 120.0 Number of Items = 5

Alpha = .7635

Fac3.5

Reliability Coefficients

Number of Cases = 120.0 Number of Items = 3

Alpha = .8331

Fac4.5

Reliability Coefficients

Number of Cases = 120.0 Number of Items = 2

Alpha = .8369

Fac5.5

Reliability Coefficients

Number of Cases = 120.0 Number of Items = 4

Alpha = .5902

Fac6.5

Could not be tested, Q10A1 is the only item.

Fac1.6

Reliability Coefficients

Number of Cases = 120.0 Number of Items = 3

Alpha = .7023

Fac2.6

Reliability Coefficients

Number of Cases = 120.0 Number of Items = 3

Alpha = .5889

Fac1.7

Reliability Coefficients

Number of Cases = 120.0 Number of Items = 4

Alpha = .7883

Fac2.7

Reliability Coefficients

Number of Cases = 120.0 Number of Items = 3

Alpha = .6673

VARIMAX - Rotation Loadings of Split-Sample 1

	Fac.1	Fac.2	Fac.3	Fac.4	Fac.5	Communalities
Q3 Superior Performance						
Split-Sample 1						
Profitability	.926					.873
Return on Assets	.910					.863
Sales Volume		.851				.757
Growth		.874				.778
Split-Sample 2						
Profitability	.941					.919
Return on Assets	.940					.920
Sales Volume		.877				.813
Growth		.890				.828
Q5/6 Comprehension						
Split-Sample 1						
Firm resources	.726					.780
Strategic resources	.807					.855
Superior resources	.780					.725
Intangible resources	.834					.773
Strategic assets	.801					.840
Intangible assets	.858					.797
Core competencies	.756					.743
Distinctive competencies	.749					.750
Managerial competencies	.740					.768
Distinctive skills	.676					.687
Managerial capabilities	.656					.762
Firm resources					.725	.711
Strategic resources			.692			.689
Superior resources					.660	.634
Intangible resources			.659			.838
Strategic assets			.789			.835
Intangible assets					.608	.825
Core competencies			.758			.773
Distinctive competencies					.567	.746
Managerial competencies				.770		.679
Distinctive skills				.698		.708
Managerial capabilities				.821		.702
Split-Sample 2						
Firm resources						
Strategic resources	.739					.634
Superior resources	.860					.802
Intangible resources	.787					.741
Strategic assets	.763					.720
Intangible assets	.835					.801
Core competencies	.743					.660
Distinctive competencies	.793					.668
Managerial competencies	.805					.704
Distinctive skills	.800					.767
Managerial capabilities	.769					.686
Firm resources	.801					.783
		.655				.519

Strategic resources		.766				.694
Superior resources		.884				.670
Intangible resources		.765				.784
Strategic assets		.820				.648
Intangible assets			.566			.701
Core competencies			.566			.643
Distinctive competencies			.790			.603
Managerial competencies			.814			.718
Distinctive skills			.817			.801
Managerial capabilities						.723
Q7 Product Attributes						
Split-Sample 1						
Price			.953			.914
Quality	.808					.747
Performance	.778					.626
Durability	.830					.739
Reliability	.862					.810
Convenience		.780				.710
Delivery patterns		.848				.771
After sales service						.242
Split-Sample 2						
Price			.885			.788
Quality			.523			.749
Performance	.798					.777
Durability	.882					.779
Reliability	.820					.720
Convenience		.594				.545
Delivery patterns		.915				.842
After sales service		.689				.615
Q9 Product Strategies						
Split-Sample 1						
Product design	.783					.622
Product reputation	.750					.598
Product line extensions	.531					.489
Improving product quality	.836					.703
High margin/premium offerings	.645					.437
Lowering new product prices		.876				.781
Split-Sample 2						
Product design	.786					.641
Product reputation	.676					.458
Product line extensions		.809				.670
Improving product quality	.715					.649
High margin/premium offerings	.660					.530
Lowering new product prices		.757				.573
Q 10,14 & 18 Review Processes						
Split-Sample 1						
Product price					.785	.714
Quality improvements						.473
Product performance				.639		.872
New product development				.846		.578
After sales service						.569
Scale economies				.651		.664
Manufacturing flexibility		.770				.837

Technical skills		.777				.749
Delivery capabilities		.816				.792
Managerial capabilities		.858				.731
Ability to innovate	.820					.765
Adaptability	.857					.791
Workforce commitment	.611					.797
Training programmes	.711					.752
Customer profiles						.777
Customer complaints			.665			.617
Customer needs			.750			.829
Customer loyalty			.572			.812
Information systems			.780			.747
Distribution networks.			.764			.680
Split-Sample 2						
Product price		.748				.788
Quality improvements			.829			.780
Product performance						.672
New product development						.309
After sales service		.745				.687
Scale economies	.836					.786
Manufacturing flexibility	.692					.693
Technical skills		.790				.760
Delivery capabilities						.411
Managerial capabilities				.615		.741
Ability to innovate	.750					.794
Adaptability	.734					.692
Workforce commitment						.862
Training programmes					.890	.825
Customer profiles		.523			.891	.678
Customer complaints			.790			.645
Customer needs				.730		.794
Customer loyalty				.580		.713
Information systems						.765
Distribution networks.		.875				.850
Q11 Resource Contribution						
Split-Sample 1						
Location			.795			.646
Managerial teams	.631					.608
Skilled workforce	.837					.707
Equipment	.741					.642
Know-how			.714			.739
Availability of capital		.805				.693
Profitability		.854				.794
Split-Sample 2						
Location	.506					.309
Managerial teams	.915					.851
Skilled workforce	.843					.712
Equipment	.646					.532
Know-how		.526				.371
Availability of capital		.867				.754
Profitability		.724				.562
Q13 Resource Advantages						
Split-Sample 1						
Product quality		.555				.580
Speed of NPD						.707
Customer base			.663			.767

Customer loyalty			.818			.747
Dealer loyalty			.802			.759
Supplier know-how				.784		.667
Supplier reliability				.715		.584
Relationships with Suppliers				.788		.802
Dealers	.637					.585
Innovative designs	.869					.811
Economies of scale	.864					.767
Manufacturing flexibility	.809					.775
Technical skills	.626				.700	.730
Delivery capabilities					.800	.688
Supplier sourcing flexibility						.719
Managerial capabilities		.739				.707
Ability to innovate		.724				.692
Adaptability		.777				.764
Workforce management		.729				.701
Split-Sample 2						
Product quality				.647		.714
Speed of NPD						.365
Customer base				.754		.651
Customer loyalty				.770		.804
Dealer loyalty					.815	.789
Supplier know-how		.700				.725
Supplier reliability		.830				.778
Relationships with Suppliers		.894				.835
Dealers					.855	.784
Innovative designs						.886
Economies of scale	.737					.635
Manufacturing flexibility	.788					.725
Technical skills	.685					.543
Delivery capabilities	.804					.803
Supplier sourcing flexibility	.510					.608
Managerial capabilities			.577			.730
Ability to innovate			.705			.849
Adaptability			.856			.820
Workforce management			829			.772
Q15 Core Competencies						
Split-Sample 1						
Inventory		.711				.529
Clarity of Competencies		.753				.758
Stable management		.877				.804
Similar competencies						.313
Collective learning?	.584					.526
“Competence” reviews	.776					.636
Competence goals	.829					.688
Benchmark competence-building efforts against rivals?	.757					.590
Split-Sample 2						
Inventory						
Clarity of Competencies	.510					.329
Stable management		.834				.757
Similar competencies	.560	.856				.734
Collective learning?	.833					.314
Competence reviews	.697					.700

Competence goals	.807					.561
Benchmark competence-building efforts against rivals?	.706					.655
						.603

Appendix 6.6: Variable Names

Dependent /Criterion Variable

Prof.1.2	Profitability & Return on Assets
Grow2.2	Growth & Sales Volume

Independent/Predictor Variables

Opera 1.8	Operations & Design
Mang 2.8	Managerial & Labour
Custm3.8	Customer & Dealer Loyalty
Supp 4. 8	Supplier Relationships
Perf 5.8	Delivery Performance

Moderator variables

Skil 1.6	Delivery Capabilities
Custm 2.6	Customer Loyalty
Prod 3.6	Product Performance
Manu 4.6	Manufacturing Flexibility
Price 1.4	Durability
Produ 1.5	Product Design
Manu 1.7	Team Work
Comp 1.9	Competence Goals
Know 1.3	Knowledge
Apply 2.3	Applicability of Intangible Resources
Apply 3.3	Applicability of Capabilities
Exper	Experience
Fun Exp	Functional Expertise
Tran&Dev	Training & Development

Opera1	Delivery Capabilities * Operations & Design.
Opera 2	Customer Loyalty * Operations &Design
Opera 3	Product Performance* Operations & Design
Opera 4	Manufacturing Flexibility* Operations &Design
Opera 5	Durability * Operations & Design
Opera 6	Product Design* Operations & Design
Opera 7	Team Work * Operations & Design
Opera 8	Competence Goals * Operations & Design
Opera 9	Knowledge * Operations & Design
Opera10	Applicability of intangible resources * Operations & Design
Opera11	Applicability of Capabilities* Operations & Design
Opera 12	Experience * Operations & Design
Opera 13	Training & Development * Operations & Design

Mang 1	Delivery Capabilities* Managerial & Labour
Mang 2	Customer Loyalty* Managerial & Labour
Mang 3	Product Performance* Managerial & Labour
Mang 4	Manufacturing Flexibility * Managerial & Labour
Mang 5	Durability *Managerial & Labour
Mang 6	Product Design * Managerial & Labour
Mang 7	Team Work * Managerial & Labour
Mang 8	Competence Goals * Managerial & Labour
Mang 9	Knowledge * Managerial & Labour
Mang10	Applicability of intangible resources * Managerial & Labour
Mang11	Applicability of Capabilities * Managerial & Labour
Mang 12	Experience * Managerial & Labour
Mang 13	Training & Development * Managerial & Labour
Custm 1	Delivery Capabilities * Customer & Dealer Loyalty
Custm2	Customer Loyalty* Customer & Dealer Loyalty
Custm 3	Product Performance * Customer & Dealer Loyalty
Custm 4	Manufacturing Flexibility* Customer & Dealer Loyalty
Custm 5	Durability * Customer & Dealer Loyalty
Custm 6	Product Design * Customer & Dealer Loyalty
Custm 7	Team Work * Customer & Dealer Loyalty
Custm 8	Competence Goals * Customer & Dealer Loyalty
Custm 9	Knowledge * Customer & Dealer Loyalty
Custm10	Applicability of intangible resources * Customer & Dealer Loyalty
Custm11	Applicability of Capabilities* Customer & Dealer Loyalty
Custm12	Experience* Customer & Dealer Loyalty
Custm 13	Training & Development * Customer & Dealer Loyalty
Supp 1	Delivery Capabilities * Supplier Relationships
Supp 2	Customer Loyalty* Supplier Relationships
Supp 3	Product Performance* Supplier Relationships
Supp 4	Manufacturing Flexibility* Supplier Relationships
Supp 5	Durability * Supplier Relationships
Supp 6	Product Design * Supplier Relationships
Supp 7	Team Work * Supplier Relationships
Supp 8	Competence Goals * Supplier Relationships
Supp 9	Knowledge * Supplier Relationships
Supp10	Applicability of intangible resources* Supplier Relationships
Supp11	Applicability of capabilities* Supplier Relationships
Supp12	Experience * Supplier Relationships
Supp13	Training & Development * Supplier Relationships

Perf 1	Delivery Capabilities* Delivery Performance
Perf 2	Customer Loyalty* Delivery Performance
Perf 3	Product Performance* Delivery Performance
Perf 4	Manufacturing Flexibility* Delivery Performance
Perf 5	Durability * Delivery Performance
Perf 6	Product Design * Delivery Performance
Perf 7	Team Work* Delivery Performance
Perf 8	Competence Goals * Delivery Performance
Perf 9	Knowledge * Delivery Performance
Perf 10	Applicability of intangible resources* Delivery Performance
Perf 11	Applicability of Capabilities* Delivery Performance
Perf 12	Experience* Delivery Performance
Perf 13	Training & Development* Delivery Performance