

This item was submitted to [Loughborough's Research Repository](#) by the author.
Items in Figshare are protected by copyright, with all rights reserved, unless otherwise indicated.

The nature of the relationship between market orientation and performance

PLEASE CITE THE PUBLISHED VERSION

PUBLISHER

Loughborough University

LICENCE

CC BY-NC-ND 4.0

REPOSITORY RECORD

French, Mark J.. 2019. "The Nature of the Relationship Between Market Orientation and Performance".
figshare. <https://hdl.handle.net/2134/8950>.

This item was submitted to Loughborough's Institutional Repository (<https://dspace.lboro.ac.uk/>) by the author and is made available under the following Creative Commons Licence conditions.



For the full text of this licence, please go to:
<http://creativecommons.org/licenses/by-nc-nd/2.5/>

Thesis Access Form

Copy No.....Location.....

Author.....

Title.....

Status of access OPEN / RESTRICTED / CONFIDENTIAL

Moratorium Period:.....years, ending...../.....200.....

Conditions of access approved by (CAPITALS):.....

Supervisor (Signature).....

School of.....

Author's Declaration: *I agree the following conditions:*

Open access work shall be made available (in the University and externally) and reproduced as necessary at the discretion of the University Librarian or Dean of School. It may also be digitised by the British Library and made freely available on the Internet to registered users of the EThOS service subject to the EThOS supply agreements.

The statement itself shall apply to ALL copies including electronic copies:

This copy has been supplied on the understanding that it is copyright material and that no quotation from the thesis may be published without proper acknowledgement.

Restricted/confidential work: All access and any photocopying shall be strictly subject to written permission from the University Dean of School and any external sponsor, if any.

Author's signature.....Date.....

users declaration: for signature during any Moratorium period (Not Open work): <i>I undertake to uphold the above conditions:</i>			
Date	Name (CAPITALS)	Signature	Address



CERTIFICATE OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this thesis, that the original work is my own except as specified in acknowledgments or in footnotes, and that neither the thesis nor the original work contained therein has been submitted to this or any other institution for a degree.

..... (Signed)

..... (Date)

**THE NATURE OF THE RELATIONSHIP BETWEEN MARKET
ORIENTATION AND PERFORMANCE**

by

Mark J French

A Doctoral Thesis

Submitted in partial fulfilment of the requirements for the award of
Doctor of Philosophy (PhD) of Loughborough University

April 2011

© by Mark J French 2011

Dedicated to my family

Sharon
Jack and Ray

With thanks to John Cadogan
and all who provided help
along the way

The Nature of the Relationship Between Market Orientation and Performance

Mark J French

ABSTRACT

A review of the literature indicates that a universally enhancing relationship between market orientation and performance is not conclusively supported. Recent research suggests that the relationship between marketing investments and profit may be inverted U-shaped such that there is an optimal level of marketing investments which maximises profit (Mantrala et al 2007). In this study, it is proposed that market orientation has different curvilinear relationships with different types of performance. Using a performance categorisation suggested by Kirca et al (2005), it is theorised that market orientation's relationship with *revenue-based* performance (e.g. sales growth, market share growth) is subject to *diminishing returns* such that performance is enhanced for all levels of market orientation but the incremental benefits diminish as market orientation increases. For *cost-based* performance (e.g. profit, return on sales), it is proposed that the incremental costs of implementing market oriented activities may exceed the benefits. Thus, cost-based performance may have an inverted U-shaped relationship with market orientation. Three mechanisms by which diminishing returns affect the market orientation - performance relationship are identified; duplication, contradiction and prioritisation. A review of over 400 papers in the market orientation literature demonstrates that a research gap exists for different curvilinear relationships between market orientation and different types of performance. In particular, an inverted U-shaped relationship has not previously been found between market orientation and profit.

A sampling frame was selected to control for both the macro-environment, and different performance levels in different industries (Dess and Robinson 1984). In a sample of 113 UK car dealers operating in the new car market the hypothesised relationships were tested using both objective and subjective performance measures. The findings relating to objective performance measures support the full inverted U-shaped relationship between market orientation and profit across the observed range of values. The relationship for objective revenue-based performance is more curvilinear with significant linear and curvilinear components. In highly competitive environments maximum profit shifts to a higher level of market orientation and overall the relationship is predominantly enhancing. Conversely, in uncompetitive environments profit is maximised at a lower level of market orientation and the relationship becomes detrimental at moderate market orientation levels. In recession, the profit for all new car dealers is reduced and maximum profit occurs at a lower market orientation level. In addition, the relationship between market orientation and sales growth turns negative in a recession. Interestingly, the results for subjective performance are distinctly different to, and sometimes contradict, the objective performance results. In particular, subjective performance predominantly has a positive linear relationship with market orientation.

Keywords:

Market Orientation, Performance, Cost-based, Revenue-based, Curvilinear, Non-linear, Contingency, Moderator, Environment, Competition, Recession.

CONTENTS

CHAPTER 1: MARKET ORIENTATION AND PERFORMANCE

1.1 MARKET ORIENTATION	1
1.2 RESEARCH GAPS	4
1.2.1. Introduction	4
1.2.2. Market Orientation, Performance and Diminishing Returns	4
1.2.3. Environmental Contingency	7
1.2.4. The Level of Analysis, Information Lost and Confounding	9
1.3 RESEARCH QUESTIONS	12
1.4 THESIS STRUCTURE	13
1.5 RESEARCH CONTRIBUTION	13

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION	16
2.2 MARKET ORIENTATION	17
2.3 THE MARKET ORIENTATION – PERFORMANCE RELATIONSHIP	22
2.3.1. Performance Consequences	22
2.3.2. The Relationship between Market Orientation and Performance	23
2.3.3. Moderation and Contingency Effects	25
2.4 LEVEL OF ANALYSIS	27
2.5 MARKET ORIENTATION AND PERFORMANCE: NON-LINEAR EFFECTS	29
2.5.1 Introduction	29
2.5.2 Approaches to Detecting Non-Linear Relationships	30
2.5.3 Interpretation of Paths or Coefficients	32
2.5.4 Review and Assessment of Non-Linear Literature	34
2.5.4.1 Narver, Slater, <i>Journal of Marketing</i> , 1990	34
2.5.4.2 Singh, Ranchhod, <i>Industrial Marketing Management</i> , 2004	36
2.5.4.3 Cadogan, Cui, <i>Journal of Asia Pacific Marketing</i> , 2004	36
2.5.4.4 Atuahene-Gima, Slater, Olson, <i>Product Innovation Management</i> , 2005	37
2.5.4.5 Tsai, Chou, Kuo, <i>Industrial Marketing Management</i> , 2008	40
2.5.4.6 Song, Parry, <i>Journal of the Academy of Marketing Science</i> , 2009	42
2.5.4.7 Cadogan et al, <i>Journal of International Marketing</i> , 2009	44
2.6 CONCLUSION	45

CHAPTER 3: CONCEPTUAL MODEL

3.1 OBJECTIVE	48
3.2 MARKET ORIENTATION AND PERFORMANCE	48
3.2.1 Cost-based and Revenue-based Performance	48
3.2.2 Mechanisms	49
3.2.3 Primacy	51
3.2.4 Diminishing Returns	52

3.3 ENVIRONMENT EFFECTS	56
3.3.1 Competitive Environment	56
3.3.2 Recession	60
CHAPTER 4: METHODS	
4.1 OBJECTIVE	63
4.2 RESEARCH INSTRUMENT	63
4.2.1 Sources	63
4.2.2 Longitudinal or Cross-Sectional	64
4.2.3 Administration	65
4.3 SAMPLING FRAME	66
4.3.1 Comparing Performance between Firms	66
4.3.2 Demand Dependency	66
4.3.3 Objective Performance, Response Rate and Sample Size	67
4.3.4 Controlling the Macro Environment	67
4.3.5 Variance in Market Orientation	68
4.3.6 The Sampling Frame	68
4.3.7 The Respondent	68
4.4 MEASURES AND SCALES	69
4.4.1 Market Orientation	69
4.4.2 Performance	70
4.4.2.1 <i>Objective</i>	70
4.4.2.2 <i>Subjective</i>	71
4.4.2.3 <i>Long-term and Short-term</i>	71
4.4.2.4 <i>Dealership</i>	72
4.4.3 Environment Moderators	72
4.5 CHARACTERISTICS	73
4.5.1 The Firm	73
4.5.2 The Environment	74
4.5.3 The Respondent	74
4.6 THE QUESTIONNAIRE FORM	74
4.6.1 The Form	74
4.6.2 Administering Institution	74
4.6.3 Confidentiality and Anonymity	75
4.6.4 Length	75
4.6.5 Incentive	76
4.6.6 Sequence	76
4.7 DATA COLLECTION	77
4.7.1 Dealership Listings	77
4.7.2 Checks: Questionnaire and Mailing Materials	77
4.7.3 Pre-test Mailings	78
4.7.4 Refinement	80
4.7.5 Main Survey	80
4.8 RESPONSE	81
4.8.1 Follow-up Sample on Eligibility	81
4.8.2 Non-Response Bias	83
4.9 CONCLUSIONS	85

CHAPTER 5: DATA PROCESSING AND PROFILING

5.1 INTRODUCTION	86
5.2 DATA CODING AND CLEANING	86
5.2.1 Coding	86
5.2.2 Cleaning	86
5.3 MISSING VALUES	87
5.3.1 Calculation	87
5.3.2 Missing Values	87
5.3.4 Imputation	89
5.4 COMPUTING ADDITIONAL VARIABLES	90
5.5 SAMPLE DESCRIPTION	90
5.6 CONCLUSION	95

CHAPTER 6: MEASURE ASSESSMENT AND DATA REDUCTION

6.1 OBJECTIVE	96
6.2 MEASURE EVALUATION CRITERIA AND PROCEDURE	96
6.2.1 Multi-Item Measures	96
6.2.2 Unidimensionality	97
6.2.3 Validity	97
6.2.4 Reliability	98
6.2.5 Single-Item Measures	98
6.2.6 Assessment Strategy	99
6.3 EXPLORATORY FACTOR ANALYSIS (EFA)	99
6.3.1 Procedure	99
6.3.2 Assessment	100
6.3.3 Conclusions	102
6.4 CONFIRMATORY FACTOR ANALYSIS (CFA)	103
6.4.1 Parsimony	103
6.4.2 Performance: Absolute and Relative Measures	103
6.4.3 Recession and Pre-recession Measures	104
6.4.4 Sample Size to Parameter Estimate Ratio	105
6.4.5 Procedure	106
6.4.6 Assessment	106
6.4.7 Common Method Variance (CMV) and Method Bias	108
6.5 RELIABILITY AND VALIDITY	112
6.6 CONCLUSIONS	113

CHAPTER 7: MODEL TESTING

7.1 OBJECTIVES	116
7.2 ANALYSIS STRATEGY	116
7.2.1 Non-linearity and Quadratics	116
7.2.2 Moderation: Interactions and Multi-Group Analysis	116
7.2.3 Multicollinearity and Residual-Centering	117
7.2.4 Latent Variables: Interactions, Quadratics, and Residual-Centering	118

7.2.5 Single Item Measures	119
7.2.6 Performance Measures and Error Correlations	119
7.2.7 Sample Size to Parameter Estimate Ratio	119
7.2.8 Procedure	120
7.3 MODEL TESTING	120
7.4 HYPOTHESIS TESTING AND RESULTS	122
7.5 CONCLUSIONS	135
CHAPTER 8: DISCUSSION AND CONCLUSIONS	
8.1 OBJECTIVES	137
8.2 THEORY, MECHANISMS AND FINDINGS	137
8.2.1 Diminishing Returns, Income and Profit	137
8.2.2 Competition	141
8.2.3 Recession	142
8.2.4 Subjective Performance.	143
8.2.5 Relative Performance	148
8.3 CONTRIBUTION TO PRACTICE	149
8.4 LIMITATIONS	150
8.5 FUTURE RESEARCH DIRECTIONS	152
REFERENCES	154
APPENDIX: QUESTIONNAIRE	164

CHAPTER 1: MARKET ORIENTATION AND PERFORMANCE

1.1. MARKET ORIENTATION

Empirical research into market orientation began in 1990 with the explication of the market orientation construct and the development of the first market orientation measures. Two market orientation constructs were developed independently at around the same time by Kohli and Jaworski (1990) and Narver & Slater (1990). Kohli and Jaworski (1990) explicated the market orientation construct through field interviews guided by the literature, whilst Narver & Slater (1990) developed their measure through a synthesis of the literature. The interest in market orientation mainly stemmed from its hypothesized link to superior business performance (Kohli and Jaworski 1990, Narver and Slater 1990, Ruekert 1992, Day 1994). Since then, empirical studies have primarily been concerned with the relationship between market orientation and performance although some studies have developed alternative measures (e.g. Ruekert 1992, Deshpande et al 1993, Deshpande and Farley 1998) or sought to determine the antecedents to a market orientation (e.g. Avila and Tadeipalli 1999, Menguc and Auh 2008, Homburg et al 2009).

Kohli and Jaworski (1990, p1) described market orientation as “the implementation of the marketing concept”, explaining that the marketing concept was a “business philosophy” whereas market orientation was “the activities and behaviours of an organisation”. They identified three core themes of the marketing concept (p3) “(1) customer focus, (2) coordinated marketing, and (3) profitability”, concluding that a market oriented organisation is one in which these three themes were operationally manifest. Drawing on the literature and field interviews Kohli and Jaworski (1990, p6) defined market orientation as “*the organisation wide generation of market intelligence pertaining to current and future customer needs, dissemination of the intelligence across departments, and organisation wide responsiveness to it*”.

Narver and Slater (1990, p21) defined market orientation as “*the organisation culture ... that most effectively and efficiently creates the necessary behaviours for the creation of superior value for buyers and, thus, continuous superior performance for the business*”. Narver and Slater (1990, p22) hypothesized a market orientation construct “consisting of three behavioural components and two decision criteria - *customer orientation, competitor orientation, inter-functional coordination, long-term focus, and a profit objective*”. The two decision criteria were removed from the

measure due to low factor reliabilities and thus their final market orientation measure consisted of the three behavioural components only. Clearly these behavioural components are similar to the core themes of the marketing concept identified by Kohli and Jaworski (1990). However the two approaches differ somewhat (Jaworski and Kohli 1996), whereas Narver and Slater define market orientation as the organisation culture, Kohli and Jaworski define it as the activities and behaviours of an organisation and contrast it to the marketing concept as the business philosophy.

Homburg and Pflesser (2000) to some extent reconcile these differences by developing an organisational culture model of market orientation values, norms, artefacts, and behaviours. In this model, market orientation may be considered an umbrella term, capturing a host of culture-related dimensions of market orientation. Homburg and Pflesser (2000) hypothesized and found that market orientation culture affected performance only through behaviours, thus providing support for both market orientation as a culture and the construct of market orientation as behaviours.

The most commonly used market orientation measures in the literature are the two formed or derived from the seminal studies; Narver and Slater (1990) and Kohli et al (1993). These two market orientation measures share many similarities. As Slater & Narver (1994) observe Narver and Slater's (1990) "measure of market orientation closely parallels Kohli and Jaworski's (1990) definition and consists of three behavioural components (customer orientation, competitor orientation, and inter-functional coordination), each of which involves intelligence generation and dissemination and managerial action". In addition, the two measures have been shown to share the same domain (Cadogan and Diamantopoulos 1995, Deshpande and Farley 1998). Consequently, either may be used to measure market orientation.

The interest in market orientation is primarily due to its theorized link to superior performance. According to Kohli and Jaworski (1990, p13) "a market orientation appears to provide a unifying focus for the efforts and projects of individuals and departments within the organisation, thereby leading to superior performance". They argued that market orientation is an organisational process and concluded (p17) that "because a market orientation is not easily engendered, it may be considered an additional and distinct form of sustainable competitive advantage".

Day (1994) argued that market oriented organisations are superior in their market sensing and customer-linking capabilities. He explained (p38) that “capabilities and organisational processes are closely entwined, because it is the capability that enables the activities in the business process to be carried out”, and described capabilities as “complex bundles of skills and accumulated knowledge, exercised through organisational processes that enable firms to coordinate activities and make use of their assets”. He continued that capabilities or resource-based theories (p38) have “two related sources of advantage: assets are the resource endowments the business has accumulated” and “capabilities are the glue that brings these assets together and enables them to be deployed advantageously”. Day (1994) explained that the superior market sensing and customer linking capabilities of market oriented organisations were distinct and not easily imitated by competitors and thus were a source of sustainable competitive advantage (SCA).

Consequently, the capabilities and resource-based theories provide support for Kohli and Jaworski's (1990) contention that market orientation is a process which engenders sustainable competitive advantage. Further support for these theoretical arguments comes from numerous empirical studies most of which have found that market orientation has a positive and significant relationship with performance. Kirca et al (2005) identified 114 studies examining the market orientation – performance relationship. More are identified in the next chapter, many of which look into different moderators or mediators, and competing theories of SCA (i.e. learning orientation).

Synthesising the theories and empirical results described previously, market orientation, in this study, is conceptualised as the business processes (Day 1994), evident in the activities and behaviours (Homburg and Pflesser 2000) of a firm, which create superior value for customers (Narver and Slater 1990) through the implementation (Kohli and Jaworski 1990) of the marketing concept. The implementation of the marketing concept is typified by a firm's capabilities to generate market intelligence, in particular on customers' expressed and latent needs and how well these are met by competitors' alternative offerings, and respond to this intelligence profitably (Kohli and Jaworski 1990).

1.2. RESEARCH GAPS

1.2.1. Introduction

In this section the potential research gaps are identified and explained. These gaps principally relate to market orientation's relationship with performance, environmental contingency, and the appropriate level of analysis. In particular, the potential research gaps identified for market orientation's relationship with performance focus on the impact of *diminishing returns* on different types of performance (i.e. cost-based or revenue-based) and the effect of the assessment approach (i.e. whether subjective or objective measures of performance are used) on research findings.

1.2.2. Market Orientation, Performance and Diminishing Returns

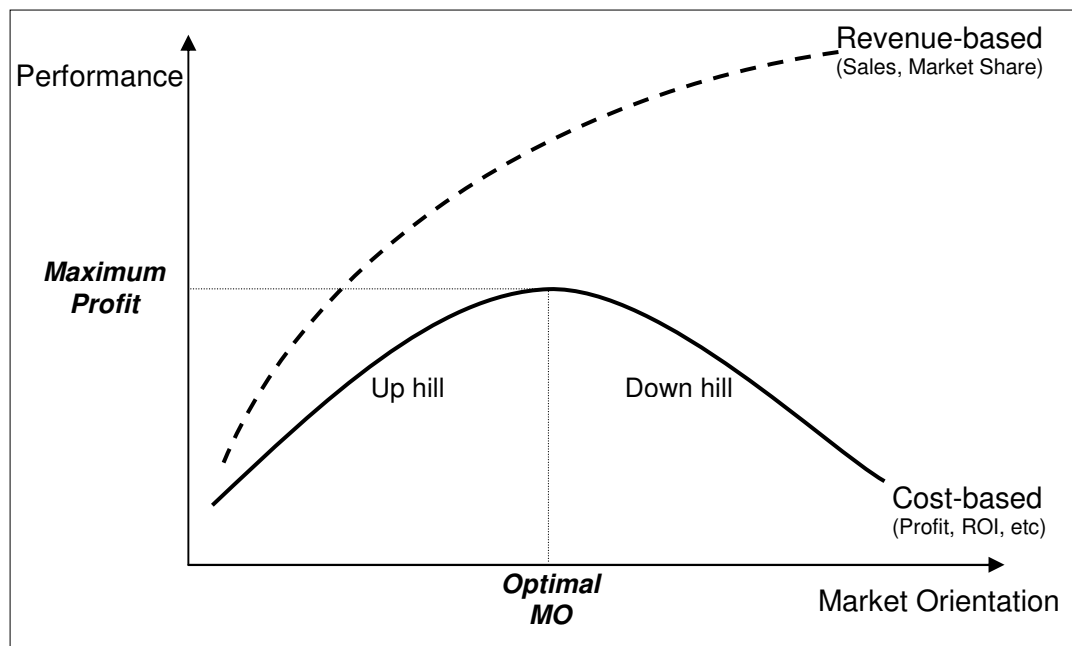
The majority of studies which examine the link between market orientation and performance implicitly assume the relationship to be continuously enhancing for all measures of performance and all levels of market orientation. A key implication of this assumption is that ever higher investment in market oriented activities always leads to better performance, whatever the performance measure. However this is contrary to work in other marketing fields which suggest that at least one performance measure, *profit*, has a bell-shape relationship with marketing investments. Mantrala et al (2007, p26) called this relationship the *profit function* and explained that "managers can increase profit by increasing [product] quality up to a point, beyond which further quality improvements fail to attract enough new readers to justify incremental cost". More broadly, Mantrala et al (2007) argued that firms can overinvest in marketing, and that this can have a detrimental effect on profits.

This argument has similarities to Narver and Slater's (1990, p33) observation that "a basic law of economics applies: for every business, at some point the incremental costs to increase its market orientation will exceed the incremental benefits". Clearly this is not a *law* but a theory normally referred to as *diminishing returns*. The theory suggests that for each incremental increase in market orientation the performance benefit is lower than that for the previous incremental increase. The optimal point for market orientation occurs where the cost of increasing the firm's market orientation is the same as the return. Beyond this point, additional increases in market orientation lead to lower profitability (figure 1.1).

Kirca et al (2005) suggested that performance measures may be grouped into revenue-based and cost-based categories. Revenue-based measures are based on the firm's sales and include measures such as unit sales growth, revenue growth and market share. Cost-based measures include costs in their calculation (i.e. profit = revenue - cost) and include profit, return on investment and return on assets.

Cost-based measures of performance are expected to have an inverted U-shape relationship with market orientation such as that theorised by Mantrala et al (2007). This idea has not been adopted in the market orientation literature and therefore presents a research gap. Using the diminishing returns argument discussed above it may be that the relationship between market orientation and revenue-based performance is also subject to diminishing returns. However, revenue-based performance is not anticipated to have an optimal point. Instead, incremental benefits are expected to diminish or tail off as market orientation increases until the incremental benefits approach zero (figure 1.1). Again, this idea is new to the market orientation literature and thus represents a potential research gap.

Fig. 1.1: Market Orientation's Relationship with Cost- and Revenue-based Performance.



Given the different theorised relationships for cost-based and revenue-based performance, it does not make sense to aggregate these different types of measure into an 'overall performance' measure, as aggregating would likely obscure the distinct relationships. However many studies have done just this (Deshpande et al 1993; Han et al 1998; Atuahene-Gima et al 2005).

If the curvilinear relationships outlined above are correct, then why have the majority of empirical studies found a positive linear relationship between market orientation and performance? There are three possible reasons. First, the optimal market orientation level to achieve the maximum profit may occur at a high level of market orientation such that relatively few firms in a sample exceed the optimal point. If the majority of firms within a sample are on the upward slope of the profit curve then it is perhaps not surprising that a positive linear relationship is found.

Second, few studies explicitly test for a curvilinear relationship between market orientation and performance. Consequently, there is little empirical evidence to suggest whether the linear relationship predominantly found in studies would be more accurately modelled as a curvilinear relationship.

Third, the majority of empirical studies assess the relationship between market orientation and performance using subjective performance measures. These measures typically use multipoint (i.e. 5-point, 7-point, etc) Likert-type scales to measure performance. There may be something inherent in this type of scale that makes it difficult to accurately model the relationship between market orientation and performance. For instance, with only seven points to rate performance it may be difficult to make fine distinctions between firms. This may be especially true if the sample responses do not cover the full seven points. Indeed sample responses may have a range of only four or five points, further limiting the ability of subjective measures to differentiate performance. In addition, Likert-type measures may impose an artificial range restriction on performance assessment. For example, extremely high performance may merit a higher rating than the highest anchor.

Consequently, the predominantly linear findings from empirical studies do not preclude the existence of the curvilinear relationships described previously. In conclusion, the theorised curvilinear diminishing returns relationships between market orientation and the two different types of performance, as illustrated in figure 1.1, present potential research gaps.

1.2.3. Environmental Contingency

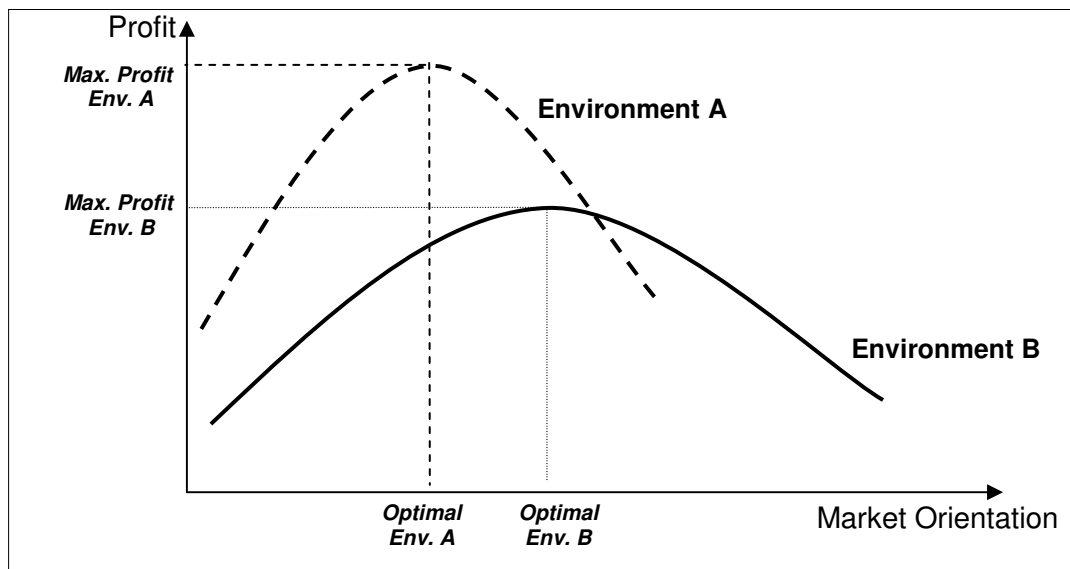
The role of the environment in the relationship between market orientation and performance has been researched since 1993 (Jaworski and Kohli 1993). From a contingency theory perspective, the principal role of the environment is to moderate the strength of the relationship between market orientation and performance. As Slater and Narver (1994, p50) explain “a pure moderator effect implies that the moderator variable (environment) modifies the form of the relationship (i.e., the slope of the regression line as represented by the regression coefficient) between the predictor variable (e.g., market orientation) and the criterion variable (performance)”.

In their explorative research, Kohli and Jaworski (1990, p14) found that “the field interviews elicited several environmental contingencies or conditions under which the impact of a market orientation on business performance is likely to be minimal”. For instance, “when an organisation caters to a fixed set of customers with stable preferences, a market orientation is likely to have little effect on performance because little adjustment to the marketing mix is necessary to cater effectively to stable preferences of a given set of customers”. However Jaworski and Kohli (1993), when testing the moderator effects proposed in their 1990 study, did not find any moderator effects for the environment.

Similarly, Slater and Narver (1994), in their examination of environmental moderators, found (p54) “little support that environment moderates either the nature of the market orientation - performance relationship or the effectiveness of different relevant emphases within a market orientation” concluding (p53) that “businesses that are more market oriented are best positioned for success under any environmental conditions”. Since then, there have been some significant findings for moderator effects (e.g. Greenley 1995, Gatignon and Xuereb 1997, Han et al 1998), and others which have not been significant (Subramanian & Gopalakrishna 2001, Cadogan et al 2002).

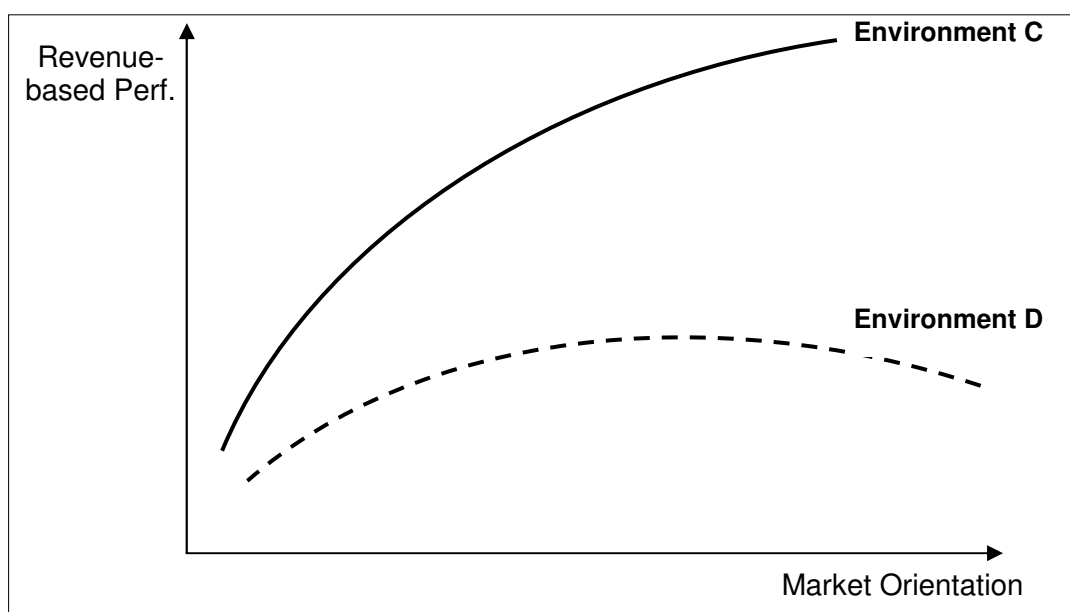
If the relationship between market orientation and performance is curvilinear then the moderation effect will be somewhat different to that of a linear relationship. For the inverted U-shape relationship of cost-based performance, the environment may not only moderate the strength of the relationship but also change the market orientation level at which performance is maximised (see figure 1.2).

Fig. 1.2: Contingency Effect of the Environment for Cost-based Performance.



For the curvilinear relationship of revenue-based performance, the environment may moderate the strength of the relationship so that the steepness of the curve changes. One consequence of the relationship weakening as the environment changes is that the relationship may turn negative at high levels of market orientation, resulting in a relationship similar to that for cost-based measures (see figure 1.3). Thus the moderator effects may be somewhat different to that previously found when linear relationships between market orientation and performance have been assessed.

Fig. 1.3: Contingency Effect of the Environment for Revenue-based Performance.



Consequently a potential research gap exists to determine the nature of environmental moderation when the relationship between market orientation and performance is curvilinear, and in particular, to examine the moderation effects for the different types of performance.

1.2.4. The Level of Analysis, Information Lost and Confounding

Castrogiovanni (1991) in his assessment of research limitations found that studies which defined the environment too broadly resulted in the inappropriate aggregation of disparate units, concluding that it was logical “to assert that researchers should examine environment at the level most appropriate to a specific research issue.” In particular he argued (p544) “environments are both multilevel and multidimensional ... when only ‘high’ (i.e. more comprehensive but less specific) levels are examined, studies are vulnerable to problems of over abstraction”. He concluded (p561) “higher level environmental conceptualizations ignore the individual characteristics of distinct sub-environments and resource pools. Information is lost with each increase in the level of abstraction, thus limiting research findings and their implications”. These arguments indicate that the unit of analysis of a study should be chosen carefully.

Some of the most frequently used environmental moderators in the market orientation literature are market turbulence, technological turbulence, and competitive intensity (Jaworski and Kohli 1993, Slater and Narver 1994, Han et al 1998). The definitions of these environmental moderators suggest that they pertain to a group of customers or market. For instance, market turbulence is defined as the rate of change in the composition of customers and their preferences (Jaworski and Kohli 1993), and seems to relate to a “market”. Other moderators, such as regulatory turbulence, appear to relate to an “industry”.

Kotler (1999, p338) explained the difference between a market and an industry; “to an economist the market describes all the buyers and sellers who transact over a good or service [...] to a marketer, a market is the set of all actual or potential buyers of a product or service”. Thus the industry is a collection of sellers, and the market is a collection of buyers. If the moderators identified as relevant to a study relate to the market it may make sense to use the *market* as the unit of analysis rather than the *firm* (e.g. “principal market-served”, Narver and Slater 1990).

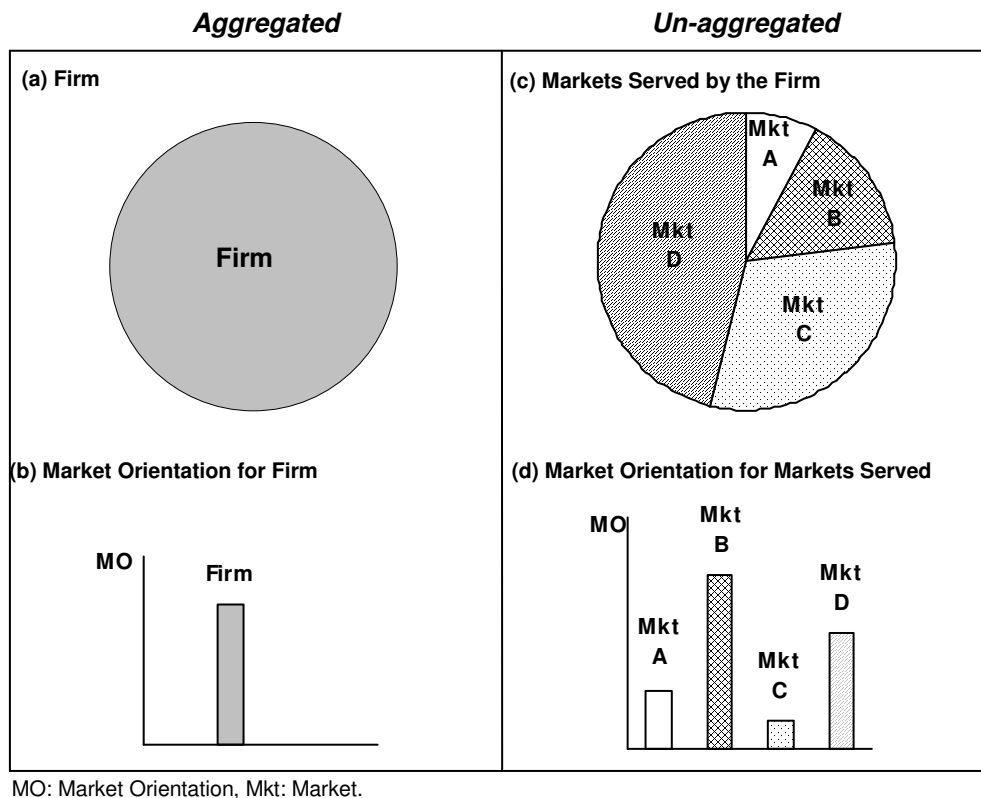
It was argued in Section 1.2.2 that aggregating cost-based and revenue-based performance into an overall performance measure may mask or confound the relationship between market orientation and performance. This confounding issue may not be limited to aggregating different types of performance; it may also happen when aggregating market orientation at different levels within an organisation. For instance, an organisation may have several strategic business units (SBU) each of which may have a different level of market orientation. If the market orientations of each SBU differ widely (e.g. Narver and Slater 1990) then aggregating the market orientations into an overall organisation market orientation may not make sense.

For example, assume the relationship between market orientation and profit is inverted U-shape with the maximum profit occurring at a moderate market orientation level, as depicted in figure 1.1. An organisation may have one SBU with a low market orientation and low profits (i.e. uphill side of profit curve) and another SBU with a high market orientation and low profits (i.e. downhill side of the profit curve). The aggregated position for the organisation may be a moderate market orientation and low profits, which is contrary to the actual relationship (i.e. maximum profit at a moderate market orientation). Thus the relationship between market orientation and performance may be confounded by the inappropriate aggregation of disparate units.

Similarly, it may be argued that different markets served by a firm may have different market orientation levels. Much of the literature treats market orientation as a construct which is applicable to an organisation as a whole. However, many firms operate in multiple geographic and product markets. Each market may have its own peculiar environmental conditions. In some environments a market orientation may be more effective at delivering revenue-based performance than others, and each environment may have an optimal market orientation level for profit.

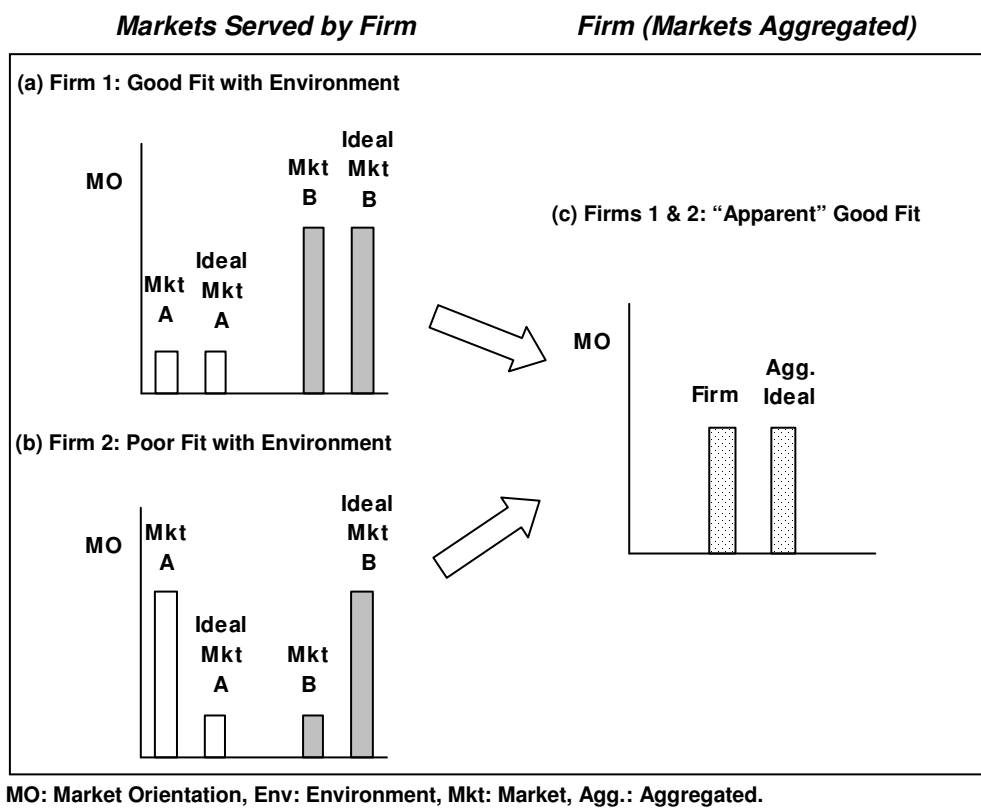
Figure 1.4 illustrates the information that may be lost when aggregating market level information (the markets-served by the firm) to a higher level of analysis (the firm). In this example the firm serves four markets (figure 1.4c), and each of the markets served has a different level of market orientation (figure 1.4d). If the research study's unit of analysis is the *firm* (figure 1.4a) then only one market orientation level is observed (figure 1.4b) and the market orientation levels for each market are lost. This lost information may lead to further complications if the markets served are subject to different environments.

Fig. 1.4: Market Orientation: Firm Level and Markets-Served by the Firm.



The confounding effect described above may be compounded by the confounding of the *contingency* effect due to the inappropriate aggregation of units. Figure 1.5 illustrates two firms (1 and 2) operating in two markets (A and B) each subject to a different environment. For market A, the environment is uncompetitive and therefore the maximum profit occurs at a low market orientation level. For market B, the environment is highly competitive and thus requires a high market orientation for maximum profitability. Firm 1 (figure 1.5a) has a low market orientation level in market A and a high market orientation level in market B and thus fits the environments perfectly. Thus profitability for firm 1 is maximised. Firm 2 (figure 1.5b), on the other hand, has a high market orientation in market A, where it should be low, and a low market orientation in market B, where it needs to be high. Therefore Firm 2 has poor fit with the environment and according to contingency theory should perform poorly. However, if the firms are studied at the *firm* level of analysis (figure 1.5c), they both apparently have the same market orientation level, yet have radically different levels of performance with firm 1 maximising profit and firm 2 performing poorly. Clearly the market orientation relationship with performance, which was evident at the *market* level of analysis, is confounded when studied at the *firm* level of analysis.

Fig. 1.5: Confounding of Environmental Contingency due to Aggregation.



These two confounding issues suggest that the level of analysis needs to be chosen carefully. For a firm operating in multiple markets, where the environment or the firm's market orientation levels in each market are likely to differ, the relationships should be studied at the market level in order to increase the likelihood of detecting the real relationships. In this instance, the firm level of analysis should be avoided.

1.3. RESEARCH QUESTIONS

The observations made in the previous section indicate a need to investigate the relationship between market orientation and performance in more depth. The principal research question studied in this thesis concerns the possible curvilinear relationships between market orientation and performance. Specifically the following questions need to be investigated:

- a) Is the relationship between market orientation and cost-based performance (e.g. profit, ROI, etc) inverted U-shape with an optimal level of market orientation which maximises performance?

- b) Is the relationship between market orientation and revenue-based performance (e.g. sales, market share) subject to diminishing returns such that the incremental performance benefits tail-off as market orientation increases?

In addition, the research seeks to determine how the curvilinear relationships described in (a) and (b) are moderated by the environment. Specifically:

- c) For cost-based performance, is the relationship moderated by the environment? If so, does the *optimal* level of market orientation change as the environment changes? Does the *strength* of the relationship between market orientation and cost-based performance change in different environments?
- d) Is the strength of the relationship between market orientation and revenue-based performance moderated by the environment?

1.4. THESIS STRUCTURE

In the following chapter a review of the market orientation literature is presented and the research gaps highlighted above are confirmed. Chapter 3 presents the logic underpinning the conceptual model and specifies the research hypotheses. Next, the method adopted to test the hypotheses is presented and justified. In Chapter 5 the processing of the sample data is explained and the sample is described. Next the measures required to test the hypotheses are evaluated for unidimensionality, validity and reliability. The results of the hypothesis testing are presented in Chapter 7. Finally, the results of the study are discussed and conclusions are drawn.

1.5. RESEARCH CONTRIBUTION

For the first time a theory is set out for curvilinear relationships between market orientation and the two different types of performance (i.e. cost-based and revenue-based). This theory of the differential impact of market orientation on different performance measures and the curvilinear nature of the relationship is new to the market orientation literature and therefore represents an original contribution.

In addition, the specific mechanisms which determine the nature of the relationships are detailed. Again, these mechanisms have not previously been presented in the literature to argue the case for curvilinear relationships. The theorised curvilinear relationships raise questions about the effect of environmental moderation. Specific theories are set out concerning the nature of the moderation effect for the different types of performance. Once more, these theories represent an original contribution to the market orientation literature.

The new theories, and the findings, presented in this thesis are important because they have the potential to reshape our understanding of the nature of the relationship between market orientation and performance. Current thinking in the literature indicates that the relationship between market orientation and performance is continuously enhancing regardless of the performance dimension. Consequently firms with the highest levels of market orientation are expected to outperform those with a lower level. Advice to managers, therefore, is to increase their firm's level of market orientation in order to improve performance.

The new theory, set out in this study may, in many circumstances, contradict this conventional advice. Instead, the theories and findings indicate that there is an optimal market orientation level that maximises profits. This new understanding has serious consequences for firms seeking to utilise market orientation as a source of sustainable competitive advantage. A firm with a high market orientation may be beyond the optimal level and thus an incremental increase in market orientation destroys profit. In contrast a firm with a low market orientation may be on the uphill side of the profit curve and so increasing its market orientation increases profit. As this firm nears the optimal market orientation level, incremental increases in market oriented behaviours result in progressively smaller increases in profit.

For revenue-based performance, the study theory, backed up by empirical results, indicate that incremental increases in market orientation also result in progressively smaller performance benefits such that the largest benefits of an incremental increase in market orientation accrue to firms with a low market orientation level and the smallest benefits to highly market oriented firms.

The study also shows that market orientation has different relationships with different types of performance. This implies that firms pursuing different strategies may need different market orientation levels. For instance, a firm following a growth strategy may aim for a market orientation in excess of the optimal market orientation level for cost-based performance, whereas a firm seeking maximum profit may aim for a market orientation level that is optimal for profit generation.

In addition the theorised moderation of the relationship between market orientation and performance implies that the optimal market orientation level occurs at different levels for different environments. Thus, no universal optimal market orientation level exists for all markets. Firms operating in different environments need to determine the optimal market orientation level for their own environment in order to maximise profitability. Some firms may operate in environments where the optimal market orientation level is in excess of that reached by any firm in the market, and thus market orientation enhances the profit of all firms in that environment. In other environments, the optimum market orientation may be lower than average for firms in that environment and thus may be detrimental to the profits of many firms.

For the relationship between market orientation and revenue-based performance, environmental moderation may result in an optimal level of market orientation similar to that theorized for profit measures of performance, as depicted previously in figure 1.3, or the relationship may even become predominantly negative such that increases in market orientation result in declining sales.

Finally, the hypotheses were tested with objective performance data, which is rare in the market orientation literature. Arguably, the objective performance measures used have high validity and reliability and thus enhance the validity of the results.

For management, this study's findings provide fresh insights that may help firms to optimally manage their market orientation levels and thus enable them to best achieve their performance objectives. Contrary to received wisdom within the market orientation literature, the thesis shows that pursuing ever higher level of market orientation may not be the optimal strategy. Management's challenge, then, is not so much to find ways of increasing market orientation but to identify the correct level of market orientation for their firm and achieve that level.

CHAPTER 2: LITERATURE REVIEW

2.1. INTRODUCTION

The objective of the literature review is to determine whether the potential research gaps identified in Chapter 1 actually exist. To achieve this aim, the leading marketing and management journals were searched for relevant papers. The individual market orientation papers were then reviewed and summarised paying particular attention to the potential research gaps.

The scope of this literature review includes all academic papers involving market orientation from twenty leading marketing and management journals as well as a few papers from other journals (figure 2.1). The body of research on market orientation has grown from a handful of papers per year in the early 1990s to over 30 per year between 2002 and 2005. Over 400 papers involving market orientation were reviewed. The majority of papers (294 papers) involve quantitative research most of which are empirical studies although several are meta-analyses (e.g. Langerak 2003, Cano et al 2004, Kirca et al 2005, Shoham et al 2005). The qualitative papers total 94 and include field studies (e.g. Kohli and Jaworski 1990, Kennedy et al 2003, Gebhardt et al 2006) and conceptual or discussion papers (e.g. Jaworski and Kohli 1996, Hooley et al 2001, Kirca and Hult 2009). A further 13 papers involve both qualitative and quantitative field work (e.g. Harris and Piercy 1999, Homburg and Pflesser 2000, Wei and Morgan 2004).

Market orientation research mainly focuses on three topics; the performance link, measure development (e.g. Deng and Dart 1994, Matsuno and Mentzer 2000, Narver et al 2004), and the antecedents of a market orientation (e.g. Pelham and Wilson 1996, Matsuno et al 2002, Song and Parry 2009). In particular, the performance link has been empirically tested in conjunction with alternative theories (e.g. Baker and Sinkula 1999, Noble et al 2002) and other variables as mediators (e.g. Han et al 1998, Im and Workman 2004) or moderators (discussed later).

As the possible research gaps relate to a set of relationships applicable to all firms which may be empirically tested, the most relevant papers for assessing the gap are the quantitative empirical studies. These studies also have the advantage of using similar methods and techniques which are readily comparable with each other. Thus the results of quantitative studies are the principal focus of the following sections.

Fig. 2.1: Papers Reviewed by Type and Journal.

Journal	Quantitative Papers	Qualitative Papers	Both	Total
European Journal of Marketing	51	18	2	71
Journal of Business Research	37	6	3	46
Journal of Strategic Marketing	29	10	2	41
Industrial Marketing Management	28	10		38
Journal of Marketing Management	12	11	2	25
Journal of Marketing	19	5		24
Journal of Market Focused Management	9	12	1	22
International Journal of Research in Marketing	17		1	18
Journal of the Academy of Marketing Science	15	3		18
Marketing Intelligence and Planning	12	6		18
Journal of International Marketing	13			13
Strategic Management Journal	6	6		12
Journal of Product Innovation Management	10		1	11
International Marketing Review	7	3		10
Journal of International Business Studies	8			8
Journal of Marketing Research	4	1	1	6
International Marketing Management	5			5
Journal of Management Studies	4	1		5
British Journal of Management	2			2
Journal of Management	2			2
Others	4	2		6
Total	294	94	13	401

2.2. MARKET ORIENTATION

The most frequently used market orientation measures are the two that were first developed, Narver & Slater (1990) and Kohli et al (1993), which, between them, have been used in more than half of the quantitative studies into market orientation (figure 2.2). Both measures consist of three components with each component measured by multiple items which reflect, rather than form, the component. The framework for Jaworski and Kohli's (1993) measure, including their shorter MARKOR instrument (Kohli et al 1993), was originally conceived in 1990 (Kohli & Jaworski 1990), and is composed of the generation of market intelligence, dissemination of the intelligence, and responsiveness to it. Narver and Slater's (1990) original model was constructed from five components. However two components, long-term focus and profit emphasis, were removed due to low reliabilities. The resulting measure is made up of customer orientation, competitor orientation, and inter-functional co-ordination. Following the two seminal papers on market orientation a number of alternative measures were published. Ruekert 1992 developed a measure with three

components; use of customer information, development of market oriented strategy and implementation of market oriented strategy which has clear similarities to Kohli and Jaworski's (1990) construct. Diamantopoulos and Hart (1993) also developed their measure based on Kohli and Jaworski's (1990) intelligence generation, dissemination and responsiveness. Deshpande and Farley (1993) focused their measure on customer orientation, whereas Deng and Dart (1994) followed Narver and Slater's (1990) lead with a four component measure of customer orientation, competitor orientation, inter-functional coordination, and profit emphasis.

Fig. 2.2: Main Market Orientation Measures: Frequency of Use in Studies.

Measure	Frequency
Narver and Slater 1990	117
Kohli, Kohli and Kumar 1993, Jaworski and Kohli 1993	82
Deshpande and Farley 1998	11
Deshpande, Farley and Webster 1993	11
Cadogan, Diamantopoulos and de Mortanges 1999	10
Gray, Matear, Boshoff and Matheson 1998	5
Ruekert 1992	5
Matsuno, Mentzer and Rentz 2000	5
Narver, Slater and MacLachlan 2004	5
Greenley and Foxall 1996	3
Deng and Dart 1994	3
Langerak 2001	3

Following this initial round of measure development further measures have been proposed with the intention of improving either the conceptualisation of the measures or the measurement properties. In particular, the use of confirmatory factor analysis to assess the measures has become more widespread. Most of the measures are based on the components and/or items from the original two measures.

For instance, Cadogan et al (1999), Matsuno et al (2000) and Matsuno et al (2005) clearly follow the Kohli et al (1993) construct. Whereas Greenley and Foxall (1996), Gray et al (1998), and Harris (2002) developed measures closer to the Narver and Slater conceptualisation of market orientation. Still others have gone their own way; in contrast to the reflective measures adopted by other studies Cadogan et al (2008) developed a formative measure. Langerak (2001) conceptualised market orientation in the supply chain as *upstream* and *downstream*. Chen and Quester (2005) developed a value-based measure rated by customers of the firm rather than

managers within it. Narver et al (2004) examined different dimensions of market orientation with their proactive market orientation measure. Finally, Elg (2007) in his qualitative study identified a market orientation framework specific to retailers.

Figure 2.2 shows the market orientation measures which feature in three or more studies. After the two main measures the next group have been used around ten times each. Following this group there are seven measures which have been used between three and five times. Notably, the measures which have been used ten or more times were *all* developed prior to 2000 and thus have had a reasonable time to be adopted in the literature. Of the remaining measures, Narver et al (2004) stands out because although it is the last one developed, it has still been used five times.

Several studies have sought to determine the best existing measure of market orientation (Deshpande et al 1998, Oczkowski and Farrell 1998, Matsuno et al 2000, Matsuno et al 2005) but the results have not been definitive. However, the conceptualisation and framework of Kohli et al's (1993) measure have some advantages. Firstly, they clearly distinguish between the marketing concept and market orientation - market orientation is the implementation of the marketing concept - whereas Narver & Slater's (1990) conceptualisation does not.

Secondly, the three components of Jaworski and Kohli's (1993) measure are behaviours - generation, dissemination, and responsiveness - the definitions of which can be found in any dictionary. The same cannot be said for the conceptual components of Narver and Slater's (1990) measure. After all, if the meaning of the term market orientation is not clear, then what does it mean to have a customer orientation, competitor orientation, or inter-functional co-ordination.

Thirdly, the literature recognises that a market orientation goes beyond customers and competitors to other players in the market place (Slater and Narver 1995, Matsuno et al 2000). These may include employees, regulators, legislators, pressure groups, and others (e.g. Greenley and Foxall 1996). The components of Narver and Slater's (1990) measure specify only customers and competitors whereas Jaworski and Kohli's (1993) construct allows the consideration of multiple stakeholders in the marketplace. Thus it may be argued that Jaworski and Kohli's (1993) framework provides a more complete measure of market oriented behaviours.

Confirmatory factor analysis (CFA) has increasingly been used to evaluate market orientation measures. CFA is considered a more rigorous test of a measure's unidimensionality (Gerbing and Anderson 1988) than other procedures previously used (e.g. exploratory factor analysis). Most studies using CFA present model fit statistics and indices for the measurement and structural models. However, a smaller number of studies provide model fit statistics and indices *solely* for the market orientation measure used. Consequently the different market orientation measures may be compared by using the results of these studies (figure 2.3). Only three market orientation measures have been evaluated with CFA more than twice; the two main measures from Narver and Slater (1990) and Kohli et al (1993), and the Cadogan et al (1999) measure which is based on the Kohli and Jaworski (1990) framework of intelligence generation, dissemination and responsiveness. Figure 2.3 presents the model fit statistics and the most commonly used fit indices (i.e. RMSEA, GFI, and CFI) for the studies which assessed these three measures.

Model fit assessment often uses a combination of the fit statistic and indices to determine how well the sample data fits the measure. The only statistic provided by CFA is the Chi-square statistic for which a non-significant result indicates good fit. For simplicity the evaluation of the three measures focuses on this statistic. Non-significant statistics ($p=5\%$) are highlighted in bold on figure 2.3.

Of the three measures, the Cadogan et al (1999) measure has the highest proportion of studies that have good fit with 3 out of 5 studies (i.e. 60%). The Kohli et al (1993) measure has 2 out of 14 studies with good fit (i.e. 14%), and the Narver and Slater (1990) measure has 4 out of 20 studies (i.e. 20%). Clearly this assessment is not in any way definitive as fit will depend on many factors including sample size, the number of items per factor, and the purification steps followed as well as other considerations such as the fit indices. However it does provide some indication of the efficacy of the different measures. Using the criteria set out above, the Cadogan et al (1999) measure appears to have a higher rate of good fit than the others.

Fig. 2.3: Measurement Model fit for Three Market Orientation Measures.

MO Measure / Paper	χ^2	df	Sig.	RMSEA	GFI	CFI
<u>Kohli et al 1993 or Jaworski and Kohli 1993</u>						
Baker and Sinkula 1999	491.13	167	0.00	0.06	0.88	0.85
Bhuian 1998	105.78	44	0.00	0.26	0.86	0.86
Bhuian et al 2005	111.30	41	0.00	0.09	0.92	0.94
Caruana 1999	178.57	139	0.01	-	-	-
Grewal and Tansuhaj 2001	224.50	113	0.00	0.09	-	0.84
Hernandez-Espallardo and Arcas-Lario 2003	38.68	24	0.03	0.06	0.95	0.99
Kohli et al 1993	223.55	147	0.00	-	0.88	-
Kyriakopoulos and Moorman 2004	93.30	62	0.01	0.06	-	0.94
Santos-Vijande et al 2005	440.10	206	0.00	0.07	0.87	0.92
Siguaw et al 1998	54.27	41	0.08	0.04	-	-
Vazquez-Casielles et al 2001	1113.48	402	0.00	-	-	0.80
Vazquez-Casielles et al 2002	245.50	101	0.00	0.09	0.85	0.93
Wei and Morgan 2004	30.61	24	0.17	0.05	0.94	0.97
Zhou et al 2009	594.38	116	0.00	0.07	-	0.95
<u>Cadogan et al 1999</u>						
Cadogan et al 1999	19.09	12	0.09	0.05	0.94	0.99
Cadogan et al 2001	367.30	142	0.00	0.08	0.88	0.92
Cadogan et al 2003	53.97	51	0.36	0.02	0.92	0.98
Cadogan and Cui 2004	132.66	48	0.00	0.10	0.89	0.92
Cadogan et al 2006	39.80	51	0.87	0.00	0.95	1.00
<u>Narver and Slater 1990</u>						
Augusto and Coelho 2009	92.91	58	0.00	0.08	0.88	0.95
Conduit and Mavondo 2001	53.31	39	0.06	0.03	0.97	-
Farrell 2003	247.32	74	0.00	0.06	0.91	0.93
Goebel et al 2004	195.35	129	0.00	0.04	0.93	0.98
Hammond et al 2006	219.68	87	0.00	0.08	-	0.99
Han et al 1998	94.07	74	0.06	0.07	0.89	-
Hsieh et al 2008	80.23	58	0.03	0.06	0.90	0.97
Krepapa et al 2003	23.57	17	0.13	0.10	0.91	0.97
Lai et al 2009	39.95	24	0.02	0.03	0.86	0.92
Maignan et al 1999	151.20	74	0.00	-	0.91	0.96
Mavondo 1999	36.28	23	0.04	0.04	0.98	0.99
Menguc and Auh 2006	315.20	87	0.00	0.06	0.91	0.94
Nguyen 2007	98.40	87	0.19	0.02	-	0.99
Paladino 2007	299.43	148	0.00	0.06	0.87	0.87
Rindfleisch and Moorman 2003	349.00	36	0.00	0.06	0.93	0.95
Siguaw and Diamantopoulos 1995	257.66	87	0.00	0.08	0.89	0.90
Sin et al 2003	215.63	74	0.00	0.08	0.90	0.93
Tse et al 2003	456.07	74	0.00	0.10	-	0.92
Webb et al 2000	74.06	41	0.00	-	-	0.94
Zhou et al 2005	521.30	203	0.00	0.07	0.9	0.91

- indicates that the information was not specified. Non-significant results highlighted in bold.

2.3. THE MARKET ORIENTATION – PERFORMANCE RELATIONSHIP

2.3.1. Performance Consequences

The performance consequences of a market orientation are the principal research concern in the field of market orientation with 211 of the 294 quantitative studies measuring the relationship. The performance measures used vary considerably. The range covers single item measures (Slater and Narver 1994, Matsuno et al 2002, Luo et al 2005) and multiple item measures (Deshpande et al 1993, Baker and Sinkula 1999, Im and Workman 2004); subjective measures (Siguaw et al 1998, Grewal and Tansuhaj 2001, Olson et al 2005) and objective measures (Noble et al 2002, Zhou et al 2006); and different dimensions of performance, the most popular of which are overall performance, revenue growth, market share, new product success, profit, and return on assets. The benchmarks for these measures also differ; respondents are variously asked to compare their firm's performance to their expectations or to their competitor's performance. In addition different time periods may be used to assess performance (figure 2.4), and many papers use multiple measures of performance leading many studies to find both significant and non-significant relationships.

Fig. 2.4: Performance Measures: Time Frame Assessed in Study.

Time Frame	Frequency
One year	52
Two years	5
Three years	40
Four years	1
Five years	8
Other Period	7
Unspecified	96

The relationship between market orientation and performance has been tested with multiple performance measures in 119 studies and a single performance measure in 92 studies; single-item measures are used in 90 papers whereas multiple-item measures are used in 154 papers (there is some overlap with some papers using both single item and multi-item measures); the most popular time periods for assessing performance (figure 2.4) are one year and three years with some studies going as far back in time as five years. In conclusion no universal method has emerged in the literature for assessing performance.

2.3.2. The Relationship between Market Orientation and Performance

In the majority of studies, 192 out of 211 papers, at least one significant positive relationship was found between market orientation and performance. However, at least one non-significant or negative relationship was found in 74 studies. Given the likely *file drawer* effect, in which studies with no significant results are less likely to be published (Geuens 2010), the link between market orientation and superior performance is not necessarily conclusive. The number of studies with no significant results published in the literature is almost non-existent (i.e. Diamantopoulos and Hart 1993). Thus, evidence of non-significant or contrary results primarily comes from studies that have found a significant result for either (i) different performance measures, or (ii) different constructs (e.g. learning orientation). Figure 2.5 lists the studies where all the direct (i.e. not mediated) paths from market orientation to performance were not significant (18 papers) and all the studies where one of the paths from market orientation to performance was negative (13 papers).

Fig. 2.5: Market Orientation and Performance: Non-Significant or Negative Effects.

Non-significant: All Direct Paths	Negative: At least One Path
Avila and Tadeipalli 1999	Augusto and Coelho 2009
Baker and Sinkula 1999	Gatignon and Xuereb 1997
Caruana, Pitt and Berthon 1999	Grewal and Tansuhaj 2001
Deshpande, Farley and Webster 2000	Murray, Gao, Kotabe and Zhou 2007
Deshpande and Farley 2004	Narver and Slater 1990
Diamantopoulos and Hart 1993	O'Cass 2001
Greenley 1995	Olson, Slater and Hult 2005
Han, Kim and Srivastava 1998	Perry and Shao 2005
Hult, Ketchen and Slater 2005	Siguaw, Simpson and Baker 1998
Jimenez-Jimenez and Cegarra-Navarro 2006	Sorensen 2009
Langerak, Hultink and Robben 2004	Tellefsen 1999
Lin and Germain 2003	Voss, Voss and Moorman 2005
Luk, Yau, Tse, Sin and Chow 2005	Zhou, Brown, Dev and Agarwal 2007
Luo, Zhou and Liu 2005	
Matsuno and Mentzer 2000	
Olavarrieta and Friedmann 2008	
Perry and Shao 2002	
Siguaw, Simpson and Baker 1998	

Arguably objective financial performance measures may have greater validity than subjective measures as they are calculated according to standard accounting procedures and used by managers to assess the performance of their firms. Figure 2.6 summarises the results of studies using objective performance.

Fig. 2.6: Market Orientation and Objective Performance.

Papers	Performance Measures	Relationship
<u>Financial Performance</u>		
Auh and Menguc 2007	ROI	+ ve
Diamantopoulos and Hart 1993	profit margin, sales growth	none, none
Ellis 2007	operating margin	+ ve
Gonzalez-Benito et al 2005	profit, ROA	none, + ve
Gray et al 1999	sales growth, profit, ROI, rel. ROI	+ ve, + ve, + ve, none
Han et al 1998	income growth, ROA	none, + ve
Harris 2001	sales growth, ROI	none, none
Haugland et al 2007	ROA, productivity	none, none
Hooley et al 2003	ROI	+ ve
Hult and Ketchen 2001	income , ROI, stock price	+ ve, + ve, + ve
Hult et al 2005	profit (ROI, ROA, ROE)	none
Kaynak and Kara 2004	sales growth, ROI	none, + ve
Mavondo 1999	ROA	none
Morgan et al 2009	ROA	+ ve
Noble et al 2002	ROS, ROA	none, none
Pelham 1999	sales growth	+ ve
Sandvik and Sandvik 2003	profit, sales growth, capacity utilisation	none, none, + ve
Sorensen 2009	ROA	- ve
Voss et al 2005	net surplus, ticket attendance	- ve, none
Wang et al 2009	profit growth	+ ve
Wei and Lau 2008	ROA	+ ve
Zhou et al 2008	ROA	+ ve
Zhou et al 2006	ROA	+ ve
<u>Efficiency (Sales per Employee)</u>		
Cadogan et al 1999	sales per employee	+ ve
Cadogan et al 2002	sales per employee	+ ve
Cadogan et al 2003	sales per employee	none
Homburg et al 2009	sales per employee	+ ve
<u>Non-Financial Performance</u>		
Balabanis et al 1997	No. of volunteers, expenses/donor ratio	none
Hammond et al 2006	enrolment change	+ ve
Jaworski and Kohli 1993	market share	none
Lado et al 1998	market share	+ ve
Wei and Atuahene-Gima 2009	new product performance	+ ve

+ ve: positive, - ve: negative

As may be observed, the results of the studies using objective performance are more mixed than for the market orientation literature as a whole. For financial performance, 15 out of 23 studies find a positive relationship between market orientation and performance and 12 studies find a non-significant or negative relationship, a difference of only 3 studies between significant and not.

In addition, some of the studies listed in figure 2.6 may have used categories (e.g. Hooley et al 2003) rather than a continuous scale to measure objective performance. Categories may be subject to some of the limitations of subjective Likert-type scales, such as having a limited number of categories to distinguish performance between firms and too restricted a range of categories to identify firms that perform extremely well or extremely poorly. In addition, some informants may respond to category-type questions in a similar way to Likert-type questions; thus category-type questions may be more likely to be subject to common method variance than questions which ask for a number. Unfortunately few authors indicate the format of the question asked of respondents and thus it is not possible to breakdown the results into those studies which have used continuous measures and others which have used categories.

The evidence presented above suggests that support for a linear relationship between market orientation and performance is inconclusive. Consequently, an alternative theory may better represent the relationship.

2.3.3. Moderation and Contingency Effects

The role of the environment in the relationship between market orientation and performance has been researched since 1993 (Jaworski and Kohli 1993). Jaworski and Kohli (1993) did not find any moderator effects for the environment and a year later Slater and Narver (1994, p53), in their examination of environmental moderators, concluded that “businesses that are more market oriented are best positioned for success under any environmental conditions”.

The literature has grown considerably since then. Overall 53 studies have examined moderators of the market orientation-performance relationship. Most of these have examined multiple moderator effects. 47 studies found at least one significant moderator effect, and 32 studies have found at least one non-significant moderator effect. There have been 20 studies in which all the moderators tested have had a significant effect (e.g. Han et al 1998, Baker and Sinkula 1999, Grewal and Tansuhaj 2001), and only 6 studies in which all the moderators tested were not significant (e.g. Jaworski and Kohli 1993, Gatignon and Xuereb 1997, Langerak 2003). These results are mixed although the balance of evidence suggests that moderators play an important role in the relationship between market orientation and performance.

Environmental moderators were used in 35 of the 53 studies with the remaining 18 studies testing the moderation effects of other constructs such as learning orientation (Baker and Sinkula 1999), entrepreneurial orientation (Bhuian et al 2005), and marketing capabilities (Morgan et al 2009). Studies which tested environmental moderators are listed in figure 2.7, together with some of the measures used. The principal role of the environment is to moderate the relationship between market orientation and performance so that in different environments the relationship may be more or less effective. The most frequently used environmental moderators are market turbulence, technological turbulence, and competitive intensity (Jaworski & Kohli 1993; Slater & Narver 1994; Han et al 1998). Others include market dynamism, market growth, regulatory turbulence, and competitor dynamism. The definitions of these environmental moderators suggest that they pertain to a group of customers or market. For instance, market turbulence is defined as the rate of change in the composition of customers and their preferences (Jaworski and Kohli 1993), and clearly relates to a “market”. Other moderators, such as technological or regulatory turbulence, appear to relate to an “industry”, but may also be applied to a “market”.

The two approaches most widely used for testing moderator effects are sample splitting and multiplicative interaction terms. *Sample splitting* involves categorising the sample into at least two groups, one group with low values of the moderator variable and the other group with high values. The groups may then be tested for differences between the groups (e.g. Slater and Narver 1994). The *interaction* technique involves multiplying the market orientation variable by the moderator variable to create an interaction term. The interaction term is then added to the regression analysis and tested for significance. Unfortunately this technique frequently leads to multicollinearity issues. Consequently a technique should be employed to mitigate the effects of multicollinearity (see Section 2.6.2).

The evidence presented above suggests that the relationship between market orientation and performance may be moderated by the environment. If moderation occurs then the theory proposed in the first chapter suggests that the environment determines the optimal market orientation level that maximises cost-based performance. For a firm operating in multiple markets where the environment for each market is different, it may be difficult to apply a single assessment of the environment. In such cases it may be that each market requires a different level of market orientation to achieve maximum profitability.

Fig. 2.7: Environmental Moderators.

Paper	Moderator
Appiah-Adu 1998	Market Dynamism, Competitive Intensity
Atuahene-Gima 1995	Hostility
Augusto and Coelho 2009	Competitive Intensity
Bhuian 1998	Competitive Intensity, Technological Turbulence
Cadogan, Diamantopoulos and Siguaw 2002	Market Turbulence
Cadogan et al 2002	Turbulence
Cadogan, Cui and Li 2003	Competitive Intensity, Technological Turbulence
Cadogan, Kuivalainen and Sundqvist 2009	Market Dynamism
Dwairi, Bhuian and Jurkus 2007	Turbulence
Gatignon and Xuereb 1997	Uncertainty, Competitive Intensity
Gray, Greenley, Matear and Matheson 1999	Competitive Intensity, Entry Barriers
Greenley 1995	Turbulence
Greenley and Foxall 1997	Competitor Hostility
Greenley and Foxall 1998	Market Turbulence
Grewal and Tansuhaj 2001	Competitive Intensity, Uncertainty
Grinstein 2008	Competitive Intensity, Technological Turbulence
Han, Kim and Srivastava 1998	Turbulence
Harris 2001	Turbulence, Competitor Hostility
Homburg and Pflesser 2000	Market Dynamism
Homburg, Grozdanovic and Klarmann 2007	Barriers to Entry, Competitive Intensity
Im and Workman Jr. 2004	Technological Turbulence
Jaworski and Kohli 1993	Turbulence, Competitive Intensity
Kumar, Subramanian and Yaeger 1998	Competitor Hostility, Turbulence, Supplier Power
Langerak 2003	Turbulence, Competitive Intensity
Langerak, Hultink and Robben 2007	Turbulence
Lee, Yoon, Kim and Kang 2006	Turbulence
Olavarrieta and Friedmann 2008	Turbulence
Perry and Shao 2002	Competition, Dynamism
Rose and Shoham 2002	Technological Turbulence, Competitive Intensity
Slater and Narver 1994	Turbulence, Market Growth
Sorensen 2009	Competitive Intensity
Subramanian and Gopalakrishna 2001	Competitive Intensity, Turbulence, Supplier Power
Tellefsen 1999	Competitive Intensity, Market Change
Tsai, Chou and Kuo 2008	Technological Turbulence, Competitive Intensity
Ward and Lewandowska 2008	Predictability, Turbulence, Competitive Intensity

2.4. LEVEL OF ANALYSIS

Much of the literature treats market orientation as a construct which is applicable to an organisation as a whole. However, many firms operate in multiple geographic and product markets. As described in the previous section each market may have its own peculiar environmental conditions. In some market environments developing a market orientation may be more effective than others in delivering sales growth, and each market may have an optimal level of market orientation for profit. In addition, developing a market orientation may be expensive (Slater and Narver 1994) and as

firms have limited resources they may choose to focus their resources on specific markets thus resulting in different levels of market orientation for different markets (Cadogan 2003). Should firms have developed different levels of market orientation for different markets then it would make sense to assess both market orientation and performance at the 'market' level of analysis.

In order to understand the levels of analysis used in the market orientation literature, the unit of analysis and the level of aggregation were identified in each study. The unit of analysis refers to the object of interest in the study. The vast majority of studies into the relationship between market orientation and performance have the firm or SBU as the unit of analysis. Sometimes an individual outlet such as a store, hotel, or travel agency is chosen as the unit of analysis, for other studies a division or department within a business is selected (e.g. export operation) and for a small number of studies it is the employee. The level of aggregation refers to whether specific constructs, such as market orientation and performance, are measured at the aggregate level for the unit as a whole or some lower level of aggregation. For example, Narver and Slater (1990) use the SBU as the unit of analysis but measure market orientation and performance for the "principal market-served".

Of the 211 studies which investigate the relationship between market orientation and performance only 8 studies measure both market orientation and performance at the market level. These are Narver and Slater (1990), Slater and Narver (1994), Slater and Narver (1996), Deshpande and Farley (1998), Baker and Sinkula (1999), Slater and Narver (2000), Qu and Ennew (2003), and O'Cass and Ngo (2006). Clearly few studies use the market level suggesting that the results of many studies may be confounded due to inappropriate aggregation.

2.5. MARKET ORIENTATION AND PERFORMANCE: NON-LINEAR EFFECTS

2.5.1. Introduction

Seven studies in the market orientation literature assess a non-linear relationship between market orientation and performance. As may be observed (figure 2.8), all the studies used subjective Likert-type measures of performance. The studies either used cost-based, revenue-based or overall measures of performance with only one, Song and Parry (2009), using all three types. Most of the studies used a more aggregated level of analysis such as the firm or SBU. Only Narver and Slater (1990) used the less aggregated market level of analysis for the assessment of both market orientation and performance. Atuahene-Gima et al (2005) assessed market orientation at the market level but performance at the SBU level.

Both U-shaped and inverted U-shaped relationships were hypothesized and found. Although most of the studies claimed to have found a significant curvilinear relationship, whether U-shape or inverted U-shaped, only three of the studies were considered to have significant results, however none of these is without issue. Despite the multicollinearity issues raised by using squared and interaction terms in regression type analysis, two studies did not use any technique to deal with this issue. The approaches to testing non-linear models are now considered in detail.

Fig. 2.8: Studies Testing Non-Linear Relationship with Performance.

Paper	Perf. Type	LOA	Shape	Support	Multi-Collinearity Technique
Atuahene-Gima et al 2005	Subj Overall	Mkt/SBU	Both	Sig. (p=10%)	Mean-centered: simple terms.
Cadogan and Cui 2004	Subj Overall	Firm	Inverted U	Sig. (p=5%)	Mean-centered: simple terms.
Cadogan et al 2009	Subj Revenue	Firm	Both	Inconclusive	Orthogonalised: multiplicative.
Narver and Slater 1990	Subj Cost	Market	U-shape	Sig. (p=5%)	None.
Singh and Ranchhod 2004	Subj Overall	Firm	U-shape	Not significant	None. Sample split.
Song and Parry, 2009	Subj Both	SBU	Inverted U	Not significant	None.
Tsai et al 2008	Subj Overall	Firm	Inverted U	Inconclusive	Standardised: simple terms.

LOA: Level of Analysis, Subj: Subjective, SBU: Strategic Business Unit, Perf.: Performance Type, Sig.: Significant.

2.5.2. Approaches to Detecting Non-Linear Relationships

The studies used three different techniques to test for a non-linear relationship. A squared market orientation term was utilised in six of the seven studies, gap analysis in one study, and a *split sample* approach in another study. The *split sample approach* involves splitting the sample into groups with different levels of market oriented behaviours. To detect a U-shaped or inverted U-shaped relationship a minimum of three groups of low, medium, and high market orientation is required. The sample is split into groups of roughly equal size, the mean performance is calculated for each group and the groups are tested for a difference in means. For instance, to detect an inverted U-shape, the medium group needs to have significantly higher performance than the low group and the high group needs to have significantly lower performance than the medium group.

The main advantage of this technique is that it avoids the issue of multicollinearity that results from using a squared market orientation term. However, the split sample approach is most likely to detect a U or inverted U-shaped relationship if the inflexion point (maximum or minimum) for performance occurs at a medium market orientation level. If the inflexion point occurs within the range of either the high or the low market orientation groups, then the split sample technique is less likely to detect the relationship. The obvious solution to this issue is to have more than three groups, but splitting the sample into more groups reduces the sample size of each group and thus reduces the power of the statistical test to detect differences between groups. In addition, for small samples it may be impractical to split small samples into more than three groups. Consequently the approach is limited in its ability to detect non-linear relationships (Aguinis 1995). The only study to use this approach (Singh and Ranchhod 2004) did not find a significant non-linear relationship.

The *gap analysis* used by Song and Parry (2009) relied upon the assessment of two different market orientation variables; the achieved level of market orientation (AMO), and the desired level of market orientation (DMO). The desired market orientation level was measured by asking respondents to indicate the optimal level of market orientation. Subsequently two gap variables were calculated; *underachieve* and *overachieve*. Underachieve was calculated as the absolute difference between AMO and DMO where DMO was more than AMO, and otherwise set to zero. Similarly overachieve was calculated as the absolute difference between DMO and AMO where AMO was more than DMO, and otherwise set to zero. *Overachieve* and

underachieve were then entered into a regression. A negative relationship with performance for both *underachieve* and *overachieve* would indicate an inverted U-shaped relationship between market orientation and performance. Whilst *underachieve* was significant and negative for all the performance measures, *overachieve* was either positive or not significant. Consequently, the hypothesis, which inferred an inverted U-shape relationship, was not supported.

The benefit of a gap analysis approach appears to be that it reduces, but does not eliminate, the issue of multicollinearity compared to using a squared market orientation term. In Song and Parry's (2009) study the correlation between *overachieve* and *underachieve* is high, as may be expected, but undoubtedly not as high as the correlation between the squared and simple market orientation terms. The main issue with the gap analysis approach is the assumption that respondents have sufficient knowledge to assess the optimal market orientation level for their firms. If the respondents' estimates are inaccurate, the ability of the technique to detect a significant inverted U-shape is reduced and the coefficients for *overachieve* and *underachieve* lose meaning. A further issue arises in Song and Parry's (2009, p155) study "these results must be treated with caution, because $DMO > AMO$ in only about 13% [41 out of 308 SBUs] of our observations". The assumption that respondents know the optimal market orientation for their firms may be avoided by using a squared market orientation term to test for a non-linearity.

The most popular technique for modelling non-linear effects, employed in all but one of the non-linear studies, is to use a *squared market orientation term*. The squared term, in conjunction with the simple market orientation term, provides the ability to model curvilinear relationships from slightly curved through to the full U or inverted U-shapes. The main benefit of the approach is its flexibility to model a variety of relationships. However, the main drawback is the inevitable multicollinearity that occurs when both simple and squared market orientation terms are included as independent or exogenous variables in the same equation.

Hair et al (2006, p24) define multicollinearity as "the degree to which any variable's effects can be predicted or accounted for by other variables in the analysis. As multicollinearity rises, the ability to define any variable's effect is diminished". They go on to describe that (p228) "multicollinearity creates 'shared' variance between variables, thus decreasing the ability to detect the dependent measure as well as ascertain the relative roles of each independent variable". This may "result in

regression coefficients being incorrectly estimated and even having the wrong signs". Thus, multicollinearity complicates the interpretation of the regression coefficients. Usually, the greater the number of independent variables which are highly correlated with each other, the greater the multicollinearity issue.

Of the six papers which used a squared market orientation term, only Cadogan et al (2009) used a technique with a strong theoretical basis for mitigating the effects of multicollinearity (Little et al 2006). This technique is called residual centering or orthogonalising. Mean centering and standardising were used by a further three studies. However, the theoretical basis for how these two techniques address multicollinearity is not evident, nor is it clear how effective they might be in tackling multicollinearity (e.g. Echambadi and Hess 2007). All three techniques rely on transforming the independent variables in some way, and the resulting centered or standardised variables have a mean of zero and take on both negative and positive values. Some studies used the variance inflation factor (VIF) to diagnose multicollinearity issues. A VIF up to 10 is generally considered acceptable. However, Hair et al (2006) advise that the acceptable VIF level should be decreased for smaller samples and note that VIF values much lower than 10 may be problematic.

2.5.3. Interpretation of Paths or Coefficients

A curvilinear effect is supported if the addition of the squared market orientation term returns a significant path or coefficient *and* the model fit or variance explained (R^2) improves significantly. A significant and positive squared term indicates a U-shaped relationship whilst a significant and negative term indicates an inverted U-shaped effect. Clearly the squared term needs to be interpreted in the context of other significant terms in the analysis. If the simple market orientation term is not significant, then a significant squared term indicates the full inverted U or U-shape across the range of observed values. If both the simple and squared market orientation terms are significant, then a more curvilinear relationship is indicated. In this instance the inflexion point for the equation may or may not be in the observed range of values. If not, then the result would indicate support for a curvilinear effect but not the full inverted U or U-shape.

In moderated analysis, the only definitive support for a *universal* curvilinear effect is a significant squared market orientation term. If the squared term is not significant but the squared market orientation interaction with the moderator (hereafter referred to as the squared interaction term) is significant then the results must be interpreted carefully in the context of the techniques used.

For instance, if the squared interaction term has been centered or standardised then the variable may take on both negative and positive values. Should the path or coefficient of this term be negative, a significant result indicates that, at low levels of the moderator (i.e. negative values of the squared interaction term) the relationship is U-shaped. Conversely, at high levels of the moderator (i.e. positive values of the squared interaction variable) the relationship is inverted U-shaped. Consequently, a significant and negative squared interaction term, which has been centered or standardised, indicates that the curvilinear effect varies from U-shaped to inverted U-shaped across the observed range of moderator values, and takes on an approximately linear effect at mean values of the moderator.

Similarly, a significant and positive interaction between the squared market orientation term and the moderator, where the variable is centered or standardised, indicates that the relationship between market orientation and performance varies from inverted U-shaped at low (i.e. negative) levels of the moderator and changes to U-shaped at high (i.e. positive) levels of the moderator.

In contrast, the interpretation of path coefficients for variables which have not been centered or standardised is somewhat different. If the squared interaction term only takes positive values and the squared market orientation term is not significant, then a positive and significant result for the squared interaction term indicates that the relationship changes from flat or linear (depending on whether the simple market orientation term is significant) at low levels of the moderator and becomes U-shaped at high levels of the moderator. Whereas if the squared interaction term is negative and significant then the relationship changes from flat or linear at low levels of the moderator to *inverted* U-shape for high values of the moderator.

The squared interaction term is more usefully interpreted when the squared market orientation term is also significant. In this instance, if the squared interaction term is in the same direction and the square market orientation term (e.g. the coefficients for both are negative) then the relationship becomes stronger at high levels of the

moderator variable. Conversely, if the coefficients are directionally opposing (i.e. one positive and the other negative) then the relationship between market orientation and performance becomes weaker at higher levels of the moderator.

In conclusion, a universal curvilinear relationship is only supported by a significant squared market orientation term. When both the squared market orientation term and the squared interaction term are significant, the strength of the curvilinear relationship is moderated. If the squared market orientation term is not significant but the squared interaction term is significant, the interpretation of the effect depends on whether the variables have been centered / standardised or only take on positive values. In some circumstances (i.e. different environments) the relationship may change from linear to become curvilinear (e.g. Tsai et al 2008), although, perhaps, it should be concluded that the relationship is predominantly linear.

2.5.4. Review and Assessment of Non-Linear Literature

2.5.4.1. Narver, Slater, Journal of Marketing, 1990

A non-linear relationship between market orientation and performance was first posited by Narver and Slater (1990). They hypothesized a U-shaped relationship for commodity businesses explaining that (p28) “the businesses lowest in market orientation, that is, the most internally oriented businesses, may be very consistent and efficient in what they do. As a result, they may be able, through a low cost strategy, to achieve some profit success, though not the profit success of the businesses that have the highest market orientation”. They continued “because of their traditional internal orientation, some of the commodity businesses are likely to be ‘stuck in the middle’. That is, they will be tentative in adopting a market orientation. They will initiate some of the appropriate steps, but will not undertake them in sufficient magnitude or with persistence or quality to create a truly different culture. Consequently they will give mixed messages both internally and externally”.

Importantly, this U-shaped relationship was not theorised to be universal for all firms. Instead the authors hypothesized a U-shape relationship for commodity businesses and a positive linear relationship for the non-commodity businesses. The analysis indicated a significant and positive effect between the simple market orientation term and return on assets (ROA) for *non-commodity* businesses thus supporting the

hypothesis for non-commodity businesses. For commodity businesses, the simple market orientation term was significant and negative whilst the squared market orientation term was significant and positive. In combination, the two significant market orientation terms suggests a predominantly negative linear relationship with a U-shaped curvilinear component. From the information presented, it is not possible to determine whether the inflexion point, and thus the full U-shape, occurs within the observed range of values for the regression analysis. Consequently it is not known whether the U-shaped hypothesis or simply a curvilinear relationship was supported.

The authors also split the commodity businesses into three groups of low, medium and high market orientation and test for significant differences in ROA. There was a significant difference between the groups; the high group had the highest ROA, the low group the second highest and the medium group the lowest. Thus the U-shaped relationship for the commodity businesses was supported. However, the small number of commodity businesses (36 SBUs) in the sample raises concerns about representativeness of the study and the potential for outliers to bias the results. Consequently there is some doubt over whether the findings may be generalised beyond the businesses sampled at that point in time to *all* commodity businesses. It is therefore concluded that the study provides limited support for a U-shaped relationship between market orientation and ROA for commodity businesses.

In the discussion of their results Narver and Slater (1990, p33) noted that “A basic law of economics applies: for every business, at some point the incremental costs to increase its market orientation will exceed the incremental benefits. Is that point near the maximum possible market orientation or is it well short of it? Are there some market environments in which businesses, on average, will move toward a high degree of market orientation and others in which, on average, they will stop at a much lower degree of market orientation”. This suggests that the benefits of a market orientation may diminish as market orientation increases, which seems to contradict the U-shaped relationship found in the study, but suggests a basis for a universal inverted U-shape relationship between market orientation and performance.

In conclusion, the authors used a squared market orientation term but without a technique to address multicollinearity issues, thus confidence in the results is reduced. However the authors conduct a split sample analysis to confirm their first analysis. This approach offers support for a significant U-shaped relationship between market orientation and ROA for commodity businesses. However the small

sample size for commodity businesses raises doubts about whether the results may be generalised. Thus it is considered that the study offers limited support for a U-shaped relationship between market orientation and ROA for commodity businesses.

2.5.4.2. Singh, Ranchhod, Industrial Marketing Management, 2004

A long period elapsed before a resurgence of interest in 2004 (figure 2.8). Singh and Ranchhod (2004) did not theorise a non-linear relationship but on splitting the market orientation variable into three sub-groups (low, medium and high) identified a non-significant U-shaped relationship between the competitor orientation component of market orientation and performance. They explained that (p141) “low and high competitor focus activities contribute more to business performance than medium competitor focus activities. Although these differences are not significant but marginal in that the costs of becoming competitor oriented outweigh the benefits when the level of competitors’ orientation is medium. These findings offer support for the view that companies become progressively less competitor oriented following the receipt of an order. This is because there is now more need to be customer oriented (to execute the order) than to be competitor oriented, as there are no further competitive activities till next competition for submission of tenders”.

It is important to emphasize that this U-shaped relationship was not significant and only occurred for competitor orientation and not market orientation in its entirety. Thus the analysis does not support a curvilinear relationship between market orientation and overall performance. Additionally, the rationale given by the authors, for the U-shaped relationship, does not seem to be universally applicable to all firms.

2.5.4.3. Cadogan, Cui, Journal of Asia Pacific Marketing, 2004

Cadogan and Cui (2004) also hypothesized a U-shaped relationship between market orientation and overall performance borrowing Narver and Slater’s (1990) argument. Their analysis indicated a strong, significant, and positive relationship between the simple market orientation term and performance. When the squared market orientation term was freely estimated the path estimate was significant and negative, and the model fit improved significantly. In combination, the significant simple and squared market orientation terms suggest a curvilinear relationship. However, with

the information provided it is not possible to determine whether the inflexion point for an inverted U-shape, existed within the observed range of values. Consequently the relationship may be considered curvilinear but may not be inverted U-shaped.

Cadogan and Cui rejected the U-shaped hypothesis and instead suggested an inverted U-shape relationship was found despite the lack of explicit support for an inflexion point within the range of observed values. They explained this inverted U-shaped finding (p30); “under a contingency theory perspective, with EMO [Export Market Oriented] behaviours as the contingency variable, it is expected that there is an optimal level of EMO behaviour for firms operating under certain business conditions. Firms operating near to their optimal level of EMO behaviour are described as being in fit, while those some distance from this optimal level are described as being in misfit. Importantly, it is argued that fit affects organisational performance, with firms in fit outperforming firms in misfit”. Unfortunately, it is not clear what mechanisms may operate to cause the inverted U-shaped relationship.

There are three issues with the authors’ findings. First, the findings are post-hoc and were not hypothesized. Second, it is not clear from the analysis that the inflexion point for the relationship occurred within the range of observed values. If not, then the relationship would be more correctly described as curvilinear and not U-shaped. Finally, although the analysis used mean-centering, it is not clear how effective this technique is in mitigating the effects of multicollinearity, thus some doubt is cast on the results of the analysis. In conclusion, the study provides limited support for a curvilinear relationship between market orientation and performance.

2.5.4.4. Atuahene-Gima, Slater, Olson, *Product Innovation Management*, 2005

Atuahene-Gima et al (2005) hypothesized an inverted U-shaped relationship between both *proactive* and *responsive* market orientations and new product program performance (NPPP). The authors defined responsive market orientation (p466) as “the generation, dissemination, and use of market information pertaining to the current customers and product domain and focuses on expressed customer needs”. In contrast, proactive market orientation “is concerned with discovering and satisfying the latent, unarticulated needs of customers”. For an inverted U-shaped relationship between responsive market orientation and performance, the authors argued (p467) “in spite of [the] advantages, increased absorptive capacity and

competence in meeting customers' needs may lead to a familiarity trap that makes the adoption of new knowledge less attractive. Hence, excessive responsive MO [Market Orientation] hinders exploration of new market domains ... and carries the risk of an inability to adapt quickly to shifts in customer needs and market conditions".

For proactive market orientation Atuahene-Gima et al (2005, p467) theorised that "excessive proactive MO carries high risks and costs because there is a degree of inefficiency associated with a focus on unfamiliar information and knowledge. A firm may move from one new innovation, market, or technology to the next without exploiting prior learning and experience. Too many exploratory projects tend to diminish the firm's focus on developing products for current markets. Associated information overload increases coordination uncertainty because exploratory projects involve different but simultaneous organizational adjustments that each may constrain, contradict, or interfere with one another in unexpected ways. Project teams also may acquire information that is too distant from current and even future customer needs, thereby limiting the success of such new products".

Accordingly the two dimensions of market orientation, proactive and responsive, appear to have opposite issues as they become too high. For responsive market orientation, firms focus too much on existing information and sources and thus miss out on new knowledge. Whereas for proactive market orientation firms do not become familiar enough with their existing projects, and taking advantage of them, before moving on to the next thing. As Narver et al (2004) argued that the market orientation construct incorporates both proactive and responsive dimensions it is difficult to see how both phenomena (i.e. being too familiar and not being familiar enough) could coexist for *all* firms in the market orientation construct as a whole. Consequently this theory is considered to be limited in its application. Interestingly, the authors identified disharmony, uncertainty, and contradiction as negative outcomes of becoming too proactively market oriented. These could play a part in an inverted U-shaped theory applicable to market orientation as a whole.

The model tested involves a large number of interaction terms (nine in total) even before adding the two squared market orientation terms. In addition the analysis undertakes the assessment of a number of other concepts (e.g. learning orientation) many of which are highly correlated with the two market orientation terms, which in turn are highly correlated with each other. The use of over 20 highly correlated terms and the modest sample size (142 SBUs) raises concerns about multicollinearity,

despite the use of mean-centering. Tellingly the addition of the proactive and responsive squared market orientation terms added only 2% to the variance explained. In addition, the inclusion of so many terms increases the chance of *Type 1 errors*, in which a significant result for the sample may not exist in the population.

The results indicated a significant and positive linear effect for the simple proactive market orientation term and significant effects for both squared market orientation terms; positive (i.e. U-shaped) for responsive market orientation and negative (i.e. inverted U-shaped) for proactive market orientation. Given the combination of significant simple and squared terms for proactive market orientation it is likely that this relationship was more curvilinear. For responsive market orientation, the lack of a significant simple term combined with a significant squared term indicated that the full U-shape was contained within the observed range of the sample.

However the authors' interpretation of the results does not concur with the above. They conducted a derivatives analysis in order to determine the position of the inflexion points of the relationships between proactive and responsive market orientations and new product program performance. For responsive market orientation, the authors wrote (p472) "this [derivatives analysis] suggests that in the range of interest (1 - 5), this function is strictly increasing. In other words, there is a positive curvilinear relationship between responsive MO and new product program performance", for proactive market orientation they continued "in the range of interest (1 - 5), this function is strictly decreasing".

There appears to be a misunderstanding in the authors' interpretation of the derivatives. First, the regression analysis used mean-centered variables thus the range of values for market orientation was not between 1 and 5. Instead both market orientation terms would have a mean of zero. Second, standardised coefficients were used in the derivatives analysis when the un-standardised coefficients would have provided more meaningful results (Claudia, Bird and Schoonhoven 1981). In conclusion, the analysis seems to provide limited support for a U-shaped relationship between responsive market orientation and NPPP and a curvilinear relationship between proactive market orientation and NPPP. However, it appears quite likely that, due to the sheer quantity of highly correlated terms in the analysis and despite the use of mean-centering, the results are affected by multicollinearity.

Atuahene-Gima et al (2005, p475) explain the U-shaped relationship for responsive market orientation “operating in the firm’s experience domain leads to new combinations and re-combinations of information and knowledge that enhance product development. This is because market knowledge from the firm’s experience domain is more reliable and the consequences under different environmental conditions are more thoroughly understood. Consequently, using such information in product development decreases the chance of costly errors and increases productivity”. However, this does not explain the initial dip in performance as responsive market orientation increases from a low level. For proactive market orientation the authors offer some additional explanation of the inverted U-shaped relationship (p475) “too many exploratory projects reduces the chances of building experience with a specific new knowledge base. Further, there may be cognitive barriers in processing new market information such as the frequency and amount of time spent in its dissemination generating substantial costs relative to the expected gains”. This final argument, about the costs off-setting the gains, seems a plausible and succinct explanation for decreasing performance.

In conclusion, the use of so many highly correlated terms in the analysis casts some doubt on the validity of the results. In particular the contribution to the variance explained of the two squared market orientation terms when added to the model is not substantial, thus confidence in *any* non-linear effect is reduced. In addition the explanation offered for the inverted U-shaped relationship appears to be applicable to proactive and responsive market orientations but not the market orientation construct as a whole. Consequently the study is considered to offer limited support for a U-shape relationship between *responsive* market orientation and NPPP, and limited support for a curvilinear relationship between *proactive* market orientation and NPPP.

2.5.4.5. Tsai, Chou, Kuo, *Industrial Marketing Management*, 2008

Tsai et al 2008 used the same arguments as Atuahene-Gima et al (2005) for an inverted U-shape relationship between both responsive and proactive market orientation and new product performance (NPP) but hypothesized a relationship moderated by the environment. The authors (p887) explained the moderating effect of competitive intensity on the relationship between responsive market orientation and performance, “customers can satisfy their needs and wants from many alternative sources under highly competitive conditions. Quickly responding to

expressed customer needs is likely to become more important when a firm is faced with aggressive competitors. This threat often necessitates highly responsive MO". Consequently they hypothesized (p887) "the curvilinear relationship between responsive market orientation and new product performance is increasingly manifested as the competitive intensity increases".

They continued (p887) "a very proactive market-oriented firm may cause negative effects, such as high uncertainty and customer resistance, on new product developments". This argument seems to resonate with Atuahene-Gima et al's (2005) disharmony, uncertainty, and contradiction outcomes. Furthermore "closely working with lead users and effectively combining heterogeneous (diverse) knowledge usually leads to dramatically innovative products. This innovation creates a higher product advantage in competitive B2B markets. Since the necessity of proactive MO depends on competitive intensity, the benefits of proactive MO may largely negate its detriments under highly competitive conditions. The authors of this study expect that a highly competitive environment may weaken the negative effect of excessive proactive MO on new product performance". Thus they hypothesize (p887) "the curvilinear relationship between proactive market orientation and new product performance is decreasingly manifested as the competitive intensity increases".

Tsai et al (2008) standardised the simple dependent and independent variables in their analysis prior to calculating the squared and interaction terms in order to mitigate the effects of multicollinearity. Implicitly this technique was not entirely successful as they tested the environmental moderators in two separate models rather than simultaneously in one model. The simple market orientation terms (proactive and responsive) were universally significant in both models, and remained significant as the squared and interaction terms were added to the model. This suggests a strong linear base to the relationship.

When the squared market orientation terms were added, the squared proactive market orientation term was significant at $p=5\%$ in one model and $p=10\%$ in the other. However the squared responsive market orientation term was not significant in either model. When the squared *interaction* terms were added to the model the squared market orientation terms became universally non-significant. Instead the squared responsive interaction with technological turbulence and the squared proactive interaction with competitive intensity were significant.

The instability of the coefficients when new variables are added to the analysis suggests that multicollinearity is a problem. Considering that each market orientation terms (proactive and responsive) requires their own squared term and squared interaction term, and that proactive and responsive market orientation are highly correlated with each other, multicollinearity is not surprising and is not aided by the modest sample size (107 firms). This issue reduces confidence in the study's results.

It is difficult to determine what should be concluded from these mixed results, other than that the results are inconclusive. However the authors conclude that the relationships' may be linear or curvilinear under different environmental conditions. Taken together, the coefficients for the different terms suggest a significant positive linear relationship for both proactive and responsive market orientation with limited support for a curvilinear relationship, inverted U-shape in nature, between proactive market orientation and new product performance.

2.5.4.6. Song, Parry, Journal of the Academy of Marketing Science, 2009

Song and Parry (2009) used two methods, a squared market orientation term and gap analysis of the difference between the firms achieved market orientation (AMO) and its desired market orientation (DMO), to test for an inverted U-shape relationship between market orientation and four performance variables; ROI, relative market share, customer retention rate, and overall performance. The authors argued that the assumption of a linear relationship between market orientation and performance should be tested, and to support their hypothesis of a non-linear effect asserted that (p148) a gap model is "consistent with studies that link firm performance to the fit between the strategic activities needed to implement a firm's marketing strategy and attributes of the firm's marketing organization".

The authors theorised that "underachieving should affect revenue-based measures of effectiveness as well as cost-based measures of efficiency (Vorhies and Morgan 2003). In contrast, the impact of overachieving will vary depending on whether a particular performance measure accounts for the costs of achieving that performance (Matsuno and Mentzer 2000). Because we have defined the desired level of market orientation to be the level that maximizes profits, overachieving should reduce measures like ROI that reflect both market performance and costs. In contrast, over-achieving can have a positive impact on market performance measures that do not

reflect relevant costs. For example, high levels of responsiveness to market intelligence might lead to product line expansions that increase relative market share and customer retention but reduce SBU profitability.”

When testing the model with the squared term, Song and Parry (2009) found that “the addition of the squared term significantly improves model fit, but the increase in adjusted R^2 s is small ... moreover, multicollinearity appears to be a problem”. Thus the squared term was not considered to have a significant relationship with any of the four performance variables (ROI, market share, customer retention rate and overall performance). Nor did the gap test support an optimal or inverted U-shaped effect. Instead it suggested that the strength of positive relationship between market orientation and performance may be weaker for overachievers than underachievers.

However this conclusion is undermined by the small size of one of the groups (41 SBUs) and the non-significant result for the *overachieve* variable in three of the four performance models. Song and Parry's (2009) stated (p155) “a conventional gap model (one in which the impact of underachieving and overachieving are equal) does not fit our data”. Consequently, it is concluded that this study does not support an inverted U-shaped relationship and offers little support for a curvilinear effect.

Discussing their results Song and Parry (2009, p157) identify the “collection of data at the business-unit level of aggregation” as a limitation noting that “the resulting ‘global’ measures are necessarily driven by respondent’s perceptions of many activities over time with regard to a variety of products and customers. This raises the possibility that certain events may have a disproportionate influence on the respondents’ global perceptions of their business units’ market orientation. Thus future research might profitably examine whether the collection of more disaggregate information can generate additional insights”. This view provides support for using a lower level of aggregation, such as the market, for a study’s level of analysis.

In conclusion Song and Parry’s study did not find an inverted U-shaped relationship between market orientation and any of the four performance variables. They discussed a different strength of positive relationship for overachievers and underachievers. However this was not supported for the majority of performance measures and the small group size used in their analysis reduces confidence in the results. Thus it is considered that Song and Parry’s (2009) study did not support a curvilinear relationship between market orientation and performance.

2.5.4.7. Cadogan et al, Journal of International Marketing, 2009

Finally, Cadogan et al (2009) hypothesized an inverted U-shaped relationship between export market oriented behaviour and export sales performance moderated by market dynamism and internationalisation. The authors theorised that “(1) firms operate with limited budgets and must prioritize their resource allocation investments optimally; (2) developing and maintaining a firm’s EMO behavior level is expensive, requiring significant resource investments (Slater and Narver 1994); and (3) orientations other than a market orientation (e.g., technological, entrepreneurial, learning, innovation) are critical to providing superior customer value and sales success (e.g. Gatignon and Xuereb 1997, Hult and Ketchen 2001). Accordingly, to achieve high levels of EMO behavior, firms may need to cut investments in other orientations to fuel the increase in export market information generation, dissemination, and response behaviors. Thus, ever-increasing EMO behavior levels will likely come at the expense of reduced investment in other important customer value-enhancing strategic orientations. Eventually, increases in customer value achieved by developing higher EMO behavior levels will be exceeded by reductions in customer value resulting from reduced investments in other strategic orientations”.

This *opportunity cost* argument relies on a firm having limited resources such that an increase in spending on one activity requires a corresponding reduction in spending on another. Contrary to the authors’ assertion, this process would appear to be innately *linear* in nature. For instance, a firm may have two orientations with different linear relationships with performance. If an increase in spending on one orientation requires a corresponding decrease in spending on another, then all combinations of spending have a mathematically linear performance outcome for the firm.

For example, assume a firm has a budget of £100, each £1 spent on market orientation results in £2 income, each £1 spent on another orientation results in £3 income, and the total budget has to be spent on one orientation or the other (e.g. £20 spent on market orientation and £80 spent on the other orientation equals £100 spent, or £30 spent on market orientation and £70 spent on the other orientation equals £100 spent). Every possible combination of the two orientations leads to a negative linear relationship between market orientation and performance.

Consequently it is difficult to ascertain how such an opportunity cost process may lead to a non-linear outcome for the relationship between market orientation and performance. In the absence of a more credible explanation of a non-linear effect Cadogan et al's (2009) theory should be used with caution. However an opportunity cost argument may more readily be applied to justify a negative *linear* relationship between market orientation and performance. For instance such an argument might be used to justify the moderation of a positive linear relationship to the point that it becomes a negative linear relationship as the environment changes.

Cadogan et al (2009) employed orthogonalisation (residual-centering) to address the multicollinearity concerns of using squared and multiplicative terms in their analysis. The simple market orientation term was highly significant indicating a linear base to the relationship with sales performance. The squared market orientation term was marginally positive but not significant indicating the absence of a non-linear effect. However, the squared market orientation interaction with market dynamism was significant and negative. As discussed previously, in the absence of a significant squared term, a negative squared interaction term which has been residual-centered is interpreted as a U-shaped relationship for low (i.e. negative) values of market dynamism and inverted U-shaped for high (i.e. positive) values of market dynamism.

Although the authors rejected a linear relationship and concluded that an inverted U-shape was found, the analysis suggests a predominantly linear relationship which has curvilinear components at low and high market dynamism. It is not clear what theory would result in this relationship and thus there may be an issue with the data or the analysis. However, support was primarily provided for a linear relationship between market orientation and sales with limited support for a curvilinear one.

2.6. CONCLUSION

With 74 out of 211 studies finding a non-significant or negative relationship, the evidence of a positive linear relationship between market orientation and performance is not conclusive. Consequently, it may be that an alternative theory, such as different curvilinear relationships for cost-based and revenue-based performance as posited in Chapter 1, better represents the relationship. In addition, the results of studies using objective performance measures appear to be more equivocal than for those using subjective measures. If objective performance

measures are considered to have greater validity than subjective ones then the more ambiguous results for these measures further undermine the theory of a positive linear relationship between market orientation and performance.

The literature review demonstrates that environmental factors may moderate the linear relationship between market orientation and performance. If the theory of different relationships for the different performance measures holds, then it would be useful to know if and how the different relationships are moderated by the environment. In particular, do the prevailing environmental conditions determine the optimal level of market orientation which generates the maximum cost-based performance? The review also shows that several studies have previously used *the market* as the level of aggregation for measuring both market orientation and performance. If the potential issues of inappropriate aggregation are to be mitigated then all the relevant measures should be investigated at the market level of analysis.

Of the 7 studies to have examined the non-linear relationship between market orientation and performance, only one has investigated both cost-based and revenue-based performance measures. Although Song and Parry (2009) hypothesized different relationships for profit (i.e. cost-based) and market (i.e. revenue-based) measures of performance, they approached the theory from a contingency perspective rather than a diminishing returns one. They did not present a non-linear theory for the revenue-based performance measures, nor did their results support the hypothesized relationships for any of the performance measures. Thus there remains a research gap for the differential impact of market orientation on the different types of performance.

One other study examined cost-based performance. Narver and Slater (1990) theorised and found a U-shaped relationship between market orientation and ROA for commodity businesses. The theory set out for cost-based measures (e.g. ROA) in Chapter 1 is expected to be universal for all businesses unlike the theory set out by Narver and Slater which is specific to commodity businesses. Narver and Slater's (1990) findings appear to contradict a universal inverted U-shape theory. However the results for commodity businesses were based on a very small sample which somewhat reduces confidence in the U-shaped finding. Consequently a research gap exists to determine whether the relationship between market orientation and cost-based performance is inverted U-shaped in nature.

In addition to Song and Parry (2009) only one other study, examined revenue-based performance. Cadogan et al (2009) used an opportunity cost argument to hypothesize an inverted U-shaped relationship between market orientation and sales performance. Their theory is different to that proposed in Chapter 1 and does not hold up to scrutiny. The authors' found a significant positive relationship with performance for the simple market orientation term indicating a linear relationship. The squared market orientation term was non-significant and marginally positive indicating the absence of an inverted U-shaped relationship. Consequently it may be concluded that the authors did not theorise or find the diminishing returns relationship presented in this thesis. Thus a research gap exists to determine whether the relationship between market orientation and revenue-based performance is subject to diminishing returns and is different to that for cost-based performance.

The remaining four studies all examined some form of global or overall performance measure which does not conform to the theory presented; new product performance for Atuahene-Gima et al (2005) and Tsai et al (2009), and an overall performance measure for Cadogan and Cui (2004) and Singh and Ranchhod (2004). These four studies variously found U-shaped, inverted U-shaped or non-significant relationships between market orientation (Cadogan and Cui 2004, Singh and Ranchhod 2004), or the proactive and responsive dimensions (Atuahene-Gima et al 2005 and Tsai et al 2009), and performance. All seven non-linear studies used subjective measures of performance, and only one study used the market as the level of analysis (see figure 2.8). Although none of the studies is without issue, and some of the findings contradict each other, together they suggest that there might be a non-linear relationship between market orientation and performance.

The theory presented in this thesis of different curvilinear relationships for different performance measures, universal for all firms, has not previously emerged in the market orientation literature. Nor has any research study found the relationships to exist. Consequently it was concluded that the posited research gaps existed. Thus formal theory development was undertaken resulting in the conceptual model presented in the next chapter. Following chapters discuss the testing of the conceptual model.

CHAPTER 3: CONCEPTUAL MODEL

3.1. OBJECTIVE

In this chapter the conceptual model and research hypotheses are presented and explained. An overview of market orientation's performance consequences is provided and the mechanisms by which market orientation affects performance are described. Then the concept of *diminishing returns*, which is central to the model, is introduced and explained. Finally, the moderating effect of the environment on the relationship between market orientation and performance is investigated in detail.

3.2. MARKET ORIENTATION AND PERFORMANCE

3.2.1. Cost-based and Revenue-based Performance

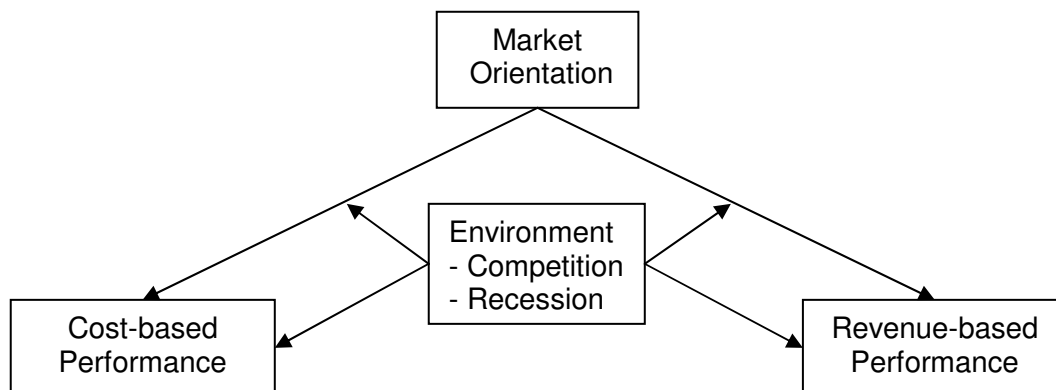
Examining the relationship between market orientation and performance has been the principal goal of research in the market orientation field. Performance is usually evaluated using subjective measures (see section 2.3.2), for instance asking the respondent to rate firm performance compared to either the respondent's expectations or the firm's competitors' performance. This evaluation often uses multiple performance measures, such as sales growth, market share, profitability, profit growth, and return on investment among others.

With so many different performance consequences of a market orientation, it is useful to have a framework for categorising measures. Kirca et al (2005), in their meta-analysis of the market orientation literature, grouped performance into cost-based and revenue-based measures. They defined cost-based measures as those "which reflect performance after accounting for the costs of implementing a strategy (e.g., profit measures)" (p25), these include profit, profit growth, return on investment, return on assets, and return on sales among others. Revenue-based measures are those "which do not account for the cost of implementing a strategy (e.g., sales and market share)" (p25). The terms profit, profitability, and cost-based performance are used interchangeably, as are sales and revenue-based performance.

3.2.2. Mechanisms

Whereas the literature seems to confirm the link between market orientation and superior performance, the detailed *mechanisms* of the relationship are less obvious. Kohli and Jaworski (1990, p13) explained that “a market orientation appears to provide a unifying focus for the efforts and projects of individuals and departments within the organisation, thereby leading to superior performance”. Narver and Slater (1990) viewed market orientation’s role as continuously creating superior value for buyers. Homburg and Pflesser (2000, p452) added “a market oriented organisation provides a unifying focus of individual efforts in the delivery of value to the customers while also providing a comparative impetus with competitors’ activities”.

Fig. 3.2: Conceptual Model: Market Orientation, Performance Consequences, and Environmental Moderation



As Homburg and Pflesser (2000) argued, it is only the market oriented behaviours of a firm that directly impact performance (see section 1.1). Kohli and Jaworski (1990) defined market orientation as the generation of market intelligence, the dissemination of the intelligence across departments and the firm’s responsiveness to it. Using this behavioural definition of market orientation it is possible to demonstrate the mechanisms by which market orientation may work to create superior performance.

The more a firm generates information about customers and competitors in their market, the more likely it is to understand both the customers’ needs and how well it meets those needs relative to its competitors. The more the firm disseminates that information within the firm, the more likely it is to create a unified understanding of

customer needs and thus a unified purpose to better meet those needs. Finally, the more the firm responds to the market information, the more likely it is to satisfy customers' needs and adapt to their changing preferences. This response may either boost demand for the firm's products or enable the firm to charge more for its products than its competitors (Mantrala et al 2007) thus enhancing the firm's income and generating superior performance. As Narver et al (2004, p338) observed "the knowledge about the business's customers and competitors that is derived from being market oriented should lead to more effective market targeting, product development and positioning".

For instance, a market oriented firm may generate information about customers and competitors by commissioning research, purchasing market reports, or talking to its salespeople. The firm may further analyse this information and then disseminate it in informal discussions, or using formal meetings, reports, and presentations. Once an understanding of the information's implications is reached and the best way of responding decided, the firm may respond by adjusting its marketing mix. For instance, the firm may develop its products, launch new ones, or undertake new marketing initiatives such as customer incentives, product promotions, or advertising campaigns. If these responses are valued by the customer then the firm's sales may increase as customers switch from competitors' products or new-to-the-market customers are attracted to the product. Alternatively the firm may be able to charge more for its product and thus increase its profits. Thus the firm's cost-based or revenue-based performance may be enhanced.

As the customers' needs and preferences change and as the firm's competitors change their activities, a market oriented firm is able to track and respond to those changes and thus can better satisfy customers and ultimately perform at a higher level (Jaworski and Kohli 1993). The following hypotheses are therefore formulated:

H1a: A market orientation enhances revenue-based performance.

H1b: A market orientation enhances cost-based performance.

3.2.3. Primacy

Performance is a complex and multi-dimensional phenomenon (Dess and Robinson 1984, Jaworski and Kohli 1993). Jaworski and Kohli (1993) tested four different performance consequences of a market orientation in their study. Three of these were significantly related to market orientation but one performance dimension, market share, was not. This result led them to observe (p65) that “performance on one dimension may run counter to performance on other dimensions”. This suggests that the strength, or direction, of the relationship with market orientation may be different for revenue-based and cost-based performance.

Put simply, profit may be regarded as the outcome of the firm’s *unit profit margin* (which is the *unit cost* subtracted from the *unit price*) multiplied by the number of *units sold*. As discussed earlier (section 3.2.2), market oriented initiatives may either boost sales of a firm’s products or enable the firm to charge more for its products thus enhancing performance. Should the firm choose to increase prices, some of its most price sensitive customers may be driven away and thus sales may fall. However, the decline in sales may not be sufficient to fully offset the increase in profit due to the price rise. Consequently a firm which becomes more market-oriented may succeed in driving *profitability* but may do so at the expense of *sales*.

Evidently, declining sales are not a necessary result of market orientation but merely a possible outcome for a firm focusing on profitability. Should market orientation boost demand for the firm’s product then sales and profit may both increase together. As Slater and Narver (1996) explain “The market-oriented business will realize its performance potential by either: 1) maximizing profit at the expense of expanded sales, 2) maximizing sales at the expense of profit margin, or 3) balancing the trade-off between profitability and sales growth for superior overall performance”.

This begs the question: which performance outcome is the foremost aim of a market orientation? Support for profitability’s primacy over sales comes from both Narver and Slater (1990) and Kotler (1999). Kotler viewed profitability as a central part of the marketing concept and included it as one of the three pillars of marketing. Consistent with this view, Narver and Slater included profit focus as a key component of their market orientation construct observing that profit is the principal long-term focus of a firm. It may therefore be argued that the primary aim of a market orientation is to enhance cost-based performance, profitability in particular, above

any other performance measure. Consequently market orientation's relationship with cost-based performance is expected to be stronger than its relationship with revenue-based performance:

H2a: Market orientation's relationship with cost-based performance is stronger than its relationship with revenue-based performance.

However, cost- and revenue-based performances measure different dimensions, sometimes in different units, and thus the strength of their relationship with market orientation may not be readily comparable. On the occasions that the firm pursues market oriented activities that enhance profits at the expense of sales, the relationship between market orientation and sales breaks down. Consequently market orientation may explain less *variation* in revenue-based performance. In this instance, it is expected that, over the entirety of a firm's market oriented activities, market orientation explains more of the *variation* in profit than in sales:

H2b: Market orientation explains more of the *variation* in cost-based performance than in revenue-based performance.

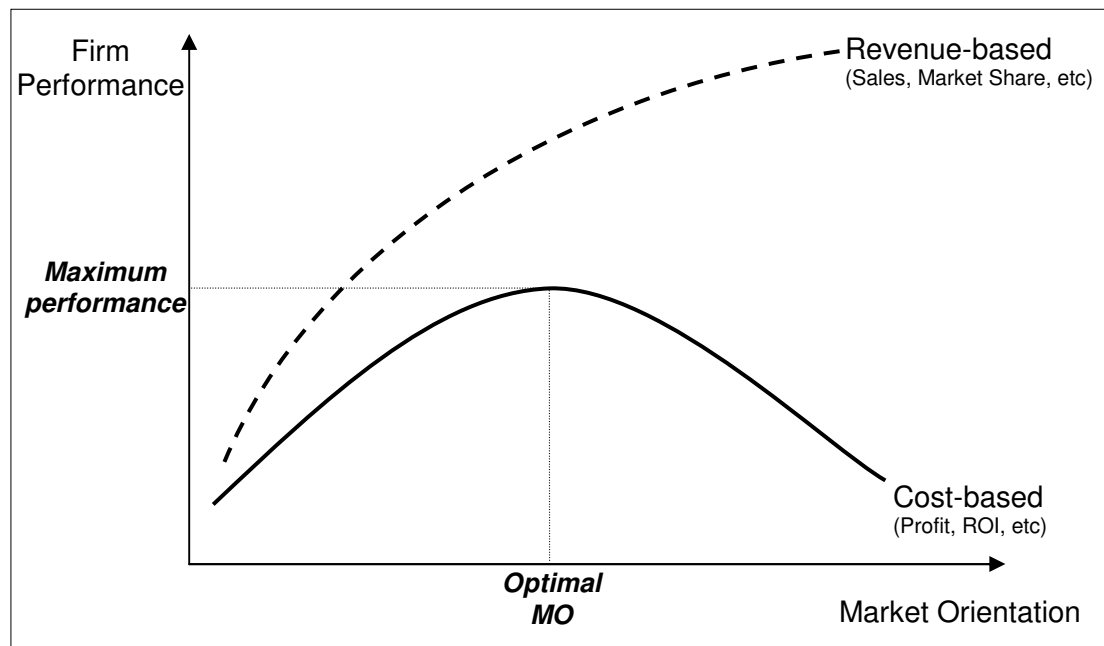
3.2.4. Diminishing Returns

Research in the market orientation literature has predominantly focused on the *linear* relationship between market orientation and *subjective* performance. However, market oriented activities may be considered to be subject to *diminishing returns* (Narver and Slater 1990).

Firms pursuing a market orientation strategy must engage in and maintain market oriented activities. These activities relate to generating, disseminating, and responding to market intelligence (see section 3.2.2). A firm with a low level of market orientation has a large scope for increasing its market oriented activities and a large choice of activities which offer new and unique insights into its product market. Once disseminated these new insights may drive new market responses and initiatives. As the firm becomes more market oriented, the more likely it is that the generated market intelligence overlaps or *duplicates* existing knowledge and therefore provides relatively fewer new insights into the product market. Thus, as duplication increases, the *influence* of new generation activities on the firm's market

oriented response is reduced. At high levels of market orientation it is possible that new intelligence generation may not generate *any* new insight into customers and competitors and therefore the information may be completely redundant. At this point, new intelligence does not result in any market response and therefore performance is not enhanced. Thus, as market orientation *increases*, the incremental performance benefits *diminish* (figure 3.1, revenue-based performance).

Fig. 3.1: The Relationship between Market Orientation and Firm Performance.



Clearly, duplication is not only restricted to generation activities. A firm may decide to intensify its dissemination activities by increasing the frequency of, or widening participation in, meetings, conferences, seminars, or reports. These dissemination activities take up the preparation and participation time of managers and decision makers which might otherwise be used productively in other activities. As the firm becomes more market oriented and disseminates more market intelligence the more likely it is that the latest dissemination activity will duplicate previous activities for some managers and decision makers. Thus the effectiveness of the latest activity is somewhat diminished. At higher levels of market orientation new dissemination activities are increasingly likely to duplicate previous activities for more managers, and therefore the benefits of becoming more market oriented diminish further. Hence some of the benefits of engaging in more dissemination activities may be ameliorated by duplication of effort and may therefore be subject to diminishing returns.

As a firm generates more intelligence and the likelihood of duplication increases, it is possible that two different sources of information may *contradict* each other (Atuahene-Gima et al 2005). If this conflicting intelligence cannot be resolved then it may engender doubt and disagreement in the firm as to the most appropriate course of action. As a result the implementation of market oriented initiatives that would otherwise benefit the firm may be hindered or delayed. Thus as a firm increases its market oriented activities, the dissonance that results from conflicting intelligence may reduce the firms responsiveness to changing customer needs. Consequently as market orientation increases the incremental performance benefits may diminish.

Finally, as argued above, a firm with a low market orientation has a large choice of alternative activities by which it may increase its market orientation. Each activity has an implementation cost and an anticipated benefit. A firm acting rationally may prioritise the implementation of those activities it identifies as most beneficial. Once an activity has been initiated it must usually be maintained at regular intervals in order for the firm to maintain its level of knowledge. For the firm to further increase its market orientation it needs to engage in new activities. Again the firm will prioritise activities it perceives as most beneficial. Should the firm have correctly identified the benefits of each activity then this process results in each subsequent activity being less beneficial than the previous one. As a result the incremental performance benefits may diminish as market orientation increases.

The above arguments support the case for diminishing incremental performance benefits as a firm increases its market orientation. For revenue-based performance, diminishing returns results in a *tailing off* of performance benefits as market orientation increases such that the relationship is curvilinear (see figure 3.1).

H3: As market orientation increases the incremental revenue-based performance benefits diminish.

It has previously been argued that market orientation enhances cost-based performance. A potentially more compelling argument which extends previous thinking is now advanced. This argument utilises both diminishing returns, as discussed above, and the costs associated with market orientation to suggest that market orientation's relationship with cost-based performance is inverted U-shaped.

Market oriented activities have both direct costs, for instance purchasing market information and responding to competitors' actions, and indirect costs, such as managers' time spent analysing data, discussing information with colleagues, and planning initiatives. As a result market orientation "is both difficult and expensive to develop and maintain" (Slater and Narver 1994, p47).

Crucially, a market orientation "is only useful if the benefits it affords exceed the cost of ... resources" (Kohli and Jaworski 1990, p15). As returns diminish, a point may be reached where the incremental return equals the incremental cost of a market oriented activity. This is the point of *optimal* market orientation where profit is maximised (see figure 3.1, cost-based performance). Beyond this point, costs exceed the returns and therefore profit declines. As Narver and Slater (1990, p33) observed "A basic law of economics applies: for every business, at some point the incremental costs to increase its market orientation will exceed the incremental benefits". Thus market orientation has an inverted U-shape or bell-shape (Mantrala et al 2007, p26) relationship with profitability. This relationship is known as the profit curve or the profit function (Mantrala et al 2007, p26).

For instance, a firm may purchase additional market intelligence at a defined cost. However, the intelligence may reinforce or leave unchanged the firm's view of the market. Thus, there is no response to the newly purchased intelligence and no performance benefit. Indeed the cost of the intelligence results in a net loss. Alternatively, as Mantrala et al (2007 p26) observed in the newspaper industry "managers can increase news quality up to a point, beyond which further quality improvements fail to attract enough new readers to justify incremental costs".

Hence, as the level of market orientation increases, cost-based performance increases until the optimal market orientation level, which maximises performance, is reached. Beyond this, increases in market orientation result in worsening performance (see figure 3.1). Thus the hypothesis is made:

H4: The relationship between market orientation and cost-based performance is inverted U-shaped.

Where the costs and returns of an activity are transparent a firm will not normally exceed the point of optimal profitability. However, the costs and returns of some activities may not be readily quantifiable. As Mantrala et al (2007, p26) state "the lack

of knowledge about the firm's location (on the profit function) – uphill or downhill – leads managers to make serious errors in their investment decisions”. Alternatively a firm may find itself on the downhill side of the profit curve because of a change in the environment. The effects of the environment are now discussed.

3.3. ENVIRONMENT EFFECTS

3.3.1. Competitive Environment

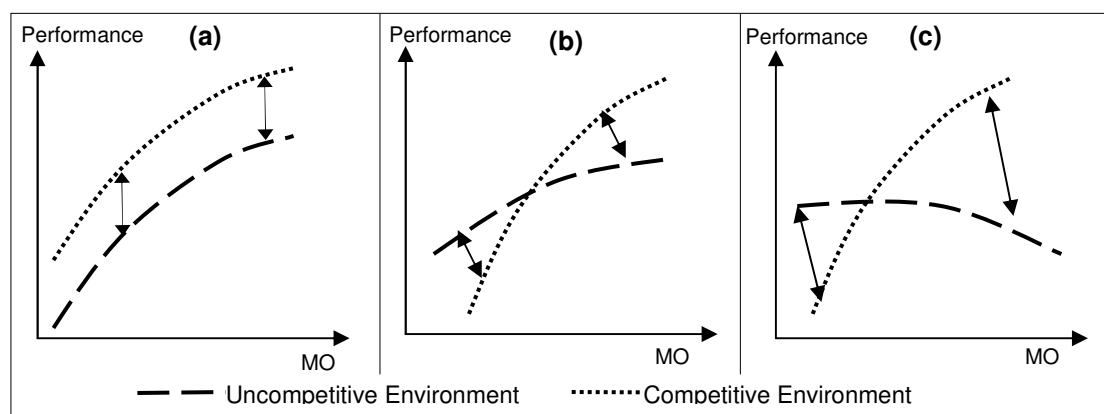
The competitive environment refers to the level of the competition within a market. It includes both the intensity of the competition (Jaworski and Kohli 1990, pp14-15) and the dynamism of the competitors (Miller and Freisen 1982, p3). A highly competitive environment may be characterised by a large number of competitors, a high level of competitor activity, and a high frequency of change in competitor activity.

The level of competition within a market may have a *direct* effect on a firm's performance and may also *moderate* the relationship between market orientation and performance. Given the different nature of the market orientation relationship for the different performance measures, it is expected that the competitive environment will affect revenue-based and cost-based measures of performance differently.

As Homburg et al (2007, p 23) noted “Market environments with intense competition are typically characterized by greater pressure on prices”. As the environment becomes less competitive and price competition decreases, firms may be able to raise their prices in order to increase their profitability. As prices rise, products become less affordable and price sensitive customers are squeezed out of the market, causing sales to decline. The opposite may also happen, as the environment becomes more competitive and price competition increases, prices decline making products more affordable to new-to-the-market customers and sales increase (figure 3.3a). Thus the level of competition may have the following *direct* effect on sales:

H5: As the environment becomes more competitive, revenue-based performance is enhanced.

Fig. 3.3: Moderation of Market Orientation - Revenue-based Performance Relationship.



The more competition a firm faces, the more it needs to learn about competitors activities and respond to them in order to generate superior performance. As Kohli and Jaworski (1990, p14) explained “strong competition leads to multiple choices for customers. Consequently an organisation must monitor and respond to customers’ changing needs and preferences to ensure that customers select its offerings over competing alternatives”.

In a highly competitive environment, competitors are more active and therefore a high market orientation is needed to learn about and respond to these activities. Conversely, in an uncompetitive market, there are fewer competitor activities to learn about, and a high market orientation is not required. Thus the level of competition may *moderate* the strength of the relationship between market orientation and revenue-based performance with market orientation more effective at delivering revenue-based performance in competitive environments (figure 3.3b).

Jaworski and Kohli (1993, p57) note that “in the absence of competition an organisation may perform well, even if it is not very market-oriented, because customers are “stuck” with the organisations products and services”. In an uncompetitive environment, becoming market oriented may be ineffectual. Indeed, focusing on market orientation may divert resources away from other activities.

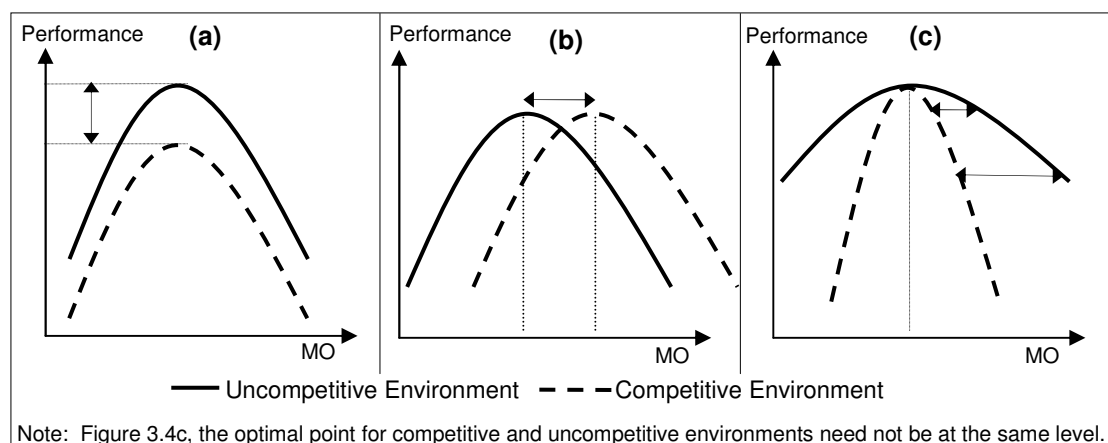
For instance, a firm which is over reliant on market orientation to drive performance may be undercut by a more cost-focused competitor. The *opportunity cost* of developing and maintaining a market orientation may be a lack of attention to, or investment in, other more productive activities. Ultimately this may result in falling revenues as competitors steal sales (figure 3.3c).

H6: As the environment becomes more competitive, the relationship between market orientation and revenue-based performance becomes stronger. Conversely, as competition declines, the relationship may weaken to the point that it becomes predominantly negative.

The higher the level of competition, the more a firm needs to respond to competitor initiatives in all aspects of the marketing mix, including price. As price competition increases, margins are squeezed and firms may become less *profitable*. A highly competitive environment therefore may have a *direct* effect on reducing firm performance at all levels of market orientation. This causes the profit curve to shift to a lower level of performance (see figure 3.4a), such that, all other things being equal, a firm in a competitive environment has *weaker* profitability than a firm in an uncompetitive one. Hence the hypothesis:

H7: As the environment becomes more competitive, cost-based performance is reduced.

Fig. 3.4: Moderation of Market Orientation - Cost-based Performance Relationship.



The more competitive the environment, the more a firm needs to learn about and respond to competitor activities in order to achieve superior cost-based performance. For the firm to maintain its competitive advantage as competition increases, it needs to generate, disseminate, and respond to more intelligence by increasing its market oriented activities. If the firm fails to increase its market orientation in response to increased competition then its performance may decline. Thus the cost-based performance curve may shift to a higher market orientation level (figure 3.4b).

H8: As the environment becomes more competitive, the maximum cost-based performance occurs at a progressively higher market orientation level.

As Gatignon and Xuereb (1997, p81) observe “management must pay greater attention to costs in a competitively intense market, partly because of greater pressure on prices”. In a competitive environment the relationship between market orientation and performance is stronger (figure 3.4c). As competition increases and margins decline, a firm’s costs, including its expenditure on market-oriented activities, become even more important in determining cost-based performance. Therefore, on the *downhill* side of the profit curve, excessive spending on market-oriented activities becomes more detrimental to performance as competition intensifies.

As competitor activity increases, a firm on the *uphill* side of the profit curve needs to gather more information in order to know what is happening and respond. If the firm fails to increase its market orientation, its ability to respond to competitor initiatives is reduced, and its source of competitive advantage is undermined. A low market orientation may therefore become more costly as competition increases. In consequence, a sub-optimal market orientation level becomes more costly as the environment becomes more competitive, and the gradient of the *profit curve* is steeper in a competitive environment than in an uncompetitive one.

H9: As the environment becomes more competitive, the relationship between market orientation and cost-based performance becomes stronger.

3.3.2. Recession

According to figures from the UK’s official statistics agency, the Office for National Statistics, contraction of the UK economy (ABMI data series) started in the 2nd quarter of 2008, and ended in the 2nd quarter of 2009. Two studies in the field offer some insight into the effect of a recession environment on the market orientation – performance relationship. Using three separate performance measures (ROI, New Product Success, and Sales Growth), Greenley (1995, p8) found that “market orientation does not have a direct effect on performance”, and noted in the study limitations “as the data were collected during a recession in the UK, some of the relationships may have been distorted” (p10). Grewal and Tansuhaj (2001, p76) studied the aftermath of the 1997 Asian economic crisis in Thailand. Using a multi-

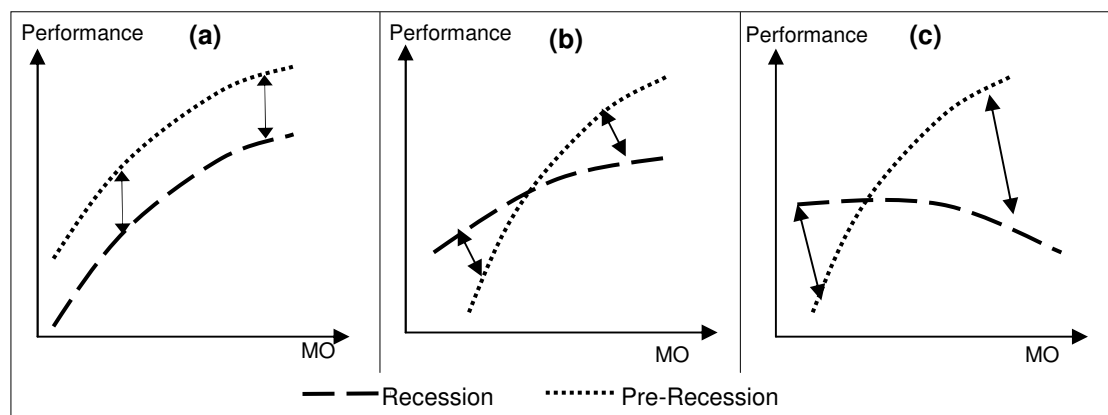
item subjective performance measure they found that “market orientation has a negative influence on firm performance after crisis ... which is aggravated in conditions of high competitive intensity”.

These two findings, of a non-significant and a negative relationship between market orientation and performance, are unusual in the market orientation literature. Taken together they suggest that a recession may reduce, destroy or even reverse the usual positive relationship between market orientation and performance.

A recession represents a reduction in customer demand in an economy as customers in many markets reduce, delay, or cancel purchases. Therefore a recession should have a *direct* effect of reducing sales whatever the level of market orientation (figure 3.5a). Thus the hypothesis is formulated:

H10: In a recession environment, revenue-based performance is reduced.

Fig. 3.5: Market Orientation - Revenue-based Performance Relationship in Recession.



Firms affected by reduced demand need to adjust quickly to this new environment by reducing their capacity and costs to match the falling demand. However, identifying and implementing cost and capacity reduction may take time. Thus there may be an extended period of transition during which firms adjust to the new level of demand. In this transition period the supply of goods is likely to exceed customer demand. Customers, too, may also be affected by the need to adjust and reduce costs. Thus their spending priorities may change and, with the need to cut costs, become more sensitive to pricing. This combination of over supply and price sensitivity may result in intense price competition during the transition period, as firms clear excess stocks.

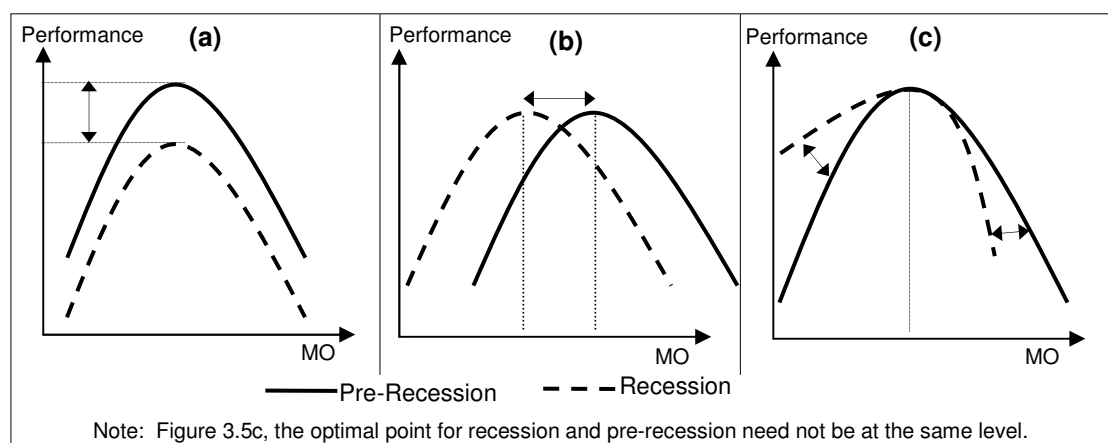
During a recession there are three factors that may reduce the effectiveness of a market orientation. First, market oriented firms, with their inherent focus on profitability (Narver and Slater 1990), may be reluctant to engage in price competition during the transition period, and instead rely on their market orientation to maintain competitive advantage. This lack of strategic flexibility may allow competitors to undercut and steal the firm's sales and market share (Grewal and Tansuhaj 2001). Second, focusing on market orientation may divert resources and attention away from more productive activities, such as reducing costs to stimulate demand or concentrating on selling (Narver and Slater 1990). Third, the firm may succeed in maximising its profitability but at the expense of its revenue-based performance. These three factors may weaken the relationship between market orientation and revenue-based performance (figure 3.5b), even to the point that it is difficult to detect or becomes negative (figure 3.5c). Hence the hypothesis:

H11: In a recession environment, the relationship between market orientation and revenue-based performance becomes weaker. The relationship may even weaken to the point that it is no longer detectable or it becomes negative.

As firms adjust to a lower level of demand there is a transition period where supply exceeds customer demand which may be characterised by intense price competition. Lower demand and lower prices lead to a reduction in profits. Thus recession directly affects cost-based performance by reducing firms' profitability (figure 3.6a).

H12: In a recession environment, the entire profit curve shifts to a lower level of cost-based performance.

Fig. 3.6: Market Orientation - Cost-based Performance Relationship in Recession.



Entering a recession, a firm needs to negotiate the transition to a lower level of demand by reducing capacity and costs. Market orientation becomes relatively less important in driving cost-based performance and the whole profit curve shifts to a lower market orientation level (figure 3.6b). A firm that was optimal prior to the recession, if it maintains its level of market orientation, may find itself on the downhill side of the profit curve during the recession, thus:

H13: In a recession environment, maximum profitability occurs at a lower market orientation level.

During a recession, market orientation becomes relatively less important in driving profits compared to making changes to adjust to the recession. Maintaining a market orientation is expensive and, in a recession, the costs associated with it become relatively more important in determining firm profitability. A lower market orientation is less costly and therefore, on the *uphill* side of the profit curve, profitability improves relative to pre-recession profitability. On the *downhill* side of the profit curve, a higher market orientation is more costly and performance tails off more quickly than before the recession (figure 3.6c). Therefore a recession moderates the strength of the relationship between market orientation and performance.

H14: In a recession environment, the relationship between market orientation and cost-based performance becomes weaker on the uphill side of the profit curve, and stronger on the downhill side.

CHAPTER 4: METHODS

4.1. OBJECTIVE

This chapter explains and justifies the methods used to test the hypotheses developed in the Conceptual Model chapter. These hypotheses are concerned with the causal relationship between market orientation and performance and the effect of the environment on this relationship. The process from instrument selection, through its development, and to the collection of the data is now described further.

4.2. RESEARCH INSTRUMENT

4.2.1. Sources

The hypotheses may be tested by using either primary or secondary data sources. Secondary data “are statistics not gathered for the immediate study at hand” whereas primary data “are originated by the researcher for the purpose of the investigation at hand” Churchill (1991, p247).

Market orientation is not a directly observable phenomenon and thus is usually measured using multi-item scales via primary data collection (see section 2.2). With the exception of previous market orientation research, secondary statistics on market orientation were therefore not readily available. Using secondary data from a previous study was an option, however there were two issues: (a) the inappropriate aggregation of market level relationships (see section 2.4), and (b) the use of objective performance measures. First, the majority of studies have used the *firm* rather than the *market* as the unit of analysis. As argued previously, using the *firm* as the unit of analysis may confound effects that operate at a *market* level. Should confounding occur then detecting the hypothesized relationships may become more difficult. Only a small number of studies have used the *market* as the unit of analysis, however fewer still have used it consistently across both market orientation and performance measures. Second, objective performance measures have rarely been used in market orientation studies despite calls for more research into market orientation and *objective* performance (Slater and Narver 1994). Notably, Mantrala et al (2007) used objective measures in their research on the profit curve. As a similar curve was hypothesized in this study, it was deemed prudent to include objective

performance measures in the data collection. Thus, as both *objective* performance measures and the *market* as the unit of analysis have not featured in previous studies, primary research was considered justified.

4.2.2. Longitudinal or Cross-Sectional

As Churchill (1991, p129) observed “certain types of research design are better suited to some purposes than others. The crucial tenet of research is that the design of the investigation should stem from the problem”. In this instance the hypotheses from the previous chapter were the “problem”. To test the hypotheses, information on a firm’s market orientation and performance in different environments was required. Two alternative types of study may be used to collect this data. The *longitudinal* study tracks firms as their market orientation and performance levels change. Therefore it is possible to test whether a change in a firm’s market orientation in one period affects a firm’s performance in a subsequent period. Alternatively the *cross-sectional* study examines firms with different levels of market orientation, operating in different environments at a single period of time. Information from these firms may be tested for associations between market orientation, performance, and environment that support the hypotheses.

Each type has its advantages and disadvantages. Because longitudinal studies test for a change at one time affecting performance at a subsequent time, they are theoretically a stronger test of causality than cross-sectional studies (Rindfleisch et al 2008). However, they are not without their problems. Longitudinal studies require data collection from at least two different points in time from the same set of companies. Consequently they involve additional data collection, compared to cross-sectional studies, and thus are more expensive and time consuming to undertake. As Rindfleisch et al (2008, p262) state “longitudinal studies demand additional expenditures in terms of time and money. These expenses are often prohibitive for academic researchers faced with limited budgets and marketing practitioners faced with limited time”. In addition, ensuring that firms participate in all the data collection rounds requires additional time and effort and thus longitudinal studies are potentially more difficult to administer successfully. A consequence of this is that “longitudinal surveys often entail a considerable degree of respondent attrition, which introduces an added risk of non-response bias” (Rindfleisch et al 2008, p263).

A cross-sectional study was capable of testing the hypotheses and was also cheaper, less time consuming, and easier to administer than a longitudinal study. Unsurprisingly then, the majority of studies that have investigated the relationship between market orientation and performance have used cross-sectional studies. Rindfleisch et al (2008) note that of 178 survey based articles in the *Journal of Marketing* and the *Journal of Marketing Research*, 94% were cross-sectional in nature. As financial resources and time were limited, the cross-sectional type of study was considered appropriate for testing the hypotheses.

4.2.3. Administration

There are various options for the administration of a cross-sectional study, including telephone, mail, and personal administration. As discussed previously, it is sensible to include objective performance in the study (see section 4.2.1). Secondary information on firm's objective performance is limited primarily to publicly quoted companies that report financials to their shareholders. When this information is available, it is often only provided at the *firm* level rather than the *market* level of analysis that is of interest in this study. Thus primary collection is likely to be the only way of obtaining objective performance at the market level.

However, a firm's objective performance, that is not publicly available, may be considered by respondents to be commercially sensitive and confidential in nature. As such it represents a major source of measurement error (Dess and Robinson 1984). As Churchill (1991, p370) observed "The situation sometimes arises in which respondents have the necessary information but they will not give it. Their willingness, in turn, seems to be a function of ... the sensitivity of the issue". In this instance the ability to offer anonymity "may afford people an opportunity to be more frank on sensitive issues" (Churchill, p335). As no direct personal contact is required for mail and web administered surveys, they are capable of offering both anonymity and confidentiality. Thus they may be more likely to obtain a response for objective performance than personal and telephone studies.

Without a suitable source of secondary information on objective performance at the market level, the use of a confidential or anonymous format, such as a mail or web survey, was considered advantageous in procuring objective performance information from respondents. Of the two options, a mail survey was preferred

because postal addresses were more readily available than email addresses from database listings. A process of mailing or calling respondents for their email addresses or to provide a link to a web survey was contemplated, however the additional steps and complexity this required, compared to a mail survey, may have increased the risk of non-response. Thus a mail survey was settled upon as the most suitable way of administering this study.

Given the empirical nature of the research hypotheses an in-depth study was not considered appropriate and therefore the questionnaire format was selected. Mail surveys are, by far, the most popular method of administration in market orientation studies, and thus the various market orientation measures have been demonstrated to work with this format.

4.3. SAMPLING FRAME

4.3.1. Comparing Performance between Firms

As Dess and Robinson (1984, p266) argued “the profitability of the industry within which a firm competes is a significant predictor of firm profitability. Therefore, if comparisons are made across firms without controlling for industry profitability, the effects of intra-industry and inter-industry variation, or alternatively, business-level and corporate-level strategy, on performance indicators are confounded”.

The simplest way of controlling for industry profitability is to sample exclusively from firms that operate in a single industry. As the study aims to collect data at the market level of analysis, this suggests that the data needs to be collected from firms operating in the same market in the same industry. If not, the results of the study may be confounded by the different levels of profitability for different industries. Thus the decision was made to collect data from firms operating in a single specific market.

4.3.2. Demand Dependency

For a firm operating in multiple markets, demand for the firm’s products in one market may affect demand in another market (Mantrala et al 2007). This dependency may be directional, in that success in one market drives success in the dependent market,

or it may be mutual, in that success in either market breeds success in the other. If the dependency is very strong, it is possible that success in one market may drive success in the other market, whatever the level of market orientation in the dependent market. Clearly demand dependency has the potential to confound the relationship between market orientation and performance. Thus it was decided to (a) avoid sampling from markets with obvious demand dependency, and (b) measure dependency between markets in the study to inform the subsequent analysis.

4.3.3 Objective Performance, Response Rate and Sample Size

As discussed previously (section 4.2.3) the inclusion of objective performance measures may increase the risk of non-response. Should the response rate for the study be relatively low, then a large sampling frame may be required in order to obtain an adequate number of responses for the subsequent analyses. To illustrate this, consider the possibility that the expected response rate is 10% and the number of responses required is 150. To meet the required number of responses a sampling frame of 1500 sampling units would be needed. Thus it was concluded that the chosen sampling frame should have a large number of units.

4.3.4. Controlling the Macro Environment

Previous research into the link between market orientation and performance suggests that the relationship may be contingent on environmental factors (see Literature Review chapter). These may include macro-environment factors such as legislation, regulation, political intervention, and government macro-economic policy in different administrative regions. It may be possible to *control* these factors either by measuring them in the study or by focusing the study on a single administrative region which has limited variance in these macro-economic factors. The first option of including macro-environment measures within the study inevitably adds complexity to both the collection and subsequent analysis of the data. Additionally it may only *fully* control the macro-environment if the measures used are both comprehensive and accurate. The alternative of using a single administrative region was considered a simpler and more comprehensive way of controlling the macro-environment. Thus the United Kingdom was selected as the administrative region because it was considered relatively homogeneous at the macro-environment level.

4.3.5. Variance in Market Orientation

Some firms have a strong, centrally driven corporate identity. These firms may carefully control the provision of their products and services so that the customer experience is nearly identical in all their outlets (e.g. MacDonald's fast-food restaurants). These centrally driven firms may procure market intelligence and provide a range of marketing initiatives that their outlets are able to utilise. This centrally driven culture may result in similar levels of market orientation across all the firm's outlets. Thus an industry dominated by a small number of centrally driven organisations may lack variance in the market orientation levels of the sampled units. Without this variance in market orientation it may be difficult to test the hypotheses. Thus it was decided to avoid sampling from industries which are dominated by a small number of centrally driven firms (e.g. bank branches, fast-food restaurants).

4.3.6. The Sampling Frame

Given the considerations described above, the sampling frame needed to be a single specific market. Demand in this market needed to be largely independent of other markets in which the firms operated. A large number of sampling units all operating within the UK were required. Finally, the industry should not be dominated by a small number of centrally driven firms. It was considered that the *new car* market met these criteria and thus *new car dealerships* were selected as the sampling unit.

4.3.7. The Respondent

The targeted respondent was required to have knowledge of the dealership's market orientation and performance in the new car market as well as an understanding of the competitive environment. Whereas knowledge of the firm's market orientation and competitive environment may be expected of various dealership employees, it was deemed that the person most likely to have access to comprehensive performance information would be the most senior manager in the dealership. In order to address the effects of common method variance it was desirable to have one respondent for performance and another for the remaining questions. However non-response by one respondent in the pair may have further reduced response rates

already under pressure due to the requirement for objective measures of performance (see section 4.2.3). Thus the Dealer Principal, as the most senior manager in the dealership, was targeted as the sole respondent.

4.4. MEASURES AND SCALES

4.4.1. Market Orientation

The market orientation instrument selected was a version of Cadogan et al's (1999) measure which, in turn, is based upon Jaworski and Kohli's (1990) generation, dissemination, and responsiveness framework. This measure was chosen because it has been consistently shown to have good measurement properties (see section 2.2). The items used in the questionnaire are listed below (figure 4.1).

The measure has five items for each of the generation, dissemination, and responsiveness factors. The items all feature in Cadogan et al's (1999) market orientation measure which were either sourced from previous market orientation measures (Narver and Slater 1990, Jaworski and Kohli 1993) or formulated by Cadogan et al (1999).

The respondents were asked to rate each item on a 9-point agreement scale. The scale middle point was *Neither Agree nor Disagree*. Strength of opinion was assessed using the terms *Somewhat Agree* or *Somewhat Disagree*, *Agree* or *Disagree*, and *Strongly Agree* or *Strongly Disagree*. The ends of the scale were not labelled in order to allow a more emphatic response than *Strongly Agree* or *Strongly Disagree*. This format was used to encourage the respondent's consideration of their strength of opinion at the extreme ends of the scale and allow a more emphatic response. These extreme points of the scale may be considered analogous to *Very Strongly Agree / Disagree*. For a copy of the questionnaire used, see the Appendix.

Fig. 4.1: Market Orientation Measure Items (Cadogan et al, 2005).

The following questions relate to the new car sales activities of your dealership. Ignore other activities (servicing, commercial vehicles, second hand sales, etc.).

Please indicate your degree of agreement with the statements below (circle one number for each).

In the new car market served by our dealership:

- We periodically review the likely effect of changes in our business environment (e.g., technology, regulation, politics, economy, market).
- We are quick to detect fundamental shifts in our environment.
- We generate a lot of information concerning trends (e.g., regulation, market, technological developments, politics, economy).
- We constantly monitor our level of commitment and orientation to serving customer needs.
- We generate a lot of information in order to understand the forces which influence our customers' needs and preferences.

In the new car market served by our dealership:

- Important information about our competitors is often 'lost in the system'.
- Information about our competitors' activities often reaches relevant personnel too late to be of any use.
- Information which can influence the way we serve our customers takes forever to reach relevant personnel.
- Too much information concerning our competitors is discarded before it reaches decision makers.
- Important information concerning market trends (e.g. regulatory, etc.) is often discarded as it makes its way along the communication chain

In the new car market served by our dealership:

- We are quick to respond to significant changes in our competitors' price structures.
- We rapidly respond to competitive actions that threaten us.
- If a major competitor were to launch an intensive campaign targeted at our customers, we would implement a response immediately.
- When we find out that customers are unhappy with the quality of our product or service, we take corrective action immediately.
- We are quick to respond to important changes in the business environment (e.g., regulatory, technology, economy).

4.4.2. Performance

4.4.2.1. Objective

Respondents were asked to provide an exact value or estimate for four different dimensions of the dealership's performance in the new car market. In addition respondents were asked to provide the dealership's new car *Sales Turnover* and *New Car Profit Contribution to Overall Profit*. There were two cost-based objective performance measures, percentage change in *Gross Profit Growth*, and the *Return*

on Sales percentage (profit before tax divided by sales before tax). The two revenue-based performance measures were percentage change values for *Sales Growth* and *Market Share Growth*. Using these responses further measures were calculated such as absolute UK pound (£) values for profit and profit growth, among others.

4.4.2.2. Subjective

Subjective performance was assessed by comparing the dealership's new car market performance against its competitors over the last year using a nine point Likert-type scale. The assessment included both revenue-based performance (*Sales Growth*, *Market Share Growth*) and cost-based performance (*Profit Growth*, *Profitability*), as well as an overall measure (*Overall Performance*). Subjective performance measures were included to enable comparison (a) to the objective measures in this study, and (b) to previous studies which have predominantly used subjective performance measures. The scale ranged from “-4” to “+4”, with the mid-point labelled “*The same as our competitors*”. The relative strength of the dealership's performance was assessed using the terms *Somewhat Higher* or *Somewhat Lower*, *Higher* or *Lower*, *Much Higher* or *Much Lower* with the extreme points unlabelled but comparable to *Very Much Higher* or *Very Much Lower*. As with the market orientation scale the extreme points were unlabelled to prompt further consideration from the respondents and to enable a greater degree of differentiation for firms with extreme performance.

4.4.2.3. Long-term and Short-term

The UK had experienced subdued economic growth in the year prior to commencing data collection (section 3.3.3). As hypothesized in the Methods chapter, the recession was expected to moderate the relationship between market orientation and performance. In order to test these hypotheses, performance prior to the recession was required. Therefore the same objective and subjective performance questions used for performance *over the last year* were also asked for performance *over the last 3 years*. A pre-recession measure could then be derived by removing last year's performance from three year performance measure. In addition, a firm's market orientation is argued to affect its long-term performance (Narver and Slater 1990) and therefore three years may be a more suitable time frame for assessing the performance consequences of a market orientation.

4.4.2.4 Dealership

The same performance measures detailed above were used to provide a description of the *dealership's* performance. The scales and items used were identical to those used for *new car market* performance except for the wording that preceded each section which specified that responses were required for the overall dealership.

4.4.3. Environment Moderators

The macro-environment was largely controlled by selecting a specific market (new cars) in a single industry (new car dealerships) within a homologous administrative region (United Kingdom). However the market orientation - performance relationship may be affected by local or regional factors. The competitive environment was considered to be an important local factor and was assessed by two questions using a seven point scale anchored at both ends by a statement (see figure 4.2).

Fig. 4.2: Competitor Dynamism and Competitive Intensity Measures.

Please rate the statements below in relation to the <u>new car market</u>.		
Our dealership's competitors hardly ever change their marketing tactics and strategies.	1 - 7	Our dealership's competitors change their marketing tactics and strategies very frequently.
There is virtually no competition with other dealerships in our area.	1 - 7	Competition with other dealerships in our area is extremely intense.

The first item was used to assess the dynamism of competitors with the anchoring statements based on both Miller and Freisen's (1982) and Homburg and Plesser's (2000) dynamism measures. The second statement was used to measure the intensity of the competition in the dealership's catchment area, and was adapted from Atuahene-Gima (1995).

4.5. CHARACTERISTICS

4.5.1. The Firm

Information was sought on the diversity or similarity of firms within the sample. This information included: the number of employees; the markets the dealership operated in (e.g. new cars, used cars, servicing); the new car market segments the dealership served (e.g. family cars, executive cars, etc); and the new cars brands sold.

As discussed in Section 4.3.6, a centralised dealership group may drive the market orientation levels in its dealerships by providing centralised resources and specifying service levels. Sampling too many dealerships from the same group may result in low variance in market orientation levels, thus making it difficult to test the hypotheses. Consequently it was important to have a diagnostic tool to determine whether the sampled dealerships came from the same dealership group, and if so, whether their market orientation and service levels were similar. Respondents were asked whether their dealership was part of a group, and if so, the name and number of dealerships in the group, and the postcode of the head office. In addition, the respondents were questioned on the dealership's service quality and customer satisfaction scores in order to determine whether service levels within the group were centrally driven.

Finally, the relationship between market orientation and performance at the market level of analysis may be affected by the interdependence of markets served by the firm (see Section 4.3.3.). It was therefore decided to measure the level of dependence to inform the subsequent analysis of any potential dependency issues. The level of market interdependence was measured using two items anchored at both ends on a 7-point scale (see figure 4.3).

Fig. 4.3: Market Dependence Measures.

Please rate the statements below in relation to the <u>new car market</u>.		
Our <u>new car sales</u> performance is totally independent of our performance in other markets (e.g. servicing, used cars).	1 - 7	Our performance in the <u>new car</u> market is highly dependent on our performance in other markets.
Our performance in <u>other markets</u> (e.g. servicing, etc.) is wholly independent of our performance in <u>new car sales</u> .	1 - 7	Our performance in <u>other markets</u> is highly dependent on our performance in <u>new car</u> sales.

4.5.2. The Environment

Objective information was sought to describe the diversity of the local new car markets in which the dealerships operated. Information was requested on the catchment area of the dealership, the number of direct competitors the dealership faced, and the number of same brand competitors.

4.5.3. The Respondent

In order to determine their eligibility the respondent was asked for their job title, the number of years in that job and the number of years served at the dealership. The respondent's knowledge of the issues in the questionnaire and the accuracy of their response were assessed with two questions using a nine point agreement scale: "This questionnaire deals with issues I am very knowledgeable about", and "My answers to the questions in this questionnaire are very accurate".

4.6. THE QUESTIONNAIRE FORM

4.6.1. The Form

Diamantopoulos and Schlegelmilch's (1996, p520) survey *on surveys* found that "practically all aspects of the questionnaire itself (content, length and format) are perceived to affect the probability of response". With the potential response rate issue of using objective performance measures (see Section 4.2.3.) it was considered prudent to address the factors that may cause respondents to reject the questionnaire. Consequently the presentation of the questionnaire focused on minimising rejection and enhancing the response rate.

4.6.2. Administering Institution

Given the confidential nature of objective performance data (see Section 4.2.3.) it is unlikely that a respondent will confide this information to a commercial institution that may sell the information to the dealership's competitors. As Diamantopoulos and Schlegelmilch (1996, p514) observed "proprietary surveys instigated by/on behalf of

business firms are seen by both samples as having the least potential for eliciting a good response. This may partly reflect a reluctance by company executives to disclose information on their business to other firms”.

In contrast, an institution administering a survey for academic purposes, and not for profit, may be more likely to be entrusted with confidential data. As Diamantopoulos and Schlegelmilch (1996, p514) found “company executives are more positively disposed towards surveys emanating from academics than are marketing researchers, although in both cases, the within-sample mean scores place university sponsorship in third place in terms of perceived impact upon the response rate”.

The academic purposes of the study were made explicit on the questionnaire by using Loughborough University’s brand in a prominent position on the front page. The academic administration of the study was further reinforced by the inclusion of the return address for the questionnaire and the contact details in a prominent position on the front page.

4.6.3. Confidentiality and Anonymity

Diamantopoulos and Schlegelmilch (1996, p521) found that “both marketing researchers and company executives feel that assurances of anonymity and/or confidentiality are important for inducing response”. Thus strict confidentiality and anonymity were assured in the cover letter and these assurances were repeated in the objective performance sections of the questionnaire and at the end where an email address, group name, and head office postcode were requested.

4.6.4. Length

Diamantopoulos and Schlegelmilch’s (1996, p520) survey of market research managers and executives *on mail surveys* found that “shorter questionnaires seem to be favoured over longer ones”. In addition, Kotler (1991, p393) argues that “questionnaire size is important” continuing “smaller questionnaires seem easier to complete; they appear to take less time and are less likely to cause respondents to refuse to participate”. The questionnaire was therefore kept as short as possible whilst accommodating all the questions necessary to answer the research

hypotheses. This resulted in a survey which covered two sides of A3 paper, the equivalent of four sides of A4 paper (see the Appendix for a copy of the questionnaire). The covering letter highlighted the conciseness of the questionnaire to encourage completion by the recipients.

4.6.5. Incentive

Diamantopoulos and Schlegelmilch's (1996, p525) found that "only one type of non-monetary reward, notably an offer of the study's results (with anonymity maintained), is perceived by both samples to positively influence the likelihood of response". Thus respondents were offered a summary of the results of the study.

4.6.6. Sequence

In the event that the respondent misplaced the Self Addressed Envelope or had any questions, a return address and contact details for the researchers were provided on the questionnaire form. These details were placed prominently on the questionnaire to reaffirm the academic authenticity of the study (see Section 4.6.2.).

Kotler (1991, p389-390) advises using simple opening questions, funnelling questions progressively down in scope, ordering questions logically, placing difficult or sensitive questions late in the questionnaire, and requesting classification information last. Following this advice, simple information about the respondent was requested first. The next section started with questions about the dealership and then the respondents were prompted to consider the different markets the dealership served. Subsequent questions on the front page funnelled down to the *new car market* which was the primary interest of the following sections of the questionnaire.

Sensitive questions about objective performance in the new car market were positioned towards the end of the questionnaire on the third page, immediately preceded by less sensitive subjective performance. Classification questions on the dealership's overall performance, customer satisfaction, and service quality along with the respondent's assessment of their own responses featured on the back page. The dealership's market orientation and the competitive environment in the new car market were positioned between the *new car market* funnelling questions and the

sensitive performance questions. The final questions concerned the dealership group and the respondents email address should they wish to receive a summary of the study's findings. As these questions were not essential and would negate the anonymity of the respondent or dealership, they were positioned last.

4.7. DATA COLLECTION

4.7.1. Dealership Listings

The FAME database on UK and Irish firms was the only company listing service provided by Loughborough University. The FAME database was not known to be any more or less accurate than similar services provided by other companies (e.g. Dun and Bradstreet) and, as no funding was available to purchase a list, was the default choice for generating the sampling frame. SIC code 5010 *Sale of Motor Vehicles* was the closest classification to the desired sampling frame of new car dealerships. To minimise ineligibles (i.e. those that sell motor vehicles but are not new car dealers), the trade description database tag was used to eliminate those that were clearly not new car dealers (e.g. motorcycles, vans, trucks, hearses, taxis, manufacturers, importers, distributors, car hire, car auctions, etc). Initially only the *primary* trading address for each firm was used but subsequently *all* of a firm's trading addresses were selected to increase the size of the sampling frame.

During the first pre-testing Loughborough University's library gained trial access to the Nexis database. Having determined that the size of the FAME sampling frame was not adequate, the Nexis listing was used to provide additional sampling units. UK new car dealerships were selected using the NAICS code (44111) for new car dealers. Duplicates of the FAME addresses were identified using the postcode, company name and street address, and removed from the Nexis database.

4.7.2. Checks: Questionnaire and Mailing Materials

The questionnaire and mailing materials (e.g. pre-notification letter, covering letter, reminder card, etc) were checked by two marketing academics and refined. Next the questionnaire was administered in person at two different dealerships. In the first dealership it was fully completed without any issues by the Dealer Principal. In the

second dealership it was completed by the Sales Manager who was reluctant to provide objective financial performance but completed the subjective measures. No other issues were observed or raised by the respondents. Consequently the questionnaire was ready for pre-testing.

4.7.3. Pre-test Mailings

A pre-test of the Dealership Survey questionnaire was undertaken with a random sample of 100 primary trading addresses of firms listed in the FAME database (see Section 4.7.1). Primary trading addresses were initially used so that only one dealership would be sampled from each dealership group.

A five stage mailing was used in order to improve the likelihood of response: (1) pre-notification letter; (2) questionnaire with cover letter; (3) reminder card; (4) reminder letter with questionnaire; and (5) second reminder card. The mailings commenced in early October 2008 and each stage was sent at one week intervals. The mailings were addressed to the Dealer Principal (see Section 4.3.8) rather than a named contact as Dealer Principals were not routinely identified on FAME.

Figure 4.4 summarises the results of the pre-test mailings and quantifies the: (a) non-responses, (b) letters which were returned as undeliverable, (c) questionnaires returned completed, (d) addressees that responded that they were ineligible (e.g. not a new car dealership, sold used cars only, etc), and (e) addressees who refused to participate in the survey.

Of the one hundred questionnaires sent in the first mailing, *Pretest 1*, nine were returned completed, seven responded that they were not new car dealers, and one refused to participate, resulting in a response rate of 9.7%. This response rate was lower than anticipated. As there were only 379 primary trading addresses in FAME, a 9.7% response rate would equate to 37 responses in total, too few for the statistical tools to answer the research hypotheses. Thus a better response rate was required.

As Diamantopoulos and Schlegelmilch (1996, p519) observed “both marketing researchers and company executives favour the use of ... cover letters personally addressed to the respondent”. In other words personalisation may enhance the likelihood of response. However personalisation may also somewhat compromise the

assurances of anonymity which were considered important in obtaining responses for the objective performance measures (see Section 4.2.3). Given the uncertain outcome of personalisation on response rates, a second pre-test was undertaken, *Pretest 2 (FAME)*. One hundred addressees were randomly selected and contacted by telephone to obtain the name of the Dealer Principal. Sixty dealerships were successfully contacted and provided a contact name.

Fig. 4.4: Pre-test Mailings and Response Rate.

Mailing	Non-response (a)	Undelivered (b)	Completed (c)	Ineligible (d)	Refused (e)	Total (a+b+c+d+e)	Response Rate (%) $c/(a+c+e)$
Pretest 1 (FAME)	83	0	9	7	1	100	9.7%
Pretest 2 (FAME)	54	0	6	0	0	60	10.0%
Pretest 3 (Nexis)	25	7	2	9	0	43	7.4%
Total	162	7	17	16	1	203	9.4%

At this time Loughborough University's library service gained limited trial access to the Nexis database. In the event that the use of personalisation failed to improve the response rate then a larger sampling frame would be required in order to obtain an adequate number of responses for the statistical analyses. If it turned out that the Nexis database was required, a pre-test of the database would be useful to ascertain the likely response rate. Thus duplicates of FAME addressees were removed from the Nexis database and it was also pre-tested, *Pretest 3 (Nexis)*. In this instance fifty addressees were randomly selected and contacted by telephone for the name of the Dealer Principal. Forty-three dealerships were successfully contacted and provided a contact name for the mailing.

Mailings for both pre-tests commenced in early November. The procedures for both used a shortened version of the original so that the main survey mailing should not be unduly delayed. This shortened procedure involved three mailings at one week intervals: (a) cover letter and questionnaire, (b) reminder card, and (c) reminder letter with questionnaire. The response rates (figure 4.4), having removed ineligible, were

10.0% for the named contacts from the FAME database, and 7.4% for the Nexis database. The response rates were again low and to improve the likelihood of obtaining a response from each firm in subsequent mailings, *all* trading addresses from the FAME database were included, rather than just the *primary* trading address.

4.7.4. Refinement

Following the pre-tests minor amendments were made to the objective performance sections of the questionnaire. Specifically, these sections were changed to a table form which was considered easier to understand and fill in. The wording of the timeframe for three year objective performance was changed from “over the last 3 years” to “average over the last 3 years” as the previous wording was not clear on whether an *average* or a *sum* response was required. In addition, one year sales turnover was added to the objective performance section which meant that two questions on the contribution of new cars to overall dealership profits or sales could now be calculated and were therefore eliminated from the *About Your Dealership* section. Finally, as the sampling frame was expanded to include more than one dealership from each firm (see Section 4.7.3.), two questions concerning the dealership group were added to the end of the survey. These questions served to identify whether more than one response was received from a dealership group.

4.7.5. Main Survey

The results of Pretest 2 using personalisation were inconclusive with a response rate of 10% compared to 9.7% for Pretest 1 which used the *Dealer Principal* as the addressee. As the response rate for Pretest 2 was marginally higher using a shortened mailing procedure, it was considered appropriate to use personalisation where contact details were available. In the FAME database contact details were only available for *primary* trading addresses. Thus for *FAME primary* addresses the named contact used was either the Dealer Principal, Sales Director, Managing Director, General Manager, Sales Manager or Director, in that order, depending on the contact listed in the database. Where named contact details were not available, *FAME Trading* and *Nexis*, the mailing was addressed to the *Dealer Principal*.

The main survey mailing commenced at the end of November 2008, adopting the same five stage mailing procedure as used for Pretest 1, with the final stage reminder cards sent in January 2009. Figure 4.5 quantifies the results of the main survey mailing. With the fieldwork finished there were 99 completed questionnaires from an original mailing of 2042 with 455 undeliverable or ineligible and 8 refusals. Of those eligible, the response rate was 6.2%.

Fig. 4.5: Main Survey Mailings and Response Rate.

Mailing	Non-response	Undelivered	Completed	Ineligible	Refused	Total	Response Rate (%)
	(a)	(b)	(c)	(d)	(e)	(a+b+c+d+e)	c/(a+c+e)
FAME Primary	172	4	23	17	3	219	11.6%
FAME Trading	986	159	57	118	3	1323	5.5%
Nexis	322	132	19	25	2	500	5.5%
Total	1480	295	99	160	8	2042	6.2%

4.8. RESPONSE

4.8.1. Follow-up Sample on Eligibility

A random sample of non-respondents was selected from each database to find out why they did not respond. The number sampled from each database was roughly representative of the overall proportion of questionnaires mailed. If the calculated proportion did not result in a whole number then it was rounded up resulting in a follow-up sample size of 102 addressees from an intended sample size of 100.

Initially an internet search on the company name, street address, postcode, and telephone number was undertaken using Google search and the Yell.com online directory search facility. This search was used to determine whether the firm still existed at the address, and if so, to confirm the telephone number given in the database. Next, a telephone call was made to the named contact or Dealer Principal. If reached, the contact was given a brief explanation for the call and then was

prompted for recollection of receiving the survey and the reason for their non-response. If the contact was not available or refused the call, the person who had received the call was asked to confirm the dealership's address, the name of the company, and the name of the Dealer Principal in order to verify the database listing. In most instances multiple attempts were made to contact the intended recipient of the questionnaire. If these attempts were not successful then no further action was taken. The information from the telephone calls and the internet search were then used to classify the sample as *eligible* or *ineligible*. The results of this classification are presented in the top half of figure 4.6. Of the non-respondents who were classified as eligible and were successfully contacted the most common reasons for non-response were that the recipient was too busy or that the company policy was to not respond to surveys. The most common reasons for ineligibility were that the dealership no longer existed at the address or that the dealership was no longer run by the addressee company.

Fig. 4.6: Effective Response Rate Calculated by Database using a *Follow-up* Sample of Non-Respondents.

		FAME Primary	FAME Trading	Nexis	Combined
<i>Follow-up Sample of Non-Respondents</i>	(a)	13	67	22	102
Eligible	(b)	6	28	11	45
Ineligible	(c = a - b)	7	39	11	57
Eligibility Rate (%)	(d = b / a)	46.2%	41.8%	50.0%	44.1%
<i>Survey Non-response</i>	(e)	309	986	347	1642
Eligible Non-response	(f = d × e)	143	412	174	729
Refused	(g)	4	3	2	9
Completed	(h)	38	57	21	116
Effective Response Rate (%)	(i = h / (f+g+h))	20.5%	12.1%	10.7%	13.6%

The second half of figure 4.6 consolidates the numbers from all the pre-tests and the main survey mailings by the database used. The eligibility rate from the follow-up survey is then applied to the non-responses from all the mailings in order to calculate an effective response rate for each database and for the combined mailings. The overall effective response rate of those eligible was 13.6% with the FAME primary trading address listing achieving the highest response rate at 20.5% and the Nexis address listing the lowest at 10.7%.

4.8.2. Non-Response Bias

Non-response bias occurs if the eligible non-respondents of the survey would have responded differently to those who completed the survey. If non-response bias is diagnosed then the completed questionnaires may not be representative of the whole sampling frame. Non-response bias may be diagnosed by conducting a follow-up sample of non-respondents and asking them to provide answers to a selection of questions contained in the original questionnaire. The responses from the follow-up sample may then be compared to the responses from the original respondents and tested for differences to determine whether or not the original respondents are representative of non-respondents. Clearly the follow-up sample would need to have a high response rate to be considered representative of all non-respondents. Given the relatively low incidence of non-respondents who were successfully contacted in the follow-up sample on eligibility (see previous section 4.8.1) it was considered that a follow-up survey on non-response bias was unlikely to be successful and therefore none was undertaken.

It is sometimes argued that late respondents are similar to non-respondents and thus a comparison of early and late respondents may shed some light on the existence of non-response bias (e.g. Baker and Sinkula 1999, Homburg and Pflesser 2000). The earliest 20 respondents and the latest 20 respondents were therefore compared. Figure 4.7 presents the results of this comparison. As may be observed, early and late respondents exhibited no significant differences for all but one of thirty questionnaire items. The only significant difference, between early and late respondents, was for the subjective *profit growth (1 year)* item. With 30 items and a significance level of 5%, one or two items may be incorrectly identified as significant. One significant item was therefore not a cause for concern and it was concluded that early and late respondents were not significantly different.

Fig. 4.7: T-test for Difference in Means between Early and Late Respondents.

	Early	Late	Diff.	t-stat
<u>Model Variables</u>				
Market Orientation	6.6	6.2	0.4	0.95
Competitive Intensity	4.8	4.2	0.6	0.75
Competitor Dynamism	4.7	4.7	0.0	0.00
New Cars Sold Per Year	385.0	602.0	-217.0	-1.07
Sales Growth: 1 Year (subj)	5.1	5.0	0.1	0.09
Sales Growth: 3 Year Av. (subj)	5.9	6.1	-0.2	-0.35
Market Share Growth: 1 Year (subj)	5.3	5.1	0.2	0.27
Market Share Growth: 3 Year Av. (subj)	5.8	6.0	-0.3	-0.44
Profit Growth: 1 Year (subj)	5.2	3.8	1.4	2.33*
Profit Growth: 3 Year Av. (subj)	5.6	5.4	0.2	0.34
Profitability: 1 Year (subj)	5.0	4.1	1.0	1.45
Profitability: 3 Year Av. (subj)	5.7	5.3	0.4	0.62
Sales Growth (%): 1 Year (obj)	-5.3	-5.6	0.2	0.05
Sales Growth (%): 3 Year Av. (obj)	-0.8	12.5	-13.3	-1.84
Profit Growth (%): 1 Year (obj)	-15.1	-8.0	-7.1	-1.15
Profit Growth (%): 3 Year Av. (obj)	-0.2	6.5	-6.7	-1.42
Return on Sales (%): 1 Year (obj)	-2.3	3.5	-5.8	-1.62
Return on Sales (%): 3 Year Av. (obj)	2.6	4.4	-1.8	-0.78
<u>Dealership Characteristics</u>				
No. Direct Competitors	11.8	14.2	-2.4	-0.89
No. Brand Competitors	3.4	2.8	0.7	0.93
Catchment Area	24.6	30.4	-5.8	-1.17
No. Employees	37.2	50.4	-13.2	-1.11
Turnover (£m): 1 Year	8.9	12.9	-4.0	-1.20
No. Dealerships in Group	16.0	26.5	-10.5	-0.57
Customer Satisfaction Scores: 1 Year	7.4	6.9	0.5	1.01
Service Quality Scores: 1 Year	7.1	7.0	0.1	0.09
<u>Respondent Characteristics</u>				
Experience in Position (Years)	13.9	11.9	2.0	0.70
Experience of Dealership (Years)	18.8	16.7	2.1	0.51
Knowledge of Issues	7.5	6.8	0.7	1.44
Accuracy of Responses	7.0	6.5	0.6	0.94

* t-statistic two-tailed sig. (5%) = 1.96. Group size = 20

In contrast to the argument that late respondents are similar to non-respondents it may be that late respondents are more similar to early respondents but were too busy to respond earlier. Thus late respondents may not be representative of non-respondents. Clearly then, the results of the analysis comparing early and late respondents may be meaningless when used to assess non-response bias (e.g. Blair and Zinkhan 2006).

The research hypotheses concern the nature of the relationship between market orientation and performance and the effect of the environment on this relationship. As demonstrated in the Literature Review chapter, these hypotheses have not been tested previously. It is therefore argued that empirical evidence of the existence of the hypothesized relationships in the population would be a significant finding, whether the sample is representative of the population as a whole or not. Consequently the failure to ascertain the representativeness of the sample should not compromise the validity of the study.

4.9. CONCLUSIONS

The chapter describes and justifies the steps taken to collect the data required to answer the research hypotheses. Consideration of the issues indicated the use of a mail administered questionnaire of the new car market within new car dealerships. The development and implementation of the questionnaire were detailed. The survey resulted in 116 completed questionnaires which represented a 13.6% effective response rate, which was considered sufficient to test the hypotheses. The next chapter details the processing of the data prior to analysis and describes the sample.

CHAPTER 5: DATA PROCESSING AND PROFILING

5.1. INTRODUCTION

Once the data was collected it needed to be input into an electronic format for subsequent analysis. This chapter describes the processing of the data from input, through the calculation and imputation of missing values, to the computation of new variables for testing the hypotheses. Following the processing of the data, the respondent and dealership profile of the sample is described in detail. The measures used to test the hypotheses will be described and developed in later chapters.

5.2. DATA CODING AND CLEANING

5.2.1. Coding

The questionnaire responses from the main survey, pre-tests, and protocols were input directly to an SPSS data file. The Likert-type performance scales were converted to a range of 1 through 9 (on the questionnaire they were -4 through +4), and the reverse worded items of the *dissemination* measure were reverse coded.

5.2.2 Cleaning

The data was sense checked and validated in order to identify any issues with the responses and any errors that may have occurred during input. At this stage some cases were identified as ineligible and were removed from the subsequent analyses. The reasons for rejection ranged from lack of experience, with one respondent only having spent one month at the dealership, through not providing any performance responses whatsoever, to not technically operating in the new car market. In the latter instance, one respondent's firm modified new cars for the wheelchair accessible market. This elimination of cases resulted in 113 usable responses for the subsequent analysis. In addition various transcription errors were identified, checked with the original questionnaire and corrected.

5.3. MISSING VALUES

5.3.1. Calculation

In a number of instances, particularly for the objective performance questions, it was possible to compute or estimate missing values from other information the respondent had provided. For example, a missing value for *Return on Sales* at the dealership level could be calculated using *Sales Turnover*, *Return on Sales*, and *New Car Contribution to Overall Profit* from the new car market level and *Sales Turnover* at the dealership level. Where possible missing values were calculated or estimated using the respondent's answers to other questions.

5.3.2 Missing Values

There were no missing values for: (a) the *about you* section, (b) the *about your dealership* section with the exception of the *number of dealership employees*, or (c) the final section of the questionnaire on the dealership's *customer satisfaction* and *service quality*, and the respondent's *knowledge* and *accuracy*. For the market orientation measure, there was one missing response for each of the *responsiveness* items. The *competitive environment* and *market dependency* items had a maximum of two missing values. All the Likert-type subjective performance measures had less than 5% of values missing, ranging from zero to a maximum of five missing values.

The remaining sections of the questionnaire had a greater number of missing values, which are quantified in figures 5.1, 5.2, and 5.3. Figure 5.1 summarises the missing values for the questions that describe the *new car market* and the number of dealership employees. These questions have the highest number of missing values of all the questions that describe the respondent and the dealership. However the percentage of missing values is still relatively low and does not exceed 10%.

Figure 5.2 summarises the dealerships objective performance in the *new car* market. Most of these questions are intended to be used in the analysis. The percentage missing for these questions ranges from 11.5% to 24.8%, substantially greater than that for subjective performance. The three year average *New Car Contribution* has the highest rate of missing values at 24.8%, although this item is not required to test the hypotheses. The remaining questions have less than 20% of their values missing.

Fig. 5.1: Missing Value Summary for Dealership and New Car Market Descriptives.

Questionnaire Items	N	Mean	Std. Deviation	Missing	
				Count	Percent
Dealership catchment area	106	30.55	19.618	7	6.2
Number of direct competitors	107	12.25	9.008	6	5.3
Number of brand competitors	104	3.28	2.257	9	8.0
Number of dealership employees	109	54.08	60.169	4	3.5
New car sales per year	110	650.95	953.129	3	2.7

Fig. 5.2: Missing Value Summary for *Objective* New Car Market Performance.

Questionnaire Items	N	Mean	Std. Deviation	Missing	
				Count	Percent
Sales Growth: 1 year (%)	100	-4.416	14.4005	13	11.5
Market Share Growth: 1 year (%)	97	-1.025	10.4950	16	14.2
Gross Profit Growth: 1 year (%)	96	-10.146	25.3773	17	15.0
Sales Turnover: 1 year (£ million)	100	13.821	14.5247	13	11.5
Return on Sales: 1 year (%)	95	1.514	7.0322	18	15.9
New Car Contribution to Overall Profit (%)	93	16.311	18.6778	20	17.7
Sales Growth: 3 years Av. (%)	96	7.418	33.9006	17	15.0
Market Share Growth: 3 Year Av. (%)	92	3.550	10.4074	21	18.6
Gross Profit Growth: 3 Year Av. (%)	91	2.666	15.5089	22	19.5
Sales Turnover: 3 Year Av. (£ million)	97	14.553	15.0606	16	14.2
Return on Sales: 3 Year Av. (%)	91	2.824	4.9203	22	19.5
New Car Contribution to Overall Profit (%)	85	26.042	27.4345	28	24.8

The questions on *dealership* performance, summarised in Figure 5.3, were included in the questionnaire to describe the dealership and are not required for testing the hypotheses. These questions have by far the highest rate of missing values, ranging from 25.7% to 36.3%. This compares to an overall rate of missing values for all the questions in the questionnaire of 6.6%.

Fig. 5.3: Missing Value Summary for *Objective Dealership Performance*.

Questionnaire Items	N	Mean	Std. Deviation	Missing	
				Count	Percent
Sales Growth: 1 year (%)	78	-3.837	12.4578	35	31.0
Market Share Growth: 1 year (%)	72	-.439	8.4647	41	36.3
Gross Profit Growth: 1 year (%)	73	-22.538	67.0414	40	35.4
Sales Turnover: 1 year (£ million)	81	25.713	32.7259	32	28.3
Return on Sales: 1 year (%)	82	.465	6.9957	31	27.4
Sales Growth: 3 years Av. (%)	85	6.341	12.7987	28	24.8
Market Share Growth: 3 Year Av. (%)	76	3.829	8.3753	37	32.7
Gross Profit Growth: 3 Year Av. (%)	76	7.245	41.5538	37	32.7
Sales Turnover: 3 Year Av. (£ million)	83	26.171	36.7974	30	26.5
Return on Sales: 3 Year Av. (%)	84	2.589	4.9638	29	25.7

5.3.3. Imputation

As Olinsky et al (2003, p54) observed “any type of nonresponse can play havoc on the subsequent analysis of these data” and continued “incomplete data raises issues of both efficiency and bias for users of the data. The nonresponse to selected survey questions results in less efficient estimates due to the reduced size of the usable dataset”. Due to these issues and the relatively small size of the sample, it was decided to undertake the imputation of missing values.

Little’s Missing Completely At Random (MCAR) test for the whole data set was not significant (Chi-square = 3207.13, df = 13303, p = 0.882) signifying that the data was missing completely at random. As Olinsky et al (2003, p61) observed “missing data is referred to as MCAR if the probability that an item is missing does not depend on the observed or missing values”. The results of Olinsky et al (2003) indicated that the EM (expectation-maximization) method was one of the best techniques for a sample size of one hundred sampling units, and therefore the EM technique with normal distribution was used in SPSS to impute the missing values.

5.4. COMPUTING ADDITIONAL VARIABLES

Once the missing values had been imputed, additional variables were calculated for use in subsequent stages of the analysis. These included additional performance measures, such as absolute profit (£), absolute profit growth (£), and absolute sales growth (£). In addition, different time periods were calculated, such as absolute profit or sales last year (£), and two year profit growth. For instance, *Absolute Profit* (£) was calculated by multiplying *Return on Sales* (%) with *Sales Turnover* (£), and *Profit Last Year* was calculated using *Absolute Profit* (£) and *Profit Growth* (%).

5.5. SAMPLE DESCRIPTION

The most common respondent was the Managing Director of the firm followed by the Dealer Principal and the General Manager (figure 5.4). These three positions were held by nearly three quarters of all the respondents. The respondents had an average of over eleven years experience in their position (figure 5.8) and sixteen years experience in the dealership. Respondents with the minimum experience were still classified as eligible if they (a) had longer experience in the dealership, (b) had longer experience in the position but at a different dealership, or (c) did not disagree with the positively worded statements rating their knowledge and accuracy.

Fig. 5.4: Respondent's Job Title.

<u>Respondent</u>	<u>Frequency</u>	<u>Percent</u>	<u>Cumulative Percent</u>
Managing Director	41	36.3	36.3
Dealer Principal	27	23.9	60.2
General Manager	16	14.2	74.4
Sales Director	4	3.5	77.9
Sales Manager	4	3.5	81.4
CEO	2	1.8	83.2
Other	19	16.8	100.0

The new car brands sold by the dealerships are summarised in figure 5.5. It was not unusual for dealerships to sell more than one brand with forty-two selling multiple brands. Of the dealerships selling multiple brands the most common were Mazda (10), Kia (9), Citroen (8), Vauxhall (7), Volvo (7), Nissan (6), Fiat (5), Renault (5), Jaguar (5), Chevrolet (5), Alfa Romeo (4), Mitsubishi (4), Peugeot (4), Saab (4), Skoda (4), Land Rover (4), and many other brands sold in three or fewer dealerships.

Fig. 5.5: New Car Brands Sold by the Dealerships.

<u>Marques</u>	<u>Frequency</u>	<u>Percent</u>	<u>Cumulative Percent</u>
Land Rover	9	8.0	8.0
BMW / Mini	8	7.1	15.0
Ford	6	5.3	20.4
Vauxhall	6	5.3	25.7
Jaguar	4	3.5	29.2
Nissan	4	3.5	32.7
PSA	4	3.5	36.3
Toyota	4	3.5	39.8
Volvo	4	3.5	43.4
Porsche	3	2.7	46.0
Audi	2	1.8	47.8
Mitsubishi	2	1.8	49.6
Renault	2	1.8	51.3
Skoda	2	1.8	53.1
VW	2	1.8	54.9
Other Brands	9	7.9	62.8
Multiple Brands	42	37.2	100.0

All the dealerships served the new car, used car, and car servicing markets (see figure 5.6), with all but one serving the market for car parts. Two thirds of dealerships operated in the fleet market, and nearly one half sold commercial vehicles. A minority of dealerships operated body shops, car rentals or sold fuel and tyres. The most common new car segment served was *family* cars with 95% of dealerships reporting that they served this segment (figure 5.7). *Economy*, *off-road*, and *executive* cars were sold by over 80%, with performance cars sold by two thirds of the sample.

Fig. 5.6: Markets Served by the Dealerships.

<u>Markets</u>	<u>Frequency</u>	<u>Percent</u>
New Car Sales	113	100.0
Servicing	113	100.0
Used Car Sales	113	100.0
Parts	112	99.0
Fleet Market	67	59.3
Commercial Vehicles Sales	48	42.5
Body Shop	10	8.8
Rental	5	4.4
Fuel	2	1.8
Tyres	2	1.8

Fig. 5.7: New Car Market Segments Served by the Dealerships.

<u>Segments</u>	<u>Frequency</u>	<u>Percent</u>
Family	95	84.1
Economy	83	73.5
Off Road	81	71.7
Executive	80	70.8
Performance	65	57.5
Other Segments	3	2.7

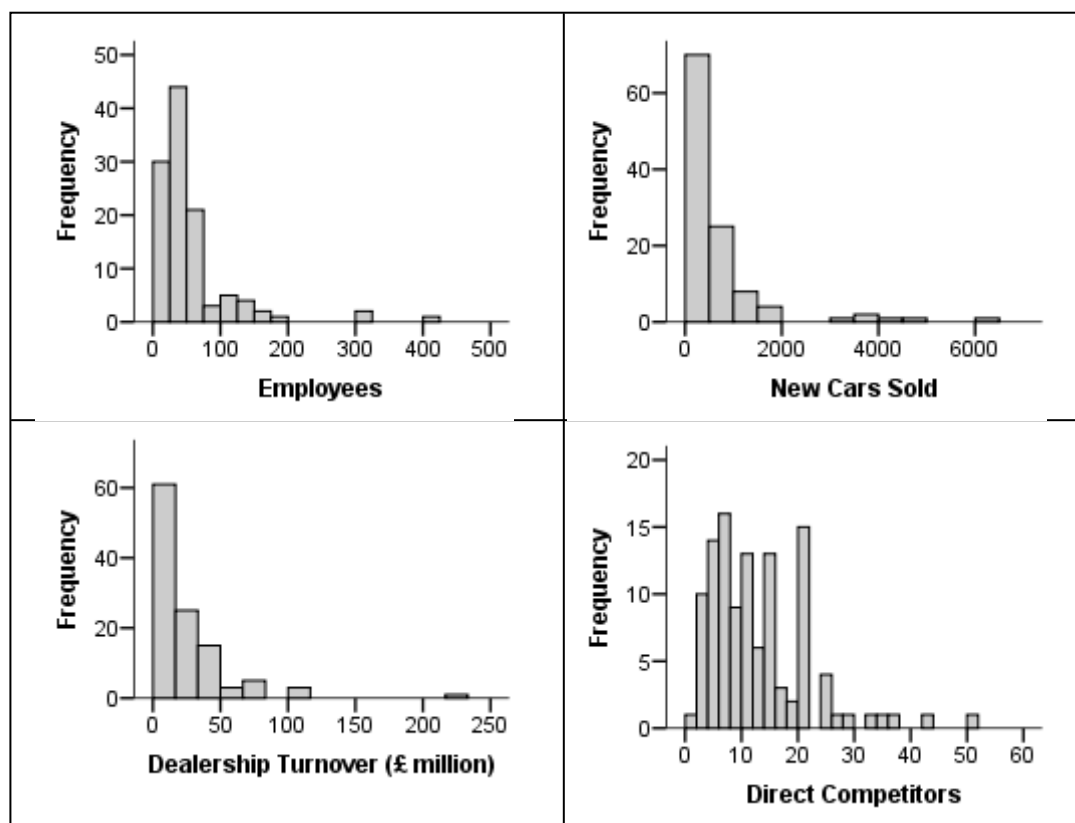
The dealerships varied widely in size with the median dealerships employing 35 people, selling 374 cars per annum, with a turnover of £15.4 million (see figure 5.8). Dealerships varied from single independents to being part of a group with 340 dealerships. The median dealership group size, including sole independents, was four. The dealerships in the sample had a median of ten direct competitors and three brand competitors in the new car market.

Fig. 5.8: Respondent and Dealership Profile.

	N	Minimum	Maximum	Mean	Median	Std. Deviation
Years in Current Position	113	.25	31.0	11.5	10	8.6
Years in Dealership	113	.17	60.0	16.0	12	13.0
Full-time Equivalent Employees (No.)	113	9	410	53.7	35	59.3
New Cars Sold (3-year average)	113	25	6000	645.6	374	942.2
Dealership Turnover (£ million)	113	2.0	230.0	24.8	15.4	29.1
Dealerships in Group (No.)	113	1	340	23.5	4	57.2
Catchment Area (Miles)	113	6	100	30.6	25	19.3
Direct Competitors (No.)	113	1	50	12.4	10	8.9
Brand Competitors (No.)	113	0	14	3.3	3	2.3

Figure 5.9 illustrates the distribution of the dealerships in the sample, by size and the number of direct competitors. Most dealerships employed less than 75 people; sold less than 1000 car per year; and turned-over less than £50 million per year. There were also a small number of very large dealerships. All of these served the *fleet* market and either or both of the *commercial vehicle* and *body shop* markets. The majority of dealerships had less than twenty direct competitors in the new car market. There was only one dealership with less than two direct competitors, and only seven dealerships with more than twenty-five direct new car competitors.

Fig. 5.9: Dealer Size (Employees, New Car Sales, Turnover) and Direct Competitors.

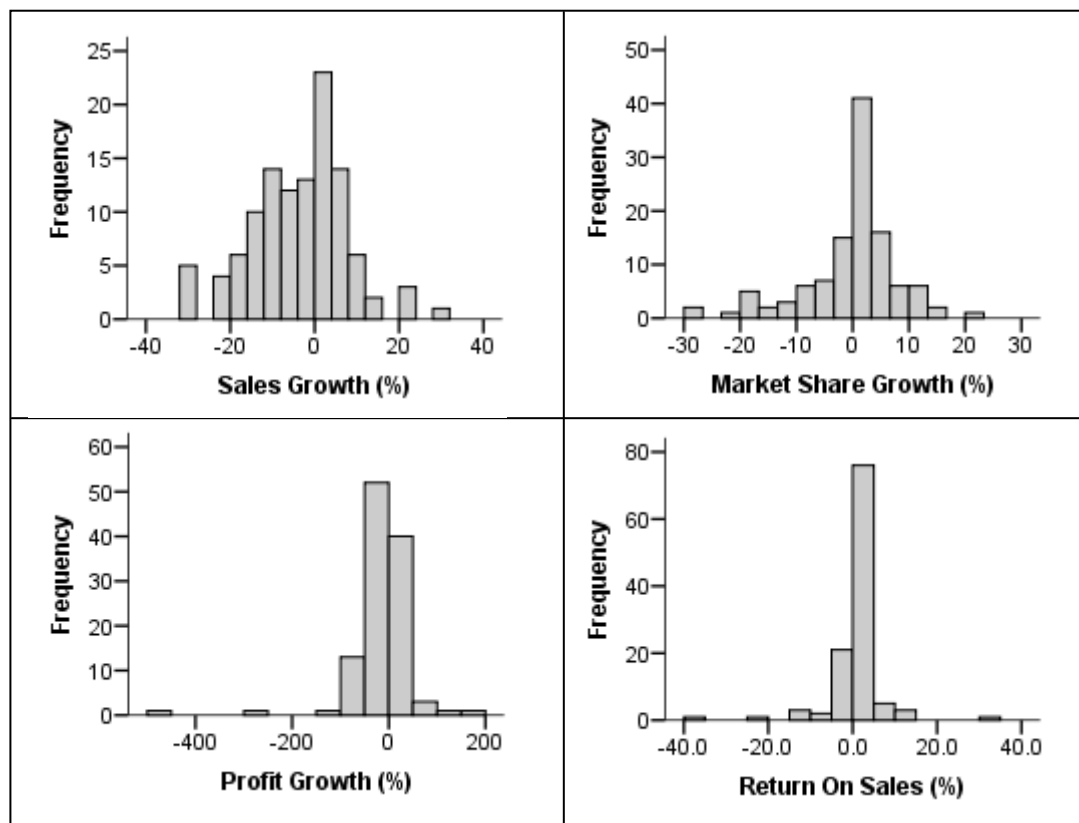


Figures 5.10 and 5.11 summarise performance for the dealerships in the sample. Median sales growth, profit growth, and ROS over the last year were -1.7%, -5%, and 0.8% respectively, which was markedly worse than the 3-year average performance.

Fig. 5.10: Dealership Performance over the Last Year.

	N	Minimum	Maximum	Mean	Median	Std. Deviation
Over the last year:						
Sales Growth (%)	113	-32	30	-4.1	-1.7	11.5
Market Share Growth (%)	113	-30	20	-0.7	0.3	8.3
Profit Growth (%)	113	-461	154	-16.7	-5.0	63.0
Return On Sales (%)	113	-40	30	0.5	0.8	6.5
Average over the last three years:						
Sales Growth (%)	113	-40	60	5.9	5.0	12.7
Market Share Growth (%)	113	-45	30	4.1	2.3	7.8
Profit Growth (%)	113	-116	354	2.5	1.7	39.7
Return On Sales (%)	113	-7.5	30	2.5	2.0	4.4

Fig. 5.11: Dealership Performance over the Last Year.



In section 4.3.4 it was decided to collect data from within the United Kingdom (UK) in order to control the effect of the macro-environment on the relationship between market orientation and performance. The UK was selected because it was considered a relatively homogenous region in terms of macro-environment factors. However, the nations that form the UK (England, Wales, Scotland and Northern Ireland) differ in their customs and laws. In particular, the legal systems in Scotland and Northern differ from the one in England and Wales. These differences were not anticipated to affect the relationship between market orientation and performance for new car dealers. However, it may be useful to understand the extent to which the results of the survey may be affected by potential differences in the macro-environment between the constituent nations of the UK.

Figure 5.12 details the location of the respondent's dealerships. As may be observed the vast majority of respondent's dealership were located in England and Wales with only three located in Scotland and none from Northern Ireland. This predominance of English and Welsh dealerships suggests that the results of the study are unlikely to be substantially affected by macro-environmental differences between the constituent nations of the UK.

Fig. 5.12: Respondent Dealerships Location by Nation.

<u>Country</u>	<u>Frequency</u>	<u>Percent</u>
England	102	90.2
Wales	8	7.1
Scotland	3	2.7
Northern Ireland	0	0.0

5.6 CONCLUSION

This chapter summarised the processing of the data. Following the calculation of missing values, the extent of missing values in the dataset was described in detail. Missing values were then imputed using the EM technique in SPSS. Subsequently the respondent and dealership profile of the sample was described. With no missing values and a sample size of 113, the dataset was considered ready for developing the measures to be used for testing the hypotheses. The questionnaire items related to testing the hypotheses will be examined in more detail in the next chapter.

CHAPTER 6: MEASURE ASSESSMENT AND DATA REDUCTION

6.1. OBJECTIVE

The objective of the measure assessment was to evaluate whether the measures were suitably unidimensional, valid, and reliable to be used to test the hypotheses. First, the criteria by which the measures were evaluated are considered. Next, the results of the factor analyses, undertaken to identify and assess the measures, are presented. Last, the measure properties and associations are summarised.

6.2. MEASURE EVALUATION CRITERIA AND PROCEDURE

6.2.1. Multi-Item Measures

Churchill (1979, p66) identified three weaknesses of single item measures. Firstly they have “considerable uniqueness or specificity” which may have “a low correlation with the attributes being measured”. Second, they “tend to categorise people into a relatively small number of groups”, such as the seven groups of a 7-point Likert type scale. Third, “individual items typically have considerable measurement error”.

Churchill (1979, p66) argued that these weaknesses may be diminished by using “multi-item measures: (1) the specificity of items can be averaged out when they are combined, (2) by combining items, one can make relatively fine distinctions among people, and (3) the reliability tends to increase and measurement error decreases as the number of items in a combination increases”. Churchill’s arguments for multi-items measures appear to be most pertinent to abstract constructs which cannot be directly observed. As Hair et al (2006, p712) wrote “measurement error is not just caused by inaccurate responses. It also occurs when we use more abstract or theoretical concepts”. Thus, for concepts which cannot be observed, multi-item measures may be considered preferable to single item ones.

As previously discussed in Chapter 4, the market orientation measure was selected from the literature because it was demonstrated, in a number of studies, to have good measurement properties. The market orientation measure contained 15 items and was based on Jaworski and Kohli’s (1990) three factor model of intelligence *generation*, *dissemination*, and *responsiveness*. Thus it was anticipated that a three factor model of market orientation would be identified from the sample data.

In Chapter 3 the multi-dimensional nature of performance was discussed and different relationships were hypothesized between market orientation and either *cost* or *revenue* based measures of performance. As the questionnaire contained multiple items on *cost-based* and *revenue-based* performance it was possible that these two factors would emerge from the sample data.

Finally two items were included to measure aspects of the competitive environment which was hypothesized to moderate the relationship between market orientation and performance. As both items measure the competition faced by the dealerships in their new car market, it was considered possible that these two items would form or reflect a single measure of the nature of the competition.

6.2.2. Unidimensionality

Anderson et al (1987, p432) described unidimensionality as “the existence of one latent trait or construct underlying a set of measures”. They wrote (p435) that “a necessary condition for assigning meaning to estimated, latent variables is that the measures posited as alternate indicators of each construct be acceptably unidimensional”. Gerbing and Anderson (1988, p186) argued that factor analysis offers a way of evaluating unidimensionality and in particular that “confirmatory factor analysis affords a stricter interpretation of unidimensionality than can be provided by more traditional methods”. Factor analyses were therefore undertaken to assess the unidimensionality of the measures in the sample.

6.2.3. Validity

Churchill (1979) wrote that “a measure is *valid* when the differences in observed scores reflect true differences one is attempting to measure and nothing else”. Validity of the market orientation measure used in this study was established by Cadogan et al (1999). The objective performance measures used were accounting measures typically reported by firms in their own financial reports and therefore were observable by the respondent. Hence the objective performance measures reported in the questionnaire were likely to be based on the dealership’s financial reports and thus could be considered valid. The questionnaire was pretested in person at two dealerships. Both respondents were observed completing the questionnaire. Neither

was observed to have any issues responding to any of the questions nor did either respondent express any difficulty. Thus it was considered that both the subjective performance and the competitive environment items had face validity.

The convergent validity and discriminant validity of the measures may be evaluated using confirmatory factor analysis (CFA). A measure has *convergent validity* when the items of the measure share a high proportion of variance in common (Hair et al 2006). Evidence of convergent validity includes: (a) high and statistically significant factor loadings, (b) high variance extracted from each factor's set of items, and (c) high reliability (Hair et al 2006). *Discriminant validity* is the extent to which a construct is distinct from other constructs (Hair et al 2006). It may be evaluated by comparing the average variance-extracted (AVE) of two constructs with the square of the correlation between them (Fornell and Larcker 1981).

6.2.4. Reliability

“A measure is reliable to the extent that independent but comparable measures of the same trait or construct of a given object agree” (Churchill 1979, p65). As Gerbing and Anderson (1988, p190) noted “unidimensionality is not sufficient to ensure the usefulness of a scale” and continued “the reliability of the composite score should be assessed after the unidimensionality has been established. Even a perfectly unidimensional (and otherwise construct valid) scale would be of little or no practical use if the resultant composite score were determined primarily by measurement error”. Thus the reliabilities of the measures were assessed after the factor analyses.

6.2.5. Single-Item Measures

As discussed in Section 6.2.1, Churchill's (1979) arguments for the use of multi-item measures appeared to be most pertinent to abstract latent constructs measured using Likert type scales. Measures that are observable or are routinely used by management, such as accounting measures of performance, may be less prone to the weaknesses identified by Churchill. For instance, objective performance is measured on a continuous scale and is therefore not subject to being categorized into a small number of groups. Indeed responding to the objective performance items using information from financial reports, which have been calculated using standard

accounting procedures, may result in low measurement error. As Bergkvist and Rossiter (2007, p175) argue “there is no difference in the predictive validity of multiple-item and single-item measures” when the constructs are “concrete”. Thus single item measures may be appropriate in some instances.

6.2.6. Assessment Strategy

Gerbing and Anderson (1988, p189) wrote “exploratory factor analysis is a useful scale development technique for reducing a large number of indicators to a more manageable set. It is particularly useful as a preliminary analysis in the absence of sufficiently detailed theory about the relations of the indicators to the underlying constructs”, however “exploratory analysis typically does not provide an explicit test of unidimensionality”. They continued (p189) “the more rigorous specification that is required for confirmatory factor analysis of a multiple indicator measurement model, in turn, affords a more rigorous evaluation of unidimensionality”. Consequently the assessment of the measures used in the study followed the procedure advocated by Gerbing and Anderson (1988). First, the internal consistency of the proposed measures was studied using item-total correlations. Second, exploratory factor analysis was undertaken to examine the underlying structure of the data and provide preliminary measures. Next measure unidimensionality was evaluated with CFA. Finally, the reliability of each measure was assessed.

6.3. EXPLORATORY FACTOR ANALYSIS (EFA)

6.3.1. Procedure

Following Gerbing and Anderson (1988), Principal Axis Factoring with Direct Oblimin rotation were selected as the extraction and rotation method within SPSS. An oblique (Direct Oblimin) factor rotation method was used as the factors are not assumed to be uncorrelated with each other (Hair et al 2006). The number of factors expected was guided by theory (see section 6.2.1). This suggested three market orientation factors, one environment factor, and up to eight performance factors. It was possible that two factors, *cost* and *revenue* based performance would emerge for subjective and objective performance, and performance over one year and average performance over three years. Thus twelve factors were initially anticipated.

6.3.2. Assessment

All the questionnaire items relevant to testing the hypotheses were entered into the EFA. On the first run of the EFA the number of factors to be extracted was set to those with an eigenvalue higher than one. The scree plot and eigenvalues from the initial EFA were then examined to identify the number of factors present. Ten factors were identified, SPSS was set to extract this number of factors, and the EFA was re-run. The pattern matrix from this solution is displayed in Figure 6.1. The market orientation items are listed in the same order that they appear of the questionnaire (see Appendix). In addition the items have been given a shortened description to aid identification. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was 0.741, and Bartlett's Test of Sphericity was highly significant (Chi-square = 3433.85, df = 595) indicating that EFA was suitable for the sample data.

As illustrated by figure 6.1, many of the anticipated factors were present. However, the *responsiveness* items of the market orientation measure were split over two factors (factors 6 and 8), with one item having a high cross-loading on *generation* (factor 4). The performance items conformed somewhat less to expectations. The subjective performance items for each time frame loaded onto a single factor (factors 3 and 1). However the *sales growth* and *market share growth* items from subjective performance cross-loaded onto a *revenue-based* performance factor (factor 10), which also had loadings from three of the four objective revenue-based items. Thus some support was provided for the *revenue* and *cost* categorisation. No clear structure emerged for the *objective* performance items with the factor structure for performance over the last year not replicated in the 3-year items and vice versa.

The communalities and pattern matrix of the initial 10-factor solution were then examined for items with low communalities, low factor loadings and cross-loadings. A minimum factor loading of 0.5 for sample sizes of 120 (Hair et al 2006) was used as a guide for identifying significant factor loadings. Items identified as problematic were eliminated in subsequent iterations of the EFA until seven factors emerged with significant loadings and no cross-loadings. Figure 6.2 presents the pattern matrix for the final factor solution. The total variance explained by the seven factor model was 71.7%. Clear factors emerged for the three market orientation dimensions and subjective performance for the two time frames. However the 1-year objective performance factor was not replicated by the 3-year items indicating that the factor was not *reliable* (section 6.2.4) over time and thus was not a suitable measure.

Fig. 6.1: Initial Pattern Matrix - 10 Factors.

		1	2	3	4	5	6	7	8	9	10
Generate	Periodically review	-.01	.01	-.06	.89	.00	.12	.09	.00	-.14	-.10
	Quick to detect shifts	.05	.02	.05	.71	.02	.00	-.07	-.01	-.12	.00
	Information on trends	.08	-.02	.00	.81	-.08	-.02	.12	-.06	.12	.03
	Constantly monitor	-.03	.27	-.01	.53	.10	-.09	-.10	.23	-.01	.18
	Needs & preferences	.04	.17	.18	.45	.01	-.06	-.35	-.17	.24	.32
Disseminate	Information 'lost' R	-.11	.69	-.04	.09	.02	.08	-.04	-.21	.07	.07
	Too late R	.06	.85	.04	.00	-.01	.14	.03	-.18	.00	-.05
	Takes forever R	.00	.87	.00	.01	-.06	-.06	.10	.12	.06	.01
	Info. discarded R	.06	.88	.03	-.01	.00	-.07	-.05	.08	-.07	-.02
	Trends discarded R	.08	.81	.02	-.05	-.06	.02	.02	.20	-.13	-.12
Respond	Quickly respond	.15	.06	-.07	.08	-.04	.67	.02	-.03	-.04	.12
	Rapidly Respond	-.06	.04	.04	-.02	.11	.99	-.01	-.02	-.05	.14
	Intensive campaign	.01	.00	.05	.02	-.03	.53	-.09	.11	.09	-.14
	Corrective action	-.06	.13	-.05	.14	.14	.17	-.09	.55	.19	.08
	Environment changes	-.02	.01	.05	.59	.04	.17	-.09	.41	-.02	-.13
Subjective	Sales growth	.02	.04	.68	-.01	-.03	-.11	.07	.18	-.05	.37
Performance: Last Year	Market share growth	.02	.04	.68	.05	.09	-.08	-.01	.19	-.06	.43
	Profit growth	.12	.04	.90	.01	.06	.06	.05	-.10	.03	-.24
	Profitability	.15	.04	.85	-.03	.14	.05	-.01	-.11	.07	-.24
	Overall performance	.14	.02	.86	.02	.11	.04	.04	-.01	.04	-.10
Subjective	Sales growth	.78	.04	.08	-.04	-.13	.00	-.03	.18	.00	.25
Performance: 3 Years	Market share growth	.77	.02	.04	-.01	-.13	-.03	-.08	.21	.01	.29
	Profit growth	.93	.01	.04	.03	.07	.08	-.04	-.08	-.02	-.04
	Profitability	.93	.02	.05	.04	.09	.04	-.02	-.08	-.03	-.10
	Overall performance	.90	-.01	.11	.10	.03	.02	.01	-.07	.03	-.07
Competitive Environment	Dynamism	.00	-.03	-.05	-.02	.09	-.09	.03	.00	.72	-.06
	Intensity	.02	-.03	.08	-.10	-.13	.14	.07	.11	.40	-.01
Objective	Sales growth	.09	.02	.17	.07	-.01	-.15	.76	.12	.05	.07
Performance: Last Year	Market share growth	-.12	-.13	.54	.11	-.13	.05	.29	-.03	.05	.30
	Profit growth	-.11	.03	.03	.01	.09	-.01	.74	-.13	.10	-.05
	Return on Sales	-.03	-.05	.04	-.05	.88	-.02	.07	.04	.02	.06
Objective	Sales growth	.13	-.08	-.14	.04	.02	.02	.12	.13	-.09	.64
Performance: 3 Years	Market share growth	.17	-.07	.07	.00	-.04	.10	-.05	-.04	-.03	.57
	Profit growth	.44	.07	-.07	.03	.13	.07	.31	-.13	.12	.12
	Return on Sales	.06	-.05	.07	.00	.76	.05	.00	.05	-.01	-.01

R indicates reverse coding of item.

Fig. 6.2: Final Pattern Matrix - 7 Factors.

		1	2	3	4	5	6	7
Generate	Periodically review	-.05	.07	-.11	.79	.14	.03	-.13
	Quick to detect shifts	.02	.02	.01	.72	.03	-.08	-.10
	Information on trends	.05	.00	-.03	.77	.08	.22	.00
	Constantly monitor	-.03	.20	.07	.67	-.07	-.14	-.01
	Needs & preferences	.07	.13	.22	.51	.02	-.16	.02
Disseminate	Information 'lost' R	-.07	.66	-.07	.12	.06	.02	-.01
	Too late R	.06	.85	.00	-.02	.14	.08	-.01
	Takes forever R	-.01	.82	.06	.08	-.07	.06	.13
	Info. discarded R	.06	.88	.03	.04	-.11	-.08	.02
	Trends discarded R	.06	.81	.01	-.02	-.02	-.07	.05
Respond	Quickly respond	.19	.00	-.07	.12	.68	.04	.12
	Rapidly Respond	.03	-.04	.04	.08	.87	-.04	-.02
	Intensive campaign	-.04	.01	.07	-.01	.59	-.05	.04
Subjective	Sales Growth	.08	-.11	.77	.18	-.12	.08	.25
Performance: Market Share Growth		.12	-.11	.75	.27	-.09	-.02	.13
Last Year	Profit growth	.00	.11	.84	-.14	.13	.11	-.20
	Profitability	.03	.13	.80	-.17	.12	.05	-.28
	Overall performance	.05	.06	.86	-.05	.11	.07	-.17
Subjective	Sales Growth	.85	-.04	.11	.06	.00	-.04	.25
Performance: Market Share Growth		.86	-.06	.07	.11	-.04	-.08	.26
3 Years	Profit growth	.93	.06	-.03	-.06	.09	.01	-.18
	Profitability	.92	.10	-.04	-.08	.05	.02	-.23
	Overall performance	.90	.05	.03	-.01	.05	.09	-.15
Objective	Sales growth	.13	-.02	.17	.07	-.15	.71	.08
Performance: Profit growth		-.10	.02	-.01	-.05	.02	.84	-.04
Last Year	Return on Sales	.01	-.11	.08	.10	-.07	.05	-.66
3 Years	Return on Sales	.08	-.06	.08	.11	-.02	-.04	-.71

6.3.3. Conclusions

The results of the EFA provided a preliminary guide for the CFA. In particular the market orientation and subjective performance factors were used as a starting point for the CFA. The emergence of a revenue-based structure in the initial solution (factor 10, figure 6.1) suggested that a cost and revenue categorisation should be investigated in the CFA. The lack of a reliable structure to the *objective* performance items suggested that each item measured a unique dimension of performance. As Jaworski and Kohli (1993, p65) observe “performance on one dimension may run counter to performance on other dimensions”. In addition, Bergkvist and Rossiter

(2007, p175) argue that for constructs “that consist of a concrete singular object and a concrete attribute ... single item measures should be used”. Thus the objective performance items were treated as single item measures.

6.4. CONFIRMATORY FACTOR ANALYSIS (CFA)

6.4.1. Parsimony

In the exploratory factor analysis *all* the questionnaire items potentially relevant to testing the hypotheses were included in the EFA to see what factor structure would emerge. In contrast, the focus of the confirmatory factor analysis was to assess all the measures to be used in the structural model for unidimensionality, reliability and validity. The principle of parsimony suggests that only the variables that are directly involved in testing the hypotheses should be included in the structural and measurement models. Hair et al (2006, p24) argue that including unnecessary variables in the analysis may: (a) result in *overfitting* of the sample data, making the study results less generalizable, and (b) increase *multicollinearity* thus making the “interpretation of all variables more difficult”. The items included in the CFA were therefore chosen based on their relevancy to the hypotheses.

6.4.2. Performance: Absolute and Relative Measures

Thus far, only the performance items directly posed in the questionnaire have been considered. The objective performance questions in the questionnaire were measures of *relative* performance. For instance, the *sales growth over the last year (%)* item measured the growth, or decline, in sales over the last year *relative* to the previous year’s sales revenue represented as a percentage. *Profit growth (%)* was the growth (or decline) in profit *relative* to the previous year’s profit. Finally, *return on sales (%)* was the current year’s profit as a proportion of the current year’s sales revenue, again represented as a percentage.

It was also possible to represent profit, profit growth and sales growth as *absolute* measures of performance. In this instance *profit (£)* was calculated by multiplying *return on sales (%)* by *sales turnover (£)*. Profit growth (£) was calculated using the *profit (£)* and *profit growth (%)* figures. Similarly *sales growth (£)* was calculated

using *sales turnover* (£) and *sales growth* (%). This process resulted in two sets of objective performance measures, *relative* and *absolute*, which measured analogous dimensions of performance. The use of both relative and absolute measures in management and company reports suggests that each type provides some unique insight into the firm's performance. Consequently both these sets, along with the subjective performance measures, were used to test the hypotheses and therefore were also included in the confirmatory factor analysis.

6.4.3. Recession and Pre-recession Measures

As recession and pre-recession environments were separated temporally they could not be measured directly in a cross-sectional study. The recession had commenced eight months prior to the data collection (section 3.3.2) and thus it was considered appropriate to use performance *over the last year* as a measure of the impact of the recession on performance. The previous year pre-dated the recession and thus performance *in the previous year* was used as the measure of performance prior to the recession. The impact of the recession could then be ascertained by comparing last year's performance to the previous year's performance.

As the dealership's market orientation in the new car market was measured at the time of data collection, it cannot be considered to directly *cause* performance in the previous year. However, given that a market orientation is difficult to develop and maintain (Slater and Narver 1994, Kohli and Jaworski 1990), the dealership's market orientation at the time of data collection may not have changed significantly from its level in the previous year. As Pelham and Wilson (1996, p33) argued a market orientation is cultural and "a firm's culture forms over a long time ... a measure taken once within a 3- to 4-year period will be representative" adding "employee behaviour modification is a slow and difficult process". Thus the market orientation information collected may be used to infer a causal relationship between market orientation and performance in the previous year.

Performance *in the previous year* was not directly requested in the questionnaire. However profit (£), return on sales (%), profit growth, and sales growth in the previous year could all be calculated using the accounting information provided by respondents. Unfortunately the market share information contained insufficient detail to calculate market share growth *in the previous year*. However another revenue-

based performance measure, *sales growth*, existed to test the hypotheses on revenue-based performance. Sales growth was considered a superior measure to market share as it was (a) an accounting measure of performance subject to a standard accounting method of calculation, and (b) observable to the respondent in management reports; thus it was considered less likely to be affected by measurement error. Consequently, with the principle of parsimony in mind, the objective market share measures were not used in the CFA or structural model.

With the addition of the performance *in the previous year* items, the long-term performance items (i.e. average over the last three years) for the *objective* performance measures were no longer required, and thus for parsimony (section 6.4.1) they were not included in the subsequent analyses.

6.4.4. Sample Size to Parameter Estimate Ratio

In order to keep the sample size to parameter estimate ratios as close as possible to recommendations (Bentler and Chou 1987) the analyses were split into three sets of theoretically related measures (Baker and Sinkula 1999). The three sets were: (i) absolute objective performance (pounds sterling values for profit and sales growth), (ii) relative objective performance (percentage values for return on sales and sales growth), and (iii) subjective performance (Likert-type agreement scales for profitability, profit, sales growth and market share growth). The analysis of each set was undertaken with the respective performance items and the items for market orientation, the competitive environment, and a control variable for firm size in the new car market.

For *absolute* and *relative* objective performance, the two cost-based items, *profit* (or *return on sales*) and *profit growth*, did not load onto a single factor in the EFA. This indicated that each item measured a unique dimension of cost-based performance and thus they were treated as single-item measures. However, only one measure was actually required to test the cost-based performance hypotheses. It was considered that overall profitability was a better measure of long-term performance than profit growth in a single year, which may be more volatile. Thus for parsimony, and to reduce the number of parameters to be estimated, the *profit* (or *return on sales*) measures were retained and the *profit growth* measures were removed from subsequent analyses.

6.4.5. Procedure

The CFA was undertaken using the Lisrel software package. The maximum likelihood estimation technique was chosen as it was one of the most widely used approaches and was proven to be fairly robust to violations of the normality assumption (Hair et al 2006). The CFA measurement model was assessed using model fit statistics and indices, the strength and significance of factor loadings, and the absolute size of the standardised residuals (Hair et al 2006). Measurement model refinement was undertaken by identifying problem items and modifying the model by item elimination or re-specification. The actual modifications undertaken are set out in the next section (Section 6.4.6).

6.4.6. Assessment

The model specification was guided both by theory (section 6.2.1) and the results of the EFA (section 6.3.3). Figure 6.3 details the fit statistics and indices for all the models assessed using confirmatory factor analysis. The assessment started with the market orientation measure. As theorised, and identified in the EFA, the market orientation measure had three factors, *generation* of intelligence, *dissemination* of intelligence and *responsiveness*. Initially all the market orientation items from the questionnaire were included for the three factors. As Model 1a (figure 6.3) illustrates the χ^2 fit statistic was highly significant and all the fit indices (RMSEA, CFI, NNFI, and GFI) were low, indicating poor fit. In order to improve the fit the model was re-specified to the factor structure indicated by the EFA (Model 1b). Again the χ^2 fit statistic was highly significant and the goodness of fit indices indicated poor fit. Two items, one from each of the *generation* and *dissemination* factors, were identified as problematic and were removed from the model. This re-specification resulted in the final market orientation measure (Model 1c). Compared to model 1b the fit improved immensely. The χ^2 was not significant signifying good fit and the fit indices exceeded the guidelines for samples of less than 250 units and less than 12 factors (i.e. CFI > 0.97 and RMSEA < 0.08) set out by Hair et al (2006).

Following the purification of the market orientation measure, the remaining multi-item measures to be used in the structural model were added to the CFA. First, the two-item *competitiveness* measure was added to the market orientation measure (Model 2a). This resulted in an improvement in model fit (see figure 6.3) over Model 1c. Next

the five-item *subjective performance* measures, which were identified in the EFA (figure 6.2), were added to the market orientation and competitiveness measures (Model 2b). The model fit substantially worsened to the point that the model was highly significant, signifying poor fit, and all the fit indices also indicated poor fit (figure 6.3). The model was then re-specified so that the performance items were categorized into the theorized cost-based and revenue-based performance factors (Model 2c). The *overall performance* items were removed from the CFA as they did not fit into either the cost-based or revenue-based performance categories. The fit statistics of Model 2c improved significantly and exceeded the criteria set out by Hair et al (2006) for goodness of fit.

Fig. 6.3: Measurement Model Fit Statistics and Indices.

Model	I.D.	χ^2	Df	P	RMSEA	CFI	NNFI	GFI
1. Market Orientation Measure								
All items: Gen. (5), Diss. (5), Resp. (5)	1a	254.20	87	0.000	0.131	0.812	0.773	0.768
EFA items: Gen. (5), Diss. (5), Resp. (3)	1b	145.40	62	0.000	0.110	0.895	0.868	0.834
Purified: Gen. (4), Diss. (4), Resp. (3)	1c	50.46	41	0.148	0.045	0.986	0.981	0.924
2. Other Multi-item Measures								
Gen.(4), Diss. (4), Resp. (3), Competitiveness (2)	2a	68.17	60	0.219	0.035	0.987	0.983	0.914
- Subj. Perf.: Last Year (5), Previous Year (5)	2b	603.39	193	0.000	0.141	0.808	0.770	0.665
- Subj. Cost and Revenue Based Perf. (All 2)	2c	187.30	162	0.085	0.037	0.981	0.975	0.863
3. Measurement Models								
Subj. Perf., MO, Competitiveness, Size	3a	201.85	174	0.073	0.038	0.979	0.972	0.859
Absolute Obj. Perf., MO, Competitiveness, Size	3b	116.29	105	0.212	0.031	0.981	0.972	0.897
Relative Obj. Perf., MO, Competitiveness, Size	3c	122.11	106	0.136	0.037	0.978	0.968	0.892

Note: bracketed numbers indicate the number of items in each factor or measure.

I.D.: model identification code.

Next, the single items measures - the objective performance items and a control variable for the size of the dealership's new car operation - were evaluated. As justified previously (section 6.4.4.), the measures were assessed in three sets. Each set contained the market orientation, competitive environment, and size measures as well as one of the three sets of performance measures. These three sets formed three measurement models (figure 6.3): subjective performance (Model 3a), absolute objective performance (Model 3b), and relative objective performance (Model 3c). All the models were non-significant and exceeded the guidelines for the fit indices thus they were considered to have good fit.

6.4.7. Common Method Variance (CMV) and Method Bias

Podsakoff et al (2003, p879) explained that common method variance (CMV) is the “variance that is attributable to the measurement method rather than to the constructs the measures represent” and go on to argue that CMV is “one of the main sources of measurement error” and furthermore “systematic measurement error is a particularly serious problem because it provides an alternative explanation for the observed relationships between measures of different constructs that is independent of the one hypothesized”. *Method bias* occurs “if CMV produces significant divergence between true and observed relationships” (Richardson et al 2009, p763). In this study CMV was a potential issue because the market orientation and performance measures were rated by the same respondent.

Podsakoff et al (2003, p881 - 883) identified a number of different types of method effects caused by using a common respondent. These included the consistency motif, implicit theories, social desirability, leniency biases, acquiescence, affectivity, and transient mood state. As the marketing concept is one of the most prominent philosophies in business, it was specifically expected that the respondent’s *implicit theories* could be a source of method bias in this study, in addition to other types.

These different method biases may be controlled through “(a) the design of the studies procedures and/or (b) statistical controls” (Podsakoff et al 2003, p887). The design procedures for controlling method bias include obtaining data for the predictor and criterion variables from different sources, separating the measurement of the predictor and criterion variables, protecting respondent anonymity, counterbalancing question order, and improving scale items. These recommendations were followed when designing this study (see chapter 4). In particular, the *objective* performance measures were *separated* from the market orientation measure in the way that they were measured. Specifically, market orientation was measured using a Likert-type scale whereas accounting figures were requested for objective performance.

The statistical remedies for method bias may also be grouped into different approaches. These include using (a) Harman’s single-factor test, (b) measures of the different types of bias (e.g. social desirability and affectivity) as controls, (c) a *marker* variable which is theoretically unrelated to the variables in the study to assess bias and (d) unmeasured latent variables to represent bias (Podsakoff et al 2003).

These techniques have their limitations. Harman's single factor test is an insensitive measure of bias, in that common variance needs to account for *all* the covariance amongst the questionnaire items for it to be considered a problem (Podsakoff et al 2003). Controlling for bias by measuring the different types of bias during data collection (e.g. affectivity and social desirability) may be problematic when measures do not exist for certain types (Podsakoff et al 2003). Thus the effectiveness of controlling for bias is reduced when certain types of bias, such as *implicit theories*, are anticipated. Finally, Podsakoff et al (2003, p893) argue that the *marker* variable technique "fails to control for some of the most powerful causes of common method biases (e.g., implicit theories, consistency motif, social desirability)". For these reasons Podsakoff et al (2003) do not favour the above techniques but recommend the unmeasured latent variable approach.

As *implicit theories* were specifically considered a potential source of method bias, two of the above methods, *bias measurement* and the *marker* variable technique, were not considered appropriate for assessing method bias in this study. In addition, the Harman single-factor technique was deemed to be too insensitive to detect bias that may affect the relationships in the study. Consequently, the unmeasured latent variable approach was used to test for method bias.

To determine whether method bias affected the relationships in the study two models were compared for each of the types of performance (subjective, absolute objective, and relative objective) using Lisrel. First, a CFA of the measurement model was run (figure 6.3, models 3a, 3b, and 3c) and the covariances between all the measures (e.g. size, generation, dissemination, responsiveness, competitive environment, and performance) were recorded. Then, an unmeasured latent variable was added to the model to represent method bias and paths were specified to be freely estimated from this variable to all the items in the model. Fit statistics for these models are presented in figure 6.4, models 1a, 2a, and 3a. Next, the covariances in the bias model were set to be the same as those previously noted in the non-bias model. Fit statistics for these models are given in figure 6.4, models 1b, 2b, and 3b. Finally, the models were compared (i.e. model 1a compared to model 1b, etc) to test whether the relationships (i.e. covariances) between measures in the bias models were significantly different to the non-bias models (Richardson et al 2009). As may be observed from the results presented in figure 6.4, the change in X^2 was not significant in any of the models indicating that all the models were unaffected by bias.

Fig. 6.4: Unmeasured Latent Method Bias Factor Model Fit.

Model	I.D.	χ^2	Df	$\Delta \chi^2$	Δ df	P
1. Subjective Performance, MO, Competitiveness, Size						
Bias: freely estimated.	1a	158.96	154			
Bias: covariances between measures set to non-bias model	1b	169.80	190	10.84	36	1.00
2. Absolute Objective Performance, MO, Competitiveness, Size						
Bias: freely estimated.	2a	86.01	87			
Bias: covariances between measures set to non-bias model	2b	86.49	123	0.48	36	1.00
3. Relative Objective Performance, MO, Competitiveness, Size						
Bias: freely estimated.	3a	88.47	88			
Bias: covariances between measures set to non-bias model	3b	89.79	124	1.32	36	1.00

However, the unmeasured latent variable technique is not without its problems. In particular, the unmeasured latent variable is labelled “method bias” but may, in fact, measure covariance due to other factors such as unmeasured antecedents to market orientation. As Podsakoff et al (2003, p894) stated “the factor may reflect not only different types of common method variance but also variance due to relationships between the constructs other than the one hypothesized”.

Research into the efficacy of statistical techniques for addressing method bias has been undertaken by Richardson et al (2009). Their study investigated the effectiveness of three statistical techniques for addressing bias by using 691,200 simulated datasets. Two of these techniques have been discussed above, the correlational marker and unmeasured latent variable techniques. The third technique, CFA marker, has emerged since 2003 but has a similar theoretical basis as the marker technique described previously. As a result of the poor effectiveness of *all* the techniques in detecting and correcting method bias the authors concluded (p796) “In sum, based on our results, we cannot recommend any post hoc CMV technique as a means for correcting CMV’s potential effects in a given data set, nor can we recommend any technique as means of detecting bias”. Consequently, the results of the analysis presented in figure 6.4 may not be conclusive.

For their analysis, Richardson et al (2009) used a similar technique for assessing bias as that used in this study. However, MacKenzie et al (1993) suggested additional steps which might be more effective at *detecting* bias. To identify the

effects of method bias they compared the relationships from the non-bias model to the method bias model. Figure 6.5 presents the t-statistics for all the relationships between the measures in the *subjective* performance model. The relationships for the model without bias are given below and to the left of the diagonal, whereas the relationships for the bias model are provided above and to the right of the diagonal.

Fig. 6.5: T-statistics for the Subjective Performance Model (Bias and Non-Bias Models).

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Generation		2.56**	3.11***	2.27**	-0.55	0.51	1.20	0.57	0.70
2. Dissemination	3.25***		1.72*	0.13	-0.02	0.71	1.25	-0.32	0.88
3. Responsiveness	2.90***	1.88*		2.33**	2.01**	1.47	3.32***	0.25	2.41**
4. Units sold	2.58***	0.45	2.41**		0.42	0.76	1.42	1.42	1.25
5. Competitive environment	-.051	-0.10	1.91*	0.37		1.87	0.55	1.14	1.32
6. Subj. cost perf. (last year)	1.55	1.38	1.26	1.02	1.77*		3.63***	4.66***	1.72*
7. Subj. cost perf. (prev. year)	2.48**	2.11**	3.52***	1.74*	0.41	5.37***		1.70*	5.56***
8. Subj. rev. perf. (last year)	2.58***	0.98	0.49	1.86*	0.90	6.52***	3.35***		3.62***
9. Subj rev. perf. (previous year)	2.44**	1.91*	2.63***	1.59	1.09	2.56**	6.31***	5.23***	

Note: lower left diagonal is model without bias factor and upper right diagonal is model with bias factor

* $p = 10\%$, ** $p = 5\%$, *** $p = 1\%$, two-tailed.

As may be observed, there are clear issues in the relationships between the market orientation and the subjective performance measures. Whereas seven of these relationships were significant ($p < 10\%$) in the non-bias model, only two (responsiveness with both cost-based and revenue-based performance in the previous year) remained significant when the bias factor was introduced. However, these issues were not evident for the other measures in the study (size and competitive environment). This suggests that the respondent's *implicit theories* (i.e. marketing enhances performance) were the main source of method bias.

However, it should be noted that Richardson et al (2009) must have undertaken a similar analysis to the above when assessing the ability of the technique to *correct* (but not *detect*) method bias. Their conclusion was that all the techniques tested were poor at correcting method bias. Consequently the results of this additional analysis should not be used to correct for method bias (Richardson et al 2009) but may still be indicative of the presence of method bias.

Interestingly the issues observed for the subjective performance model were *not* replicated for the objective performance models. This suggests that the *relationships* in the objective performance models (i.e. absolute and relative performance) are not

affected by method bias. The results presented in figure 6.4 appear to support this conclusion. Whereas the change in X^2 for the subjective performance models was not significant it was still relatively large when compared to the change in X^2 for the objective performance models.

Method Bias is not deemed to be an issue for objective performance for two reasons. First, the responses were considered to have been transcribed from internal management reports and thus are thought to be valid and reliable with extremely low error. Second, objective performance was measured using a different scale to market orientation, albeit rated by the same respondent.

Following the recommendations of Richardson et al (2009) the subsequent analysis of the subjective performance model was *not* corrected for bias. Thus the results of the structural modelling and the testing of hypotheses for this model need to be treated with caution. In particular, any *linear* relationship between market orientation and subjective performance may be partially or wholly due to method bias. In contrast, the objective performance models appear to be free of method bias. Consequently, any relationship found between market orientation and objective performance may be attributed to a substantive relationship rather than method bias.

6.5. RELIABILITY AND VALIDITY

Hair et al's (2006, p779) *rules of thumb* for construct validity recommend that (a) standardised loading estimates should be 0.5 or higher, (b) construct reliability should be 0.7 or higher for convergent validity, (c) variance extracted (VE) should be 0.5 or greater for convergent validity, and (d) the "VE estimates for two factors also should be greater than the square of the correlation between the two factors to provide evidence of discriminant validity". Figure 6.6 specifies the factor loading and t-statistics for Model 2c which contains all the multi-item measures used to test the hypotheses. Each item has only one factor loading (no cross-loadings were allowed) for the factor specified in the left-most column. All the factor loadings were highly significant, most of the standardised loadings were greater than $|0.5|$, and the standardised residuals were all less than $|2.5|$ indicating that the model had validity (Hair et al 2006). The only exception to this was a low standardised factor loading for the competitive environment item *competitor dynamism*.

Fig. 6.6: Factor Loadings for Multi-Item Latent Measures.

Factor	Item	Item ID	Loading	Standardised Loading	T-stat Loading
Generate	Periodically review	G1	1	0.844	
	Quick to detect shifts	G2	0.79	0.794	8.96
	Information on trends	G3	1.25	0.775	8.72
	Needs & preferences	G5	0.68	0.590	6.31
Disseminate	Too late R	D2	1	0.804	
	Takes forever R	D3	0.98	0.821	9.92
	Info. discarded R	D4	1.10	0.931	11.71
	Trends discarded R	D5	1.16	0.873	10.82
Respond	Quickly respond	R1	1.03	0.756	7.66
	Rapidly Respond	R2	1	0.939	
	Intensive campaign	R3	0.85	0.570	5.90
Revenue Perf.	Sales Growth	SALES1L	1	0.929	
Last Year	Market Share Growth	MKTSH1L	1.00	0.938	16.4
Cost Perf.	Profit growth	PRFT1L	1	0.988	
Last Year	Profitability	PRFTY1L	1.07	0.955	24.08
Revenue Perf.	Sales Growth	SALES3L	1	0.971	
Av. 3 Year	Market Share Growth	MKTSH3L	1.04	0.981	29.69
Cost Perf.	Profit growth	PRFT3L	1	0.995	
Av. 3 Year	Profitability	PRFTY3L	1.08	0.972	34.94
Competitive	Competitor Dynamism	DYN	3.81	0.339	3.81
Environment	Competitive Intensity	INT	1	1.000	

Figure 6.7 sets out the summary statistics and correlations for all the measures assessed in the CFA. In addition a composite market orientation score, measure 18, is also included. This score was calculated by averaging the generation, dissemination, and responsiveness items. All the AVEs were greater than 0.5 indicating convergent validity. The composite reliabilities of most measures were greater than 0.7 with the only exception, the competitive environment, very close to 0.7. Finally the square of the correlation between any two factors was less than the AVEs of both factors thus providing evidence of discriminant validity.

6.6. CONCLUSIONS

The chapter described the assessment of the measures to be used in the structural model for unidimensionality, validity, and reliability. The item-to-total correlations of the proposed measures were studied for internal consistency. Then an EFA was undertaken to identify factors. Next multiple CFA models were assessed guided by the results of the EFA and theory. The theorized factors of cost-based and revenue-based performance produced a significantly superior model fit to the overall

performance factor that emerged from the EFA. Next the three different sets of performance measures were assessed in different measurement models. All three measurement models were found to have good fit. Then the relationships in the models were tested for method bias. The objective performance models were found to be unaffected by bias but some evidence of bias was found in the subjective performance model. Finally, the validity and reliability of the measures were evaluated. All the measures showed evidence of good construct validity. It was therefore concluded that the measures had adequate unidimensionality, validity and reliability to proceed to the structural model and the testing of the hypotheses.

Figure 6.7: Summary Statistics and Correlations.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Summary Statistics																		
Mean	6.54	5.72	6.78	4.38	5.25	4.73	6.12	5.77	0.11	-0.82	0.17	0.14	1.12	-4.55	1.64	36.78	0.65	6.35
Standard Deviation	1.42	1.77	1.44	1.52	1.74	1.91	1.78	1.88	0.71	2.50	0.66	9.83	7.50	13.85	7.43	101.70	0.94	1.11
Composite Reliability (CR)	0.84	0.92	0.81	0.67	0.93	0.97	0.98	0.98										
Average Variance Extracted (AVE)	0.57	0.74	0.59	0.56	0.87	0.94	0.95	0.97										
Multi-item Measure Correlations																		
1. Generate																		
2. Disseminate	0.38**																	
3. Respond	0.33**	0.20*																
4. Competitive Environment	-0.05	-0.01	0.20*															
5. Subj. Revenue Perf. (Last Year)	0.28**	0.10	0.05	0.09														
6. Subj. Cost Perf. (Last Year)	0.16	0.14	0.16	0.17	0.62**													
7. Subj. Revenue Perf. (3 Year Average)	0.26**	0.20*	0.27**	0.11	0.56**	0.26**												
8. Subj. Cost Perf. (3 Year Average)	0.26**	0.22*	0.37**	0.04	0.33**	0.45**	0.77**											
Single Item Measure Correlations																		
9. Profit (£m) Last Year	0.07	-0.05	0.04	0.10	0.15	0.21*	0.06	0.17										
10. Sales Growth (£m) Last Year	-0.11	-0.14	-0.20*	-0.01	0.25**	0.18	-0.03	0.02	0.17									
11. Profit (£m) Previous Year	0.09	-0.04	0.07	0.11	0.15	0.21*	0.11	0.22*	0.98**	0.11								
12. Sales Growth (£m) Previous Year	0.13	0.00	0.06	0.09	0.22*	0.19*	-0.01	-0.12	-0.06	-0.27**	-0.04							
13. Return on Sales (%) Last Year	0.03	-0.11	0.03	0.03	0.14	0.26**	-0.04	0.12	0.82**	0.13	0.78**	-0.04						
14. Sales Growth (%) Last Year	0.02	-0.04	-0.14	0.19*	0.40	0.33	0.21*	0.16	0.17	0.68**	0.13	-0.14	0.14					
15. Return on Sales (%) Previous Year	0.05	-0.11	0.05	0.00	0.14	0.27**	-0.02	0.13	0.74**	0.10	0.73**	-0.02	0.98**	0.12				
16. Sales Growth (%) Previous Year	-0.10	-0.18	-0.12	0.02	-0.18	-0.09	-0.15	-0.14	-0.07	-0.12	-0.05	0.08	-0.03	-0.10	-0.02			
17. Size (1000 units)	0.25**	0.06	0.20*	0.05	0.18	0.10	0.15	0.16	0.31**	0.10	0.31**	0.00	0.04	0.07	0.01	-0.02		
18. Market Orientation (Composite)	0.73**	0.77**	0.65**	0.02	0.18	0.21*	0.33**	0.37**	0.02	-0.20*	0.05	0.08	-0.03	-0.07	-0.02	-0.19*	0.23*	

** $p = 0.01$

* $p = 0.05$

CHAPTER 7: MODEL TESTING

7.1. OBJECTIVES

The objectives of this chapter are to (a) explain how the model to test the hypotheses was specified, and (b) test the hypotheses formulated in Chapter 3. First, the analysis strategy sets out the issues that were considered prior to testing the hypotheses. Next, the model is specified and fit statistics are presented. Finally, the hypotheses are tested and the results presented.

7.2. ANALYSIS STRATEGY

7.2.1. Non-linearity and Quadratics

In the conceptual model chapter (Chapter 3) it was hypothesized that a curvilinear relationship exists between market orientation and performance. In particular, for revenue-based performance it was hypothesized that each incremental increase in market orientation would lead to diminishing incremental performance benefits (figure 3.1, Chapter 3) resulting in a negative exponential shaped relationship between market orientation and revenue-based performance. For cost-based performance it was argued that the costs of engendering a market orientation could exceed the benefits thus resulting in an inverted U-shape relationship between market orientation and cost-based performance. Curvilinear relationships may be modelled, using linear analysis techniques, by transforming the market orientation variable (Ping 1995, Little et al 2006). Rather than undertaking two different transformations for each of the cost-based and revenue-based relationships, a more parsimonious model may be achieved by using a *quadratic* transformation to model both the negative exponential shape and inverted U-shape relationships. Thus market orientation was squared in order to model the curvilinear relationships.

7.2.2. Moderation: Interactions and Multi-Group Analysis

The relationships between market orientation and performance were hypothesized to be moderated by two environment variables, the competitive environment and the recession. The competitive environment was measured with two items using a 7-

point Likert-type scale. This measure was considered continuous. In contrast the recession measure was categorical in nature. As the recession and pre-recession environments were temporally separated (Section 6.4.3), the recession environment was measured using performance over the *last year*, and the pre-recession environment was measured using performance in the *previous year*.

A moderator effect may be modelled by using either multi-group analysis or continuous variable interaction (Hair et al 2006). Multi-group analysis is particularly suited to categorical variables, and thus was used to test the moderating effect of the recession. Structural Equation Modelling (SEM) based techniques are particularly suitable for multi-group analysis as they allow models containing multiple dependent variables and the attenuation of measurement error which multiple regression techniques do not. Hair et al (2006) set out a procedure of constraining the relationships in each group to be equal and then comparing the fit of this model to one in which the relationships are freely estimated in each group. This procedure was followed to test the moderating effect of the recession.

Ping (1995, p336) argued that “subgroup analysis approaches that involve sample splitting to detect the variables are criticized for their reduction of statistical power and the resultant likelihood of false disconfirmation”. Using the sub-group procedure for testing the moderating effect of *competitiveness* would have required splitting the sample into two or more groups each representing a distinct level of competitiveness. Splitting the sample into two groups would have resulted in a sub-group sample size of 56 dealerships. This would have imposed an unnecessary reduction in power. Consequently sub-group analysis was rejected in favour of the interaction variable method, in which the market orientation terms (both simple and quadratic) are multiplied by competitive environment (see Aguinis 1995). In particular, the latent variable technique (Ping 1995) described in Section 7.2.4 was followed.

7.2.3. Multicollinearity and Residual-Centering

As Little et al (2006, p498) argued, one of the main problems of using quadratic and multiplicative interaction terms, is that the resulting “product term may be highly correlated with the first-order ... variables from which it is derived”. When the product term and first-order terms are used together to predict another variable, their collinearity causes problems with model estimation (Little et al 2006). The residual

centering approach (Lance 1988) offers a way of remedying the problems caused by multicollinearity. As Little et al (2006, p500) described, residual centering (or orthogonalising) is “a two-stage procedure in which a product term or powered term is regressed onto its respective first order effects. The residuals of this regression are then used to represent the interaction or powered effect. The variance of this new orthogonalised interaction term contains the unique variance that fully represents the interaction effect, independent of the first order effect variance”. Thus, to avoid potential multicollinearity issues, the quadratic and interaction variables were orthogonalised using the residual-centering approach.

7.2.4. Latent Variables: Interactions, Quadratics, and Residual-Centering

Ping (1995, p336) argued that, for indicant product analysis, “specification of (interaction or quadratic) variables can become arduous” and “furthermore, significance tests and model fit statistics produced by popular estimators, such as maximum likelihood, are considered inappropriate”. Instead Ping (1995) proposed that single indicants, rather than indicant product analysis, may be used to specify the latent variable interactions. Using the parameter estimates from a linear (i.e. simple) terms only measurement model Ping presented formulas for calculating the loading and error values for these single indicant quadratic and interaction terms. In a series of simulated datasets Ping (1995, p342) demonstrated that the technique “performed adequately on the basis of the estimation results, the detection of significant effects, and the model-to-data fit”.

Ping’s technique also has the benefit of greatly simplifying the residual-centering of the quadratic and interaction terms described in the previous section. Thus Ping’s procedure was used to model the quadratic and interaction terms required for testing the hypotheses. In particular, all exogenous multi-item latent variables were converted to single items by calculating an average of the measures’ constituent items. The quadratic and interaction variables were calculated by squaring or multiplying the relevant single-item terms and then the variables were residual-centered. Finally, the errors and loadings of the interactions and quadratics were calculated using Ping’s (1995) formulas and entered into the structural model.

7.2.5. Single Item Measures

The objective performance measures and the control for size were all single-item measures. Single item measures require the item's parameters, the measurement path and error, to be set based on the best knowledge available (Hair et al 2006). The respondent was a senior manager in the dealership (Chapter 5, figure 5.4). As a senior manager, it was expected that the respondent had access to management reports. Hence the accounting measures reported in the questionnaire were likely to be based on the dealership's management and accounting reports and thus could be considered mostly error free.

For single item measures Hair et al (2006, p857) suggested setting the item loading to "the square root of the estimated reliability", and the error term to "1 – the reliability estimate". Using the multi-item subjective performance measures' reliabilities (Chapter 6, figure 6.5) as a guide, it was considered that the objective measures should be attributed reliabilities in excess of 98%. Given the limited scope for increasing the reliabilities and for simplicity the objective performance measures were considered error free and assigned a loading of 1.

7.2.6. Performance Measures and Error Correlations

As performance is a multi-dimensional construct it may be expected that different performance measures will correlate highly with each other. In addition time series data may be auto-correlated. In order to test the hypotheses, each of the three model sets included two types of performance (cost-based and sales based) for two different time periods, *last year* and the *previous year*. Evidence of the strong correlations between the performance measures is provided in Chapter 6, figure 6.5. In recognition of these high correlations the error co-variances of the latent performance measures were specified to freely co-vary.

7.2.7. Sample Size to Parameter Estimate Ratio

As discussed in Chapter 6 (Section 6.4.4) the analyses were split into three sets of theoretically related measures in order to reduce the number of parameters that needed to be estimated in any one model. The three sets were: (i) absolute objective

performance (pounds sterling values for profit and sales growth), (ii) relative objective performance (percentage values for return on sales and sales growth), and (iii) subjective performance (Likert-type scales for profitability, profit, sales growth and market share growth). Each set included the respective performance measures and the measures for market orientation, the competitive environment, and a control variable for firm size in the new car market.

7.2.8. Procedure

The model and hypotheses were tested with a structural model using maximum likelihood estimation in the Lisrel software package. As argued in the CFA the maximum likelihood estimation technique was chosen as it was one of the most widely used approaches and was proven to be fairly robust to violations of the normality assumption (Hair et al 2006).

Each of the three sets of measures was assessed in a separate model. The models were specified with freely estimated directional paths from all the exogenous variables (market orientation, competitive environment, interaction and quadratic variables) to the endogenous performance variables. Each model was re-specified restricting each path to zero and testing for a significant deterioration in model fit. All the paths that did not lead to a significant worsening in model fit were restricted to zero and this model was compared to a model with all paths freely estimated. If the restricted model was not significantly worse than the freely estimated model then it was accepted as a parsimonious representation of the relationships in the sample data (Singh 1995, Cadogan et al 2001). With the significant paths determined the hypotheses were then tested.

7.3. MODEL TESTING

Initially, each of the three sets of models was specified to have six exogenous single indicant latent variables (size, competitiveness, market orientation, market orientation squared, the interaction of market orientation and competitiveness, and the interaction of market orientation squared and competitiveness) which were specified to have directional paths to the four latent endogenous performance measures (cost-based and revenue-based performance in the last year and the previous year). The

objective performance measures were all single indicant latent variables and the subjective performance measures were both two-item latent variables. The model fit for the three sets of models is presented in figure 7.1 with the description “all paths freely estimated” (1a, 2a, and 3a).

In order to establish a parsimonious model, the specified relationships were tested to determine the paths which contributed to model fit. Consecutively, each path was restricted to zero and the chi-squared statistic examined for a significant change in model fit. Paths which resulted in a significant worsening in model fit when restricted were subsequently specified to be freely estimated. Paths which did not significantly worsen model fit when restricted continued to be restricted to zero. Due to the relatively small sample size (113 dealerships), which reduces the power to detect significant relationships, a Chi-squared significance level of 10% was chosen as the selection criteria. In one instance, a path outside the criteria ($MO^2 \rightarrow$ Absolute Sales Growth) was allowed to be freely estimated as its inclusion in the parsimonious model provided some insight into one of the hypotheses.

Fig. 7.1: Structural Model Fit Statistics and Indices for the Three Sets of Measures.

Model	I.D.	χ^2	df	P	RMSEA	CFI	NNFI	GFI
1. Absolute Objective Performance								
All paths freely estimated	1a	0	0	1.00				
Non-significant paths restricted to zero	1b	7.30	11	0.77	0.00	1.00	1.04	0.99
$\Delta \chi^2$	1c	7.30	11	0.77				
2. Relative Objective Performance								
All paths freely estimated	2a	0	0	1.00				
Non-significant paths restricted to zero	2b	18.92	23	0.71	0.00	1.00	1.02	0.97
$\Delta \chi^2$	2c	18.92	23	0.71				
3. Subjective Performance								
All paths freely estimated	3a	53.00	38	0.05	0.06	0.99	0.96	0.94
Non-significant paths restricted to zero	3b	59.89	56	0.34	0.02	0.99	0.99	0.93
$\Delta \chi^2$	3c	6.89	18	0.99				

I.D.: model identification code.

Once all paths were tested, and specified as either restricted to zero or freely estimated, the model was compared to the original one with *all* paths free. Figure 7.1 presents the fit statistics for the parsimonious models (1b, 2b, and 3b) and the

change in fit (1c, 2c, and 3c) from the fully free models (1a, 2a, and 3a). As may be observed, none of the parsimonious models had significantly worse fit than the fully free models even at a Chi-squared significance of 25%. Thus these models were accepted as a parsimonious representation of the relationships in the dataset.

For the three model sets - absolute objective, relative objective, and subjective performance - there were 13, 1, and 6 paths, respectively, in the parsimonious models (figures 7.2 and 7.3). Of these, there were 10, 0, and 4 paths from market orientation to performance, respectively. This indicated that each set of performance measures had a different set of relationships with market orientation.

7.4. HYPOTHESIS TESTING AND RESULTS

Figure 7.2 presents the standardised path estimates and t-statistics for the three model sets prior to the recession. As may be observed, the different model sets had distinctly different relationships. To better understand these results it may be helpful to briefly review the performance measures used in each set. The cost-based and revenue-based measures used for absolute objective performance were *profit (£ million)* and *sales growth (£ million)*, respectively. The same measures for relative objective performance were *return on sales (%)*, and *sales growth (%)*. Both sets of objective measures use the time periods *last year* for recession performance and *previous year* for pre-recession performance. Likert-type *relative to your competitors'* performance was used for subjective measures. Both cost-based and revenue-based subjective measures were two-item latent variables. The cost-based items were *profit* and *profitability*. The revenue-based items were *sales growth* and *market share growth*. The time periods used for subjective performance were *last year* for recession and *average over the last three years* for pre-recession performance.

All twenty-four path estimates for each model are presented in figures 7.2 and 7.3. Figure 7.2 reports pre-recession path estimates. The pre-recession figures were considered to reflect a more normal environment and may be more readily generalised than those for the recession. Thus the pre-recession results were used to test hypotheses 1 through to 9. For information and corroboration, the results during the recession are reported in figure 7.3. The hypothesis tested by each path is noted in the second column of the table.

Fig. 7.2: Pre-Recession Performance: Hypotheses and Path Estimates.

Path	Hyp.	Absolute (£)		Relative (%)		Subjective	
		Std. Est.	T-stat*	Std. Est.	T-stat*	Std. Est.	T-stat*
Size (units sold) → Revenue-based		-	-	-	-	-	-
Size (units sold) → Cost-based		0.343	4.01	-	-	-	-
Market Orientation (MO) → Revenue-based	H1a	-	-	-	-	0.359	3.72
Market Orientation (MO) → Cost-based	H1b	-	-	-	-	0.405	4.31
MO ² → Revenue-based	H3	-0.133	-1.51	-	-	-	-
MO ² → Cost-based	H4	-0.166	-1.92	-	-	-	-
Competitiveness → Revenue-based	H5	-	-	-	-	-	-
MO x Competitiveness → Revenue-based	H6	0.286	3.29	-	-	-	-
MO ² x Competitiveness → Revenue-based	H6	-	-	-	-	-	-
Competitiveness → Cost-based	H7	-	-	-	-	-	-
MO x Competitiveness → Cost-based	H8	0.187	2.16	-	-	-	-
MO ² x Competitiveness → Cost-based	H9	0.152	1.77	-	-	-	-

“-”: not significant.

* As all hypotheses are directional one-tailed tests were used: t=1.282 ($\alpha=.10$), t=1.645 ($\alpha=.05$), t=2.326 ($\alpha=.01$).

Note: Pre-recession subjective performance is measured by the average performance over the last three years.

Fig. 7.3: Recession Performance: Hypotheses and Path Estimates.

Path	Hyp.	Absolute (£)		Relative (%)		Subjective	
		Std. Est.	T-stat*	Std. Est.	T-stat*	Std. Est.	T-stat*
Size (units sold) → Revenue-based		0.174	1.91	-	-	0.107	1.78
Size (units sold) → Cost-based		0.342	4.02	-	-	-	-
Market Orientation (MO) → Revenue-based	H1a	-0.197	-2.12	-	-	0.176	1.70
Market Orientation (MO) → Cost-based	H1b	-	-	-	-	0.230	2.35
MO ² → Revenue-based	H3	-	-	-	-	-	-
MO ² → Cost-based	H4	-0.154	-1.79	-	-	-	-
Competitiveness → Revenue-based	H5	-	-	0.193	1.94	-	-
MO x Competitiveness → Revenue-based	H6	-	-	-	-	-	-
MO ² x Competitiveness → Revenue-based	H6	0.194	2.20	-	-	-	-
Competitiveness → Cost-based	H7	-	-	-	-	0.182	2.86
MO x Competitiveness → Cost-based	H8	0.198	2.31	-	-	-	-
MO ² x Competitiveness → Cost-based	H9	0.182	2.13	-	-	-	-

“-”: not significant.

* As all hypotheses are directional one-tailed tests were used: t=1.282 ($\alpha=.10$), t=1.645 ($\alpha=.05$), t=2.326 ($\alpha=.01$).

For the *relative* performance model none of the pre-recession path estimates had significant model fit or t-values (figure 7.2). During the recession, *one* of the relative performance path estimates was significant but only for the competitive environment and not market orientation. Given that the hypotheses primarily concern the relationship between *market orientation* and performance it was concluded that the hypotheses were not supported by the results of the *relative* performance model. Thus the relative performance results are not considered any further in this chapter, but a potential rationale for the lack of a relationship between market orientation and relative performance is offered in the next chapter. The testing of the hypotheses using the absolute objective and subjective models follows.

H1a: A market orientation enhances revenue-based performance.

The hypothesis is supported if the path from the simple market orientation term to the revenue-based performance term is significant and positive. As may be observed from figure 7.2, the path to *sales growth* was not significant and therefore the hypothesis was *rejected* for the *absolute* objective measure. However the t-statistic for *subjective* performance model was highly significant ($\alpha=.01$). Thus the hypothesis that market orientation enhances revenue-based performance is *supported* by the subjective measure.

H1b: A market orientation enhances cost-based performance.

The hypothesis is supported if the path from the simple market orientation term to cost-based performance is significant and positive. Similarly to the first hypothesis (H1a), the path was not significant (figure 7.2) for *profit* and thus the hypothesis was *rejected* for the *absolute* objective measure. Again the t-statistic for *subjective* performance path was highly significant ($\alpha=.01$) and thus the hypothesis that market orientation enhances cost-based performance was *supported* by the subjective measure.

H2a: Market orientation's relationship with cost-based performance is stronger than its relationship with revenue-based performance.

The hypothesis is supported if the path from the market orientation term to cost-based performance is significantly larger than the path from market orientation to revenue-based performance. For the *absolute* objective model the simple market orientation terms for both profit and sales growth were not significant but the corresponding quadratic terms were significant (figure 7.2). The path estimate of the quadratic term indicates the strength of the relationship between market orientation and performance. Thus the hypothesis is supported if the path estimate from the quadratic market orientation term to *profit* is significantly stronger than the *sales growth* path estimate. As may be observed from figure 7.2 the *absolute* size of the cost-based path estimate (-0.166) was indeed larger than the sales growth path estimate (-0.133), providing some support for the hypothesis. Thus a formal test was undertaken to determine whether the difference was significant. Both performance variables were standardized and the paths from the squared market orientation term to the *profit* and *sales growth* terms were specified to be equal. The model fit results of this test are presented in figure 7.4. When compared to the parsimonious model, the Chi-squared statistic for the equivalence model changed by a trivial amount indicating that the two path estimates were not significantly different. Thus the hypothesis that market orientation's relationship with cost-based performance is stronger than its relationship with revenue-based performance is *rejected* for the absolute objective measures.

Fig. 7.4: Path Estimate Equivalence: Pre-recession Performance.

Model	Hyp.	X ²	Df	Δ X ²	Δ df	P
Set (MO ² → Revenue) equal to (MO ² →Cost-based): Absolute	H2	7.37	12	0.07	1	0.79
Set (MO→ Revenue) equal to (MO →Cost-based): Subjective	H2	61.39	57	1.50	1	0.22

For the *subjective* model, the only significant paths were from the simple market orientation term to cost-based and revenue-based performance (figure 7.2). The cost-based path estimate (0.405) was larger than the revenue-based one (0.359), suggesting some support for the hypothesis. The paths estimates were therefore set to be equal and the model fit statistics compared to the parsimonious model (figure 7.4). The restricted model fit was not significantly worse than the freely estimated model indicating that the paths were not significantly different from each other. Thus

the hypothesis that market orientation's relationship with cost-based performance is stronger than its relationship with revenue-based performance was also *rejected* for the subjective performance measures.

H2b: Market orientation explains more of the variation in cost-based performance than in revenue-based performance.

The hypothesis is supported if the variance explained (squared multiple correlation) attributable to the market orientation terms are substantially greater for cost-based performance than for the revenue-based measure. Figure 7.5 presents the squared multiple correlations (SMC) for both performance models. For the *absolute* objective performance model, market orientation explained 8.6% of the variance in *profit* and 10.6% of the variance in *sales growth*. Thus the anticipated relationship was reversed and the hypothesis that market orientation explains more of the variation in cost-based performance than in revenue-based performance was *rejected* for the absolute objective measures.

Fig. 7.5: Squared Multiple Correlations: Pre-recession Performance.

Model	Absolute Objective (£)			Subjective Performance		
	Profit	Sales Growth	Difference	Cost-based	Revenue-based	Difference
All paths freely estimated	0.195	0.116	0.079	0.182	0.141	0.041
All MO terms restricted to zero	0.109	0.010	0.099	0.028	0.025	0.003
MO contribution to SMC	0.086	0.106	-0.020	0.154	0.116	0.038
Parsimonious model	0.185	0.100	0.085	0.164	0.129	0.035

For the *subjective* performance model the market orientation terms explained 15.4% of the variance in cost-based performance and only 11.6% of the variance in revenue-based performance, a difference of 3.8 percentage points. This difference was considered substantial and therefore the hypothesis that market orientation explains more of the variation in cost-based performance than revenue-based performance was *supported* by the subjective measures.

H3: As market orientation increases the incremental revenue-based performance benefits diminish.

The hypothesis is supported if the relationship has linear *and* curvilinear components. Specifically, support is provided if path from the simple market orientation term to revenue-based performance is significant and positive *and* the squared market orientation term to revenue-based performance is significant and negative. For *absolute* objective performance the path from the squared market orientation term to *sales growth* is negative and significant (figure 7.2), but the simple market orientation term is not significant. However, the simple market orientation interaction with competitiveness is significant providing support for a linear component to the relationship. Thus the hypothesis was considered *supported* in the absolute objective performance model. The quadratic term was not significant in the *subjective* performance model and thus the hypothesis was *rejected* for this model.

H4: The relationship between market orientation and cost-based performance is inverted U-shaped.

The hypothesis is supported if the path from the squared market orientation term to cost-based performance is significant and negative *and* the simple market orientation term is not significant. For *absolute* performance the path from the squared market orientation term to *profit* is negative and significant ($\alpha=.05$, figure 7.2) and the simple market orientation term is not significant. Thus the hypothesis that the relationship between market orientation and cost-based performance is inverted U-shaped was *supported* by the absolute objective measure. The squared market orientation term was not significant in the *subjective* performance model whilst the simple market orientation term was significant, thus the hypothesis was *rejected* for this model.

H5: As the environment becomes more competitive, revenue-based performance is enhanced.

The hypothesis is supported if the path from the simple competitiveness term to revenue-based performance is significant and positive. This path was not significant for either the absolute objective or subjective models. Thus the hypothesis was *rejected* for both measures.

H6: As the environment becomes more competitive, the relationship between market orientation and revenue-based performance becomes stronger. Conversely, as competition declines, the relationship may weaken to the point that it becomes predominantly negative.

The hypothesis is supported if the path from the market orientation interaction with competitiveness to revenue-based performance is significant and positive or if the path from the squared market orientation interaction with competitiveness to revenue-based performance is significant and in the same direction as squared market orientation term.

For *sales growth* the market orientation interaction with competitiveness is significant (figure 7.2). However the squared market orientation with competitiveness is also significant but directionally opposite to the squared market orientation term. In order to determine the net outcome of these two significant paths the relationship between market orientation and sales growth was charted (figure 7.6). The relationship was charted using coefficients from a mean-centered SPSS regression analysis. The market orientation scale is mean centred with the observed values in the sample ranging from -2.2 to +2.7.

Fig. 7.6: MO and Objective Performance, Competitive & Uncompetitive Environments.

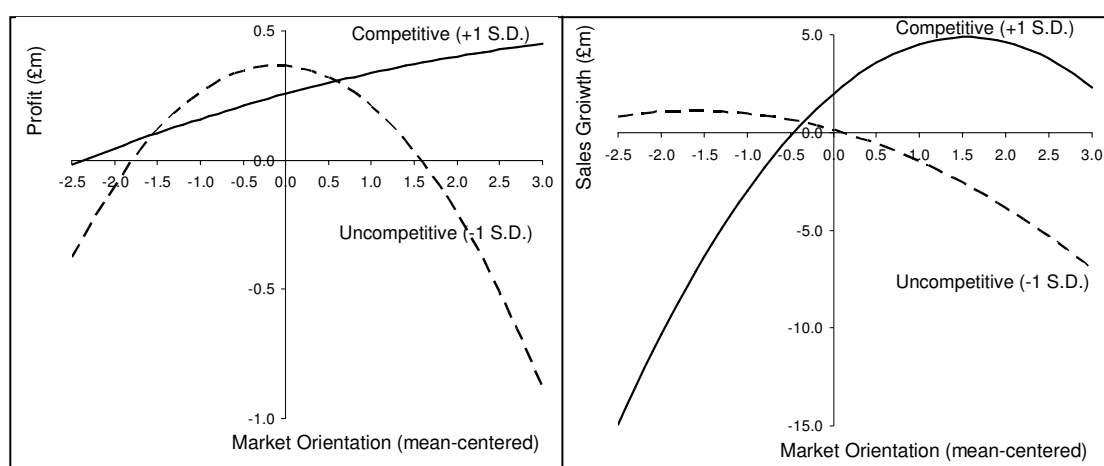


Figure 7.6 illustrates that the relationship between market orientation and sales growth in an uncompetitive environment (i.e. competitiveness one standard deviation below the mean) is principally negative. Conversely the relationship in a competitive environment (i.e. competitiveness one standard deviation above the mean) is primarily positive. Thus the hypothesis that the relationship between market

orientation and revenue-based performance becomes stronger as the environment becomes more competitive is *supported* in the absolute objective model. The interaction terms were not significant in the *subjective* performance model and thus the hypothesis was *rejected* for this model.

H7: As the environment becomes more competitive, cost-based performance is reduced.

The hypothesis is supported if the path from the simple competitiveness term to cost-based performance is significant and negative. This path was not significant (figure 7.2) for either the absolute objective or subjective cost-based performance measure. Thus the hypothesis that cost-based performance is reduced as the environment becomes more competitive was rejected for both models.

H8: As the environment becomes more competitive, the maximum cost-based performance occurs at a progressively higher market orientation level.

The hypothesis is supported if the path from the market orientation interaction with competitiveness to cost-based performance is significant and positive. For *profit* the path is positive and highly significant (figure 7.2). Thus the hypothesis that the optimal cost-based performance occurs at a progressively higher market orientation level as competition increases was *supported* by the *absolute* objective measure.

Figure 7.6 illustrates that in an uncompetitive environment (i.e. one standard deviation less competitive than average) the optimal profit occurs at approximately the mean market orientation level. In contrast, in a competitive environment (i.e. one standard deviation above average) the optimal profit occurs beyond the range of the highest market orientation level observed in the sample. The interaction terms were not significant in the *subjective* performance model and thus the hypothesis was *rejected* for this model.

H9: As the environment becomes more competitive, the relationship between market orientation and cost-based performance becomes stronger.

The hypothesis is supported if the path from the squared market orientation interaction with competitiveness (i.e. $MO^2 \times Competitiveness$) to cost-based performance is significant and in the same direction as squared market orientation term. Figure 7.2 indicates that this term for *profit* is highly significant but in the opposite direction to that hypothesized. Thus the hypothesis that the cost of a sub-optimal market orientation increases as competition increases is rejected for the absolute objective performance model. The interaction terms were not significant in the *subjective* performance model and thus the hypothesis was also *rejected*.

H10: In a recession environment, revenue-based performance is reduced.

The hypothesis is supported if the constant in the *sales growth* equation of the recession model is significantly lower than the constant in the pre-recession model. Lisrel does not provide an estimate for the constant as part of the standard output. However it is possible to use group analysis within Lisrel to test for differences between constants. The sample was randomly split into two groups of 56 dealerships to ensure independence of observations between the groups. The *sales growth* data for the pre-recession group used the *previous year's* sales growth, and the recession group used *last year's* sales growth. The model was specified as described in section 7.3 with all the quadratic and interaction terms so that the constant was tested in the presence of all the significant relationships. Then the recession group was specified to have a constant.

Unsurprisingly, for such a small sample size and a large number of parameters to be estimated, the model fit was poor ($\chi^2 = 205.99$, $df = 50$). However the model converged and the estimate and statistics for the constant were calculated. The t-statistics for difference in constants ($t = -0.54$) indicated that there was no significant difference in the constant estimate between the recession and pre-recession groups. Thus the hypothesis that revenue-based performance is reduced during a recession was *rejected* for the absolute performance measure. No analysis was undertaken for the subjective model as the performance measures used were *relative to competitors*. Thus it was not possible to test for an absolute reduction in performance during a recession when compared to pre-recession.

H11: In a recession environment, the relationship between market orientation and revenue-based performance becomes weaker. The relationship may even weaken to the point that it is no longer detectable or it becomes negative.

The hypothesis is supported if the path from market orientation to revenue-based performance in a recession is significantly lower than the path from market orientation to revenue-based performance pre-recession. Alternatively, the hypothesis is supported if the path from the squared market orientation term to revenue-based performance in a recession has a significantly lower absolute value than the path from squared market orientation to revenue-based performance pre-recession.

Fig. 7.7: Path Equivalence: Recession and Pre-Recession, Objective Performance.

Model	Hyp.	X ²	Df	Δ X ²	Δ df	P
<i>Fully Free Model</i>		<i>0.00</i>	<i>0</i>			
Set MO → Revenue-based paths equal	H11	4.60	1	4.60	1	0.03
Set MO ² → Revenue-based paths equal	H11	0.84	1	0.84	1	0.36
Set MO x Competitiveness → Revenue-based paths equal		2.91	1	2.91	1	0.09
Set MO ² x Competitiveness → Revenue-based paths equal		3.78	1	3.78	1	0.05
Set MO, MO², MO x Comp, MO² x Comp → Revenue-based		11.22	4	11.22	4	0.02
Set MO → Cost-based paths equal	H13	3.63	1	3.63	1	0.06
Set MO ² → Cost-based paths equal	H14	0.46	1	0.46	1	0.50
Set MO x Competitiveness → Cost-based paths equal		0.54	1	0.54	1	0.46
Set MO ² x Competitiveness → Cost-based paths equal		3.07	1	3.07	1	0.08
Set MO, MO², MO x Comp, MO² x Comp → Cost-based		7.11	4	7.11	4	0.13

Figures 7.7 and 7.8 present the results of the recession and pre-recession equivalence tests for the absolute objective and subjective performance measures respectively. The performance variables were standardised then the equivalence test restricted the path of the exogenous variable to recession performance to be equal to the path from the same exogenous variable to the analogous pre-recession performance variable. The fit statistic was then examined for a significant change in model fit compared to the freely estimated model. For the objective measures the fully-free model (figure 7.1, 1a) was used as the comparison model because some of the path estimates to be examined were not significant in the parsimonious model.

For absolute objective performance (figure 7.7), the path from market orientation to *sales growth* in the recession was -1.97 and the pre-recession path was not significant (figures 7.2 and 7.3). This indicated some support for the hypothesis. When the recession and pre-recession paths from market orientation to *sales growth* were set to be equal, the model fit worsened significantly indicating support for the hypothesis. Thus the hypothesis that the relationship between market orientation and revenue-based performance becomes weaker during a recession was *supported* by the absolute objective measure. The squared market orientation path to sales growth prior to the recession was -0.133 and the recession path was not significant (figures 7.2 and 7.3). This also suggested support for the hypothesis. However, the model did not exhibit significantly reduced fit when the paths were constrained to be equal. Although the squared market orientation term did not support the hypothesis, it was not necessary as the hypothesis had already been supported by the simple term.

For subjective performance the standardised path estimate from market orientation to pre-recession revenue-based performance was 0.359 (figure 7.2) and the recession standardised path estimate was 0.176 (figure 7.3). This suggested that the path had weakened in the recession and provided some support for the hypothesis. Thus the paths were tested for equivalence (figure 7.8). When the paths were constrained to be equal there was a significant worsening in model fit indicating support for the hypothesis. Thus the hypothesis that the relationship between market orientation and revenue-based performance becomes weaker during a recession was *supported* in subjective performance model.

Fig. 7.8: Path Equivalence: Recession and Pre-Recession, Subjective Performance.

Model	Hyp.	χ^2	Df	$\Delta \chi^2$	Δdf	p
<i>Parsimonious Model</i>		59.89	56			
Set MO → Revenue-based paths equal	H11	63.55	57	3.66	1	0.06
Set MO → Cost-based paths equal	H13	62.93	57	3.04	1	0.08

H12: In a recession environment, the entire profit curve shifts to a lower level of cost-based performance.

The hypothesis is supported if the constant in the recession equation for *profit* is significantly lower than the constant in the pre-recession equation. As discussed previously (see Hypothesis 10) Lisrel does not provide an estimate for the constant as part of the standard output. Therefore the same group analysis reported in H10 was used to test this hypothesis. The t-statistics for difference in constants ($t = -3.65$) indicated that there was a highly significant difference in the constant estimate between the recession and pre-recession groups. Thus the hypothesis that profit is reduced during a recession was *supported* for the absolute performance measure. No analysis was undertaken for the subjective model as the performance measures used were *relative to competitors*. Thus it was not possible to test for an absolute reduction in performance during a recession using subjective performance.

H13: In a recession environment, maximum profitability occurs at a lower market orientation level.

The hypothesis is supported if the path from market orientation to cost-based performance in the recession is significantly lower than the path from market orientation to cost-based performance pre-recession. For absolute objective performance these paths were not statistically significant and therefore were not reported in figures 7.2 and 7.3 for the parsimonious model. Even though the paths were not significant they still help determine the optimal point of the profit curve. Thus the fully-free model was used in order to determine whether the path estimates provided some support for the hypothesis. The path estimate for market orientation to *profit* in the pre-recession model was -0.03 and for the recession model -0.07, indicating some support for the hypothesis. Thus the paths were tested for equivalence. When the paths were constrained to be equal there was a significant worsening in model fit (figure 7.7) indicating support for the hypothesis. Thus the hypothesis that optimal profitability occurs at a lower market orientation level during a recession was *supported* in absolute objective performance model.

The hypothesis (H13) clearly relates to a curvilinear relationship. As a curvilinear relationship does not exist between market orientation and *subjective* cost-based performance the hypothesis is *rejected* for the subjective measure. However, the

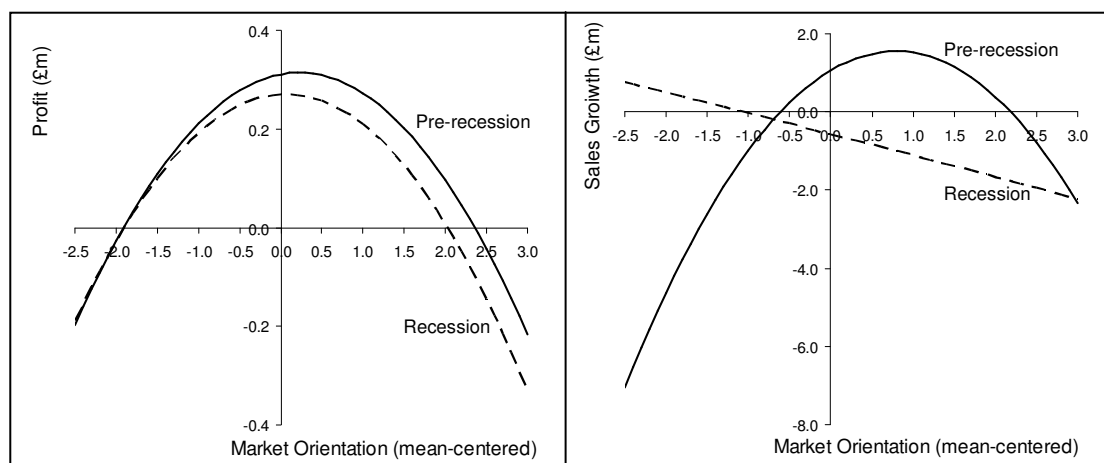
standardised path estimate for the relationship between market orientation and subjective cost-based performance pre-recession was 0.405 (figure 7.2) and the recession standardised path estimate was 0.230 (figure 7.3). This suggested that the relationship had weakened in the recession. Thus the paths were tested for equivalence (figure 7.8). When the paths were constrained to be equal there was a significant worsening in model fit indicating that market orientation's relationship with subjective cost-based performance had weakened in the recession.

H14: *In a recession environment, the relationship between market orientation and cost-based performance becomes weaker on the uphill side of the profit curve, and stronger on the downhill side.*

The hypothesis is supported if the path from squared market orientation to profit in the recession is significantly different to the path from squared market orientation to pre-recession profit. For profit (figure 7.7), fit did not significantly deteriorate when the paths were constrained to be equal. Thus the hypothesis that the benefits of optimal market orientation are less pronounced in a recession was *rejected* for cost-based performance using the absolute objective measure. The squared market orientation terms were not significant in the *subjective* performance model and thus the hypothesis was *rejected* for this model.

Figure 7.9 illustrates that the relationship between market orientation and absolute objective performance in recession and pre-recession environments. The charts use coefficients from a mean-centered SPSS regression analysis. The market orientation scale is mean centred with observed values ranging from -2.2 to +2.7. During recession the profit curve shifts both to a lower level of profitability and a lower level of market orientation. However the overall shape and steepness of the profit curve does not appear to change substantially. Market orientation's relationship with sales growth in the recession appears quite different from that pre-recession. The tests of equivalence for the simple market orientation term indicated that the relationship between market orientation and sales growth significantly weakened in the recession.

Fig. 7.9: MO and Objective Performance, Recession and Pre-recession Environments.



7.5. CONCLUSIONS

Three sets of measures were tested in three structural models, the absolute objective, relative objective, and subjective performance models. Each model was freely estimated and tested for model fit. Paths which did not contribute to model fit were constrained to zero. This resulted in three models which parsimoniously represented the relationships in the dataset. The relative objective model did not contain significant paths for any market orientation term, and therefore it was concluded that none of the hypotheses were supported by the relative objective performance measures. Thus the hypotheses were only tested on the absolute objective and subjective performance measures.

For the absolute objective performance measures 7 of the 16 hypotheses were supported (figure 7.10). In particular, there is a curvilinear relationship between market orientation and both profit and sales growth (H3 and H4), but no linear relationship (H1a and H1b). The relationship between market orientation and sales growth becomes stronger as the environment becomes more competitive (H6). In addition the profit curve shifts to a higher level of market orientation as competition increases (H8). Recession weakens the relationship between market orientation and sales growth (H11). It also reduces profit (H12), and shifts the profit curve to a lower level of market orientation (H13).

For the subjective performance measures 4 out of 12 relevant hypotheses were supported. Contrary to the results of the absolute objective performance measures, market orientation has a linear relationship between market orientation and both revenue-based and cost-based performance (H1a and H1b) but no curvilinear relationship (H3 and H4). Market orientation explains more of the variance in cost-based performance than revenue-based performance (H2b). During recession the relationship between market orientation and revenue-based performance weakens (H11). Although not formally hypothesized the relationship between market orientation and cost-based performance also appears to weaken in a recession for subjective performance measures.

Fig. 7.10: Summary of Supported Hypotheses

Hypothesis	Absolute	
	Objective	Subjective
H1a MO enhances Sales ($MO \rightarrow Sales$).	x	√
H1b MO enhances Profit ($MO \rightarrow Profit$).	x	√
H2a MO path to Profit stronger than Sales ($MO \rightarrow Profit > MO \rightarrow Sales$).	x	x
H2b MO explains more variance for Profit than Sales (Profit SMC > Sales SMC).	x	√
H3 MO has curvilinear relationship with Sales ($MO^2 \rightarrow Sales$).	√	x
H4 MO has inverted U-shape relationship with Profit ($MO^2 \rightarrow Profit$).	√	x
H5 Competitiveness enhances Sales (Competitiveness \rightarrow Sales).	x	x
H6 Competitiveness strengthens MO - Sales ($MO \times Competitiveness \rightarrow Sales$).	√	x
H7 Competitiveness reduces Profit (Competitiveness \rightarrow Profit).	x	x
H8 Competitiveness shifts profit curve to higher MO ($MO \times Competitiveness \rightarrow Profit$).	√	x
H9 Competitiveness strengthens MO^2 - Profit ($MO^2 \times Competitiveness \rightarrow Profit$).	x	x
H10 Recession reduces Sales (Recession \rightarrow Sales).	x	-
H11 Recession weakens MO – Sales ($MO \times Recession \rightarrow Sales$).	√	√
H12 Recession reduces Profit (Recession \rightarrow Profit).	√	-
H13 Recession shifts profit curve to lower MO ($MO \times Recession \rightarrow Profit$).	√	-
H14 Recession changes MO^2 – Profit ($MO^2 \times Recession \rightarrow Profit$).	x	-

Note: H9 for absolute objective profit is significant in the opposite direction to that hypothesised.

CHAPTER 8: DISCUSSION AND CONCLUSIONS

8.1. OBJECTIVES

This chapter discusses the theories and findings of the research study. Conclusions are drawn and the contributions to theory and practice are described. Finally, the study's limitations are discussed and future research directions are proposed.

8.2. THEORY, MECHANISMS AND FINDINGS

8.2.1. Diminishing Returns, Income and Profit

Existing theory suggests that the relationship between market orientation and performance is positive and linear. This theory was extended to argue that the relationship between market orientation and performance is subject to diminishing returns. A framework applicable to different types of performance was developed. Performance measures were classified into revenue-based and cost-based, and a different curvilinear relationship was theorized for each type. Cost-based measures reflect the costs of implementing a strategy (e.g. profit growth and return on assets) whereas revenue-based measures do not (e.g. sales growth and market share).

For revenue-based performance, each incremental market oriented activity that a firm undertakes was theorized to have a smaller performance gain than the previous activity. A point is reached where further increases in market orientation yield no benefit. This diminishing returns relationship was extended to incorporate the costs of implementing market oriented activities. Each market oriented activity has an associated cost, when these costs are included in the performance measure (i.e. cost-based performance) it is possible for the costs to exceed the income generated by the activity. As returns diminish, a point may be reached where the incremental return equals the incremental cost of a market oriented activity. This is the point of *optimal* market orientation where profit is maximised. Beyond this point, costs exceed the returns and profit declines. Thus market orientation was theorised to have an inverted U-shape relationship with cost-based performance.

Three mechanisms were set out by which diminishing returns may affect the relationship between market orientation and performance - duplication, contradiction, and selection. First, as a firm undertakes more market oriented activities the latest activity may, to some degree, *duplicate* previous activities. For a firm with a high market orientation level it is possible that a new market oriented activity entirely duplicates existing activities, and thus the latest activity may have no benefit. Second, as a firm collects more information the different information sources may *contradict* each other. Such contradiction can cast doubt about the firm's most appropriate course of action and thus reduce the firm's responsiveness. Last, several options may be available to a firm to increase its market orientation. A rational firm may prioritize the activities it perceives to yield the highest returns. Thus the highest yielding activities are *selected* first, resulting in progressively lower returns for subsequent activities.

The main findings of the research study relate to the objective performance measures, in particular the absolute measures. As demonstrated in the literature review, objective performance measures are seldom used in the market orientation literature despite calls for more research with them. Thus the results for the relationship between market orientation and objective performance are of particular interest and the following discussion focuses on them. The results pertaining to subjective performance are discussed in detail in Section 8.2.4. The cost-based measure for absolute objective performance was profit (£m), and the revenue-based measure was sales growth (£m).

Given the plethora of significant linear results within the literature it might be expected that the relationship between market orientation and profit would have a linear component for low to moderate market orientation levels with optimal profit occurring at a high level and some reduction in profit thereafter (i.e. a very high market orientation level). Such a relationship would reconcile the inverted U-shaped theory presented in this study with the predominantly linear results of previous studies. A relationship of this type would involve significant relationships for both simple and squared market orientation terms. Somewhat surprisingly then, simple market orientation had no significant relationship with profit indicating the absence of any linear effect. The negative and highly significant relationship with the squared market orientation term indicated the existence of the inverted U-shape within the range of observed values. Thus the relationship fully conformed to the hypothesis.

As market orientation was hypothesized to enhance sales growth, the relationship might also be expected to have some linear component. Again the simple market orientation term was not significant. However, the market orientation interaction with the environment was positive and significant. This suggested that, at the average competitive environment level, the strength (or gradient) of the linear market orientation effect was close to zero, and therefore the simple market orientation effect was not detectable. The significant interaction term indicates that, as the environment becomes more competitive than average, sales growth (£m) increases. The opposite is also true, as the environment becomes less competitive, sales decline. Thus there is a linear component to the relationship between market orientation and sales growth, albeit a moderated one. Consequently the full U-shape is not necessarily expected within the observed range. Instead a more “linear” curve is anticipated.

Figure 7.9 in the previous chapter illustrates the relationships between market orientation and both profit (£m) and sales growth (£m). In this instance the pre-recession relationship is of primary interest. As may be observed, the optimal profit occurs close to the average market orientation level with the full inverted U-shape apparent in the observed range of market orientation values (-2.2 to +2.7). For sales growth, the relationship was primarily positive for low to moderate market orientation levels (-2.2 to +0.5). As the standard deviation of market orientation was 1.1, the positive relationship applied to the majority of dealerships within the sample. However, contrary to the hypothesis which implied that there should be no inflexion point within the range of observed values for sales growth, the relationship turned negative at high market orientation levels (1.0 to 2.7). Clearly this negative relationship for sales growth does not conform to the hypothesis.

The negative relationship may be explained by borrowing the *opportunity cost* argument used to hypothesize a potential negative relationship between market orientation and revenue-based performance in an uncompetitive or recession environment (see Chapter 3, sections 3.3.1 and 3.3.2). The opportunity cost of developing and maintaining a market orientation may be a lack of attention to, or investment in, other more productive activities. Consequently, as market orientation increases there is a corresponding reduction in focus and spending on other activities. Should the “other activities” have a stronger positive relationship with performance than market orientation, then the net effect is an overall reduction in performance. Thus the relationship with sales growth may turn negative.

Importantly, the opportunity cost effect does not cause the curvilinear relationship between market orientation and performance. The opportunity cost effect is simply the net outcome of increasing one variable and reducing another. If the two variables both have a linear relationship with performance then the net effect of reducing one and increasing the other is also linear. Similarly, if one or both variables have a curvilinear relationship with performance then the net outcome of increasing one and reducing the other is also curvilinear. In conclusion, the opportunity cost effect needs to be incorporated into the theorised diminishing returns effect to allow negative relationships between market orientation and revenue-based performance.

Finally, it was hypothesized that market orientation's relationship with profit was stronger or explained more variance than its relationship with sales growth. Given the support for these hypotheses in the literature it was somewhat surprising that neither hypothesis was supported by the objective performance measures. As a firm may follow non-profit strategies in the short term, such as market share growth, it may be that the hypothesis test was too short-term. Thus it would be interesting to see if the results differ for long term performance during a period of relative stability.

These results have implications for how market orientation is conceived in theory and implemented in practice. Market orientation is often viewed as a concept which should be culturally imbedded in an organisation (Narver and Slater 1990, Homburg and Pflesser 2000). A logical consequence of a firm successfully achieving a market oriented culture is a high level of market oriented activities and behaviours within the firm (Homburg and Pflesser 2000). The results of this study indicate that, in the new car market, having too high a level of market orientation is detrimental to a firm's profitability. Consequently, if a dealership followed the advice to develop a market oriented culture then it would experience lower profitability than competitors with lower, but more optimal, levels of market orientation. In this study, market orientation was conceptualised, not as a cultural phenomenon, but as a set of business processes evident in the activities of the firm. These activities involve the generation and dissemination of market intelligence and the firm's responsiveness to this intelligence (Kohli and Jaworski 1990). Clearly then, a firm does not necessarily need to generate a market oriented culture to benefit from market orientation but instead needs to identify the most appropriate market oriented activities to engage in and undertake those activities.

The theories and findings presented make an important and unique contribution to the market orientation literature. In particular, the mechanisms by which diminishing returns affect the relationships between market orientation and performance were explicated for the first time. Furthermore, a theory was presented which justified different relationships between market orientation and different types of performance. Objective, rather than subjective, performance measures were used to test the hypotheses. Finally the hypothesized diminishing returns effects, on the different types of performance, were found to exist in a sample of UK new car dealers.

8.2.2. Competition

The study sought to control the effects of the macro-environment by sampling from a single market within the UK. For the micro-environment it was considered that the level of competition faced by new car dealers in their catchment area could moderate the relationship between market orientation and performance. Thus the competitive environment was measured in the questionnaire using two items, one each for competitive intensity and competitor dynamism. Given the different hypothesized cost- and revenue-based performance relationships with market orientation, the two types of performance were theorized to be moderated in distinctly different ways.

The findings indicated that the strength of the relationship between the simple market orientation and sales growth was indeed moderated by the competitive environment with the relationship becoming stronger as competition increased. Figure 7.6 illustrates this relationship for competitive and uncompetitive environments. As may be observed the relationship conformed closely to that hypothesized (H6). In an uncompetitive environment, sales growth weakened to the point that the relationship was largely negative over the observed range of values. Conversely, in a competitive environment the relationship was predominantly strengthened.

For profit, the competitive environment moderated the relationship in two ways. First, the profit curve, and the point of optimal profit, shifted to a higher market orientation level as competition increased. Second, contrary to the hypothesis, the strength of the relationship weakened as competition increased. Figure 7.6 in the previous chapter illustrates the net effect. In a highly competitive environment (i.e. one standard deviation above average) the optimal market orientation shifted to such a degree it is outside the observed market orientation range. At the same time the

strength of the relationship weakened. These resulted in a positive and almost linear relationship over the observed market orientation range. Clearly, in this environment, it would be appropriate for a dealership to develop a market oriented culture as those dealerships with the highest levels of market orientation outperform the rest.

In conclusion, the competitive environment was found to be a significant moderator of the market orientation relationship for both profit and sales growth. Each type of performance was hypothesized and found to have a different moderation effect. This differential moderation effect and the nature of the moderation effect for each type of performance, contribute unique and significant insights to the literature.

8.2.3. Recession

The recession in the UK economy had commenced prior to data collection and could not be ignored. At worst, it was thought that the recession may dilute the relationship between market orientation and performance to the point that it was not detectable. Thus hypotheses were formulated for the effect of a recession on the different performance types and the appropriate data was collected to test the hypotheses. The findings indicated that the strength of the relationship between market orientation and sales growth weakened during the recession. Figure 7.9 in the previous chapter illustrates the effect of the recession. As may be observed the relationship during the recession is linear and negative which conforms to the hypothesis (H11). For market orientation's relationship with profit, the findings demonstrated that the profit curve and the point of optimum profit shifted to a lower market orientation level (H13) and profit in general declined (H12) in the recession (see figure 7.9).

In contrast to the results for the competitive environment, the strength of the market orientation - profit relationship did not change as the economy moved into recession. However it should be noted that the hypothesised relationship between market orientation and profit (H14) was asymmetric in nature (figure 3.6c, Chapter 3). When the time came to test the hypothesis, it was not clear what combination of significant terms would provide support for an asymmetric relationship. Nor was it obvious that *any* combination of simple, quadratic, and interaction terms could model an asymmetric relationship. A solution to modelling an asymmetric relationship was not found and, in the absence of a significant quadratic market orientation effect for the recession measure, the hypothesis (H14) was not supported.

The literature on market orientation during a recession is extremely limited. With little empirical evidence it is sometimes assumed that maintaining or investing in new market oriented activities in a recession is detrimental to performance. The findings for new car dealers indicated that market orientation's relationship with sales growth weakened to the point that it became predominantly negative. However, the overall profit relationship held during the recession, albeit shifted to both a lower market orientation and profit level. Consequently, those new car dealers which were at, or beyond the optimal market orientation level prior to the recession may find themselves on the downhill side of the profit curve during the recession and thus may need to reduce their market oriented activities to maximise their profit. However those firms with a sub-optimal market orientation level prior to the recession may find themselves further up the profit curve and closer to maximising their profits. These findings, and the theory behind them, shed new light on the relationship between market orientation and performance during a recession and thus make new and significant contributions to the market orientation literature.

8.2.4. Subjective Performance.

Respondents were asked to rate their dealership's new cars sales performance relative to their competitors on a 9-point Likert-type scale. The mid-point of the scale was "the same as our competitors" and either side of the scale measured varying degrees of "higher" or "lower" performance. The assessment included items for revenue-based performance (*Sales Growth, Market Share Growth*), cost-based performance (*Profit Growth, Profitability*), and an item for overall performance. Performance was evaluated "over the last year" and "over the last 3 years".

The hypotheses tested with the subjective measures were exactly the same as those used for objective performance. Before revisiting the results of the hypothesis testing it is important to note that the cost-based and revenue-based performance typology was supported by the confirmatory factor analysis. When compared to the factor suggested by the EFA, which grouped all the performance measures for each time period in a single factor, the improvement in fit for the cost-based and revenue-based classification was highly significant and the model fit was good (see figure 6.3). It was therefore concluded that the classification structure for performance, which underpinned all the hypotheses, was valid.

The findings, using subjective performance, were quite different to the objective performance findings. In particular the curvilinear effects hypothesized for both types of performance were not supported. Nor were any of the hypothesized competitive environment effects. Instead a positive *linear* relationship was found between market orientation and both types of performance. Of the two performance types, market orientation was found to explain substantially more variation in cost- than revenue-based performance. During the recession the strength of the relationship between market orientation and performance weakened significantly for both types of performance. In addition, size significantly and positively affected revenue-based performance, and the competitive environment significantly and positively affected cost-based performance in the recession.

Clearly some of the subjective performance findings contradict the objective ones. For instance, during the recession the relationship between market orientation and sales growth was negative and significant. However the analogous subjective measure was positive and significant. Reconciling these results is problematic. As argued previously, it was expected that the respondent transcribed their responses for objective performance from internal management and accounting reports, which state performance according to standard accounting procedures. Consequently, the objective performance responses are considered to have high validity and low measurement error. Potentially then, the results for objective performance could be considered more valid than the subjective performance ones. Three possible reasons for the different outcomes for subjective performance are now advanced. These are the respondent's *interpretation* of their dealership's performance, the respondent's *knowledge* of their competitors' performance and *method bias*.

As discussed previously, there are many different performance measures (e.g. profit, profit growth, unit sales growth, revenue growth, ROS, ROA, and ROI, among others). There are also many different ways that performance measures are used to evaluate success. Comparisons may be made to the annual budget, the latest estimate, the respondent's expectations, the firm's competitor's performance or developments over time. Clearly there may be too many different ways of measuring performance, and evaluating success, for the respondent to assimilate them all. Accordingly the respondent may summarise the plethora of performance measures and success criteria into an overall *interpretation* of performance. This interpretation may not reflect specific performance measures accurately and thus the informant's

responses to the subjective performance measures may contain error. However, there is no reason to expect that those respondents reporting low market orientation systematically underestimated performance whilst those with high market orientation overestimated performance. Consequently this error is unlikely to *bias* the relationship between market orientation and performance.

The respondent was asked to rate the subjective performance items relative to their competitors in the new car market. This measure was used because market orientation is commonly theorised to generate a sustainable competitive advantage (SCA). SCA suggests that a firm's long-term performance should exceed that of their competitors. The respondent was assumed to have a reasonable knowledge of their competitors' performance obtained from the movement of employees between dealerships, following-up customers who had visited the dealership on their purchase decisions, informal discussions with their counterparts, and information provided by the brand owner. However, the information obtained may be inaccurate or unreliable and thus the respondent's assessment of their performance relative to their competitors may not be accurate or reliable. However this type of error is unlikely to *bias* the relationship between market orientation and performance.

Common method variance (CMV) in this study was a potential issue because both subjective performance and market orientation were measured using Likert-type scales which were rated by the same respondent. When CMV was assessed (section 6.4.7) evidence of method bias was found in the subjective performance model but not the objective performance models. In particular the bias affected the relationships between the market orientation measures (generation, dissemination, and response) and the subjective performance measures. The absence of bias in all the other relationships in the subjective performance model (e.g. between the competitive environment and all other variables) suggested that the source of this bias was the respondent's *implicit theories* (see Podsakoff et al 2003) about the relationship between the marketing concept and performance.

Podsakoff et al (2003, p880) quoting research by Cote and Buckley (1987) noted that the amount of variance attributable to method biases in marketing studies was on average 15.8%. Given that the highest variance explained for the subjective performance measures was 15.4% (figure 7.5, Chapter 7) it is possible that the entire observed relationship between market orientation and subjective performance may be due to method bias. Inevitably some doubt must remain about the validity of the

results for subjective performance. However, it should be noted that the cost- and revenue-based performance typology was differentiated in the CFA *despite* the potential CMV which would tend to blur factor distinctions rather than enhance them.

Although the subjective and objective performance measures were supposed to measure the same dimensions of performance, the lack of strong relationships between the two sets of measures (see correlations in figure 6.5) indicated that they did *not*. The absence of bias in *all* the relationships in the *objective performance* models indicated that the common method variance in the market orientation measure did not alter or bias the relationships with other measures in the objective performance models. Consequently it was concluded that the results from objective performance models were largely free of method bias.

Method bias was not deemed to be an issue for objective performance models for four reasons. First, the responses were considered to have been sourced from internal management reports and thus were thought to be valid and reliable with extremely low error. Next, objective performance was measured using a different scale to market orientation, albeit rated by the same respondent. Third, systematic CMV is usually considered to have a linear effect, not a curvilinear or inverted U-shaped one (Chang et al 2010) such as that hypothesized and found. Finally, the relationships between market orientation and the objective performance measures were tested for method bias using the unmeasured latent variable technique. Whereas bias was identified in the subjective performance model, there was no indication of bias in the objective performance models (section 6.4.7).

The different findings for method bias in the objective and subjective performance models have implications for the market orientation literature. Research that addresses method variance by collecting data on the criterion and predictor variables from different sources (e.g. using different respondents or a secondary source for performance data) is not common in the literature (Rindfleisch et al 2008). Instead the majority of studies use subjective measures of performance (see section 2.3.3). Although post-hoc techniques for the detection of CMV are increasingly used, the latest research on the effectiveness of these techniques indicates that they are poor at detecting and correcting method bias (Richardson et al 2009).

Using a conventional method bias detection test, the post-hoc technique followed in this study did not initially identify any issues due to CMV. Further investigation, however, revealed significant changes in the relationships when the unmeasured latent variable was introduced. In particular, the majority of the relationships between market orientation and the subjective performance measures, which were significant in the non-bias model, were no longer significant when the unmeasured latent variable was introduced. These findings support Richardson et al's (2009) conclusion that the CMV tests commonly used in the literature may not be good at identifying method bias. Consequently, studies that have used these techniques in the past may have incorrectly concluded that method bias was not present. In these instances, relationships that were concluded to be substantive may instead be a result of bias.

Clearly, results supporting significant relationships between market orientation and *subjective* performance in studies that have not used different sources for the criterion and predictor variables may also be due to bias. As these studies represent the bulk of the market orientation literature, it may be that the predominant research finding that there is a positive linear relationship between market orientation and performance is not due to a substantive relationship but instead a result of method bias. Thus the findings of the literature on the relationship between market orientation and performance are undermined. Instead the curvilinear relationships proposed and found in this study may be much more common than previously found.

In conclusion the findings for subjective performance make a significant contribution to the literature by validating the cost-based and revenue-based typology proposed by Kirca et al (2005) that is central to the hypotheses tested in this study. It is often assumed that subjective performance reflects objective performance. However the results of this study indicate otherwise. Indeed, in virtually all instances where objective performance terms were significant, the corresponding subjective measure was not significant or directionally opposite, and vice versa. The significant relationships that subjective performance has with other variables may be more usefully viewed as the respondent's *interpretation* of their firm's performance, their *implicit theories* about the relationship between market orientation and performance and how their *perceptions* may be shaped by the environment faced by the respondent's firm (i.e. the competitive environment).

8.2.5. Relative Performance

The relative objective performance measures used in this study were return on sales (%), and sales growth (%). The measures are relative in that they represent the performance of the firm relative to another measure, such as size (i.e. sales revenue or assets), or the same measure for the previous year. The non-significant results indicated the complete absence of any relationship between market orientation and relative objective performance. A potential rationale is now presented that might explain the lack of a relationship.

The profit relationship in the conceptual model was accurately specified by the formula:

$$(a) \text{ Profit} = \text{Size} + \text{Env} + \text{MO} + \text{MO}^2 + \text{MO}.\text{Env} + \text{MO}^2.\text{Env}$$

Where MO is market orientation and Env is the competitive environment. Similarly, the analogous relative profit measure, return on sales (ROS), was represented as:

$$(b) \text{ ROS} = \text{Size} + \text{Env} + \text{MO} + \text{MO}^2 + \text{MO}.\text{Env} + \text{MO}^2.\text{Env}$$

As ($\text{ROS} = \text{Profit} / \text{Sales}$) the following relationship is inferred:

$$(c) \text{ Profit} = \text{Size}.\text{Sales} + \text{Env}.\text{Sales} + \text{MO}.\text{Sales} + \text{MO}^2.\text{Sales} + \text{MO}.\text{Env}.\text{Sales} + \text{MO}^2.\text{Env}.\text{Sales}$$

Return on sales (ROS) is essentially a size adjusted measure of profit with the “sales” component measuring the size of the firm. The usual way of controlling the effect of size on performance is to *add* size as an independent variable, as in equation (a). Clearly the use of a size adjusted performance measure, such as ROS, infers a *multiplicative* relationship between size and the independent variables as in equation (c). Whereas using a size adjusted performance measure may seem a good way of comparing the performance of different size firms, equation (c) suggests that it is not conceptually sound. The interaction of size with all the independent variables was not intended or argued in the conceptual model, thus equations (b) and (c) represent a misspecification of the model. A similar conclusion is reached for the relative revenue-based performance measure, sales growth (%). Thus it is argued that relative performance measures may not be appropriate for testing performance relationships other than those that have been specifically formulated for them.

The findings for the different performance measures contribute to the literature by providing guidance for researchers as to which performance measures to use when collecting data and testing hypotheses. This guidance is particularly useful for objective measures which are seldom used and thus there is little empirical evidence of what works or does not work within the literature.

8.3. CONTRIBUTION TO PRACTICE

The predominant advice to managers from the literature is that increasing a firm's market orientation improves performance. The findings of this study offer support for the performance enhancing benefits of developing a market orientation but also indicate that too high a market orientation may be detrimental to performance. Ideally managers should aim for the market orientation level which maximises performance (i.e. the optimum market orientation level). The results of this study indicate that the optimum market orientation level is dependent on the type of performance (i.e. cost-based or revenue-based) and the market environment. Thus, managers pursuing a growth strategy may wish to aim for a different market orientation level than others seeking to maximise profits.

In a competitive environment the optimal point occurs at a higher market orientation level and vice versa for an uncompetitive environment. Thus managers need to assess their environment and determine the impact of the environment on the optimal market orientation level so that they can position the firm appropriately. It is important to note that having a low market orientation is normally detrimental to performance. Thus, managers may wish to err on the side of too high rather than too low a market orientation level. Broadly, in an uncompetitive market a moderate market orientation level maximises performance and in a competitive market a very high market orientation level maximises performance.

In addition, managers need to be alert to changes in the environment. As demonstrated for new car dealers in a recession, it is possible for a change in the environment to shift the profit curve to a higher or lower market orientation level. In the case of the recession, the profit curve shifted to a lower market orientation level. Firms which had an optimal, or higher, market orientation prior to the recession will find themselves on the downhill side of the profit curve in the recession. Managers in these firms need to review their options and either prune back on market oriented

activities or maintain their market orientation level in the expectation that the pre-recession relationship will be re-established once the recession is over. This decision needs to be taken in the context of managers' views about the ease or difficulty of changing the firm's market orientation. In contrast, firms with a lower than optimal market orientation prior to the recession will move further up the profit curve and thus managers need to resist making cutbacks in their market oriented activities.

In conclusion, the findings of this study provide managers with a better understanding of the benefits and costs of a market orientation. The results suggest that firms need a moderate market orientation level in order to perform well. As the environment becomes more competitive, firms need a progressively higher market orientation level to maximise performance. However, managers need to be aware that an excessive market orientation may be detrimental to profits and sales growth. Finally managers need to be alert to changes in the environment which may have an effect on the optimal market orientation level. These insights should enable managers to maximise performance and allocate scarce resources more effectively.

8.4. LIMITATIONS

The study primarily concerns the nature of the causal relationship between market orientation and performance. Ideally a longitudinal study would be undertaken to test causal relationships. However, longitudinal studies are difficult, expensive and time consuming to administer and thus a cross-sectional design was used to collect the data. Cross-sectional studies use the weaker test of *association* rather than causality. Consequently the *causality* of the hypothesized relationships was not established.

The response rate for the data collection was at the lower end of expectations. The reason for this was thought to be the inclusion of objective performance measures in the questionnaire which are widely assumed to increase non-response. The effective response rate of 13.6% may cause some to question the representativeness of the results. However, the main aim of the study was to demonstrate the existence of the hypothesized relationships rather than to determine their exact nature for new car dealers. As many of the hypothesized relationships were found to exist within the sample, the study achieved this aim.

Associated with the response rate was the sample size. Although *adequate* for testing the hypotheses the modest sample size limited the power of the statistical techniques to detect more subtle relationships. In Section 8.2.1 it was suggested that a significant relationship was not found between simple market orientation and sales growth because the strength of the relationship was close to zero. This argument was supported by the significant interaction of market orientation and the competitive environment. A larger sample size would increase the power to detect such subtle relationships and consequently more definitive conclusions may be reached. In addition a larger sample size may have allowed the testing of all the performance variables simultaneously without severely exceeding the recommended sample size to parameter estimate ratio.

Data was collected from a single respondent at each dealership. A single respondent was used because it was considered that using multiple informants would increase non-response, thereby reducing the sample size, already under pressure due to the inclusion of objective performance measures, and increasing the potential for non-response bias. Using multiple respondents would have addressed the issue of method bias between market orientation and subjective performance and allowed more definitive conclusions to be reached concerning the relationships between market orientation and the subjective performance measures.

One hypothesis (H14) was theorised to have an asymmetric relationship with profit. However, it was not clear that the statistical techniques and transformations used could model an asymmetric relationship. Consequently it is possible that the hypothesis was incorrectly rejected. The testing of curvilinear relationships is rare in the market orientation literature and an asymmetric relationship has not previously been hypothesized. If asymmetric relationships are to be tested in the future then further guidance is needed on the appropriate techniques.

The use of a single market, new cars, enabled the macro-environment and differences in industry performance to be controlled. Controlling industry performance was important because of the use of objective performance measures. If industry performance had not been controlled then differences in performance between industries may have 'drowned out' the differences in performance due to market orientation levels. However, the use of a single industry limits the extent to which the results may be generalised to other markets and industries.

8.5. FUTURE RESEARCH DIRECTIONS

The theories posited in this study, of different curvilinear relationships for different performance measures, were found to exist in the sample of UK new car dealers. These findings need to be verified in other markets and contexts using objective performance measures and bigger samples. Specifically, research into other markets is needed to determine the optimal market orientation levels in those markets. This information may then be used to provide guidance to managers.

The results for the competitive environment indicate that it plays a major role in determining the optimal market orientation level to maximise performance. More research is needed to confirm the findings for the competitive environment. In particular, it would be useful to assess whether the weakening of the quadratic effect in a competitive environment, which ran contrary to the hypothesis, is replicated in other studies. In addition, other environmental factors need to be examined in order to identify other moderators of the relationship.

An asymmetric inverted U-shape relationship was hypothesized for cost-based performance during a recession. It was not possible to properly test this hypothesis as the squared market orientation term can only test for symmetrical relationships. In order to address this issue more research is needed into appropriate techniques for assessing non-linear, and particularly asymmetric, relationships.

For new car dealers, the optimum market orientation level for maximising profitability occurred near the average market orientation level. This may suggest that the performance enhancing benefits of a market orientation for a firm are relative to the market orientation level of the firm's competitors. Rather than targeting an absolute level of market orientation, firms may need to position themselves relative to their competitors such that they are more market oriented than the majority. Thus it would be useful to examine if and how *comparative* market orientation affects performance.

Three mechanisms were theorized to cause the diminishing returns effect; duplication, contradiction, and prioritisation. However the mechanisms were not explicitly tested in the study. It would be useful to examine whether these mechanism occur in firms and identify others that may cause returns to diminish. Such information may enable firms to identify whether they are devoting too much, or not enough, time, effort and resources to market oriented activities.

Market orientation was conceptualised as a business process evident in a firm's activities and behaviours. Consequently a firm may change its market orientation level by engaging in more or fewer market oriented activities. It would be useful to know which specific activities are most productive in engendering a market orientation and superior performance and also which types of activity are most associated with diminishing returns and the down-hill side of the profit curve. Such information may be used to provide guidance to managers on the most useful activities to engage in.

Dealerships operate in many markets including new cars, used cars, fleet sales, parts, servicing, tyres, car rental, and body shop. Only one market was examined in this study. It would be informative to determine whether firms have different levels of market orientation in their different markets and to examine whether the different markets have different optimal market orientation levels.

The study examined the associations between market orientation, performance, and the environment at a single point in time, soon after the recession in the UK economy had commenced. It would be useful to track how the recession and the subsequent recovery affect the relationship between market orientation and performance. In particular, is the pre-recession relationship re-established after the recovery? And what happens to those firms which cutback on market oriented activities during a recession compared to those that maintain their market orientation, during the recession and in the subsequent recovery?

Finally, the benefits of a market orientation are theorized to affect long-term performance. Due to the unstable economic environment in the period prior to data collection it was thought that the relationship between market orientation and long-term performance may be somewhat confounded. Research into the relationship between market orientation and long-term performance during a period of relative stability would help determine whether market orientation's relationship with cost-based performance is stronger (or explains more variance) than its relationship with revenue-based performance.

REFERENCES

- Aguinis, H. (1995). Statistical power with moderated multiple regression in management research. *Journal of Management*, 21, 1141
- Anderson, J. C., Gerbing, D. W. & Hunter, J. E. (1987). On the assessment of unidimensional measurement: Internal and external consistency, and overall consistency criteria. *Journal of Marketing Research*, 24, 432-437
- Appiah-Adu, K. (1998). Market orientation and performance: empirical tests in a transition economy. *Journal of Strategic Marketing*, 6, 25-45
- Atuahene-Gima, K. (1995). An exploratory analysis of the impact of market orientation on new product performance. A contingency approach. *Journal of Product Innovation Management*, 12, 275-293
- Atuahene-Gima, K., Slater, S. F. & Olson, E. M. (2005). The contingent value of responsive and proactive market orientations for new product program performance. *Journal of Product Innovation Management*, 22, 464-482
- Augusto, M. & Coelho, F. (2009). Market orientation and new-to-the-world products: Exploring the moderating effects of innovativeness, competitive strength, and environmental forces. *Industrial Marketing Management*, 38, 94-108
- Auh, S. & Menguc, B. (2007). Performance implications of the direct and moderating effects of centralization and formalization on customer orientation. *Industrial Marketing Management*, 36, 1022-1034
- Avila, R. A. & Tadepalli, R. (1999). Supervisory antecedents to the customer orientation and job satisfaction of salespeople: an empirical investigation. *Journal of Marketing Management*, 9, 59-72
- Baker, W. E. & Sinkula, J. M. (1999). The synergistic effect of market orientation and learning orientation on organizational performance. *Journal of the Academy of Marketing Science*, 27, 411
- Balabanis, G., Stables, R. E. & Phillips, H. C. (1997). Market orientation in the top 200 British charity organizations and its impact on their performance. *European Journal of Marketing*, 31, 583-603
- Bentler, P. M. & Chou, C. P. (1987). Practical issues in structural modeling. *Sociological Methods & Research*, 16, 78
- Bergkvist, L. & Rossiter, J. R. (2007). The predictive validity of multiple-item versus single-item measures of the same constructs. *Journal of Marketing Research*, 44, 175-184
- Bhuian, S. N. (1998). An empirical examination of market orientation in Saudi Arabian manufacturing companies. *Journal of Business Research*, 43, 13-25
- Bhuian, S. N., Menguc, B. & Bell, S. J. (2005). Just entrepreneurial enough: the moderating effect of entrepreneurship on the relationship between market orientation and performance. *Journal of Business Research*, 58, 9-17
- Blair, E., & Zinkhan, G. M. (2006). Non-response and generalizability in academic research. *Journal of the Academy of Marketing Science*, 34, 4-7
- Cadogan, J. W., Cui, C. C., Morgan, R. E. & Story, V. M. (2006). Factors facilitating and impeding the development of export market-oriented behavior: A study of Hong Kong manufacturing exporters. *Industrial marketing management*, 35, 634-647

- Cadogan, J. W., Kuivalainen, O. & Sundqvist, S. (2009). Export market-oriented behavior and export performance: quadratic and moderating effects under differing degrees of market dynamism and internationalization. *Journal of International Marketing*, 17, 71-89
- Cadogan, J. W., Souchon, A. L. & Procter, D. B. (2008). The quality of market-oriented behaviors: Formative index construction. *Journal of Business Research*, 61, 1263-1277
- Cadogan, J. W. & Cui, C. C. (2004). Chinese Export Agents' Adoption of Export Market-Oriented Behaviours: Measurement and Performance Relationship. *Journal of Asia Pacific Marketing*, 3, 21
- Cadogan, J. W., Cui, C. C. & Li, E. K. Y. (2003). Export market-oriented behavior and export performance: The moderating roles of competitive intensity and technological turbulence. *International Marketing Review*, 20, 493
- Cadogan, J. W. & Diamantopoulos, A. (1995). Narver and Slater, Kohli and Jaworski and the market orientation construct: integration and internationalization. *Journal of Strategic Marketing*, 3, 41
- Cadogan, J. W., Diamantopoulos, A. & de Mortanges, C. P. (1999). A measure of export market orientation: Scale development and cross-cultural validation. *Journal of International Business Studies*, 30, 689
- Cadogan, J. W., Diamantopoulos, A. & Siguaw, J. A. (2002). Export market-oriented activities: Their antecedents and performance consequences. *Journal of International Business Studies*, 33, 615
- Cadogan, J. W., Paul, N. J., Salminen, R. T., Puumalainen, K. & Sundqvist, S. (2001). Key antecedents to "export" market-oriented behaviors: a cross-national empirical examination. *International Journal of Research in Marketing*, 18, 261-282
- Cadogan, J. W., Sundqvist, S., Salminen, R. T. & Puumalainen, K. (2002). Market-oriented behavior: Comparing service with product exporters. *European Journal of Marketing*, 36, 1076-1102
- Cadogan, J. W., Sundqvist, S., Salminen, R. T. & Puumalainen, K. (2005). Export marketing, interfunctional interactions, and performance consequences. *Journal of the Academy of Marketing Science*, 33, 520-535
- Caruana, A. (1999). An assessment of the dimensions and the stability of items in the MARKOR scale. *Marketing Intelligence & Planning*, 17, 248-253
- Caruana, A., Pitt, L. & Berthon, P. R. (1999). Excellence-market orientation link: some consequences for service firms. *Journal of Business Research*, 44, 5-15
- Castrogiovanni, G. J. (1991). Environmental munificence: a theoretical assessment. *The Academy of Management Review*, 16, 542-565
- Chang, S. J., Van Witteloostuijn, A. & Eden, L. (2010). From the editors: Common method variance in international business research. *Journal of International Business Studies*, 41, 178-184
- Chen, S. & Quester, P. G. (2005). Developing a value-based measure of market orientation in an interactive service relationship. *Journal of Marketing Management*, 21, 779-808
- Churchill, G. A. (1979). A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research*, 16, 64-73
- Churchill, G. A. (1991). *Marketing research: methodological foundations*. Chicago; London: Dryden Press
- Conduit, J. & Mavondo, F. T. (2001). How critical is internal customer orientation to market orientation? *Journal of Business Research*, 51, 11-24
- Cote, J. A. & Buckley, M. R. (1987). Estimating trait, method, and error variance: Generalizing across 70 construct validation studies. *Journal of Marketing Research*

- Day, G. S. (1994). The capabilities of market-driven organizations. *Journal of Marketing*, 58, 37
- Deng, S. & Dart, J. (1994). Measuring market orientation: a multi-factor, multi-item approach. *Journal of Marketing Management*, 10, 725-742
- Deshpandé, R. & Farley, J. U. (1998). Measuring market orientation: generalization and synthesis. *Journal of Market-Focused Management*, 2, 213-232
- Deshpandé, R. & Farley, J. U. (2004). Organizational culture, market orientation, innovativeness, and firm performance: an international research odyssey. *International Journal of Research in Marketing*, 21, 3-22
- Deshpandé, R., Farley, J. U. & Webster, F. E., Jr. (1993). Corporate culture, customer orientation, and innovativeness. *Journal of Marketing*, 57, 23
- Deshpandé, R., Farley, J. U. & Webster, F. E., Jr. (2000). Triad lessons: Generalizing results on high performance firms in five business-to-business markets. *International Journal of Research in Marketing*, 17, 353-362
- Dess, G. G. & Robinson Jr, R. B. (1984). Measuring organizational performance in the absence of objective measures: The case of the privately held firm and conglomerate business unit. *Strategic Management Journal*, 5, 265-273
- Diamantopoulos, A. & Schlegelmilch, B. B. (1996). Determinants of industrial mail survey response: a survey-on-surveys analysis of researchers' and managers' views. *Journal of Marketing Management*, 12, 505-531
- Diamantopoulos, A. & Hart, S. (1993). Linking market orientation and company performance: preliminary evidence on Kohli and Jaworski's framework. *Journal of Strategic Marketing*, 1, 93
- Dwairi, M., Bhuian, S. N. & Jurkus, A. (2007). Revisiting the pioneering market orientation model in an emerging economy. *European Journal of Marketing*, 41, 713-721
- Echambadi, R. & Hess, J. D. (2007). Mean-centering does not alleviate collinearity problems in moderated multiple regression models. *Marketing Science*, 26, 438-445
- Ellis, P. D. (2007). Distance, dependence and diversity of markets: effects on market orientation. *Journal of International Business Studies*, 38, 374-386
- Farrell, M. A. (2003). The effect of downsizing on market orientation: the mediating roles of trust and commitment. *Journal of Strategic Marketing*, 11, 55-74
- Fornell, C. & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18, 39-50
- Gatignon, H. & Xuereb, J. (1997). Strategic orientation of the firm new product performance. *JMR, Journal of Marketing Research*, 34, 77
- Gebhardt, G. F., Carpenter, G. S. & Sherry, J. F. (2006). Creating a market orientation: a longitudinal, multifirm, grounded analysis of cultural transformation. *Journal of Marketing*, 70, 37-55
- Gerbing, D. W. & Anderson, J. C. (1988). An updated paradigm for scale development incorporating unidimensionality and its assessment. *Journal of Marketing Research*, 25, 186-192
- Geuens, M. (2010). Where does business research go from here? Food-for-thought on academic papers in business research. *Journal of Business Research*
- Goebel, D. J., Marshall, G. W. & Locander, W. B. (1998). Activity-Based Costing: Accounting for a Market Orientation. *Industrial Marketing Management*, 27, 497-510

- Gonzalez-Benito, O. & González-Benito, J. (2005). Cultural vs. operational market orientation and objective vs. subjective performance: perspective of production and operations. *Industrial marketing management*, 34, 797-829
- Gray, B. J., Greenley, G. E., Matear, S. M. & Matheson, P. K. (1999). Thriving on turbulence. *Journal of Market-Focused Management*, 4, 231-257
- Gray, B. J., Matear, S. M., Boshoff, C. & Matheson, P. K. (1998). Developing a better measure of market orientation. *European Journal of Marketing*, 32, 884-903
- Greenley, G. E. (1995). Forms of market orientation in UK companies. *Journal of Management Studies*, 32, 47-66
- Greenley, G. E. (1995). Market orientation and company performance: empirical evidence from UK companies. *British Journal of Management*, 6, 1-13
- Greenley, G. E. & Foxall, G. R. (1996). Consumer and nonconsumer stakeholder orientation in U.K. companies. *Journal of Business Research*, 35, 105-116
- Greenley, G. E. & Foxall, G. R. (1997). Multiple stakeholder orientation in UK companies and the implications for company performance. *Journal of Management Studies*, 34, 259-284
- Greenley, G. E. & Foxall, G. R. (1998). External moderation of associations among stakeholder orientations and company performance. *International Journal of Research in Marketing*, 15, 51-69
- Grewal, R. & Tansuhaj, P. (2001). Building organizational capabilities for managing economic crisis: The role of market orientation and strategic flexibility. *Journal of Marketing*, 65, 67
- Grinstein, A. (2008). The effect of market orientation and its components on innovation consequences: a meta-analysis. *Journal of the Academy of Marketing Science*, 36, 166-173
- Hair, J. F. (2006). *Multivariate data analysis*. Upper Saddle River, N.J.: Pearson Prentice Hall
- Hammond, K. I., Webster, R. L. & Harmon, H. A. (2006). Market orientation, top management emphasis, and performance within university schools of business: implications for universities. *The Journal of Marketing Theory and Practice*, 14, 69-85
- Han, J. K., Kim, N. & Srivastava, R. K. (1998). Market orientation and organizational performance: Is innovation a missing link? *Journal of Marketing*, 62, 30
- Harris, L. C. (2001). Market orientation and performance: objective and subjective empirical evidence from UK companies. *Journal of Management Studies*, 38, 17-43
- Harris, L. C. (2002). Measuring market orientation: exploring a market oriented approach. *Journal of Market-Focused Management*, 5, 239-270
- Harris, L. C. & Piercy, N. F. (1999). A contingency approach to market orientation: distinguishing behaviours, systems, structures, strategies and performance characteristics. *Journal of Marketing Management*, 15, 617-646
- Haugland, S. A., Myrtveit, I. & Nygaard, A. (2007). Market orientation and performance in the service industry: A data envelopment analysis. *Journal of Business Research*, 60, 1191-1197
- Hernandez-Espallardo, M. & Arcas-Lario, N. (2003). The effects of authoritative mechanisms of coordination on market orientation in asymmetrical channel partnerships. *International Journal of Research in Marketing*, 20, 133-152
- Homburg, C., Grozdanovic, M. & Klarmann, M. (2007). Responsiveness to customers and competitors: The role of affective and cognitive organizational systems. *Journal of Marketing*, 71, 18-38

- Homburg, C., Wieseke, J. & Hoyer, W. D. (2009). Social identity and the service-profit chain. *Journal of Marketing*, 73, 38-54
- Homburg, C. & Pflesser, C. (2000). A multiple-layer model of market-oriented organizational culture: measurement issues and performance outcomes. *Journal of Marketing Research (JMR)*, 37, 449-462
- Homburg, C., Workman Jr., J. P. & Krohmer, H. (1999). Marketing's influence within the firm. *Journal of Marketing*, 63, 1-17
- Hooley, G., Greenley, G., Fahy, J. & Cadogan, J. (2001). Market-focused resources, competitive positioning and firm performance. *Journal of Marketing Management*, 17, 5, 503-520
- Hooley, G. J., Farley, J. U., Greenley, G. E., Beracs, J., Fonfara, K. & Snoj, B. (2003). Market orientation in the service sector of the transition economies of central Europe. *European Journal of Marketing*, 37, 86-106
- Hsieh, Y. C., Chiu, H. C. & Hsu, Y. C. (2008). Supplier market orientation and accommodation of the customer in different relationship phases. *Industrial Marketing Management*, 37, 380-393
- Hult, G. T. M. & Ketchen, D. J., Jr. (2001). Does market orientation matter?: a test of the relationship between positional advantage and performance. *Strategic Management Journal*, 22, 899-906
- Hult, G. T. M., Ketchen, D. J., Jr. & Slater, S. F. (2005). Market orientation and performance: an integration of disparate approaches. *Strategic Management Journal*, 26, 1173-1181
- Im, S. & Workman Jr., J. P. (2004). Market orientation, creativity, and new product performance in high-technology firms. *Journal of Marketing*, 68, 114-132
- Jaworski, B. J. & Kohli, A. K. (1993). Market orientation: Antecedents and consequences. *Journal of Marketing*, 57, 53
- Jaworski, B. J. & Kohli, A. K. (1996). Market orientation: review, refinement, and roadmap. *Journal of Market-Focused Management*, 1, 119-135
- Jiménez-Jiménez, D. & Cegarra-Navarro, J. G. (2007). The performance effect of organizational learning and market orientation. *Industrial Marketing Management*, 36, 694-708
- Kaynak, E. & Kara, A. (2004). Market orientation and organizational performance: A comparison of industrial versus consumer companies in mainland China using market orientation scale (MARKOR). *Industrial Marketing Management*, 33, 743-753
- Kennedy, K. N., Goolsby, J. R. & Arnould, E. J. (2003). Implementing a customer orientation: extension of theory and application. *Journal of Marketing*, 67, 67
- Kirca, A. H. & Hult, G. T. M. (2009). Intra-organizational factors and market orientation: effects of national culture. *International Marketing Review*, 26, 633-650
- Kirca, A. H., Jayachandran, S. & Bearden, W. O. (2005). Market orientation: a meta-analytic review and assessment of its antecedents and impact on performance. *Journal of Marketing*, 69, 24-41
- Kohli, A. K. & Jaworski, B. J. (1990). Market orientation: the construct, research propositions, A. *Journal of Marketing*, 54, 1
- Kohli, A. K. & Jaworski, B. J. (1993). MARKOR: A measure of market orientation. *Journal of Marketing Research (JMR)*, 30, 467
- Kotler, P. (1999). *Principles of marketing*. London: Prentice-Hall Europe

- Krepapa, A., Berthon, P. R., Webb, D. & Pitt, L. (2003). Mind the gap: An analysis of service provider versus customer perceptions of market orientation and the impact on satisfaction. *European Journal of Marketing*, 37, 197-218
- Kumar, K., Subramanian, R. & Yaeger, C. (1998). Examining the market orientation-performance relationship: A context-specific study. *Journal of Management*, 24, 201-233
- Kyriakopoulos, K. & Moorman, C. (2004). Tradeoffs in marketing exploitation and exploration strategies: The overlooked role of market orientation. *International Journal of Research in Marketing*, 21, 219-240
- Lado, N., Maydeu-Olivares, A. & Rivera, J. (1998). Measuring market orientation in several populations: A structural equations model. *European Journal of Marketing*, 32, 23-39
- Lai, C. S., Pai, D. C., Yang, C. F. & Lin, H. J. (2009). The effects of market orientation on relationship learning and relationship performance in industrial marketing: The dyadic perspectives. *Industrial marketing management*, 38, 166-172
- Lance, C. E. (1988). Residual centering, exploratory and confirmatory moderator analysis, and decomposition of effects in path models containing interactions. *Applied Psychological Measurement*, 12, 163
- Langerak, F., Hultink, E. J. & Robben, H. (2007). The mediating role of new product development in the link between market orientation and organizational performance. *Journal of Strategic Marketing*, 15, 281-305
- Langerak, F. (2001). Effects of market orientation on the behaviors of salespersons and purchasers, channel relationships, and performance of manufacturers. *International Journal of Research in Marketing*, 18, 221-234
- Langerak, F. (2003). The effect of market orientation on positional advantage and organizational performance. *Journal of Strategic Marketing*, 11, 93-115
- Langerak, F., Hultink, E. J. & Robben, H. S. J. (2004). The impact of market orientation, product advantage, and launch proficiency on new product performance and organizational performance. *Journal of Product Innovation Management*, 21, 79-94
- Lee, S., Yoon, S. J., Kim, S. & Kang, J. W. (2006). The integrated effects of marketoriented culture and marketing strategy on firm performance. *Journal of strategic marketing*, 14, 245-261
- Lin, X. & Germain, R. (2003). Organizational structure, context, customer orientation, and performance: lessons from Chinese state-owned enterprises. *Strategic Management Journal*, 24, 1131-1151
- Little, T. D., Bovaird, J. A. & Widaman, K. F. (2006). On the merits of orthogonalizing powered and product terms: Implications for modeling interactions among latent variables. *Structural Equation Modeling*, 13, 497
- Luk, C. L., Yau, O. H. M., Tse, A. C. B., Sin, L. Y. M. & Chow, R. P. M. (2005). Stakeholder orientation and business performance: the case of service companies in China. *Journal of International Marketing*, 89-110
- Luo, X., Sivakumar, K. & Liu, S. S. (2005). Globalization, marketing resources, and performance: evidence From China. *Journal of the Academy of Marketing Science*, 33, 50-65
- Luo, X., Zhou, L. & Liu, S. S. (2005). Entrepreneurial firms in the context of China's transition economy: an integrative framework and empirical examination. *Journal of Business Research*, 58, 277-284
- MacKenzie, S. B., Podsakoff, P. M., & Fetter, R. (1993). The impact of organizational citizenship behavior on evaluations of salesperson performance. *Journal of Marketing*, 57, 70-80
- Maignan, I., Ferrell, O. C. & Hult, G. T. M. (1999). Corporate citizenship: cultural antecedents and business benefits. *Journal of the Academy of Marketing Science*, 27, 455-469

- Mantrala, M. K., Naik, P. A., Sridhar, S. & Thorson, E. (2007). Uphill or downhill? Locating the firm on a profit function. *Journal of Marketing*, 71, 26-44
- Matsuno, K. & Mentzer, J. T. (2000). The effects of strategy type on the market orientation-performance relationship. *Journal of Marketing*, 64, 1
- Matsuno, K., Mentzer, J. T. & Özsomer, A. (2002). The effects of entrepreneurial proclivity and market orientation on business performance. *Journal of Marketing*, 66, 18-32
- Matsuno, K., Mentzer, J. T. & Rentz, J. O. (2000). A refinement and validation of the MARKOR scale. *Journal of the Academy of Marketing Science*, 28, 527-539
- Matsuno, K., Mentzer, J. T. & Rentz, J. O. (2005). A conceptual and empirical comparison of three market orientation scales. *Journal of Business Research*, 58, 1-8
- Mavondo, F. T. (1999). Environment and strategy as antecedents for marketing effectiveness and organizational performance. *Journal of Strategic Marketing*, 7, 237-250
- Mavondo, F. T. (1999). Market orientation: scale invariance and relationship to generic strategies across two countries. *Journal of Market-Focused Management*, 4, 125-142
- Menguc, B. & Auh, S. (2008). Conflict, leadership, and market orientation. *International Journal of Research in Marketing*, 25, 34-45
- Menguc, B. & Auh, S. (2006). Creating a firm-level dynamic capability through capitalizing on market orientation and innovativeness. *Academy of Marketing Science Journal*, 34, 63
- Miller, D. & Friesen, P. H. (1982). Innovation in conservative and entrepreneurial firms: Two models of strategic momentum. *Strategic Management Journal*, 3, 1-25
- Morgan, N. A., Vorhies, D. W. & Mason, C. H. (2009). Research notes and commentaries market orientation, marketing capabilities, and firm performance. *Strategic Management Journal*, 30, 909-920
- Murray, J. Y., Gao, G. Y., Kotabe, M. & Zhou, N. (2007). Assessing measurement invariance of export market orientation: a study of Chinese and non-Chinese firms in China. *Journal of International Marketing*, 15, 41-62
- Narver, J. C. & Slater, S. F. (1990). The effect of a market orientation on business profitability. *The Journal of Marketing*, 54, 20-35
- Narver, J. C., Slater, S. F. & MacLachlan, D. L. (2004). Responsive and proactive market orientation and new-product success*. *Journal of Product Innovation Management*, 21, 334-347
- Nguyen, T. D. (2007). Factors affecting the utilization of the internet by internationalizing firms in transition markets: Evidence from Vietnam. *Marketing Intelligence & Planning*, 25, 360-376
- Noble, C. H., Sinha, R. K. & Kumar, A. (2002). Market orientation and alternative strategic orientations: a longitudinal assessment of performance implications. *Journal of Marketing*, 66, 25-39
- O'Cass, A. & Ngo, L. V. (2007). Balancing external adaptation and internal effectiveness: Achieving better brand performance. *Journal of Business Research*, 60, 11-20
- O'Cass, A. (2001). Political marketing - An investigation of the political marketing concept and political market orientation in Australian politics. *European Journal of Marketing*, 35, 1003-1025
- Oczkowski, E. & Farrell, M. A. (1998). Discriminating between measurement scales using non-nested tests and two-stage least squares estimators: The case of market orientation. *International Journal of Research in Marketing*, 15, 349-366

- Olavarrieta, S. & Friedmann, R. (2008). Market orientation, knowledge-related resources and firm performance. *Journal of business research*, 61, 623-630
- Olinsky, A., Chen, S. & Harlow, L. (2003). The comparative efficacy of imputation methods for missing data in structural equation modeling. *European Journal of Operational Research*, 151, 53-79
- Olson, E. M., Slater, S. F. & Hult, G. T. M. (2005). The performance implications of fit among business strategy, marketing organization structure, and strategic behavior. *Journal of Marketing*, 69, 49
- Paladino, A. (2007). Investigating the drivers of innovation and new product success: a comparison of strategic orientations. *Journal of Product Innovation Management*, 24, 534-553
- Pelham, A. M. (1999). Influence of environment, strategy, and market orientation on performance in small manufacturing firms. *Journal of Business Research*, 45, 33-46
- Pelham, A. M. & Wilson, D. T. (1996). A longitudinal study of the impact of market structure, firm structure, strategy, and market orientation culture on dimensions of small-firm performance. *Academy of Marketing Science Journal*, 24, 27
- Perry, M. L. & Shao, A. T. (2002). Market orientation and incumbent performance in dynamic market. *European Journal of Marketing*, 36, 1140-1153
- Perry, M. L. & Shao, A. T. (2005). Incumbents in a dynamic Internet related services market: Does customer and competitive orientation hinder or help performance? *Industrial Marketing Management*, 34, 590-601
- Ping Jr, R. A. (1995). A parsimonious estimating technique for interaction and quadratic latent variables. *Journal of Marketing Research*, 32, 336-347
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y. & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88, 879
- Qu, R. & Ennew, C. T. (2003). An examination of the consequences of market orientation in China. *Journal of Strategic Marketing*, 11, 201-214
- Richardson, H. A., Simmering, M. J. & Sturman, M. C. (2009). A tale of three perspectives. *Organizational Research Methods*, 12, 762
- Rindfleisch, A. & Moorman, C. (2003). Interfirm cooperation and customer orientation. *Journal of Marketing Research (JMR)*, 40, 421-436
- Rindfleisch, A., Malter, A., Ganesan, S. & Moorman, C. (2008). Cross-sectional versus longitudinal survey research: concepts, findings, and guidelines. *Journal of Marketing Research*, 45, 261-279
- Rodriguez Cano, C., Carrillat, F. A. & Jaramillo, F. (2004). A meta-analysis of the relationship between market orientation and business performance: evidence from five continents. *International Journal of research in Marketing*, 21, 179-200
- Rodriguez Cano, C., Carrillat, F. A. & Jaramillo, F. (2004). A meta-analysis of the relationship between market orientation and business performance: evidence from five continents. *International Journal of research in Marketing*, 21, 179-200
- Rose, G. M. & Shoham, A. (2002). Export performance and market orientation: establishing an empirical link. *Journal of Business Research*, 55, 217-225
- Ruekert, R. W. (1992). Developing a market orientation: An organizational strategy perspective. *International Journal of Research in Marketing*, 9, 225-245
- Sandvik, I. L. & Sandvik, K. (2003). The impact of market orientation on product innovativeness and business performance. *International Journal of Research in Marketing*, 20, 355-376

- Santos-Vijande, M. L., Sanzo-Perez, M. J., Alvarez-Gonzalez, L. I. & Vazquez-Casielles, R. (2005). Organizational learning and market orientation: interface and effects on performance. *Industrial marketing management*, 34, 187-202
- Schoonhoven, C. B. (1981). Problems with contingency theory: testing assumptions hidden within the language of contingency theory". *Administrative Science Quarterly*, 26, 349-377
- Shoham, A., Rose, G. M. & Kropp, F. (2005). Market orientation and performance: a meta-analysis. *Marketing Intelligence & Planning*, 23, 435-454
- Siguaw, J. A. & Diamantopoulos, A. (1995). Measuring market orientation: some evidence on Narver and Slater's three-component scale. *Journal of Strategic Marketing*, 3, 77
- Siguaw, J. A., Simpson, P. M. & Baker, T. L. (1998). Effects of supplier market orientation on distributor market orientation and the channel relationship: the distributor perspective. *Journal of Marketing*, 62, 99
- Sin, L. Y. M., Tse, A. C. B., Yau, O. H. M., Chow, R. & Lee, J. S. Y. (2003). Market orientation and business performance: A comparative study of firms in mainland China and Hong Kong. *European Journal of Marketing*, 37, 910-936
- Singh, J. (1995). Measurement issues in cross-national research. *Journal of International Business Studies*, 597-619
- Singh, S. & Ranchhod, A. (2004). Market orientation and customer satisfaction: Evidence from British machine tool industry. *Industrial Marketing Management*, 33, 135-144
- Slater, S. F. & Narver, J. C. (1994). Does competitive environment moderate the market orientation-performance relationship? *Journal of Marketing*, 58, 46
- Slater, S. F. & Narver, J. C. (1995). Market orientation and the learning organization. *Journal of Marketing*, 59, 63
- Slater, S. F. & Narver, J. C. (1996). Competitive strategy in the market-focused business. *Journal of Market-Focused Management*, 1, 159-174
- Slater, S. F. & Narver, J. C. (2000). The positive effect of a market orientation on business profitability: a balanced replication. *Journal of Business Research*, 48, 69-73
- Song, M. & Parry, M. E. (2009). The desired level of market orientation and business unit performance. *Journal of the Academy of Marketing Science*, 37, 144-160
- Sørensen, H. E. (2009). Why competitors matter for market orientation. *European Journal of Marketing*, 43, 735-761
- Subramanian, R. & Gopalakrishna, P. (2001). The market orientation-performance relationship in the context of a developing economy: An empirical analysis. *Journal of Business Research*, 53, 1-13
- Tellefsen, B. (1999). Constituent market orientation. *Journal of Market-Focused Management*, 4, 103-124
- Tsai, K. H., Chou, C. & Kuo, J. H. (2008). The curvilinear relationships between responsive and proactive market orientations and new product performance: A contingent link. *Industrial Marketing Management*, 37, 884-894
- Tse, A. C. B., Sin, L. Y. M., Yau, O. H. M., Lee, J. S. Y. & Chow, R. (2003). Market orientation and business performance in a Chinese business environment. *Journal of Business Research*, 56, 227-239
- Vázquez, R., Álvarez, L. I. & Santos, M. L. (2002). Market orientation and social services in private non-profit organisations. *European Journal of Marketing*, 36, 1022-1046

- Vázquez, R., Santos, M. L. & Álvarez, L. I. (2001). Market orientation, innovation and competitive strategies in industrial firms. *Journal of Strategic Marketing*, 9, 69-90
- Voss, Z. G., Voss, G. B. & Moorman, C. (2005). An empirical examination of the complex relationships between entrepreneurial orientation and stakeholder support. *European Journal of Marketing*, 39, 1132-1150
- Wang, C., Hult, G. T. M., Ketchen, D. & Ahmed, P. (2009). Knowledge management orientation, market orientation, and firm performance: an integration and empirical examination. *Journal of Strategic Marketing*, 17, 99-122
- Ward, S. & Lewandowska, A. (2008). Is the marketing concept always necessary?: The effectiveness of customer, competitor and societal strategies in business environment types. *European Journal of Marketing*, 42, 222-237
- Webb, D., Webster, C. & Kreppa, A. (2000). An Exploration of The Meaning and Outcomes of a Customer-Defined Market Orientation. *Journal of Business Research*, 48, 101-112
- Wei, L. Q. & Lau, C. M. (2008). The impact of market orientation and strategic HRM on firm performance: the case of Chinese enterprises. *Journal of International Business Studies*, 39, 980-995
- Wei, Y. S. & Atuahene-Gima, K. (2009). The moderating role of reward systems in the relationship between market orientation and new product performance in China. *International Journal of Research in Marketing*, 26, 89-96
- Wei, Y. S. & Morgan, N. A. (2004). Supportiveness of organizational climate, market orientation, and new product performance in Chinese firms. *Journal of Product Innovation Management*, 21, 375-388
- Zhou, K. Z., Li, J. J., Zhou, N. & Su, C. (2008). Market orientation, job satisfaction, product quality, and firm performance: evidence from China. *Strategic Management Journal*, 29, 985-1000
- Zhou, Y., Chao, P. & Huang, G. (2009). Modeling market orientation and organizational antecedents in a social marketing context: Evidence from China. *International Marketing Review*, 26, 256-274
- Zhou, K. Z., Tse, D. K. & Li, J. J. (2006). Organizational changes in emerging economies: drivers and consequences. *Journal of International Business Studies*, 37, 248
- Zhou, K. Z., Yim, C. K. & Tse, D. K. (2005). The effects of strategic orientations on technology- and market-based breakthrough innovations. *Journal of Marketing*, 69, 42-60

Dealership Survey

Contacts: Mark French, Loughborough University Business School, M.J.French@Lboro.ac.uk
John Cadogan, Loughborough University Business School, J.W.Cadogan@Lboro.ac.uk

Please return your completed questionnaire in the FREEPOST envelope provided. If the envelope is misplaced please use the following address (no stamp required):

FREEPOST RLUT - STKE - EYXY
LOUGHBOROUGH UNIVERSITY
Marketing & Retailing Group
Business School
LOUGHBOROUGH
LE11 3TU

About you.

What is your job title? _____

How long have you held this position? _____ years

How long have you worked for this dealership? _____ years

About your dealership.

How many full time equivalent employees does your dealership currently have? _____ employees

Are you part of a dealership group? Yes / No . If yes, how many are in the group? _____ dealerships

Which of the following markets does your dealership operate in? (tick all that apply)

New Car ☐ Servicing ☐ Used Car ☐ Parts ☐ Commercial ☐ Fleet ☐ Other _____

Please list the new car brands you sell (e.g. Ford, Toyota, etc) _____

In which segments of the new car market does your dealership compete? (tick all that apply)

Economy ☐ Family ☐ Executive ☐ Performance ☐ Off-road ☐ Other _____

Please answer the following questions about the new car market in which your dealership operates.

What is the approximate catchment area of your dealership? _____ miles

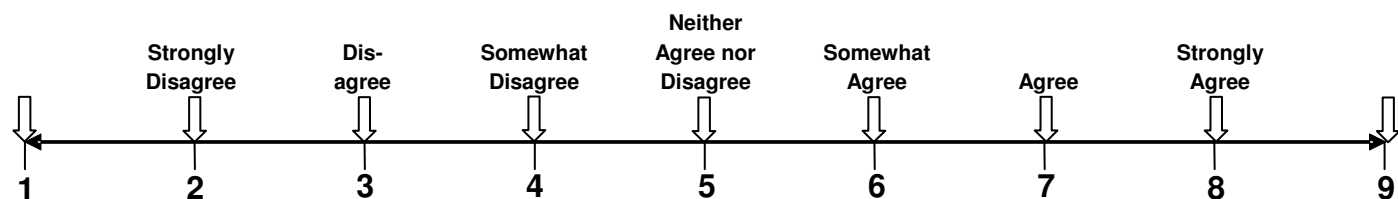
How many other dealerships do you directly compete against? _____ dealerships

How many dealerships do you compete against that sell the same brands you sell? _____ dealerships

On average, over the last 3 years, how many new cars have you sold per year? _____ new cars per year

The following questions relate to the new car sales activities of your dealership. Ignore other activities (servicing, commercial vehicles, second hand sales, etc.).

Please indicate your degree of agreement with the statements below (circle one number for each).



In the new car market served by our dealership:

	Strongly Disagree			Neither Agree Nor Disagree			Strongly Agree		
We periodically review the likely effect of changes in our business environment (e.g., technology, regulation, politics, economy, market).....	1	2	3	4	5	6	7	8	9
We are quick to detect fundamental shifts in our environment.....	1	2	3	4	5	6	7	8	9
We generate a lot of information concerning trends (e.g., regulation, market, technological developments, politics, economy).....	1	2	3	4	5	6	7	8	9
We constantly monitor our level of commitment and orientation to serving customer needs	1	2	3	4	5	6	7	8	9
We generate a lot of information in order to understand the forces which influence our customers' needs and preferences	1	2	3	4	5	6	7	8	9

In the new car market served by our dealership:

Important information about our competitors is often 'lost in the system'...	1	2	3	4	5	6	7	8	9
Information about our competitors' activities often reaches relevant personnel too late to be of any use	1	2	3	4	5	6	7	8	9
Information which can influence the way we serve our customers takes forever to reach relevant personnel	1	2	3	4	5	6	7	8	9
Too much information concerning our competitors is discarded before it reaches decision makers	1	2	3	4	5	6	7	8	9
Important information concerning market trends (e.g. regulatory, etc.) is often discarded as it makes its way along the communication chain	1	2	3	4	5	6	7	8	9

In the new car market served by our dealership:

We are quick to respond to significant changes in our competitors' price structures	1	2	3	4	5	6	7	8	9
We rapidly respond to competitive actions that threaten us	1	2	3	4	5	6	7	8	9
If a major competitor were to launch an intensive campaign targeted at our customers, we would implement a response immediately	1	2	3	4	5	6	7	8	9
When we find out that customers are unhappy with the quality of our product or service, we take corrective action immediately	1	2	3	4	5	6	7	8	9
We are quick to respond to important changes in the business environment (e.g., regulatory, technology, economy)	1	2	3	4	5	6	7	8	9

Please rate the statements below in relation to the new car market.

Our new car sales performance is **totally independent** of our performance in other markets (e.g. servicing, used cars).

1 2 3 4 5 6 7

Our performance in the new car market is **highly dependent** on our performance in other markets.

Our performance in other markets (e.g. servicing, etc.) is **wholly independent** of our performance in new car sales.

1 2 3 4 5 6 7

Our performance in other markets is **highly dependent** on our performance in new car sales.

Our dealership's competitors hardly ever change their marketing tactics and strategies.

1 2 3 4 5 6 7

Our dealership's competitors change their marketing tactics and strategies very frequently.

There is virtually no competition with other dealerships in our area.

1 2 3 4 5 6 7

Competition with other dealerships in our area is extremely intense.

Please rate your dealership's new car sales performance relative to your competitors:

		Much Lower	Lower	Somewhat Lower	The same as our competitors	Somewhat Higher	Higher	Much Higher	
Over the <u>last year</u>:									
Sales growth.....	-4	-3	-2	-1	0	+1	+2	+3	+4
Market share growth..	-4	-3	-2	-1	0	+1	+2	+3	+4
Profit growth.....	-4	-3	-2	-1	0	+1	+2	+3	+4
Profitability	-4	-3	-2	-1	0	+1	+2	+3	+4
Overall performance...	-4	-3	-2	-1	0	+1	+2	+3	+4
Over the <u>last 3 years</u>:									
Sales growth.....	-4	-3	-2	-1	0	+1	+2	+3	+4
Market share growth..	-4	-3	-2	-1	0	+1	+2	+3	+4
Profit growth.....	-4	-3	-2	-1	0	+1	+2	+3	+4
Profitability.....	-4	-3	-2	-1	0	+1	+2	+3	+4
Overall performance...	-4	-3	-2	-1	0	+1	+2	+3	+4

Please indicate your dealership's performance in the new car market. NOTE: data given are anonymous.
(Use an estimate if the exact value is not available. Prefix a decline with "-").

	Over the last year	Average over last 3 years
Sales Growth (% change)	_____ %	_____ %
Market Share Growth (% change)	_____ %	_____ %
Gross Profit Growth (% change)	_____ %	_____ %
Sales Turnover (£ million)	£ _____ million	£ _____ million
Return On Sales (<i>Profit before tax</i> divided by <i>Sales before tax</i>)....	_____ %	_____ %
<i>New Car Profit</i> Contribution to <i>Overall Profit</i> (% of total)	_____ %	_____ %

The following questions relate to your overall dealership (including new car sales, servicing, commercial vehicles, second hand sales, etc.).

Please rate your overall dealership performance relative to your competitors:

Over the <u>last 3 years</u>:		Much Lower	Lower	Somewhat Lower	Same as our competitors	Somewhat Higher	Higher	Much Higher	
Sales growth.....	-4	-3	-2	-1	0	+1	+2	+3	+4
Market share growth..	-4	-3	-2	-1	0	+1	+2	+3	+4
Profit growth.....	-4	-3	-2	-1	0	+1	+2	+3	+4
Profitability.....	-4	-3	-2	-1	0	+1	+2	+3	+4
Overall performance...	-4	-3	-2	-1	0	+1	+2	+3	+4

Please indicate your overall dealership performance. NOTE: data given are anonymous.
(Use an estimate if the exact value is not available. Prefix a decline with “-“).

	Over the last year	Average over last 3 years
Sales Growth (% change)	_____ %	_____ %
Market Share Growth (% change)	_____ %	_____ %
Net Profit Growth (% change)	_____ %	_____ %
Sales Turnover (£ million)	£ _____ million	£ _____ million
Return On Sales (<i>Profit before tax</i> divided by <i>Sales before tax</i>)....	_____ %	_____ %

Please indicate your degree of agreement with the statements below.

	Strongly Disagree			Neither Agree Nor Disagree			Strongly Agree		
Over the last year, our customer satisfaction scores were excellent	1	2	3	4	5	6	7	8	9
Over the last year, our service quality scores were excellent	1	2	3	4	5	6	7	8	9
This questionnaire deals with issues I am very knowledgeable about	1	2	3	4	5	6	7	8	9
My answers to the questions in this questionnaire are very accurate	1	2	3	4	5	6	7	8	9

If you are part of a dealership group: (NOTE: All your responses are strictly confidential).

What is the name of the group? _____, please provide the postcode of the head office _____

Thank you. To receive a free summary of this study please enter your email address below:

_____@_____