VALUES, VALUE, RISK, AND SATISFACTION AS ANTECEDENTS TO CONTINUE IN FARMING WITH SPECIFIC REFERENCE TO FARMING IN GREAT BRITAIN

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ABSTRACT

This study concerns *value* and how this leads to the *decision* of whether to stay in farming, or to exit the industry. Most of the research into the *value* of farming is based upon the quantitative economic evaluation of either farmland income or production modelling. This study proposes that there is additional *value* beyond the income received. *Value* is deemed to be *customer perceived value* (*value*) on the basis that farmers are considered to be consumers of the system of farming within a professional environment. Farming is a 'way of life' and this is the first study that investigates whether the *personal values* (*values*) of farmers effect the *value* they perceive from farming as suggested by Schoon and Te Grontenhuis (2000).

This study investigates the relationship between values, value, risk, satisfaction and decision. The research model posits that values (each one separately) impacts on the formation of value (which is treated as a higher-order construct of the benefits ['get'] and sacrifices ['give'] components, each of which comprises a number of dimensions), risk (also conceptualised as a higher-order construct) impacts on value and decision, value is a determinant of satisfaction which in turn affects decision of whether or not to remain in farming. The competing model although it maintains the above structure treats the two value components as separate constructs (that is, tests for differential impact of value and risk on the 'get' and 'give' components and for the differential impact of these two components on satisfaction).

The relationships between the constructs were tested via data collected from a postal and internet survey sent to farmers within Great Britain. The empirical investigation involved the use of Partial Least Squares (structural equation modelling). Examination of the solutions obtained for the research and competing model led to the adoption of the latter because of is greater sensitivity and analytical clarity.

Overall, the findings confirm the relevance of *perceived value* in a person's decision to remain within a given professional domain. Specifically, the following contributions to extant knowledge are made:

- The differential behaviour of the two *value* components (i.e., 'give' and 'get') indicates that *value* should not be conceptualised and consequently examined as a unidimensional higher-order construct. Instead each of the *value* components should be free to relate to other constructs.
- The research has confirmed the link between personal *values* and value. However, the form of this relationship is considered to be context specific (i.e., in this study only Self Direction, Tradition and Benevolence were found to be a significant determinant of the *value* components).
- Risk has been found to impact significantly only on the 'give' component of value.
- Of the two components, only the 'get' to satisfaction relationship was supported. This implies that the benefits received rather than the 'give/sacrifices' made are the main driver of personal satisfaction with the chosen professional domain (in this case farming).
- As expected the satisfaction to decision to remain in the chosen profession relationship has been confirmed.

Based on the above policy suggestions are put forward regarding actions that could engender farmer's satisfaction with their profession and consequently ensure continuation with their chosen profession.

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PART A - INTRODUCTION

This part comprises one chapter that identifies the research problem and places it in the context of theory (literature) and application (farming).

➢ Chapter A1: Introduction

CHAPTER A1: INTRODUCTION

This chapter presents an overview of the subject matter. The research problem is delineated and the conceptual and theoretical foci are provided. The background to the research is explained and the literature of the antecedents and outcomes of customer perceived *value* and consumer *values* is outlined. Research needs are defined as the contributions to be made and the related aim and objectives of the investigation. A brief description of the proposed model and the adopted research methodology are provided and finally the limitations of the study are stated. For ease of reading the main constructs of this study, that is *values*, *value*, *risk*, *satisfaction* and *decision* are presented in *italics* and the dimensions of these constructs are shown in single quotation marks.

A1.1 Background to the Research

Over the last two decades there has been an increasing focus on *value* within marketing literature in general. *Value* is frequently defined in purely pecuniary terms but, as will be shown in the literature review, there are more dimensions to *value* than purely monetary or financial, such as the different consumption *values* proposed by Sheth *et al.* (1991a). This is supported by Richins and Dawson (1992) and Grönroos (1997) who suggest that the actual *value* consumers or customers gain from consumption extends beyond economic *value*. The author of this study has chosen to investigate the different consumption *values* within the context of farming. Farming has been selected because in Great Britain the *value* of this industry to the farmer is an unknown quantity, with many farmers passionate about their farms and their livelihood, irrespective of purely monetary *value*. Given the economic decline in farming over the past ten to

2

fifteen years and the hardship this has brought, it is surprising that so many farmers strive to stay in the profession, suggesting that there must be some *value* beyond that of mere financial remuneration that keeps them farming. The *decision* whether to stay in the industry or abandon it will be based on the *value* of farming to the individual farmer. This research originated out of the observation that, despite low incomes and the fact that the industry is in economic decline farmers in Great Britain continue to farm.

In the context of farming, *value* is considered in this study to be the consumption experience in the professional farming environment with a sample of farmers from all farming sectors. It is however recognised that there is confusion between the specific contributions of sector farming and general farming. For example farmers with livestock such as pigs will have a greater averse to the *risk* of swine fever than a general farmer who has cereals and a few cows.

Currently in the literature the principal means of identifying the *value* of farmland is based on the income received from farming (for example Weersink *et al.*, 1999; Chavas and Thomas, 1999). However, the relevance of the existing valuation models must be in doubt because the income received in the current economic climate no longer justifies the actual *value* of the land in the market place. Amongst others, Midmore (1996) and Just (2001) suggest that valuation models do not represent the *value* of farming. Midmore (1996) and Just (2001) question the fundamental approach by agricultural economists and suggest that perhaps this branch of economics needs to move forward and address some of the complex issues such as uncertainty and change, in new ways. This study seeks to provide an understanding of the components of *value* and to identify the *value* of farming to farmers.

Value is the core construct of this study, which together with the constructs of values and risk is investigated to see if they lead to satisfaction and decision. The difference between value and values forms an important part of this study and is discussed in the next section.

A1.2 The Study of Value and Values

Value, or customer perceived value in the marketing literature is the value that the customer receives from the consumption experience, whether it is a service, product or relationship. There is confusion within the literature with the words customer and consumer used interchangeably and consumer values are also described as personal values. In order to avoid any confusion in this study customer perceived value is abbreviated to value and consumer or personal values will hereinafter be referred to as values. Adding to the confusion the words values and value are often used synonymously, despite being distinct constructs. One aspect of this study is to investigate both constructs and their interrelationship.

In the marketing literature, it is suggested that *value* and *values* (Lai, 1995; Butz & Goodstein, 1996; Grönroos, 1997), *risk* (Sweeney *et al.*, 1999; Agarwal & Teas, 2001) and quality (Zeithaml, 1988; Caruana *et al.*, 2000) are antecedents of *value* and the outcomes of *value* are *satisfaction* and *decision*. *Decision* is the intention which, in the context of this study is whether farmers stay or abandon the industry and is not regarded as being dichotomous of 'yes' or 'no'. This is because if farmers want to stay

in the industry (but feel they cannot afford to), a possible solution is that they could make changes allowing them to stay.

As previously mentioned, the distinction between *values* and *value* in the literature is often confused and despite there being conceptual connections between the two constructs, there is a lack of empirical evidence supporting the conceptual connections. This study seeks to redress this deficit.

A1.3 The Need for this Research

This research sets out to assess the relationship between the constructs of *values*, *value*, *risk*, *satisfaction* and *decision* using an empirical study. This study aims to contribute to the understanding of *value* from the consumer's perspective. In the specific context of farming, an understanding of the components of *value* will lead to an improved knowledge of why farmers make the *decision* to stay in farming and will also enable policy makers to develop strategies for this industry from the farmer's perspective.

Although there is some research (for example, Gasson *et al.*, 1973; Maybery *et al.*, 2003) regarding the behavioural elements of *value* in the context of farming the author of this study has only found one paper that relates the farmer's *values* and the *value* (in the form of sustainability) of farming. The paper by Schoon and Te Grotenhuis (2000) concluded that such research is feasible and should be carried out.

Currently the study of *value* is undertaken mainly in the marketing literature and is limited to understanding how to improve competitive advantage in the consumption of products and services. There is therefore a need for investigating *value* within a

different domain such as a profession, which this study does. Farming is considered a profession and a 'way of life'. By placing *value* within a business and social context it is hoped that a detailed understanding of the concept can be developed.

A1.4 Research Contribution

As a result of the research needs identified in the previous section, five issues relating to *value* are viewed as meriting attention. These form the focal centre of the research.

1. The relationship between values and value

The study of *values* has been mainly carried out in psychological literature, whereas *value* has been studied mainly in marketing literature. It was suggested (but not tested), that there is a relationship between *values* and *value* (Lai, 1995; Butz & Goodstein, 1996; Grönroos, 1997) although the author of this study did not find any empirical studies assessing this relationship.

2. The antecedents of value

In the literature there is no consensus on the antecedents of *value*. In addition there is confusion with the nomenclature associated with the constructs. Furthermore there is no clarity or consistency of the use of the word antecedent which is used to describe dimensions, elements, components and attributes. An example of this is Sheth *et al.* (1991a) who discusses the dimensions of *value* whereas Lai (1995) discusses attributes.

3. The relationship of risk, value and satisfaction

In the literature, *risk* was found in the context of farming, as part of modelling behaviour to determine attitude to *risk*, whereas there was little discussion of the relationship of *risk* with *value* and/or *satisfaction*. Some authors regard *risk* as an

antecedent of *value* (for example Sweeney *et al.*, 1999; and Agarwal & Teas, 2001); and all too often, *risk* is regarded as a cost or sacrifice, whereas this study seeks to understand the construct of *risk* and the relationship between *value* and *decision*.

4. The effect of value on decision

The effect of *value* on *decision* is unclear with most authors suggesting that *value* and *satisfaction* lead to *decision*, (for example, Liljander & Strandvik, 1993; Eggert & Ulaga, 2002), however some authors consider that *value* leads directly to *decision* (for example, Gutman, 1982; and Ziethaml, 1988). This study seeks to explore this relationship and understand how *value* affects *decision*.

5. To identify the value of farming

Currently there is little empirical evidence of the *value* of farming from the perspective of the farmer. This study is concerned with farmers' view of the *value* of farming, how this effects their *decision* to stay in or leave the industry and if the outcome of this research could be used to assist farmers in shaping farming policy.

A1.5 Research Aims and Objectives

The aims of this study is to determine the impact that *values*, *value* and *risk* have on *satisfaction* and the subsequent *decision* by farmers of whether or not to stay in the industry. The objective of this work is to provide a better understanding of the components of the *value* of farming and this will enable theorists and policy makers to develop new approaches to setting farming policy.

This study extends the existing study of *value* into the professional environment beyond the product, service or relationship domain and attempts to achieve this through the specific objectives of:

1. building, through an extensive literature review, a model grounded in theory that incorporates the cognitive and behavioural determinants of *values*, the behavioural outcomes of *value* and *risk*, and how these constructs affect *satisfaction* and ultimately *decision*;

2. operationalization of the model constructs;

3. analysing the acquired data and testing the hypothesised pathways using suitable analytical tools;

4. putting forward theoretical and managerial suggestions based on empirical results.

Collectively the above add to the body of knowledge on value.

A1.6 Research Model and Research Design

Figure A1.1 below provides a simplified depiction of the Research Model that is fully presented and justified in Section C1.3 in order to provide the context of this study. The model presented below provides a broad appreciation of the relationships between values, value, risk, satisfaction and decision. Values and risk are depicted leading to value, which in turn leads to satisfaction, with satisfaction and risk leading to decision.





The main phases of the adopted research method broadly follow the research design framework proposed by Sekaran (2002) and are discussed in Chapter C1. Following an extensive literature review, a comprehensive appreciation of the subject was obtained and led to the formation of an initial conceptual framework.

At the end of this phase, exploratory research was undertaken with expert informants to fine tune the model and determine methodological issues. The next phase involved the generation and validation of multi-item scales for the constructs of *value*, *risk*, *satisfaction* and *decision* and the adoption of existing scales for *values*. These were then translated into a questionnaire. A sampling plan was developed using the framework proposed by McDaniel and Gates (2006) as discussed in Section C2.5. This involved a six-stage process leading to the development and execution of an operational sampling plan. Data were collected through a postal and internet survey which was addressed to both farmers and heads of farming groups. A response of 91 paper questionnaires and 39 electronic responses was received. The software packages SPSS

version 12.0.1 (Statistical Package for the Social Sciences), AMOS version 5 (Analysis of Moment Structures) and PLS-Graph version 03.00 (Partial Least Squares) were used for analytical investigation assessing reliability and validity and confirmation of the pathways of the model.

A1.7 The Limitations of this Study

Although considerable effort has been made to ensure the robustness of the study, there are a number of limitations that should/need to be highlighted.

1. The survey was carried out across Great Britain with a variety of farmers ranging from small family firms to large investment companies. Some farmers were owners, some tenants and others employees. The farmers surveyed were commercial farmers, part-time farmers (with supplementary incomes) and 'hobby' farmers who farmed purely for enjoyment. It is possible that different types of farmers may have different perceptions of *value*.

2. The results of the survey were mapped against DEFRA statistics. The latter were found to contain a greater number of small farmers than this study. It is therefore considered a limitation of this study because of the difficulty in reconciling the composition of the sample obtained against national statistics and is considered to inhibit the generalizability of the results.

3. It is a limitation of this study that the reasons why farmers farm has not been considered. A farmer who chooses to farm for him/herself might have a different perception of *value* from a family farmer who regards his/her role as maintaining the family tradition.

4. Farming as a profession was selected as the context for this study (as opposed, to alternatives such as accountancy or the law) because it is a 'way of life'. However, it is

recognised as a limitation that the use of a 'way of life' may not produce results that are generalizable to other professions and/or market situations.

5. The fact that only values, value, risk, satisfaction and decision were studied is acknowledged as a limitation because in the product, service or relationship domains other constructs such as quality would have been included. This is because this study regards quality as relating to 'quality of life' rather than quality of the service or product. However, it is recognised that there are authors (for example, McDougall & Levesque, 2000; LeBlanc & Nguyen, 2001) who consider that quality is an element within the *decision* process.

6. Normative guidelines are presented in this study, on the prime assumption that a *decision* reached is rational. The *decision* to leave the industry may be reversed if the farmer can make the necessary changes to enable him/her to stay in farming. This study sets out to gain a better understanding of the process that leads to a *decision*. This study recognises this, but does not explore the specific changes that might be needed if a farmer decides to make changes to enable him/her to stay in farming.

7. As the study involved an element of temporal investigation, an alternative form of research would have been longitudinal rather than cross-sectional (Miller & Friesen, 1982). A longitudinal approach would have afforded a 'dynamic' treatment of time rather than the current 'static' treatment. This would have been appropriate in highlighting temporal influences in finer detail (Pettigrew, 1987). Farming is a dynamic industry that can change over time and these changes can be either quick or slow. For example a policy change may result in a slow impact and effect, whereas the collapse of the World market price for grain is likely to have an immediate effect. Therefore, cross-sectional studies such as this investigation, which look only at the

present and not the future, can only provide a snapshot of relationships. For further discussion see Section C2.2.

8. It is considered a limitation of this study that economic and policy variables such as the Common Agricultural Policy or the effect of subsidies on the attitude of farmers to the *value* they receive from farming have not been included.

9. Although it is acknowledged that the value of land constitutes part of the overall perception of *value* to the farmer, this has not been explicitly included in the research because of problems with verification and regional variations.

10. The testing of formative higher-order structures was carried out with the knowledge that the numbers of indicators for each of the constructs were not approximately equal (Chin, 2004).

A1.8 Structure of the Thesis

This thesis is divided into five parts (Parts A to E) each of which is subdivided into one or more chapters.

Part A: Introduction - Part A comprises a single chapter (Chapter A1) which presents the general research background and offers an overview of information on *value* and a discussion of the research setting. The aims and objectives of the study together with its limitations are outlined.

Part B: Literature Review - The second part of the thesis is divided into two chapters. The first chapter (Chapter B1) discusses *value*, first offering ten definitions found in the literature (Section B1.2), followed by the components and dimensions of *value* (Section B1.3). There is then a section on the *value* process (Section B1.4) which

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offers a continuum of *value* from before consumption to after, the use of the product or service and finally the *value* as a result of the use of the product or service. Finally the conclusion reviews the findings of the chapter and the importance and relevance of studying *value*.

The second chapter (Chapter B2) is divided into three sections. The first section (Section B2.1) discusses the antecedents of *value*, being quality and *value*; *values* and *value*; and *risk* and *value*. The second section of the chapter (Section B2.2) debates the outcomes of *value*, and this is followed by the conclusion to this chapter (Section B2.3).

Part C: Research Design - The third part of the thesis describes and discusses the research methodology and tools employed in the current investigation. It contains four chapters. The first chapter describes the process involved in the development of a theoretically grounded model, looking at the limitations of the reviewed literature (Section C1.2). This is followed by a review of the Research Model and related hypotheses (modular pathways) (Section C1.3) and a review of the Competing Model and related hypotheses (Section C1.4). Finally there is a section on the research activities and the philosophical orientation of the research (Section C1.5).

The second chapter presents the Purpose of the Study (Section C2.1), the Time Horizon (Section C2.2), the Type of Investigation (Section C2.3) and the Study Setting and Interference (Section C2.4) and finally there is a section on the Sampling Design and the Unit of Analysis (Section C2.5). The third chapter presents the development of measures and measurements (Section C3.1) and the Questionnaire Design Process (Section C3.2). The final chapter includes a section on the Survey Considerations

(Section C4.1), a debate on the Data Collection (Section C4.2), the Response Rate Improvement and Error Minimisation (Section C4.3). The final section (Section C4.4) briefly examines the Data Analysis and Statistical Techniques employed in this study.

Part D: Data Analysis - The penultimate part of the thesis is devoted to the analysis of the collected data.

The first chapter is concerned with Measurement Accuracy Analysis (Chapter D1), it discusses tests relating to the reliability and validity of the research constructs. The second chapter (Chapter D2) tests for higher-order structures, model fit and hypothesised pathways; it seeks to describe the various steps in the analytical process for examining the hypothesised higher-order structures of *value* and *risk* and evaluating the proposed model fit.

Part E: Conclusions and Debate - The final part of the thesis comprises a single chapter (Chapter E1). It comments on the results and their relevance to the stated research aim and objectives. Normative guidelines, the contributions of the research and suggestions/recommendations for future research are also presented.

PART B - LITERATURE REVIEW

This part presents a review of the related literature and is divided into two chapters

- ➢ Chapter B1: Literature Review of Value
- Chapter B2:
- Antcedents and Outcomes of Value

CHAPTER B1: LITERATURE REVIEW OF VALUE

B1.1 Introduction

The focus of this literature review is on the antecedents and outcomes of *value*. however it was deemed necessary to firstly review the definitions, components and dimensions, and the value process. This chapter is structured into five sections discussing the construct of value. Research into value is important because it affects all aspects of business and is at the core of marketing (Eggert & Ulaga, 2002). The consumer perceives value from the consumption experience and as suggested by Lapierre (1997), value is driven by customer's needs and wants. Value is also described as the fundamental basis for all exchange activities (Anderson et al., 1993; Holbrook, 1994) or the cornerstone of marketing (Anderson & Narus, 1999; Walter et al., 2001; Mizik & Jacobson, 2003). It is the creation of value (Woodruff, 1997; Anderson & Narus, 1999; LeBlanc & Nguyen, 2001; Ulaga & Chacour, 2001; Menon et al. 2005; Eggert et al., 2006) or the creation of superior value (Ulaga & Eggert, 2006) that is regarded as essential for a company's success which leads in turn to a competitive advantage. It is this quest for competitive advantage that excites interest in value among researchers and business managers (Broderick et al., 1997; Golfetto & Gibbert, 2006).

The literature reviewed comes from the business-to-consumer and the business-tobusiness environments mainly in the product and service domains and is drawn from the business literature of economics (Cronin *et al.*, 1997) marketing/consumer behaviour (Sheth *et al.*, 1991b), and marketing literature (for example, Eggert & Ulaga, 2002; Spiteri & Dion, 2004; Ulaga & Eggert, 2006). Relationship *value* is also discussed where it has been relevant to a specific point, as for example Sirdeshmukh *et al.* (2002) because of its reference to *value* as a higher-order construct.

B1.2 Definitions of Value

This section examines ten of the definitions of *value* found in the literature. These definitions have been selected because the author of this study considered they offered a variety of opinion. The definitions are considered in chronological order so as to illustrate if and how they have developed over time. As will be seen, these vary in their content, level of abstraction and detail illustrating the lack of understanding of *value*.

The definitions debated in this section have also been selected because of their popularity and adoption by scholars in the field. The most widely adopted definitions are those by Zeithaml (1988), Holbrook (1994) and Woodruff (1997). Table B1.1 below provides a small sample of authors who have adopted these ten definitions.

Author	Adopted by:
Zeithaml (1988)	Bolton & Drew (1991); Broderick et al. (1997);
	Cronin et al. (1997); Woodall (2003)
Monroe (1990)	Liljander & Strandvik (1993)
Anderson et al. (1993)	Woodruff (1997)
Sawyer & Dickson (1984)	Patterson & Spreng (1997)
Holbrook (1994)	Broderick et al. (1997); de Ruyter et al. (1997a,
	1997b)
Woodruff (1997)	Beverland & Lockshin (2003); Lee et al. (2003);
	Overby (2005)
Lapierre (2000)	None found
Ulaga & Eggert (2001)	None found
Woodall (2003)	None found
Ulaga & Eggert (2005)	Möller (2006)

Table B1.1 - Definitions of Value debated in this Literature Review

One of the most commonly cited and earliest definitions is by Zeithaml (1988):

'the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given. Though what is received varies across consumers (i.e., some are concerned only with money expended, others with time and effort), value represents a trade-off of the salient give and get components' (p. 14).

Zeithaml derives the above definition from the responses obtained from an exploratory investigation of quality and *value* from the perspective of the consumer, grouped into four expressions. These were that *value* is: (1) '*low price*'; (2) '*whatever I want in a product*'; (3) '*the quality I get for the price I pay*'; and (4) '*what I get for what I give*'. The definition describes *value* as the consumer's overall assessment of the utility, whilst the four expressions are more personal to the consumer and *value* results in a net benefit. Zeithaml's definition has been widely adopted, for example by Bolton and Drew (1991); Broderick *et al.* (1997); Cronin *et al.* (1997) and Woodall (2003).

The definition by Monroe (1990) below is similar to that of Zeithaml (1988) in that it describes the trade-offs to result in the net benefit of *value*. Zeithaml (1988) describes the elements of *value* in basic terms as 'give' and 'get', whilst Monroe (1990) is more explicit in discussing quality, benefits and sacrifices:

'buyers' perception of value represent a trade-off between the quality or benefits they perceive in the product relative to the sacrifice they perceive by paying the price' (p. 46).

The difference between the definitions of Monroe (1990) and Zeithaml (1988) is the quality and/or benefits suggesting two different models of *value*, one being concerned with money and the other about choice.

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The third definition is that by Anderson *et al.* (1993) from a business-to-business setting as opposed to a business-to-consumer domain. This definition extends *value* beyond quality, benefits and sacrifices. They introduce a pecuniary exchange with the use of such words as 'worth' and 'price'.

'Value in business markets [is] the perceived worth in monetary units of the set of economic, technical service and social benefits received by a customer firm in exchange for the price paid for a product, taking into consideration the available suppliers' offerings and prices' (p. 5).

This is similar to the definition by Zeithaml (1988) except that Anderson *et al.* (1993) elaborates on what the 'get' and 'give' elements are. The limitation of the definition is the restriction of the sacrifice to monetary units, in contrast to the definition by Zeithaml (1988) who provides examples of sacrifices as 'money' to some people and 'time' and 'effort' to others.

The fourth definition offered in this study is that of Patterson and Spreng (1997), citing Sawyer and Dickson (1984), who suggest that *value* is:

'conceptualised as a comparison of the weighted 'get' attributes to 'give' attributes' (p. 46).

However, there is no evidence of how the attributes are weighted. Sawyer and Dickson (1984) offer their definition as a conceptualisation with testing to support it similarly as Zeithaml (1988). Similarly to the definition by Monroe (1990), Patterson and Spreng (1997) suggest a ratio or trade-off of benefits received against sacrifices whereas the definition by Sawyer and Dickson (1984) suggests there is a comparison between weighted 'get' and 'give' attributes. Holbrook (1994) offers a different perspective and posits that value is:

'an interactive relativistic preference experience' (p. 27)

and that,

'value in general is a relativistic (comparative, personal, situational) preference characterising a subject's experience of interacting with some intentional object' (p. 27).

Holbrook (1994) suggests that *value* is a preference and can only take place relative to the different offerings. This contrasts with Zeithaml (1988) who discusses the trade-off between the 'give' and 'get' attributes. Holbrook (1994) explicitly adds that *value* is a relationship between a person and an object. This is a vague definition lacking sufficient specificity to provide an understanding of *value*. This definition stands in stark contrast to Monroe (1990) and Anderson *et al.* (1993). Given the richness of his work, it is disappointing that Holbrook does not provide a more precise definition that offers an explanation of how the attributes of *value* relate to each other. In his later work in 1996, Holbrook continues to consider the dimensions of *value* when he describes *value* as '*extrinsic versus intrinsic*', '*self versus other oriented*' and '*active versus reactive*' but still offers no further definition. However, in 2005 Holbrook returns to his original work of 1994 in proposing that *value* is an '*interactive relativistic preference experience*'. The definition of Holbrook (1994) has been widely adopted (for example by Broderick *et al.*, 1997; de Ruyter *et al.*, 1997a, 1997b).

There is, however, one definition (Woodruff, 1997) that provides a fuller explanation of *value*. Woodruff (1997) goes further than the general expressions relating to benefits and sacrifices, which are explicit in the definitions above, encapsulating these in the following definition:

'a customer's perceived preference for and evaluation of those product attributes, attribute performances, and consequences arising from use that facilitate [or block] achieving the customer's goals and purposes in use situations' (p. 143).

Parasuraman (1997) considers Woodruff's conceptualisation of *value* as important and Simpson *et al.* (2001) suggest it is preferable to other definitions on the grounds that it emphasizes the multi-faceted nature of *value* creation in that both attributes and outcomes of activities are perceived *value*, and *value* is derived from the perspective of the customer. The author of this study concurs with the views of Parasuraman (1997) as well as of Simpson *et al.* (2001).

The words 'preference' and 'comparison' are used in the definitions of Zeithaml (1988) and Holbrook (1994) as a passive process, but in Woodruff (1997) they are used in a more active way to indicate the judgement by the customer in terms of a cognitive comparison process (Eggert & Ulaga, 2002).

The definition by Woodruff (1997) uses words such as 'evaluation', 'performances' and 'consequences'; thereby adding a dynamic element to the definition. This suggests that the *value* process begins before the exchange (evaluations) and continues both to the point of exchange (performances) and after the exchange (consequences). All of this is done in the process of 'achieving the customer's goals and purposes in the use situations' (Woodruff, 1997, p.145). Payne et al. (2001) posit that there is an implicit concept of 'value-in-use' in the definition by Woodruff (1997) that is missing in many definitions including that of Anderson et al. (1993). Woodruff (1997) was the only writer whom the author of this study found using the phrase 'value-in-use'. The

definition by Woodruff (1997) has been widely adopted, for example by Beverland and Lockshin (2003); Lee *et al.* (2003); and Overby (2005).

A further definition is that by Lapierre (2000), who rather than regarding the process as producing an outcome, is concerned with the customer's expectations:

'The difference between the benefits and sacrifices (e.g. the total costs, both monetary and non-monetary) perceived by customers in terms of their expectations i.e. needs and wants' (p. 123).

This is similar to Woodruff's 'achieving the customer's goals and purposes' but the high-level definition by Lapierre lacks the depth of Woodruff's, with no mention of a process. Lapierre (2000) describes benefits and sacrifices similarly to Monroe (1990) but does not discuss them explicitly as a trade-off, as Monroe (1990) does.

The definitions by Woodruff (1997) and Anderson *et al.* (1993) limit the discussion to a product whereas Ulaga and Chacour (2001) extend this to 'a supplier's offering', expanding the offering to include a service. Ulaga and Chacour (2001) define *value* as:

'the trade-off between the multiple benefits and sacrifices of a supplier's offering, as perceived by key decision makers in the customer's organization, and taking into consideration the available alternative suppliers' offerings in a specific-use situation' (p. 530).

This is similar to the definitions by Zeithaml (1988) and Monroe (1990) in that the term *trade-off* is used. Ulaga and Chacour (2001) describes '*multiple benefits and sacrifices*' and '*key decision makers in the customer's organization*' adding to the other definitions discussed in this study but offers no idea of the active process given in the definition by Woodruff (1997).

One definition that attempts to explain in detail what *value* means from the perspective of the customer was that of Woodall (2003):

'Value for the customer is any demand-side, personal perception of advantage arising out of a customer's association with an organisation's offering, and can occur as reduction in sacrifice; presence of benefit (perceived as either attributes or outcomes); the resultant of any weighted combination of sacrifice or benefit (determined and expressed either rationally or intuitively); or an aggregation, over time, or any or all of these' (p. 21).

Woodall (2003) attempts to combine previously presented definitions in his lengthy definition and the use of '*personal perception of advantage*' adds little to the aforementioned definitions. Woodall (2003) uses the word 'advantage', whereas Woodruff (1997) and Holbrook (1994) talk of a 'preference,' with the latter providing a feeling of a more personal nature. Woodruff (1997) introduces expectation in his definition, as does Lapierre (2000) when he mentions 'achieving'. However, the concept of expectation is missing from the definition of Woodall.

The most recent definition found and the tenth offered in this review, was that of Ulaga and Eggert (2005):

'[On a high level of abstraction] customer value is defined as the trade-off between the benefits and the sacrifices in a market exchange' (p.76).

However, this somewhat basic definition seems to offer no more than the previous definitions.

This section has discussed some of the more commonly cited and the most recently given definitions of *value* and concludes that there are many varied understandings of

value, often viewed from different perspectives (Tzokas & Saren, 1999; Blois, 2004). The definitions provided in this study are only some of those available from the seminal work of Zeithaml (1988) to the more verbose offering of Woodall (2003). The more recent definitions seem to offer more insight into the operational aspects of *value*.

There is no consensus on a definition however; authors continue to critique existing definitions, in search of improvement. For example, Blois (2004, p. 251) is critical of the definition of Woodruff (1997) because he considers that the claim by Woodruff that his definition would 'advance the practice of managing organisations towards customer value' (Woodruff, 1997) merely illustrates the complexity of how to define value and has done little to achieve his claim. He questions whether Woodruff's definition translates into an operational definition that can be used to measure customer value. Blois (2004) opines that it is more important that the supplier understands the customer's interpretation of what value actually is and not what the supplier thinks it should be. In support of this, other authors such as Möller (2006) and Ulaga and Eggert (2006) consider that the supplier needs to understand how the customer believes the purchase will contribute to the creation of the concept of value.

B1.3 The Components and Dimensions of Value

It is evident from the above debate that *value* is a complex construct that comprises distinct components.

Traditionally value is considered to be the trade-off between benefits and sacrifices however; this notion is challenged by some authors who consider the relationship between these two items as more complex (Holbrook, 1994; Kumar & Grisaffe, 2004). Agarwal and Teas (2001) suggest that value is not a simple trade-off but is based on a combined assessment of quality, sacrifice and risk, or a trade-off between sacrifice and quality (de Ruyter et al., 1997a). However, how the combination comes about is not determined (Agarwal & Teas, 2001; DeSarbo et al., 2001). The 'get' and 'give' combination is regarded as an additive process, with value represented as a compensatory trade-off (for example, Zeithaml, 1988; Sheth et al., 1991a; Bolton & Drew, 1991; Cronin et al., 1997; Lapierre, 2000; DeSarbo et al., 2001; Blois, 2004 and Ulaga & Eggert, 2004) whilst Grönroos (1997) suggests that value is a ratio of the 'give' and 'get' elements (see also Oliver, 1996; DeSarbo et al., 2001). Grönroos (1997) proposes the following two equations to illustrate the relationship between the elements of *value*. He considers that *value* is developing and perceived over time, with equation (1) being the short-term notion whilst equation (2) is the long-term notion with the added *value* element experienced over time as the relationship develops.

$$Value = \underline{Core \ Solution + Additional \ Services}$$
(1)
Price + Relationship Costs

$$Value = Core \, Value \pm Added \, Value \tag{2}$$

Grönroos (1997) perceives *value* over time but offers no explanation of the changes, or effect of those changes over time, as suggested in the Temporal Elements of Value in Figure B1.3. Relationship *value* is increasing in importance in the literature, with many

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papers investigating the value in relationships (see for example, Hogan, 2001; Payne et al., 2001; Walter et al., 2001; Ehret, 2004; Eng, 2005; Menon et al., 2005; Möller, 2006; Ulaga & Eggert, 2006).

Different authors consider some benefits and sacrifices appropriate to one domain and perhaps not another. This is supported by Lapierre *et al.* (1999) and Lapierre (2000) in Section B1.3.1, who consider that there are different benefits and sacrifices in different domains such as product, service and relationships. Anderson *et al.* (2006) adopt a simplistic approach and describe them as *'all the benefits customers receive from a market offering'* (p. 93), and Holbrook (2005) considers that all products are services.

Author	Dimension
Sheth et al. (1991a)	Functional, Emotional, Conditional, Epistemic, Social
Holbrook (1994)	Efficiency, Excellence, Politics, Esteem, Play, Aesthetics, Morality, Spirituality, Psychological, Hedonic
de Ruyter <i>et al.</i> (1997a, 1997b)	Emotional, Practical, Logical
Patterson & Spreng (1997)	Functional, Technical, Economic, Financial
Gassenheimer et al. (1998),	Economic and Social
Lemmink et al. (1998)	Emotional, Practical, Logical
Lapierre et al. (1999),	Competence, Reliability, Communication, Time, Effort, Cost
Liu et al. (2003)	Value from Core Service, Value from Support Service
Woodall (2003)	Functional, Economic, Commitment, Value-in-kind, Strategic, Spiritual, Relational, Psychological
Chen & Quester (2005)	Good Service Behaviours, Good consuming Environment, Positive Service Episodes, Individualised Value, Economic Value, Risk Avoidance in Service, Social-psychological interaction, Considerations of Service Alternatives
Spiteri & Dion (2004)	Performance, Quality, Reliability, Safety, Expertise, Competencies, Advantages, New Products, Recognition, Time, Effort, Prices
Eggert et al. (2005)	Product Quality, Delivery Performance, Time-to-Market, Service Support, Supplier Know-How, Personal Interaction
Ulaga & Eggert (2006)	Product Quality, Delivery Performance, Time-to-Market, Service Support, Supplier Know-how, Personal Interaction

Table B1.2 - A Table of the Dimensions of Value

B1.3.1 Dimensions of Benefits

Both Holbrook (1994) and Kumar and Grisaffe (2004) discuss intrinsic and extrinsic attributes, some of which they consider are benefits whilst others they regard as forming part of quality. This confusion can possibly be explained when quality is described as a component of benefit (Monroe, 1990; Gale, 1994; Kim, 2002) an outcome (Bolton & Drew, 1991) or as an antecedent (Brady & Robertson, 1999; Caruana *et al.*, 2000; Eggert & Ulaga, 2002). In his empirical study in the literature Lapierre (2000) considers quality as a benefit in the product domain whereas, for example, Liljander and Strandvik (1993), Cronin *et al.* (1997), Brady and Robertson (1999), Caruana *et al.* (2000) and Agarwal and Teas (2001) consider that quality is relevant in the service domain. Sirdeshmukh *et al.* (2002) concur with Lapierre (2000) that quality is not regarded as a benefit in the relationship domain. Grönroos (1997) describes the quality costs of a relationship or costs caused by quality problems, providing a different approach to quality, but again quality is not regarded as a benefit in the relationship domain.

As shown in this section, there are many different dimensions proposed both conceptual and empirical, for example 'emotional', 'practical', and 'logical' (de Ruyter *et al.*, 1997a, 1997b; Lemmink *et al.*, 1998) (both empirical); 'functional', 'social', 'emotional', 'epistemic', and 'conditional' (Sheth *et al.*, 1991a) (conceptual); 'competence', 'reliability', 'communication', 'time', 'effort', 'cost' (Lapierre *et al.*, 1999) (empirical). In a later paper Lapierre (2000) studied *value* in an industrial environment and suggested the dimensions vary with the domains of product, service and relationship, however he illustrates these variations with, what he terms 'drivers' rather than dimensions. In addition, Lapierre (2000) describes benefits and sacrifices as
dimensions rather than components, which is confusing. The dimensions offered specifically within a service domain are 'value from core service' and 'value from support service' (Liu *et al.*, 2003) or from a relationship domain 'product quality', 'delivery performance', 'time-to-market', 'service support', 'supplier know-how', and 'personal interaction' (Eggert *et al.*, 2005; Ulaga & Eggert, 2006).

The work of Sheth *et al.* (1991a) has attracted further study with Stafford (1994), Patterson and Spreng (1997), LeBlanc and Nguyen (1999); Mathwick *et al.* (2001) and Sweeney and Soutar (2001) offering empirical support for the work of Sheth *et al.* (1991a) work. Woodall (2003), in his conceptual study, suggests mixing dimensions from others authors. This however, appears to be dysfunctional because of the breadth of dimensions.

In the conceptual work of Holbrook (1994) eight primary dimensions of *value* are offered, these comprising; efficiency, excellence, politics, esteem, play, aesthetics, morality and spirituality and preliminary studies investigating spiritual and psychological *value* (for example Havlena & Holbrook, 1986) and an increasing interest in hedonic *value* (for example Holbrook *et al.*, 1984). However, the author of this study suggests that hedonic *value* is not a dimension of *value*, but part of 'emotional' *value*. Other nomenclatures of 'emotional' *value* are found in the literature, such as attachment *value* (Cordes *et al.*, 2003) and aesthetic *value* (Woodall, 2003). In addition to this there are also differing opinions on the relationship between the dimensions. Sweeney and Soutar (2001) for instance consider the dimensions to be interrelated, whereas Sheth *et al.* (1991a) consider them to be independent.

This section has discussed the dimensions of *value* and concludes that *value* is as suggested by Sinha and DeSarbo (1998):

'clearly a multi-dimensional construct derived from perceptions of price, quality, quantity, benefits and sacrifice' (p. 237).

Although Sinha and DeSarbo (1998) indicate that price, quality, quantity, benefits and sacrifice are the determinants of *value*, it is confusing because price and quantity are dimensions, benefits and sacrifices are elements and quality is an antecedent. As can be seen from this section there are many varied suggestions as to the dimensions of *value*.

B1.3.2 Dimensions of Sacrifices

The sacrifices, or 'give' component is also described as price (for example, Liljander & Strandvik, 1993, Lapierre *et al.*, 1999) and is made of elements such as time, effort, costs both monetary and psychological.

From a managerial perspective there is a lack of understanding of the supplier and consumer needs of *value* (Beverland & Lockshin, 2003) and it is not only necessary to create *value* but also to understand *value*, to ensure that firms gain tacit competitive advantage over their rivals (see also Moon *et al.*, 1998; Simpson *et al.*, 2001; Molineu *et al.*, 2004). Ulaga & Eggert (2006) propose that if the objective of companies is to maintain competitive advantage there needs to be a better understanding of what *value* is, and a more flexible approach to what the antecedents of *value* are, in the modern marketplace where the consumer is becoming more discerning. This is because product and price are becoming less important differentiators of purchase intention (Vandenbosch & Dawar, 2002; Ulaga & Eggert, 2006).

As can be seen from the above discussion, there is no clear definition of what benefits and sacrifices are. In addition there is no clarity as to their relationship and whether they differ for each domain. Nevertheless there is overwhelming agreement the two components of *value* are benefits and sacrifices. Each of these has been conceptualised as comprising a number of dimensions. In addition to a discussion on the dimensions of *value* this section provides a Table of the Dimensions of Value in Table B1.2.

B1.4 The Value Process

This section looks at the *value* process and offers a figure illustrating the Temporal Elements of Value (Figure B1.3) proposing four stages. The *value* process is discussed throughout the stages and the author of this study demonstrates how this contributes to 'A Longitudinal Perspective on Value to the Consumer' developed by Woodall (2003), through the introduction of benefits and sacrifices.

Different authors regard the consumption experience differently. There are authors who suggest that customers perceive *value* differently before, during and/or after the purchase and suggest changes in *value* perception at different stages of the process (Woodruff, 1997; Eggert & Ulaga, 2002; Flint *et al.*, 2002). In contrast, there are authors who regard *value* as being a single process (Anderson *et al.*, 1993; Agarwal & Teas, 2001; Ulaga & Chacour, 2001; Lapierre, 2000; Ulaga & Eggert, 2005), or just at one point in time during the experience or process (de Ruyter *et al.*, 1997a). Ravald and Grönroos (1996) and Grönroos (1997) consider that the exchange process results in a total episode *value* (similar to the aggregated *value* proposed by Woodall, 2003 in Section B1.2) that involves the *value* of the sequence of events as well as the perceived *value* from the transaction itself. Ravald and Grönroos (1996) describe the total episode *value* as a

function of episode *value* and relationship *value*. This study regards the episode as described in the Concise Oxford Dictionary (1999) as 'an event or series of events'. It is the series of events that make up the episode of *value*, and concurs with the definition of Ravald and Grönroos (1996) who define an episode as:

'an event of interaction which has a clear starting point and an ending point and represents a complete exchange' (p. 28).

If the sequence of events or episodes is the different stages in the *value* process starting before the transaction, and continuing after the point of the transaction (as suggested by Woodruff, 1997; Day & Crask, 2000), the author of this study suggests that there is a further *value* which takes place after the exchange or use of the product/service. This *value* is termed 'retrospective' or 'reflective' *value* in the Temporal Elements of Value in Figure B1.3 and is similar to the episode *value* proposed by Ravald and Grönroos (1996) earlier. The after-use of the product or service is the reflection on the process and includes the benefits received from the exchange process.

Figure B1.3 – The Temporal Elements of Value

Prior to exchange

Point of exchange

Use of Product/Service

After use of

Product/Service

Perceived Acquisition	Received	Value-in-use	Retrospective/Reflective
Value/Perceived	Value/Perceived	Desired Value	Value
Transaction Value	Value		
Perceived Benefits	Received Benefits	Benefits-in-use	Episode Gain/Benefits
Perceived Sacrifices	Sacrifices Given	Sacrifices made	Episode Sacrifices

The Temporal Elements of Value has been developed to illustrate the changes in *value* throughout the process along the horizontal arrow. The four stages extend from before to after the exchange. The first row of the table illustrates the different *values* along the Continuum and the second and third rows illustrate the benefits and sacrifices. The author of this study considers it is important to include the benefits and sacrifices as they also change throughout the *value* process.

At the first stage – prior to exchange the consumer perceives there is potential/anticipated acquisition or transaction *value* and perceives there are future benefits and sacrifices. Woodall (2003) terms the first stage the Pre-purchase phase. The second stage – at the point of exchange or '*point of trade in real-time*' as described by Woodall (2003, p. 10) is when the *value* is received through the benefits, and the sacrifices that are given. The third stage – *Use of Product or Service* is the *value* that the consumer continues to receive through the net benefits received and sacrifices made. Woodall (2003) describes this as the *Post-Purchase* or *Ex-Post* phase. This is the stage immediately following the transaction/exchange. The final stage – The After use of Product/Service, termed the Disposition stage by Woodall (2003) is the reflective or retrospective phase when the entire episode is evaluated by the consumer and the episode gains/benefits and sacrifices are reflected upon.

This section has looked at the *value* process and concludes that the entire process is made up of four stages. The four stages together imply there are temporal and collective aspects of *value* (Woodall, 2003) consistent with the view of Beverland and Lockshin (2003) who consider '*customer value is a dynamic interactive phenomenon*'. There is an emerging body of literature on the study of customers' desired *value* change

particularly in the business-to-business markets. For readers who are interested further, see for example Occhionero (2000); Flint and Woodruff (2001); Flint *et al.* (2002); and Beverland and Lockshin (2003).

B1.5 Conclusion

Value is considered important and a relevant research topic because it affects all aspects of business and forms the fundamental basis for all exchange activities. In order for companies to gain and maintain competitive advantage, they need to understand *value* (Beverland & Lockshin, 2003; Ulaga & Eggert, 2006).

This chapter has investigated and discussed the definitions found in the literature ranging from the earlier definition of Zeithaml (1988) to Ulaga and Eggert (2005); there was however, no common definition. Neither was there any clear understanding of the processes of *value*, and whether there is a trade-off, or a relationship between benefits and sacrifices (see Tzokas & Saren, 1999). It is concluded that the definitions do not appear to have developed over time. The author of this study proposes acceptance of the definition of Woodruff (1997) because it is the most comprehensive definition available, with a sense of *value* being dynamic, as discussed in Section B1.2.

Zeithaml (1988) discusses the concept of higher-order and describes the most complex higher-order level of abstraction as the emotional payoff, as suggested by Young and Feigin (1975). From her study she discovered that respondents thought that *value* to them was achieved through a wide variety of attributes and higher-level abstractions. She concluded that the constituents of *value* appear to be highly personal and idiosyncratic.

Value has only recently been considered from the different perspectives of: *value* creation for the customer, *value* creation for the supplier and joint buyer-seller *value* creation (Ulaga, 2001; Walter & Ritter, 2003). Traditionally the study of *value* has been from the perspective of the consumer. The suggestion that there is a difference between the perspectives only confuses the already disparate study on *value*. In a later paper, Ulaga (2003) talks of a managerial perspective, adding a further viewpoint.

The conclusion is that the literature on *value* is often confusing and incomplete making comparison between studies difficult (McDougall & Levesque, 2000; Wahyuningsih, 2005). Furthermore, there is no guidance in the existing research as to the consolidation of the dimensions and despite its importance, the study of *value* is still in its early stages (Broderick *et al.*, 1997; Ulaga & Eggert, 2006). This is further supported by Chen and Quester (2005) who consider that '*existing research has yet to provide a valid scale [for value] for use in empirical investigations*' (p. 781), which this study seeks to address.

An aspect of *value* requiring discussion is the conceptualisation of *value*. The justification for the use of reflective or formative constructs is discussed in Section C3.1.3., whereas in this section the studies that acknowledge and discuss *value* as either a formative or reflective variable are discussed. The work of Lapierre *et al.* (1999) and Spiteri and Dion (2004) are examples of studies in which *value* is regarded as reflective, whereas in the recent work of Ulaga and Eggert (2006) *value* is considered to

be a formative variable. In support of this, Ulaga and Eggert (2006) suggest that the reason for this is because *value* has previously been conceptualised as reflective without any consideration of the construct being formative, see Lapierre (2000).

As has been discussed in this chapter, there is a diversity of opinions about what *value* is and what its characteristics are (Day & Crask, 2000; Woodall, 2003). In addition to this there are many other epithets given to this construct, for example 'exclusive' *value* and 'general' *value* (Woodall, 2003, p. 9) as discussed in Sections B1.2 and B1.4.

Value is a complex construct described as "multi-faceted" (Babin et al., 1994); "complicated" (Ravald & Grönroos, 1996; Cronin et al., 2000; Hogan, 2001); "dynamic" (Jaworski & Kohli, 1993; Flint & Woodruff, 2001; Beverland & Lockshin, 2003; Khalifa, 2004); "confusing" (Flint et al., 2002); a "difficult concept to understand" (Sinha & DeSarbo, 1998); and remains an "ambiguous construct with no clear theoretical anchor" (Woodall, 2003). Value is perceived as "contextual" (Babin et al., 1994) and a "higher-order complex construct" (Holbrook, 1994; Vriens & Hofstede, 2000; Ulaga and Eggert, 2005) that researchers and companies do not fully understand (Broderick et al., 1997). Furthermore, Khalifa (2004) offers a critical evaluation of the study of value as 'one of the most over-used and mis-used concepts in social sciences in general and in management literature in particular' (p. 646).

CHAPTER B2: ANTECEDENTS AND OUTCOMES OF VALUE

Given that examination, including prediction of any construct must take place within a formal theoretical network containing the construct under examination. This section discusses the antecedents (that is, determinants) and outcomes of value. A synopsis is provided in Table B2.1 that guides the subsequent debate. As can be seen from this table the majority of the papers are empirical and have been carried out mainly in the service domain.

Author	Antecedents	Outcomes	Domain	Result
Zeithaml (1988)	Benefits and sacrifices	Purchase	Products	Means-end model relating price, quality and value
Bolton & Drew (1991)	Quality and Sacrifice	Satisfaction	Service	Single measure of each construct. Value better measure of overall evaluation than quality
Liljander & Strandvik (1993)	Quality and price	Satisfaction	Service	Quality related to behaviour and willingness to pay measures
Spreng <i>et al.</i> (1993)*	Desires, expectations, benefits and sacrifices	Satisfaction	Products and Services	Desires congruency and satisfaction
Lai (1995)*	Values, benefits and costs		Product	Value is subjective evaluation of the whole situation
Oliver (1996)*	Receipts and sacrifices	Satisfaction	Product	
Ravald & Grönroos (1996) *	Sacrifice	Satisfaction	Relationships	Reducing sacrifice to add more value
Wood & Sheer (1996)	Benefits and costs	Purchase intention	Service	Risk regarded as a cost
Broderick <i>et al.</i> (1997)	Price, sacrifice and quality	Purchase intention	Service	Price is the main driver of value
Cronin <i>et al.</i> (1997)	Quality and sacrifice	Purchase intention	Service	Benefits and costs measured additively
DeRuyter <i>et al.</i> (1997a; 1997b)	Sacrifice and quality	Satisfaction	Service	Emotional, practical and logical value dimensions
Grönroos (1997)*	Benefits and resources	Value creation	Relationship	Positive/negative added value to the core benefits

Table B2.1 - Synopsis of the findings of the Literature on Value

Σ

Author	Antecedent	Outcome	Domain	Result
Patterson & Spreng (1997)	Benefits and sacrifices	Satisfaction and repurchase intention	Service	Value mediated through satisfaction in influencing repeat purchase behaviour
Brady & Robertson (1999)	Quality and sacrifice	Satisfaction	Service	Sacrifice and quality key determinants
Lapierre <i>et al.</i> (1999)	Benefits and price	Satisfaction and purchase intention	Service	When sacrifices of time, effort and cost are fair, perceived value is positive. Quality is not the main element in intention.
Leblanc & Nguyen (1999)	Quality and price		Service	Males focus on social value. Females critical of price/quality relationship
Sweeney et al. (1999)	Quality, price and risk	Purchase intention	Product	Quality leads to value. Moderating role of risk.
Caruana <i>et al.</i> (2000)	Quality	Satisfaction	Service	Moderating role of value. Link between quality and satisfaction
Day & Crask (2000)*	Financial risk	Satisfaction		Decision-making is a risk assessment process
Lapierre (2000)	Benefit and sacrifice. 13 value drivers. Performance		Product, service and relationship	Product – service relationship dependent. Different drivers dominate in different scopes
McDougall & Levesque (2000)	Quality	Satisfaction	Services	Direct link between satisfaction and future intentions
Teas & Agarwal (2000)	Quality and sacrifice		Product	Quality and sacrifice mediate between extrinsic cues and value

Author	Antecedent	Outcome	Domain	Result
Agarwal & Teas (2001)	Quality, sacrifice and risk	· · · · ·	Service	Quality and sacrifice mediate between extrinsic cues and risk. Risk mediates relationship of quality and sacrifice with value
DeSarbo <i>et al.</i> (2001)	Quality and price	Customer retention	Product	Quality less prices results in value
LeBlanc & Nguyen (2001)	Quality	Purchase intention	Product and service	More variables than price affect perceived value
Eggert & Ulaga (2002)	Quality	Satisfaction	Product	Value and satisfaction distinct, yet complementary constructs
Petrick (2002)	Quality and price	Repurchase intention	Service	Price, emotion, quality and reputation – dimensions of value
Sirdeshmukh <i>et al.</i> (2002)	Trust	Loyalty	Relationships	Effect of trust on loyalty partially mediated by value
Spiteri & Dion (2004)	Benefits and sacrifices	Loyalty	Product	No support for value as a higher-order construct
Wahyuningsih (2005)	Benefits and sacrifices	Behavioural intention	Service	Value and intention mediated by satisfaction
Ulaga & Eggert (2006)	Benefits and costs	Repurchase intention	Relationship	Quality, delivery performance and cost lead to gaining and maintaining key supplier status.

* conceptual papers

B2.1 Antecedents of Value

Despite debate that clearly indicates that value comprises benefits and sacrifices (see Section B1.4) a large number of papers incorrectly specify these constructs as representing antecedents of *value*. For example, Zeithaml (1988), Patterson and Spreng (1997), Spiteri and Dion (2004) and Wahyuningsih (2005) explicitly define benefits and sacrifices as antecedents of value. Others, such as Liljander and Strandvik (1993), Lai (1995) and LeBlanc and Nguyen (1999) simplify the broad concept of sacrifices into a narrow specification of costs. In terms of 'correctly' specified antecedents we observe that there are quality, *values* and *risk*.

B2.1.1 Quality and Value

Irrespective of whether service (for example, Bolton & Drew, 1991; Patterson & Spreng, 1997; Brady & Robertson, 1999; Sweeney *et al.*, 1999; Petrick, 2002) or product (for example, Zeithaml, 1988; Sweeney *et al.*, 1999; DeSarbo *et al.*, 2001; LeBlanc & Nguyen, 2001; Eggert & Ulaga, 2002) there is overwhelming evidence that quality is a significant determinant of *value*. However, all the above papers have treated quality as a single construct rather than differentiating between elements or dimensions of quality.

B2.1.2 Values and Value

Brangule-Vlagsma et al. (2002) suggest that values 'help to explain and understand consumer behaviour because they play a central role in consumers' cognitive structures and because of their supposed stability' (p. 267). Given that perceptions of value guide concurrent behaviour, it is surprising to see that only one paper in the marketing literature (that is, Lai, 1995) explicitly deals with the values and value relationship. The functional links and distinct nature of values and value is clearly articulated by Holbrook (1994) who distinguishes by stating that value is a preference judgement while values represent the criteria by which such judgements are made. This implies that *value* is related to, but distinct from, the concept of *values*. Furthermore, we can surmise from the above that consumers perceptions of *value* are driven by the (personal) *values* they hold. These issues are elaborated below. Debate relating to the nature and structure of *values* can be found in Appendix E.

The difference between *values* and *value* is not a simple difference between singular and plural as shown in the Concise Oxford Dictionary (1999) that describes *values* as

'principles or standards of behaviour',

and value being

'[to] estimate the value of ' and '[to] consider to be important or beneficial'. This difference in classification of values as a noun and value as a verb provides a grammatical distinction as opposed to a different interpretation through research.

In the literature a difference is offered by Lai (1995), who suggests that:

'Generally speaking, 'customer value' focuses on the buyers' evaluation of product purchase at the time of buying, while 'consumer values' stress people's valuation on the consumption or possession of products' (p. 381).

Whilst there are authors who consider there to be a link between *values* and *value* (Lai, 1995; Butz & Goodstein, 1996; Grönroos 1997) there are opponents to this view such as Oliver (1996) who considers that the:

'value derived from consumption does not share a one-to-one overall overlap with values desired by individuals in general' (p. 143).

However, existence of a relationship between *values* and *value* does not necessarily imply a strict mapping of these two constructs.

In addition to the differing opinions on the link between the two constructs, there are also opposing views provided on whether *values* are temporal or longitudinal. Lai (1995) suggests that personal *values* occur at the time of consumption or possession whereas Rokeach (1973) suggests that *values* are enduring beliefs or cognitive elements that lead to an outcome. The latter view concurs with the notion that the consumption experience involves stages as suggested in Section B1.4.

The difference between *value* and *values* is that *value* is either inherent in the use of some product or linked through the use, to some product (Woodruff, 1997) and is the overall evaluation of the consumption experience (LeBlanc & Nguyen, 2001) whereas *values* are enduring beliefs (Rokeach, 1973) or guiding principles of an individual's life and concepts and beliefs (Schwartz and Bilsky, 1990).

Lai (1995) discusses the relationship between *values* and *value* and provides two diagrams of a framework of product valuation for consumers and a model of *value* for the consumer market. The two models are brought together by the author of this study in Figure B2.2 below to show the link between *values* and *value*. Lai (1995) proposes a model of customer *value* for the consumer market. He discusses the work of Day (1990) and suggests that the related constructs of *values* and *value* might be integrated which, as was discussed earlier in Section A1.2. *Value* is considered to be intuitively calculated, based on the customer's *values* and beliefs and can only be increased by truly understanding the customer. Butz and Goodstein (1996) illustrate similar thinking to Lai (1995) suggesting that in the creation of *value* an emotional bond is established between the customer and the supplier.

The model in Figure B2.2 illustrates the relationship between the cultural, personal and consumption *values* which, together with the perceived logistic and product benefits and perceived costs, lead to *value*. This model illustrates the suggested link between *values* and *value*. The model illustrates costs (both monetary and non-monetary) and benefits (product and logistic) leading to the evaluation process and then to *value*. This is similar to the conceptual Means-End Chain model offered by Gutman (1982) where the term 'evaluation' is replaced by 'consequences', illustrating similar processes using dissimilar terminology. This model is not dissimilar to the *value* models in that the outcome is choice or purchase intention, although more emphasis is put on the behavioural aspects of choice.

The author of this study considers that studies including those of Lai (1995) and Butz and Goodstein (1996) are important because they suggest that *values* and *value* are connected. The author of this study feels that it is valuable to reunite these disparate concepts in order to extend the body of knowledge on this subject and, in the process, improve management practice.





Source: Adapted from 2 models proposed by Lai, A. (1995), Consumer Values, Product Benefits and Customer Value: A Consumption Behaviour Approach. *Advances in Consumer Research* 22, p. 81-388.

B2.1.3 Risk and value

Risk is a contextual construct, for example, energy (McLorrain & Lozar, 2000; Dey, 2002); engineering (Miller & Park, 2002); investment (Barry, 1980); and the business audit model (Dusenbury *et al.*, 2000). Much of the literature on *risk* comes from economic theory while in the marketing literature, *risk* is termed 'perceived *risk'*.

Spence *et al.* (1970) define perceived *risk* as:

'the amount of risk that a respondent says he sees in the purchase of a product in a specific buying situation' (p. 365).

This definition is considered by the author of this study to be weak, because it lacks any interpretation of what *risk* is or how it comes about. Spence *et al.* (1970) define *risk* in the product domain with no discussion about other domains, for example the service or relationship domain. A second definition (found in the *value*-related literature) provided by Sweeney *et al.* (1999) who define *risk* as the:

'subjective expectation of a loss' (p. 81).

This somewhat simplistic definition is similar to that by Spence *et al.* (1970) in that there is no discussion about what causes *risk* or what its outcomes are. The definition does, however, suggest that *risk* is an 'expectation of a loss', which is contrary to the notion that *risk* can be positive or negative, (see for example Section C1.3). Along the same lines as above the description of *risk* by Lai (1995) focuses on the negative element of *risk*:

'the uncertainty or potential negative consequences of consumer activities' (p. 386). The above indicates that risk is perceptual and also related to consumption activities. This clearly points to the conceptual link between risk and value. As indicated in Table B2.1, debate and empirical evidence of the risk to value relationship can be found in only a few papers.

Financial and performance *risk* were the only types discussed with *value* (Wood & Scheer, 1996; Sweeney *et al.*, 1999; Agarwal & Teas, 2001). Agarwal and Teas (2001) suggest this is because consumers are concerned with the expectation of a future cost for the product, and whether it offers value-for-money when purchased. Performance

risk is described as the *risk* that the product will not perform as expected (Agarwal & Teas, 2001). The author of this study suggests that there is a close link here with *satisfaction* because *satisfaction* is the result of what actually happens compared to what is expected to happen (Lai, 1995). However, *satisfaction* and *value* are two different constructs and greater/lesser customer *value* does not necessarily mean greater/lesser *satisfaction* (Agarwal & Teas, 2001). However, this is contradicted by Johnson *et al.* (2006) who in their empirical study investigating the effect of loyalty, *risk* and category experience on customer *satisfaction* ratings, find that *risk* has a significantly negative effect on *satisfaction*.

Risk is described in different ways, for example, as a potential sacrifice (Sweeney *et al.*, 1999); as one of the 'give' elements of the trade-off (Zeithaml, 1988); and as a perceived cost (Lai, 1995). A description that simplifies the aforementioned interpretations is that *risk* is a negative element in the *value* framework (Peter & Tarpey, 1975; Grönroos, 1997) and one that has been adopted in this study.

The effect of *risk* on *satisfaction* in the context of customer *satisfaction* ratings is studied by Johnson *et al.* (2006). As expected they conclude that the greater the perception of *risk* the lower the *satisfaction* scores. *Risk*-reducing models, such as warranties and increasing brand image are also proposed (Sweeney *et al.*, 1999), who posit that the consumer is motivated to minimize the *risk* element in the exchange process of a product. Peter and Tarpey (1975) suggest that *risk* is the minimisation of expected negative utility (perceived *risk*), whereas Pratt and Zeckhauser (1996) suggest that consumers have a cost-benefit approach to *risk* reduction.

The use of the utility function is questioned by Smidts (1997) who studied the intrinsic *risk* attitude of consumers in determining *value*. He found that the utility function (used to measure the *risk* attitude) does not have a relationship with the *value* function (used to measure the *risk* preference) because they are different; he suggests that *risk* should not be modelled with *value*. This is contrary to Sweeney *et al.* (1999), who consider that *value* and *risk* are a trade-off and can be combined in the same model. They suggest this is the case because there are positive (perceived return) and negative (perceived *risk*) elements in the utility models proposed by both Bilkey (1953), and Peter and Tarpey (1975). The author of this study rejects the idea that *value* and *risk* are a trade-off because *risk* is an antecedent of *value*, as indicated in the Research Model in Section C1.3.

The position of *risk* in its relationship to *value* and quality is confused. Sweeney *et al.* (1999) consider that *risk* leads to quality, whereas Agarwal and Teas (2001) consider that quality leads to *risk* - even though they both consider that *risk* is a determinant of *value*. In their empirical study, Sweeney *et al.* (1999) conclude that perceived *risk* has a greater effect on *value* than either quality or price and they recognise that a consumer's attitude to *risk* should be included in any assessment of *risk*, quality, price and *value*. It is, therefore, surprising that two years later Sweeney and Soutar (2001) did not consider it necessary to measure *risk* as part of *value*. The reason they give is that *risk* is considered part of the *decision* process leading to the purchase of the product or service. The author of this study considers it is implied, although not explicitly stated, that *risk* has a negative effect on *decision*.

B2.2 Outcomes of value

From Table B2.1 it can be seen that the main outcome of *value* is are considered to be satisfaction (for example, Liljander & Strandvik, 1993; Ravald & Grönroos, 1996; Brady & Robertson, 1999; Caruana *et al.*, 2000; Day & Crask, 2000; McDougall & Levesque, 2000; Eggert & Ulaga, 2002; Wahyuningsih, 2005). Other outcomes include: repurchase intention (Patterson & Spreng, 1997; Lapierre *et al.*, 1999; Cronin *et al.*, 1997; Sweeney *et al.*, 1999; LeBlanc & Nguyen, 2001); 'word-of-mouth'; recommendation and feedback (Lapierre *et al.*, 1999; LeBlanc and Nguyen, 2001) and loyalty (McDougall and Levesque, 2000; Chen and Dubinsky, 2003).

The position of *value* relative to *satisfaction* and *repurchase intention* is not clear, with evidence suggesting that *value* has a moderating role between service quality and *satisfaction* (Caruana *et al.*, 2000) and *value* having a direct influence on *decision* (Bolton & Drew, 1991; Chen & Dubinsky, 2003). It is further suggested that *value* and *repurchase intention* are moderated by *satisfaction* (McDougall & Levesque, 2000; Eggert & Ulaga, 2002; Wahyuningsih, 2005). Spreng *et al.* (1993) tested the link between *value* and *satisfaction* and conclude it is important because

'value can alter the direction and extremity of satisfaction/dissatisfaction experienced' (p. 50);

the relationship between *value* and *satisfaction*, however, has not been specified. The author of this study considers that benefits are sometimes regarded as an attribute of *satisfaction* (Spreng *et al.*, 1993) when they are one of the antecedents of *value* as discussed earlier in this section. In addition to this, authors such as Brady and Robertson (1999) and Eggert and Ulaga (2002) concluded that *satisfaction* and *value*

are complementary but distinct constructs and they confirm *value* as an antecedent of *satisfaction*.

The literature remains confusing because many authors fail to distinguish between service quality, customer *satisfaction* and *value*, often using the terms interchangeably, although the concepts are considered quite distinct (Caruana *et al.*, 2000). This confusion about the antecedents of *value* supports the view that *value* is complex (as described in Section B1.3) and perhaps some of this confusion can be attributed to the fact that some authors might have mis-conceptualised the constructs.

B2.3 Conclusion

The antecedents and outcomes of *value* have been discussed in this chapter. The debate raises concern especially in terms of the proposition that benefits and sacrifices are antecedents of *value* (see Section B2.1). Materials presented and debated in Chapter B1 clearly indicates that the above should be considered as components and not antecedents of value (see Section B1.3). Nevertheless, there is clear evidence to suggest that quality (service or product) has a positive and significant impact on the formation of *value*. Furthermore, we observe that despite debate as to the influence that *values* and *risk* have on perceptions of *value* extant literature offers little empirical evidence of these relationships (see Sections B2.1.1 and B2.1.2). On the other hand, there is consensus that *value* has a significant impact on perceptions of *satisfaction*, loyalty, word-of-mouth and intention to re-purchase (see Section B2.2). The main unresolved issue is whether or not *satisfaction* moderates (wholly or partially) the *value* to loyalty, word-of-mouth and intentions to re-purchase relationships.

PART C - RESEARCH DESIGN

This part presents the elements of the research design and comprises four chapters

	Chapter C1:	Research Framework and the Development of the Research and Competing Models and Hypotheses
	Chapter C2:	Research Methodology (I) – Purpose of the Study, Time Horizon, Type of Investigation, Study Setting, Extent of Researcher Interference and Sampling Design and Unit of Analysis
4	Chapter C3:	Research Methodology (II) – Measurements, Measures and Questionnaire Development
	Chapter C4:	Research Methodology (III) – Survey Considerations, Data Collection, Response Rate Improvement and Survey Error Assessments, Data Analysis and Statistical Techniques

CHAPTER C1: RESEARCH FRAMEWORK

The main purpose of this chapter is the development and justification of the research framework. Section C1.2 presents the limitations of the literature reviewed, and explains how these have informed the direction of the present study. Sections C1.3 and C1.4 present the Research and Competing Models to be tested and list the related research hypotheses. Section C1.5 presents the activities undertaken in the three steps of the research (scale development, pilot survey and final survey) and presents the philosophical orientation of this study.

C1.1 Introduction

This section sets out the proposed research design and uses the framework developed by Sekaran (2002) in Figure C1.1. The research is theory testing and is undertaken with the purpose of contributing to the knowledge of *value* and policy, which it is hoped, can be achieved from a better understanding of the antecedents and outcomes of *value*. As discussed in Chapter A1.5, the aim of this study is to determine the impact that *values*, *value* and *risk* have on *satisfaction* and the subsequent *decision* by farmers of whether or not to stay within the industry. A farmer's decision may be affected by making changes to enable them to stay in farming.

Studies into *value* are mostly concerned with products and services, whereas this study is concerned with farmers as consumers of the system of farming. Farming is considered a suitable context for this research because farming is a 'way of life' for so many people with farmers working and generally living in their environment.

The issues that are dealt with in this section are shown in Figure C1.1 (below).

Figure C1.1 - Research Design Process



Source: Sekaran, U. (2002) Research Methods for Business: A Skill Building Approach, 4th edition, New York: John Wiley and Sons, Inc. (p. 118).

C1.2 Limitations of the Reviewed Literature

The literature review in Chapters B1 and B2 has identified a number of limitations, which have influenced/guided the direction of this research. The most prominent of these are as follows:

1. Firstly, literature (for example, Flint *et al.*, 2002 and Kumar & Grisaffe, 2004) suggests that the study of *value* is in its infancy. The reasons are that *value* is described by Babin *et al.* (1994), Ravald and Grönroos (1996) and Flint and Woodruff (2001) as a

little-known construct, multi-faceted and complex, obscure, dynamic and difficult to understand, it remains an ambiguous construct with no clear theoretical anchor (see Section B1.5). Consequently, there is no clear definition of *value*, with many varied interpretations offering different content, level of abstraction and detail (see Section B1.2).

2. The difficulty in reconciling the composition of the sample obtained against national statistics is considered to inhibit the generalizability of the results.

3. Compounding the confusion, *value* is described as a higher-order construct, that comprises the 'give' and 'get' components (see Section B1.3). The 'give' and 'get' components of *value* are not clearly explained in the literature. Some authors including Zeithaml (1988), Monroe (1990), Spiteri and Dion (2004), consider that there is a trade-off of these components to form *value*, whilst others consider the relationship is either additive or a ratio (see Section B1.3).

4. There is currently no consensus on the conceptualisation of *value*, with the construct regarded as reflective by some authors (for example, Lapierre *et al.*, 1999; Spiteri & Dion, 2004) whilst others consider *value* as formative (for example Eggert *et al.*, 2006).

5. There is no consensus on the dimensions of *value* or whether there is a relationship between the dimensions. Some authors including Sheth *et al.* (1991a, 1991b) consider the relationship to be independent whilst others including Sweeney and Soutar (2001) consider the dimensions are interrelated.

6. There is also confusion regarding which constructs form the antecedents and outcomes (Section B2.1). There is a considerable range of antecedents of *value* in the literature from *benefits* and *sacrifices*, to price and quality. Empirical studies suggest that *satisfaction* and *decision* are outcomes by some authors, (for example Liljander & Strandvik, 1993; Patterson & Spreng, 1997; LeBlanc & Nguyen, 2001) whilst other authors consider quality to be an outcome (Bolton & Drew, 1991). Furthermore *risk* is occasionally considered an antecedent (Section B2.1.3). The existing literature on *value* does not consider the relationship between *values* and *value* although a causal relationship is implied by some authors (for example, Lai, 1995; Butz & Goodstein, 1996; Grönroos, 1997). However, this relationship has not been assessed empirically (Section B2.1.2).

7. *Value* is studied within the service, product and relationship domains (as illustrated in Table B2.1), but there were no studies found on the *value* of a profession.

8. Finally, there is no consensus on the operationalization of the construct (see Sections B1.3).

The limitations discussed above illustrate the need for further research into specific areas such as a theoretically grounded consensus on the understanding of *value*. In particular these are the dimensions, outcomes, antecedents and if higher-order, whether reflective or formative plus the relationship between the elements of the structure and the relationship between the antecedents and outcomes of *value*. These are discussed in detail in Section C1.3.

C1.3 Research Model and Related Hypotheses

In this study a conceptual model is developed illustrating the hypothesised relationships around the focal construct of *value*. The author has synthesised the material available into a comprehensive (though not exhaustive) model that is depicted in Figure C1.2 and discussed below.





The manner in which the above model addresses the limitations identified in Section C1.2 and the research hypotheses are presented below:

• Value of a profession (limitation 7): The value literature debated in Chapters B1 and B2 is based on examinations of either products or services. However, it is reasonable to expect (based on the intrinsic nature of value) that value extends to other activities and domains. One of these is the professional environment of an individual. Job satisfaction is an often quoted expression that indicates that one's profession leads to *satisfaction*. Based on the evidence presented in Section B2.2 it is expected that *satisfaction* will be the outcome of *value* perceived/attached to the chosen profession. The choice of farming as the selection profession is justified in Section C1.1.

• Conceptualisation of value (limitations 3,4 and 8): The multi-dimensional nature of *value* has been demonstrated in Section B1.3 The debate provided has also indicated that, despite universal acceptance of the two main components of *value* (that is, benefits and sacrifices) (see Section B1.3) extant operationalizations fail to reflect this. Consequently the departure point of this study is that *value* should be considered as a higher-order construct that comprises the 'get' (benefits) and 'give' (sacrifices) components. Furthermore, given the debate surrounding the nature of the formation of *value* the author accepts the additive expression (that is, *value* = benefits – sacrifices). This in turn implies that *value* should be conceptualised as a formative construct (see later debate as formative latent variables, see Section C3.1.3) of the above components. The latter is consistent with recent research presented by Ulaga and Eggert (2006), Eggert *et al.* (2006) and Ledden *et al.* (2007). Therefore it is proposed that:

 H_{M11} - Value is a formative construct with benefits (get) and sacrifices (give) as its dimensions.

• Dimension of *value* (limitation 5): Of the various operationalizations presented in the value literature (see Table B1.2 in Section B1.3) the one proposed by Sheth *et al.* (1991a) has been adopted for the 'get' component of *value* because

of their extensive application and empirical validation (see for example Stafford, 1994; Patterson and Spreng, 1997; LeBlanc and Nguyen, 1999; Mathwick *et al.*, 2001; Sweeney & Soutar, 2001). This resulted in the 'get' component conceptualised as comprising the 'functional', 'emotional', 'conditional', 'social' and 'epistemic' dimensions. The face validity of these dimensions to the farming profession is apparent, for example, farmers obtain tangible elements from their activities ('functional'), at the same time they gain benefit such as feeling gratified with working the land ('emotional') etc. For the 'give' dimensions, in addition to the obvious financial ('cost') element, 'time' and 'effort' are added based on the work by Spiteri and Dion (2004). Again, these dimensions here obtain face validity for the selected research domain. Using the same rationale as above, both the 'get' and 'give' components are conceptualised as formative higher-order constructs of their respective dimensions. The above are debated in greater depth in Section C3.1.

• Antecedents and outcomes of value (limitation 6): The debate presented in Section B2.2 clearly demonstrates that value leads to *satisfaction* and (either through *satisfaction* or directly) for a variety of behavioural actions (for example, loyalty, re-purchase etc.). Accepting evidence presented by Patterson and Spreng (1997) the mediating position of *satisfaction* is accepted. This leads to:

 H_{M14} : There is a positive relationship between value and satisfaction. H_{M15} : There is a positive relationship between satisfaction and decision.

- In the context of this study *decision* is the choice of whether to continue in farming, to make changes to enable the farmer to stay in farming or to exit farming. If farmers are emotionally satisfied, this will lead to contentment, commitment and loyalty. Thus, they are more likely to stay in the industry (Eggert & Ulaga, 2002; Bohnet *et al.*, 2003). The choice to exit is often final, meaning that once a farmer has exited the industry, they are not expected to return (Lobley *et al.*, 2002; Bohnet *et al.*, 2003).
- In terms of antecedents of *value* (excluding the incorrectly employed benefits and sacrifices) the debate presented in Section B2.2 demonstrates the strong influence of quality and the yet unclear impact of *values* and *risk*. Given the research context quality is not considered to represent a meaningful antecedent because, (a) a profession is something that is enacted rather than received like products and services and (b) farmers are not employees (that is, they determine their activities rather than being determined by their employers). Consequently the two main antecedents of *value* are *values* and *risk*.
- In testing the *values* to *value* relationship the typology of values developed by Schwartz (1992) and subsequently validated by Schwartz and Sagiv (1995) has been employed. (see Appendix E for more details). This suggests that there are ten types of *values* (that is, 'universalism', 'power', 'self-direction', 'security', 'stimulation', 'benevolence', 'conformity', 'tradition', 'achievement' and 'hedonism'). Given that each type behaves independently (for example, the behaviour of 'benevolence' is expected to be different to that of 'hedonism') leads to the following hypotheses.

 H_{M1} : Universalism is a determinant of value H_{M2} : Power is a determinant of value H_{M3} : Self-direction is a determinant of value H_{M4} : Security is a determinant of value H_{M5} : Stimulation is a determinant of value H_{M6} : Benevolence is a determinant of value H_{M7} : Conformity is a determinant of value H_{M8} : Tradition is a determinant of value H_{M9} : Achievement is a determinant of value H_{M10} : Hedonism is a determinant of value

The above relations are supported not only of *value* literature but by a farming specifying study by Schoon and De Grotenhuis (2000) which investigates the *values* of farmers and the sustainability of farming. They conclude that the relationship between *values* and behavioural choices is possible, and that the relationship between *values* and economic considerations is an important one.

• Although *risk* has been claimed to be an antecedent of *value*, it is clear that the relevance of this construct depends on the specific context. For example, for routine and low cost products or services it is unlikely that the *risk* will play a determining role. *Risk* is important to many people associated with farming, namely farm advisers, farm agents, agricultural research workers, policy makers, planners and agricultural suppliers as well as farmers themselves (Hardaker *et al.*, 1997; Lence, 2000). Within the chosen professional domain *risk* is an important factor as acknowledged by Antle (1983) who states that

'Risk is the farmer's perennial problem' (p. 1099).

The importance of *risk* is regarded only in an economic way, with its impact being only on profit, as suggested by Antle (1983). He considers that there is an assumption that *decision*-makers behave in such a way as to maximise the expected utility based on profit.

The author has been able to identify only one reference to the types of *risk* specific to farming (Hardaker *et al.*, 1997) and one reference to the distinction between on-farm and off-farm *risks* (Casavant *et al.*, 1999). If you apply Hardaker *et al.* (1997) to Casavant *et al.* (1999), you could consider the on-farm *risks* as 'personal' and 'production' *risks* and the off-farm *risks* as being 'institutional' and 'financial' *risk.*

Research into *risk* in farming has been limited to production *risk* (Jolly, 1983; Bardsley & Harris, 1987; Babcock & Hennessy, 1996; Bontems & Thomas, 2000) or operational *risk* (Brink & McCarl, 1978; Dowell, 1980; Chavas & Holt, 1990; Gomez-Limon *et al.*, 2003), whereas Hardaker *et al.* (1997) introduce other *risks* such as 'institutional', 'market', 'personal' and 'financial' *risk* into farming. The author of this study suggests the dimensions of *risk* indicate that *risk* is conceptually a higher-order construct.

The behaviour of *risk* (that is, as either a positive or negative impact) in farming activities is unclear, hence the introduction of the concepts of pure and downside *risk* (Hardaker *et al.*, 1991; Hardaker *et al.*, 1997). Pure *risk* is described as having either a negative or positive effect. Pure *risk* can be found

in situations such as a particularly good harvest resulting from better than average weather and growth rates that in turn lead to a higher production level than expected. However, downside *risk* occurs in situations in which any significant deviations from the 'normal' [non-mathematical] or 'standard' [usual] outcome, lead to a worsening of the situation, with resultant adverse effects. Despite the fact that there can be pure *risk* in farming, reference was only found relating to downside *risk*, particularly in the production valuation models (Antle, 1983). This distinction between pure and downside *risk* is considered important because it introduces a difference between pure *risk* relating to the average in the industry and what is considered to be normal for a farm. To farmers, the industry average may be very different from what they consider is normal for their farm because of location, size, physical features and their own individual circumstances.

The above lead to the conclusion that *risk* is also a multifaceted/higher order construct that is formed in the current context by the 'market', 'personal' and 'business' dimensions. Furthermore, accepting *value* related evidence presented in Sections B2.1.3 and the debate presented by Hardaker *et al.* (1997) in their book titled *Coping with Risk in Agriculture* it is proposed that: H_{M12} - There is a negative relationship between risk and value.

On the strength of the above it is proposed that *risk* impacts on both *value* and *decision*. Thus,

 H_{M13} – There is a negative relationship between risk and decision.

Collectively the above are considered to represent a coherent and theoretically grounded model that addresses the main points stated as limitations in Section C1.2.

C1.4 Competing Model and Related Hypotheses

There is general agreement that, when examining multiple structural relationships (as in this case), the researcher should compare rival or competing models rather than testing a single model (Bollen & Long, 1992). The Competing Model as shown in Figure C1.3 below depicts the components of 'get' and 'give' as separate constructs so as to examine the differences in behaviour of the antecedents on the *value* components and those components on the outcome of *value* (see Ledden *et al.*, 2007). 'Universalism', 'power', 'self-direction', 'security', 'stimulation', 'benevolence', 'conformity', 'tradition', 'achievement' and 'hedonism' are for reasons of clarity shown as one construct – that of *values*. The dimensions of *risk* ('market', 'personal' and 'business') are tested directly with the 'get' and 'give' components, *satisfaction* and *decision*. The dimensions of *values* are considered to have a positive effect on 'give'.





The hypotheses in the Competing Model (H_{C21-27}) in Figure C1.3 above correspond to those in the Research Model (H_{M1-15} , see Figure C1.2), for the dimensions of *values* to the components of *value* ('get' and 'give'), for *risk* to the components of *value*, and *decision* and for *satisfaction* to *decision*. For the dimensions of *values* to 'get' (H_{C1-10}) the relationship is considered to be positive because the *values* add to the benefits received, whilst the relationship between *values* and 'give' (H_{C11-20}) is considered to be negative because the effect of the dimensions of *values* reduces the sacrifice given. The hypothesis *risk* to *satisfaction* (H_{C25}) provides an additional hypothesis to the Research Model in order to investigate if there is a relationship between *risk* and *satisfaction* although this is not discussed in the empirical literature.
C1.5 Research Activities and Philosophical Orientation of the Research

For clarity the research has been undertaken in three parts as shown in Table C1.4 below. These three research parts and the activities undertaken therein will be discussed in the next three chapters C2-C4. The three parts of the research will now be briefly explained.

Scale Development	The literature review was compiled and then discussed
	in interviews.
	Three expert farmers were interviewed from different
	size/type of farms.
	Measures were developed referring to scales in the
	literature for guidance of wording, and the interview
	material.
Pilot Survey	Preliminary questionnaire sent to farmers in Suffolk,
	Norfolk and Essex willing to respond.
	For each set responses were tested with Cronbach's
	alpha.
Final Survey	Final questionnaire sent to/made available to farming
-	groups in Great Britain.
	Farming groups contacted and farmers' responses
	recorded.
	Reliability and validity testing carried out, followed by
	2-stage SEM using CFA and PLS-Graph.

Table C1.4 – Activities undertaken in this Study

Scale Development: A lack of scales available in the empirical literature meant that there would have to be some kind of way of quantifying *value*. Using the dimensions of 'functional', 'emotional', 'conditional', 'epistemic' and 'social' from the work of Sheth *et al.* (1991b) for 'get' and the dimensions of 'time', 'effort' and 'cost' from the work of Lapierre (1997) for the 'give' component, scales were developed from the interviews with farmers and reference to the relevant scales used by Sheth *et al.* (1991b) and Lapierre (1997) for guidance of wording. The scales for *risk* were

developed also from the interviews and also from the literature on *risk*. The scales for *satisfaction* and *decision* were developed for the context of farming using the existing scales within the marketing literature for product, service and relationship domains for guidance of wording. The scales for *values* were taken from the work of Schwartz (1990, 1992, 1994, 1996, 1999, 2002, 2003, 2004) who together with Sagiv (1995) has developed the most recently found measures, see Appendix E. These have been tested for reliability and are regarded as generally universal (Schwartz & Sagiv, 1995), hence they are the most recent measures of *values* found both in the literature and the most recent used in this study.

Pilot Survey: Following the first part of the research a pilot survey was carried out to test all the items and to purify the *value*, *risk*, *satisfaction* and *decision* scale items. The pilot survey consisted of phases that are termed 'sets' for clarity of reading. Sets of the pilot survey were conducted until such time as the items met Cronbach's alpha reliability criteria. This is explained in greater detail in Section C3.1.2. The preliminary questionnaire was sent to farmers in Suffolk, Norfolk and Essex who were willing to respond. Following completion of the pilot survey, the scales were compiled as the final survey.

Final Survey: The last part of the research was a survey. The questionnaire was distributed to farming groups in Great Britain via the internet or by post. When the data were collected, they underwent reliability and validity testing as described in Sections D1.2 and D1.3. Following this, a two-stage Partial Least Squares (PLS-Graph) was conducted to assess the hypotheses in both Research and Competing Models (see Chapter D2).

This study has attempted to adhere to the principles of scientific research involving a step-by-step, logical, organised and rigorous sequence of identifying problems, gathering data, analysing the data and drawing valid conclusions. In order to understand the philosophical paradigm in which this research is set, it is first necessary to extend the discussion relating to the difference between empirical and theoretical studies as briefly touched upon in Section B1.3.

One of the most common distinctions in approaches to research is between theoretical and empirical studies. 'Empirical' is defined in The Oxford Companion to Philosophy (1995) as 'based on experience'. That is

'an idea or concept is empirical if it is derived ultimately from the five senses, to which introspection is sometimes added' (p. 226)

'Theory' meanwhile is defined as

'an attempt to bind together [in] a systematic fashion the knowledge that one has of some particular aspect of the world of experience' (p. 870).

An empirical study implies an

'understanding of the material under investigation and therefore some kind of theoretical position' (Remenyi et al., 2005, p. 31).

The empiricist will draw conclusions from studying the observations and collecting related evidence, they will then add their claim to the body of knowledge on the subject. The theorist however, will study the subject from writings of others and discussion with learned persons on the subject without actually observing the subject or collecting any evidence. This study is an empirical one with the aim of adding to the body of knowledge on *value*.

Having discussed empirical studies, it is now necessary to identify the difference between positivism and phenomenology because, although empirical research is frequently associated with positivism, it can in fact be either positivist or phenomenological in nature (Cohen & Manion, 1987 in Remenyi *et al.*, 2005). Phenomenology is defined as

'a theoretical point of view that advocates the study of direct experience taken at face value; and one which sees behaviour as determined by the phenomena of experience rather than by external, objective and physically described reality' (Cohen & Manion, 1987 in Remenyi et al., 2005, p. 286).

A logical positivist researcher is an objective analyst and interpreter of a tangible social reality. There is an underlying assumption that the social world exists externally and that its properties should be measured through objective methods (Easterby-Smith *et al.*, 2002). It is necessary to observe, produce evidence, and to generalise or to model mathematically the object of the study. Parsimony is important and the principle of parsimony (also termed 'Ockham's razor') is described in The Oxford Companion to Philosophy (1995) as:

'a methodological principle dictating a bias towards a simplicity in theory construction, where the parameters of simplicity vary from kinds of entity to the number of presupposed axioms to characteristics of curves drawn between data points'.

The key features of the positivist and phenomenological paradigms are illustrated in Table C1.5 below.

The philosophical foundations of this research are located partially within logical empiricism (that is the use of *value* as a formative construct as discussed in Section

D2.2.1 and mainly within scientific realism (that is, the use of reflective constructs such as *satisfaction* and *decision*). Empiricism has been discussed earlier in this section and scientific realism is defined as

'the thesis that the objects of scientific knowledge exist and act independently of the knowledge of them' (Remenyi et al., 2005, p. 288).

For a more detailed discussion of formative and reflective constructs, see Section C3.1.3. Whilst this study uses both formative and reflective constructs, this research concurs with the view expressed by Johnson and Duberley (2000), who believe that despite there being both formative and reflective constructs in marketing science studies, reflective measures predominate. This orientation stems from the author's conviction that all data can be classified and measured and, consequently, should be collected through quantitative methods as compared to the qualitative means of data collection that leads to phenomenological or constructivist orientation (Easterby-Smith *et al.*, 2002).

	Positivist Paradigm	Phenomenological Paradigm		
Basic beliefs:	world is external and objective	world is socially constructed and subjective		
	observer is independent	observer is part of what is observed		
	science is value-free	science is driven by human interest		
Researchers should:	focus on facts	focus on meanings		
	look for causality and fundamental laws	try to understand what is happening		
	reduce phenomena to simplest elements	look at totality of each situation		
	formulate and test hypotheses	develop ideas through induction from evidence		
Preferred methods:	operationalise concepts so they can be	small samples investigated in depth		
	measured	or over time		
	take large samples			
	use multiple methods to establish different views			
	of phenomena			

Table C1.5 - Key Features of Positivist and Phenomenological Paradigms

Source: Remenyi, D., Williams, B., Money, A. & Swartz, E. (2005) Doing Research in Business and Management. An introduction to Process and Method. London: Sage Publications Limited (p. 104).

The above discussion clearly reflects the adopted methodology starting with a theoretical framework, followed by the development of a Research Model, empirical research and data analysis and finally concluding with logical deductions based on the results of this study. Consequently, it can be said that a hypothetico-deductive method of research has been followed (Sekaran, 2002).

CHAPTER C2: RESEARCH METHODOLOGY - I

The remainder of Part C comprises three chapters; the shaded portions in Figure C2.1 depict the issues to be explored in this Chapter. Firstly there is a description of the Purpose of the Study (Section C2.1), followed by Time Horizon (Section C2.2) the Type of Investigation (Section C2.3). A description of the Study Setting and the Extent of Researcher Interference are presented in Section C2.4. The final section discusses issues relating to Sampling Design and Unit of Analysis (Section C2.5).



Figure C2.1 - Research Design Process

Source: Sekaran, U. (2002) Research Methods for Business: A Skill Building Approach, 4th edition, New York: John Wiley and Sons, Inc. (p. 118).

C2.1 Purpose of the Study

The three basic types of research that have been employed to investigate the marketing phenomena are: exploratory research; hypothesis testing (explanatory research) and model building (Churchill & Iacobucci, 2002; Malhotra, 2003).

C2.1.1 Exploratory Research

Prior to the pilot and final survey, exploratory research was undertaken designed to shape the direction, structure and operationalization of the main study (Churchill & Iacobucci, 2002). This involved a thorough review of extant literature, desk research and in-depth personal interviews. Exploratory research as described by Kent (1999) covers the following areas:

• Expansion of this author's familiarity with the topic under investigation that is understanding the construct of *value* and its antecedents.

• Diagnosis, analysis and evaluation of the nature of the research problem, i.e. the extension of the existing work of *value* into the professional domain of farming. This led to the inclusion of *risk* into the model.

• Establishment of the priorities and objectives of the research that is initial research into the operationalization of *value* is required before it was possible to determine which particular issues merited further investigation (see Section B1.5).

• Provision of information related to practical problems involved with the research, such as determining issues of data collection and the selection of one of the methods of collection.

• Exploration of ideas, insights and suggestions for hypotheses that could be tested to ensure the most appropriate and effective hypotheses are used.

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C2.1.2 Explanatory Research

The examination of relationships between the research constructs forms a central part of this study and is discussed in Chapter B2 and Chapter D2. Given the development of related hypotheses, it is concluded that this research follows a hypothetico-deductive or falsificationalist approach (see Section C1.5). Falsification is a set of procedures for scrutinizing existing knowledge claims and embodies the sceptical attitude proposed by Popper (Smith, 1998, p.108). Karl Popper focused on refutation rather than confirmation meaning that scientists should find ways of disproving their working hypotheses and theories rather than verifying them. Scientific hypotheses should be bold conjectures that can be tested against empirical evidence (Smith, 1998).

The difference between exploratory and explanatory research is that the former is usually small scale research undertaken to define the exact nature of the problem and to gain a better understanding of the environment within which the problem has occurred (McDaniel & Gates, 2006). This is the case with this study where interviews were undertaken with a small number of farmers. Explanatory research is that which is undertaken by developing a Research Model and testing hypotheses with data collected from a sample of the population of interest. This study uses sample data collected through a primary method of data collection as its survey method.

C2.1.3 Model Building

Using the results of the literature review, a comprehensive (though not exhaustive) model has been developed (see Chapter C1.3) to investigate the relationships between the variables of personal *values, value, risk, satisfaction* and *decision*. An alternative/competing model has also been developed in an attempt to demonstrate that

it does not fit better than the main model. This is particularly relevant in structural equation modelling because a model can be shown only to have an acceptable fit.

C2.2 Time Horizon

Studies can be either cross-sectional or longitudinal. The former is when the data represent a 'snapshot' in time, at a single point in time, whereas the latter occurs when data are collected at two or more points in time (Sekaran, 2002). The major advantage of a longitudinal study is its capacity to separate what in the context of population studies are called cohort (differences among people in their baseline levels) and ageing effects (changes over time within individuals) (Diggle *et al.* 2002). For example, these changes would involve social, economic and market factors that this study does not investigate such as the Common Agricultural Policy or changes in world prices of farming produce. Whilst it is commonly accepted that things change over time, the effects of time are difficult to examine (Menard, 2002). For example, within the context of farming it is generally accepted that production and income vary over time, see amongst others Andersson (1995); Just and Weninger (1999); Barry *et al.* (2001). Due to time and expense constraints this study adopts a cross-sectional approach. This is considered a limitation and is noted in Section A1.7.

C2.3 Type of Investigation

Authors such as Sekaran (2002) and de Vaus (2002) consider that a researcher should determine whether a causal or a non-causal study is needed to answer the research question(s). Causal investigations are employed when the aim is to establish a 'cause-effect' relationship, while in cases where the purpose is to identify associations between relevant factors/constructs a correlation investigation is employed. Although the

element of this investigation is the examination of cause-effect relationships, because of the lack of control over events we cannot be certain that the relationships to be uncovered are 'true' relationships. Instead the independent variables are viewed as affording plausible explanations of the dependent variables. In this respect this investigation is classified as *ex post* factor research (Churchill & Iacobucci, 2002; Sekaran, 2002).

C2.4 Study Setting and Interference

The research was carried out with farmers throughout Great Britain. Since no manipulation of the constructs was involved, it took place within a non-contrived setting. As the researcher could not influence information transfer and management decisions and could not manipulate events, this shows the events were tested as they normally occur. There was no interference.

C2.5 Sampling Design and Unit of Analysis

Using the framework suggested by McDaniel and Gates (2006) as shown in Figure C2.2 below, the six step approach to developing an operational sampling plan was adopted. Each step is discussed through the three parts of scale development, pilot survey and final survey. Although each of the steps is dealt with in turn, it must be appreciated that, like most other methodological considerations, decisions taken at each stage are contingent on other aspects of the research process (for example, the communication method) and determine subsequent decisions (for example, the permissible type[s] of analysis).



Figure C2.2 – Developing a Sampling Plan

Source: Adapted from McDaniel, C. & Gates, R. (2006), *Marketing Research Essentials*. 5th edition, New York: John Wiley and Sons Inc. (p. 298).

Step 1: Defining the Population of Interest - This initial step involved the definition of the population from which information was to be collected in order to meet the objectives of the research. The terminology 'farmer' is a person who owns or manages a farm (Concise Oxford Dictionary, 1999). A 'farm' is an area of land and its buildings used for growing crops and rearing animals (Concise Oxford Dictionary, 1999). The area of land can be any size. In all three parts of the study, the scale development, the pilot survey and the final survey the element and sampling unit remained the same, these were the owner of a farm and/or manager and the farm itself.

Element: Owner and/or manager

Sampling Unit: A farm

• Scale Development

The sampling process for the scale development started with the definition of the target population of the research. The focus of the study is *value* in the context of farming and it was decided to concentrate the study on farmers in Suffolk. This was because the researcher lives in Suffolk and it was more economical in time and travel to interview farmers nearby. The purpose was to achieve content validity which was considered to be independent of location. Farmers were selected for interview on the basis of different types of farm (arable, mixed and livestock) and the size of the farm. The interviews were carried out between November 2003 and January 2004.

Extent: Located within Suffolk

Time: November 2003 – January 2004

• Pilot Survey

The pilot survey was carried out to test the reliability of the data rather than the causal pathways and was given to those farmers who were prepared to respond. These were farmers within Suffolk, Norfolk and Essex. The decision to extend the pilot to the counties of Essex and Norfolk was to approach farming groups known to the respondent so that names and addresses could be easily obtained. This was done to minimise the time and cost of obtaining responses. The pilot was carried out to purify the scales.

Extent: Located within Suffolk, Norfolk and Essex

Time: December 2004 – February 2005

• Final Survey

The final survey was sent to farmers within Great Britain. The farming groups were identified from farming publications and farming internet websites. The decision to extend the final survey to farmers within Great Britain was to obtain a representative sample from the population. Great Britain offers the full diversity of farms from upland to lowland farming, arable, mixed and livestock farming, small, medium and large farms. The final survey was undertaken between April and September 2005.

Extent: Located within Great Britain

Time: April – September 2005

Step 2: Choose Sampling Frame - The sampling frame is a list of the population elements from which the sample is selected (de Vaus, 2002). Once the target populations were determined, an appropriate sampling frame had to be defined.

Expert farmers, (as defined in Zaichkowsky, 1985; Hardesty & Bearden, 2004) in Suffolk were selected with known and referred farmers for convenience and cost reasons. Farmers were chosen for their diversity of farming, from arable to livestock farming, with farms of varying sizes from less than 50 hectares to greater than 100 hectares.

For the pilot study named farmers in Suffolk, Norfolk and Essex, known to the respondent or the respondent's family and friends, were selected for the sampling frame.

• Final Survey

Farmers across Great Britain were selected for the sampling frame. Farmers were selected from groups known to the respondent in East Anglia, the National Farmers Union (NFU), from groups identified on <u>www.google.co.uk</u>, and from groups found in the publications *Farmers Weekly* and *The Farmers Guide*. It is recognised there is a possibility of bias with groups known to the respondent, but it was not possible to measure the bias because identity of the respondents was not recorded. The respondent contacted the NFU and the Department for Fisheries and Rural Affairs (DEFRA). The former agreed to send the questionnaire to their members across Great Britain electronically and were given the web address for the electronic web survey namely; <u>www.streamlinetrial.farmsurvey.co.uk</u>. The latter declined to assist with the survey, although there was direct contact with known DEFRA members. The main reason being data protection and related lack of staff to carry out the survey on behalf of the author of this study.

Step 3: Select a Sampling Method - The selection of the sampling method is dependent upon the objectives of the study, the resources available, time limitations, and the nature of the problem under investigation (McDaniel & Gates, 2006). As illustrated in Figure C2.3, the two main types of sampling are probability and non-probability. The relative merits and disadvantages of these sampling methods are well documented and consequently not debated here, for detailed discussion of sampling methods see, amongst others, de Vaus (2002), Malhotra (2003) and McDaniel and Gates (2006).



Figure C2.3 – Classification of Sampling Methods

Source: Adapted from McDaniel, C. Jr. & Gates, R. (2006), *Marketing Research Essentials*. 5th edition, New York: John Wiley and Sons Inc. (p. 305).

The three methods of sampling highlighted in Figure C2.3 are briefly discussed below.

Judgement - also known as purposive sampling, it is where sample components are judged as typical of some category of cases of interest to the researcher. The cases are not selected randomly. The drawback of this method is that it cannot be assured that the sample is representative of the population.

• Scale Development

The non-probability sampling method of judgement sampling was selected for the interviews. Despite the recognition that the generalizability of this method is questionable (Sekaran, 2002), it was selected on the grounds that it was the most

effective method of investigating the constructs under investigation with farmers. For the scale development local expert farmers were identified (as described in Section C2.4) and asked if they were prepared to be interviewed. Once their agreement to be interviewed was obtained, a convenient date and time for the interview were arranged. The farmers were selected for their difference in age, farm type and farm size, shown in Table C2.4 below. The first interviewee was selected on the basis that he and his family own two farms of different sizes. One of the farms was totally arable and the other farm was mixed, with arable and livestock. The second interviewee of a similar age was selected because the farm was smaller and also mixed. The third interviewee selected was below the average age of farmers (DEFRA, 2004); the farm owned by him and his family was totally arable and he also managed other local farms. A probability sampling method was not considered appropriate for the scale development because as suggested by McDaniel and Gates (2006, p.307)

'every element of the population has a known and equal likelihood of being selected for a probability sample'.

In this study, this was deemed not to be the case.

	Type of Farm	Size of Farm	Age of Farmer	
Interviewee 1	Arable and mixed	2 farms, different	Greater	than
		sizes	55	
Interviewee 2	Mixed	Less than 50	Greater	than
		hectares.	55	
Interviewee 3	Arable	Greater than 100	35-55	
		hectares, also		
		manages other		
		local farms		

Table C2.4 - Interviewees for Scale Development

• Pilot Survey

The respondents were known to the researcher and selected on the basis that they were farmers local to Suffolk, Norfolk and Essex.

Convenience - also known as availability samples, are based on the willingness of individuals to respond. This method seems likely to be the least reliable technique to produce a representative sample and is used for pilot testing questionnaires or exploratory research.

• Pilot Survey

The method of sampling selected for the pilot study was non-probability convenience sampling. The most easily accessible members (farmers) were chosen as subjects (Sekaran, 2002). Farming groups within Suffolk, Norfolk and Essex known to the researcher were approached and their members contacted with an introductory letter and a copy of the questionnaire asking them to respond. Farmers who were friends and acquaintances were contacted by telephone, email, letter and in person to find those who were willing to respond. The advantage of this method is the convenience that it offers and its inexpensive nature when compared with probability sampling (McDaniel & Gates, 2006).

Cluster sampling - Groups that ideally would have heterogeneity among the members within each group are chosen for study in cluster sampling. Information is gathered from each of the members in the randomly chosen clusters (Sekaran, 2002).

• Final Survey

The method used for the final survey was single-stage cluster sampling. The population were farmers in Great Britain and the cluster variable was the different

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farming groups as shown in Appendix B. The researcher was not able to obtain lists for each of the farming groups contacted because many of the groups were not prepared to release the names and addresses of their members. In these cases a contact for the group was obtained whom the respondent contacted and requested the questionnaire be passed to members, either in paper or electronic form via the website. Those groups willing to release names and addresses of individual farmers to the respondent were mailed directly by the respondent. The cluster sampling is a complex probability sampling plan and is lower cost than other probability sampling designs of stratified random sampling or systematic sampling. However, it is recognised as the least dependable but is used when there is no complete list of the population elements available (Sekaran, 2002).

Step 4: Determine Sample size - Once the sampling method had been chosen, the next step includes the determination of the appropriate sample size. The size is an important aspect of the sample and, as suggested by Aaker *et al.* (2003), having the appropriate sample size yields valuable information that can be used for intelligent decisionmaking. The appropriate sample size is one that is representative of the population as a whole for some tasks such as the final survey, but not for the scale development and pilot survey, as in this study. Interviews were carried out with farmers until such time as there was no further 'new' information obtained from the interviewees. This resulted in a small sampling of individuals for the in-depth interviews that were carried out (in accordance with Sekaran, 2002). The first interview provided the most information, with less 'new' information being obtained from the second interview. The third interview revealed no 'new' information, so it was decided that three interviews were sufficient for the scale development. The required sample size will depend upon a) the degree of accuracy required, b) the nature of the population, c) proposed analytical techniques, d) the method of survey demonstration, e) the cost of additional information, and f) variation in the variables measured (see Tull & Hawkins, 1993; Churchill & Iacobucci, 2002; de Vaus, 2002).

This study proposes to use the data analysis technique of Structural Equation Modelling (SEM). Hair *et al.* (2005) suggest that there are five considerations affecting the required sample size for SEM, as follows:

 Multivariate distribution of the data - They suggest that a sample size should be sufficient to minimise sampling errors (see Section C4.3.3 for discussion on sampling errors). A generally accepted ratio is 15 respondents for each parameter that is estimated in the model to minimize problems with deviations from normality.

• Estimation technique - The most common estimation procedure is maximum likelihood estimate (MLE) and the minimum sample size to ensure stable MLE solutions are 100-150 as recommended by Hair *et al.* (2005). (The sample size in the context of PLS-Graph is discussed in Section C4.4).

• Model complexity - If the model is complex with many indicator variables a larger sample is required. This is also the case with models containing many constructs. In cases where constructs have fewer than three indicator variables; and multi-group analyses require an adequate sample for each group, a larger sample size to achieve the 100-150 useable responses previously mentioned is required.

• Amount of missing data - Any missing data will complicate the testing of SEM models. In this study, the responses with missing data were classified as unusable and excluded from the analysis. This is discussed in more detail in Section C4.3.2.

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Hair *et al.* (1998) suggest that, if the SEM model contains five or fewer constructs, each with more than three items (observed variables), and with high item communalities (0.6 or higher), it can be adequately estimated with samples as small as 100-150. In accordance with Hair *et al.* (1998) this study required between 100-150 useable cases. Therefore it was decided to put together a large sample frame. Projecting a response rate of 12%-15%, it was considered sufficient to utilise a sample frame of 900 respondents. Hair *et al.* (2005) have revised their thinking and suggest that, if the model contains constructs with fewer than three items, then the required sample size should be approximately 200. The sample size was determined before the release of Hair's *et al.* latest version in 2006. An *efficient* sample size is necessary and this occurs when, for a given level of precision, the sample size could be reduced or increased (Hair *et al.*, 2005). An efficient sample size is one that is needed so that the variability, set in terms of the required level of precision, of the measured variable is limited to being within desired levels.

To reinforce the adopted sample size the following well documented statistical method of calculating efficient sample sizes was also employed:

$$\mathbf{n} = \begin{bmatrix} \mathbf{z}_{\alpha/2} \mathbf{x} \, \sigma \\ \mathbf{E} \end{bmatrix}^2$$

n	= sample size
$Z_{\alpha/2}$	= desired level of confidence
σ	= standard deviation
Ε	= acceptable level of error

Where:

Although a number of variables were under examination, *value* as the core construct was chosen for this calculation due to the fact that during the exploratory stages, it was associated with the highest Standard Deviation. An estimate of the standard deviation (s=1.4) of the *value* construct was obtained from the pilot survey (measured as the sum of its hypothesised item scales). An accepted error (e) of 0.25 and a confidence level of 95% (1.96) were defined. By a simple substitution, an efficient sample size of 120 was obtained. A total sample size of 800-1000 was chosen, consistent with the previous calculation of between 900. This sample size was also consistent with initial data analysis approach, that is of covariance based SEM (Hair *et al.*, 1998; 2005). Questionnaires were collected from farmers until there were 130 useable responses in order to carry out the reliability testing.

C2.5.1 Develop, Specify and Execute Operational Procedures for Selecting Sample Elements

Steps 5 and 6: Since the sample in this research was determined by the author and the selection procedures for the farming groups were not through any other party, these steps were deemed not to be a necessity for this research.

CHAPTER C3: RESEARCH METHODOLOGY - II

This chapter is entirely devoted to issues related to measurement development and the questionnaire design. Section C3.1 focuses on the development of measures and measurements for each research dimension. The questionnaire design, content, phrasing, pilot/pre-test and layout are discussed in Section C3.2.

Figure C3.1 - Research Design Process



Source: Sekaran, U. (2002) Research Methods for Business: A Skill Building Approach, 4th edition, New York: John Wiley and Sons, Inc. (p. 118).

C3.1 Development of Measures and Measurements

Sections C3.1 and C3.2 follow the four-step measurement development and questionnaire design illustrated in Figure C3.2. The measurement development, Steps 1-4, is a modified version of that proposed by Churchill (1979).

C3.1.1 Measures

The measures comprise scale items of the latent variables using multi-item scales to measure the respondents' attitudes, opinions or behaviour to the construct under investigation. Scales are collections of items intended to reveal levels of theoretical variables, not readily observed by direct means (DeVellis, 1991). Scale development is the generation and selection of items to form a scale to measure a construct (DeVellis, 1991; de Vaus, 2002; Rossiter, 2002). Rossiter (2002) proposes an alternative procedure to scale development, entitled the C-OAR-SE procedure. The constructs are defined in terms of Object, Attribute and Rater Entity. This study does not adopt the procedure suggested by Rossiter (2002) because the C-OAR-SE procedure remains untested and the author of this study considered it was 'safer' to adopt a tested method such as that proposed by de Vaus (2002).

The seminal work of Churchill (1979) is still cited in many academic journals despite being nearly thirty years old. The author of this study considers it relevant to this study because of its importance in scale development. This study has used predominantly multi-item measures, which Churchill (1979, p. 66) suggests have much to recommend them as opposed to the single item measures as described below. Churchill (1979) is critical of the existing measures of variables as they have led to a lack of construct validity and reliability. He proposes a process for providing a better gauge of multiitem measures, which is further discussed Churchill (1979), Peter (1981), Churchill and Peter (1984), Peter and Churchill (1986), MacKenzie *et al.* (1986) and Diamantopoulos and Winklhofer (2001).

Churchill (1979) considers the deficiencies of single measures are that:

a) individual items usually have considerable uniqueness or specificity in that each item tends to have only a low correlation with the attribute being measured, and tends to relate to other attributes as well;

b) single items tend to categorise people into a relatively small number of groups. For example, a seven step rating scale can at most distinguish between seven levels of an attribute; and

c) individual items typically have considerable measurement error; they produce unreliable responses in the sense that the same scale position is unlikely to be checked in successive administrations of an instrument.

He also suggests that all three of the above deficiencies can be diminished with the following multi-item measures:

a) averaging out the specificity of items when they are combined;

b) combining items so that one can make relatively fine distinctions about people;

c) increasing the number of items in a combination which seems to increase reliability and decrease measurement errors.

Before the questionnaire can be formulated, a set of robust measurements needs to be developed. The measurement process begins with the first step of identifying a concept of interest for study. Where possible existing scales were used, and in this study are used for values, notwithstanding the caution and necessary precaution required in using

borrowed scales (Engelland *et al.*, 2001; Rossiter, 2002). They suggest that using borrowed scales requires the researcher to pay attention to many of the same scale validation steps required for the development of a new measure and also that care should be taken to ensure that the domain definition for the borrowed scale is appropriate for the current research.





Source: Adapted from Churchill, G. Jr. (1979) A Paradigm for Developing Better Measures of Marketing Constructs. *Journal of Marketing Research*, XVI (Feb): p.66.

Step 1: Specifying the Domain of the Research Concept - This is concerned with identifying a concept of interest. In this study the behavioural aspects of the constructs are investigated. Specifying the domain was achieved through a review of the relevant

papers and textbooks. Examination of other relevant literature and intensive discussions with academic experts provided the basis for the specification of the concepts related to the research constructs, their pertinent dimensions and related statements. Emphasis was placed on efforts to devise measures that adequately reflect all the domain of each of the research constructs (that is to demonstrate both face and content validity).

Step 2: Generating Samples of Items - This involves producing items that capture the domains as specified in Step 1. As with Step 1 a review and examination of published operationalization from papers and textbooks on the subject of *values*, *value*, *risk*, *satisfaction* and *decision* provided the pool of items. Tables B1.4, B2.4 provide lists of sources for these statements, as do the discussions in Chapters B1 and B2.

Step 3: The Regeneration of Items and Appropriate Format - This involved deletions, modifications and additional items being introduced through discussions with farmers. These discussions took the form of face-to-face interviews with farmers during the scale development. Participants were provided with a list of the constructs (5 in total) and associated items (70 items), derived from Steps 1 and 2 above. The participants assessed the list of constructs and items and gave their opinion as to the relevance of the items for inclusion in the study. Where more than one participant viewed items as irrelevant and/or suggested additional items based on personal experience, these were deleted or added to the original list respectively. Having undertaken this exercise, the original list with items generated from the literature review, proved to be robust. Only minor changes were required from the contribution of the experts interviewed. This involved rewording the scales for the 'functional' and

decision items. The survey was reviewed to ensure it presented the items in a logical format with the scale items clearly identified for each variable.

Step 4: The Operationalization of Measurements and Scaling - Operationalization is defining the concepts that will be measured and discussion of how to assign a score to that concept (de Vaus, 2002; McDaniel & Gates, 2006). The following Section C3.1.2 provides the details of the measurements utilised in the research.

Following discussions with academic supervisors and colleagues it was decided to construct new measures based on existing published material relevant for the professional domain of farming. The only exceptions to these were the items for *values* that were taken from the work of Schwartz (1992). These will be discussed below in Section C3.1.2.1

Values

From the Literature Review it can be seen there are different value systems that could have been used for this study. The alternatives in the Literature Review were studied and it was concluded that the most popular system was the work of Rokeach (1968). However this seminal work was considered somewhat dated having been developed in 1968, whereas the system developed by Schwartz (1992) (see Section B2.2.3.5), based on the work of Rokeach, was deemed appropriate and used in this study. The items were not amended in any way because they were not domain specific and have been tested extensively by Schwartz across many different countries, cultures and contexts since their development in 1992. Schwartz (1992) adopted scale-response questions using a 9-point Likert scale. For consistency, this study employs a 9-point Likert scale

for all the sections of the questionnaire excluding the general sections 1 and 7. The Likert scale is widely used in instruments measuring opinions, beliefs and attitudes (DeVellis, 1991). When using this scale the item is presented as a declarative sentence, followed by response options that indicate varying degrees of agreement with or endorsement of the statement. These range from strong disagreement to strong agreement with a neutral midpoint.

Value

The dimensions of *value* were discussed in Section B1.5, and the dimensions for 'get' and 'give' reviewed for suitability in this study.

<u>'Get'</u>

The dimensions developed by Sheth *et al.* (1991b) were selected for the 'get' component of *value* because they have been tested. Empirical support is provided for them by authors such as Stafford (1994), Patterson and Spreng (1997), LeBlanc and Nguyen (1999); Mathwick *et al.* (2001) and Sweeney and Soutar (2001). However, there were no scales available for testing *value* within the context of farming, so it was decided to develop new scales for *value* in farming using those devised by Sheth *et al.* (1991b) for guidance. The dimensions are described and discussed below:

• 'Functional' is defined as:

'The perceived utility acquired by an alternative as the result of its ability to perform its functional, utilitarian, physical purposes. Alternatives acquire functional value through the possession of salient functional, utilitarian, or physical attributes' (Sheth et al., 1991b, p.18). In the context of farming, the consumption experience is not of a physical product or service, but of the system of farming. 'Functional' is described as price, efficiency, convenience, excellence, quality, technical competence (Zeithaml, 1988; Anderson *et al.*, 1993). The 'functional' *value* of farming is its functional (performance), utilitarian (usefulness) or physical attributes (size, *value* of land), which attribute to the farmer's *value*.

• 'Emotional' is defined as:

'The perceived utility acquired by an alternative as a result of its ability to arouse feelings or affective states. Alternatives acquire emotional value when associated with specific feelings or when they facilitate or perpetuate feelings' (Sheth et al., 1991b, p.20).

'Emotional' is the personal feelings that the product arouses which in the context of farming, is its lifestyle element rather than just its business side. 'Emotional' *value* is described as conscience, feel-good factor, fun, aesthetics and beauty (Holbrook, 1994).

• 'Conditional' is defined as:

'The perceived utility acquired by an alternative as a result of the specific situation or the context faced by the choice maker. Alternatives acquire conditional value in the presence of antecedent physical or social contingencies that enhance their functional or social value, but do not otherwise possess this value' (Sheth et al., 1991b, p.22).

'Conditional' is the value the choice maker places on an alternative which is contingent on a specific situation that is faced. 'Conditional' often influences the choice maker to deviate from their typical or planned pattern of behaviour. • 'Epistemic' is defined as:

'The perceived utility acquired by an alternative as a result of its ability to arouse curiosity, provide novelty, and/or satisfy a desire for knowledge. Alternatives acquire epistemic value through the capacity to provide something new or different' (Sheth et al., 1991b, p.21).

'Epistemic' refers to the desire for variety from an alternative choice. It relates to the capability of a selected object to relieve boredom, arouse curiosity, stimulate interest or satisfy the desire for knowledge (Stafford, 1994).

• 'Social' *value* is defined as:

'The perceived utility acquired by an alternative as a result of its association with one or more specific social groups. Alternatives acquire social value through association with positively or negatively stereotyped demographic, socio-economic and cultural-ethnic groups' (Sheth et al., 1991b, p.19).

'Social' value is described by Gassenheimer et al. (1998) as peer approval, mental excitement, political success and reputation. Farmers are regarded differently by different segments of the population, and as suggested by Sheth et al., (1991b) it is important to obtain 'social' value information directly from the population of interest. As a dimension of value, 'social' value will add to the perceived value that farmers obtain from farming.

'Give'

The dimensions of the sacrifices or 'get' component of *value* from the Literature Review were studied. The most popular dimension was price in the product and service domains, but it was necessary to a find a domain that offered sacrifice elements appropriate to the professional environment domain. The work of Lapierre (2000) offered empirical support for the sacrifice elements of 'time', 'effort', energy, price and conflict from an industrial context. For this study it was considered appropriate to use time/effort and 'cost' because they could be applied to farming whereas energy, price and conflict could be disregarded. Lapierre (2000) combined time/effort/energy whereas in this study 'time', 'effort' and 'cost' are regarded separately. Energy was deemed to be similar to 'effort' and not regarded separately. Price was replaced with 'cost' because price is product and service related (Lapierre, 2000). Conflict was disregarded because farmers work mainly alone and it is considered to be a relational element (Lapierre, 2000). The scales for time/effort and price from Lapierre (2000) were used for guidance in the development of the scales for 'time', 'effort' and 'cost' for this study.

• 'Time' - is regarded as the amount of time used, its importance and how that time is spent.

• 'Effort' - is the amount of effort used and whether it is rewarding.

• 'Cost' - is the income amount, its sufficiency for the work carried out. It also concerns that income relates to capital asset value and its adequacy to maintain a particular kind of lifestyle.

Risk

In the literature, the most commonly found dimensions of *risk* were production and financial risk (Sweeney *et al.*, 1999) in the product domain. In the farming domain, Hardaker *et al.* (1997) provide a list and description of the *risks*, but do not discuss how they have come about; they merely suggest that

'Because farming is often carried out in the open air, and always entails the management of inherently variable living plants and animals, it [farming] is especially exposed to risk' (p. 6).

The list of *risk* includes:

- 1. institutional (a change in policy or procedures)
- 2. market (unpredictable competition)
- 3. personal (for example illness, death, divorce)
- 4. production (for example weather or growth performance affecting the crops)
- 5. business (the collective term for institutional, market and personal)
- 6. financial (the method of financing the business)

The business *risk* is a collective set of *risks* rather than a type of *risk* per se and, because of this, it is suggested that there are really five types of *risk*.

1. institutional

2. market

- 3. personal
- 4. production
- 5. financial

Risks numbered 1-3 are additional to production and financial *risks* identified by Sweeney *et al.* (1999) and Agarwal and Teas (2001) in Section B2.1.2. Initially there were six items for 'market', three for 'personal', and twelve for 'business'. The items for 'business' covered institutional, production and financial *risk* as discussed in B2.2.4.

Satisfaction

The work of Eggert and Ulaga (2002) was adapted for the development of the items for *satisfaction*, although their work was in the product domain and the items related to consumer *satisfaction* with the purchase. The professional domain of farming required items about the farmer's *satisfaction* as a farmer and whether they considered farming provided a satisfying way of life.

Decision

The intention of continuing or exiting farming was adapted from the work of LeBlanc and Nguyen (2001). Initially this was thought to be a dyadic question, but following interviews, it was considered necessary to introduce the element of change. If changes were made would farmers consider staying in the industry? It was felt that a yes/no item was too rigid and as suggested by McDaniel and Gates (2006) evokes a rapid response and is prone to a substantial chance of measurement error. Introducing change enables the respondent to consider their response and think of the *decision* in the long-term.

C3.1.2 Measurements utilised for the Pilot Survey and Final Survey

In accordance with good practice, as suggested by Malhotra and Birks (2005), following each significant revision of the questionnaire, another pilot-test was conducted using a different sample of respondents. A sound method of pilot-testing was adopted involving several sets and was continued until no further changes were needed. Care was taken to ensure that the respondents were drawn from the same population as the final survey. The pilot test sample size was small (15 respondents) for each set that was carried out and care was taken to ensure that respondents were needed.

asked more than once to complete a questionnaire. The responses were coded and analysed and any responses that contained missing data were not included in the responses that were tested for reliability. (See Appendix D – Questionnaire).

C3.1.2.1 Pilot Study

The first set of the pilot was given to farmers who were either known to the author of this study or to the author's friends and colleagues. Naturally selection was from those who it was felt would be willing to respond. When 15 useable responses were received, the data were entered into SPSS. The data were then tested for overall reliability using Cronbach's alpha. The reasoning behind this is that Cronbach's alpha is the most widely used measure and it is employed in this study to test the internal consistency of the data. This was done regardless of the suggestion that the use of reliability testing is excessive and suggests that it should only be regarded as a *'precision-of-score estimate for a particular application'* and not the total measure of reliability (Rossiter, 2002, p. 308). However, the paper by Rossiter (2002) is grounded in rationalism rather than empiricism, whereas this study (as previously mentioned in Section C1.5) is partially located within empiricism and also within scientific realism.

The criteria for acceptability were 0.3 for the item-to-total correlation and 0.6 for the alpha score in accordance with Tull and Hawkins (1993); Malhotra (2003) and Hair *et al.* (2005). Any items that failed to reach the item-to-total criteria were removed. If the alpha score was below the 0.6 benchmark, the items with the lowest item-to-total scores were removed to see if this increased the alpha score to an acceptable level. For each variable, when the items were tested and any items removed because they failed to

meet the benchmark, any variable having less than 3 items remaining was reconsidered and reworded.

The second set of the pilot was undertaken to test the items that had been developed from the first set. If, following the rewording of the items from the first set, items were found to be unacceptable, new items were again developed, referring to the literature and the academic supervisors. In general, the process continued until the alpha score and item-to-total correlations were acceptable. This resulted in three sets of the pilot survey. The results of the pilot survey are discussed below for each of the constructs.

Values

Using the scales developed by Schwartz (1992), the *values* were tested for reliability and validity. Table C3.3 below illustrates the results of *values*.

• The dimensions of 'self-direction', 'security', 'conformity' and 'achievement' met the criteria as defined above.

• The dimensions of 'universalism', 'power', 'stimulation', 'benevolence' and 'tradition' required some purification. Following removal of the items that failed to reach the item-to-total criteria, the alpha scores increased to an acceptable level.

• The dimension of 'hedonism' originally had three items, but two of these failed to meet the criteria with the item-to-total correlations below 0.3. This resulted in the alpha being below the acceptable level of 0.6. When the lowest item-to-total correlation scoring items were removed, there was only one remaining item. The 'hedonism' scales from the work of Schwartz (1992) has been tested and found to be reliable. Rather than alter any of the items, following discussion with a supervisor of this study, it was decided to retain this as a single item scale, recognising that this was contrary to
the action taken in the development of the scales for *value*. In the table below, the items that were deleted are shown with a single asterisk.

Dimension/Items	s Cronbach's Coefficient Alpha tests		
	Following purification		
	Item-total	α score	
	correlation		
Values			
Universalism		0.884	
1	0.765		
2	0.667		
3	0.612		
4	0.628		
5	0.439		
6	0.765		
7	0.847		
8	*		
9	0.519		
Power		0.740	
1	0.660		
2	0.329		
3	*		
4	0.771		
5	*		
Self-Direction		0.853	
1	0.810		
2	0.462		
3	0.611		
4	0.466		
5	0.691		
6	0.742		
7	0.579		
Security		0.821	
1	0.512		
2	0.828		
3	0.855		
4	0.442		
5	0.573		
6	0.530		
Stimulation		0.800	
1	*		
2	0.670		
3	0.670		

Table C3.3 - Pilot results - Values

Following purification Item-total correlation α score Benevolence 0.849 1 * 2 0.722 3 0.388 4 * 5 0.715 6 0.783 7 0.741 8 0.592 9 * Conformity 0.795 1 0.791 2 0.651 3 0.458 4 0.650 Tradition 0.608 1 * 2 0.322 3 0.421 4 0.531 5 * Achievement 0.738 1 0.373 2 0.405 3 0.643 4 0.622 5 0.551 Hedonism - 1 * 2 0.394 3 * <	Dimension/Items	Cronbach's Coefficient Alpha tests				
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5 0.551 Hedonism . 1 * 2 0.394 3 *	4	0.622				
Hedonism	5	0.551				
1 * . 2 0.394 . 3 *	Hedonism					
2 0.394 3 *	1	*	•			
3 *	2	0.394				
	3	*				

* item deleted

Value

The dimensions were tested in the pilot survey and the information presented in Table C3.4 below indicates that:

• For the dimensions of 'emotional', 'epistemic', 'effort' and 'cost' all the scale items met the basic reliability criteria, and consequently there has been no need for purification.

• For the dimensions of 'functional', 'conditional' and 'time' there was a need for scale purification. For each set the rewriting of the items took place following

reference to the qualitative sessions with farmers and the work of Sheth *et al.* (1991b) to improve clarity and minimization of potential errors, as discussed in Section C4.3.3.

Following the first set, the items that failed were rewritten. In the case of 'functional' they also failed to meet the basic criteria for the second set so were rewritten again and tested as a third set. When the 'functional' items were tested in the third set the results met the basic reliability criteria. The wording of the 'functional' items was difficult to adapt to the context of farming. For example, 'functional' item 2 in Table C3.4 in the first set was '*Farming is a useful and worthwhile industry for me*'; in the second set this was revised to '*Farming enables me to provide produce for the community*' and was revised again for the third set '*The quality of produce from my farm is important to me*'.

• The items for 'functional' were rewritten because the researcher considered there were too many items failing to meet the basic reliability criteria in both the first and second sets. For 'conditional' the basic reliability criteria were met in the second set. The items for 'time' met the item-to-total correlation criteria but failed to meet the 0.6 acceptable level for the alpha score. It was difficult to know how to purify the items to obtain an increased alpha score because all the items met the benchmark for the item-to-total correlation. This was because the wording of the items was not focused enough, so the emphasis of 'time' was changed for one of the items, from '*I resent having to spend all my time working on the farm*' in the first set, to '*The time I spend with my family is important to me*'. Therefore, the scale items were rewritten referring back to the work of Lapierre (2000) for guidance. When the second data set was tested, all the items met the basic reliability criteria.

• For 'social' the first item was removed following the testing of the first set because it failed to meet the acceptable criteria. Because there was only one item of the six original items that failed to meet the criteria in the first set the researcher decided to retain the remaining items. When retested (omitting the first scale item) the remaining scores met the basic reliability criteria and were accepted.

Dimension/Items	Cronbach's C	oefficient Alp	ha tests			
· · · · · · · · · · · · · · · · ·	First Set Second Set Third Set				Third Set	
	Item-total	a score	Item-total	α score	Item-total	α
	correlation		correlation		correlation	score
Value - Benefits			1		1	1
Functional		0.486		0.336	1	0.812
1	0.249*		0.363		0.722	
2	0.238*		0.050*		0.753	
3	0.480		0.299*		0.846	
4	0.238*		0.401		0.740	
5	0.197*		0.060*		0.798	
Emotional		0.778				
1	0.378				1	
2	0.564					
3	0.775					
4	0.553		[
5	0.766					
6	0.340					
Conditional		0.364		0.844		
1	0.103*		0.868			
2	0.206*		0.622		· · · · · · · · · · · · · · · · · · ·	
3	0.213*		0.673			
4	0.672					
Epistemic		0.835				
1	0.545					
2	0.371					
3	0.855					
4	0.849					
5	0.646					
Social		0.675		0.786		
1	0.146*					
2	0.481		0.481			
3	0.574		0.574			
4	0.718		0.718			
5	0.642		0.642			
6	0.462		0.462			
Value - Sacrifices						
Time		0.539*		0.745		
1	0.415		0.690			
2	0.341		0.625			
3	0.357		0.568	·		
Effort		0.704				
1	0.682					
2	0.354					
3	0.607					
Cost		0.761				
1	0.629					
2	0.622		h			
3	0.493					
4	0.556					
	1 0.000					

Table C3.4 - Pilot results - Value

* item deleted

Risk

The information presented in Table C3.5 below indicates that:

• For 'personal' there has been no need for scale purification.

• For 'market' and 'business' there was need for some purification. In the case of 'market' the second item met the criteria but items 1 and 5 did not. When items 1 and 5 were removed the second item then failed to meet the item-to-total correlation however, the alpha score met the required benchmark. The researcher decided to remove items 1, 2 and 5. For 'business' the items that failed to meet the criteria were removed and when retested the remaining items met the item-to-total and alpha scores. Following this purification the basic reliability criteria was met for both dimensions.

Cronbach's Coefficient Alpha tests				
Following purification				
Item-total	a score			
correlation	· · ·			
	0.902			
*				
*				
0.867				
0.859				
*				
0.704				
	0.630			
0.676				
0.332				
0.523				
	0.756			
0.339				
*				
*				
0.554				
0.587				
0.506				
*				
0.414				
0.469				
*				
0.357				
0.478				
	Cronbach's Coeffic Following purificati Item-total correlation * * 0.867 0.859 * 0.704 0.676 0.332 0.523 0.339 * * * 0.554 0.554 0.587 0.506 * 0.414 0.469 * 0.357 0.357 0.478			

T	able	C3.5	-	Pilot	results	- Risk
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*item deleted

Satisfaction

The information presented in Table C3.6 indicates that *satisfaction* met the basic reliability criteria and did not need any purification.

Dimension/Items	Cronbach's Alpha tests	Coefficient
	First Phase	
	Item-total correlation	a score
Satisfaction		0.756
1	0.713	
2	0.805	
3	0.581	
4	0.722	
5	0.765	

Table C3.6 - Pilot results – Satisfaction

Decision

The information presented in Table C3.7 below indicates that in the first set, items 3, 4 and 5 did not meet the basic reliability criteria. This only left two items, so it was decided to rewrite the scale items, referring to the qualitative sessions and the work of LeBlanc and Nguyen (2001). When tested in the second phase the items met the adopted criteria. The final pilot survey contained an additional item ('*I will make the necessary changes to allow me to continue in farming*') because it was considered prudent to add this item in order to obtain a better understanding of the *decision* of the respondent.

Dimension/Items	Cronbach's Coefficient tests	Alpha		
	First Phase		Second Phase	
	Item-total correlation	α score	Item-total correlation	a score
Decision		0.572		0.692
1	0.489		0.509	
2	0.558		0.692	
3	0.132*		0.404	
4	0.252*			
5	0.279*			

Table C3.7 - Pilot results – Decision

*item deleted

Following the pilot stage the questionnaire was proofread and logically sequenced for the final survey. The 9-point Likert scale was used for Sections 1-6 of the questionnaire. The final section consisted of three items that offered a choice of three options and the final item, which asked in which County the farm was located.

C3.1.3 Conceptualisation of Constructs

There is currently emerging interest in marketing literature as regarding the potential effect that misspecification of conceptualisation of latent variables might have had in theory development and testing. More specifically, the debate revolves around issues related to both reflective and formative conceptualisation of latent variables. (Diamantopoulos & Winklhofer, 2001; Jarvis *et al.*, 2003). Jarvis *et al.* (2003) consider that establishing whether the variables are reflective or formative is of great importance and that Churchill's (1979) suggested procedure applies solely to reflective variables. Jarvis *et al.* (2003) opine that incorrect construct indicators often result in the mis-specification of measurement models to incorrect hypotheses conclusions.

Reflective latent variables are cases where the indicators are considered to be influenced or affected by the underlying latent variable. The key feature of such latent variables is that '...*a change in the latent variable will be reflected in a change in all indicators*...' (Diamantopoulos, 1999, p. 456). The above implies that there is a one-to-one correspondence between the latent variable and its indicators (that is the indicators are seen as empirical surrogates for a latent variable). The underlying assumption is that the latent variable exists rather than being constructed, and is indicated by its indicators of the other lower/first order factors. Such latent variables have their origins in the classical domain-sampling model (Nunnally & Bernstein, 1994) this assumes that the indicators are partially or entirely inter-correlated because of their underlying common latent variable. Consequently, it follows that within such a perspective a comparison of the *loadings* (λ) will offer an assessment of the relative importance of each indicator in reflecting the overall latent variable. An illustration of a reflective latent variable is provided in Figure C3.8 below.



Figure C3.8 – Illustration of a Reflective Latent Variable



According to Bagozzi (1994) formative latent variables (or molars) represent variables whose indicators are viewed as causing rather than being caused by the underlying latent variable.

Under conditions '...a change in the latent variable is not necessarily accompanied by a change in all its indicators; rather if any one of the indicators changes, then the latent variable would also change.' (Diamantopoulos, 1999, p. 457).

The indicators are aggregated into a single summary representation or molar latent variable and consequently (unlike reflective latent variables) there is no theoretical reason to examine interdependencies (that is, correlations) among the indicators. It follows that, since the indicators are not necessarily correlated, they can occur independently. It is their relative weights that are used to construct the formative latent variable and these indicate the relative importance of each indicator.

It is clear from the above that formative latent variables

"...do not conform to the classical test theory of factor analysis models that treat indicators as effects of a construct" (Bollen & Lennox, 1991, p. 305).

Jarvis *et al.* (2003) develop a set of conceptual criteria for use in determining whether a construct should be modelled as having formative or reflective indicators. They consider the mis-specification of indicator measurement can ultimately lead to similarities between the two types of construct, these are:

a) the construct possesses 'surplus meaning', and

b) the scale score does not adequately represent the construct.

The differences between formative and reflective constructs are that in a reflective construct:

a) the direction of causality is from the construct to the measure

b) indicators are manifestations of the construct

c) changes in the indicator should not cause changes in the construct

d) changes in the construct do cause changes in the indicators

e) indicators should be interchangeable

f) indicators should have the same or similar content/indicators should share a common theme

g) dropping an indicator from the measurement model *does not* alter the meaning of the construct

h) indicators are expected to co-vary with each other

i) a change in one of the indicators is associated with changes in the other indicators

j) nomological net for the indicators should not differ

k) indicators are expected to have the same antecedents and consequences.

Jarvis *et al.* (2003) propose that the following criteria are necessary to indicate a construct has formative indicators:

a) direction of causality is from items to construct

b) the indicators are viewed as defining characteristics of the construct

c) changes in the indicators are expected to cause changes in the construct

d) changes in the construct are not expected to cause changes in the indicators

e) indicators need not be interchangeable

f) the indicators need not have the same or similar content/indicators need not share a common theme

g) dropping an indicator may alter the conceptual domain of the construct

h) not necessary for indicators to co-vary with each other

i) a change in the score of one of the indicators is not necessarily expected to be associated with a change in all of the other indicators

i) nomological net for the indicators may differ

k) the indicators are not required to have the same antecedents and consequences.

Using the above debate of the variables, the five constructs under examination (that is 'performance indicators') are discussed.

<u>Values</u>

The direction of causality is from the construct to the items, as implied by the conceptual definition and because the scales affect the dimensions of the values. That

is the scales capture farmers' attitudes and behaviours towards farming. *Values* are regarded as a reflective variable.

Value

The indicators or items are causal, in that the direction of causality is from the items to the construct and that the indicators are regarded as defining characteristics of *value*. *Value* is treated as a formative variable.

<u>Risk</u>

As with *value*, the first two criteria for a formative variable have been satisfied and for the remaining criteria, this is considered likely. The direction of the effect is from the 'market', 'personal' and 'business' to the construct. *Risk* is regarded as a formative variable.

Satisfaction and Decision

As with *values*, *satisfaction* and *decision* are regarded as reflective, fulfilling the criteria as set out by Jarvis *et al.* (2003).

C3.2 Questionnaire Design Process

Once a set of measures was derived, the formulation of the questionnaire could proceed. The principles of question design as suggested by de Vaus (2002) are discussed below each step at a time. The development of the questionnaire was undertaken in accordance with good practice (see Figure C3.10 below).

Figure C3.10 - Research Instrument Design Process



Source: Adapted from McDaniel, C. & Gates, R. (1996), *Contemporary Marketing Research*, 3rd edition, Minnesota: Western Publishing Company (p. 407) and Aaker *et al.* (2003), *Marketing Research*, 8th edition, New York: John Wiley and Sons inc. (p. 313).

Step 1: Determine question response format – In this step, the scale items generated in the development section (see Section C3.1 and Figure C3.2) were formulated into the survey. Good practices as suggested by authors such as McDaniel and Gates (1996; 2006) and Tull and Hawkins (1993) were followed when drafting the questionnaire. There are three major types of question response formats in marketing research. These are open-ended, closed-ended and scale-response questions (Tull & Hawkins, 1993). Open-ended questions allow the respondent to answer in any way they choose, whereas closed questions ask the respondent to make choices among a set of alternatives given by the researcher (de Vaus, 2002; Sekaran, 2002). Closed-response questions are closed-ended questions where the response choices are designed to capture the intensity of the respondent's feeling. The main problems with scaled-response questions arise from the respondent misunderstanding (McDaniel & Gates, 2006). All items in the questionnaire (with the exception of the final general section on the size, type and location of the farm and age of the farmer) were closed, in accordance with good practice, as suggested by Sekaran (2002) and Aaker *et al.* (2003).

Step 2: Decide question wording and language – Care was taken to ensure that the wording of the questions was clear, with words selected to avoid respondent bias, and with consideration of the respondent's ability and willingness to answer the questions, as suggested by many authors (for example de Vaus, 2002; Aaker *et al.*, 2003; McDaniel & Gates, 2006). Although every attempt had been made to ensure clarity, there were inherent problems in the phrasing that came to light during the pilot testing. The wording of the questions was reviewed and rectified for the final survey. The following illustrates some of the issues raised and changes made to the questionnaire for the final survey.

• The first section: This consisted of five general items to lead the respondent into the questionnaire, as is suggested good practice (McDaniel & Gates, 2006). Items such as 'farming is a business that can make money' and 'for me farming is a way of life' were given to provide an understanding of what farmers generally think about the industry they work in.

• The second section: This contained forty-seven items that Schwartz (1992) considers are guiding principles of an individual's life. These items covered the ten

dimensions of *values* ('universalism', 'power', 'self-direction', 'security', 'stimulation', 'benevolence', 'conformity', 'tradition', 'achievement' and 'hedonism'). When ordering the *values*, Schwartz (1992) adopted two principles: firstly, the *values* that were assumed a priori to represent the same *value* type were separated from each other by at least two other *values* and, secondly, *values* were separated by at least three other *values* from those *values* Schwartz (1992) considered were linked. This study adopted the same order as proposed by Schwartz (1992).

• The third section: This contained six subsections on *value*. Respondents were asked for their agreement/non-agreement about what farming means to them in respect of the dimensions of 'functional', 'emotional', 'conditional', 'epistemic', 'time', 'effort' and 'cost'. Finally, for the sub-section on 'social', respondents were asked if, in their experience, certain groups of people are most likely to be farmers.

• The fourth section: This was concerned with the respondents' agreement/nonagreement about what *risk* in farming means to them. The first two subsections listed items for 'market' and 'personal' *risk*; the third subsection asked respondents for their informed judgement over the next three years towards 'business' *risk*.

• The fifth section: This contained five items about *satisfaction*. The five items were retained from the first pilot phase and no development was necessary.

• The sixth section: This contained five items about *decision*. This section was originally intended to be a dyadic yes/no *decision* but, following the first pilot stage and discussions with the supervisors, it became necessary to introduce the notion that farmers might want to make changes to enable them to continue in farming.

• The seventh section: This was a general section containing four questions about the size and type of farm, the age of the farmer and the county in which the farm was located. The respondent was provided with a range of options for the size of the farm and the age of the farmer to encourage the respondent to answer and not feel the questions were too personal. The choice of options for the type of farm was arable, stock or mixed farming.

Step 3: Establish questionnaire sequence, flow and layout – There were seven sections to the questionnaire, set out as discrete sections for each dimension in sections 2-6. The sequence of the questionnaire followed good practice, as suggested by de Vaus (2002), Sekaran (2002), Aaker *et al.* (2003) and McDaniel and Gates (2006), in that the respondent was led from questions of a general nature to more specific ones. The first section was intended to 'lead the respondent into' the questionnaire (de Vaus, 2002; Sekaran, 2002; McDaniel & Gates, 2006). The final brief section included general questions about the farm and the farmer. These were included at the end of the questionnaire because they could be considered sensitive questions, which if included at the beginning might deter respondents from continuing with the questionnaire. Clear instructions were given at the beginning of each section in order to reduce the problem of non-response due to ambiguity or misunderstanding (McDaniel & Gates, 2006). Careful consideration was given to the flow and layout of the questionnaire in order to gain and maintain the respondent's cooperation in completing it and also to make it both interesting and logical (Aaker *et al.*, 2003).

Step 4: Obtain approval of the questionnaire – Once the initial questionnaire had been prepared prior to the pilot survey, it was shown to six colleagues, 3 fellow DBA students and the academic supervisors to obtain their comments and suggested amendments. Following several comments that the questionnaire was too long, the matter was discussed with one of the academic supervisors. He disagreed and the author decided to use a different approach and confine the questionnaire to four sides of A4, thus not appearing too long. This was achieved by reducing the size of the font and retaining the clarity whilst taking care to ensure the presentation retained all the sections. Final proofreading avoided minor mistakes and inconsistencies.

Step 5: Pre-test and revise the questionnaire - One of the purposes of the pilot survey is to ensure that the questionnaire meets the researcher's expectations in terms of the information that will be obtained (Aaker *et al.* 2003). The pilot survey was carried out to eliminate problems and to test all aspects of the questionnaire, such as question content, wording, sequence, form and layout, question difficulty and instructions (Malhotra & Birks, 2005).

Step 6: Prepare final copy of the questionnaire - The final questionnaire was printed and prepared, together with the covering letter ready for dispatch. A copy of the final questionnaire can be found in Appendix D.

CHAPTER C4: RESEARCH METHODOLOGY - III

In the present chapter, the methodology components represented in the shaded portion of the model in Figure C4.1 below are discussed. This starts with the Survey Considerations (Section C4.1), method of Data Collection (see Section C4.2), followed by techniques designed to improve response rates together with assessment of survey errors (See Section C4.3). It is considered important for purposes of clarity to begin with a discussion of the reasons for selecting the survey method for the present research. The final Section C4.4 presents a brief description of the statistical techniques used for the analysis of the collected data.



Figure C4.1 - Research Design Process

Source: Sekaran, U. (2002) Research Methods for Business: A Skill Building Approach, 4th edition, New York: John Wiley and Sons, Inc. (p. 118).

C4.1 Survey Considerations

Before presenting a detailed discussion of the specific methodological steps taken, and in order to appreciate their adoption, it is necessary to discuss the rationale for choosing a survey method. In order to do this first the three primary methods of data collection used most frequently in marketing research are discussed. These are observation, experimentation and survey (Baker, 2001; Malhotra, 2003; McDaniel & Gates, 2006).

• Observation research: This involves the recording of behavioural patterns of people, objects or occurrences without direct interaction, such as questioning or communicating with them (Baker, 2001; Malhotra, 2003; McDaniel & Gates, 2006). The data obtained is rich and uncontaminated by self-report biases, due to the lack of interaction. Collecting the data for observation research can be costly and time consuming due to the long periods of observation required - weeks or even months. Furthermore observer bias may also be present in the data (Sekaran, 2002).

• Experimental research: In experimental research the researcher changes or manipulates one variable, called an explanatory, independent or experimental variable, to observe its effect on another variable, referred to as the dependent variable (Baker, 2001; Malhotra, 2003; McDaniel & Gates, 2006). A field experiment carried out in the natural environment, with work continuing as normal would generally be the most appropriate experimental research.

• Survey research: This is the systematic gathering of information from a sample of respondents, for example to determine attitudes and opinions and to help understand and predict behaviour (Tull & Albaum, 1973; Baker, 2001; McDaniel & Gates, 2006). Furthermore de Vaus (2002) considers that the distinguishing features of surveys are the form of data and the method of analysis.

This study has rejected observation and experimental research in favour of survey research because the latter was considered the most appropriate method for this study. Observation research was considered to be too time consuming and expensive while experimental research is appropriate to a field experiment rather than studying attitudes, opinions and behaviours. As part of the survey research, interviews have been carried out as part of the scale development. Following on from this, a questionnaire has been used in the pilot and main surveys to gather the data.

The reasons for adopting the survey method are:

• Scope - a great deal of information can be collected from a large population economically (Hart, 1987). This study obtains responses from farmers all over Great Britain.

• **Convenience** - this is relevant to the researcher and the respondent. With regard to the former, the entire survey was administered from a single location (McDaniel & Gates, 2006). In this study this was from the author's private residence. Regarding convenience to the respondent, the data were collected involving respondents' attitudes, opinions and behaviours. The use of a survey was considered to represent an appropriate means of obtaining such information without the use of a field force (de Vaus, 2002; McDaniel & Gates, 2006).

• Fit for purpose - survey research conforms to the specifications of scientific research in that it is logical, deterministic, general, parsimonious and specific (Hart, 1987; de Vaus, 2002).

• Inexpensive - the data were collected relatively inexpensively as suggested by McDaniel and Gates (2006): in this study, across twenty-nine counties in Great Britain over a period of six months. • Diversity - A wide variety of questions could be designed in order to elicit respondents' underlying thinking processes (Churchill & Iacobucci, 2002, Malhotra, 2003; McDaniel & Gates, 2006).

C4.1.1 Choice of Method of Administering Survey

The main methods of administering a survey are face-to-face interviews, telephone interviews, postal self-administered questionnaires and electronic surveys (de Vaus, 2002; McDaniel & Gates, 2006). The choice of method is dependent upon the nature of the survey, the sample, time and cost constraints, the importance of response rates and the types of questions (de Vaus, 2002). Firstly mail and internet surveys are discussed, followed by the use of mail and internet surveys together. In this study a multi-mode method of mail and internet survey was selected because it was considered the most appropriate platform on which to carry out the research. Mail surveys are the most traditional method of data collection, however the author of this study wanted also to use the internet survey to establish if farmers were users of the internet as indicated in two of the three interviews with farmers which formed part of the scale development.

There were several possible options that could have been utilised in order to carry out this research. Among these, the most prominent were mail surveys and internet surveys.

Surveying by mail – Mail surveys are time consuming and expensive compared to faceto-face and not reached respondents who do not respond to mail surveys. However, mail surveys are considered to represent the optimal method for the collection of sensitive questions (Baker, 2001; Churchill & Iacobucci, 2002; Malhotra, 2003). Because of the need to collect information on a number of potentially sensitive issues such as '*values*', 'perceived *value*' and the *decision* 'whether to continue in farming or not', a mail survey was deemed to be the most appropriate option.

Surveying by internet would have limited the respondents to those who have access to or knowledge of the internet. In this study, the internet questionnaire was prepared on a dedicated individual site. Access could only be gained through knowledge of the internet address given to prospective respondents. This is termed IESI (Internet Enabled Self Interviewing) and is a static internet form where the respondent scrolls down the page and completes the questionnaire. Clicking the 'submit' button performed basic range checks and returned the answers to the internet server. The internet server then emailed the responses to the researcher (Roos, 2002). The advantages of internet data collection are speed of response, and drastic cost reduction. It also saves time for both the respondent and the researcher (for example, McDaniel & Gates, 2006).

There is also the possibility of conducting a multi-mode survey, for example, a survey with both mail and internet responses. This method does however have the drawback of potential method bias. Mail and electronic surveys are subject to low interviewer bias. The rationale for combining mail and electronic surveys was to increase the response rate. When farming groups were contacted by email, many of them expressed a preference for completing an internet survey because of the minimal cost and inconvenience to them. The use of multi-mode administration methods such as the internet and postal questionnaires can be used to assist in obtaining representative samples (Dillman, 2000). This can however result in mode effects, or the way people

respond (de Vaus, 2002). Testing for data collection bias was carried out using independent sample *t*-tests to test possible differences between mail and internet responses. Non-parametric independent sample Mann-Whitney tests were also used as supplementary/confirmative tool to test the significance of the mean differences. A randomly selected sample of research items was tested (that is 20 items). Table C4.2 shows that two of the *t*-tests and the same two of the Mann-Whitney tests were found to be significant (that is 'I am my own boss on the farm' and 'I do not think farming pays a fair income for the work farmers do'). Consequently, it can be concluded that no apparent bias between early mail and internet responses is present and, there is no evidence of serious non-response bias.

The choice of method of administering the survey has been discussed and the drawbacks identified. The multi-mode survey was selected in preference to the other methods.

	t-test			Mann-Wh	itney
ITEMS	t-value	df	2-tailed significance	Z-value	2-tailed p-value
For me farming is a way of life	-1.616	36.7	0.114	-1.904	0.057
Sense of belonging (feeling that others care about	-0.336	31.4	0.739	-0.571	0.568
me					
An exciting life (stimulating experiences)	0.788	36.6	0.436	-0.642	0.521
National security (protection of my nation from	-0.580	37.7	0.565	-0.796	0.426
enemies)					
A world at peace (free of war and conflict)	-0.240	38	0.812	-0.291	0.771
Ambitious (hardworking, aspiring)	-1.024	37.8	0.312	-1.005	0.315
Honouring of parents and elders (showing respect)	0.000	34.6	1.000	-0.522	0.601
Helpful (working for the welfare of others)	0.613	31	0.543	-0.042	0.966
One of the objectives of farming is to produce food	0.422	28.8	0.676	-0.308	0.758
Farming is fun	0.985	37.6	0.331	-1.077	0.281
I am a farmer because my parents were farmers	-1.655	35.9	0.106	-1.648	0.099
I am my own boss on the farm	-2.780	34.9	0.008	-2.708	0.007
I put a lot of effort into farming	0.607	37.6	0.547	-1.177	0.239
I do not think farming pays a fair income for the	-2.501	34.8	0.017	-2.813	0.005
work farmers do					
The income from farming alone is not sufficient to	0.159	32	0.875	-0.657	0.511
support my family as I would like					
Religious people	1.781	37.2	0.083	-1.737	0.082
Hereditary farmers	0.634	33.1	0.530	-0.154	0.877
The farm debt will increase in the next 3 years	-1.572	37.6	0.124	-1.811	0.070
The farm will not make a profit in the next 3 years	-1.150	31.3	0.257	-1.135	0.256
I get satisfaction from being a farmer	-0.097	38	0.923	-0.070	0.944

Table C4.2 – Mail and Internet Survey Bias Analysis

C4.2 Data Collection

Data for the pilot testing of the research were collected over a two month period between Winter 2004 and Spring 2005. For the final survey the empirical data were collected over a period of five months between April and September 2005.

Three components are debated in this section; Method of Primary Data Collection, Survey Administration (see Section C4.2.1) and Communication Method (see Section C4.2.2). Discussion of each of these components follows.

C4.2.1 Method of Primary Data Collection

Data collection is the process of collecting or obtaining data for the final survey (de Vaus, 2002; McDaniel & Gates, 2006). Data can be collected from primary or

secondary sources of data. Primary data refers to data collected by the researcher on the variables of interest specifically for the purpose of the study, whereas secondary data refer to data collected from sources that already exist, such as company records or Government publications (Sekaran, 2002). In this study data have been collected from farmers as the primary source. In the first instance, qualitative data were collected from the interviews with expert farmers in the form of notes (see Appendix A) while exploratory research and quantitative data have been collected from the questionnaires returned by farmers in the form of exploratory research.

• The sample - In this study there is no control over who completed the questionnaire because the researcher was not present (McDaniel & Gates, 2006). However given that farming is a way of life and that farms are frequently family run (Bohnet *et al.*, 2003) it is hard to establish which individual would be most likely to complete the questionnaire. Having said this it is unlikely that someone not connected with farm duties would have the interest or knowledge to complete such a survey.

• Time and cost constraints - Considering the large geographical spread of the qualified respondents across Great Britain, efforts were made to keep the costs to a minimum. Since the mid 1990's internet surveys have become a viable and popular means of questionnaire administration (Grandcolas *et al.*, 2003; McDaniel & Gates, 2006). Following the interviews with farmers it was considered appropriate to provide an internet version of the questionnaire. It is recognized that using multi-mode methods of administration (such as this) may result in more representative sample questionnaire responses and more accurate information (de Vaus, 2002; Grandcolas *et al.*, 2003). Mail and electronic surveys require less field resource involvement and do not need interviewers and supervisors (Malhotra 2003). Respondents are able to complete the questionnaire in their own time and at their own convenience.

• **Response rates** - Response rates are generally considered to be low for mail surveys (Engel *et al.*, 1990; de Vaus, 2002; Malhotra, 2003; McDaniel & Gates, 2006). However, with surveys of specific groups such as farming groups in this study, mail and internet surveys are considered as good as any other method, particularly when the topic of the survey is relevant to the group (de Vaus, 2002).

• Number of questions - Finally, the use of a mail and internet survey is considered to be the most appropriate method if there are a large number of questions in the questionnaire (Kinnear & Taylor, 1996; Malhotra, 2003). In this study there were a large number of questions in the final survey.

For clarity the data collection is divided into the three parts as shown in Figure C1.5 in Section C1.5 (scale development; pilot survey and final survey). Each of these parts will be discussed in turn.

C4.2.1.1 Scale Development

Following the literature review, clarity and specificity of the constructs (values, value, risk, satisfaction and decision) were achieved in accordance with good practice (DeVellis, 1991). However, a lack of scales was identified for the constructs of value, risk, satisfaction and decision within the context of farming which led to the need for scale development. Consequently, exploratory research in the form of interviews was undertaken.

The interviews were face-to-face and held with 'experts within the field', as suggested by McDaniel and Gates (2006). According to the Concise Oxford Dictionary (1999) an expert is 'a person who is very knowledgeable about, or skilful, in a particular area'. The *decision* to seek information from experts is in line with Dalebout and Wierenga's (1997) assertions about the importance of soliciting expert opinions and perceptions about complex marketing knowledge. In addition, use of experts during the exploratory phase has been recognized by academics as a valid way of obtaining consensus and developing a holistic appreciation of the relevant issues (Winkler, 1981). These experts were selected on the basis that they were farm owners in Suffolk who had been farming for a minimum of twenty-five years. In each case the farm was a family-owned farm which had been in the family for more than three generations. Interviews were carried out with three such experts.

C4.2.1.2 Pilot Survey

The pilot survey was carried out to design, develop and refine the scales (Baker, 2001; Sekaran, 2002; McDaniel & Gates, 2006), although the wording of the items for *values* were taken *verbatim* from the work of Schwartz (1992) and not refined in any way. In the first instance, the questionnaire was sent to farmers in *Suffolk, Norfolk and Essex* who were prepared to respond.

C4.2.1.3 Final Survey

The data collection method adopted for the final survey was a questionnaire sent to farmers across Great Britain. Farmers were identified by farming groups that were obtained from the internet and from trade publications (Farmers Weekly and Farmers Guide). The original intention was to obtain names and addresses from Yellow Pages or <u>www.yell.com</u>, but it was decided, following discussions with the supervisors, that the use of farming groups would be preferable because their members would be current farmers, whereas farmers from Yellow Pages might not be.

C4.2.2 Communication method

The survey was administered using a structured undisguised communication approach for the following reason:

• **Degree of structure** - This refers to the degree of standardisation imposed on the questionnaire (McDaniel & Gates, 2006), that is the extent to which the questionnaire follows a set sequence or order, and whether questions have set wordings and permitted responses are strictly predefined. The questionnaire followed a strict sequence and relied primarily on closed-ended, scaled response (9-point Likert scale) questions for sections 1-6.

• **Respondent targeting -** The name of each of the respondents was included as part of the postal address for the mail surveys. Directing the questionnaire to a named respondent is considered to help increase the response rate because it is directed to the person best able to complete it (de Vaus, 2002).

• Reference to an academic institution - The place of study (Kingston University) is given in the letter to provide the support and kudos of an academic institution (Hussey & Hussey, 1997) and the source of the study. It is a perception that surveys with public university sponsorship are believed by recipients to be attempts to 'better society as a whole' with little direct 'self-serving' implications (Cavusgil & Elvey-Kirk, 1998, p. 1174). The covering letter was restricted to one page for conciseness and to give impact. It explained the purpose of the study and requested farmers to complete the questionnaire. It assured them of anonymity, thanked them for their time and provided a contact telephone number and address. The electronic survey was anonymous as was the paper version.

• Anonymity - The researcher cannot identify the respondent (de Vaus, 2002). The responses received were numbered but there was no record of the respondent's name

and address on the questionnaire. Anonymity was promised in the accompanying letter in an attempt to obtain a higher response rate. Cavusgil and Elvey-Kirk (1998) suggest that, when anonymity is promised; this reinforces the notion that a request for the information is intended to be utilised to benefit society as a whole.

• The return-envelopes - Pre-addressed, pre-paid (stamped) envelopes were enclosed as part of the questionnaire pack. This was done for the convenience of the respondent and also because failure to do so has been reported to have a negative effect on the response rate (Dillman, 1978; de Vaus, 2002). The use of stamps rather than bulk postage also produces a greater sense of personalisation (de Vaus, 2002; McDaniel & Gates, 2006).

C4.3 Response Rate Improvement and Error Minimisation

In this section methods used to improve response rates are first delineated (see Section C4.2.1). Subsequently, data collection issues such as response rate, incomplete cases and missing data are also reported in Section C4.3.2. Finally survey errors are discussed in Section C4.3.3.

C4.3.1 Response rates

The response rates for the final survey of the study are shown in Table C4.3 below and discussed. The final survey consisted of two modes of delivery. There were 703 paper questionnaires sent and 107 responses were received, of which 91 were useable. The response rate was 15%. The electronic questionnaire was put on a website (<u>www.streamlinetrial.farmsurvey.co.uk</u>) and an email was sent to farming groups giving the website address, requesting they complete the questionnaire. Reminders were sent two weeks following the first request, although it was recognised that no

record was maintained of responses as those received were anonymous and the recipient's name was not recorded. Of the 27 farming groups contacted 44 responses were received of which 39 were useable. It was not possible to calculate the response rate because the number within the farming groups was not known.

	Final Survey
Number mailed	703
Usable Paper Replies	91
Unusable Paper Replies	16
Usable Response Rate	15%
Number Emailed (farming groups)	27
Usable Electronic	39
Replies from all farming groups	
Unusable Electronic Replies	5
Usable response rate	Not possible to
	calculate as number
	of farmers in each
	farming group not
	known

Table C4.3 – Response Rates, Mail and Email/Internet Survey

Table C4.4 below illustrates the results from the final section (Section 7). The analysis of this section shows that there was a reasonable mix of the size of farms, with a slightly higher number of farmers greater than 100 hectares than farms between 51 and 100 hectares. More than a quarter of the farms were small, being less than 50 hectares. Nearly half of the respondents farmed arable farms but there was a good representation of stock and mixed farms. More than half of the respondents were between 36 and 55 years of age, with just less than a third being more than 55 years of age. There were a reasonable number of farmers under 35 years of age (14%).

	Category and %	Category and %	Category and %
Number of hectares	Less than 50	Between 51-100	Greater than 100
	28%	34%	38%
Type of farm	Arable	Stock	Mixed
	48%	18%	34%
Age of farmer	Less than 50	Between 36-55	Greater than 55
	14%	54%	32%

Table C4.4 – Analysis from the Final Section of the Questionnaire

Of the number of farmers under 35 years of age, 61% were farming farms greater than 100 hectares and 83% were farming arable farms. Of the group of farmers who were between 36 and 55 years of age, 53% were farming farms greater than 100 hectares, and about 41% were farming arable land and 44% farming mixed farms. Of the eldest group of farmers, slightly more than half farmed farms greater than 100 hectares and 46% were farming arable farms and 39% farming mixed farms. The 130 responses were received from farmers from twenty-nine counties in Great Britain. This is discussed further in Section A1.7.

C4.3.2 Missing Data

Incomplete questionnaires were retained and counted but did not form part of the recorded data. They were treated as ignorable as suggested by Little and Rubin (1987) because the level of unusable responses was low with 21 of the 151 questionnaires returned with instances of missing data.

C4.3.3 Error and Biases in the Research Design

Examination for the presence and minimization of errors and biases is a necessary condition for empirical validation of models and hypothesis testing (Churchill & Iacobucci, 2002). Any effort to obtain information from a sample is bound to include

errors (de Vaus, 2002; Sekaran, 2002; Malhotra, 2003; McDaniel & Gates, 2006). Consequently, a number of examination techniques have been used to examine and minimise the number of errors and biases.

The dimensions of the constructs are measured using a scale, wherever possible, for each dimension. Churchill (1979), in discussing the work of Nunnally (1967), suggests that it is the attributes of the objects that are measured and not the objects themselves. This suggests that this is not a true measurement of the object but an observation of it, and consequently it is necessary to assess the 'goodness' of the measurement (Sekaran, 2002). Churchill (1979) considers there are differences between the observed measurement and the true measurement and this may be due to systematic error (such as stable characteristics of the object) and random error (such as transient personal factors) which affect the object's score. If this is the case, this is denoted by:

$$X_o = X_t + X_s + X_r$$
 where:

 X_o = the observed measurement X_t = the true measurement

 $X_s =$ systematic error (also known as bias)

 $X_r = random error$

For the purpose of a systematic debate on random error and systematic error (also known as bias) a classification of the components of the total error is provided in Figure C4.5. For a full explanation and relevant definitions of these errors, the interested

reader is directed to among others, Tull and Hawkins (1993), Kinnear and Taylor (1996), Churchill and Iacobucci (2002) and Aaker *et al.* (2003).



Figure C4.5 - Total Survey Error

Source: Adapted from McDaniel, J. & Gates, R. (2006), *Marketing Research Essentials*. 5th edition, New York: John Wiley and Sons Inc. (p. 117).

C4.3.3.1 Random Error

Random error arises from transient aspects of the observed respondent, measurement situation, etc. (Malhotra & Birks, 2005). This type of research error affects the observed value in different ways, with a lack of consistency when the measurement is made repeatedly on the same person or subject. Figure C4.5 shows that this type of error can be further categorised into random sampling error and random non-sampling error.

• Random Sampling Error - This type of error is the difference between the sample mean value and the true mean value of the population of interest; is caused by the selection of a non-representative sample by way of a probability sampling method (Tull & Hawkins, 1993; Malhotra & Birks, 2005). This error cannot be avoided and can only be reduced by increasing the sample size (McDaniel & Gates, 2006). In this study the sample size was intended to be large enough to prevent random sampling error.

• Random non-Sampling Error - This type of error can be attributed to sources other than random sampling error. As noted by Tull and Hawkins (1993) and McDaniel and Gates (2006), random error also occurs each time something is measured. This type of error was beyond the control of the researcher and no attempt was made to identify and remedy associated problems.

C4.3.3.2 Systematic Error (bias)

Systematic error affect the measurements in a constant way and is, consequently, also known as 'constant errors' or 'constant bias' (Churchill & Iacobucci, 2002; Malhotra, 2003) and is controllable. Such errors result from the research design and/or execution of the research process (McDaniel & Gates, 2006). Efforts were made to eliminate systematic non-sampling errors by ensuring that the information obtained by the measurement technique(s) was a true reflection of a respondent's views and thus provided a valid and reliable platform for subsequent data analysis. Such error results from the research design or execution (McDaniel & Gates, 2006) and can be subdivided into sample design error and measurement error (see Figure C4.5).

Measurement Error

Measurement error results from variation between the information desired and the information observed during the measurement process (Tull & Hawkins, 1993; Malhotra & Birks, 2005; McDaniel & Gates, 2006). It can be further categorised into processing error, response error, instrument error, interviewer bias and surrogate information error. A discussion of these systematic errors follows.

• **Processing Error** - Processing error is the error that arises when editing, coding, tabulating or analysing the data (Churchill, 1979). In order to reduce the influence of this type of error, quality control checks during the transference of data into the adopted software, as well as data analysis, were carried out. This was done by ensuring that the correct number of responses was registered and that the data on the PC was checked against paper copies to ensure that information had been entered correctly. A colleague was enlisted to carry out a random check of 20% of the entries for both the pilot and main survey data. Only one error was found.

• Response Error - Response error is subdivided into response bias and nonresponse bias. These are discussed below.

- *Response bias* - Response bias (also referred to as field error Churchill, 1979 or data errors Aaker *et al.*, 2003) occur in the collection of information from an individual if the reported value differs from the actual value of the variable concerned (Malhotra & Birks, 2005). This problem is due to the respondent's inability or unwillingness to provide accurate information, or because of unconscious misrepresentation in answering a question falsely. Steps were taken to minimise response bias by pretesting the questionnaire format and content of questions and questions directly related to a professional environment.
- *Non-response bias* - Non-response bias is associated with serious bias if the sample is not representative of the population (Malhotra & Birks, 2005). Despite all efforts to design a professional and respondent-friendly questionnaire, including a number of approaches to increase response rate, a considerable number of the recipients of the questionnaire did not reply.

Following the suggestion of Armstrong and Overton (1977), it was decided to treat late respondents as behaving similarly to non-respondents and to test for possible differences between respondents who returned surveys early and those who returned them late.

Independent sample *t*-tests were carried out in order to test possible differences between early and late respondents for all scale items. Non-parametric independent sample Mann-Whitney tests were also used as a supplementary/confirmative tool to test the significance of the mean differences. A randomly selected sample of research items, from the main constructs, was tested, that is 19 items. Table C4.6 below shows that none of the *t*-tests, or the Mann Whitney tests was found to be significant. Consequently, it can be concluded that no apparent bias between early and late respondents is present and therefore there this was taken to indicate a lack/absence of non-response error (Maltz, 1994).

	t-test			Mann-Wh	itney
ITEMS	t-value	df	2-tailed	Z-value	2-tailed
			significance		p-value
Equality (equal opportunity for all)	0.348	37.9	0.730	-0.343	0.732
Social order (stability or society)	0.732	37.7	0.469	-0.745	0.456
Meaning in life (a purpose in life)	0.282	37.9	0.780	-0.141	0.888
National security (protection of my nation from	0.150	37.9	0.881	-0.402	0.688
enemies)					
Creativity (uniqueness, imagination)	0.769	37	0.447	-0.774	0.439
Mature love (deep emotional and spiritual intimacy)	1.701	36	0.097	-1.586	0.113
Unity with nature (fitting into nature)	0.665	37.9	0.510	-0.496	0.620
Social justice (correcting injustice, care for the	0.482	37.9	0.632	-0.508	0.611
weak)					
Choosing own goals (selecting own purposes)	1.339	37.9	0.189	-1.312	0.189
Honest (genuine, sincere)	1.696	30.7	0.098	-1.341	0.180
One of the objectives of farming is to produce food	0.739	35.9	0.465	-0.866	0.975
Working on the land provides me with a fulfilling	0.972	37.6	0.337	-0.975	0.329
way of life					
Farming does not provide me with regular routine	0.459	26.8	0.649	-0.061	0.951
hours					
Farming allows me to work in the open air	0.930	30.4	0.358	-0.437	0.662
I consider the value of farming lies more in the	0.586	37.8	0.562	-0.849	0.396
value of the land than the income					
The farm would be affected by personal illness or	0.380	29.6	0.706	-0.413	0.679
injury in my family					
Production levels will fail to produce Great	0.480	37.9	0.634	-0.537	0.591
Britain's requirements					
I get satisfaction from being a farmer	0.987	36.1	0.330	-1.451	0.147
I will make the necessary changes to allow me to	1.090	36.8	0.283	-1.121	0.262
continue in farming					

Table C4.6 – Non-Response Bias Analysis

• Instrument Error - According to McDaniel and Gates (2006), instrument bias (also referred to as questionnaire bias) is a problem associated with the measurement instrument or questionnaire, such as unclear instructions, ambiguous questions, confusing terms, irrelevant questions, and using biased words or phrases. By carrying out a pre-test during the operationalization process, the items were believed to be carefully phrased, thus minimising the potential of measurement bias.

• Interviewer Bias - Interviewer error is due to the conscious bias of the interviewer while interacting with the respondent (McDaniel & Gates, 2006). In this study, care was taken to minimize this type of error when carrying out the interviews in accordance with good practice (Tull & Hawkins, 1993; Malhotra & Birks, 2005; McDaniel & Gates, 2006) by the researcher making every effort not to influence the interviewees.

• Surrogate Information Error - Surrogate information error is error arising from a difference between the information required for the research and information sought by the research (Tull & Hawkins, 1993; Malhotra & Birks, 2005; McDaniel & Gates, 2006). Care was taken to minimise this type of error by providing a unified way of response through a 'scenario' at the interviews and with colleagues when the final questionnaire was prepared. As the interviews with respondents and the pilot survey were conclusively to demonstrate, surrogate information error clearly existed. Item by item analysis and rewording, rephrasing and new instructions (as necessary) minimised surrogate information error for the final survey. The results will be discussed in Part D.

• Data Collection Error - Data from experiments, interviews and survey questionnaires can be influenced by either the context of the study, the researcher or the respondent. Efforts were made to minimise the factors that would influence the data through attitudes of the researcher (age, gender, class, race and so on); presentation of the researcher (dress, speech and body language); personality of the researcher (anxiety, need for approval, hostility, warmth and so on); attitudes of the researcher (religion, politics, tolerance, general assumptions); scientific role of researcher (theory held, researcher expectations).

Sampling Design Error

Sampling design error refers to errors in the sample or sampling process (Tull & Hawkins, 1993; Malhotra, 2003; McDaniel & Gates, 2006) and encompasses sampling frame errors, population specification and selection errors and sampling errors. In this study, attempts have been made to minimise this type of error by careful selection of sampling frames and potential respondents.

• Sampling Frame Error - Sampling frame error refers to the variation between the population defined by the researcher and the population implied by the sampling frame (Malhotra, 2003). This type of error is encountered by using an inaccurate/incomplete sampling frame (McDaniel & Gates, 2006). For the pilot and final survey attempts to minimise this type of error were made by ensuring that farmers contacted belonged to a farming group (see Appendix B) and to a farm address. A full debate of the merits of the adopted sampling frame for the target group is provided in Section C2.5.

• **Population Specification Error** - Population specification error arises from an incorrect definition of population from which the sample is chosen (McDaniel & Gates, 2006). Based on a careful definition of the population of interest, this error was not considered to be a problem in this study for either the pilot or final survey.

• Selection Error - Selection error occurs when incomplete or improper sampling procedures are followed (McDaniel & Gates, 2006). The sampling procedure in this instance was simple to follow because no selection had to be made. The systematic approach outlined earlier and the fact that farmers approached fulfilled the criteria (of being farmers) was viewed as a safeguard against such error.

This section has discussed the various types of errors that might be encountered in a survey. Care has been taken to minimize the incidence of any of these errors where possible.

C4.4 Data Analysis and Statistical Techniques

The analytical technique applied in order to examine the hypothesised structural relationships depicted in the Research and Competing Models is Structural Equation Modelling (SEM) as suggested by Baumgartner and Homburg (1996) and Chin *et al.*

(2003). Fornell (1987) suggests SEM techniques are examples of '...a second generation of multivariate analysis...' which offer researchers greater flexibility when compared against first generation techniques such as multiple regression or factor analysis etc. Barclay *et al.* (1995) and Chin and Newsted (1999) summarise these advantages as being:

- Model relationships among multiple predictor and criterion variables
- Construct unobservable latent variables
- Model errors in measurements for observable variables, and
- Statistically test *a priori* substantive/theoretical and measurement assumptions against empirical data.

This structural equation approach with unobservable variables (Fornell & Bookstein, 1982) was closely identified with the maximum likelihood covariance structure analysis generalised by Jöreskog (1970, 1973, 1979) and the associated computer programme LISREL (Jöreskog and Sörbom 1978, 1981). Other similar software such as EQS, AMOS, SEPath, LINCS, RAMONA and COSAN have been employed in developing marketing theory and testing related models (Baumgartner and Homburg, 1996; Chin *et al.* 2003). LISREL is the most popular methodology of covariance-based SEM to perform this initial data analysis (Haenlein & Kaplan, 2004). As a result of this, the term LISREL is sometimes used as a synonym for covariance-based SEM, which estimates first model parameters and then case *values* (that is, estimated *values* for each latent variable in each data set) by regressing them onto the set of all indicators (Haenlein & Kaplan, 2004). For interested readers and further information regarding covariance SEM see Diamantopolous (1994), Chin and Newstead, (1999) and Haenlein and Kaplan (2004).

Fornell and Bookstein (1982) suggest that despite the popularity of LISREL, it cannot be assumed that all problems amenable to the use of SEMs are also suited to LISREL. They consider there are serious problems that often interfere with meaningful covariance structure analysis. For example, improper solutions, or solutions that are outside the admissible parameter space, and factor indeterminacy. An alternative to the covariance-based approach to SEM is *partial least squares* (PLS-Graph, hereafter referred to as PLS), developed by Wold in 1985.

'As an alternative to covariance-based SEM analysis, the variance-based approach of PLS-Graph shifts the orientation from causal model/theory testing to componentbased predictive modelling. Rather than focusing on building models that are meant to explain the covariance of all the observed indicators, the objective of PLS is prediction' (Chin and Newstead, 1999, p. 310).

(PLS-Graph is hereinafter referred to as PLS). PLS is regarded as a method that overcomes these aforementioned problems discussed by Fornell and Bookstein (1982) and also in masking measurement error within traditional analytical techniques (Chin *et al.*, 2003).

Compared to covariance-based approaches, PLS focuses on maximising the variance of the dependent variables that are explained by the independent variables, rather than reproducing the empirical covariance matrix (Haenlein & Kaplan, 2004). Similarly to any SEM, a PLS consists of a structural part, reflecting the relationships between the latent variables, a measurement component showing the relationships between the variables and their indicators, and the weight relations, used to estimate case scores for the latent variables. Contrary to covariance-based SEM that estimates first model parameters and then case scores, PLS calculates case scores first. In addition, its models can comprise both reflective and formative latent variables (Fornell & Bookstein, 1982). Finally, there is no assumption of multivariate normality and PLS can handle sample sizes as small as 50 (Haenlein & Kaplan, 2004).

Despite the fact that Fornell and Bookstein (1982) provided a thorough examination and comparison of LISREL and PLS, it is not until very recently that PLS has increased in popularity. This has occurred following Wold's (1975) first presentation of PLS, Lohmöller's (1989) discussion of Wold's approach, and McDonald's (1996) article regarding path analysis with composite variables (Haenlein & Kaplan, 2004). As a corollary to this a review of the literature indicates that PLS has been applied in a diverse range of business and management problems, for example 'economics (Apel, 1977), political science (Meissner & Uhle-Fassing, 1981), psychology of education (Noonan, 1980; Noonan & Wold, 1980), chemistry (Kowalski *et al.*, 1981) and marketing (Jagpal, 1981)' taken from Fornell and Bookstein (1982) illustrating the diverse use and popularity of PLS.

In the analysis of the collected data the following systematic approach has been adopted in testing the reliability and validity:

1. The reliability of the data has been tested with Cronbach's alpha, the item-to-total correlation using SPSS, Confirmatory Factor Analysis using AMOS and composite reliability using PLS.

2. The validity of the data has been tested for content validity with exploratory factor analysis using SPSS, discriminant validity with average variance extracted using PLS and Pearson's correlation coefficient using SPSS. 3. Covariance analysis was used for the exploratory factor analysis to explore the data and provide information about how many factors are needed to best represent the data.

4. The model pathways and the *value* and *risk* constructs were tested for higher order structures using PLS.

5. As part of SEM the Goodness-of-Fit index was used to measure how well the specified Research and Competing Models reproduce the covariance matrix among the indicator variables.

Part D follows with detailed discussion of the results and the analysis employed.

PART D - DATA ANALYSIS

This part comprises two chapters that discuss the various activities related to the analysis of the collected data:

- Chapter D1: Measurement Accuracy Analysis
- Chapter D2: Testing for Higher-Order Structures, Model Fit and Hypothesised Pathways

CHAPTER D1: MEASUREMENT ACCURACY ANALYSIS

D1.1 Introduction

This chapter presents analysis regarding the quality of the research measures and in particular the accuracy of the measures of the research constructs. This is considered to represent an important step prior to testing the proposed model in Chapter D2. The material presented here includes an assessment of the reliability and validity of the research constructs throughout the investigation and operationalization of the constructs. The reliability is tested for internal consistency using Cronbach's alpha, Confirmatory Factor Analysis and composite reliability (Gronlund, 1982; Spector, 1992; and Jarvis *et al.*, 2003). The validity is tested for face, content, criterion-related, convergent and discriminant validity (Bagozzi, 1980; Fornell & Larcker, 1981; Gerbing & Anderson, 1988).

There is confusion in the literature because Churchill (1979) suggests that if a construct is valid it is also reliable, whereas Gronlund (1982) opines that reliability is necessary to obtain validity. Similarly Spector (1992) posits that it is first a requirement to establish the essential property of reliability before conducting validity tests. Notwithstanding this, Kline (2004) suggests a measure may be reliable without being valid.

D1.2 Reliability

Reliability concerns the degree of stability and consistency when a scale is used repeatedly (Churchill, 1979; DeVellis, 1991; Spector 1992; Hair *et al.*, 2005) or conceptually as the correlation between a measure and itself (Peter, 1981). Reliability is defined as '*the degree to which observations or measures are consistent or stable*' (Remenyi *et al.*, 2005, p. 289). A number of approaches have been recommended to assess reliability, such as scorer reliability, test-retest reliability (repeatability reliability), alternative-form reliability and internal-consistency reliability (see among others, DeVellis, 1991; Lee & Hooley 2004).

Reliability of the pilot survey was discussed in Section C3.1.2. Cronbach's alpha was the primary method used and, as will be seen in this chapter, there are additional methods for testing reliability which have been used with the final survey. These will be discussed in detail in this section.

D1.2.1 Scorer Reliability

Scorer reliability should be assessed in order to ensure the reliability of the judgement made by judges or scorers (Lee & Hooley, 2004). Data for the current research have mainly been obtained through rated-scale items that did not require the author to judge the scores. Consequently testing scorer reliability was considered unnecessary in the current research.

D1.2.2 Test-Retest Reliability and Alternative-Form Reliability

In test-retest reliability the same participants are administered identical sets of scale items at two different times with conditions as near equivalent as possible. In alternative-form reliability two equivalent forms of scales are administered at two different times to the same participants (DeVellis, 1991; Malhotra, 2003). As suggested by Malhotra (2003), the time interval for both test-retest and alternative-form reliability tests is usually between 2 and 4 weeks. High correlations between the two results are taken to indicate a high degree of reliability. Churchill (1979) considers that these methods are difficult to use and suggests they should not be because there are better (and easier to use) alternatives (these are presented in Section D1.2.3). De Vellis (1991) suggests that these methods can only be used when the phenomena being measured remain stable and there is a high degree of confidence, but that such confidence is not often warranted. As a result of this it was decided not to use test-retest reliability and alternative-form reliability tests in this study.

D1.2.3 Internal Consistency Reliability

The literature offers four methods for examining internal consistency: split-half, Cronbach's coefficient alpha, Confirmatory Factor Analysis and Fornell and Larcker's (1981) composite reliability. Each will be discussed in turn.

D1.2.3.1 Split-half

Such reliability tests involve separation of items on the scale into two random parts, and correlation between the two parts is taken to be an indication of reliability. Results from split-half tests have been found to be highly dependent on the way that the items are separated (Malhotra, 2003). For this reason this method has been discarded.

D1.2.3.2 Cronbach's Coefficient Alpha

This is a method designed to overcome the problem discussed above (Section D1.2.3.1) and involves calculating the average of all possible split-half coefficients. The literature indicates that Cronbach's coefficient alphas attracted considerable support in the examination of internal consistency (for example Sekaran, 2002; Lee & Hooley, 2004; Hair *et al.*, 2005). Two of Cronbach's alpha coefficient indices have been utilised, these are the item-to-total correlations which are a measure of the correlation of the item to the summated scale score and the alpha, score that indicates the consistency of the entire scale. Any variables with less than two items were not tested for Cronbach's alpha (such as 'hedonism').

Lee and Hooley (2004) suggest that the use of Cronbach's alpha is recommended, but there are a number of factors that should be taken into consideration when interpreting alpha scores. Some of these factors are discussed below:

- If Cronbach's alpha is used to measure internal consistency, should it be high or low, and what does this mean? As discussed in Section C3.1.2.1, this study has adopted the lower limit of 0.6 for the alpha score (Hair *et al.*, 2005), and the benchmark of 0.3 has been adopted for item-to-total correlation.

- The effect of the number of items for each specific scale. In order to test for reliability using Cronbach's alpha, Hair *et al.* (2005) suggest good practice dictates a minimum of three items per indicator, preferably four. However as suggested by Aaker *et al.* (2003), Lee and Hooley (2004) and Hair *et al.* (2005), it is necessary to balance parsimony with sufficient items to fully represent the construct. Too many items could result in a long questionnaire and respondents could potentially be deterred from answering (Churchill, 1979; Hussey & Hussey, 1997). In this study the scale items were developed in the first instance with at least three items per indicator.

- Should other reliability tests be used? As discussed below, composite reliability and Confirmatory Factor Analysis have also been used in this study. They provide an element of cross validation for reliability of the construct (for example Dabholkar *et al.*, 1996; Malhotra & Birks, 2003; Hair *et al.*, 2005).

D1.2.3.3 Confirmatory Factor Analysis

Covariance based Structural Equation Modelling can perform a confirmatory role because the researcher has total control over the specification of items for each construct. Moreover, variance based Structural Equation Modelling allows for a statistical test of Goodness-of-Fit for the proposed confirmatory factor solution. Confirmatory Factor Analysis (CFA) is particularly useful in the validation of scales for the measurement of particular or specific constructs (Steenkamp & Trijp, 1991). It also provides evidence for uni-dimensionality of a construct.

Therefore, for constructs with more than three items, the reliability was examined through Confirmatory Factor Analysis as suggested by Anderson and Gerbing (1982). Two CFA indices, the Goodness-of-Fit (GFI) and significance of item correlations (termed regression loadings in AMOS), were used in order to test measurement reliability. The GFI score, ranges from 0 (poor fit) to 1.0 (perfect fit), and is viewed as an overall indicator of reliability of the scales and measures.

In the recent publication by Hair *et al.* (2005), it is suggested that the GFI was an attempt to produce a statistic to fit, that was less sensitive to sample size: a revised approach to Goodness-of-Fit is also discussed. Hair *et al.* (2005) challenge the previously adopted 'magic' 0.9 benchmark score and suggest there is no single 'magic' score that distinguishes good from bad models. They advocate using Goodness-of-Fit indicators to test theory rather than whether SEM is a good fit for the data and suggest a

portfolio of diagnostics to assess Goodness-of-Fit. Hair *et al.* (2005) recommend guidelines for determining the acceptability of Goodness-of-Fit for a given model for four or more items per construct dimension. However, this study uses Goodness-of-Fit purely to confirm the scales and the significance of loadings and not the acceptability of fit for the Research Model. The loadings are tested using a 5% level of significance.

D1.2.3.4 Composite Reliability

Cronbach's alpha assesses the consistency of the entire scale. Despite its relationship to the number of items in the scale (that is increasing the number of items, even with the same degree of inter-correlation, will increase the reliability score) it is necessary to use additional tests for reliability (Hair *et al.*, 2005). For example, internal consistency which is assessed using a diagnostic initially proposed by Fornell and Larcker (1981) termed composite reliability (CR). Fornell and Larcker (1981) argue that their measure is superior to Cronbach's alpha since it uses the item loadings estimated within the model. Consequently the number of items in the scale does not affect it. Two conditions were set for the acceptance level for composite reliability. These are that the loadings should be significant (p<0.05) and the overall CR scores set at 0.70 or above. A summary of the adopted benchmarks is given in Table D1.1 below.

Dimension/Items	Cronbach's Coefficient Alpha tests Final Solution		CFA tests		Composite Reliability	
	Item-total correlation	a score	Standardised Regression Weights	GFI	Loadings	Overall Composite Reliability index
Benchmark	0.3	0.6	Significant at p<0.05	0.9	Significant at <i>p</i> <0.05	0.7

Table D1.1 – Reliability Benchmarks

D1.2.4 Process undertaken in the Reliability Testing

In the first instance the data were tested for Cronbach's alpha. If any items failed to meet the benchmark for item-to-total correlation, they were removed from the analysis and the data retested. Any items that met the benchmark for item-to-total correlation, but failed to meet the alpha score were noted and considered further at the validity testing stage. Examples of this occurred with 'functional' and 'cost'. This will be discussed in more detail in the subsection for the construct entitled the 'Value' construct. Any items that were removed because they failed to meet the item-to-total correlation benchmark were not taken forwards and tested for CFA. Following on from this, any items that were removed from the CFA tests in an attempt to increase the GFI to an acceptable level, such as in the case of 'universalism', 'epistemic', 'business' and *satisfaction* were neither tested for composite reliability nor validity. The results for each construct are assessed and each construct will be discussed in turn.

<u>Values</u>

The information presented in Table D1.2 and the following synopsis illustrates the findings of the testing of *values* for reliability.

1. The results indicate that with the exception of 'universalism' the structure of the scales (that is for 'self-direction', 'security', 'benevolence', 'conformity' and 'achievement') has been confirmed without the need for any purification.

2. Limited purification was carried out on the 'universalism' construct. For 'universalism' items 6 and 20 met the criteria for Cronbach's alpha but failed to meet the benchmark for CFA and were removed from any further analysis.

Dimension/Items	Cronbach's	A 11	CFA t	ests	Composite Reliability	
	Coefficient	Alpha				
	tests	~				
	Item total		Standardised	GEI	Londingo	Composita
	correlation	a score	Regression		Loadings	Reliability
	Correlation		Weights			score
Values			Weights			score
Universalism		0.848	1	0.945		0.866
6	0.548		*			
7	0.590		0.573 ^d	1	0.625°	-
20	0.559		*			
25	0.609		0.750 ^c		0.870°	······································
27	0.582		0.623°		0.686°	-
29	0.581		0.686°		0.671°	
30	0.658		0.626 ^c		0.608°	
38	0.603		0.755°		0.837°	
Power		0.767				0.867
8	0.616		N/A		0.838°	1
15	0.610				0.832°	
28	0.584				0.814 ^c	
Self-Direction		0.813		0.946		0.864
9	0.482		0.534 ^d		0.617°	
17	0.573		0.635°		0.704°	
19	0.581		0.651°		0.715°	
23	0.496		0.581°		0.647 ^c	
31	0.628		0.699°		0.753°	
41	0.606		0.691°		0.740 ^c	
51	0.512		0.576°		0.650 ^c	
Security		0.733		0.951		0.827
10	0.669		0.819 ^d		0.816 ^c	
11	0.489		0.577°		0.649°	
16	0.497		0.603°		0.681°	
18	0.406		0.470 ^c		0.588°	
24	0.504		0.577 ^c		0.698°	
42	0.350		0.408 ^c		0.550°	
Stimulation		0.702	N/A			0.874
26	0.552				0.881°	
37	0.552				0.881°	
Benevolence		0.773		0.929		0.858
13	0.389		0.425 ^d		0.538°	
21	0.436		0.451°		0.569 ^c	
33	0.575		0.727 ^c		0.761°	
45	0.649		0.808°		0.823°	
48	0.692		0.742°		0.816 ^c	
50	0.530		0.647°		0.720 ^c	
Conformity		0.718		0.988		0.835
14	0.550		0.685 ^d		0.776°	
22	0.454		0.530 ^c		0.666°	
40	0.496		0.620 ^c		0.738°	
46	0.600		0.740 ^c		0.807°	

Table D1.2 – Reliability testing findings for Values

Dimension/Items	Cronbach coefficien Final Solu	's tαtests ition	CFA tests		Composite Reliability	
Tradition		0.630				0.803
32	0.398		N/A		0.717 ^c	
36	0.457				0.773°	
44	0.469				0.786 ^c	
Achievement		0.779		0.942		0.851
34	0.576		0.683 ^d		0.758°	
39	0.551		0.617 ^c		0.722°	
43	0.418		0.447 ^c		0.591°	
47	0.610		0.693°		0.772°	
52	0.632		0.781°		0.800 ^c	
Hedonism						
49	Single item					

Note: p < 0.05; p < 0.01; c p < 0.001;

* item deleted

<u>Value</u>

Table D1.3 provides information related to the reliability tests for value.

1. No need for purification was found to exist for the 'emotional' and 'social' dimensions.

2. Limited purification (that is the removal of only one item) was needed before the 'conditional', 'epistemic', 'time', and 'effort' scales met the adopted criteria.

3. With regard to 'functional' and 'cost' some purification was required. Removal of the items that failed to meet the item-to-total correlation benchmark resulted in an alpha score below the acceptable benchmark. It was decided to retain these variables for further analysis. All the variables of both constructs were initially tested for CFA to see how they behaved. With 'functional', the item-to-total correlation scores were not met for the items 55, 56 and 57. These three items failed to meet the item-to-total criteria and were removed. It was decided to retain the two items although they did not meet the alpha score, they did meet the criteria for CR and were significant. With 'cost', removal of one item increased the item-to-total scores of the remaining items to meet the acceptable criteria, but the alpha score remained below the benchmark. Further

purification did not increase the alpha score so it was decided to remove only the one item. These remaining items met the CR tests and were significant.

Dimension/Items	Cronbach's Coefficient tests Final Soluti	Alpha on	CFA to	ests	Composite Reliability		
	Item-total correlation	a score	Standardised Regression Weights	GFI	Loading	Composite Reliability score	
Value - Benefits	·						
Functional		0.587				0.842	
53	0.455		N/A		0.853°		
54	0.455				0.853°		
55	*						
56	*						
57	*						
Emotional		0.894		0.950		0.921	
58	0.762		0.790 ^d	l	0.847 ^c		
59	0.754		0.779 ^c		0.839°		
60	0.808		0.895°		0.888°		
61	0.800		0.887 ^c		0.883°		
62	0.752		0.793°		0.841°		
63	0.438		0.436 ^c		0.543°		
Conditional		0.673				0.822	
64	0.504		N/A		0.788°		
65	0.522				0.804 ^c		
66	0.448				0.743°		
67	*						
Epistemic		0.745		0.927		0.830	
68	0.525		0.867ª		0.824°		
69	0.510		0.674°		0.758°		
70	0.445		*				
71	0.524		0.341°		0.602°		
72	0.569		0.607 ^c		0.772°		
Social		0.741		0.976		0.827	
83	0.629		0.775 ^ª		0.809°	l	
84	0.467		0.577°		0.664°		
85	0.468		0.519 ^c		0.665°		
86	0.608		0.722°		0.789°		
87	0.374		0.423°		0.557°		

Table D1.3 – Reliability testing findings for Value

Dimension/Items	Cronbach's Coefficient Alpha		CFA to	CFA tests		Composite Reliability	
	tests	p					
	Final Soluti	on					
	Item-total correlation	a score	Standardised Regression Weights	GFI	Loading	Composite Reliability score	
Value - Sacrifices							
Time		0.712	N/A			0.874	
73	0.553				0.881°		
74	0.553				0.881°		
75	*						
Effort		0.758	N/A			0.894	
76	0.618				0.899°		
77	*						
78	0.618				0.899°	·	
Cost		0.489				0.743	
79	0.301		N/A		0.622°		
80	*						
81	0.316				0.626°		
82	0.313				0.748°		

Note: ${}^{a} p < 0.05; {}^{b} p < 0.01; {}^{c} p < 0.001;$

* item deleted

Risk, Satisfaction and Decision

The information presented in Table D1.4 indicates that only limited purification was required before reliability was confirmed for *risk*, *satisfaction* and *decision*.

1. No need for purification was found to exist for 'market', 'personal' and *decision* constructs in order to meet the adopted benchmarks.

2. Limited purification (that is removal of only one item) was needed before the *satisfaction* scale met the adopted criteria. This was due to the one item score failing to be significant for the CFA tests.

3. For 'business', one item failed to meet the item to total benchmark and was removed from further analysis. When the remaining items were tested for CFA one item was removed to increase the GFI to an acceptable level.

Dimension/Items	Cronbach's Coefficient Alpha tests		CFA to	CFA tests		Composite Reliability	
	Final Soluti	on					
	Item-total correlation	a score	Standardised Regression Weights	GFI	Loadings	Composite Reliability score	
Risk							
Market		0.696				0.831	
88	0.593		N/A		0.844 ^c		
89	0.569				0.829°		
90	0.399				0.684°		
Personal		0.696				0.856	
91	0.570		N/A		0.872°		
92 .	0.392				0.649°		
93	0.670				0.911°		
Business		0.696		0.938		0.789	
94	*						
95	0.321		0.300 ^d		0.509°		
96	0.359		0.237*		0.475°		
97	0.304		0.194 ^a		0.403°		
98	0.319		*				
99	0.555		0.823°		0.809°		
100	0.509		0.870°		0.811°		
101	0.464		0.508 5		0.661°		
Satisfaction		0.860		0.992		0.905	
102	0.665		0.827 ^d		0.871 ^c		
103	0.727		0.943°		0.920 ^c		
104	0.714		0.823°		0.882 ^c		
105	0.624		*				
106	0.684		0.517°		0.669°		
Decision		0.903				0.939	
107	0.777		N/A		0.899 ^c		
108	0.825				0.924 ^c		
111	0.819				0.922°		

Table D1.4 – Reliability testing findings for Risk, Satisfaction and Decision

Note: *p < 0.05; *p < 0.01; *p < 0.001; *p < 0.001;

D1.3 Validity

Validity concerns the extent to which a set of measures actually represent the theoretical latent construct they are designed to measure (Churchill, 1979; Lee & Hooley, 2004; Hair *et al.*, 2005). Validity is defined by Remenyi *et al.* (2005, p. 291)

as

'the degree to which what is observed or measured is the same as what was purported to be observed or measured'.

Evidence of construct validity provides confidence that the item measure taken from a sample represent the actual true score that exists in the population. The validity is tested for face, content, convergent and discriminant validity (Churchill, 1979; Tull & Hawkins, 1993; Lee & Hooley, 2004; Hair *et al.*, 2005) all of which will be assessed below.

D1.3.1 Face and Content Validity

Face and content validity are not always clearly defined and are often used interchangeably, even though there are distinct conceptual differences (Hardesty & Bearden, 2004). Face validity is the extent to which a measure reflects what it is intended to measure, whereas content validity refers to whether the domain of the characteristics of the constructs is captured by the measure (Churchill, 1979; Hardesty & Bearden, 2004; McDaniel & Gates, 2006). McDaniel and Gates (2006, p. 225), consider face validity to be the weakest form of validity because it is a '*judgement call by the researcher*' and Hardesty and Bearden (2004, p. 99) extend this and consider that if

'items from a scale are not face valid the overall measure cannot be a valid operationalization of the construct'.

They suggest the following conditions are necessary for scales to be considered face valid:

a) The measure should be developed from a reasonable theoretical base and/or conceptual definition. This study has complied with the conditions set out by Hardesty and Bearden (2004) in that the measures were developed following the extensive

examination of previous empirical and theoretical studies carried out (see Part B). From this the measures were developed as discussed in Section C3.1.

b) The measure should be composed of several (at least three) items or questions. For each of the variables there were at least three items, with the exception of 'hedonism', which was a single item variable.

c) The measures should be developed from within the appropriate literature. In this study the measures were developed from within the marketing or consumer behaviour literature and adapted for the domain of farming.

Collectively the above demonstrates the scales used in this study were face valid.

D1.3.2 Convergent Validity

Convergent validity requires that a measure should correlate highly with other measures of the same construct (Lee & Hooley, 2004). In this study, convergent validity has been examined using Exploratory Factor Analysis and Average Variance Extracted (AVE).

D1.3.2.1 Exploratory Factor Analysis

According to Hair *et al.* (2005), Exploratory Factor Analysis provides the researcher with information about how many factors are needed to best represent the data. With Exploratory Factor Analysis all measured variables are related to every factor by a factor-loading estimate. The particular feature of Exploratory Factor Analysis is that the factors are derived from statistical results, not from theory, so they can only be named following the factor analysis. Hair *et al.* (2005) set out seven stages involved in Factor Analysis and discuss the adopted benchmark scores of certain indices. This has been adapted for Exploratory Factor Analysis (EFA) and stages 1-5 are discussed in turn. Stages 6 and 7 are not discussed in this study because they relate to validation of the factor analysis and additional uses of factor analysis results (such as data reduction and the use of factor scores to replace summated scores when testing reflective constructs) respectively. This study is not seeking data reduction, and uses summated scores when testing formative constructs, which are discussed later in this chapter.

Two approaches have been employed to assess convergent validity when utilising EFA (see amongst others Nunnally, 1978; Simpson, 1990; Wang *et al.*, 2001). The first is to bring all multiple-item scales within the same perceptual constructs, into a pool and then to proceed with factor analysis. Items loading on conceptually unjustifiable dimensions are removed in order to purify the measurement. By way of contrast, in the second approach, all research multiple-item scales (not only those within a particular construct) are factor – analysed together. Due the large number of multi-item scales, dimensions and constructs in this study, the first approach was, consequently, adopted. This approach is considered to simplify the complexity of extraction of the EFA, and would allow the tests of convergent validity to be completed. The five stages of the EFA and the discussion of the adopted benchmark values of certain indices as recommended by Hair *et al.* (2005) will now be discussed.

Stage 1: Objectives of EFA - The objectives of factor analysis are to find a way to summarize the information contained in the original variables into a smaller set of new, composite factors with a minimum loss of information (DeVellis, 1991). This was the case in this study.

Stage 2: Designing an EFA - The design involves three basis decisions:

a) the calculation of the input data using a correlation matrix to meet the objectives of grouping variables

b) design of the study with regard to the number of variables, the measurement properties of the variables and the types of allowable variables

c) the sample size necessary in absolute terms and as a function of the number of variables (see also Bagozzi & Phillips, 1982; Bagozzi, 1984; Diamantopoulos, 1994; Haenlein & Kaplan, 2004).

As the analysis is derived from correlations between items, R-type factor analysis was most appropriate. Hair *et al.* (2005) suggest the following four 'rules of thumb' that are discussed relative to this study (see also Dunn *et al.*, 1994; Baumgartner & Homburg, 1996; Chin *et al.*, 2003):

 factor analysis is performed most often or only on metric variables – this study uses metric variables

• in order to reveal factor structure, strive to have five or more variables for each proposed factor – this study only achieves this for some of the factors

• sample size – more observations than variables and a minimum absolute sample size of 50 observations – this study satisfies both criteria and indicates there was an adequate sample size representing the population of interest

• the maximum number of observations per variable, with a minimum of 5 and hopefully at least 10 observations per variable – this study achieves a minimum of 5 for most variables.

Collectively the above demonstrates that the criteria set out by Hair *et al.* (2005) have been fulfilled in the design of the EFA.

Stage 3: Assumptions in EFA - Meeting the statistical requirement is necessary for any multivariate technique such as factor analysis (Chin *et al.*, 2003; Govindarajan & Kopalle, 2006). Visual examination of the correlations between variables was carried out and this was aided by the associated probability of the Bartlett test of sphericity, and the Kaiser-Meyer-Olkin (KMO) statistic. The Bartlett test of sphericity is a statistical test for the presence of correlations among the variables, and determines the appropriateness of factor analysis (Hair *et al.*, 2005). A significance of less than 0.05 indicates that sufficient correlations exist among the variables in order to proceed. The KMO statistic quantifies the degree of inter-correlations (the average share variance between the variables) among the items. High scores (between 0.5 and 1.0) indicate that factor analysis is appropriate (Malhotra & Birks, 2005). In order to proceed with the analysis, the critical score of KMO was set at 0.5 and greater.

Stage 4: Deriving factors and assessing overall fit - Having specified the variables and prepared the correlation matrix, factor analysis can be used to identify the underlying structure of the relationships (see also Fornell & Bookstein, 1982; Baumgartner & Homburg, 1996; Chin *et al.*, 2003; Govindarajan & Kopalle, 2006). There are two methods of extracting the factors. These are common factor analysis and component analysis. Hair *et al.* (2005) suggest the following three 'rules of thumb' that are discussed relative to this study. These are:

• the two methods, common factor analysis and component analysis models, yield similar results in common research settings (30 or more variables or communalities of 0.6). For most variables the former is more appropriate in well-specified theoretical applications but the latter is more appropriate when data reduction is paramount. This study adopts the component analysis method because the objective is to summarise the items into a minimum number of factors for prediction purposes; • any decision on the number of factors to be retained should be based on several considerations, such as the use of stopping criteria to determine the initial number of factors to retain. This would include: factors with eigenvalues greater than 1; predetermined number of factors based on research objectives or prior research; sufficient factors to meet a specified percentage of variance explained, usually 50% or higher; factors on the scree test to have a substantial number of factors before the 'elbow'; more factors when heterogeneity is present among sample subgroups; and

• consideration of several alternative solutions to ensure the best structure is identified (one more or less factor than the initial solution).

Stage 5: Interpreting the factors - The minimum score of 0.3 is proposed to gauge the significance of the loading of extracted common factors (Hair *et al.*, 2005), and as with reliability tests this is dependent on the sample size (Baumgartner & Homburg, 1996; Hogarty *et al.*, 2005). For further discussion on the importance of the sample size see Section C2.4.2.3. Hair *et al.* (2005) suggest that variables that are not adequately accounted for by the factor solution should be looked for and can be identified by variables lacking at least one significant loading. According to Hair *et al.* (2005) a significant loading for a sample size of 130 is between 0.45 and 0.5, based on a 0.05 significance level, a power level of 80%, and standard errors assumed to be twice those of conventional correlation coefficients.

When interpreting a solution Hair *et al.* (2005) suggest that although factor loadings of a lower limit of +/-0.3 and an upper limit of +/-0.4 are minimally acceptable. This study adopts the benchmark of 0.4 to meet the upper limit of minimal acceptance.

For clarity, the benchmarks for validity testing are given in Table D1.5 below.

Dimension/Items	КМО	Bartletts test of Signifi- cance	Factor loadings	Eigenvalue	% Variation	Cumulative Variation
Benchmark	0.5	<0.05	0.4	>1.0	>50%	>50%

Table D1.5 – Validity Benchmarks

The following section discusses the validity testing carried out on the data for each construct. Individual factor analyses were carried out on each dimension.

D1.3.3 Process undertaken in the Validity Testing

Each variable was tested individually using factor analysis. Items deleted in the reliability testing were not tested for validity. Items that failed to meet the benchmark for factor loadings were deleted and the data retested to see if this increased the scores for the remaining items. The final results are illustrated in the following Tables D1.6 and D1.7.

D1.3.4.1 Values

The information presented in Table D1.6 and the following synopsis illustrates the findings of the testing of *values* for validity.

1. The results indicate that the structure for the variables of 'universalism', 'power', 'stimulation', 'conformity' and 'tradition' has been confirmed without the need for any purification.

2. Limited purification was carried out on 'self-direction', 'security', 'benevolence' and 'achievement'. In each variable, the item with the lowest factor loading score was removed and the data retested to see if the remaining items reached the required benchmark. If there were still items that failed to reach the criteria this process was repeated. In all cases, the maximum number of items deleted was two, and in the case of 'self-direction' and 'achievement' only one item was removed. With 'self-direction' item 9 was removed but it was noted that this item was retained in the reliability testing in Table D1.2. Items that failed to reach the benchmark for factor loading were deleted and the data retested to test if the remaining items increased their scores.

Dimension/Items	KMO	Bartlett's	Factor	Eigenvalue	%	Cumulative
		test of	Loadings		Variation	Variation
		Signifi-				
		cance				
Values						
Universalism	0.833	0.000		3.950	61.969	61.969
7			0.691			
25			0.732			
27			0.693			
29			0.706			
30			0.751			
38			0.724			
Power	0.698	0.000		2.056	68.548	68.548
8			0.838			
15			0.832			
28			0.814			
Self-Direction	0.820	0.000		3.042	50.700	50.700
9			*			
17			0.722			
19			0.732			
23			0.657			
31			0.742			
41			0.765			
51			0.645			
Security	0.706	0.000		2.104	52.594	52.594
10			0.696			
11			0.522			
16			*			
18			0.422			
24			0.464			
42			*			
Stimulation	0.500	0.000		1.552	77.598	77.598
26			0.881			
37			0.881			

Table D1.6 – Validity testing findings for Values

	0 707			•		
Benevolence	0.783	0.000		2.603	65.077	65.077
13			*			
21			*			
33			0.809			
45			0.860			
48			0.799			
50			0.756			
Conformity	0.741	0.000		2.241	56.031	56.031
14			0.776			
22			0.666			
40			0.738			
46			0.807			
Tradition	0.642	0.000		1.730	57.662	57.662
32			0.717			
36			0.773			
44			0.786			
Achievement	0.651	0.000		2.276	56.907	56.907
34			0.811			
39			*			
43			0.616			
47			0.757			
52			0.816			
Hedonism	Single Item					
49						

* item deleted

D1.3.4.2 Value, Risk, Satisfaction and Decision

The information presented in Table D1.7 and the following synopsis illustrates the findings of the testing for validity for *value*, *risk*, *satisfaction* and *decision*.

1. The results indicate that with the exception of 'emotional', 'epistemic', 'social', 'cost' and 'business', the extent to which the measurement represents characteristics that exist in the phenomenon under investigation for 'functional', 'conditional', 'time', 'effort', 'market', 'personal' and *decision* have been confirmed without the need for any purification.

2. Limited purification was carried out on 'emotional', 'epistemic', 'social', 'cost' and *satisfaction*.

3. Finally for 'business' some purification was required. Initially this was found to be a two factor variable. Removal of the weakest score resulted in an increase in the cumulative variance for both the factors. There were cross loadings on four of the six remaining items. When further testing was carried out the weakest items were removed. This led to the optimal solution, resulting in the required benchmarks being met. A single factor was retained.

Dimension/Items	KMO	Bartlett's	Factor	Eigenvalue	%	Cumulative
		test of	Loadings		Variation	Variation
		Signifi-				
		cance				
			Factor 1			
Value - Benefits						
Functional	0.500	0.000		1.455	72.749	72.749
53			0.853			
54			0.853			
Emotional	0.864	0.000		3.754	75.074	75.074
58			0.848			
59			0.839		· · ·	
60			0.901			
61			0.897			
62			0.845			
63			*			
Conditional	0.657	0.000		1.820	60.681	60.681
64			0.788			
65			0.804			
66			0.743			
Epistemic	0.701	0.000		2.126	53.149	53.149
68			*			
69			0.598			
70			0.772			
71			0.816			
72			0.712			
Social	0.721	0.000		2.155	53.864	53.864
83			0.787			
84			*			
85			0.704			
86			0.792			
87		-	0.643			

Table D1.7 - Validity testing findings for Value, Risk, Satisfaction and Decision

Dimension/Items	KMO	Bartlett's test of Signifi-	Factor Loadings	Eigenvalue	% Variation	Cumulative Variation
		cance				
Value –						
Sacrifices						
Time	0.500	0.000		1.553	77.654	77.654
73			0.881			
74			0.881			
Effort	0.500	0.000		1.618	80.890	80.890
76			0.899			
78			0.899			
Cost	0.500	0.000		1.237	61.869	61.869
79			0.787			
81			*			
82			0.787			
Risk						
Market	0.628	0.000		1.867	62.249	62.249
88			0.844			
89			0.829			
90			0.684			
Personal	0.584	0.000		2.009	66.979	66.979
91	1	1	0.872			
92			0.648			
93			0.910			
Business	0.563	0.000		1.519	50.644	50.644
95			*			
96			0.574			
97			*			
99			0.800			
100			*			
101			0.742			
Satisfaction	0.782	0.000		3.256	70.752	70.752
102			0.871			
103			0.920			
104			0.882			
105			*			
106			0.669			
Decision	0.749	0.000		2.511	83.703	83.703
107			0.899			
108			0.924			
111			0.921			

* item deleted

D1.3.4 Average Variance Extracted

The measure of Average Variance Extracted (AVE), developed by Fornell and Larcker (1981), is employed as an indicator of convergent validity (see Barclay *et al.*, 1995; Chin, 1998). AVE is recommended that, for a construct to exhibit adequate convergent validity, it should be associated with an AVE score that is greater than 0.50 (that is,

.

50% or more of the variance of the indicators is accounted for). As can be seen in Table D1.8 below, all the constructs met the criteria.

Dimensions	AVE
Universalism	0.523
Power	0.686
Self-direction	0.507
Security	0.504
Stimulation	0.776
Benevolence	0.637
Conformity	0.560
Tradition	0.577
Achievement	0.512
Hedonism	N/A
Functional	0.727
Emotional	0.751
Conditional	0.605
Epistemic	0.523
Social	0.535
Time	0.776
Effort	0.808
Cost	0.589
Market	0.622
Personal	0.669
Business	0.505
Satisfaction	0.705
Decision	0.835

Table D1.8 – AVE Values of constructs

D1.3.5 Discriminant Validity

Discriminant validity implies that a measure should correlate poorly with other dimensions/items that are supposed to be different (Churchill, 1979). In this respect, an indication of adequate discriminant validity is that a latent variable shares more variance with its measures than it does with other constructs in the model. A test for discriminant validity is that the square root of the construct's AVE should be greater than its bivariate correlation with the other constructs in the model. Tables D1.9, D1.10

and D1.11 illustrate all the scores fulfilled the criteria that the square root of the AVE is

greater than the bivariate correlation with the other constructs in the model.

Table D1.9 – Pearson Correlation Matrix for the Dimensions of the Research Constructs – Values

		· · · · · · · · · · · · · · · · · · ·		0	<u> </u>	0	9	10
.828								
.341	.712							-
.262	.536	.710						
.535	.510	.346	.881					
.166	.461	.545	.353	.798				
.241	.437	.600	.346	.772	.748			
.201	.404	.381	.307	.534	.548	.760		
.531	.579	.485	.629	.541	.578	.385	.732	
.192	.482	.126	.421	.283	.187	.273	.387	-
	.828 .341 .262 .535 .166 .241 .201 .531 .192	.828.341.712.262.536.535.510.166.461.241.437.201.404.531.579.192.482	.828.341.712.262.536.710.535.510.346.166.461.545.241.437.600.201.404.381.531.579.485.192.482.126	.828.341.712.262.536.710.535.510.346.881.166.461.545.353.241.437.600.346.201.404.381.307.531.579.485.629.192.482.126.421	.828.341.712.262.536.710.535.510.346.881.166.461.545.353.798.241.437.600.346.772.201.404.381.307.534.531.579.485.629.541.192.482.126.421.283	.828.341.712.262.536.710.535.510.346.881.166.461.545.353.798.241.437.600.346.772.748.201.404.381.307.534.548.531.579.485.629.541.578.192.482.126.421.283.187	.828.341.712.262.536.710.535.510.346.881.166.461.545.353.798.241.437.600.346.772.748.201.404.381.307.534.548.760.531.579.485.629.541.578.385.192.482.126.421.283.187.273	.828.341.712.262.536.710.535.510.346.881.166.461.545.353.798.241.437.600.346.772.748.201.404.381.307.534.548.760.531.579.485.629.541.578.385.732.192.482.126.421.283.187.273.387

Dimensions	1	2	3	4	5	6	7	8
1. functional	.853					•		
2. emotional	.267	.867						
3. conditional	.321	.125	.778					
4. epistemic	.321	.558	.337	.723				
5. social	.191	.275	.002	.171	.731			
6. time	.051	.108	.289	.215	.036	.881		
7. effort	.230	.212	.374	.343	.010	.677	.899	
8. cost	.034	.067	.305	.164	.119	.236	.084	.767

Table D1.10 – Pearson Correlation Matrix for the Dimensions of the Research Constructs – Value

Table D1.11 – Pearson Correlation Matrix for the Dimensions of the Research Constructs – Risk

Dimensions	1	2	3	
1. market	.789			-
2. personal	.125	.818		
3. business	.417	.185	.710	

D1.4 Conclusion

The measurement accuracy of the collected data has been assessed through reliability and validity tests in line with the suggestion by Gronlund (1982), Spector (1992) and Jarvis *et al.* (2003), as discussed at the beginning of this chapter. Following the reliability testing twelve items were deleted because they failed to meet the acceptable reliability benchmarks. These consisted of two of forty-five items from *values*, seven of thirty-five from *value*, two of fourteen from *risk* and one of five from *satisfaction*. The results from the reliability testing were regarded to be satisfactory by the author and the retained items were then tested for validity. A further fourteen items were deleted because they failed to meet the acceptable validity criteria for the factor analysis and convergent validity. These were six from *values*, four from *value*, three from *risk* and one from *satisfaction*.
CHAPTER D2: TESTING FOR HIGHER-ORDER STRUCTURES, MODEL FIT and HYPOTHESISED PATHWAYS

D2.1 Introduction

This chapter begins with the presentation of the higher-order structure analysis (Section D2.2) and the examination and testing of the proposed model in Section D2.3. Following this, the proposed Research Model is assessed, followed by comparisons with the Competing Model (Section D2.4).

D2.2 Testing for Higher-order Structures

A second order factor model accounts for covariation among constructs by specifying another higher-order factor or factors that cause the first-order factors, that is, the firstorder factors indicate the second-order factors (Garver & Mentzer, 1999; Hair *et al.*, 2005). The *value* and *risk* constructs that have been hypothesised/identified as representing second-order factors are examined here. The following section presents the analysis for the evaluation of second order factors for *value* and *risk*. Each of the constructs is considered in turn. As Chin (2004) in his Frequently Asked Questions on his website suggests, if the number of indicators for each of the constructs are approximately equal, the method of repeated manifest variables (that is repeated observations of the manifest variables) can be used. This method has been adopted in this study despite the fact that the number of indicators for each of the constructs is not equal. This is noted as a limitation of this study, in Section A1.7. Table D2.1 below illustrates the number of indicators for each of the constructs is not vibusiness' dimensions.

······································	Number of indicators for each Dimension	
	Individual	Total
Get		
Functional	2	
Emotional	5	
Conditional	3	> 18
Epistemic	4	
Social	4	
Give		
Time	2]]
Effort	2	6
Cost	2	
Risk		
Market	3	
Personal	3	5 9
Business	3	

Figure D2.1 – Number of indicators for each dimension of the higher-order constructs

D2.2.1 Value

The value construct was tested (using *t*-scores) for the existence of a higher-order structure consisting of the dimensions of 'functional', 'emotional', 'conditional', 'epistemic' and 'social' leading to 'get' and 'time', 'effort' and 'cost' leading to 'give' (see Figure D2.2 below). From Figure D2.2 the structure is confirmed because all the hypothesised relationships are significant. In other words, the higher-order structure of the 'get' and 'give' components as formative constructs is confused, and the same applies to value being a higher-order formative construct of the 'get' and 'give' components.



Figure D2.2 – PLS results for Value as a higher-order solution

(Note: ${}^{\bullet}p < 0.05; {}^{\bullet}p < 0.01; {}^{\circ}p < 0.001$)

D2.2.2 Risk

Similarly to *value*, *risk* consists of 'business', 'personal' and 'market' was conceptualised as a formative higher-order variable, as illustrated in Figure D2.3 below. All the regression loadings (γ scores, see Figure D2.3) for the components of *risk* were found to be significant, supporting the hypothesised structure of *risk*.





Note: p < 0.05; p < 0.01; c p < 0.001

D2.2.3 Testing for Goodness-of-Fit

In terms of model Goodness-of-Fit, PLS makes no assumptions about the distribution of the variables, and consequently, traditional parametric-based approaches cannot be employed. Instead the recommendation (Chin, 1998) is to use non-parametric measures such as R^2 for dependent latent variables, the Stone-Geisser test for predictive relevance of independent variables and resampling procedures (for example, jack-knife or bootstrapping) when testing the significance of estimates. This means that unlike covariance-based SEM, PLS does not provide a single Goodness-of-Fit metric for the entire model; instead the R^2 scores of individual dependent variables are examined. The following borrow heavily from the explanations and guidelines provided by Chin (1998) and Barclay and Benson (1990).

• Statistical significance - In assessing the statistical significance of loadings, weights and pathway coefficients (given as standardised scores) a bootstrapping analysis was used (see Chin, 1998 for justification as to preference of bootstrapping over jack-knife) with estimates based on 500 samples (Mathieson *et al.*, 2001). Using Student *t*-value tables with n-1 degrees of freedom (where n is the number of samples) resulted in one-tail critical scores of, respectively 0.05, 0.01 and 0.001 levels of significance, 1.65, 2.33 and 3.09.

• R^2 - The interpretation is similar to that employed under traditional multiple regression analysis and indicates the amount of variance of a dependent variable that is explained by its predictors/determinants. Examination of the change in R^2 can help to determine whether a latent variable has a substantial effect on the size of f^2 . Using the guidelines provided by Cohen and Lee (1988) the f^2 scores of 0.02, 0.15 and 0.35 represent small, medium and large effects respectively.

$$f^{2} = \frac{1 - R^{2}_{included} - R^{2}_{excluded}}{1 - R^{2}_{included}}$$

 Q^2 Predictive Relevance: This relates to the predictive sample rescue technique that represents a synthesis of cross-validation and function fitting. In PLS this can be achieved through a blindfolding procedure that

"...omits a part of the data for the particular block of indicators during parameter estimations and then attempts to estimate the omitted part using the estimated parameters" (p. 218). In terms of interpretation a $Q^2 > 0$ indicates the existence of predictive relevance.

The use of Q^2 is with reflective constructs. In this study the constructs of value and risk are formative and consequently Q^2 has not been used but is briefly discussed in Chapter E1.

D2.3 Testing the Research Model

Table D2.1 below illustrates the initial and revised/final solution for the Research Model (for more detail see Barclay *et al.*, 1995). The initial solution suggested that there were significant pathways between *value* \rightarrow *satisfaction*, and *satisfaction* \rightarrow *decision*. Following stepwise deletion of the non-significant pathways and examination for possible additional pathways, a revised solution confirmed the significant pathways, 'self-direction' \rightarrow *value*, risk \rightarrow *value*, *value* \rightarrow *satisfaction* and *satisfaction* \rightarrow *decision*.

The R^2 score for value, satisfaction and decision are 0.407, 0.542 and 0.262 respectively, and the revised R^2 scores these variables are 0.340, 0.547 and 0.257 for value, satisfaction and decision respectively, which given the parsimony of the model is a notable 34%, 55% and 26%. That is the model explains 34% of the variation in value, 55% in satisfaction and 26% of the variation in decision. When the data was tested removing each pathway to each construct in turn, risk rather than 'self-direction' was shown to have a greater impact on value. The f^2 scores suggest that 'self-direction' has a medium effect on value, risk has a medium effect on value and satisfaction has a large effect on decision.

SolutionSolutionSolutionStructural PathwaysCoefficients and T-Statistics f^2 and and T-StatisticsUniversalism \rightarrow Value0.162 (1.14) 0.219 (1.25)T-StatisticsPower \rightarrow Value0.219 (1.25) Self-Direction \rightarrow Value0.411 (2.23*) 0.018 (0.14)0.344 (4.05°)Security \rightarrow Value0.018 (0.14) 0.018 (0.14)0.344 (4.05°)0.137Security \rightarrow Value0.019 (0.68) 0.0207 (1.47)0.344 (4.05°)0.137Benevolence \rightarrow Value0.109 (0.65) 0.100 (0.65)11Tradition \rightarrow Value0.207 (1.47) 0.072 (0.49)11Hedonism \rightarrow Value0.011 (0.11)11Risk \rightarrow Value0.343 (1.32)0.448 (1.75*)0.138Risk \rightarrow Decision-making0.063 (0.27)11Value \rightarrow Satisfaction0.736 (12.17°)0.740 (10.98°)290Goodness-of-Fit score R^2 R^2 1Value0.4070.34011		Initial	Revised	
Structural PathwaysCoefficients and T-StatisticsCoefficients and and T-StatisticsUniversalism \rightarrow Value0.162 (1.14) 0.219 (1.25)T-StatisticsPower \rightarrow Value0.162 (1.14) 0.219 (1.25)0.344 (4.05°)Self-Direction \rightarrow Value0.411 (2.23°)0.344 (4.05°)Security \rightarrow Value0.018 (0.14) 0.044 (0.31)0.344 (4.05°)Benevolence \rightarrow Value0.109 (0.68) 0.100 (0.65)0.137Conformity \rightarrow Value0.100 (0.65) 0.100 (0.65)0.138Tradition \rightarrow Value0.207 (1.47) 0.072 (0.49)0.448 (1.75°)Hedonism \rightarrow Value0.343 (1.32)0.448 (1.75°)Risk \rightarrow Decision-making0.063 (0.27)0.740 (10.98°)Satisfaction \rightarrow Decision-making0.488 (4.76°)0.507 (4.98°)Ozeno0.4070.3400.340		Solution	Solution	
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Structural PathwaysCoefficients and T-StatisticsCoefficients and andUniversalism \rightarrow Value0.162 (1.14)Power \rightarrow Value0.219 (1.25)Self-Direction \rightarrow Value0.411 (2.23°)0.344 (4.05°)0.137Security \rightarrow Value0.018 (0.14)Stimulation \rightarrow Value0.109 (0.68)Conformity \rightarrow Value0.100 (0.65)Tradition \rightarrow Value0.207 (1.47)Achievement \rightarrow Value0.011 (0.11)Risk \rightarrow Decision-making0.063 (0.27)Value \rightarrow Satisfaction0.736 (12.17°)0.507 (4.98°)0.290Goodness-of-Fit score R^2 Value0.4070.3400.407				
and T-Statisticsand T-StatisticsUniversalism \rightarrow Value0.162 (1.14)Power \rightarrow Value0.219 (1.25)Self-Direction \rightarrow Value0.411 (2.23°)Security \rightarrow Value0.018 (0.14)Stimulation \rightarrow Value0.044 (0.31)Benevolence \rightarrow Value0.109 (0.68)Conformity \rightarrow Value0.100 (0.65)Tradition \rightarrow Value0.207 (1.47)Achievement \rightarrow Value0.011 (0.11)Risk \rightarrow Value0.343 (1.32)0.448 (1.75°)0.138Risk \rightarrow Decision-making0.736 (12.17°)0.740 (10.98°)0.290Goodness-of-Fit score R^2 Value0.4070.4070.340	Structural Pathways	Coefficients	Coefficients	ſ
T-StatisticsT-StatisticsUniversalism \rightarrow Value0.162 (1.14)Power \rightarrow Value0.219 (1.25)Self-Direction \rightarrow Value0.411 (2.23°)Seurity \rightarrow Value0.018 (0.14)Stimulation \rightarrow Value0.044 (0.31)Benevolence \rightarrow Value0.109 (0.68)Conformity \rightarrow Value0.100 (0.65)Tradition \rightarrow Value0.072 (0.49)Hedonism \rightarrow Value0.011 (0.11)Risk \rightarrow Value0.343 (1.32)0.448 (1.75°)0.138Risk \rightarrow Decision-making0.736 (12.17°)0.740 (10.98°)Satisfaction \rightarrow Decision-making0.488 (4.76°)0.507 (4.98°)Value0.4070.3400.340		and	and	
Universalism → Value 0.162 (1.14) 0.219 (1.25) Power → Value 0.219 (1.25) 0.344 (4.05°) 0.137 Self-Direction → Value 0.018 (0.14) 0.344 (4.05°) 0.137 Security → Value 0.018 (0.14) 0.441 (0.31) 0.344 (4.05°) 0.137 Security → Value 0.044 (0.31) 0.044 (0.31) 0.109 (0.68) 0.109 (0.68) 0.100 (0.65) Conformity → Value 0.100 (0.65) 0.100 (0.65) 0.110 0.11 (0.11) 0.110 Achievement → Value 0.072 (0.49) 0.011 (0.11) 0.448 (1.75°) 0.138 Risk → Value 0.343 (1.32) 0.448 (1.75°) 0.138 Risk → Decision-making 0.063 (0.27) 0.740 (10.98°) 0.290 Value → Satisfaction 0.736 (12.17°) 0.507 (4.98°) 0.290 Goodness-of-Fit score R^2 R^2 Value Value Value	·	T-Statistics	T-Statistics	
Power → Value 0.219 (1.25) 0.344 (4.05°) 0.137 Self-Direction → Value 0.018 (0.14) 0.0344 (4.05°) 0.137 Security → Value 0.018 (0.14) 0.044 (0.31) 0.044 (0.31) Benevolence → Value 0.109 (0.68) 0.100 (0.65) 0.100 (0.65) Conformity → Value 0.207 (1.47) 0.207 (1.47) 0.138 Achievement → Value 0.011 (0.11) 0.0448 (1.75°) 0.138 Risk → Value 0.343 (1.32) 0.448 (1.75°) 0.138 Risk → Decision-making 0.063 (0.27) 0.740 (10.98°) 0.290 Satisfaction → Decision-making 0.488 (4.76°) 0.507 (4.98°) 0.290 Goodness-of-Fit score R^2 R^2 Value	Universalism \rightarrow Value	0.162 (1.14)		
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Stimulation \rightarrow Value 0.044 (0.31) Benevolence \rightarrow Value 0.109 (0.68) Conformity \rightarrow Value 0.100 (0.65) Tradition \rightarrow Value 0.207 (1.47) Achievement \rightarrow Value 0.072 (0.49) Hedonism \rightarrow Value 0.011 (0.11) Risk \rightarrow Value 0.343 (1.32) 0.448 (1.75 ^a) Value \rightarrow Satisfaction 0.736 (12.17 ^c) 0.740 (10.98 ^c) Satisfaction \rightarrow Decision-making 0.488 (4.76 ^c) 0.507 (4.98 ^c) Quee 0.407 0.340	Security \rightarrow Value	0.018 (0.14)	•	
Benevolence \rightarrow Value 0.109 (0.68) Conformity \rightarrow Value 0.100 (0.65) Tradition \rightarrow Value 0.207 (1.47) Achievement \rightarrow Value 0.072 (0.49) Hedonism \rightarrow Value 0.011 (0.11) Risk \rightarrow Value 0.343 (1.32) 0.448 (1.75 ^a) Naisk \rightarrow Decision-making 0.063 (0.27) Value \rightarrow Satisfaction 0.736 (12.17 ^c) 0.740 (10.98 ^c) Satisfaction \rightarrow Decision-making 0.488 (4.76 ^c) 0.507 (4.98 ^c) 0.290 Goodness-of-Fit score R^2 R^2 Value Value 0.407 0.340 Value	Stimulation \rightarrow Value	0.044 (0.31)		
Conformity \rightarrow Value 0.100 (0.65) Tradition \rightarrow Value 0.207 (1.47) Achievement \rightarrow Value 0.072 (0.49) Hedonism \rightarrow Value 0.011 (0.11) Risk \rightarrow Value 0.343 (1.32) 0.448 (1.75 ^a) O.138 0.63 (0.27) Value \rightarrow Satisfaction 0.736 (12.17 ^c) 0.740 (10.98 ^c) Satisfaction \rightarrow Decision-making 0.488 (4.76 ^c) 0.507 (4.98 ^c) 0.290 Goodness-of-Fit score R^2 R^2 Value Value 0.407 0.340 Value	Benevolence \rightarrow Value	0.109 (0.68)		
Tradition \rightarrow Value 0.207 (1.47) Achievement \rightarrow Value 0.072 (0.49) Hedonism \rightarrow Value 0.011 (0.11) Risk \rightarrow Value 0.343 (1.32) 0.448 (1.75 ^a) 0.138 Risk \rightarrow Decision-making 0.063 (0.27) Value \rightarrow Satisfaction 0.736 (12.17 ^c) 0.740 (10.98 ^c) Satisfaction \rightarrow Decision-making 0.488 (4.76 ^c) 0.507 (4.98 ^c) 0.290 Goodness-of-Fit score R^2 R^2 R^2 Value 0.407 0.340	Conformity \rightarrow Value	0.100 (0.65)]
Achievement \rightarrow Value 0.072 (0.49)	Tradition \rightarrow Value	0.207 (1.47)		· .
Hedonism \rightarrow Value 0.011 (0.11) Risk \rightarrow Value 0.343 (1.32) 0.448 (1.75 ^a) 0.138 Risk \rightarrow Decision-making 0.063 (0.27) Value \rightarrow Satisfaction 0.736 (12.17 ^c) 0.740 (10.98 ^c) Satisfaction \rightarrow Decision-making 0.488 (4.76 ^c) 0.507 (4.98 ^c) 0.290 Goodness-of-Fit score R^2 R^2 R^2 Value 0.407 0.340	Achievement → Value	0.072 (0.49)		
Risk \rightarrow Value 0.343 (1.32) 0.448 (1.75 ^a) 0.138 Risk \rightarrow Decision-making 0.063 (0.27)	Hedonism → Value	0.011 (0.11)		
Risk \rightarrow Decision-making 0.063 (0.27) Value \rightarrow Satisfaction 0.736 (12.17°) 0.740 (10.98°) Satisfaction \rightarrow Decision-making 0.488 (4.76°) 0.507 (4.98°) 0.290 Goodness-of-Fit score R^2 R^2 Value Value 0.407 0.340 Value	$Risk \rightarrow Value$	0.343 (1.32)	0.448 (1.75°)	0.138
Value \rightarrow Satisfaction 0.736 (12.17°) 0.740 (10.98°) Satisfaction \rightarrow Decision-making 0.488 (4.76°) 0.507 (4.98°) 0.290 Goodness-of-Fit score R^2 R^2 Value 0.407 0.340	Risk → Decision-making	0.063 (0.27)		
Satisfaction \rightarrow Decision-making0.488 (4.76°)0.507 (4.98°)0.290Goodness-of-Fit score R^2 R^2 Value0.4070.340	Value \rightarrow Satisfaction	0.736 (12.17 ^c)	0.740 (10.98°)	
Goodness-of-Fit score R^2 R^2 Value0.4070.340	Satisfaction \rightarrow Decision-making	0.488 (4.76°)	0.507 (4.98°)	0.290
Value 0.407 0.340	Goodness-of-Fit score	R^2	R^2	
	Value	0.407	0.340	
Satisfaction 0.542 0.547	Satisfaction	0.542	0.547	
Decision 0.262 0.257	Decision	0.262	0.257	

Table D2.4 - PLS Solution for the Research Model

D2.4 Testing the Competing Model

Following the same approach as in Section D2.3, the results of testing the Competing Model are presented in Table D2.5. The main difference between the Research Model and Competing Model is that *value* is not treated as a higher-order construct and is replaced by the two components 'give' and 'get'.

Table D2.5 shows the initial and resultant (revised) solutions for the Competing Model, each is discussed in turn. The initial solution indicates significant pathways for 'selfdirection and 'tradition' \rightarrow 'get'; 'benevolence' \rightarrow 'give'; 'get' \rightarrow satisfaction; risk \rightarrow 'give' and satisfaction \rightarrow decision. As in the Research Model, the insignificant pathways were removed on an iterative basis and the final solution indicates significant

Note: p < 0.05; p < 0.01; c > 0.001

pathways for 'self-direction' and 'tradition' \rightarrow 'get' (similarly to the initial solution). 'Self-direction' and 'benevolence' are shown as exerting some influence over 'give' (which were not the case in the initial solution) and the significant pathways for 'get' \rightarrow satisfaction; risk \rightarrow 'give' are significant. Satisfaction \rightarrow decision (as in the initial solution) is confirmed as significant in the final solution.

The revised R^2 , given the parsimony of the model for 'get', 'give', satisfaction and decision is a notable 31%, 54%, 67% and 26% respectively. This suggests the model explains the percentages of 31%, 54%, 67% and 26% of the variation of 'get', 'give', satisfaction and decision. The changes in the R^2 scores from the initial solution confirm the stability of the revised model. The results further confirm the integrity of the model and demonstrated its predictive relevance. The f^2 scores indicate that 'tradition' has a small effect on 'get'; 'self-direction' has a medium effect on 'get' and 'give'; 'benevolence' has a large effect on 'give'; as does 'get' on satisfaction, and satisfaction on decision.

	Initial Solution	Revised Solution	
Structural Pathways	Coefficients and T-Statistics	Coefficients and T-Statistics	ſ
Universalism \rightarrow Get	0.144 (0.81)		
Power \rightarrow Get	0.263 (1.34)		
Self-Direction \rightarrow Get	0.491 (1.84 ^a)	0.526 (1.97 ^a)	0.087
Security \rightarrow Get	0.083 (1.56)		
Stimulation \rightarrow Get	0.072 (0.39)	ĺ	
Benevolence \rightarrow Get	0.045 (0.22)		
Conformity \rightarrow Get	0.229 (0.98)		
Tradition \rightarrow Get	0.326 (1.79 ^a)	0.314 (1.74 ^a)	0.002
Achievement \rightarrow Get	0.166 (0.81)		
Hedonism \rightarrow Get	0.126 (0.95)		
Universalism \rightarrow Give	0.192 (1.03)		
Power \rightarrow Give	0.035 (0.17)		
Self-Direction \rightarrow Give	0.291 (1.38)	0.356 (1.65 ^a)	0.165
Security \rightarrow Give	0.310 (1.61)		
Stimulation \rightarrow Give	0.275 (1.64)		
Benevolence \rightarrow Give	0.384 (1.91 [*])	0.353 (1.86 ^a)	0.291
Conformity \rightarrow Give	0.059 (0.31)		
Tradition \rightarrow Give	0.113 (0.60)		
Achievement \rightarrow Give	0.274 (1.26)		
Hedonism → Give	0.013 (0.09)		
$Get \rightarrow Satisfaction$	0.834(20.33°)	0.835 (20.50°)	1.211
Give \rightarrow Satisfaction	0.075(0.85)		
Risk → Get	0.165 (0.49)		
$Risk \rightarrow Give$	0.456 (2.17 ^a)	0.430 (2.05 ^a)	0.599
$Risk \rightarrow Satisfaction$	0.000 (0.00)		
$Risk \rightarrow Decision$	0.071 (0.57)		
Satisfaction → Decision	0.495 (4.88°)	0.494 (5.00 ^c)	0.283
Goodness-of-Fit score	R^2	R^2	
Get	0.304	0.310	
Give	0.520	0.541	
Satisfaction	0.672	0.674	
Decision	0.263	0.262	

Table D2.5 - PLS Solution for the Competing Model

Note: * p < 0.05; * p < 0.01; * p < 0.001

PART E - CONCLUSION

This part comprises one chapter that deals with the conclusion

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Chapter E1: Conclusion

CHAPTER E1: CONCLUSION

The purpose of this chapter is to provide an overview of the study and the associated research issues before offering a discussion of the research objectives. After this the empirical results are debated in relation to the relevant literature before proceeding to delineate the contributions of this study and offer suggestions for future research.

E1.1 Introduction

The literature presented in Part B is based on a review of the conceptual and empirical studies investigating the individual constructs of *value* and *values*. This was followed by the investigation of *risk*, *satisfaction* and *decision*. The suggested antecedents of *value* are benefits, sacrifices and *risk* and the outcomes *satisfaction* and repurchase intention, but the antecedents remain undefined and unclear. However, none of the reviewed studies has placed *values* as an antecedent of *value* and the literature on *risk* was weak. Furthermore *value* is often regarded as the 'trade-off' of benefits and sacrifices (see Section B1.2). The conceptual causal link between *values* and *value* suggested by Lai (1995), Butz and Goodstein (1996) and Grönroos (1997) will be investigated. Finally this study sets out to asses the impact of *values*, *value* and *risk* on *satisfaction* and the subsequent *decision* by farmers of whether or not to stay within the industry. (see Section A1.5).

The aim of this study is to address the issues outlined above and to investigate the eight limitations of the Literature Review as described in Section C1.2. These are that (1) the study of *value* is in its infancy, (2) the difficulty in reconciling the composition of the sample obtained with national statistics, (3) the question of whether *value* is a higher

order construct, (4) a discussion of the conceptualisation of *value*, (5) analysing the dimensions of *value*, (6) identifying which constructs form the antecedents and outcomes of *value*, (7) providing a study of *value* in a professional domain and (8) operationalizing *value*. In order to achieve these aims, *value* is acknowledged as a formative construct whose antecedents are *values* and *risk* (see Section C1.3). The components of *value* are 'give' (*sacrifices*) and 'get' (*benefits*) and the outcomes of *value* are *satisfaction* and *decision*.

E1.2 Research Objectives

In order to achieve the overall aim of the research, four specific objectives were defined (see Section A1.5). Objectives 1 to 3 are debated below while Objective 4 (putting forward theoretical and managerial suggestions based on empirical results) is dealt with in Section E1.4 as Contributions of the Research.

Objective 1: Building a theoretically grounded model that is capable of incorporating the relationships that lead to decision.

The Research Model (Figure C1.2) was produced following an extensive literature review that investigated the definitions, components and dimensions and the process of *value*; the central construct of this study (Chapter B1). The second chapter (Chapter B2) investigated the antecedents and outcomes of *value*. The literature on *value* is concerned with understanding and operationalizing this complex construct.

The Research Model (Section C1.3) depicts *value* as a formative higher-order construct having the components of 'get' (benefits) and 'give' (sacrifices) (Section C1.3) that when considered together produce a net result of the trade-off of the 'get' and 'give'

components. The antecedents of *value* are *values* and *risk* with the outcomes of *value* being *satisfaction* and *decision*. *Risk* is regarded as a formative higher-order construct with the components of 'market', 'personal' and 'business' and regarded as an antecedent of *decision*. A Competing Model was developed (Section C1.4) whereby the 'give' and 'get' elements were considered as distinct and separate elements of *value*. Pathways are shown from the dimensions of *values* to 'give' and 'get'; from 'get' and 'give' to *satisfaction*; and from *risk* to 'give', 'get', *satisfaction* and *decision*.

Objective 2: Operationalization of the core model construct

Despite considerable effort, the author was unable to identify existing operationalizations of *value* in the farming context. Consequently an important and necessary initial part of the study comprised the development of robust scales for the components of 'get' ('functional', 'emotional', 'conditional', 'epistemic' and 'social') and 'give' ('time', 'effort' and 'cost'). Content analysis of existing published material and expert informant feedback formed the basis of such scales. Extensive reliability and validity testing were undertaken in order to be satisfied as to the stability of the developed scales (see Section C4.4). Operationalizations of the constructs of *values*, *risk*, *satisfaction* and *decision* were found in the literature and considered to be adequate for use in this study.

Objective 3: Analysing the acquired data, testing the hypothesised pathways using suitable analytical tools

Following a postal and internet survey of farmers throughout Great Britain, sufficient data were gathered to facilitate the testing of the Research and Competing Models using advanced multivariate techniques (see Chapter D1) and in particular SEM. The PLS software has been used for testing second-order structures (see Section D2.2), the overall proposed model and the hypothesised causal pathways (see Section D2.3 and D2.4). Testing for second-order structures revealed a higher-order structure for *value* (see Section D2.2.1) and a second-order structure for *risk* (see Section D2.2.2). Following on from this, solutions were obtained from the Research and Competing Models. The final solution shows only the significant pathways and a summary of the Goodness-of-Fit statistics and indices for these models. It is presented in Table E1.1 below.

	Final Research Model	
Significant Structural Pathways	Coefficients and	ŕ
	T-Statistics	
Self-Direction → Value	0.344 (4.05°)	0.137
$Risk \rightarrow Value$	0.448 (1.75 ^a)	0.138
Value → Satisfaction	0.740 (10.98°)	0.290
Satisfaction → Decision	0.507 (4.98°)	
	R ²	
Value	0.340	
Satisfaction	0.547	
Decision	0.257	
	Final Competing	
	Model	
Significant Structural Pathways	Coefficients and	P
Ū -	T-Statistics	
Self-Direction \rightarrow Get	0.526 (1.97 ^a)	0.087
Tradition \rightarrow Get	0.314 (1.74 ^a)	0.002
Self-Direction \rightarrow Give	0.356 (1.65 ^a)	0.165
Benevolence \rightarrow Give	0.353 (1.86 ^a)	0.291
Get → Satisfaction	0.835 (20.50 [°])	0.863
Risk \rightarrow Give	0.430 (2.05 ^a)	0.599
Satisfaction \rightarrow Decision	0.494 (5.00 ^c)	0.283
	R^2	
Get	0.310	
Give	0.541	
Satisfaction	0.674	
Decision	0.262	
Note: ${}^{a} n < 0.05$; ${}^{b} n < 0.01$; ${}^{c} n < 0.001$		

Table E1.1 – Summary of the results for the Research and Competing Models

The results for the Research Model and the Competing Models will be discussed below.

• Research Model - It can be seen from Table E1.1 that there are six significant pathways in the final Research Model. Given the parsimony of the model the final solution demonstrates considerable explanatory powers especially for *satisfaction*. It can be seen that there are two significant determinants of *value* and they are the impact of 'self-direction' and *risk* on the perception of *value*. The R^2 scores confirmed the explanatory power of the model with 34% of the variation in *value*, 55% in *satisfaction* and 26% in *decision* (Section D2.3). The f^2 scores test the size effect of a predictor by calculating the impact of its removal from the model. 'Self-direction' was found to have a small to medium effect on *value*; *risk* was found to have a small to medium effect on *value*; and *satisfaction* was found to have a large effect on *decision*.

• Competing Model - The final solution for the Competing Model (Figure C1.4) demonstrates seven significant pathways. The model provides explanatory powers for *satisfaction* and the components of 'give' and 'get' with the significant pathways supporting the hypotheses between 'self-direction' to both the 'give' (H_{C13}) and 'get' (H_{C3}), 'tradition' to 'get' (H_{C8}), and 'benevolence' to 'give', *risk* to 'give' (H_{C22}) 'get' to *satisfaction* (H_{C23}) and *satisfaction* to *decision* (H_{C27}). The model was regarded as stable using the R^2 scores with 31% of the variance in 'get', 54% in 'give', 67% in *satisfaction*, and 26% in *decision* (Section D2.4). The f^2 scores demonstrated that 'tradition' has a small effect on 'get', 'benevolence' has a large effect on 'give'; 'self-direction' was found to have a medium effect on 'give' and 'get'; and 'get' has a large effect on *satisfaction*, as does *satisfaction* on *decision*.

The effect of investigating the 'get' and 'give' components of *value* separately in the Competing Model provides the opportunity to assess the effect of each of the ten *values* on the individual components of 'get' and 'give', and the effect of 'get' and 'give' on *risk* and *satisfaction* rather than regarding 'get' and 'give' as being a trade-off in the Research Model in which *value* is conceptualised as a higher-order construct. In both models *satisfaction* was found to have a positive/negative causal relationship with *decision*. The Competing Model offers a further level of detailed analysis of *value* with two significant pathways from *values* to 'get' and two to 'give', whereas the revised Research Model only provides one significant pathway from *values* to *value*.

When investigating the final solutions the effect of separating *value* (Research Model) into the components of 'get' and 'give' (Competing Model) can be seen with 'self-direction' having a medium effect on *value*, and a medium effect on 'give' and 'get'. 'Tradition' has little effect on 'get', but no impact on *value*. 'Benevolence' has a medium to large effect on 'give' but no impact on *value*. *Risk* has a medium effect on *value*, but a large effect on 'give'. 'Get' has a large effect on *satisfaction* but the removal of 'give' has no effect on *satisfaction*. In both models *satisfaction* has a large effect on *decision*.

The significant pathways are only replicated for 'self-direction' in both models to value and 'give' and 'get' with a greater significance in the Research Model to value (4.05°) than either the pathways to 'give' (1.65°) or 'get' (1.97°) . The pathways between 'tradition' and 'get' (1.74°) , 'benevolence' to 'give' (1.86°) and risk to 'give' (2.05°) are significant in the Competing Model, but none of these dimensions of values are significant in the Research Model. There is a lower significance for risk to value (1.75°) in the Research Model than risk to 'give' in the Competing Model and finally the pathway between risk and 'get' is not significant. As can be seen from the above, the effect of separating 'give' and 'get' illustrates the relationship of *values* but provides less information about the behaviour of the components of *value*. It is for these reasons that the Competing Model is considered to be the overall 'preferred' solution and the associated results form the basis of the debate presented in Section E1.3. This indicates that 'give' and 'get' are not equally 'traded-off' against each other in the final model. Furthermore the Competing Model statistically outperforms the Research Model.

E1.3 Discussion of the Research Findings

Having provided a brief account of the research objectives, this section reviews the findings relating to the research hypotheses, which for the Competing Model are presented in Table E1.2 below. The following should be considered in the light of the second limitation in Section A1.7 as being coherent within this sample and only of partial generalizability given the close alignment of the variables discussed below with farming.

	Higher-order Construct	
	Risk has the dimensions of market, personal and	Supported
	business	
	Hypothesised Pathways	
H _{C3}	There is a positive relationship between self- direction and get	Supported
H _{C8}	There is a positive relationship between tradition and get	Supported
H _{C13}	There is a negative relationship between self- direction and give	Supported
H _{C22}	There is a positive relationship between risk and give	Supported
H _{C23}	There is a positive relationship between get and satisfaction	Supported
H _{C27}	There is a positive relationship between satisfaction and decision	Supported

Table E1.2 – Results of the Study

As shown in Table E1.2 above, *risk* is supported as a higher-order construct with the dimensions of 'market', 'personal' and 'business' and will be discussed in Section E1.3.1 below. Six hypotheses have been supported, although it must be noted that of the ten *values* only 'self-direction' to 'get' (H_{C3}), 'self-direction' to 'give' (H_{C13}) and 'tradition' to 'get' (H_{C8}) were found to be supported. 'Benevolence' to 'give' was found to be significant but was not supported because the pathway was found to positive rather than negative as proposed in H_{C16}. The relationship between *risk* and 'give'; 'get' and *satisfaction*; and *satisfaction* and *decision* are supported. These will be discussed in Section E1.3.2.

E1.3.1 Higher-Order Constructs

In the Research Model *value* and *risk* were conceptualised as higher-order constructs with only *risk* in the Competing Model (as shown in Table E1.2 above).

E1.3.1.1 Value as a higher-order construct

Value is conceptualised as a formative construct of 'get' and 'give', with the 'get' component being the beneficial one (Zeithaml, 1988) and the 'give' being the sacrifices (Zeithaml, 1988; Sinha & DeSarbo, 1998). As shown in Section D2.2.1 'get' is a construct with the indicators of 'functional', 'emotional', 'conditional', 'epistemic' and 'social' and 'give' a construct with the indicators of 'time', 'effort' and 'cost'. The literature suggests that *value* is both a reflective (Lapierre, 2000; Spiteri & Dion, 2004) and formative (Ulaga & Eggert, 2005, 2006) construct. Lapierre (2000) supports *value* as a reflective higher-order structure with the components of benefit and sacrifice and the direction of causality is from the construct to the indicator, although no justification for the construct being reflective was provided (Ulaga & Eggert, 2006). Despite the studies of Lapierre (2000) and Spiteri and Dion (2004) conceptualising *value* as a

reflective construct, Lapierre (2000) considers *value* as a higher-order structure, whereas Spiteri and Dion (2004) did not support such a structure. The earlier work of Ulaga and Eggert (2002) suggests that *value* is a reflective construct, however this thinking was reversed in 2005 and 2006 when they proposed *value* as a formative construct. This study supports the conceptualisation of *value* as a formative construct in Section D2.4 however the components of *value* are 'give' and 'get' do not support *value* as a higher-order construct.

E1.3.1.2 Risk as a higher-order construct

Following the Literature Review (see Chapter B2) and the development of the Research and Competing Models *risk* is conceptualised as a formative higher-order construct with the dimensions of 'business', 'personal' and 'market' (see Section D2.2.3). These dimensions have been developed from the work of Hardaker *et al.* (1997) and are considered to provide a comprehensive set of dimensions as opposed to only production and financial *risk* in the marketing literature (for example, Sweeney *et al.*, 1999; Agarwal & Teas, 2001) (see Section B2.2.3). However, *risk* is still considered to be a composite of *risks* (Johnson *et al.*, 2005) rather than being a higher-order construct as conceptualised in this study. As shown in Section D2.2.2 *risk* is supported as a formative higher-order construct.

E1.3.2 Structural Pathways

The pathways in the Competing Model are debated below.

E1.3.2.1 Values \rightarrow Get (H_{C1} - H_{C10})

These hypotheses consisted of ten dimensions of *values* ('universalism', 'power', 'selfdirection', 'security', 'stimulation', 'benevolence', 'conformity', 'tradition', 'achievement', 'hedonism'), however only the pathways between 'self-direction' (H_{C3}), 'tradition' (H_{C8}) and 'get' and were found to be significant. This result provides partial empirical support for that implied by Lai (1995), Butz and Goodstein (1996) and Grönroos (1997) that there is a relationship between *values* and *value*. Separating *value* into 'get' and 'give' illustrates the effect of each of the dimensions of *values* with each component of *value* and in the case of 'get' provides two significant pathways rather than just one in the case of *value*.

An individual's values are their beliefs and guiding principles in life, which in the professional domain of farming are shown to be important and relative to the value experienced due to being a farmer. In Schwartz and Sagiv's (1995) 'Definitions of Motivational types of Values in terms of their Goals and the Single Values that Represent them' (p. 95) (see Appendix E) 'self-direction' is defined as:

the 'independent thought and action-choosing, creating, exploring. (creativity, freedom, independent, curious, choosing own goals) '

The definition of 'self-direction' describes personal beliefs that when applied to farmers illustrate their behaviour and how as independent farmers they work alone in the countryside tending livestock and/or crops. 'Self-direction' also contributes to the motivation farmers regard as pride in looking after or preserving the farm. The significant 'self-direction' to 'get' pathway illustrates the importance of 'self-direction' as contributing to the benefits farmers receive from farming.

Also from Appendix E 'tradition' is defined as:

'[the] respect, commitment and acceptance of the customs and ideas that traditional culture or religion provide the self [humble, accepting my portion in life, devout, respect for tradition, moderate].'

'Tradition' describes personal beliefs that when applied to farmers illustrates their behaviour living and working on a farm that has possibly been in the family ownership for decades and the pride they have for their farm. The significant pathway between 'tradition' and 'get' confirms the important contribution of 'tradition' to the benefits received from farming.

The author discussed the results with four farmers from Suffolk, Norfolk and Essex who were different ages, all farmed different types and size of farm. The discussions were held individually with farmers to understand their reaction to the results of the significant pathways between *values* and 'get' and 'give' and to gather their comments. It was considered that discussions with four farmers provided sufficient information to debate the findings of the analysis and additional discussions would not provide any further information. Each statement will be discussed in turn:

'Self-direction is linked to tradition because many farmers are lone workers who make their own decisions with no consultation with others. Farmers are comfortable with this.'

This farmer linked the two *values* and considers the benefits of farming are that farmers are in a position to make their own decisions and enjoy being their own boss. Another view of one of the farmers was that

'to a family farmer like myself self-direction enables me to have a sense of satisfaction from meeting my obligation to the family and this provides a sense of success' confirming the link between values and satisfaction.

As can be seen from the comments above, some farmers do not consider *values* in isolation and link the dimensions of *values*. The author suggests that if 'self-direction' and 'tradition' add to the benefits of farming, perhaps this can be explained by a farmer's lifestyle and participation in preserving the family farming business adding to the benefit farmers perceive from farming.

To a certain extent some farmers are traditionally lone-workers, as supported by the comment from another farmer:

'tradition is evidenced by the lifestyle associated with farming' and 'farming is a traditional old British industry'.

An alternative view was that 'it is the structure of the industry that is traditional.'

These farmers were able to respond readily to the results that 'self-direction' and 'tradition' are important *values*. This may not be of their choice but circumstantial, as for example in the case of a family farmer.

It can be concluded from the above that farmers consider themselves as a group of individuals, many of whom work alone on family farms. They articulate pride in their work and gain satisfaction from being employed in a traditional industry. There appeared to be a determination to defend their lifestyle and express the enjoyment they get from being masters of their own destiny.

E1.3.2.2 Values \rightarrow Give (H_{C11} - H_{C20})

As with the previous hypothesis the ten types of *values* were tested individually with 'give'. Of the ten, two dimensions were found to be significant with 'self-direction' found to have a negative relationship with 'give' supporting the hypothesis H_{C13} whereas 'benevolence' was found to have a positive relationship with 'give'. This

result is unexpected because if there is high 'benevolence' a person would be expected to be more willing, (rather than less) to 'give'.

'Self-direction' has been found to have a negative impact on 'give' and increases the sacrifice given by the farmer. As one farmer said

'self-direction is the uncertainty that farmers have to deal with because they have no opportunity of sharing their problems resulting in stress generation',

and another said

'any problems that we [farmers] have are our own, such decisions as what to grow or how to rotate the crops'.

The fact that farmers have the freedom of choice of thought can give rise to uncertainty, problems and stress. This indicates that farmers have a strong, loyal relationship with farming and that their independence and ability to make their own decisions enhances this relationship.

The work of Schwartz and Sagiv (1995) does not separate *values* into benefits or sacrifices as shown in the definition above, however one farmer was of the opinion that

'self-direction can be both positive and negative with us [farmers] being able to make choices about detail and strategy - we make our own decisions and then have to live with them'.

This provided a view of 'self-direction' recognising it can be both positive and negative whereas in this study with the significant pathways from 'self-direction' to 'give' and 'get' are both positive indicating that 'self-direction' enhances the benefits and sacrifices made by farmers. 'Benevolence' was found to have a causal link to 'give', but as discussed above the link was positive contrary to that hypothesised. As suggested by Schwartz and Sagiv (1995, p. 95) 'benevolence' is the

'preservation and enhancement of the welfare of people with whom one is in frequent personal contact',

and was found to be positive, thus increasing the sacrifice, indicating that farmers are prepared to make sacrifices. Farmers live and work in their community and are often keen to maintain good relations with neighbours and are prepared to make sacrifices, supporting the results found.

By separating *value* into 'get' and 'give' the results provide additional analysis of the *values* pathways because regarding *value* as a trade-off of 'give' and 'get' masks the effect of the impact of *values* on each of the components of 'give' and 'get'. This is evidenced by four significant pathways illustrated with the separate components and only one significant pathway with *value*.

E1.3.2.3 Risk \rightarrow Get (H_{C21})

This pathway has not been supported. In other words this research has found that the *risk* that farmer's perceive from farming does not impact their perceived benefits from farming. This result was surprising because of the importance of *risk* to farmers (Antle, 1983). The pathway for *risk* to 'get' was not significant whereas the pathway for *risk* to *value* was found to be significant. This indicates that when *value* is regarded as a trade-off, the impact of *risk* is lower than when *risk* is investigated with the individual components.

E1.3.2.4 Risk \rightarrow Give (H_{C22})

This hypothesis has been supported and implies that farmers' attitude to *risk* is one which leads to an increase in the sacrifices that they make when farming. This accords with the empirical study of Sweeney *et al.* (1999) who suggest that risk is the *'subjective expectation of a loss'* (p. 81), or the increase in cost (Zeithaml, 1988; Lai, 1995). As mentioned in Chapter A1 and as can be seen from the comment below, farmers accept *risk* as inherent in farming.

'Risk is an implicit part of farming and we [farmers] have to deal with it the best we can'.

Another farmer considered that

'our [a farmer's] attitude to risk is dependent upon the type, size and location of the farm' and another said 'compared to other industries we have to deal with risk with everything we do – it can be bad weather, a crash in grain prices, or a sharp rise in the cost of fertilizer.'

When *risk* was investigated with the components of 'give' and 'get' the *risk* to 'give' pathway was found to be more significant and therefore *risk* has a greater impact on sacrifice than *risk* to *value*.

E1.3.2.5 Get \rightarrow Satisfaction (H_{C23})

This hypothesis is supported and suggests that the benefits that farmers get from farming increases the *satisfaction* they perceive from the farming experience. This is consistent with authors who consider *satisfaction* as the outcome of *value* (for example, Oliver, 1996; Lapierre *et al.*, 1999; McDougall & Levesque, 2000; Eggert & Ulaga, 2002; Spiteri & Dion, 2004) (see Section B2.2). This study illustrates investigating *satisfaction* with 'get' independently (from 'give') resulted in a more highly significant pathway than investigating the trade-off of 'get' with 'give'. The results support the

view in the literature that *value* to *satisfaction* is stable across different domains such as products, service and for different occupations (see Section B2.2)

One farmer asked for their opinion of these results said:

'Farmers know that if they receive benefits from farming they will be and feel more satisfied about being a farmer'

and another said

'there are a lot of benefits from farming, it is not just about money, I am in the countryside and manage my farm and my time, I am not office based and tied to specific hours. When I reap the benefits I appreciate the satisfaction I receive from farming.

As illustrated from these opinions farmers are aware of the benefits that support and impact on the *satisfaction* they receive from farming. This may be attributable to the 'feel good factor' or psychological effect of benefits being regarded as positive which leads to the positive feeling of *satisfaction*.

E1.3.2.6 Give \rightarrow Satisfaction (H_{C24})

The negative relationship between 'give' and *satisfaction* is not supported. Studies within the literature suggest that *value* resulting from the trade-off of benefits and sacrifices leads to *satisfaction* (for example, Patterson & Spreng, 1997; Lapierre *et al.*, 1999) as supported by this study, but when investigating 'give' separately with *satisfaction* the pathway is not significant. This is consistent with the work of Agarwal and Teas (2001) who consider that greater/lesser *value* does not necessarily mean greater/lesser *satisfaction*.

E1.3.2.7 Risk \rightarrow Satisfaction (H_{C25})

The hypothesis of a negative relationship between *risk* and *satisfaction* was not supported in this study. This suggests that *risk* does not reduce the *satisfaction* that farmers receive from farming. Although the farmers interviewed (see Appendix A) did not discuss the relationship between *risk* and *satisfaction*, it can be seen from their opinions that *risk* is something that farmers are aware of and take note of but do not consider being a priority for them.

'Risk to me is something I am aware of -I take calculated risk, knowing what I am doing....I consider that risk is levelled by Mother Nature'.

'Risk doesn't affect my values. I don't really think about risk. I don't worry about risk'.

'Risk – I have always lived with it. It doesn't play a big part in my life'.

Farmers regard *risk* as something they have to manage but accept it as part of their lifestyle.

E1.3.2.8 Risk \rightarrow Decision (H_{C26})

The pathway proposing that there is a negative relationship between *risk* and *decision* was not supported. The results indicate that the *risk* experienced by farmers does not impact *decision*. This varies with the proposal that *risk* forms part of the *decision* (Sweeney *et al.*, 1999). However, the work of Sweeney *et al.* (1999) differs from this study because they consider *value* as a mediator between the antecedents of *value* (quality, price and *risk*) and *decision* (Section B2.1). If *risk* does not impact on *decision* then the corollary to this is that *risk* does not impact on farmers' *decision* to stay or to exit the industry and is supported by the opinions of farmers given in Section E1.3.2.7 above.

E1.3.2.9 Satisfaction \rightarrow Decision (H_{C27})

The hypothesis that *satisfaction* has a positive impact on *decision* was supported. This implies that *satisfaction* positively affects the *decision* of whether to stay in farming or not. This concurs with such authors as McDougall and Levesque (2000) and Eggert *et al.* (2006) as discussed in Section B2.2. One farmer said:

'in a good year land ownership offers a good lifestyle and increasing asset value in the underlying asset and collateral of the farm'.

This illustrates the fact that from a *value* perspective farmers have to balance the good years with the bad. Because farming is a business and a lifestyle, the *satisfaction* farmers receive from farming will inform their *decision* whether to stay in farming or exit the industry.

E1.4 Contributions of the Research

A theoretically grounded model that conceptualises the effect of *values*, *value*, *risk* and *satisfaction* on *decision* has been proposed and tested among farmers in Great Britain. This study extends the existing knowledge on these constructs through the investigation of *value* as a formative construct with the components of 'get' and give', has antecedents of *values* and *risk* and the outcome of *satisfaction* leading to *decision*. *Risk* is investigated as a higher-order construct with *value*, *satisfaction* and *decision*. The overall Competing Model fit was tested and has been found to be satisfactory for 'get', 'give', *satisfaction* and *decision*, with *satisfaction* best explaining the effect of *value* on *decision*. Hence the research is regarded to have made methodological and theoretical contributions to the scholarly study and literature on the construct of *value* within a professional environment, as well as provide policy/decision guidelines. This study places *value* within a professional domain, whereas most of the studies on *value* come

from the product, service or relationship domain or investigate the relationship of *value* with *decision* (Section B2.2).

E1.4.1 Methodological Contribution

Despite the fact that these were not implied objectives of this study, this work is considered to have made one methodological contribution; that of the development of context (that is, farming) specific scales for the components of the main construct of the proposed framework, namely *value*. Therefore operationalizations now exist upon which further research can be based to expand the study of *value* to include the components of 'give' and 'get' within the professional domain of farming. Within the context of farming scales have been developed for *risk*, *satisfaction* and *decision*.

E1.4.2 Theoretical Contribution

The results obtained are considered to a) build and confirm existing knowledge and b) offer new insights into the subject matter. To the best knowledge of this author, this is the first study that has attempted to examine *values* and their relationship to the components of 'give' and 'get within a professional domain. The main theoretical contributions of this research are considered to be:

- 1. Firstly this study has confirmed that *risk* is a higher-order construct. *Risk* consists of the dimensions of 'market', 'personal', and 'business'.
- 2. Although *value* as a higher-order construct of the 'give' and 'get' components has been analytically confirmed the results indicate that such an approach confounds the behaviours of the two *value* components. Consequently, it is suggested that future research examines the behaviour of the two components separately.

- Of the two components of *value* 'get' has been found to be the only determinant of satisfaction. This implies that perceptions of benefits derived from experiences of consumption (in this case consumption of a professional context) dominate perceptions of *satisfaction*.
- 4. The *satisfaction* to *decision* relationship is confirmed in non-traditional consumption experiences (within a professional context).
- 5. Risk has been found to impact only on the give component of *value*. This implies that *risk* affects perception of sacrifices and has no significant impact on perceptions of 'get'.
- 6. The relationship between personal *values* and *value* has been confirmed. 'Selfdirection' to 'give' and 'get'; 'tradition' to 'get' and 'benevolence' to 'give'. The contextual importance of these relationships should be considered specifically the three *values* that have been found to affect the *value*.

E1.4.3 Policy and Decision Guidelines

The policy and decision implications associated with the findings can be divided into three perspectives. These are from the farmer, policy makers and the lobby group level such as The National Farmers Union (NFU) and the Department for the Environment, Fishing and Rural Affairs (DEFRA). These will be discussed below.

1) Farming is the oldest industry in Great Britain and farmers have little involvement in the development of the policy and legislation of the industry. Farmers understand farming because they live and work on the land. Their perspective is an important one but is seldom considered in understanding why they decide to stay in or leave the industry. a) Farmers may possibly be interested in the results, but are unlikely to be concerned with implementing any changes to take advantage of them. This is because they also recognise the importance of being independent and self-directed. Farmers regard themselves as being 'traditional' because of the nature of the industry and their commitment to farming. They recognise the importance of 'benevolence' towards the preservation and enhancement of the welfare of people, although they might consider this is indirect 'benevolence' through the production of food for the consumption of others, because they get paid for doing so.

b) A farmer's decision to stay in farming or to exit the industry results from the benefits and *satisfaction* that they receive from farming, the policy makers should emphasise and promote the positive aspects of the industry.

c) Farmers are more likely to continue farming if they are satisfied with their lifestyle. In order to increase the *satisfaction* this study has shown that it is necessary to increase the 'get' element of *value*. The benefits of farming are linked with 'self-direction' and 'tradition' so if farmers were given more independence and opportunity to shape policy and develop traditions in farming through a greater respect for farmers, this could lead to greater *satisfaction* and the *decision* to stay in the industry.

2) Currently farming policy is developed by policy makers for the farming industry and is implemented by farmers.

a) If the results of this study are used to develop the thinking and production of policy for the benefit of the farmer and the industry then perhaps farmers would feel more engaged with the future of the industry. Through personal communication between the author and farmers while discussing the results of this study it was indicated that farmers currently feel dictated to by officials who do not understand the industry or the contribution they make to farming and wider society.

b) This study has also shown there is a causal link between 'self-direction' and 'benevolence' and the sacrifices that farmers make. 'Self-direction' has been shown to have the effect of increasing the sacrifices and 'benevolence' increasing the sacrifices farmers make. If policy makers understood the effect of these *values* policy could be developed incorporating the advantages such as enabling farmers to have more direct input into policy making ('self-direction'), be involved in preserving the customs and tradition of farming through policy making ('tradition'), and working with consumers and policy makers to understand and develop new and existing produce ('benevolence').

c) The overriding principle is to keep farmers in farming and clearly *value* gives rise to *satisfaction*, which in turn leads to the greater likelihood that farmers will stay in the industry. The results of this study indicate that it is the 'get' rather than the 'give' that farmers make that are important and therefore policies should be put in place to reinforce the benefits ('get') rather than reduce the perceptions of the sacrifices ('give'). For example, a policy of providing support for the establishment of more farm co-operatives and the provision of free advice to the setting up of more small businesses on farms. Policy should be developed to encourage farmers to reinforce the *values* of 'self-direction' and 'tradition'. However, it is recognised this is the 'softer' behavioural part of the decision to stay in farming and the financial rewards should still be present, which is not part of this study.

d) Policy makers and analysts could and should develop studies to understand the *risks* in farming and to farmers and how to reduce this *risk*.

3) The National Farmers Union (NFU) is the principal body for those in the agricultural industry and it champions British farming providing professional representation and services to growers and farmer members. The Countryside Alliance works for those who love the countryside and the rural way of life.

Both groups influence legislation and public policy on issues with farming and the countryside. They also represent farmers, campaign and lobby for them. Such bodies should consider the results of this study and how they are able to improve the lives of farmers, their families and those living in the countryside.

a) If the effect of *values* and *risk* on the *value* of farming is better understood then a more focused approach could be adopted to understand how the sacrifices and *risks* to farming can be minimised. Investigating sacrifices and *risk* from the farmer's perspective could provide a great deal of information that these groups could provide to policy makers influencing new policy and legislation.

b) The overriding principle is to keep farmers in farming and clearly satisfaction leads to the greater likelihood that farmers will stay in the industry. The results of this study indicate that it is the benefits rather than the sacrifices that farmers make that are important and therefore policy makers should be attempting to increase the benefits rather than reduce the perceptions of sacrifices. Policy makers should be encouraging farmers to reinforce the benefits of self-direction and tradition. However, it is recognised this is the 'softer' behavioural part of the decision to stay in farming and the financial rewards should still be present, which is not part of this study. Examples of how this could be achieved would be the establishment of more co-operatives and local discussion groups to encourage farmers to talk and work together more.

From the above it can be seen that farmers regard themselves as operators of the industry but not strategic managers as evidenced by an opinion of one farmer the author spoke to:

'farmers are wardens or caretakers of the countryside. Currently we [farmers] can wait up to two years before we receive payment for the production of cereal crops. This makes us [farmers] feel isolated when making decisions upon which our livelihood and that of our family [for many of them] depends.'

This opinion seemed to have considerable support from other respondents too. If farmers were able to be responsible for the strategic direction of farming and feel more valued in their occupation, then perhaps more farmers would continue to farm and not leave the industry. As farmers are independent by nature of their industry they need support from policy makers rather than direction. Groups such as the NFU and DEFRA need to support farmers in a more proactive way and enable farmers to improve their industry's way of life.

E1.5 Future Research

As in any empirical research, the results of the present study cannot be interpreted without taking into account the study's limitations. Furthermore this research generates a set of questions for future research.

1) This study has been carried out using a mixed sample of all farming sectors, types and sizes. Future studies should be undertaken with the individual sectors, sizes and types of farm and farmer to establish if the results are consistent for all farmers because the behaviour of the hypothesised pathways may vary between the different farming sectors. This is due to the idiosyncratic nature of *value*.

2) The reasons why farmers farm should form the basis for a further study into the *value* farmers perceive from doing so. For example a farmer might have a 'hobby' farm and therefore farm for enjoyment rather than to make a living. For other farmers, farming is their livelihood. The reasons for farming may affect the reasons why farmers stay in or exit the industry.

3) This study has been carried out in the professional environment of farming. In order to confirm the results further studies should be carried out in other professional environments to confirm generalizability.

4) Quality of farming should be included in a further study to establish if this is an important variable to farmers and whether it has greater meaning than 'quality of life'.

5) Further research should be undertaken on the *decision* process of why farmers choose to stay in or exit the industry. As more farmers supplement their income through other business ventures (often on the farm) the question of whether this affects their *decision* or alters their attitude to the *value* they perceive from farming needs to be examined. The 'switching costs' associated with leaving the industry should be considered.

6) *Risk* is a construct that has not been studied greatly beyond the pecuniary effect in assessing *risk* attitude. However, as shown in this study *risk* affects the 'give' element of *value* and not *decision*; it is suggested that further study into how the dimensions of *risk* can be managed and the effects mitigated needs to be conducted in order to gain a better understanding of this construct within the farming context.

7) Further research is required by policy makers and analysts working with farmers to enable them to be able to create and influence policies which farmers may consider are beneficial to the farming industry in general as well as to them as individual farmers.

8) A longitudinal study should be undertaken investigating the effects of trends in social, economic and market factors on farming. It is also considered that a longitudinal study could investigate the change over time of the strength of the formation of the relationships discussed in this study.
APPENDICES

Appendix A - Notes on the interviews with farmers January - March 2004

Interview 1

I am a farmer because I have never done anything else. I come from a farming family and always wanted to farm like my father. To a certain extent it was expected of me, and I expected to become a farmer and to take over the farm when my father retired. That is exactly what happened. I have extended the farm and I think have brought it into the 21st century.

Today, there is a lot of pressure applied to farmers in the form of bureaucracy and formfilling. Farming makes no money anymore. At one time it did make money. As farmers, we are prone to exploit each other and the environment. Farmers have done bad things with chemicals on the farm, (many believing at the time, that it was the right thing), but now we realise that it was wrong. In fact, chemical application requires regulating to prevent further damage to nature.

There are tremendous tensions in farming at the present time. An example being I have a ditch on the farm that requires cleaning to allow the water to flow more freely off the land. Because the ditch is overgrown and the water is not free-flowing, it has become a habitat for birds, animals and wild flowers. I like to see nature flourish, but at the same time, I need to make the farm as efficient as possible. Do I clean out the ditch and destroy the natural habitat or do I not worry about nature?

I ask myself 'why do I farm?' What is the value in farming? I feel privileged working as closely as I do with nature and producing food. I feel my family are privileged to live in the country as we do. Farming used to be a way of life, but that is becoming less so as time goes on. The detail of the job has got lost over the last 10-20 years. Most farmers are now 'one man bands', rather than involving the whole family. This has caused isolation, frustration and all too often difficulties in relationships. There is more pressure now on farmers to become more efficient and follow the rules set out by Government, than there has ever been.

I stay in farming because I know no other industry, and I love the countryside. There is no status quo in farming, you either have to get bigger, join/form a cooperative or get out. I am now too old [65 yrs old] to pursue another career, but realise that if I do not move the farm forwards it will get swallowed up. The bureaucracy is more fearful than the bank manager. There is so much pressure to 'tick all the boxes'.

Farm assurance is a farce. There is such inconsistency in the farming industry. Other countries do not have the restrictions we do in Great Britain. All too often they do not trade their produce. Food production should be restricted/limited. UK government policies are strict, but in other countries, farmers are allowed to do what they like. Look at France? The NFU is useless and doesn't represent farmers in Great Britain.

All we want is fairness and justice. Currently we are not able to compete with our foreign neighbours. We do not want to be disadvantaged. The number of landowners in this country

is constantly falling. I think things will change. I can foresee much more home produced food. Farmers will become individualists.

Currently farmers regard their neighbours as competitors rather than how it used to be, when your neighbours were your friends. We farmers have personal pride in who we are and what we do. Most of my friends today are non-farmers. This has changed, because when we were young we were all farmers together. We didn't really know anyone who wasn't from a farming background. My social values are based in farming but are to do with my music (the band I belong to) and the church I attend.

Farmers are great users of the internet, they don't use it for trading, but for interest and awareness of what is going on in the world. I think many farmers are avid users of the internet, because it is easy to use and provides such wealth of information.

The value of farming to me is twofold, firstly being my own boss and secondly being able to see other ways of life. Our generation is more introspective than the younger generation and this is reflected in the way we live. My generation worry about debt, borrowing money and the future, whereas my children have a completely different attitude to money and debt.

Risk to me is something I am aware of - I take calculated risks, knowing what I am doing. I assess risk on the monetary gain or loss. I consider that risk is 'levelled by Mother Nature'. We are very lucky in Great Britain, we have a very kind climate.

Interview 2

I enjoy farming, I always wanted to be a farmer. I see it as my duty to continue the farm for the family. I feel that my contribution is felt in the village, because we all live together. It is quid pro quo - I clear up the village gardening rubbish and I help with the environmental issues. In contrast, they [the people in the village] put up with mud on the roads, the noise from the machinery and the farm in the middle of the village. I work hard to ensure that we are good neighbours in the village. I don't have any animals and seldom mix with the villagers – we live together.

I do my best to looking after the environment and I am an employer. I take pride in what I do and want to do my best. It makes me proud when people say the farm looks good. I get a lot of satisfaction from the farm and a sense of personal achievement. The advantages are that I am my own boss and that I can have a day off when I want, obviously I have to work when it is necessary even if it means seven days a week, many more hours a day that perhaps office workers do.

Risk doesn't affect my values. I don't really think about risk. I don't worry about risk.

I grow crops, but don't know the price I will get for them when I grow them. This is frustrating, but that is the way it is.

I am not driven by money, I enjoy what I do, and I enjoy producing food. I have a reasonable living, it is not luxurious but enjoyable. I don't have much cash, but I benefit from little things that are purchased for the business, that me and my family can use. For example, cars, telephone and some bills paid for by the farm that I /my family can benefit from.

Farming exercises my brain. I constantly have to make assessments of situations, find new ideas, and become more efficient, deal with new legislation and forms. I am personally against the decoupling principle – I think the Government has got it wrong. We should be judged on performance not the amount of land we own. I think a lot of the bureaucracy we have to put up with, is made up by people in offices, whereas it should be people on farms.

I enjoy using the internet, it is undoubtedly provided a wonderful opportunity. I enjoy looking at the national and global financial situation and how it affects what I grow. I think the internet provides 'choice'. We are very lucky. Many farmers are heavy users of the internet. This is often because it is the only contact they have with the 'outside world'.

I take out of farming what I want. I could retain the assets, as they have considerable capital *value*. If I get really short of money to live off, then I could sell the assets. I would not want to, but I do have that choice.

My social *values* have changed. I don't have farming friends any more. When I was young, all my friends were farmers, but not any more.

Interview 3

I am very lucky, I farm a large farm (1,000 acres). I see it as a lifetime achievement. Farming is something that you get into, and you can't get out of. It was part of my upbringing and my family has always been in farming. I enjoy the country life. It is a way of life for me, and my family. I work long hours, but don't begrudge any of it. Agricultural people enjoy hard work, this is apparent when we have students who don't want to do the hours. I think I have a comfortable life, but a hard one, and I like it. I am my own boss, I have control over my own job. The results of what I do are visible, and I get a sense of accomplishment from it. I can't say I make a significant profit every year, but I try to.

In general, industry people live before the profit is determined, whereas as a farmer you live after the profit. I think I am untidy because I hate throwing things away. This does mean that the farm does/can get cluttered.

I agree with equality for all – as an employer, I want people to do the best job they can.

Things average out in nature.

The new laws being introduced make practical farming very difficult. This is sad.

I enjoy the countryside, and I am able to keep horses which I enjoy. I am a 'local yokel' and proud of it. My friends and family are important people in my life.

I don't see my neighbours any more. I think it is good to get on with your neighbours, even though they don't get on with each other. I try to be a good neighbour and help when I can. These days, everything is done through a third party. There are benefits, such as when I order diesel, nowadays I order it by fax, I don't talk to anyone, but it is much easier and recorded.

I hate the way non-farming people are so untidy in the countryside. There is so much rubbish about these days. I wouldn't like to tell you, what I find in my ditches and hedges, it is disgusting. Fly-tipping is horrible.

I think I am ambitious, cheerful, hardworking, inspiring to others and broadminded. I like to do the 'right things'. I am a farmer, not a land agent, and I think all too often people think we are one and the same. They have different attitudes.

I do have capital assets, but everything I make in financial terms, I put back into the farm. To me the cost of things is vital - everything has to have a payback. I can't afford to buy things that don't give something to the farm. I buy large machinery, but before I buy anything I look at what it will produce. The *value* of the land is something that can be passed down to our children.

I think timeliness is important in farming. You have to know your farm, and you have to be able to do the job. This is heavy land and it is difficult to work, but I have learned over the years.

Risk – I have always lived with it. It doesn't play a big part in my life.

As a farmer, I need to look after the environment. I think we need to look after what we have. We must look after the countryside. I like stock and grass, so I have kept some grass, possibly more than I could have done, but that has been my choice.

The government has a lot to answer for. We do get subsidies, and I am happy to collect them, but do we have to do all the paperwork, - is it all necessary? I'm not sure it makes farmers do a better job.

The environment worries me. There are more and more aeroplanes; there are fewer birds and fewer trees. The types of birds have changed dramatically over the last 20 years. We live in a changing environment, and we have to get used to it.

Appendix B – Farming Groups Contacted

- 1. National Farmers Union
- 2. Country Landowners Association
- 3. Deben Beet Growers
- 4. Central Wool Growers Ltd. <u>www.touchnottingham.com</u>
- 5. Anglia Farmers Limited
- 6. Framlingham Farmers
- 7. Wickham Beet Harvesters
- 8. Pan Anglia
- 9. Anglia Produce Group
- 10. Deben Drainage Group
- 11. Anglian Water Authority Farming Group
- 12. Suffolk County Council Farms
- 13. Norfolk County Council Farms
- 14. Cambridgeshire County Council Farms
- 15. 'customerservices@farming.co.uk'
- 16. 'wimpolefarm@nationaltrust.org.uk'
- 17. 'info@farmerslink.org.uk'
- 18. 'forum@pdrdf.freeserve.co.uk'
- 19. 'webminder@ed.sac.ac.uk'
- 20. 'Stuart.Somerville@sac.co.uk'
- 21. 'info@first4farming.com'
- 22. 'majordomo@io.com'
- 23. 'peter.bailey@ncl.ac.uk'
- 24. 'mail@gaff.org.uk'
- 25. 'admin@ukbap.org.uk'
- 26. 'james.foad@letsco-operate.com'
- 27. 'jonathan.holland@letsco-operate.com'
- 28. 'roger.forster@letsco-operate.com'
- 29. 'matt.rance@letsco-operate.com'
- 30. 'fraser.scott@letsco-operate.com'
- 31. 'john.fraser@letsco-operate.com'
- 32. 'david.edwards@letsco-operate.com'
- 33. 'doug.niven@letsco-operate.com'
- 34. 'martin.davies@letsco-operate.com'
- 35. 'info@farm.org.uk'
- 36. 'info@fwag.org.uk'
- 37. 'doylem@bishopb-college.ac.uk'
- 38. 'sigs@icaew.co.uk'
- 39. 'info@soilassociation.org'
- 40. 'colin.mceldowney@dardni.gov.uk'
- 41. Hartpury Agricultural College lecturer
- 42. Otley Agricultural College lecturer

Appendix C – Covering Letter to accompany the Questionnaire

6 Anglesea Road Ipswich Suffolk IP1 3PT

4 April 2005

Dear

I am currently studying a Doctorate in Business Administration at Kingston University. I have spent the past three years studying 'value' in the academic literature. I am interested in obtaining your views on personal values, and how these relate to the value you receive from farming, together with risk and satisfaction and how this affects your decision to stay or leave farming.

I am keen to research this from the point of view of the farmer, which is why I am appealing to you. The questionnaire is totally anonymous and I keep no record of who has responded, because there is no request for your name and address.

I am a farmer's daughter and have always been interested in farming. Thank you for taking the time to read this letter, and I hope you can help me by completing and returning the questionnaire in the enclosed stamped addressed envelope. If you prefer, the questionnaire is available on the internet at <u>www.farmsurvey.streamlinetrial.co.uk</u>. If you have any questions or wish to contact me, please ring me at home on 01473 250029, or at the above address. If I am at work I will get back to you as soon as possible.

Yours sincerely

Caroline Saffell

Enc.

Questionnaire about your personal values as a farmer and how this affects your reason(s) to stay in farming or to exit the industry

Please indicate how important the following statements are to you. The questions indicate a selection of choices.

Please mark one box only against each question Section One	and a first start and the s								
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Farming is a business that can make money									
		n	m	Π	П	Π	П		Г
I believe I have maximised my profit in the last 3 years				ш	Ц	Ц	ш		
For me farming is a way of life							\Box		Ľ
In farming it is necessary to have other investments to maintain a									С
standard of living									

Section Two

Please indicate to what extent you agree or disagree with these guiding principles on your life.

The values of -1 to 7 indicate the importance of these values, with -1 being opposed to my values, 0 not important at all to me; 3 means the value is important to me; 6 means the value is very important to me and 7 means the value is of the utmost importance to me. The higher the number (-1,0,1,2,3,4,5,6,7) the more important the value is as a guiding principle in your life

6 Equality (equal opportunity for all)

- 7 Inner Harmony (at peace with myself)
- 8 Social Power (control over others, dominance)
- 9 Freedom (freedom of action and thought)
- 10 Sense of belonging (feeling that others care about me)
- 11 Social order (stability of society)
- 12 An exciting life (stimulating experiences)
- 13 Meaning in life (a purpose in life)
- 14 Politeness (courtesy, good manners)
- 15 Wealth (material possessions, money)
- 16 National security (protection of my nation from enemies)
- 17 Self-respect (belief in one's own worth)
- 18 Reciprocation of favours (avoidance of indebtedness)
- 19 Creativity (uniqueness, imagination)
- 20 A world at peace (free of war and conflict)
- 21 Mature love (deep emotional and spiritual intimacy)
- 22 Self-discipline (self-restraint, resistance to temptation)
- 23 Privacy (the right to have a private sphere)
- 24 Family security (safety for loved ones)
- 25 Unity with nature (fitting into nature)
- 26 A variety life (filled with challenge, novelty and change)
- 27 Wisdom (a mature understanding of life)
- 28 Authority (the right to lead or command)
- 29 A world of beauty (beauty of nature and the arts)
- 30 Social justice (correcting injustice, care for the weak)
- 31 Independent (self-reliant, self-sufficient)
- 32 Moderate (avoiding extremes of feeling and action)

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Section Three This following section is looking for your agreement or non-agreement to what farming means to you. The boxes are represented from strongly disagree to strongly agree.

53 One of the objectives of farming is to produce food

54 The quality of produce from my farm is important to me

- 55 Farming provides a variety of physically challenging experiences
- 56 In my opinion the farm produces the most economically beneficial produce
- 57 Farming provides the lifestyle I want for my family
- 58 Farming provides me with a feel-good factor
- 59 Farming is fun
- 60 Working on the land provides me with a fulfilling way of life
- 61 I consider farming provides an exciting way of life for me
- 62 Working on the farm, I feel emotionally comfortable
- 63 I am sentimental about farming
- 64 Farming is more difficult when the weather is bad
- 65 The seasons dictate the way I farm
- 66 Farming does not provide me with regular, routine hours
- 67 I am a farmer because my parents were farmers

strongly disagree				
strongly disagree				

- 68 Farming is interesting
 69 I enjoy doing new and different things on the farm
 70 Farming allows me to work in the open air
 71 I am my own boss on the farm
 72 I am a farmer because I want to be
 73 Most of my time is spent working on the farm
 74 I have little time to enjoy anything apart from farming
 75 The time I spend with my family is important to me
 76 I put a lot of effort into farming
- 77 I find the effort I put into farming is rewarding
- 78 Farming requires a lot of effort
- 79 Currently farm income comes from sales of produce plus subsidies and grants
- 80 I do not think farming pays a fair income for the work farmers do
- 81 I consider the value of farming lies more in the value of the land than the income
- 82 The income from farming alone is not sufficient to support my family as I would like

In my experience the following groups of people are most likely to be farmers:

- 83 Wealthy people
- 84 Religious people
- 85 Males
- 86 Privately educated people
- 87 Heriditary farmers

strongly	strongly
disagree Image: Image	strongly agree agree agree ag

strongly						stror	ıgly
disagree	_	_	_	_	_		gree
		Ш	Ш	Ш	Ш	Ш	Ц

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Section rour This following section is looking for your agreement or non-agreement to what risk in farming means to you. The boxes are represented from strongly disagree to strongly agree.

88 Less British meat will be consumed in the World

- 89 Less British grain will be exported
- 90 The markets for farm produce will become more competitive
- 91 The farm would be affected by personal illness or injury in my family
- 92 The future of the farm will be threatened should the main farm owner get divorced
- 93 The farm is dependent on the health and welfare of the farmer

stroi disa	ngiy gree				
stroi disa					

My informed judgement is that over the next 3 years:

	My informed judgement is that over the next 3 years:		
		strongly	strongly
		disagree	agree
94	The Government will reduce subsidies to farmers		
95	Inheritance tax will be increased threatening the continuity of the farm		
96	The area of farmland in production will decrease over the next 3 years		
97	Production levels will fail to produce the UK's requirements		
98	The production of grain will become less important over time		
99	The farm debt will increase in the next 3 years		
	and a thread the will increase in the part 3 years		חחח
100	The cost of the farm debt will increase in the next 5 years		
101	The farm will not make a profit in the next 3 years		니니니니

Section Live Constant and a recommendation of the section of the s	stroi	ngly						stron	ıgly
	disa	gree						aş	gree
102 I am satisfied with my decision to be a farmer									
103 Farming provides a satisfying way of life									
104 Lost satisfaction from being a farmer									
104 1 get satisfiered in the complete process	Π	Π	Π						
105 I would advise my ompring to coosine tanting	Ξ								
106 I would recommend farming as a career	Ц	П	Ц	Ц	Ц	Ш	Ц	Ц	Ц

	Carlos Cir								
	Decuoil Ora	stro	ngly					stron	gly
	·	disa	gree	_	_	 _	_	_ag	rce
107	I have and will continue to make changes that allows me to stay in farming								
108	I intend to make some changes that will enable me to continue in farming								
100	I intend to exit farming, even though I do not want to								
110	I intend to exit farming, because I want to								
110	I will make the persent changes to allow me to continue in farming	\square		\Box					
111	I will make the needstary entright to another the to be and the to					 		_	

Castlen Soun	er og men er som en		
	less than 50	51-100	greater than 100
112 How many hectares is the farm		etock.	
113 Is your farm arable, stock or mixed farming			
	less than 35	36-55	more than 55
114 What age are you			
115 What County is your farm in	L		

THANK YOU VERY MUCH FOR TAKING THE TIME TO ANSWER THIS QUESTIONNAIRE

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Appendix E - Values

Values

Values are an individual's enduring beliefs and guiding principles in life. Schwartz and Bilsky (1987) suggest that there are five common features of the many definitions of *values*, (for example, Morris, 1956; Pepper, 1958; Maslow, 1959; Allport, 1961; Smith, 1963; Scott, 1965; Williams, 1968; Rokeach, 1973; Levy & Gutman, 1974). The five features illustrate what *values* are and also describe their properties.

a) Concepts or beliefs. This however offers no idea of values being temporal or at a point in time.

b) *Pertain to desirable end states or behaviours*. This is consistent with the development of terminal and instrumental *values* (Rokeach, 1968) as shown in Table 2.

c) *Transcend specific situations*. This relates to beliefs being enduring, but offers no opportunity for an individual to change or develop their beliefs, suggesting they are rigid.

d) *Guide selection or evaluation of behaviour and events*. This indicates that *values* are drivers of behaviour as well as explaining the nature of the behaviour.

e) Ordered by relative importance. From this it is suggested that there is a hierarchy of an individual's values.

Schwartz & Bilsky (1987) propose that values are:

'cognitive representations of three types of universal human requirements; biologically based needs of the organism, social interactional requirements for interpersonal coordination, and social institutional demands for group welfare and survival' (p. 551).
It is this lack of meaningful content of values that led Schwartz (1992) to develop his paper on the content and structure of values which forms the basis for the investigation into values in this study.

Empirical studies based on the work of Rokeach (1968, 1973), Kahle (1983), Kahle *et al.* (1986) and Schwartz (1990, 1992, 1994, 1996, 1999, 2002, 2003, 2004) form the foundation of much of the literature. However, the work of Rokeach is now over thirty years old and changes in 'social' *values* have resulted in changes in social behaviour (Butz & Goodstein, 1996; Kahle *et al.*, 1988). Erdem *et al.* (1999) consider that it is now time to revisit and 'up-date' the *values* proposed by Rokeach. Schwartz (1990, 1992, 1994, 1996, 1999, 2002, 2003, 2004), Schwartz and Bilsky (1987, 1990) and Schwartz and Sagiv (1995) have done exactly that, as will be discussed later in this section. Notwithstanding this, the work of Rokeach remains one of the most influential sources of literature on *values*. This is evidenced by the fact that Schwartz based his work on that of Rokeach.

The first book by Rokeach (1973), *The Nature of Human Values*, was followed by Rokeach's later book *Understanding Human Values*, in which Rokeach (1979) states that: 'a substantive interest in the antecedents and consequents of human values is not likely to be co-opted by any one discipline' (p. 1).

With this statement, Rokeach illustrates the fact that the literature on *values* has been developed from the disciplines of psychology, sociology, philosophy, political science, management and communications.

Of the definitions of *values* found in the literature; the most frequently quoted is that by Rokeach (1973):

'An enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence' (p. 5).

In this definition Rokeach is suggesting a lasting opinion or tenet that results in a preferential outcome. He talks of the preference being personal or social. The idea that the preferred outcome is 'opposite or converse' suggests a wide difference and not just a slight preference over the alternative. The definition by Vinson *et al.* (1977b) is similar to Rokeach's in that they both describe a belief or cognitive element leading to a behavioural outcome:

'centrally held cognitive elements that stimulate motivation for behavioural response' (p. 45).

Vinson *et al.* (1997b) propose that motivation stimulates a response, indicating a likely rather than definite outcome as indicated by Rokeach (1973). Rokeach (1973) talks of an enduring belief, rather than Vinson *et al.* (1997b) who consider *values* as centrally held cognitive elements. This view is considered by the author of this study to be too generic and not sufficiently specific, because cognitive elements are different from enduring beliefs in that they are changeable over time, whereas an enduring belief remains in existence. Similarly to Rokeach (1973) the definitions above indicate a series of events leading to a behavioural outcome.

Schwartz (1992) cites his earlier work with Bilsky and provides the following definition of *values*:

'Values are concepts or beliefs, pertain to desirable end states or behaviors, transcend specific situations, guide selection or evaluation of behavior and events and are ordered by relative importance' (Schwartz & Bilsky, 1990, p. 878).

Schwartz (1992) considers that *values*, when described in this way are different from attitudes, due to their generality or abstract nature as well as because of their hierarchical ordering of importance. Schwartz based his study on the work of Rokeach, and it can be

seen from the definitions that he has expanded on this work. This is evidenced by Rokeach who talks of an 'enduring belief' in contrast to Schwartz who talks of 'concepts or beliefs'. Both authors discuss 'end states' but the definition of Rokeach is more specific with the use of the words 'personally or socially preferable'. The definition of Schwartz is general and merely describes the properties of *values*.

Eight years later McGregor (2000) offered the following definition, which is more personal in nature:

'Values are mental pictures of important needs and goals and affect how one thinks about and sees oneself, what one wants out of life and what one is willing to trade-off to get something in return' (p. 94).

'The mental pictures of important needs and goals' suggests that values are more than static intangible images; they are creative images indicating desires and aims. The author considers that the idea that these images will affect one's personal reflection and ideals, offers a deeper interpretation than the definitions of Rokeach (1973) and Schwartz and Bilsky (1990).

Contrary to the definition of McGregor (2000), Occhionero (2000) offers a very succinct definition, that:

'values are factors which determine human behaviour' (p. 224).

This definition is considered to be too simple, in that it gives no indication of what the 'factors' are, or how these 'factors' lead to human behaviour, or the result of the behaviour.

The definitions above describe *values* as beliefs, cognitive elements, mental pictures and factors. These descriptions are varied, leaving the reader unsure of what *values* are. The

definitions provided by Vinson *et al.* (1977b) and Occhionero (2000) are considered too brief to add any *value* to previous definitions. The common elements of the definitions presented above, are that *values* are personal, important to the individual, and give rise to specific behaviour.

In the absence of an agreed accepted definition, the author adopts the definition of Rokeach (1973) as being the most comprehensive - with the reservation that the reference to personal or social is limited because, as discussed in the next section, there are many types of *values* found in the literature. The definitions discussed above suggest that *values* are inherent to the individual and also that they are relevant before, during and after the consumption experience.

The first section looked at the definitions of *values* and concluded that the definition of Rokeach (1973) remains the most influential in the literature. The definitions varied from simple statements like that of Occhionero (2000) to the more detailed definitions of Rokeach (1973) and Holbrook (1994) but there was no consensus as to which was the most appropriate definition. The author of this study adopts the definition of Rokeach (1973) as being the most comprehensive and the most extensively adopted definition in the literature on *values*.

There remains however, no clear understanding of *values* and whether there is a relationship to *value* and, if so, what exactly that relationship is.

Types of Values

The literature offers a variety of *values*, which the author of this study has grouped into three types for ease of reference and clarity. These groups are Generic, Domain Specific

and Value Systems. These groupings have been adapted from the work of Vinson *et al.* (1977b).

As can be seen from Table 1 below the generic types include personal (Erdem *et al.*, 1999), social (McGregor, 2000), global (Holbrook, 1994), human (Rokeach, 1979) and cultural (McGregor, 2000) *values*. The domain specific *values* includes such *values* as consumption (Long & Schiffman, 2000), consumer (Johnson, 1974; McGregor, 2000), organisational (Rokeach, 1979; Akaah & Lund, 1994), and professional (Singhapakdi *et al.*, 1995). The third category is the *value* systems that include those proposed by Rokeach (1968) and Schwartz (1990, 1992, 1994, 1996, 1999, 2002, 2003, 2004); the means-end chain model (Gutman, 1982), the Values and Lifestyles (Mitchell, 1983); the List of Values (Kahle & Kennedy, 1989) and the Thai Value Orientations (Komin, 1990). The value systems include individual *values* such as those found in the generic types of *values* but are discussed as part of a value system.

The generic and domain specific *values* offer descriptions of *values*, whereas the value systems offer a methodology of a theoretical structured framework to harmonise the variables within the system. Of the systems in Table 1 the work of Schwartz offers the most comprehensive, up-to-date system and relevant system and hence is the one adopted in this study.

Group	Value Type	Author
Generic	Personal Social Global	Erdem <i>et al.</i> (1999); Miller (1999) McGregor (2000)
	Human Cultural	Holbrook (1994) Rokeach (1979) Inglehart (1990) McGregor
Domain Specific	Consumption Consumer Organisational	Long & Schiffman (2000) Johnson (1974) Rokeach (1979); Akaah & Lund (1994) Sinchanokdi et al (1905)
Value systems	Typology of Values Means-End Model Individual's Belief System Means-End Chain Model Values and Lifestyles List of Values Thai Value Orientations Structure of Human Values	Singnapakdi et al. (1995) Rokeach (1968) Howard (1977) Vinson et al. (1977b) Gutman (1982) Mitchell (1983) Kahle, 1983; Kahle & Kennedy (1989) Komin (1990) Schwartz (1990, 1992, 1994, 1996, 1999, 2002, 2003, 2004)

Table 1 - The Different Types of Values found in the Literature

Generic values

The literature is confusing because the different types of generic values such as social, personal and cultural values are often used with no clear distinction between them (Kahle et al., 1988). The values referred to as social and cultural are used interchangeably (Erdem et al., 1999) and descriptions of these are often muddled. However McGregor (2000) suggests that there is a difference between social and personal values and that, although they are intricately linked, they are not the same. The author would support this view and suggest that social values are generic (although within a social system) whilst personal values are peculiar to the individual as the consumer.

The confusion between *values* is evidenced by Lai (1995), who describes cultural *values* as generic beliefs held by society. McGregor (2000) describes these *values* as 'social' *values* and Erdem *et al.* (1999) regard them as society-core *values*. Personal, global and human *values* are also used to describe *values* held by the individual and are described as personal by Lai (1995), human by Rokeach (1979) and global by Holbrook (1994). Happiness, security, fun and enjoyment are considered by Rokeach (1968) and Holbrook (1994) to be types or elements of *values* that have a major influence on human behaviour and explain consumer attitudes and buyer behaviour. This has been confirmed by Vinson *et al.* (1977a) and Vriens and Hofstede (2000) and is supported by the author of this study.

Miller (1999) provides a link between personal *values* and culture and suggests that, although shared personal *values* occur across global markets, there are key differences in cultural affinities. The author concurs with this and suggests that this leads to *values*, from a universal list, having differential importance within different cultures (Rokeach, 1968; Kahle, 1983).

Inglehart (1990) studied the different values in different societies 1960-90 and concluded that people's desires from life are changing. Traditional values and norms remain widespread amongst older generations, but due to technological, economic, political and cultural changes, traditional values are being replaced by new values, particularly among the younger generation (Inglehart, 1990). This evaluation could be said to be relevant to farming if it can be proven that it is older farmers, rather than the younger generation who tend to maintain the traditional values and norms of their generation. The consequence of this is that if values are changing, more research is required to understand the development of values and whether there is a generational difference in values.

Domain Specific Values

The domain specific values discussed are consumer, consumption and organisational values because they are specific to those relevant domains as suggested by Vinson *et al.* (1977b).

The terms *consumer* and *consumption values* are used interchangeably as evidenced by Lai (1995) and McGregor (2000). Both are acquired as subjective or personal beliefs, and occur through consumption (Lai, 1995; McGregor, 2000). Other types of domain specific *values* found in empirical studies were professional *values* (Singhapakdi *et al.*, 1995) and organisational *values* (Akaah & Lund, 1994), suggesting that *values* can be described, and within the context of any specific domain will vary. The conclusion is that further study is required to see if there are specific *values* applicable to farming.

The Value Systems

There appear to be two types of Value Systems found in the literature. Firstly Systems that are used for grouping values, (Vinson et al., 1977b; Howard, 1977; Gutman, 1982) and secondly, the type of systems proposed by Rokeach (1968) and Komin (1990), that are used as value scales. Brangule-Vlagsma et al. (2002) consider that, although values are relatively stable at the societal level as value systems of individuals, they are subject to change (as was outlined earlier), particularly at the level of individual members of a society. This supports the idea discussed earlier in this section that values are changing over time. However, Brangule-Vlagsma et al. (2002) offer an alternative view and consider that once values are acquired they form a system, which is generally assumed to be relatively stable over long periods of time. Vinson *et al.* (1977b) suggest a value system of global and domain specific *values* together with the evaluations of product attributes (as previously mentioned). However, they also refer to personal *values* as global *values*, which further suggest that the nomenclature used is confusing. A number of value systems were found in the literature: the Typology of Values proposed by Rokeach (1968); the Values and Lifestyle groups (VALS) developed by Mitchell (1983); the List of Values (LOV) developed by researchers at the University of Michigan Survey Research Center (Kahle, 1983); the work-related Thai Value Orientations of Komin (1990); and the Structure of Human Values proposed by Schwartz (1990, 1992, 1994, 1996, 1999, 2002, 2003, 2004).

The seminal work of Rokeach (1968) provided the basis for the study of value systems. The following section debates the typology of *values* identified by Rokeach (1968) and how this led to the development of the most recent typology offered by Schwartz and Sagiv in 1995.

Rokeach's Typology of Values

Rokeach (1968) considers that *values* are a system arranged in a hierarchical order of importance, carefully ordered by the individual to make choices and resolve conflicts within those choices. Rokeach also considers that *values* lead to consequences in the consumption context when consumption has taken place, as illustrated in the means-end model (Gutman, 1982). Rokeach (1968) developed a typology of *values* from his work in public opinion research (see Table 2) and he proposed five assumptions of the characteristics of *values*. The first assumption, that there are relatively few *values*, is further qualified when compared to opinions and attitudes (supported by Vinson *et al.*, 1977b and Akaah & Lund, 1994). The second assumption, that individuals possess similar

values in varying degrees, is qualified by Inglehart (1990) and McGregor (2000) who suggest that this is only so, on the proviso that the individuals come from the same culture and a similar society. The third assumption that *values* are organised into a value system, is supported by Schwartz (1992), McGregor (2000), and Schoon and Te Grotenhuis (2000). The fourth assumption is that the antecedents of *values* are society, institutions and personality. This is supported by Inglehart (1990). In the final assumption Rokeach (1968) concludes that the consequences of *values* are manifested in virtually all phenomena, this viewpoint is supported by Schwartz (1992).

Rokeach (1968) considers that modes of conduct and end-states of existence result in two types of *values* that he termed terminal and instrumental. Rokeach (1968) suggests that an individual has two value systems, one terminal and the other instrumental. However Schwartz (1992) disagrees with Rokeach (1968) and opines that the distinction between instrumental and terminal *values* is unnecessary and does not affect the way people relate to *values*.

The Typology of Values shown in Table 2 is nearly forty years old and if *values* are changing as suggested by Inglehart (1990) perhaps the order of *values* has changed with some of these *values* being more important than they were then. For example, in the list of Terminal Values 'freedom', 'family security' and a 'world at peace' would have been potentially more important *values* to some of those individuals who experienced one or both of the World Wars than they are to younger people now.

The Terminal and Instrumental Values Scales					
Terminal values	Instrumental values				
A comfortable life (a prosperous life)	Ambitious (hard-working, aspiring)				
An exciting life (a stimulating, active life)	Broadminded (open-minded)				
A sense of accomplishment (lasting contribution)	Capable (competent, effective)				
A world at peace (free of war and conflict)	Cheerful (light-hearted, joyful)				
A world of beauty (beauty of nature and the arts)	Clean (neat and tidy)				
Equality (brotherhood, equal opportunity for all)	Courageous (standing up for your beliefs)				
Family security (taking care of loved ones)	Helpful (working for the welfare of others)				
Freedom (independence, free choice)	Honest (sincere, truthful)				
Happiness (contentedness)	Imaginative (daring, creative)				
Inner harmony (freedom from inner conflict)	Independent (self-reliant, self-sufficient)				
Mature love (sexual and spiritual intimacy)	Intellectual (intelligent, reflective)				
National security (protection from attack)	Logical (consistent, rational)				
Pleasure (an enjoyable, leisurely life)	Loving (affectionate, tender)				
Salvation (saved, eternal life)	Obedient (dutiful, respectful)				
Self-respect (self-esteem)	Polite (courteous, well-mannered)				
Social recognition (respect, admiration)	Responsible (dependable, reliable)				
True friendship (close companionship)	Self-controlled (restrained, self-disciplined)				
Wisdom (a mature understanding of life)					

Table 2 - Rokeach's Typology of Values

Source: Rokeach, M. (1968) The Role of Values in Public Opinion Research. Public Opinion Quarterly 32, p.547-559.

Schwartz's Typology of Values

Following on from the work of Rokeach (1968), Schwartz and Sagiv (1995) developed a theoretical model of relations among motivational types of *values*, higher-order value types and bipolar value dimensions, as shown in Figure 3 below. Previous papers by Schwartz (1992) and Schwartz and Bilsky (1987, 1990) presented the ten motivationally distinct types of *values* held to be recognised implicitly in all cultures. The ten value types are organised into higher-order value types. (In Figure 3 these are the values outside the largest circle). These are higher-order value types, openness-to-change versus conservation, and

self-enhancement versus self-transcendence. The former is *values* emphasising own independent thought and action, preferring change to those emphasising submissive self-restriction, preservation of traditional practices and protection of stability. The latter is *values* emphasising acceptance of others as equals and concern for their welfare as opposed to improving oneself and one's success and dominance over others. The *values* shown in Table 4 can all be categorised within the four higher-order *values*, except 'hedonism', which Schwartz and Sagiv (1995) consider are related to openness-to-change and self-enhancement. The 1995 paper seeks to reiterate the *values* theory regarding universality and cross-cultural variation in the content and structure of *values*.



Figure 3 - Theoretical model of relations among motivational types of values, higher-order value types, and bipolar values

Source: Schwartz, S. & Sagiv, L. (1995), Identifying culture-specifics in the content and structure of values. Journal of Cross-Cultural Psychology 26, p. 96.

Table 4 below sets out the definitions of the motivational types of *values* in terms of their goals and the single *values* that represent them.

Table 4 - Definitions of Motivational types of Values in terms of their Goals and the Single Values that Represent them

Security – safety, harmony, and stability of society, of relationships, and of self (family security, national security, social order, clean, reciprocation of favours) [sense of belonging, healthy]

* values in brackets are not used in computing indexes for value types.

Source: Schwartz, S. & Sagiv, L. (1995), Identifying culture-specifics in the content and structure of values. *Journal of Cross-Cultural Psychology* 26, p. 95.

The literature on *values* appears to have developed from the early work of Rokeach (1968). Gutman (1982), Kahle (1983) and Kahle and Kennedy (1989) have developed value systems, with the main development being the work of Schwartz (1990, 1992, 1994, 1996, 1999, 2002, 2003, 2004) which while based on the work of Rokeach (1968), provides a more up-to-date analysis of *values*.

There were many types of *values* found in the literature, as suggested by Woodall (2003). Table 1 provides a synopsis of the principal types found in the groups of generic, domain specific and value systems. These groupings were developed from the work of Vinson *et al.* (1977b) whose work on domain specific *values* was considered to be appropriate to this study.

The value system of Schwartz (1992) will be used in this study because it is regarded as the most comprehensive and was developed from Rokeach's system (the most influential value system used in empirical studies). Other value systems, such as that developed by Komin (1990), were also based on the work of Rokeach.

Appendix F – Farming Statistics

Agricultural Land By Type Of Use: England (A) 1983 - 2005 (At June Survey)

· · · · · · · · · · · · · · · · · · ·	1983	1990	2000	2001	2002	2003	2004	2005
Total crops	4 237.6	4 265.7	3 982.4	3 785.1	3 902.2	3 815.1	3 911.4	3 795.3
+Bare fallow	86.1	34.5	25.0	30.6	20.0	19.8	19.9	120.2
Total tillage	4 323.8	4 300.3	4 007.3	3 815.7	3 922.2	3 834.9	3 931.4	3 915.5
+Grasses under five years old	956.4	837.4	629.5	624.3	656. 2	626.0	674.3	618.2
=Total arable land	5 280.1	5 137.7	4 636.8	4 439.9	4 578.3	4 460.9	4 605.7	4 533.7
+Grasses five years old and over	3 151.0	3 106.9	2 876.6	3 014.8	2 956.1	3 037.4	3 011.5	3 142.6
=Total tillage and grass	8 431.1	8 244.5	7 513.5	7 454.7	7 534.4	7 498.3	7 617.1	7 676.4
+Sole right rough grazing	764.9	747.5	627.2	676. 7	703.8	652.6	643.4	642.2
+Woodland on holdings	182.5	219.1	253.8	266.3	266.9	262.9	274.1	291.7
+Set-aside	na	71.9	480.4	702.7	518.8	587.0	476.4	482.2
+All other land on holdings	139.0	156.4	194.1	198. 6	192.5	176.6	155.9	186.0
=TOTAL AREA ON HOLDINGS	9 517.6	9 439.5	9 068.9	9 299.0	9 216.5	9 177.4	9 166.9	9 278.4
+Common rough grazing	na	427.9	427.9	427.9	427.9	427.9	427.9	427.9
=Total agricultural area	na	9 867.4	9 496.8	9 726.9	9 644.4	9 605.3	9 594.8	9 706.3
Total crops	4 237.6	4 265.7	3 982.4	3 785.1	3 902.2	3 815.1	3 911.4	3 795.3
Total cereals (excluding maize)	3 321.3	3 075.7	2 811.3	2 492.0	2 715.6	2 542.9	2 608.7	2 429.4
Wheat	1 637.4	1 885.3	1 956.8	1 540.6	1 876.2	1 726.5	1 864.6	1 748.4
Barley - total	1 596.7	1 101.8	752.2	847.8	722.0	703.2	642.4	595.5
- winter	826.5	794.0	510.9	398.0	470.0	386.2	350.9	321.3
- spring	770.2	307.9	241.3	4 49. 9	252.0	316.9	291.4	274.2
Oats	74.6	69.8	80.0	85.0	97.7	93.1	80.0	65.5
Rye for threshing	6.4	8.2	7.1	4.8	4.8	4.3	5.6	5.9
Mixed corn for threshing	6.3	3.0	1.6	1.7	2.8	3.1	3.1	2.8
Triticale	na	7.6	13.5	12.1	12.2	12.8	13.1	11.2
Total other arable crops not for stockfeeding (b)	570.0	714.7	687.6	717.8	643.9	745.1	773.9	827.7
Potatoes (early and maincrop)	141.8	134.6	126.8	126.0	119.3	108.8	111.5	102.4
Sugar beet (not for stockfeeding)	199.2	194.2	172.8	177.3	169.0	162.0	153.8	148.3
Hops	5.7	3.9	2.3	1.4	2.0	2.1	1.7	1.4
Oilseed rape - total	218.0	342.8	294.1	367.2	324.5	422.4	455.4	480.0
- winter	nc	nc	265.3	306.4	305.8	367.0	386.5	455.2
- spring	nc	nc	28.8	60.8	18.7	55.4	68.9	24.8
Linseed	na	33.6	68.3	29.1	11.0	31.3	28.8	44.8
Other crops not for stockfeeding (c)	5.4	5.6	23.3	16.8	18.0	18.6	21.1	34.2
Total crops mainly for stockfeeding	139.1	287.8	330.0	420.4	381.8	365.5	371.6	386.1
Field beans	33.8	138.7	122.1	169.8	160.6	161.5	175.0	180.7
Peas for harvesting dry (d)	28.4	71.9	81.8	100.0	82.8	68.4	60.7	52.2
Other fodder crops (including maize for threshing)	76.9	77.1	126.2	150.6	138.4	135.6	135.8	153.3
Total horticultural crops	207.3	187.5	153.6	154.9	158.2	157.8	157.2	152.1
Vegetables for human consumption (e)	142.4	128.8	105.6	107.2	111.8	112.3	112.4	108.7
Orchards	38.4	32.5	25.8	26.0	23.6	23.4	22.2	21.8
Small fruit (f)	13.2	11.6	7.3	7.4	7.2	7.4	7.5	7.4
Hardy nursery stock, bulbs and flowers	11.2	12.4	12.8	12.4	13.6	12.9	13.4	12.4
Area under glass or plastic covered structures	2.1	2.2	2.0	1.9	1.9	1.9	1.8	1.8

Footnotes:

(a) Includes estimates for minor holdings.

(b) Excludes crops grown on Set-Aside Scheme land

(c) Before 1989 includes triticale and linseed.

(d) Includes peas for harvesting dry for both human consumption and stockfeeding.

(e) Excludes potatoes, peas for harvesting dry and mushrooms.

(f) Before 1989 excludes small fruit grown under orchard trees.

na not available.

nc not collected

Totals may not necessarily agree with the sum of their components due to rounding.

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GLOSSARY

AMOS	Analysis of Moment Structures
AVE	Average Variance Extracted
CFA	Confirmatory Factor Analysis
C-OAR-SE	Construct definition, Object classification, Attribute classification, Rater
Identification, S	cale formation, and Enumeration and reporting
COSAN	Computer Program used in Structural Equation Modelling
CR	Composite Reliability
EFA	Exploratory Factor Analysis
VALUE	Customer Perceived Value
DEFRA	Department for the Environment, Fisheries and Rural Affairs
EQS	Computer Program used in Structural Equation Modelling
GFI	Goodness-of-Fit
IESI	Internet Enabled Self Interviewing
LINCS	Computer Program used in Structural Equation Modelling
LISREL	Linear Structural Relations
PLS	Partial Least Squares
RAMONA	Computer Program used in Structural Equation Modelling
SEM	Structural Equation Modelling
SEPath	Computer Program used in Structural Equation Modelling
SPSS	Statistical Package for the Social Sciences

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