Attitudinal determinants of consumer behaviour : an empirical study in the UK credit card sector

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ATTITUDINAL DETERMINANTS OF CONSUMER BEHAVIOUR: AN EMPIRICAL STUDY IN THE UK CREDIT CARD SECTOR

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October 2007

Thesis submitted in partial fulfillment of the requirements of Kingston University for the degree of Doctor of Philosophy

ABSTRACT

This research attempts to contribute to the advancement of knowledge within the services marketing and consumer behaviour domain. Its main aim is to enhance our understanding of the relationship between attitude and behaviour within a financial services setting. The Theory of Reasoned Action (TRA) by Fishbein and Ajzen (1967, 1973, 1975) was employed as the theoretical basis of the research.

Following an extensive literature review, we identified five constructs and credit card specific items used to develop a Credit card holder Attitude-Behaviour (CABM) model. All the constructs (with the exception of credit card holder behaviour) were measured using multiple items. The survey method was employed via a self-administered postal questionnaire. The data collection instrument was submitted to a sample of 2000 randomly selected UK credit card holders. Statistical properties of the constructs were analysed using exploratory and confirmatory factor analysis techniques. The proposed research model was tested with PLS in structural equation modeling technique.

The results of the study provided limited support for the central hypothesis of a significant relationship between attitude and behaviour. Two unexpected findings included the significant relationship between card holder behaviour and experience outcome, and also substantial support for the relationship between attitude towards future real income and attitude towards credit cards. Credit card holders exhibit two typical behaviours and future research is needed to examine the attitude-behaviour relationship of convenience users (non-interest paying) and revolving (interest-paying) credit card holders separately. Also recommended, is the examination of the card holder behaviour under observable variables as well as latent variables.

DEDICATION

I would like to dedicate this thesis to my parents.

ACKNOWLEDGEMENTS

My thanks go to the many people inside and outside Kingston Business School who helped and encouraged me during my time as a doctoral student. I would like first and foremost to thank my supervisor, Professor Stavros Kalafatis for his constant support throughout this project. He has constantly challenged my logic in a constructive way. His supervisory experience, his command over a vast range of literature in marketing, psychometrics and multivariate data analysis were all invaluable resources for me. I would also like to thank Professor Phillip Samouel for the training he provided on multivariate data analysis. He and Pr Kalafatis have opened my eyes to the value of inferential statistics in analysing complex data and solving managerial problems. My thanks also go to Dr Therese Woodward for her advice in many aspects of organising and conducting field research.

I am also grateful to the support staff in Kingston Business School in particular Claire Gaskin for her availability and kindness.

I would like to thank my senior fellow Phd students at Kingston University who have also provided guidance and support. In particular, I wish to thank Dr Khurram Sharif and Dr Abdulhai Megdad.

Finally, I am particularly thankful to my brother Amine and my sister Fella, who although initially sceptical to the idea of a PhD, have nevertheless provided great assistance and material support allowing me to focus on my research during periods of hardship.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

PART A - INTRODUCTION

This single chapter part presents an overview of the subject matter. The research problem is delineated and the conceptual and theoretical frameworks are presented. On the basis of the available literature, the focus of the study is justified and the study of attitude and its relationship to behaviour within services is outlined. The research question, the interest of the research and consequently the aim and objectives of the investigation are defined. A brief description of the proposed model and adopted research methodology are provided. Finally, the limitations and structure of the study are stated.

CHAPTER A1: INTRODUCTION

A1.1 RATIONALE LEADING TO THE RESEARCH

The study of attitude, an overall evaluation of a concept or an object according to Fazio (1986), has received considerable attention by social scientists and has grown into a large field of consumer behaviour science and social psychology literature. In particular, consumer behaviour literature has contributed by offering conceptualisations of the nature of attitude. It is generally accepted that attitudes are important to strategic marketing because of an assumed causality between attitudes, intention and behaviour (Fishbein & Ajzen, 1975) and most of the models on consumer decision processes highlighted the importance of attitude in predicting behaviour (Haward & Sheth, 1969).

But while the attitudes of consumers of branded goods is well documented in the marketing literature (Jewell & Unnava, 2004; Lange & Torn, 2002, Fournier, 1998), there is little published material on how consumers buy services (McKechnie, 1992, Meidan, 1997) in general or financial services in particular, and, therefore, the lack of an acceptable theoretical framework. In order to study attitudes in the financial services domain, a theoretical basis was required.

A review of attitude studies in the general marketing literature highlighted the existence of two types of conceptual foundations, independent variation and expectancy-value models (also known as multi-attribute attitude models). The "independent variation" approach (that includes Wicker's Theory and Interaction Approach, 1969) pointed out that empirical studies had rarely, if ever, established any direct association between measured attitudes and overt behaviour. In fact, Wicker (1969) suggested that measured attitudes will rarely explain more than 10% of behaviour and that behaviour may be affected by other factors including: personal factors such as verbal and intellectual abilities. Two years later, Wicker (1971) highlighted again this lack of consistency and major revision of the attitude concept. Frey (1986) agreed that the large number of other variables which potentially moderate any relationship between attitude and behaviour raises questions about the theoretical relationship between the two constructs. But "expectancy value" theorists challenged this view. Indeed, Fishbein and Ajzen, (1969, 1970, 1973), but also

Bagozzi and Burnkrant (1979) or Fazio and Zanna (1978) claimed that attitude and behaviour could correlate under conditions where constant amount of information available. Attitude-behaviour inconsistency tends to occur more frequently when general measures of attitude are employed to predict specific single behaviours (Newhouse, 1990). There is also additional evidence (Fazio *et al.*, 1982) indicating an increase in attitude-behaviour correspondence when direct experience contributes to attitude formation

Within the context of the proposed research, expectancy value-based theories are considered to be more relevant than the "independent variation" theories. The major reason for this consideration is the existence of an important body of literature based on these theories. Indeed, expectancy-value theory (such as TRA) has proved useful in the explanation of social behaviours.

A1.1.1 Research Domain

Consumer behaviour in the financial services illustrates that there is absence of academic research focusing on attitude in a services setting. Indeed, while the behaviour of financial services consumers has been examined under observable variables-namely age and education (Mandell, 1973, Bloom & Steen, 1987), income (Mathews & Slocum 1972), demographics (Awh & Waters, 1974), gender (Kinsey, 1981) the attitude-behaviour relationship has been scarcely studied. Roehl (2001) demonstrated that education, income and attitudes towards the use of credit cards for online purchases are statistically significant in predicting consumers' browsing, searching and travel purchasing behaviours. More recently, in a study on retail banking customers Baumann *et al.* (2007) suggest that behaviour can be predicted, in particular, by customers' attitude measures. Yet, the absence of an accepted framework to study the attitude-behaviour relationship of credit cardholders was highlighted by Devaney and Chien (2001). This omission forms the focal point of this study.

Credit cardholders typically use credit cards for convenience purposes (namely transactors/ convenience-users), or use credit cards as a regular source of revolving credit (revolvers). This segmentation is consistent with Hamilton and Khan (2001)

who observed three dominant behaviours among cardholders: (i) non-active cardholders; (ii) non-interest paying active cardholders; and (iii) interest paying active cardholders (2001). Similarly, Lee and Hogarthe (2000) and Canner and Cyrnak (1986) distinguished between card users for convenience and those distinguished as credit revolving cardholders. The co-existence of two typical consumer behaviours in that credit card market provides an opportunity to examine and compare the attitude-behaviour relationship between the two sub-groups.

A1.2 RESEARCH QUESTION

While a limited number of attitude studies have been conducted on the use of services (Jones & Vijayasarathy, 1998, Bobbitt & Dabholkar, 2001), a review of the consumer behaviour literature indicates that a more limited number of studies have been identified on the use of credit cards. More importantly, the attitude-behaviour relationship is unclear. Hence, this research ultimately explores the question: Can the author develop a robust framework that models the attitude-behaviour relationship among credit cardholders?

In order to adequately answer this broad research question, the author narrows the focus to the further following sub questions:

- What percentage of cardholder behaviour is explained by attitudinal factors?
- What is the relative importance of each predictor variable in the model in predicting the credit cardholder behaviour?
- Which analytical approach used elsewhere would be applicable in the context of cardholder attitude-behaviour and why?
- What other latent variable affect cardholder behaviour?
- Can expectancy-value theories (TRA or TPB) be appropriate foundations for developing a conceptual model of cardholder behaviour?

A1.3 INTEREST OF THE RESEARCH

The research question should be important on several managerial and theoretical grounds. First, the attitude-behaviour relationship is not consistent across all consumer behaviours (Ajzen 1996; Chien & Devaney, 2001). Foxall (1983) suggests that there are at least four possible causal relationships between attitudes and behaviour: attitudes cause behaviour, behaviour causes attitudes, attitudes and behaviour have a reciprocal effect, and there is no relationship between attitudes and behaviour. While the literature on attitude indicates the author can reject the last of these possibilities, there is evidence to support each of the other three possible relationships (see Barwise & Ehrenberg 1985; East, 1990). This thesis provides an opportunity to assess the relationship between the two constructs through data analysis techniques.

Second, the attitude-behaviour relationship area has received little attention in financial services marketing studies. Authors (see for example Canner & Cyrnak 1985; Norton 1993, Godwin 1998) have attempted to establish a link between the dramatic growth in credit use and a shift in attitude towards credit. Authors (Haley, 1968; Harrison, 1994) have argued that demographic, socio-economic and even behavioural data are poor predictors of the cardholder behaviour. Authors have also disagreed on the motives behind cardholder behaviour. For instance Durkin (2000) observed that cardholders preferred not only the convenience credit cards provide, but they also used credit cards as a source of revolving credit. Yet, there is ongoing debate as to whether latent psychological variables are more important than observable variables in determining the credit cardholder behaviour. Hence, this study attempts to contribute to this debate by examining the cardholder behaviour from psychological variables.

Third, the thesis provides a clear opportunity to develop a model that reflects the cardholder behaviour from a psychological perspective. From a managerial perspective, the increased competition in the credit card market is driving issuers to explore new methods to identify and target interest-paying cardholders (i.e. revolvers). Second, attitude has always been said to be important factor in determining consumer behaviour. Consequently, the examination of the relationship in a new setting (i.e. credit cards) is justified.

A1.3.1 Academic research contributions

As commentated by Zhu and Meeks (1994) but also Chien and Devaney (2001), consumer attitudes toward credit use, an indicator of consumer willingness to borrow has not been extensively studied. Munro and Hirt (1998) have demonstrated a relationship between demographics (race and academic achievement) and credit cardholder behaviour, while Bowers and Crosby (1979) had found a link between income and credit cardholder behaviour. Yet, there is limited knowledge about the attitudinal factors that influence individuals in using or refrain from using the revolving credit facility on their credit card(s).

The financial services industry (illustrated by the credit card market) is therefore selected because there is a need to understand and explain this phenomenon. The study therefore provides an opportunity to enhance knowledge of attitude and its relationship to consumer behaviour in a services setting.

A1.3.2 Industry contributions

According to Loudon and Della Bitta (1993) "behavioural change is a function of change in behavioral intentions" and "changes in behavioural intentions are related to changes in attitudes". The author therefore expects this study not only to clarify understanding of the cardholder behaviour but also to help marketers influence that behaviour.

Historically, credit card issuers have relied on observable variables to explain that behaviour. But latent psychological variables are as important in explaining that behaviour as observable variables (Butler & Peppard, 1998). Credit card companies need to be able to predict the behaviour of their cardholders for several reasons. First, the cardholder behaviour poses/bears a credit risk in the possibility of the credit cardholder defaulting on what is an unsecured debt. Second, there is increased competition to identify, attract and retain the most valuable cardholders (Frank, 1996).

The attitude and behaviour has emerged as a key issue in the industry. The research presents therefore a clear relevance for the industry.

Results are expected to enhance understanding of this behaviour and help marketers to:

- Influence the behaviour of convenience users (Paden & Mc Alister, 1996).
- Target transactors and less profitable customer segments with alternative products (Hamilton & Khan, 2001).
- Identify specific usage of the cards will allow firms an opportunity to acknowledge individual customers by responding to those behaviours.
- Develop a segmentation based on attitudes and behaviour (Cameron *et al.*, 2006);

A1.4 RESEARCH AIM AND OBJECTIVES

The aim of this research is to contribute to consumer behaviour theory by enhancing understanding of the relationship between attitudes and behaviour within a service domain. The author uses the UK credit card market as a research setting to test the relationship between attitudes and behaviour.

In order to achieve this aim, the following specific objectives have been set:

1. Identify through an extensive literature review a relevant theoretical framework to study the attitude-behaviour relationship among cardholders
2. Development of an appropriate conceptual framework
3. Operationalisation of the research constructs
4. Testing of the research hypotheses and overall model fit
5. Comment on the strength of the attitude-behaviour relationship found in the study

A1.5 PROPOSED MODEL

The research domain selected for the research suggests that the literature review should not only focus on the marketing/consumer behaviour literature but also the economics and social psychology literature. Attitudinal models appearing in academic papers published in high ranking journals were critically analysed in order to formulate a theoretically-grounded framework for the proposed investigation. Following an extensive review of the social psychology, marketing and economics literature the author has developed a theoretically grounded model based on Fishbein's TRA and using elements from Bagozzi and Warshaw's Theory of Trying and Kahle's List of Values (or LOV).

The theory of Reasoned Action (TRA) is an especially widely validated intention model that has been used in predicting and explaining behaviour across a wide variety of domains (Chan & Lu, 2004). The proposed model consists of five antecedents to attitude towards credit card. Attitude is represented as a multi-dimensional concept determined by fapr (attitude towards future interest rates), finrisk (attitude towards financial risk), futurinc (attitude towards future real income), save (attitude towards saving) and value (personal values). The proposed model contains both cognitive and behavioural antecedents and is presented in Figure A1.1.

The TRA forms the theoretical framework of this study. Fishbein and Ajzen's (1994) framework was chosen as the foundation for the development of the research model for the following main reasons:

1. It is a general model that has been applied in various settings and in particular in services.
2. Reliable, good support has been found for the model.
3. TRA has been successful in predicting and explaining behaviour across a wide variety of domains.
4. TRA has been used to explain consumer behaviour in financial services.

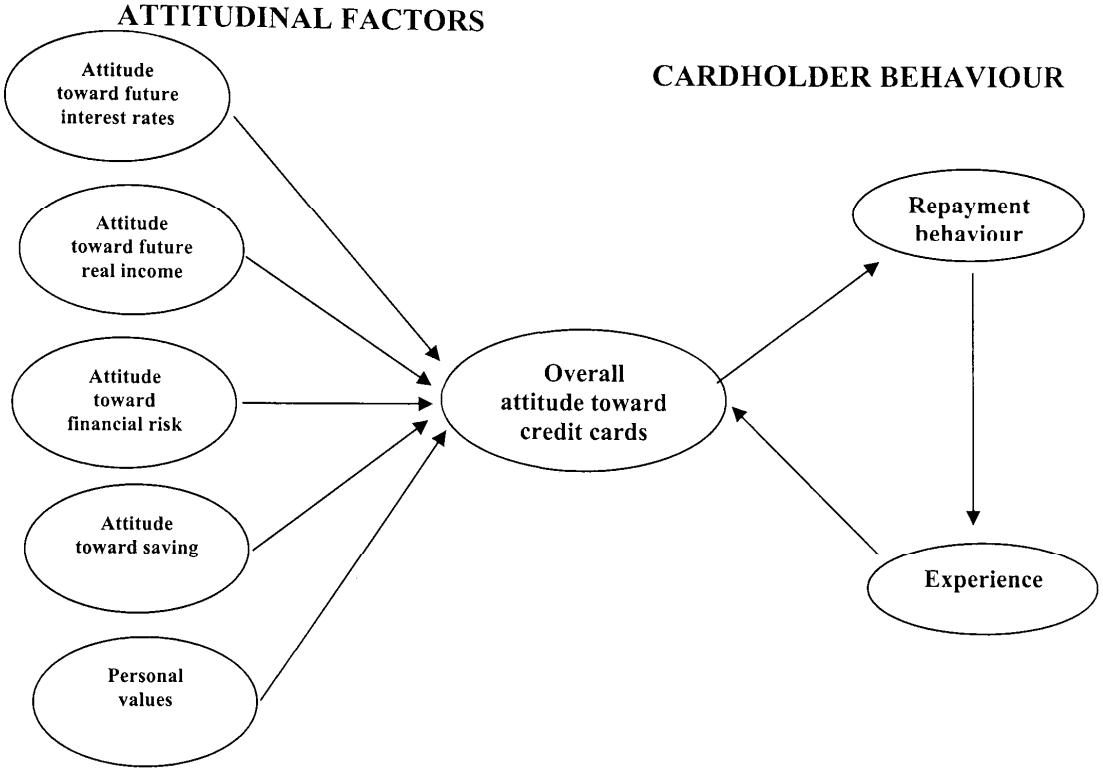

Figure A1.1: Cardholder Attitude-Behaviour Model: Proposed Conceptual Framework

A1.5.1 Omission of constructs

The constructs related to behavioural intent have been omitted because attitude was considered to be a direct determinant of consumer behaviour.

A1.5.2 Additional constructs

The model integrates elements from Bagozzi and Warshaw's Theory of trying (1990) in order to take into account the importance of past experience quoted in the literature (Zhu & Meeks, 1994). Kahle's (1983) list of values (LOV) is also selected as determinant of attitude towards credit cards. Finally, the model acknowledges economists' findings (Modigliani, 1986; Lown & Ju, 1992) that consumers either use past income (savings) in the present or use future income in the present (credit) in an "inter-temporal reallocation of their income"(Soman & Cheema, 2002).

A1.6 METHODOLOGY

Before collecting the data, ethical considerations were addressed in the methodology: personal finance, and in particular credit (i.e. debt), can be a sensitive issue and the author acknowledged the importance of treating the information given as strictly confidential.

The next phase involved the generation and validation of multi-item scales based on reflective measures as all methodological texts on scale development are based on reflective measures (see Bearden & Netemeyer, 1999). These were translated into a structured research questionnaire. Research was cross-sectional which presented benefits in terms of cost, flexibility, and immediacy. Questionnaires were designed following an initial qualitative research and a pilot-study was conducted on a small sample of the target population. At the end of this phase, exploratory research was undertaken with individual cardholders in order to fine tune the proposed framework and determine methodological issues.

Data were collected through a mail survey addressed to a sample of credit cardholders. An overall response rate of 28% was recorded that resulted in 575 usable questionnaires. SPSS, PLS-Graph and AMOS were used as analytical tools for reliability and validity checks and modular pathway confirmations.

A1.6.1 Research Methodology

The adopted research method broadly follows the research design process proposed by Sekaran (2002) (See Chapter C1, Figure C1.1). A summary of the research process is outlined below and is also summarised in Figure A1.2.

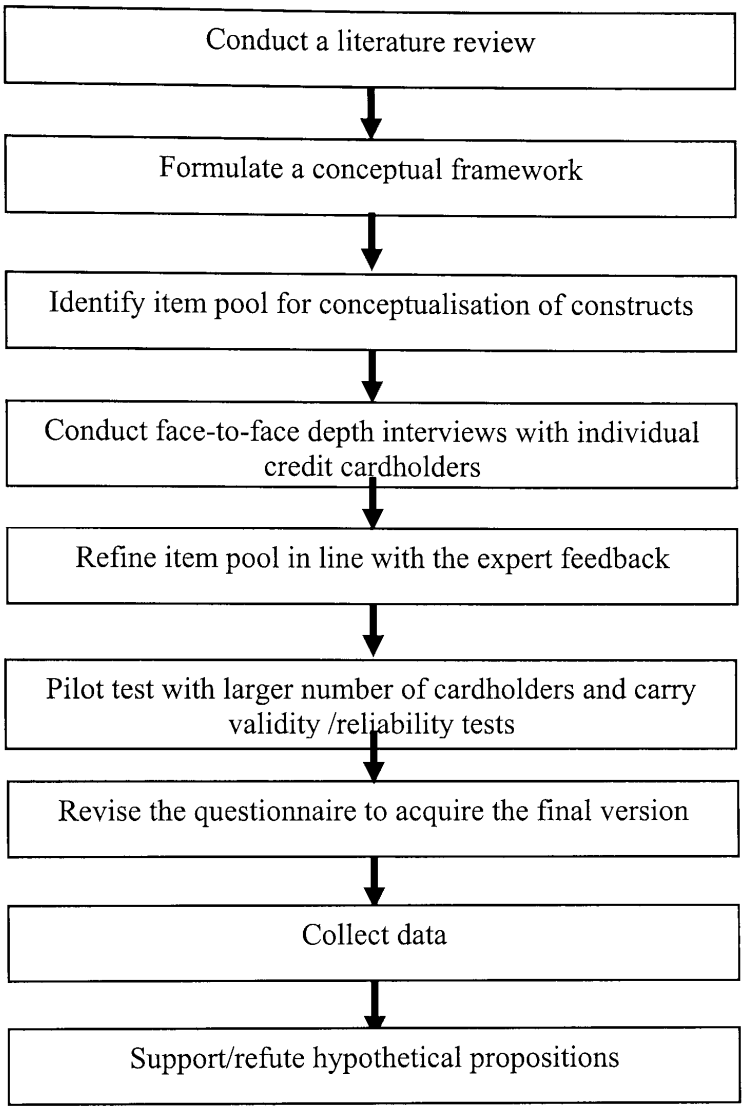

Figure A1.2: Flow diagram outlining the research process

A1.7 KEY ASSUMPTIONS AND STUDY SETTING

The key assumption of the study is that the cardholder is a rational economic agent/consumer (under micro-economics theory). He acts under his own control without social nor external influence: although economists (Ausubel, 1991) have contended that credit cardholders are irrational, in that they routinely underestimate their credit card balance, most of Ausubel's arguments have been shown to be

incorrect (Cargill & Wendel, 1996) in contrast to Ausubel's assertion of consumer irrationality. Arno (2000) also indicated that feelings (a component of attitude) are more important for customers in picking a financial product. He recommended that credit card issuers go beyond simple rational appeals to build an emotional connection.

The author posits that the concept of attitude is equally important as observable variables in explaining/predicting behaviour of services consumers (Ashok *et al.*, 2002).

A1.8 LIMITATIONS OF THE STUDY

Although considerable efforts were employed to ensure robustness of this research, a number of limitations have been highlighted.

1. The first limitation concerns the exploratory nature of the thesis. Although the model's constructs have met reliability and validity requirements, their development specifically for this thesis meant they could not be supported with examples from literature review. Further empirical evaluations are therefore needed to replicate the findings in different contexts and surroundings.
2. The second limitation is related to design and specification issues: the relationships in the conceptual model were tested with a cross-sectional survey while a true test of the causality would measure these relationships at different intervals (Kenny *et al*, 1998).
3. The investigation into the factors that affect cardholder behaviour is limited to attitudinal factors. The existence of other explanatory variables might limit the predictive ability of attitude. Attitude is not the only factor that determines credit cardholder behaviour, and the existence of these other variables can directly impact the predictive ability of attitude (Mainier *et al.*, 1997). According to these authors, other factors include knowledge of the subject, social norms, economic constraints, and alternative choices.

4. A fourth limitation is due to the cross-disciplinary nature of the thesis. The model borrows from different disciplines, essentially economics, social psychology and marketing. The items used in the operationalisation of the attitudinal (independent) constructs have been partly borrowed partly purpose-developed. Even though they were carefully adapted and reliability and validity checked, there is still a danger that they may contain inherent shortcomings, especially when applied in a new environment and in a different context. This limitation is fundamentally related to measuring a complex phenomenon such as attitude towards credit. There is a clear danger involved whenever concepts are borrowed from related disciplines, i.e. from the fields of social psychology and economics, and then applied in the present context.

5. Only one sector within the services sector was tested. This represents a small part of the selected industrial sector and even smaller part of the retail consumer sector. Hence care should be exercised when generalising the results. A consequence of this methodology is that the results are not necessarily fit for generalising across all consumer behaviours but are well suited to extend the TRA to the financial services domain.

6. The thesis relied on self-reports (as opposed to direct observation) which is not always accurate, i.e. the data might suffer from bias such as social desirability (Peterson, 2005).

7. Normative guidelines are presented in this study on the assumption that the behaviour of the credit cardholder follows a rational, utility-maximising process.

8. The adopted methodology employs retrospective measures of attitudes and behaviour. Difficulties in respondents to separate such retrospective constructs are acknowledged.

9. Finally, the data analysis was guided by interpretation and statistical significance tests and the results should be interpreted with caution. Replication of the findings in future studies is necessary to reach a more conclusive interpretation of the theoretical relationships and concepts.

A1.9 STRUCTURE OF THE THESIS

The thesis is composed of five parts, which are outlined below:

Part A-Introduction: This part comprises a single chapter. After a brief introduction to the concept of attitude and its importance in the context of consumer behaviour research, the author provides an overview of the subject matter. In addition, the aim and objectives of the study are delineated, the justification of the research is made clear, the research framework is presented, the research setting and research methodology are outlined, and the limitations of the study are listed. The structure of the thesis is presented in the final section.

Part B- Literature review: This part comprises six chapters which provide a comprehensive debate around the available literature on the subject matter. In chapter B1 the concept of attitude is defined and the major attitudinal theories are reviewed. Theories and models surrounding the attitude-behaviour relationship are debated in Chapter B2. The cardholder behaviour in marketing and economics literature is also reviewed in this chapter. The additional concepts of values, experience and concepts of financial risk attitude, saving, future income expectations are introduced and debated in chapter B4. The concept of experience is debated in Chapter B5.

Part C-Research design: This part comprises four chapters providing a full discussion and justification of the research methodology used in this study. Chapters C1 and C2 lay the foundation for the conceptual model to be tested in this study. In the first chapter, the conceptual framework, the hypotheses, the instrument being used in the study, and the research design are presented. In Chapter C2, elements of the adopted framework regarding the type of investigation, study setting and data collection method are debated. Chapter C3 details the conceptualisation of the research measures and the design of the research instrument Chapter C4 examines the sampling design as well as errors and biases in the study.

Part D-Data analysis: This part consists of three chapters which provide a systematic analysis to the data collected in this study. Chapter D1 analyses the findings through reliability tests. Chapter D2 examines validity and finally the author

looks at the overall model fit (structural model and measurement model) and test the hypotheses in Chapter D3.

Part E-Conclusion: The final part consists of only one chapter which refers to the original objective listed in Chapter A1 and on the strength of the results reported in Part D, systematically deals with each objective. The chapter outlines the contributions of the research in both academic and operational terms. Overall conclusions, together with evaluation of the contribution of this study and suggestion for future research, are offered.

PART B - LITERATURE REVIEW

This part of the thesis discusses the theoretical foundations of the subject under investigation. The review attempts to focus on services marketing studies that examined the attitude and behaviour constructs. The author argues that the general discussion that follows is sufficient to make the concepts clear enough and helps understand the issues relating to the development of robust measures for the credit cardholder's attitude-behaviour model's constructs. The author begins with definitions and conceptualisations of the "attitude" construct (Chapter B1). The author then discusses conceptual models and theories that examined the attitude-behaviour relationship and their applications in the services and banking sector (Chapter B2). Then, the author discusses the role of Values on attitude and behaviour (Chapter B3). This is followed by a discussion (Chapter B4) of the independent constructs (borrowed from economics literature) of attitude towards financial risk, future real income, future interest rates and saving. Finally, the literature review ends with a discussion of the role of "experience" (Chapter B5) in consumer behaviour studies.

CHAPTER B1: THE THEORETICAL FRAMEWORK

Attitude forms the central construct of this thesis. In this chapter the author presents a background and various definitions of attitude and debates the major theories on attitude.

B1.1 THE CONCEPT OF ATTITUDE

B1.1.1 Definitions of attitude

Over the years, the attitude concept has been defined in many ways. It is a central concept of consumer decision-making but essentially a social psychology concept. Hence the majority of definitions available belong to the social sciences domain. While a vast body of knowledge exists regarding attitudes in various settings, the literature is still contentious over the nature of this construct, hindering any attempt to synthesise conclusions from the wide range of studies.

Allport (1935) defined attitude as "a mental and neural state of readiness, organized through experience exerting a directive or dynamic influence upon the individuals response to all objects and situations with which it is related" (p.810). Unlike later definitions (Eagly & Chaiken, 1993; East, 1997; Antonides & Van Raaij, 1998), according to Allport attitude is a unidimensional concept but omits the evaluative nature of attitude. His definition highlights the fact that attitudes are not basic elements of the individual's personality. In fact, they represent two or more interrelated elements related to persons, objects or behaviours that are part of an individual's perceptual world.

Table B1.1 below presents some of the most widely used definitions. It indicates a pattern linking attitudes to feelings (see Lutz, 1991; Mowen, 1993; East, 1997) rather than beliefs. However, a common element of all the definitions is that attitudes represent an individual's basic orientation towards a given stimulus and as such form an important part of the way in which people perceive and react to their environments. In another early definition, Doob (1947) proposed that individuals behaved consistently towards

social object defining attitudes in terms of behavioural tendencies that could be best measured through observations of overt behaviour.

Table B1.1: Chronological presentation of various definitions of the concept of attitudes

Author	Definitions of attitudes
Allport (1935)	*"a mental and neural state of readiness to respond, which is organized through experience and exerts a directive and/or dynamic influence on behaviour"*
Lewis (1938)	*"an interrelated set of opinions organized around a point of reference"*
Doob (1947)	*"an implicit response...which affects subsequent overt responses"*
Asch (1952)	*"attitudes are particularly enduring sets formed by past experiences"*
Rosenberg (1956)	*"attitudes are pro or con feelings toward objects of affective significance. Attitudes possess a structure composed of an affective component and cognitive component"*
Katz(1960)	*"attitude is the predisposition of the individual to evaluate some symbol or object or aspect of his world in a favourable or unfavourable way"*
Krech *et al.*(1962)	*"attitudes are enduring systems of positive or negative evaluations, emotional feelings, and pro or con action tendencies with respect to scale objects"*
Rokeach (1968)	*"a learned orientation or disposition, toward an object or situation, which provides a tendency to respond favourably or unfavourably to the object or situation".*
(Fazio, 1986)	*"...a learned association between an object and an evaluation".*
(Ajzen, 1989)	*"An attitude is an individual's disposition to respond favourably or unfavourably "to an object, person, institution, or event, or to any other discriminable aspect of the individual's world"*
Lutz (1991)	*"attitudes represent our covert feelings of favourability or unfavourability toward and object, person, issue or behaviour".*
Gordon (1991)	*"a consistent predisposition to respond to various aspects of people, situations or objects".*
Eagly & Chaiken (1993)	*"a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour"*
Wade and Travis (1996)	*"relatively stable opinions containing a cognitive element and an emotional element".*
East (1997)	*"attitudes are what we feel about a concept which may be a brand, a category, a person, an ideology or any other entity about which we can think and to which we can attach feeling. Attitudes are thus about the evaluation that we give to a specific*

	concept"
Antonides and Van Raaij (1998)	*"an attitude is the individual predisposition to evaluate an object or an aspect of the world in a favourable or unfavourable manner"*

For this study, Ajzen's (2001) definition of attitude as "an individual's positive or negative evaluation of performing a given behaviour" has been embraced. The two main reasons were: this definition became the fundamental basis for the attitude component of the Theory of Reasoned Action. Another important aspect of Ajzen's definition is that attitude concerns the behaviour as opposed to the target/object. This definition of attitude is hence more likely to be instrumental to studies focusing on behaviour than a definition that focuses on attitudes toward targets/objects. But the common factor shared by many of these definitions, is the evaluative nature of attitude. Indeed, most theorists (Eagly & Chaiken, 1993; Fazio, 1986; Fishbein & Ajzen, 1975; Giner-Sorolla, 1999) have come to view evaluation as the main component of attitudinal responses. This statement implies that empirical questions of how much an individual's attitude to (or evaluative judgment of) some object in some situation involves deliberate, conscious appraisal of that object, as opposed to, for example, a conditioned response.

B.1.2 CONCEPTUALISATION OF ATTITUDE

Attitude has been conceptualised both as a unidimensional and multidimensional construct. Authors have also debated over its functions. Thurstone (1928) and later Kitts (1995) conceptualised attitude as multi-dimensional construct made up of cognitive, affective and conative components and occasionally as a unidimensional construct. The affective component was generally measured on a semantic differential scale (Regan & Fazio, 1977, Crosby & Muehling, 1982) and represents how an individual feels about the action. The cognitive component which measures the extent to which a reasoning

process would suggest the action, considers beliefs regarding possible consequences of performing the behaviour. These are generally operationalised in terms of "expectancy-value" statements (Ajzen & Fishbein, 1969, 1973, 1977; Bagozzi & Burkrant, 1979) which is a summary of positive and negative outcomes that the respondent expects will occur as a result of performing the behaviour. In this study, a unidimensional measurement for attitude towards credit card borrowing does not suffice reasonable comprehension of its complex nature. Indeed, attitudes entail cognitive, behavioural and affective elements as well as industry specific measurements. Therefore the multi-dimensional approach was considered more appropriate.

B.1.2.1 Formation of attitude

Thurstone and Chave (1929) suggested that attitudes consist of evaluative or affective responses to the attitude object. Fishbein and Ajzen (1975), however, proposed that affective responses are based on cognition. An attitude toward an object always involves a stimulated state-a positive or negative feeling or motivational component. It is an interrelated system of cognition, feelings, and action tendencies. More importantly, attitudes include a cognitive and behavioural component not present in the conceptual definition of emotion (Fishbein & Ajzen 1975). For example, Zajonc and Markus (1982) viewed attitudes as a two component structure consisting of cognition and affect. Bagozzi and Burnkrant (1979) opined that attitudes consist of cognition and affect after performing confirmatory factor analyses to reanalyze the data reported in Fishbein and Ajzen (1974). They suggested that further research with attitudes should include measures of both components and treat them as simultaneous predictors of behaviour criteria. Other researchers, such as Breckler (1984), demonstrated empirically that affect, cognition and behaviour, although related, do have discriminant validity. This three-component view suggested that cognitive, affective and behavioural (or conative) evaluations of objects are distinguishable aspects of attitude and all three components should be most predictive of overt behaviour (Bagozzi & Burnkrant, 1979). These

different conceptualisations among researchers highlight the different theoretical perspectives on the concept.

B.1.2.2 Functions of attitudes

Attitudes serve two essential psychological and social functions (Katz 1960, Melone, 1990): the value-expressive and the utilitarian function. Value expressive functions are involved when the expression of particular attitudes give pleasure to the person who expresses them, because the attitude reveal some of the basic values he/she holds dear. In addition, knowledge functions are served by the individual's need to give structure to the person's life, to understand it, and to predict outcomes. Attitudes express some parts of an individual's personality: for example, a person may display a genuine interest in international affairs, which may be reflected in excitement toward most attitude objects related to international affairs. Here attitudes express the psychological condition of the individual.

Attitudes also help individuals adapt to their environment by providing a certain degree of predictability. People have an established set of reactions to a given type of attitude objects. This function of attitude helps individuals in their decision-making process, guiding them in their reactions toward a particular attitude object. If they have classified an attitude object appropriately and it behaves in the same way as other similar objects, they can use their previous experience as a guide and they would usually be accurate about the outcome. In summary, attitudes help us understand our environment, protect our self-esteem, help us adjust in a complex world, and allow us to express our core values.

B.1.3 THEORETICAL PERSPECTIVES ON ATTITUDES

Two major views of attitudes have emerged from the social psychology and consumer behaviour domain: 1) the tripartite view of attitudes and 2) the unidimensional view of attitudes.

1) **The tripartite view of attitudes:** The tripartite view suggests that an attitude consists of three main components: affect, cognition and conation (Bagozzi *et al.*, 1979; Lutz, 1977). The components have become the subject of three different explanations of attitude formation and change. The affective process involves combining an attitude object with a stimulus that elicits an affective response; after repeated activation (i.e., pairing the object and affective response) an attitude is formed. The cognitive learning process stipulates that an attitude is formed based upon information derived from various sources, including direct and indirect experience, advertising, or a friend. Through a behavioural process (i.e., conation) attitudes are derived from past behaviour or perceived as consistent with behavioural intent (Eagly and Chaiken, 1995).

   But the tripartite view was subsequently criticised due to limited empirical support for measurement issues related to the cognitive and conative components, and questions as to whether all three components were necessary for an attitude to form (Lutz, 1991). Furthermore, when inconsistencies occur among the attitude components (e.g., smoking causes cancer [cognition], individual continues to smoke [behaviour]), the tripartite theory appears to break down, creating a need for a new approach for understanding attitude formation

2) **The unidimensional view of attitudes**: The unidimensional view of attitudes can be viewed as an evolution of the tripartite view. It supports the notion that an attitude consists of an affect component with the cognitive and conative separated out to represent antecedents and consequences of an attitude (Lutz, 1991). Cognition was relabelled "beliefs" and conation became "intentions" and "Behaviours".

   This orientation establishes a causal flow through the attitude components (Beliefs→ Affect→ Intentions→ Behaviours) and has been used in hierarchy-of-

effects models (Berry, 1987; Lavidge and Steiner, 1961). The unidimensional view of attitude formation allows researchers to specify causal links among the components that have both theoretical and practical merit. Because of empirical support, the unidimensional perspective has been the foundation for much of the current attitude research over the last three decades.

A number of theories have evolved from the tripartite and unidimensional orientations to advance our understanding of attitude formation, attitude change, or both. Prominent theories dealing with both formation and change include consistency theories (e.g. Festinger, 1957; Rosenberg, 1956, 1960), learning theory (e.g., Fishbein, 1967) and functional theory (e.g., Katz, 1960).

B.1.4 MAJOR THEORIES ON ATTITUDE FORMATION AND CHANGE

In a study examining the influence of attitude and socioeconomic factors on credit card use Chien and Devaney (2001) identified three major attitude theories in the social psychology literature, each offering a different relationship between attitude and behaviour. The author review and debate these theories below;

B1.4.1 Cognitive dissonance theory

The cognitive dissonance theory was proposed by psychologist Festinger (1957). Festinger's theory deals with pairs of cognitions and addresses attitude-behaviour inconsistency. Festinger defines dissonance as "the existence of non-fitting relations among two relevant cognitive elements. Cognitions are defined as "any knowledge, opinion, or belief about the environment, about oneself, or about one's behaviour" (Festinger, 1957, p.3). The pair can relate to each other in one of two ways. "They may

simply have nothing to do with one another. That is, under such circumstances where one cognitive element implies nothing at all concerning some other element, these two elements [cognitions] are irrelevant to one another" (Festinger, 1957, p. 11). But if two cognitions are in fact relevant to one another, then they are either consonant or dissonant cognitions. Consonant cognitions occur when elements of knowledge follow from one another, dissonant cognitions occur when the opposite of one element follows from the other.

According to Festinger's theory, the existence of dissonant cognitions produces uncomfort. This feeling (of uncomfort) then prompts the individual to lessen or to eliminate the dissonance. He states that "the presence of dissonance gives rise to pressures to reduce or eliminate the dissonance (Festinger, 1957, p.18). The number of dissonant beliefs, and the importance associated with each belief are clearly two factors that affect the greatness of the dissonance.

The cognitive dissonance theory has undergone considerable scrutiny since its introduction in 1957. As a result, further studies, many changes and improvements to the theory have been made. One of the initial revisions was called the Self-Consistency interpretation of dissonance (Aronson, 1968). The theory assumes that situations inducing dissonance do so because they create inconsistency between the self-concept and the behaviour. Since most people generally have a positive self-concept, they are likely to experience dissonance when they behave immorally, irrationally.

Another revision, known as the New Look version of dissonance, suggested that the effects observed in dissonance studies are the result of feeling personally responsible for producing anticipated negative consequences (Cooper & Fazio, 1984). The New Look version suggests that the attitude change observed in the Festinger's studies resulted from the desire to avoid feeling personally responsible for producing an aversive consequence.

According to Harmon-Jones and Mills (1999) many researchers regard Festinger's theory as robust. However, there are major areas of disagreement in the nature of the motivation beneath the cognitive that results from dissonance. The main criticism of the cognitive consistency theory is that it is impossible to verify or falsify by experiment.

That is, there is no strong empirical evidence that proves that people will react in a specific manner in a given situation or when dealing with dissonance.

B1.4.2 Hierachy of effects

The hierarchy of effects theory (Krugman, 1962) proposes that consumers pass through cognitive steps as they move towards consumption. The original model establishes four phases: awareness, interest, desire and action (AIDA), and arranges them in this order.

Under the hierarchy-of-effects model assumptions, cause and effect are rational i.e. attitudes accurately reflect beliefs, intention accurately reflects attitudes, and behaviour accurately reflects intentions (Fishbein & Ajzen, 1975). Although rationality has been conceptualised as a result of different cognitive processes-such as expected utility, subjective utility, attribution, and resolution of cognitive dissonance (e.g., Fazio, 1986; Fishbein & Ajzen, 1975) the presumption of rationality is central to all theories (such as social-cognitive models) derived from the hierarchy- of-effects principle.

The level of involvement has an influence on the decision process and the formation of attitudes towards service use. Krugman (1962) has suggested that the decision process differs in high- and low-involvement cases. Under higher levels of involvement, customers will tend to give more careful consideration to information that is relevant to the particular decision and will engage in a more extended decision process. As the involvement level decreases, customers will tend to engage in more routine types of decisions. In such routine decision making one finds less in terms of a search for information than in extended decision making.

B1.4.2.1 Critique of hierarchy of effects

The hierarchy of effects model has been criticised for assuming that all advertisements have the same effect on all consumers (Barry, 2002). In another criticism of the low-involvement theory's tendency to view involvement as dichotomous variable, Park and

Mittal (1985) proposed that involvement is a continuous variable, which it is not easy to be considered as high vs. low situation. For example, in the case of a low-involvement hierarchy, behaviour precedes affect, whereas affect precedes behaviour in the learning hierarchy. According to their arguments, as the level of involvement increases from low to high the sequence of the hierarchy changes. This change in the hierarchy sequence must occur at some point between the low and the high levels of involvement.

Another consideration on the low-involvement theory is that it has focused on the cognitive component in behaviour change despite its emphasis on non-thinking process. Krugman (1965, 1966, 1977) concentrated on perceptual changes and "conscious" connections in predicting behaviour change. In this aspect, Zajonc re-examines the relationship between attitudes and behaviour. Zajonc (1980) suggests that affective judgements may be rather independent of, and precede in time, the types of perceptual and cognitive operations commonly assumed to be the basis of these affective judgement. Thus, affective reactions can occur without extensive perceptual and cognitive encoding, are made with greater confidence than cognitive judgements, and can be made sooner.

B1.4.3 Theory of Reasoned Action

The Theory of Reasoned Action (TRA) was formulated in 1975 by Fishbein and Ajzen and has been used extensively in marketing research. Figure B1.1 presents a diagrammatic model of the theory. The theory received considerable support in empirical studies of consumer behaviour and social psychology related literature (Ryan, 1982; Sheppard *et al.*, 1988; Armitage & Conner, 2001) and provides a framework to study attitudes toward behaviours. The authors assumed that individuals are usually rational, "make systematic use of information available to them and consider the implications of their actions" before they decide to engage or not in a given behaviour (Ajzen & Fishbein, 1980).

TRA has been applied to explain various types of behaviour and includes four general concepts: behavioural attitudes, subjective norms, behavioural intention and actual behaviour. It argues that individuals evaluate the consequences of a particular behaviour and create intentions to act that are consistent with their evaluations. More specifically, TRA states that individuals' behaviour can be predicted from their intentions, which can be predicted from their attitudes and subjective norms. Attitudes can also be predicted from an individual's beliefs about the consequences of the behaviour. Subjective norms can be predicted by the individual's 'willingness to comply with the social expectations (motivation to comply). If behaviour is intentional, then the intention to perform the behaviour will correlate very highly with the behaviour itself. It is predictive in those situations where there are no major barriers to performing the behaviour. This is the main difference between TRA and its extension, the Theory of Planned Behaviour (see Section B.1.4.3.3).

According to the TRA, behavioural intention (BI) is a measure of the strength of an individual's intention to perform a specified behaviour. Attitude towards behaviour (A) is defined as an individual's positive or negative feelings (evaluative affect) about performing the target behaviour. Subjective norm (SN) refers to the person's perception that most people who are important to him think whether he should or should not perform the behaviour in question.

$$BI = w_1 * A + w_2 * SN$$

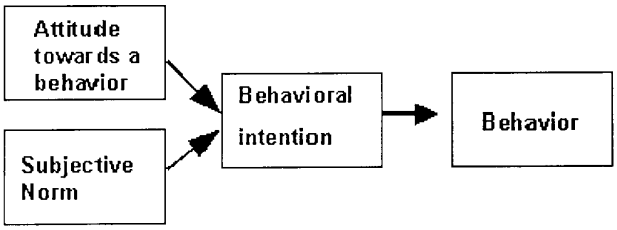

Figure B1.1: Theory of Reasoned Action.

A person's attitude towards a particular behaviour is determined by his or her salient beliefs (b_i) about consequences of performing the behaviour multiplied by the evaluation (e_i) of those consequences: i.e.

$$\mathbf{A = b_i * e_i}$$

Beliefs (b_i) are defined as the individual's subjective probability that performing the target behaviour will result in consequence i. The evaluation term (e_i) refers to the implicit evaluative response to the consequence. TRA also theorises that an individual's subjective norm (SN) is determined by a multiplicative function of his or her normative beliefs (nb_i), i.e. perceived expectations of specific referent individuals or groups, and his or her motivation to comply (mc_i) with these expectations:

$$\mathbf{SN = nb_i * mc_i}$$

The theory applies to the prediction of intentions, as opposed to behaviour itself. According to the theory, if behaviour is under volitional control, then the intention to perform an action will correlate very highly with the behaviour itself. By and large, this supposition has been found to be correct, with correlations between behavioural intention and attitude averaging 0.44 (Ajzen, 1991; East, 1993). The full model is:

$$\mathbf{BI = w_{p*}Attitude_{behaviour} + w_{p*}Subjective\ Norm}$$

and $\mathbf{Attitude_{behaviour} = b_i * e_i}$

and $\mathbf{Subjective\ Norm = b_i * m_i}$

and the w's are subjective weightings for a particular person.

- **Attitudes towards the Behaviour:** Attitudes towards the behaviour are made up of beliefs about adopting the behaviour and the evaluation associated to that belief. For example, consider the purchase of a car, X. In tests of the model, individuals are asked to list the beliefs they associate with buying the car. These beliefs are consequences of the action. One belief might be: "Buying car X will cost me £500 a month." Another belief might be "Buying car X will make me more attractive to the opposite sex." Each belief is then rated for the likelihood that adopting the behaviour

will produce that consequence. The likelihood scores are an index of belief strength. After subjects rate the probability of each belief's being true, they evaluate how good or bad this aspect is. A car payment of £500 might be rated as quite bad, while being attractive to the opposite sex might be quite good. These ratings (both belief strength and evaluations) are quantified on -3 to +3 or 1 to 7 scales.

- **Subjective Norm:** The subjective norm term in the model is also multiplicative. The "b's" in this term are beliefs about what relevant others will think if the respondent adopts the behaviour. For example, "People who are important to me would not want me to buy car X." Again, the certainty that this is true is scored by the respondent. Each belief receives a second score: how strongly does the respondent wish to comply with the referent other's views. So, I might feel very certain that important others would not approve of my buying car X but I might have a very low desire to comply with their views.
- **Intention:** Intention is usually measured by questions (Fishbein & Ajzen, 1975) asking the likelihood the respondent will engage in the behaviour. Bagozzi *et al.* (1989) have called attention to neglect of the reliability of the intention measure.

B1.4.3.1 Limitations of the Theory of Reasoned Action

Ajzen *et al.* (1982) found that people whose behaviour is prone to change depending on the situation they are in (high self monitors) are not explained by the TRA. They found that the theory was limited by what they call correspondence. In order for the theory to predict behaviour, attitude and intention must agree on action, target, context and time. Individuals may first change their behaviour and then their beliefs/attitudes about it. For example, Steptoe *et al.* (2003) in a study on the impact of seatbelt legislation in the USA showed that people often changed their negative attitudes about the use of seatbelts as they grew used to the new behaviour.

A second limitation of the theory comes from the nature of the self reporting used to determine a subject's attitudes. Attitude is a latent psychological concept. Therefore, no

direct observation is used in the application of this theory, only self reported information is used. Self reported information is very subjective and is not always accurate.

Another limitation of the TRA is due to its individualistic approach (Kippax & Crawford, 1993). Factors such as personality and demographic variables are not taken into consideration. There is also ambiguity as to how to define perceived behavioural control and this creates measurement problems. The theory assumed that perceived behavioural control predicts actual behavioural control but this may not always be the case. The longer the time interval between behavioural intent and behaviour, the less likely the behaviour will occur. The theory is based on the assumption that human beings are rational and make systematic decisions based on available information: unconscious motives are not considered. In addition, Yi and Gray (1992) argue that attitudes and subjective norms are not sufficient determinants of intentions, and intentions are not sufficient drivers of action, as maintained by the theory of reasoned action. They point out three characteristics: (1) the theory of reasoned action says nothing about the conditions under which attitudes affect intentions, (2) the subjective norm-intention relation is also not interpreted in the theory of reasoned action, and (3) intentions are shown to be inadequate predictors of behaviour, especially for goal-directed behaviours. Moreover, Sheppard *et al* (1988) propose three limiting conditions of the theory: First, it is noted that Fishbein and Ajzen have explicitly acknowledged their model's limitation concerning the distinction between a goal intention and a behavioural intention. Their model was developed to deal with behaviours and not outcomes or events that result from behaviours, and the model deals with only those behaviours that are under a person's volitional control. Therefore, actions that are at least in part determined by factors beyond individuals' voluntary control fall outside the boundary conditions established for the model.

But the greatest limitation of the theory stems from the assumption that behaviour is under volitional control. That is, the theory only applies to behaviour that is consciously thought out before hand. Irrational decisions, habitual actions or any behaviour that is not consciously considered cannot be explained by this theory. To overcome this problem Ajzen proposed the Theory of Planned Behaviour (1985).

B1.4.3.2 Applications of the Theory of Reasoned Action to services marketing studies

Consumer researchers have applied the TRA to a wide variety of behaviours over the years, including the consumption of automobiles, banking services, computer software, coupons, detergents, and soft drinks, among many others (Lutz, 1977; Ryan & Bonfield, 1980; Sheppard *et al.*, 1988). In particular, this model has been used extensively in the medical and social areas, for intentions to use contraceptives (Kashima *et al.*, 1993), stop smoking (Godin *et al.*, 1992), recycling (Bright, 1993), use of alcohol, etc. The application of the theory of reasoned action was also found to provide an insight into brand loyalty (Ha, 1998). The theory was found to be adequate in most cases in predicting and understanding brand loyalty.

More recent studies have expanded Fishbein and Ajzen's models applying them to the marketing of services: Bobbitt and Dabholkar's conceptual framework (2001) is used to explain the central role of attitudes in influencing intentions and behaviour related to internet-related services. But no studies, have applied the model to examine the credit cardholder behaviour.

TRA has also been used as a framework "to explain the structural interrelationships among internet shopping value, beliefs about the web site, shopping attitude, and shopping intention (Littrell & Seung-Eun, 2005). The proposed model supported the effectiveness of the extended TRA in the context of cultural product shopping on the internet. But in a study aiming at understanding the ethical consumer choice, TRA is rejected on grounds of poor ability to explain behavioural intention and an inaccurate representation of model measures (Shaw *et al.*, 2000). Volk (2001) also demonstrated that TRA is an appropriate framework to study Internet user attitudes and intention to participate in e-commerce-related behaviours.

B1.4.3.3 Theory of Planned Behaviour (TPB)

This theory is built on the Theory of Reasoned Action except for the addition of the Perceived Behavioural Control construct. The construct consists of Control Beliefs and Perceived Power. These factors state that motivation, or intention, is influenced by how

difficult the task is perceived to be and whether the person expects to successfully complete the behaviour. TPB is not examined here because it is assumed the credit cardholder behaviour is rational and not subject to social influence.

Having presented various conceptualisations of the attitude constructs, the author turns his attention to how the concept of attitude has been operationalised in consumer behaviour studies.

B1.4.3.4 Operationalisation of attitude in consumer behaviour studies

In the light of the various studies looking at different types of attitude, behaviours and behavioural contexts, it seems prudent to conclude that there is no single operationalisation of attitude. Along these lines, studies have shown that the attitudes of people who have had direct experience with an attitude object were moderately related to subsequent attitude-relevant behaviours, whereas attitudes of people without direct experience had slight or no relationship (Regan & Fazio, 1977). Fazio and Zanna (1978; 1978) contended that what they defined as "attitude qualities," such as confidence, clarity and certainty, could also moderate the attitude-behaviour correspondence. The researchers (Fazio & Zanna, 1981) later developed this idea into an operationalisation of attitude certainty, which was based on the idea that factors such as experience could affect

B1.5 MEAUREMENTS OF ATTITUDES

The measurement of attitude is generally self-reported (Manfredo & Shelby, 1987) because attitudes are latent psychological constructs that cannot be directly observed, but deduced from human responses. The responses may be verbal or non-verbal, related to beliefs, emotion, or behaviour. In practice, most methods (usually questionnaire responses) used to infer attitudes rely on verbal responses. This implies that their

measurement can never be entirely accurate, unlike experimental sciences. In this respect, the TRA model can be seen as a reasonable approach to infer attitudes from cognitions, affective reactions, and overt behaviours.

Generally, most studies focus the components of attitudes, which are beliefs, feelings and cognition. Although authors (Kite & Johnson, 1988) have considered attitudes as unidimensional construct, early theoretisations (Guttman, 1944) of the nature of attitude towards an action/behaviour postulated that this concept of attitude is multidimensional (Norman, 1975), incorporating an affective an affective component and a cognitive component. While it is possible to measure attitude with a single item, to reduce measurement error, DeVellis (1991) recommends the use of multi-item measures.

The cognitive element, which measures the extent to which a thinking process would suggest the behaviour, considers beliefs regarding the possible effects of a given action. These are generally operationalised in terms of "expectancy-value" statements (see Ajzen & Fishbein, 1969, 1970,1973,1977; Bagozzi & Burnkrant, 1979) , which are a summary of positive and negative outcomes that the respondent expects will occur as a result of adopting the behaviour. Although, in recent years, a number of authors (Rossiter, 2002) have questioned the mechanical use of multiple-item measures the ruling paradigm in marketing research dictates the use of multiple item measures in survey and experimental marketing research. This comes from the psychometric measurement tradition and has been the predominant view for more than 25 years. It is argued that because attitudes are viewed as hypothetical mental states underlying constructs which influence a variety of verbal statements, no single verbal statement yields a particularly good measure of attitude. Attitude scales reduce a person's attitude to a single quantitative score, one number. Quite clearly, this would fail to capture the richness of an attitude towards credit. As a consequence, multiple-item scales are usually used in the measurement of attitude surveys (Dillon *et al.*, 1993).

In credit related studies, researchers have created and used their own ad hoc attitude scales. For instance, Awh and Waters (1974) developed a nine-question instrument to measure Attitude toward credit. In a more recent study, Xiao *et al.* (1995) developed a Likert summated rating scale composed of a series of statements relating to credit cards

to measure college students' attitudes toward credit. Another example is provided by Hayhoe *et al.* (2005) who developed a multi-item likert-type scale including affective, cognitive and behavioural elements to measure attitude towards credit cards. This indicates that no widely accepted scale exists to measure attitude towards credit.

B1.5.1 Common attitude scales

Generic methods of measuring attitudes include Thurstone scales, Likert scales, semantic differential scales and social representations (see Hogg & Vaughan, 1995 for a full list). Thurstone scales were the first major technique of attitude measurement; it is based on the assumption that attitudes lie along an evaluative continuum ranging from favourable to unfavourable. The ordering of attitude statements should be such that there appeared to be an equal distance between adjacent statements on the continuum. It allows researchers to make judgments about the degree of discrepancy among different people's attitudes. Thurstone scale's limitations include an inability to measure intensity, their lack of reproducibility, time consuming and costly.

With Likert scales, instead of judgements, respondents place themselves on an attitude continuum. A respondent's score can be summed and the resulting total used as an index of that person's attitude. Items that measure an underlying attitude are considered good when each item correlate (highly) with the total. But in finance or credit related studies, attitudes towards credit likert-type scales have been overwhelmingly preferred (see Grable *et al.*, 2003; Chan, 1997; Xiao *et al.*, 1995). The main advantage of Likert-type scales is that they are easy to construct and administer, and respondents are familiar about how to use them. They have also been criticised for their lack of reproducibility (i.e., identical score may be produced by different answers).

Finally, to develop specific scales and design academic questionnaires, authors have frequently used the Handbook of Marketing Scales (Bearden & Netemeyer, 1999). While in marketing studies focusing on financial services, authors (Yang *et al.*, 2005; Abdul-Muhmin, 1998) have also developed their own attitude scales.

CHAPTER B2: ATTITUDE-BEHAVIOUR STUDIES

This chapter discusses the causal relationships between attitude and behaviour in general studies. The second part of the chapter examines the same relationship more specifically among credit cardholders. It first looks at the role of observable variables of cardholder behaviour and then the role of latent variable (essentially attitudes) on cardholder behaviour.

B2.1 THE ATTITUDE-BEHAVIOUR RELATIONSHIP

Many researchers have examined whether attitudes are related to or predict consumer behaviour. The empirical evidence range from a clear yes to an unambiguous no with most answers in between. Although early studies (Festinger, 1957) argued that behaviour could in fact precede attitude in cases of cognitive dissonance, most research on consumer decision-making highlighted the importance of attitudes as intervening variables in predicting behaviour (Stock & Hoyer, 2005). Research by Fishbein and Ajzen (1975) and more recently Bobbitt & Dabholkar (2001), or Glasman and Albarraciin (2006) indicate that attitudes have a strong, direct and positive effect on intentions. This relationship between attitudes and behavioural intentions is fundamental in attitudinal research and has been supported in a broad variety of settings (Shephard *et al.*, 1988; Rose & Straub, 2001; Foxall & Yani-de-Soriano, 2005).

As early as the 1930s research such as La Piere's (1934) widely quoted study on racial attitudes and behaviour began to cast doubt on the attitude-behaviour relationship. In his study, La Piere travelled with two Chinese people across the United States, visiting 251 restaurants, hotels and other establishments, where they were refused service only once. Six months later, La Piere wrote to the establishments visited asking if they

would accept Chinese people. Out of the 128 who responded, more than 90% said they would not.

Attitudes were also found to have a strong influence on an individual's adoption of new technologies and adaptation of purchasing behaviour (Swanson, 1982, 1988). Initial results from studies investigating the attitude-behaviour relationship looked promising. For instance, pacifists were found to have more negative attitudes towards war than non-pacifists, and union members to have more favourable attitudes towards labour unions than non-members.

By the late 1960s little evidence had emerged to support the attitude-behaviour link. In fact, after reviewing all the existing evidence, Wicker (1969, in Ajzen & Fishbein, 1980) reported that the typical attitude-behaviour correlation was about 0.2 and that hardly 10% of the variance in overt behavioural measurements could be explained by attitude. He concluded that "it is considerably more likely that attitudes will be unrelated or only slightly related to overt behaviours than attitudes will be closely related to actions". In the face of growing empirical support against a simple causal relationship between attitudes and behaviours, proponents of the attitude-behaviour relationship developed more complex models of this relationship than the so-called "first generation" models (Wicker or LaPiere). These so-called "multi-attribute" models recognised that many factors influence behaviour, of which attitudes are one.

The second generation of research questions deals with the conditions under which the attitude-behaviour relationship can be observed. Such questions can be called the "when" questions. The multi-attribute model which received the most attention was Fishbein's attitude model (see Chapter B.1). However, studies investigating the attitude-behaviour link using this model failed to consistently produce highly predictive relationships. Nevertheless, this model provided the basis for further developments, culminating in Fishbein's Behavioural Intention Model. In Fishbein's Behavioural Intention Model, under certain circumstances, behaviour is equivalent to behavioural intention, which is a weighted sum of attitudes to performing behaviour and subjective norms regarding the behaviour. To maximise the attitude-behaviour relationship, Ajzen and Fishbein (1980) prescribe four requirements for attitude

measurement: time, action, context and target (TACT). The more specific a question; that is, the more it corresponds to Ajzen and Fishbein's TACT requirements, the better the behavioural-intention-behaviour relationship should be, provided the behavioural measure has good correspondence, that is, contains the same TACT elements as the attitude question.

However, after reviewing eleven studies that had investigated the correlation between behaviour and behavioural intentions estimated using Fishbein's model, Foxall (1983) described the results as "unexciting" (the average correlation found was around .45, but results ranged from .04 to .90.). Foxall (2005) confirmed that high correlations between intention and behaviour are attainable only when: (1) the cognitive measures and measures of behaviour are equally specific; and (2) the period of time which intervenes between the measurement of the behavioural intention and that of the behavioural criterion is very short; and (3) when novel consequences of behaviour or reference group evaluations of the action under investigation do not intervene; and (4) when the behaviour is voluntary and amenable to reason; and (5) when the intention which accurately predicts behaviour is that which immediately precedes the act. These conditions limit the ability of the TRA to predict consumer behaviour. Ajzen and Fishbein (1980) suggest that the correlation between behavioural intentions and actual behaviour can be increased if there is a short interval between the measurement of the intention and the behaviour, there are no new consequences of the behaviour or reference group evaluations, if the behaviour is intentional, and if the intention that predicts the behaviour immediately precedes the behaviour. This claim has been supported by Verplanken and Pieters (1988). Under these conditions, high correlations between behavioural intentions and behaviours can be achieved. Evidence of this can be seen in the .90 correlation found in one of the studies reviewed by Foxall; this result was obtained in an experiment which controlled the factors just mentioned. But, as Foxall (1983) points out, these conditions bear little resemblance to the situations of interest to marketing managers. Foxall (1983) also suggests that there are at least four possible causal relationships between attitudes and behaviour: attitudes cause behaviour, behaviour causes attitudes, attitudes and behaviour have a reciprocal effect, and there is no relationship between attitudes and behaviour. While it is clear that the

author can reject the last of these possibilities, there is evidence to support each of the other three possible relationships (see Barwise & Ehrenberg, 1985; East, 1990).

Despite this and the fact that attempts to demonstrate a strong link between attitudes and behaviour have been unsuccessful, the assumption that attitudes are useful predictors of behaviour persists and, consequently, attitudes continue to be the focus of much academic and industry publications. If supporters of such research are correct in their belief about the importance of attitude measurement, it can be argued that evidence of a strong link between attitudes and behaviour should be easily found, even if the attitudes are not measured strictly as suggested by Ajzen and Fishbein. However, if this evidence is not forthcoming, this would cast further doubt on the value of attitudes as predictors of behaviours. Fazio and Williams (1986) have shown that correlations between attitudes and behaviour are much higher among people with highly accessible attitudes (i.e. attitudes that come to mind immediately and which can be called upon to guide us in our behaviour). To guide behaviour, attitudes must be accessible. Attitudes that are highly accessible are much more likely to guide behaviour than less accessible attitudes. Fazio *et al.* (1986) have demonstrated that accessible attitudes are activated spontaneously upon presentation of the attitude issue. Their emphasis on the automatic activation of attitudes differs markedly from Fishbein's view that attitudes result from a controlled effortful process of attribute consideration and evaluation.

In one study (Fazio & Williams, 1986), accessibility was measured by how quickly respondents rated the 1984 candidates for U.S. Presidency. Four months later, on the day after the elections, the respondents were asked if they had voted and for whom. Among voters with highly accessible attitudes, 80 percent of the variance in voting behaviour was explained by attitudes; among voters with less accessible attitudes, only 44 percent of the voting behaviour was explained by attitudes. Fazio and Williams believe the greater consistency of the highly accessible group is a function of greater attitudinal stability. Highly accessible attitudes are related to a selective processing of information and even selective attention (Fazio, 1989; Roskos-Ewoldson & Fazio, 1992). To the extent that accessible attitudes are accessed every time an individual

encounters the relevant concept, the attitude protects its holder against counter-attitudinal information and potential attitude/behaviour inconsistency.

B2.2 PREDICTIVE ROLE OF ATTITUDE

Attitudes have long been an area of critical concern for consumer researchers. They have often served as predictor variables in studies examining consumer behaviour, with the underlying hypothesis that the creation of favourable attitudes towards a particular product should result in increased sales. Over the years, however, a growing number of researchers (e.g. Wicker, 1969; Fazio & Zanna, 1978a; Fazio & Williams, 1986; Vakratsas & Ambler, 1999) have questioned the assumption that a strong predictive relationship exists between attitudes and behaviour (a–b).

During the 1970s and 1980s, two new perspectives concerning the a–b relationship began to emerge. Researchers became interested in searching for variables that moderate the a–b relationship. Studies have identified a number of these variables, including individual personality traits (Haugtvedt *et al.*, 1992); situational variables (Ajzen & Fishbein, 1973); attitude confidence (Fazio & Zanna, 1978); temporal stability of attitudes (Schwartz 1978); and direct experience with the attitude object (Fazio *et al.,* 1982), such as via product trial. Zanna and Fazio (1982) characterised the latter types of studies as indicative of the 'when' approach, due to the focus on determining conditions when attitudes were predictive of later behaviour. The second approach – referred to as the 'how' approach (Zanna & Fazio, 1982; Fazio *et al.*, 1983) – considers the means by which attitudes guide behaviour.

But a few major problems of behaviour prediction based on attitude arose from a poor conceptualisation of attitude called the three component model. For example, East (1997) reports that discrepancies may arise between measures of attitude and behaviour. In deed, attitude and behaviour may change over time because of newly

available information. However, there was no evidence that a long period of time would change the correlation between attitude and behaviour.

B2.2.1 Direct pathway from attitudes to behaviour

The literature review points to limited support for a direct pathway from attitude to behaviour, with only those studies on repeat-behaviours (e.g. cigarette smoking-Budd, 1986; exercise behaviour - Terry & O'Leary, 1995 - TPB) reporting a direct link from Ab (attitude towards behaviour) to behaviour. Although not all studies that examined repeated behaviour reported this pathway (e.g. smoking-Godin *et al.*, 1992; exercise among the elderly - Eastbrooks & Carron, 1998). Yet, a number of researchers have demonstrated a direct link (as compared to an indirect link mediated by behavioural intent) between attitude towards behaviour and behaviour (for example, Bentler & Speckart, 1979 & 1981; Manstead *et al.*, 1983). Eagly and Chaiken (1993) claim that such results indicate that, for some behaviours, an explicit intention to adopt the behaviour may not mediate between attitudes and behaviour. In other words, under certain conditions individuals act on the basis of their attitudes (see Fazio, 1990) for example, in repeated behaviours (such as regular exercices), which attain habitual control, thereby attenuating the strength of the mediating role of intentions on the attitude-behaviour relationships (see for example Eagly & Chaiken, 1993).

B2.3 STUDIES EXAMINING CREDIT CARD HOLDER BEHAVIOUR

Two patterns emerge from the body of literature examining cardholder behaviour. Early studies have focused on so-called observable variables (such as age, income, gender, social class) and their relationship to cardholder behaviour. While more recent

studies have attempted to investigate the role of psychological and latent variable on cardholder behaviour.

B2.3.1 Cardholder behaviour and observable variables

Early research has focused on observable variables such as socio-economic and demographic as determinants of the cardholder behaviour. An early example is provided by Mandel (1972) who found that the main determinants of credit card usage were family income and education. In another early study; Slocum and Mathews (1969, 1972) used socioeconomic status to distinguish between "instalment" credit users and "convenience" credit users. They concluded that members of lower socio-economic groups tend to use their cards for revolving credit much more than higher socio-economic groups. Hirschman and Goldstucker (1977) drew similar conclusions when they found a high positive correlation between credit card ownership and the level of education of the head of the household.

Bowers and Crosby (1979) conducted the same study pertaining to time preference (see Becker, 1965). Individuals who preferred redistribution of expenses to meet future income or in other words those who prefer to buy on credit, normally allowed interest charges on credit card use. Both studies (Becker, 1965; Bowers & Crosby, 1979) showed that credit cards were used as a medium of exchange that provided short-term revolving credit in order to purchase goods or services.

Income was also found to be linked to cardholder behaviour: for instance Martell and Fitts (1981) tried to distinguish bank credit card users from non-users. They showed that credit cardholders normally had higher income, were better educated, and held several bank accounts and a stable pattern of banking. Revolvers have been found to be less affluent than the other type of cardholders while convenience users showed the highest level of income (Lee-Kwon, 2002). A high income was also found to be an important determinant for increasing the number of credit card accounts (Kinsey, 1981).

Crook *et al.* (1992) used linear discriminant analysis on a sample of credit car holders to distinguish between active and inactive credit cardholders. The results show that discriminant analysis can help significantly discriminate between active credit card holders and inactive cardholders. The study shows that income and home ownership are important discriminant factors in credit card usage. Age was also an important factor with those over 60 and those on low income being the least likely to use the card.

Others have used demographic variables (Srivastava *et al.*, 1984; Xiao *et al.*, 2006) to explain difference between individual behaviours towards consumer credit. That relationship between demographics and consumer behaviour was also established by Moschis (1990) when comparing cardholder behaviour among age groups. He found that older adults with high income tend to pay their credit card balances in full in comparison to younger lower-income adults. A similar study found that credit card ownership declines with age (Wegner, 1988).

Focusing on credit use by low income families, Zhu and Meeks (1994) incorporated ability and willingness variables to investigate the determinants of family outstanding credit balance using data from the 1983 and 1986 Survey of Consumer Finances (USA). Two indicators represented the willingness variables: general attitude toward credit and specific attitude toward the appropriateness of credit use. The findings showed that the significant determinants of credit outstanding in 1986 were: previous outstanding credit balance in 1983, employment status, age, the interaction of educational level and specific attitude, and the interaction of credit outstanding in 1983 and specific attitude. It was concluded that the ability to borrow was more likely to override the willingness to borrow for low-income households.

Using the 1989 Survey of Consumer Finances (SCF) as a sample frame for the analysis, Kaili (1996) examined the determinants of the probability of being a household which has negative attitudes toward incurring instalment debt in the US. Customers were asked questions about their attitudes toward credit. The probability of having negative attitudes toward instalment debt was dominated by household socio-demographic factors. So-called economic factors such as income, debt, and net worth

did not play an important role in household attitudes toward instalment credit use. The study confirms that socio-economic factors, used alone, are poor predictors of credit cardholder behaviour hence the need to develop a model that examines behaviour from latent (psychological) variables.

B2.3.2 Relationship between latent psychological variables and credit cardholder behaviour

A number of papers/studies have examined the relationship between cardholder behaviour and latent psychological variables. For example, Hendrick *et al.* (1973), using Survey Research Center panel data for 1967 and 1970 concluded that attitude had a statistically and economically significant effect on instalment debt use. They also concluded that household attitudes toward credit were very stable over time. Households who changed their attitude would behave on average the same as households who had held similar attitudes for several years. In another study, Hendricks *et al.* (1973) argued that the relationship between household attitudes toward instalment credit use and household debt is different between high-income groups and low-income groups. The relationship between ability to borrow and willingness to borrow also varies among different income groups.

Awh and Waters (1974) analysed the differences in attitudes and behaviours among "active" cardholders when compared to "inactive" cardholders. They found differences in terms of their attitudes toward credit cards. Inactive credit card holders were more concerned than active card holders about over-spending. More notably, Awh and Waters' (1974) findings showed the existence of a positive relationship between attitude and usage level.

Previous studies in the services marketing and financial services literature associated the attitude construct with the following dimensions: role as a finance tool (Brobeck, 1992), debt-aversion (O' Curry, 2003), over-spending (Ausubel, 1991). The

convenience element associated to the use of credit cards was also highlighted by Kaynak & Harcar, 2001). Finally, attitude towards credit cards was based on a general attitude towards credit (see Awh & Waters, 1974; Meidan & Davo, 1994).

But in a more recent study that examined the demographic and attitudinal differences between "inactive" and "active" bank credit cardholders in Hong Kong, Chan (1997) found that as far as demography is concerned, income was found to be the most important variable that influences the card usage rate. His survey reconfirms the positive relationship between attitude and usage rate. In a similar study, Chien and Devaney (2001) found that marital status and professional status were positively related to instalment debt. The results of their study indicate that a favourable general attitude toward using credit has a positive effect on predicting the amount of instalment loans, and favourable specific attitude toward using credit has a positive effect on predicting the amount of the credit card balance. They conclude that in their research the causality between attitude and behaviour is uncertain. Chien and Devaney (2001) argued that although the attitude-behaviour relationship has been extensively studied the relationship in consumer finance might be more complex.

Psychographic analysis was also used to identify differences among heavy, moderate and light users of credit cards (Wiley & Richard, 1975). While others have used consumer attitudes (Awh & Waters, 1974; Livingstone & Lunt, 1993) to explain difference between people in debt and people not in debt.

Etzel and Jones's (1978) research focused on the consumer's attitude differences between convenience, instalment and inactive bank credit cardholders. Convenience users felt that the use of credit cards were more convenient than cash. This group of people was more conservative and avoided interest charges while enjoying the convenience of credit cards. Instalment users used credit to help them buy products that they could not afford to pay for using cash at the moment of purchase. The third group, inactive users, put credit card usage as the last choice and did not perceive credit cards as convenient even when transacting small purchase. They did not perceive the advantage of using a credit card and were more concerned about loss and theft of their cards.

A generally favourable attitude toward borrowing was found to be positively related to the use of credit cards as a source of revolving credit (Canner & Cyrnak, 1986), confirming the positive relationship between attitude towards credit and credit use. The authors constructed the "Index of consumer attitudes toward credit use" by summing the number of positive responses to nine questions about possible reasons to borrow, using the 1983 Survey of Consumer Finances. The authors warn issuers on the adverse impact of an increase in convenience use of the cards and recommend an increase in credit limits to encourage revolving of credit balances. The index was used as an explanatory variable in a logit model to predict the probability of being a convenience user of credit cards. But, comparing attitudes toward and usage of credit cards in the US and Canada Chebat and Laroche (1988) found some cross-cultural differences in attitudes toward credit cards. For both groups, the largest factors in usage are the satisfaction with the user's financial situation and the preference toward credit cards. Concern about the ability to pay is unique to the English group, which is concerned about costs, accuracy, safety, practicality, and facilitation. Those in the French group are concerned about costs, accuracy, over-consuming, and overspending, indicating that they are afraid credit card use will affect their spending behaviour. Income is significant and positively related to frequency of credit card use for both groups. Education also positively affects usage.

Although most studies, have confirmed a positive relationship between attitude and behaviour, authors such as Devaney (2001) have argued that in the financial sector the relationship "may be more complex" or questioned the consistency of the relationship observing in a cross-sectional study that "attitudes toward credit have changed over time"(Norton, 1993). The author stressed that credit was seen as an "alternative source of income". Therefore, people could have negative attitudes towards credit and yet, use the credit facility. This means that the cardholder is not a rational, utility-maximising economic agent. As early as 1972, Mandell noted "an ambivalent feeling" towards credit cards or the use of credit. His/her behaviour involves social influence (Sullivan *et al.*, 1989), can be subject to compulsive buying (Faber & O' Guinn, 1992) or may have self-control problems with credit cards (Durkin, 2002) leading to over-spending.

In this section, the author has debated the findings of studies that have focused on the relationship between attitudes and behaviour. In summary, the attitude-behaviour relationship among cardholders is not clear in the absence of a widely accepted theoretical framework. It emerges from the literature reviews regarding the concept of attitudes that no studies, have applied the reasoned action model to examine the credit cardholder behaviour. Yet from the three major theories (presented above) offering conceptualisations of the construct, the theory of reasoned action presents the most appropriate framework to examine the attitude-behaviour relationship among cardholders.

CHAPTER B3: PERSONAL VALUES SYSTEMS

In this chapter, the author reviews the academic literature regarding the role of values in consumer behaviour studies. Issues relevant to this research include the definition and conceptualisation of values and their relationship with attitudes and behaviours. These will be discussed in turn.

B3.1 PERSONAL VALUES

B3.1.1 Definitions and conceptualisations of personal values

Values have variably been defined as " an organised set of preferential standards that are used in making selections of objections and actions, resolving conflicts, invoking social sanctions, and coping with needs or claims for social and psychological defences of choice made or proposed" (Rokeach, 1968, 1973, 1979), "general standards by which we formulate attitudes and beliefs and according to which we behave" (Posner, 1992) or "normative beliefs about good standards of conduct and preferred or desired results (Nystrom, 1990). Rokeach's definition has been widely used. But a growing number of researchers (e.g. Gutman, 1982; Mulvey *et al*, 1994; Klenosky *et al*, 1993; Reynolds & Gutman, 1988) prefer the concept of values that incorporates the idea of voluntary evaluation of alternative courses of actions. Most of these studies on values adhere to the psychology-leaning definition, which incorporates individuals' decision-making capacity. Researchers holding this view appear to be influenced by Allport's long held assertion that *"a value is a belief upon which a man acts by preference"* (Allport, 1961, 454). As a consequence, this definition is preferred for the current research.

Values have been conceptualised in many different ways throughout the years. According to Schwartz and Bilsky (1990, p. 878) values "are concepts or beliefs, pertain to desirable end states or behaviours, transcend specific situations, guide

selection or evaluation of behaviour and events and are ordered by relative importance". Most values are formed early in life and have an enduring and stable character. However, individual value systems may change in different life-cycle-stages because of economic reasons or critical incidents (Inglehart, 1995).

To study consumer behaviour in relation to values, Kahle's (1983) List of Values and Rokeach's Value Survey (RVS) are arguably the most appropriate conceptualisations to study consumer behaviour in relation to values since they are generalisable across many human behaviours (Schwartz, 1994)

- **Rokeach's Value Survey:** A widely accepted conceptualisation of values is provided by Rokeach (1973). His theory provides a direct approach to measure values, which has been validated and used extensively since first introduced. His instrument, the Rokeach Value Survey RVS (Rokeach, 1973), allows respondents to rank 36 values, 18 instrumental and 18 terminal values. Rokeach argued that values ought to be considered as more "enduring" than the related concepts of attitudes, motives, preferences, and interests. Furthermore, as indicated in the left hand side of figure 4 below he suggested that values be thought of as antecedent to the related concepts of an individual's personality, societal experiences, and cultural experiences. Rokeach's views were based on two assumptions: - first, that personality accounts for that individual's unique values, and second, that people's social and cultural experiences account for shared values. The consequences of values, shown on the right-hand side of Figure B3.1, are considered to be social actions, ideologies, attitudes, motives, and preferences.

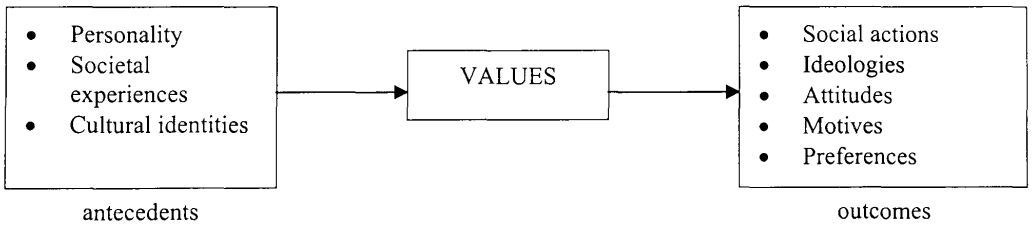

Figure B3.1: *A conceptual framework of the antecedents and consequences Of values*
Source: Rokeach, M. (1973); *The Nature of Human Values*, New York: Free Press

- The appeal of Rokeach's Value Survey (de Chernatony *et al.*, 2000) is due to its comprehensiveness. Paradoxically, however, it is the comprehensiveness of Rokeach's definition that appears to pose problems in the operationalisation of the concept of values.

  The first problem is the ambiguity of the "endurance" concept, the characteristic that is meant to distinguish values from the associated concepts of motives, attitudes, and preferences. Endurance implies persistence over a long period of time. In addition, none of the studies reported in the literature adopts a longitudinal study approach to establish the endurance of beliefs. Therefore, endurance is still a poorly defined concept. Further research is required to determine how endurance can be integrated into empirical studies of values. Another limitation of the RVS id that respondents have to rank values which may be equally important. Finally, the distinction between instrumental and terminal values has also been criticised (see Gutmann, 1982).

- **Kahle's List of Values:** Another conceptualisation is provided by Kahle's list of values (LOV). This instrument was developed primarily from a theoretical base of values from Feather (1975), Maslow's (1954) hierarchy of values and Rokeach's (1973) 18 terminal values. The LOV has become a widely used scale for the measurement of values in a variety of consumer behaviour contexts (Watkins & Gnoth, 2005) and has shown reasonable validity and reliability (Beatty *et al.*, 1985; Kahle *et al.*, 19860). The List of Values (LOV) (Kahle 1983) reduces the Rokeach's list from 18 to 9 and only includes terminal values. It also addresses the limitations of the Rokeach value survey (RVS), in particular it provides an alternative to the latter ranking method and reduces the number or value items. It also provides a more parsimonious measurement of personal values. Essentially, the goal of the LOV is to measure which values are central to people in their daily lives. This instrument was developed by Kahle (1983) so that the individual can easily be classified according to the level of importance that he/she assigns to each of them. These values are classified into three groups:

1. hedonistic values (sensation-seeking, pleasure and happiness in life, desire to establish warm relationships with others);
2. empathy values (self-respect, respect by others, search for security, sense of belonging); and
3. values of self-actualisation (personal development, sense of accomplishment).

But other studies (Christiansen and Hansen, 2001; Hansen, 2000; Braithwaite, 1994), revealed two dimensional values. For example, internal (self-respect, sense of accomplishment, self-fulfilment), interpersonal or hedonic (fun and enjoyment, excitement), and external (warm relationships with others, being well respected, sense of belonging, security) domains were suggested by Kahle, who found theoretical and empirical evidence for internal and external dimensions to the LOV items. Chan and Rossiter (1997) also agreed that the LOV items could be divided into internal and external orientations. They believed consumers with an internal locus of control are much more individualist, while those with an external locus of control are more concerned with their social group and its approval (Watkins & Gnoth, 2005).

B3.2 PERSONAL VALUES, CONSUMER'S ATTITUDE AND BEHAVIOUR

The literature clearly provides empirical evidence and support linking personal values to consumer behaviour (Ray, 1997). Over the years, research has demonstrated relationships between values and a large range of attitudes and behaviour (see Burgess [1992] for a review). In particular, Marketing researchers have long established that consumers' values are strong determinants of behaviour (Homer & Kahle, 1988; Donthu & Cherian, 1994). The relationship between personal values and consumers'

attitude has been extensively studied in various settings: cars (Henry, 1976), selection of leisure activities (Beatty *et al.*, 1985), effects of media usage (Ball-Rokeach *et al.*, 1984); mall shopping preferences (Shim & Eastlick, 1998). In all these studies, the two constructs were found to correlate. Moreover, because the consumer's choice of many products and services depends on his/her personal values, marketers should recognise the relationship between values and motives (Kahle, 1985). Personal values have been shown to be efficient, measurable sets of variables that are less numerous, more centrally held and more closely related to motivations than demographic and psychographic measures (Gnoth & Watkins, 2005).

B3.3 EMPIRICAL DEVELOPMENTS ON THE CONCEPT OF VALUES

A number of researchers have argued that values have a causal effect on attitudes and behaviours. For example, Williams (1979) argues that explicit and fully conceptualised values become criteria for judgement, choice and preferences. Similarly, a causal relationship between terminal and instrumental values and consumption behaviours was put forward by Carman (1977). Pitts and Woodside (1983) reported a strong relationship between values and attitude but a weak relationship between values and behaviour. Homer and Kahle (1988) found support for this hierarchical relationship in the context of natural food shopping. More recently, Shim and Eastlick (1998) examined the relative importance of personal values on the attitudes and behaviour in the context of mall shopping and found that there is some evidence of a hierarchical relationship. Whereas Allen and Hung (1999) show that consumer values direct the attention of a consumer in the direction of those products that are related to a particular value and that the evaluation of the product is also influenced by values of the consumer.

In addition to empirical evidence cited above (Pitts & Woodside, 1983; Homer & Kahle, 1988; Shim & Eastlick, 1998) it also possible to draw other related studies carried out in traditional retailing for further insights on this relationship. For example, Roy (1994) asserts that the needs for affiliation, power, or stimulation have positive relationships with shopping.

But some researchers project personal values in a means-end chain model, i.e. values function as grounds for behavioural decisions in general and consumption behaviours (e.g. Carman, 1977; Williams, 1979). Kahle (1980) argued that values have an indirect effect on consumer behaviour through less abstract mediating factors such as domain-specific attitudes, whereby the influence of values should theoretically emerge from abstract values to mid-range attitudes to specific behaviours. This sequence is called value-attitude-behaviour hierarchy.

Taken together, it can be inferred from these studies that varied dimensions of personal values – recreational, or personal power – may be positively related to a favourable attitude toward shopping. Values are therefore seen as instrumental guides to consumer actions, attitudes, judgments and responses to specific objects and situations. They are considered to be determinants of attitudes and behaviour, transcending specific situations, guiding selection or evaluation of behaviour and events and they are ordered by relative performance (Schwartz, 1992). An individual possesses fewer values than attitudes, therefore attitudes is more parsimonious way of describing similarities.

B3.4 MEASUREMENTS AND OPERATIONALISATIONS OF VALUES

Among the many value measurement instruments available in the literature, Rokeach's (1973) Value Survey (RVS) and Kahle's (1983) List of Values (LOV) are perhaps the

two most widely cited and empirically applied value scales (Pitts and Woodside, 1991).

B3.4.1 Rokeach's Value Survey

The Rokeach Value Survey (RVS) was developed by selecting 18 terminal and 18 instrumental values from a larger base of several hundred values descriptors (Rokeach, 1973). Despite its popularity in measuring human values, some controversy still exists regarding its proper measurement procedure. The main critique of the standard version of the RVS is that it elicits only the rank ordering of instrumental and terminal values, and is not really suitable for aggregate analyses or comparisons between individuals (Hicks, 1970, Rankin & Grube, 1980). To avoid these problems, a number of researchers have adapted the RVS instrument to yield an interval measure of value importance (Miethe, 1985, Munson & McIntyre, 1979, Rankin & Grube, 1980). Instead of ranking the values, respondents are expected to assess the importance of each value item on a seven-point Likert rating scale. Such rating approach requires fewer constraints on the data and it is easy and quick to administer with a minimal need for instruction. It ought to be mentioned that these changes also violate the original method.

B3.4.2 Khale's List of Values

The original List of Values (LOV) consists of nine values with nine corresponding statements which were added to help describe the nine values. The nine values and their respective explanations (in parentheses) are: self-respect (to be proud of yourself and confident with who you are), a sense of accomplishment (to succeed at what you wanted to do), being well-respected (to be admired by others and to receive recognition), security (to be safe and protected from misfortune and attack), warm relationships with others (to have close companionships and intimate friendships), a

sense of belonging (to be accepted and needed by your family, friends or community), fun and enjoyment in life (to lead a pleasurable, happy life), self-fulfilment (to find peace of mind and to make the best use of your talents), and excitement (to lead an exciting, stimulating life).

Research using the LOV has supported Rokeach's (1973) theory of value systems to show that it is more effective to group consumers by value systems rather than single, top values as used in ranking system (Kahle, 1983; Homer & Kahle, 1988; Kamakura & Novak, 1992; Madrigal & Kahle, 1994). But both scales have their respective limitations. Despite having convergent, discriminant, and concurrent validity for consumer research (Beatty *et al.*, 1985) both the LOV and the RVS involve some social desirability bias.

B3.5 CONCLUSIONS

Studies have endeavoured to compare and contrast the LOV with the RVS (Beatty *et al.*, 1985). Although the Rokeach's RVS is probably one of the best known and universally used lists of values the advantages of LOV over RVS are obvious. One advantage is that LOV is simpler to administer. Another advantage is that by using LOV one obtains the demographic predictions separately, which implies that a researcher can more readily identify the source of influence. It is also easier to preserve the exact phrase from a value survey in an advertisement with LOV than with RVS, thus limiting the potential for mistaken communication as research passes through the marketing system (Kahle *et al.*, 1986, p. 409). Advantages include the parsimony, predictive utility, simplicity in administering, and, relevance and influence on daily lives of this list (Beatty *et al.*, 1985; Novak & MacEvoy, 1990). The LOV, however, detects more items that influence people in their daily life, and is simpler to administer and easier to complete quickly, which can be a significant advantage in large surveys (Lankford & Jiang, 2000).

Furthermore, it is shown that Kahle's list of values includes an external dimension and an internal dimension (Beatty *et al.*, 1985; Homer & Kahle, 1988; Kahle, 1983). They show that values vary in terms of the importance of others in value fulfilment and that the internal/external dimension is relevant in a customer behaviour context. On the one hand, customers who give more importance to internal values (e.g. self-fulfilment, sense of accomplishment) want to have as much control as possible over all aspects of their lives. On the other hand, customers who place more importance on external values (e.g. sense of belonging, being well respected and security) emphasize the importance of others in their environment. The external dimension of the Kahle List of Values includes values that are more other directed while the internal dimension includes values that are more directed to the self. The distinction between these two types of values might be of particular importance in a (financial) services setting, because the importance of service contact employees will vary among customers.

In conclusion, the literature review indicates that the "personal values" concept has been recognised as "a determinant of attitude and behaviour" (Rokeach, 1968; Novak, 1992; Homer & Kahle, 1988) and is therefore a potentially valid construct for the attitudinal part of the model. The author has also identified a scale (the LOV) that has been shown to represent values appropriately in studies of consumer behaviour (Goldsmith *et al.*, 1993; Homer & Kahle, 1988; Madrigal, 1992) and in financial services settings (Bloemer & Dekker, 2003).

CHAPTER B4: ATTITUDINAL DETERMINANTS

In the previous chapters the author has discussed the psychological elements of the model (namely attitude, behaviour and values) and related theories. In this chapter the author reviews the literature related to the financial elements of the study. Firstly, a definition of the concept of risk is presented followed by the role of attitude towards financial risk in personal finance decisions is debated. Then the author moves on to discuss the role of future interest rates expectations on credit cardholders' attitude and behaviour. Following a debate on the relationship between attitude towards credit and future real income expectations, the author finally moves on to debate the relationship between attitude towards savings and attitude towards credit as well as issues related to the measure and measurement of the constructs.

B4.1 FINANCIAL ELEMENTS

In many tests of Fishbein's model, additional variables have been included and found to increase the attitude/behaviour correlation. Some of these include economic variables (Lynne & Rola, 1988). The topic under investigation clearly covers psychological but also economic aspects, and, broadly speaking, accounts of how and why credit cardholders use their credit cards tend either to arise from personal characteristics of the debtor (studied in previous chapters) or economic theory.

Additionally, the credit cardholder behaviour is clearly related to the three major economics' concepts of income, saving and interest rates. The behaviour of credit cardholders and more importantly current levels of outstanding balances (i.e. debt volume) have an important role in any economy and therefore have attracted the attention of many academics and economists. This relationship is at the core of the family resource management model (Lown & Ju, 1992) which argues that economic variables would influence both credit attitude and credit behaviour.

The relationship between attitude/behaviour towards credit and the concepts of saving, interest rates, income (current/future) has been highlighted in many finance, economic psychology but also consumer behaviour studies. For instance Chien and Devaney (2001), citing Bird *et al.* (1997); Danes and Hira (1990), Modigliani, (1986), Zhu and Meeks (1994) all argued that attitude towards credit is highly related to economic factors. In other studies, debt (i.e., credit) was treated as potentially influenced by a complex range of demographic, economic and psychological factors which are operationalised to include measures of income, economic activity and a wide range of psychological variables such as attitudes. This was the case for Berthoud and Kempson (1990), Hartropp *et al.* (1987), Katona (1975) and Parker (1981). Other studies focused on values (Rokeach, 1973), perceived economic locus of control (Cameron and Golby, 1990), life events (Hartropp *et al.*, 1987), satisfaction (Katona, 1975), attribution (Lunt and Livingstone, 1991; Weiner, 1986) and consumer sentiment (Katona, 1975; Leigh-Pemberton, 1989). This allows the examination of the effects of both specific economic practices and enduring psychological traits or attitudes (see also Livingstone and Lunt, 1991).

Kaili (1996) examined attitudes towards credit. In his development of the construct "attitude towards future interest rate" he considers attitudinal factors to include attitude toward future interest rate, attitude toward future real income, attitude toward financial risk, and attitude toward saving".

B4.1.1 Attitude towards financial risk

The study of risk has been of interest to investors and academics for centuries (Bernstein, 1996); and attitude towards financial risk (or financial risk tolerance) is assumed to be a fundamental issue underlying a number of financial decisions (of which the use of consumer credit). This assumption of the central role played by risk perceptions in financial decisions has been confirmed in a recent study (Byrne, 2005). Both the literature review and the research findings indicate the central role risk

perceptions play in financial decisions.

Attitude towards financial risk is important to this study because the use of a credit card involves a financial risk. And an attitudinal measure of financial risk tolerance may provide insights into future behaviour (Yao, Gutter and Hanna, 2005). In this section, the author attempts to define the construct, examine previous conceptualisations and operationalisations of the construct and debate the role of financial risk attitude on attitude and behaviour towards credit cards.

B4.1.1.1 Definitions

According to Stone and Winter (1987) risk is subjectively determined expectation of loss by the consumer while risk aversion refers to a preference for a certain outcome over an uncertain outcome (gamble) that presents equal or higher expected value. Conversely, risk seeking refers to the rejection of a certain outcome in favour of an outcome of equal or lower expected value. According to the classical utility theory, people are generally "risk averse". Kogan and Wallach (1964) argue that "risk" is involved when the consequences connected with the decision are uncertain and some results are more desirable than others. Attitude towards financial risk can be defined as the credit cardholder's predisposition to incur financial risk. In this study, the author borrows Grable (2000) definition as "the maximum amount of uncertainty that someone is willing to accept when making a financial decision" (Grable, 2000) because its conceptualisation of risk in neutral.

B4.1.1.2 Conceptualisations of the "financial risk attitude" construct

Theoretical basis of the concept of financial risk attitude lie within the economics literature. Researchers have long been interested in understanding the relationship between personal attitude towards financial risk and factors as diverse as the life cycle and asset allocation choice decisions.

Outside the financial services and consumer economics research, psychologists (Keller & Siegrist, 2006; Olsen & Cox, 2001) have attempted to predict financial risk

tolerance using factors such as a person's attitudes about money, locus of control, and birth order. In the 1960s, personality psychologists started to examine relationships between and among self-esteem, sensation seeking, locus of control, and financial risk tolerance (Liverant & Scodel, 1960). For instance, it has been hypothesised that (a) individuals with low levels of self-esteem are more risk averse than others, and (b) individuals with a predominately high external locus of control are more aggressive when making risky financial choices. According to Liverant and Scodel (1960), externally controlled persons are conceptualised as making risk decisions based on previous experiences and feelings, whereas internally controlled persons makes risk choices through cautious and planned strategies. Carducci and Wong (1991, 1998) are representative of the research conducted by personality psychology academics. In general, Carducci and Wong (1998) but also Zuckerman (1983) have concluded that significant differences in risk-taking attitudes and behaviours can be attributed, at least in part, to psychological factors.

Utility theory is another popular conceptualisation for financial risk tolerance assessment; however, previous research challenged the standard utility function assumption by showing that most people do not have a constant risk aversion throughout the entire domain of wealth (Shefrin & Statman, 1993; Yogo, 2006). It has been suggested that utility theory cannot adequately represent risk-taking preferences and tolerances because "the magnitudes of potential loss and gain amounts, their chances of occurrence, and the exposure to potential loss contribute to the degree of threat (versus opportunity) in a risky situation" (Kahneman & Tversky, 1979, p. 266). In other words, people tend to be consistently more willing to take risks when certain losses are anticipated, and are more willing to settle for a sure gain when absolute gains are anticipated (Statman, 1995).

B4.1.1.3 Measure and measurement of "attitude towards financial risk"

According to Weber *et al.* (2002) available measures of risk attitude have proven unsatisfactory. Yet, literature review indicates that as a latent construct risk attitude has been usually measured by a set of observable indicators or items using multi-item

likert, Guttman or Thurstone scale. The available scales from the literature review can be divided in two categories: those developed by researchers and academics and those developed by practitioners and financial planning specialists. The author examines below some of the common scales available from the literature.

The Survey of Consumer Finances (SCF) has been a regular choice and served as the basis of an instrument for several economics and marketing studies on credit cards (see Chien & Devaney, 2001; Soman & Cheema, 2002; Swift *et al.*, 2005) and has included a question on financial risk tolerance since the 1983 Survey (Grable & Lytton, 2001). In the survey, respondents were asked to indicate their risk tolerance by stating whether they take substantial financial risks, take above average financial risks, take average financial risks, or not willing to take any financial risk. But given previous empirical research analysing the SCF risk tolerance variable (Sung and Hanna, 1996; Grable and Lytton, 2001), no single measure has yet emerged as the standard by which the others can be evaluated" (Roszkowski *et al.*, 1993, p. 230). And researchers' views (Droms, 1988; MacCrimmon & Wehrung, 1986; Roszkowski, 1995), but also Roszkowski *et al.* (1993) converge to agree that there are few, if any, generally recognised measures or instruments designed to establish someone's financial risk tolerance or preference.

Another example of a scale assessing financial risk tolerance is provided by objective measure analysis. According to Schooley and Worden (1996) it offers great potential, however, objective risk-tolerance measures that require researchers to infer someone's risk tolerance through their assets may also pose serious validity problems. Objective measures assume that investors are rational and that a person's asset allocation is a result of personal choice rather than the advice of a third party. As a result, objective measures 1) tend to be descriptive rather than predictive, 2) do not account for the multidimensional nature of risk, and (c) often fail to explain actual investor behaviour (Elvekrog, 1996).

In their study examining financial tolerance among college students, Grable and Joo (1999) developed a risk-tolerance index assessing the concept by a combination of responses to four financial risk questions. In particular, the word "credit card" was

associated with the word "loss". Brengelmann (1988, 1989a, 1989b, 1991, 1993) also developed a scale to measures the main dimensions of risk traits: the REC includes positive as well as negative aspects, namely risk-taking (R+) and risk avoidance (R-), positive excitement (E+) and negative excitement (E–), and positive control (C+) and negative control (C–).

MacCrimmon and Wehrung (1986) summarised findings related to choice dilemma (scenarios where respondents are asked to make a risk choice for themselves or someone else regarding an everyday life event) by concluding that items that ask an individual "how risk tolerant are you?" only measure a small part of the multidimensional nature of risk and that most people misstate their risk tolerance in these situations. They suggested that a financial risk-tolerance assessment instrument must include at least some central concept of risk, allowing for the derivation of a risk measure, be relevant to respondents, be easy to administer, and presents adequate validity and reliability.

But the difficulty of measuring and assessing someone's risk tolerance has led some researchers to recommend that "financial planners focus on measurements of objective risk tolerance" (Sung & Hanna, 1996, p. 228). Financial planning specialists usually develop their own questionnaires to assess their client's attitude towards risk. One common method is the use of heuristic judgments (simple, efficient rules of thumb) to assess and predict financial risk tolerance (Roszkowski *et al.*, 1993). This method assumes strong correlation's between demographic and socioeconomic characteristics and financial risk tolerance (Grable & Lytton, 1998).

Research findings related to choice dilemmas, utility analysis, objective functions, and heuristic judgments have led some researchers and practitioners studying risk-tolerance theory to conclude that these methods are not entirely appropriate when attempting to assess a person's financial risk tolerance (e.g., Grable & Lytton, 1998; MacCrimmon & Wehrung, 1986; Statman, 1995). Instead, it has been argued that the best way to concisely and accurately identify a person's financial risk tolerance is to use an assessment instrument designed specifically to measure subjective risk tolerance using multidimensional financial scenarios and situations (MacCrimmon &

Wehrung, 1986). MacCrimmon and Wehrung (1986) concluded that the best way to accurately identify an individual's financial risk tolerance/attitude is through an ad-hoc measurement instrument using "multidimensional financial scenarios and situations". They recommended the use of a questionnaire type instrument over other types of measures or experiments because a questionnaire does not subject a respondent's tolerances to "subtle influences of the decision analyst during the assessment process" (MacCrimmon & Wehrung, 1986, p. 65). Additionally, instead of relying on a single item, MacCrimmon and Wehrung suggested that surveys and experiments include situation items where respondents are asked to make financial decisions concerning lotteries, stocks, bonds, mutual funds, real estate, options, commodities, and other types of investments.

Building on the previous criteria by MacCrimmon and Wehrung (1986), Grable and Lytton (1999) developed a 20-item risk tolerance measure. Risk tolerance, as determined by each respondent's score on the risk assessment scale was the dependent variable. The instrument was multi-dimensional, incorporating questions involving a variety of risky personal finance situations. Responses to the risk assessment questions were combined into a risk-tolerance index.

This fragmented approach to the measurement, assessment, and testing of financial risk tolerance has often led to inconsistent and contentious findings, both in the consumer economics and the psychology domain. The need for a widely accepted and commonly used instrument is still important. Without such an instrument financial service providers and researchers have been forced to use other assessment techniques that may not adequately measure the underlying construct of financial risk tolerance. Furthermore, according to risk-tolerance researchers (e.g., Droms, 1988) and financial planning practitioners (e.g., Opiela, 2005), the lack of a widely accepted risk-assessment instrument has been an ongoing issue hampering the pace of research in the area of financial management within the larger context of personal financial planning and investment management.

As this brief review of previous studies suggests, more multidimensional and cross-disciplinary research is needed to fully understand and predict financial risk tolerance.

In summary, while the author has clearly established empirical evidence for the relationship between attitude towards financial risk and credit use, the literature review has not allowed us to identify a widely accepted measure for attitude towards financial risk.

B4.1.2 Attitude towards future interest rates

The ability to pay an outstanding credit is based on current but more importantly on future income interest rates. The cardholder with an outstanding balance (on variable interest rates) forms expectations about future interest rates, interest rates trends; In this section, the author debates the existing literature linking interest rates expectations and attitude/behaviour towards credit.

B.4.1.2.1 Definitions

APR (i.e., Annualised Percentage Rate) measures the cost of credit, expressed as a yearly rate and to a cardholder APR is the price of credit and FAPR (our construct) refers to the cardholder' expectations about future interest rates.

B.4.1.2.2 Studies examining the relation between interest rates and cardholder attitude and behaviour

Few studies have focused on the relationship between interest rates (or APR) and card holder's attitude towards credit. These are reviewed below. Although Park (1997) and Ausubel (1991) have challenged the cardholder's rationality, high interest rates are thought to discourage the use of credit: economists Gross and Souleles (2001) have found levels of borrowing to be especially sensitive to important reductions in interest rates. To these authors, the finding of a negative correlation between interest rates and credit use explain the widespread use of introductory APR (low or nil interest rates known as teaser-rates) among many card issuers (Souleles & Gross, 2001). Therefore,

individuals who expect a future rise in APR are likely to have a negative attitude towards incurring interest charges on their credit card purchases. As argued by Ekici (2006) credit cardholders also form expectations about the future price level (of credit) when using credit cards.

Anticipations play a crucial role in financial decisions. And the role of interest rates on borrowing level is well documented in the economics literature. The two variables form a central relationship in economics. Credit cards bear variable interest rates (floating rates) which affect the level of current but also future monthly interest payments. Because the interest paid on a variable-rate contract will vary over the life of the contract, expectations of future variable-rates should be a factor in determining cardholder behaviour. This view has been confirmed by Ekici (2006) who argues that price (i.e. interest rate) expectations have "a positive effect on credit card debt". The author also argues that interest rates have a negative relationship to borrowing levels.

The important role of interest rate expectations (in credit cardholder behaviour) was also accepted in similar studies (see Carroll, 2003). But not all authors, argued the case of the credit user as a rational economic agent. For instance, Ausubel (1991, 1999)'s "underestimation hypothesis" focused on credit card interest rates. His work indicates that consumers may underestimate the benefits to search in the credit arena. He refers to a discrepancy between the percentage of consumers who report paying their balance in full each month and those carrying a balance. According to his theory, cardholders might be insensitive to interest rates if they underestimate the probability they will borrow or if the costs of switching to other cards are large. He concludes that a "large proportion of consumers who borrow on credit cards are unaware of how frequently they do it or, more likely, deny (to themselves and others) that they do it". Similar view were shared by Calem and Mester (1995) and Cargill and Wendel (1996) who found support for this "irrationality" theory as well as imperfect information in the marketplace as a constraint on consumer information search. Irrationality was further studied by Katona (1975: 272) who noted from his survey, when credit cards first became widespread, 'it is true of both instalment credit and credit cards that debtors do not think of themselves as being engaged in borrowing money when they incur either

form of debt'. Irrationality was however challenged by a recent Federal Reserve study finds that U.S. credit card holders are generally aware of the terms of borrowing on their credit cards (Durkin, 2000). More recently, Ranyard *et al.* (2006) concluded that although APR is an important attribute for source of (consumer) credit decisions its role on card holder behaviour is unclear. From the above debate, it appears that the role of apr on cardholder behaviour and attitude is ambiguous.

B4.1.2.3 Operationalisation of attitude towards future interest rates

The literature review indicated that very few if any studies have operationalised the construct. Chen *et al.* (1998) operationalised interest rates expectations in a single item scale asking respondents whether they expect interest rates to be higher than current interest rate or Otherwise. More recently, Oburai *et al.* (2005) developed a six item scale for measuring expectations about salary, asking respondents to rate on a five point Likert scale. The choice of a widely accepted scale for this construct was therefore not available to the author.

B4.1.3 Attitude towards future real income

The concept of future expectations plays a central role in models of household financial decision making" (e.g. Das & Van Soest, 1997) and the concept of attitudes has been largely examined in this study (see chapter B1 and B2). Yet few studies have linked attitudes (or expectations about future income) to credit cardholder behaviour or attitudes.

B4.1.3.1 Definitions

Real income can be defined as nominal disposable income deflated by the consumer price index or "the amount of money the consumer receives, adjusted for inflation" (Hicks, 1958). Real income has also been defined as the "weighted average of the

value of current and future consumption (Sefton & Weale, 2005). In other words, real income is the income of households after adjustment for inflation.

B.4.1.3.2 Relationship between current/future income and cardholder behaviour

Several studies have pointed towards a link between the use of credit and future income. For instance, Soman and Cheema (2002) challenged Modigliani's theory on "smoothing" arguing that young consumers who expect future incomes to be higher than their present income can "borrow from their future income" to support their present lifestyle.

The relationship between cardholders' behaviour (with stock ownership) and income expectations was highlighted by Baeck and Kim (2005). Their study shows that households' experience of unusual high income from investment or capital and positive expectation about their future income are significant factors in the amount of outstanding credit card debt of households with stockownership.

Soman and Cheema agree that using credit card is the use of future income in the present. However, to them "it is practically impossible for a consumer to use his own future income in the present since the future income has not yet been realised and hence does not physically exist. To do this, a consumer needs to have access to an account that can act as an inter-temporal intermediary between the future lender and the present borrower. Consumer credit plays exactly this role-it provides the consumer with additional spending power in the present in exchange for repayment (of the loan and interest) in the future." Soman and Chema's research reinforces prior findings that consumers are unable to accurately value their future incomes, and that they lack the cognitive ability to solve the inter-temporal optimisation problem required by the life-cycle hypothesis. Instead, they claim that consumers use information such as the credit limit as a signal of their future earnings potential.

A similar view is found with Flavin (1981) who noted that individuals adjusted their consumption to expectations about future income. Consumption exceeds earned income during the early part of the work-life, so that the household must in effect

borrow against future income to finance current consumption. These processes have been referred to as consumption "smoothing" (Shefrin & Thaler, 1988).

Using the life cycle income hypothesis and Bryant's exposition of household consumption and saving Sunmee and Kim (2005) examined the Demographic characteristics, financial resources, experience of unusual for income, expectation for future income, attitudes towards financial issues and financial management behaviour.

Anzatalous (1996) found that if someone thinks that he will be in a better position financially in a year, then he can afford to borrow more against high income expectations.

B4.1.3.3 Measuring attitude towards future real income

The concept has empirically been measured on a categorical scale with expectation about future income coded as 1 if the respondent expected total household income to go up more; 0 otherwise (U.S. Survey of Consumer finances, 1992, 1996). A similar scale was employed in a study on the factors that influence people's attitude toward the use of credit when their income is cut (Devaney & Castellani, 2001) in which perception of income in relation to what was expected in a normal year was coded as 1 if income was lower than expected and 0 if otherwise. Again, a similar scale was adopted by Nyhus and Webley (2001) in their study on saving, debt and financial behaviour. The answers to these questions were used to create a five category expected income change measure.

But others (Gorniak, 1999) have constructed a set of Likert scales measuring these attitudes. The scale "of economic optimism" was reliable at the 0.75 level (Cronbach's Alpha). Likert scales (seven point type) were also used by Furnham (2001) to develop his 18-item "attitudes towards money" scale. The scale was a truncated version of the attitudes towards money scale developed by Lim and Teo (1997).

B4.1.4 Attitude towards saving

The author has found empirical support for a link between attitude towards saving and attitude towards debt/credit (Loewenstein & Prelec, 1998). The author now turns his attention to a general review of the literature related to savings attitude.

B4.1.4.1 Definitions

To economists, saving is the difference between personal income and consumer expenditures (Katona, 1975). More interesting to this research, is the psychological dimension as a "means of postponing consumption of something so that future consumption is made possible" highlighted by Warneryd (1999).

B4.1.4.2 Empirical Studies investigating saving attitude and behaviour

Despite a vast amount of research into saving behaviour, mostly by economists but also by psychologists and other social science academics (see Wärneryd, 1999, for a thorough review), few studies examined the variable as a determinant of credit cardholder behaviour. Yet, studies (Engel, 1990; Tucker, 1991; Loewenstein & Prelec, 1998) pointed to a link between attitude and saving behaviour. The division of income between consumption and saving is motivated by preferences between present and future consumption (or the utility derived from consumption). It is now widely accepted that the main determinants of the consumption-saving trade-off are the interest rate and the individual's rate of time preference, reflecting the inter-temporal substitution from one period to a future period.

Economists have argued that saving behaviour is a function of the life cycle. In particular, Modigliani's Life-Cycle Hypothesis implies two phases in the pattern of saving (Modigliani & Brumberg, 1954). In the adult pre-retirement phase, the individual accumulates wealth (saves) and in the post-retirement phase, dissaves. This behaviour follows from a model in which lifetime utility from consumption is maximized. Income that is not used for consumption purposes can be saved and consumed one period later, earning an interest payment and hence allowing for more

consumption in the future. This increase in the absolute amount available for consumption, as reflected in the interest rate, has then to be compared with the individual's rate of time preference (the latter expressing her patience with respect to later consumption, or, more generally, to delayed utility derived from consumption. But substantially, saving is future consumption. Saved money can be used as a protection against economic risks (Dahlback, 1991). But Thaler and Shefrin (1992) have proposed that people have different mental accounts, and based on this, a behavioural life-cycle model of saving. Individuals with little or no liquid assets have a higher probability to rely on credit to finance consumption and therefore less likely to have negative attitudes towards credit than savers (Kaili, 1996).

More relevant to this study is the psychologists' findings: "psychological variables that have been demonstrated to be relevant in the linked area of saving, such as time-preferences and self-control" (Maital & Maital, 1977, 1994; Thaler & Shefrin, 1981; Wärneryd, 1999). For instance, Katona (1975) proposed that saving involves forming expectations about the future (especially future income). In his study on American beliefs about and attitudes towards saving throughout two centuries Tucker (1991) found the same opposing views between middle-class and working-class in the USA. In another study (Loewenstein & Prelec, 1998) debt aversion was found to be related to attitude towards saving. Attitude is therefore one of the main determinants of saving behaviour (called here attitudes towards saving).

But this contradicts with Parker's (1988) analysis of why people use credit, namely to safeguard savings, to take advantage of special circumstances, to even out demands on income, and to deal with financial crises or adversity. The decision-making process (for savings decisions) can also be analyzed using Engel *et al.* (1990) consumer decision-making model who argued that the process is affected by three different factors: (a) environmental influences, (b) individual differences, and (c) psychological processes (to include attitude and risk tolerance).

B4.1.4.3 Measure and measurement of attitude towards saving

Loewenstein (1998) suggested a two-dimensional measure of individual saving behaviour. Warneryd (1996) identified five orthogonal factors for his 21 items 'attitude to saving' scale. Another operationalisation is provided by the U.S Survey of Consumer Finance in which household's saving was operationalised as a multi-item scale. In the study, saving was assessed by comparing spending to family income, a positive figure being interpreted as a dislike of borrowing with a moderate attitude towards saving. Another example is provided by Dahlback, 1991) who associated saving to "protection against economic risks, when (Grable & Joo, 2000) associated saving to "money to support retirement".

CHAPTER B5: EXPERIENCE OUTCOME

In this chapter, the author reviews the academic literature regarding the role of experience on attitudes and consumer behaviour, attempting to focus on studies related to services marketing. Issues relevant to this research include the definition of experience, the conceptualisation of the "experience outcome" construct and its relationship towards attitudes and behaviours. These will be discussed in turn.

B5.1 DEFINITION

To psychologists Bierly *et al.* (2000) experiences are "interactions of an individual with its environment. In a more recent study, Meyer and Schwager (2007) defined (customer) experience as "the internal and subjective response customers have to any direct or indirect contact with a company". In this study, "experience" is conceptualised as customer familiarity (measured by the absence or existence of prior use/access to credit) while "experience outcome" is defined as the cardholder's overall evaluation (satisfaction) of similar experiences with credit. This definition is preferred because a similar definition was adopted by Karjaluoto *et al.* (2002) in a study on personal banking experience.

B5.2 CONCEPTUALISATION OF EXPERIENCE AND ITS ROLE ON ATTITUDE AND BEHAVIOUR

The concept of "experience" is important to this study because theory suggests that experience variables (for example the frequency of uses of a service or the number of purchases made in a shop) have an independent effect on attitude and future behaviour.

This effect has been pointed out by several authors (see Bagozzi *et al*, 1989; Bentler & Speckart, 1979; Tellis, 1988; Bagozzi & Kimmel, 1995). Examples of empirical studies which show a positive relationship between previous behaviour and subsequent behaviour are Bentler and Speckhart (1979), Chang *et al* (1988), Erdem (1996), Seetharaman and Chintagunta (1998), and Tellis (1988). More recently, Karjaluoto *et al.* (2002) stated that beliefs and attitudes are principally created on the basis of a person's personal experience of a given object.

A conceptualisation of the relationship between experience and consumer behaviour is provided by Bagozzi and Warshaw (1990)'s theory of trying. Their framework expands the theory of planned behaviour/reasoned action by adding frequency and recency of past trying (measures of past behaviour). Most tests of the theory of trying have been implemented with the use of fairly low-level goals, while the context of this study is presumed to be a high-involvement consumer behaviour context in which the cardholder is rational. The theory of trying has been applied to a variety of consumer settings: adoption of IT-use (Ahuja & Thatcher, 2005), college/university education (Bay and Daniel, 2003) and yielded good empirical results. But studies that have examined a wide range of behaviours have reported varied results: some results supporting the role of intentions in predicting future behaviour, other results supporting the role of past behaviour in predicting intentions and future behaviour. Hover, very little research (see Wei *et al.*, 2006) has examined the relationship beten past purchase behaviour and purchase intentions in a services setting. Attitude polarization theorists, hover, propose that initial evaluations will not necessarily remain unchanged, but that they will polarise (see for example Chaiken & Yates, 1985; Lusk & Judd, 1988; Tesser & Conlee, 1975; Tesser & Leone, 1977). Yet exactly why this happens is not clearly indicated. It seems to be assumed that individuals use additional principles in making evaluations (Lusk & Judd, 1988). For instance, Tesser (1978) shod that attitudes become more polarised with experience, i.e. that negative outcomes are vied more negatively and positive outcomes more positively, with increased expertise. Linville (1982) argues for results in the opposite direction: With increased experience, people have a more complex cognitive representation of an object and the more complex the representation, the less extreme be the evaluation of

the object. Barsalou (1983), on the other hand, shows that the linkages beten situations and objects considered in the situation, are strengthened with increased situational frequency, i.e. that accessibility increases with experience.

Direct experience was also shown to have an effect on the attitude-behavior correlation (Regan & Fazio, 1977). For instance, "attitudes towards purchase behaviour are believed to be shaped by many factors such as direct experience with the product" (Park *et al.,* 2002). At the same time, it appears (Belk, 1985; Wicker, 1969) that cognitive variables, such as attitudes and repurchase intentions, may be poor predictors of future behaviour (Bagozzi *et al*, 1989; Belk, 1985; Wicker, 1969). While Ajzen (1991) argued that prior behaviour (i.e. experience) could be used to test the sufficiency of any model designed to predict future behaviour under the assumption of stable determinants, Bentler and Speckart (1979) proposed that a model that includes a direct path from prior behaviour to later behaviour provided a significantly better fit to the data than the theory of reasoned action. In addition, East (1993) found that adding past behaviour to the theory of planned behaviour improved prediction of intentions to buy shares in three industries.

But Davis and Venkatesh (2004) found that users' direct hands-on experience is the key driver of their sustained usage. They empirically shod that when they included the construct "prior usage behaviour" as an additional antecedent of IS continuance behaviour, all other determinants in the TAM become insignificant. Along with other researchers, the author agrees with Davis and Venkatesh's (2004) assertion that prior behaviour is the most important antecedent in predicting future behaviour (Bagozzi & Kimmel 1995, Conner & Armitage 1998, Norman & Smith, 1995). Bagozzi, Baumgartner and Yi (1992) also found that past behaviour was an important determinant of coupon usage intentions. In an examination of consumer recycling goals, Bagozzi and Dabholkar (1994) found that past behaviour intervenes beten goals and intentions in decisions to recycle. More recently, Bagozzi *et al.* (2000) incorporated past behaviour into the theory of reasoned action model in an examination of fast food restaurant consumption. Results revealed that past behaviour added considerably to the amount of variance accounted for intentions.

B5.3 EFFECTS OF EXPERIENCE ON ATTITUDE AND BEHAVIOUR

The importance of past experience on consumer behaviour was highlighted in a study on consumer behaviour in financial services (Zhu & Meeks, 1994) and Technology-based self-services (Bobbitt & Dabholkar, 2001). More recently, Karjaluoto *et al.* (2002) found that consumers with positive past experience of banking are more likely to keep up with their current banking channel. Past behaviour was also found (Bagozzi & Warshaw, 1990), at least in goal-directed behaviour situations, to add an independent ability to predict attitude and social norm in determining the behavioural intention.

Indeed, several authors have observed that subsequent behaviour is sometimes "frozen" by initial behaviour (Becker, 1960; Cialdini, 1988). In other words, behaviour explains later behaviour (Bagozzi, 1981; Bagozzi *et al*, 1989; Belk, 1985; Pollak, 1970). For instance, Bobbitt and Dabholkar (2001) found that favourable outcomes in the particular experienced behaviour (for instance using credit) reinforce attitude towards the behaviour itself. One position, defended by Tesser (1978), is that evaluations made by experienced customers are likely to be more polarized than evaluations made by beginners. More specifically, it has been demonstrated that experienced individuals evaluate positive outcomes more positively than beginners do, while experienced customers evaluate negative outcomes more negatively than beginners do. Another position, represented by Linville (1982), is the opposite: experts evaluate positive outcomes less positively than novices do, while experts evaluate negative outcomes less negatively than novices do.

Attempts to reconcile these two apparently contradicting positions have been made by Chaiken and Yates (1985), Judd and Lusk (1984), or Millar and Tesser (1986). The main pattern that emerges seems to be that the first position ("experienced consumers' attitudes are more polarised") is the most common outcome. The basic explanation can be summarised as follows: the longer an individual spends thinking about an object, the more complex the cognitive structure becomes. And the more time spent thinking,

the higher is the need for an internally consistent structure, particularly in terms of evaluative direction. The result, for the expert, then, is a tighter cognitive structure.

Besides, given that the evaluation of a particular behaviour confronted in the past is not neutral, it seems likely that a new stimulus related to the object would be evaluated in the same direction. Intuitively, one would assume that the new stimulus produces evaluations similar to those already held, i.e. the existing structure is maintained in terms of evaluative direction. Given an additive approach (Troutman & Shanteau, 1976), it follows that an additional positive (negative) stimulus adds more "good" ("bad") to the evaluation – which then tends to become more positive (more negative).

One main reason why behaviour carried out in the past may predict future behaviour is that that the individual is assumed to value consistency (Becker, 1960; Cialdini, 1988). It is also assumed that consistency will be particularly desired in terms of behaviour (Cialdini, 1988; Kiesler, 1971).Therefore, the author expects that customer familiarity is positively associated with subsequent behaviour. If this assumption holds, and if it is stronger than an attitude – behaviour association, it may indeed question the validity of a large number of studies in which overt behaviour is approximated with repurchase intentions or other cognitive variables.

In addition, the link between past behaviour (on repeat-purchase behaviours) and attitude through "perception of recent performance" has been established (Ehrenberg, 1988; see Harris & Uncles, 2000). The link between attitude and the formation of post-consumption evaluation has also been established (Boulding *et al.*, 1993).

B5.4 OPERATIONALISATIONS

This construct has been operationalised in many different ways. For instance, in a study on customer experience and its effects on attitudes and future behaviour, Nordfalt & Soderlund, 2002) employed a single-item Likert-type scale with seven

points to measure the construct of "evaluative attitude". A similar scale was employed by Soderlund and Ohman (2003) for their "overall satisfaction" construct.

PART C - RESEARCH DESIGN

This part of the thesis deals with the methodological aspects of the research. In the first chapter (Chapter C1) the conceptual framework and the related hypotheses are presented. General research design considerations (i.e., purpose, setting and type of research, researcher interference and time horizon) as well as the adopted data collection method are presented in Chapter C2. Debate related to the construction of the research instrument and details of the conceptualisation and operationalisation of the research constructs can be found in Chapter C3. Finally, Chapter C4 deals with sampling issues, error minimisation techniques and presents an overview of the analytical approach to the collected data.

CHAPTER C1: CONCEPTUAL FRAMEWORK

The main purpose of this chapter is to present an overview of the reasons leading to the adoption of TRA along with elements from Bagozzi and Warshaw's Theory of Trying and Kahle's List of Values as the basis for the conceptual framework. Next, a discussion to the conceptual framework is presented (see Section C1.2), followed by a presentation of the proposed modifications to the original framework and related hypotheses (see Section C1.3).

C1.1 INTRODUCTION

The focal aspect of this thesis is to contribute to consumer behaviour theory by enhancing understanding of the relationship between attitudes and behavioural intentions within a service domain and specifically retail financial services. Furthermore, it has been made clear from the debate in the literature review (see Chapter B.1 and B.2) that the research is firmly grounded with Fishbein and Ajzen's Reasoned Action theory, which has been found by a number of authors to provide a coherent framework for the study of attitudes (e.g., Lutz, 1977; Sheppard *et al.*, 1988; Shih & Fang, 2004). This theory has dominated the research in the consumer behaviour field, and found strong recent empirical support in IT-services studies with the Technology Acceptance Model (TAM), an extension of the TRA widely used in online banking studies (Anandarajan & Igbaria, 2000).

Hence, the author suggests that using the Theory of Reasoned Action (TRA) as the central part of the CAMB framework based upon findings in the literature review is appropriate. To comply more fully with consumer behaviour research, social psychology and economics findings, some modifications of the basic TRA model are suggested. Undeniably, even the promoters of the model (Ajzen, 1991) acknowledged that the TPB (an extension of the TRA) is open to inclusion of additional predictors. Consequently modifications and extensions are needed in line with the subject matter and the context of the domain under examination.

First, the author introduces direct links between financial elements such as attitude towards financial risk, attitude towards future interest rates, attitude towards saving and attitude towards future real income borrowed from the economics and finance literature (see Chapter B.4) towards the central attitude construct. Additionally, the direct pathway between attitude towards behaviour and behaviour has been demonstrated in a number of studies (Manstead *et al.,* 1983; Budd, 1986). The author therefore uses behaviour as surrogate for behavioural intention.

Furthermore, although the role of attitudes on intention reached a consensus, the role of social influences (subjective norm) was more equivocal (Paisley & Sparks 1998; Shaw *et al.*, 2000). From the perspective of economics dominant theories, the exclusion of subjective norm and behavioural control from the decomposed Theory of Reasoned Action makes sense because the credit cardholder behaviour is deemed to be rational and utility maximising. Rationality in the context of this study refers to a narrow definition of rationality as in neoclassical economics' rationality (see Brito & Hartley, 1995). His behaviour is not under social influence. Thus, the author suggests a modified version of the TRA excluding the subjective norm construct. TRA assumes simple rational individual utility-maximization, based on subjective perceptions of utility. In the CAMB model, the concept of rationality is represented in the direct link between attitude and card holder behaviour.

Studies (Homer & Kahle 1988; Jayawardhena, 2004) have also highlighted the importance of personal values (or values) and their role as a determinant of attitude. The author therefore includes a link from values to attitude.

Finally, the author proposes that, based on a review of consumer behaviour literature, the traditional TRA model should be modified with the addition of experience outcome construct. The construct is inspired by Bagozzi and Warshaw's Theory of Trying (1991) and the theoretical arguments for the extensions and modifications are given in Chapter B.5.

In summary, the reasons leading to the adoption of TRA as the theoretical framework underpinning the development of the new model are as follows (for a detailed discussion, see Reasoned Action Theory in Section B1.4.3)

1. The Theory of Reasoned Action is a general theory than has been applied to explain a wide range of behaviours.
2. The Theory of Reasoned Action presents a conceptual framework that is practical and relatively easy to use for empirical research (Raczynski *et al.*, 2003).
3. TRA, with its focus on attitude, is considered to represent an appropriate framework for the investigation of the attitudes towards credit cardholder behaviour.
4. Its assumption that any factor that influences behaviour does so only indirectly by influencing attitude is helpful in this context.
5. Generally, TRA is viewed as useful framework when analysing behaviour that is based on a rational process.
6. A rich tradition in construct measurement has been developed within the literature. This reduces the burden of operationalising TRA (theory) constructs and dimensions.

Having presented the reasons for using the theory of Reasoned Action as the theoretical basis for the cardholder's attitude-behaviour model, the author now turns to describe the major constructs involved in the CAMB model, and relationships to be investigated in this study.

C1.2 CONCEPTUAL FRAMEWORK

The model presented in Figure C1.1 forms the foundation of the current research and is referred to as the Credit Cardholder Attitude-Behaviour Model (CABM) in the remainder of this thesis. The CABM is an extension of TRA with additional elements from the credit specific literature (i.e., the attitudinal factors that represent antecedents to the overall attitude towards credit cards and the conceptualisation of the dimensions of the overall attitude towards credit cards construct), Bagozzi's Theory of Trying and the List of Values proposed by Kahle *et al.* (1983).

Consequently, given that the proposed model is firmly grounded in theory, it is considered to be confirmatory in nature. For example, the structure of most of the antecedents to the overall attitudes towards credit cards is inductive and the same applies to the structure of the focal construct of overall attitudes towards credit cards.

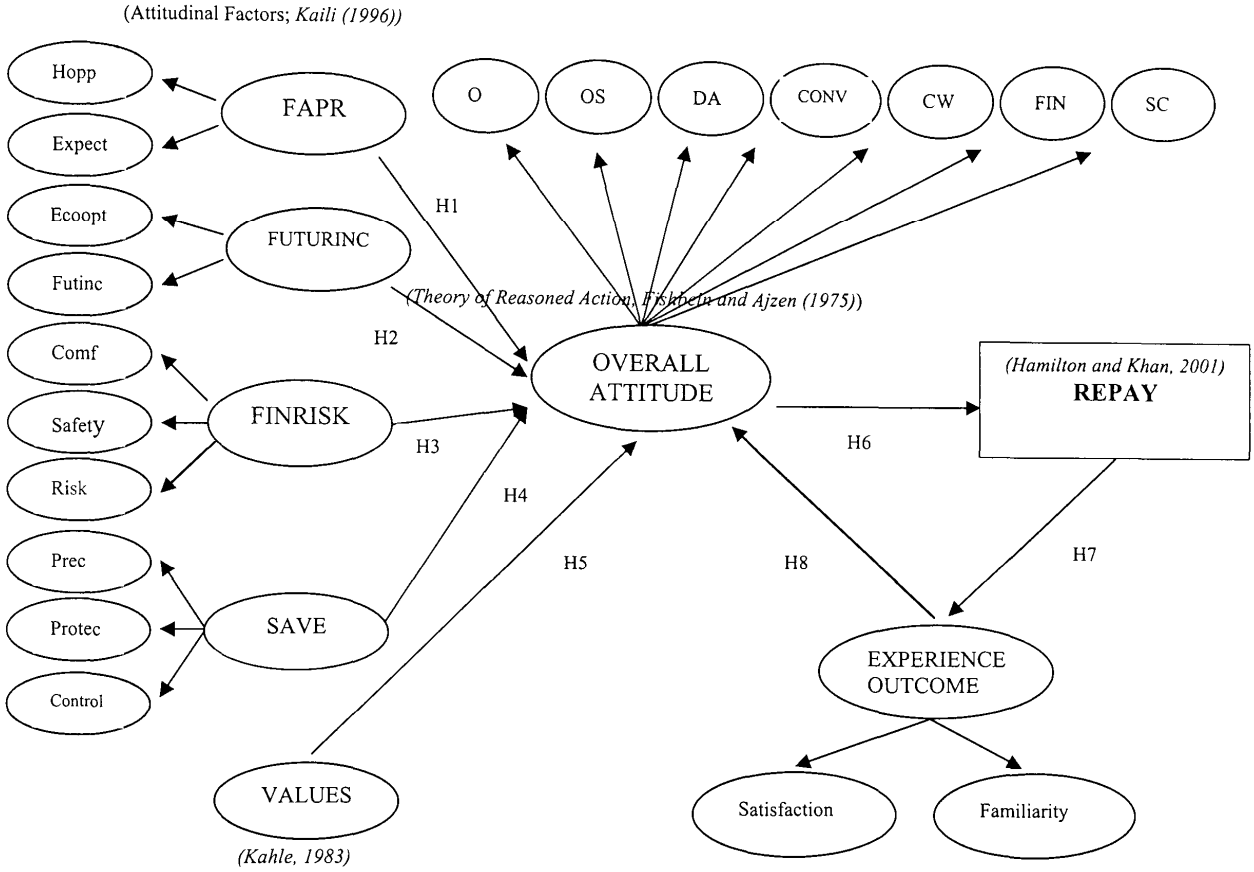

Figure C1.1: Extending Fishbein's TRA model (CABM)

Abbreviations of the model constructs (and their dimensions)

FAPR: Attitude towards future APR (Hopp: balance hopping; Expect: Interest rates expectations)

FUTURINC: Attitude towards future real income (Ecoopt: economic optimism; Futinc; attitude towards future income)

FINRISK: Attitude towards financial risk (Comf: comfort; Safety: safety; Risk: risk)

SAVE: Attitude towards saving (Prec: precaution motive; Protec: protective motive; Control: Control)

VALUES: Personal Values

EXPERIENCE: Experience Outcome

OVERALL ATTITUDE: Overall Attitude towards credit cards (O: overall attitude towards credit; OS: over-spending; DA: debt-avoidance; CONV: convenience motive; FIN: finance motive; CW: credit-worthiness; SC: self-control)

REPAY: Cardholder's (repayment) behaviour

The central Overall Attitude Towards Credit Cards construct is conceptualised as a higher order reflective variable that comprise seven dimensions. There are five determinants of Overall Attitude of which four are considered to be higher order reflective constructs (the exception being Values). Overall Attitude is posted to impact on Repay (i.e., repayment of credit card balance) which is an observable variable (i.e., frequency of paying balance in full). Repayment behaviour is considered to be a determinant of Experience which in turn impacts on Overall Attitudes.

C1.3 PROPOSED MODIFICATIONS/EXPANSIONS OF THE TRA MODEL AND RESEARCH HYPOTHESES

This section presents a debate, including justification and related hypotheses of the proposed modifications of the TRA model. Although Fishbein and Ajzen (1998) model has offered a useful insight into the robustness of the attitude-behaviour propositions within a wide range of contexts; the model does not offer an explicit reference to the credit card/financial services sector. Therefore to address this specific issue, and after reviewing the relevant literature the author has proposed a new model that specifically incorporates elements specific of the credit cards domain. The next section discusses in more detail the modifications to the TRA model represented in this research.

Firstly, constructs that have been conceptualised in terms of financial elements are presented in phase 1. Next, expanded to incorporate credit cardholder specific constructs is discussed in phase 2. Omitted constructs are presented in Section C1.3.3. Finally, the last part of this section deals with constructs that have not been changed in the newly proposed model, are presented in phase 4. Hypotheses related to these constructs are represented and debated at each phase.

C1.3.1 Phase1: Contextualisation of financial constructs

Due to the adaptation of the TRA model in a financial services environment some of the constructs have been contextualised (i.e. made specific to credit cards) in order to account for the shortcomings of the "generic" Fishbein and Ajzen's TRA model presented in Part B (see Section B1.4). Each of these constructs is presented in turn below:

- **FAPR (attitudes towards future interest rates)**: This construct has been adopted from Chen *et al.*'s (1998) household saving and decision model (see Section B.4.1) and is conceptualised as a higher order reflective latent variable of expectations towards future APR (expect) and balance hopping (hopp).

  H_1: "Attitude towards future interest rates" is a determinant of "Overall attitude towards credit cards"

- **FUTURINC (attitudes towards future income)**: This construct is adapted from the business economics theory and is hypothesised to be a second-order factor of economic optimism (ecoop) and confidence over future real income (futinc).

  H_2: "Attitude towards future real income" is a determinant of "Overall attitude towards credit cards

- **FINRISK (attitudes towards financial risk)**: This construct is one of the most operationalised constructs of the finance theory and is conceptualised as a second-order factor of motives related to comfort (comfort), safety (safety) and financial loss (risk).

  H_3: "Attitude towards financial risk" is a determinant of "Overall attitude towards credit cards"

- **SAVE (attitudes towards saving)**: This construct can be found in many economics studies and in this study it is hypothesised to represent a second-order factor of motives of precaution (prec), protection (protect), and control over personal finances (control).

  H_4: "Attitude towards saving" is a determinant of "Overall attitude towards credit cards"

C1.3.2 Phase 2: Additional constructs to TRA

The following additions to the TRA model have been made:

- **VALUES (personal values)**: Personal values have been hypothesised to be determinant of overall attitude towards credit cards.

  H_5: "Personal values" are a determinant of "Overall attitude towards credit cards"

- **OVERALL (overall attitudes toward credit cards)**: Fishbein and Ajzen (1974) proposed that specific behaviour is not predictable from a global attitude toward an object but rather is related to a more specific attitude toward a given behaviour. These authors added that specific attitude with a clearly defined action, target, and context will better predict a specific behaviour with a similarly defined action, target, and context (Ajzen & Fishbein, 1977). In this study for the examination of the functional relationships between attitudes towards and repayment behaviour of credit cards strict correspondence between target, action, and context (TACT) needs to be ensured. This in turn implies that the conceptualisation and related operationalisation of attitudes towards credit cards need to be specific and inclusive of its various facets. By reference to the literature debated in Section B2.3.2, Chapter B4 and feedback from the face-to-face interviews overall attitudes towards credit cards is conceptualised as a second-order factor of, overall attitude towards credit (O), over-spending (OS), debt-aversion/avoidance (DA), convenience (conv), credit worthiness (CW), finance motives (FIN) and self control (SC). In line with TRA, this construct is considered to be the main determinant of repayment behaviour.

  H_6: "Overall attitude towards credit cards" is a determinant of "Cardholder (repayment) behaviour"

- **REPAY (repayment behaviour)**: Repayment behaviour is expected to impact on experience outcome.

  H_7: "Cardholder (repayment) behaviour" is a determinant of "Experience outcome"

- **EXPERIENCE (experience with outcome)**: This construct is conceptualised as comprising two dimensions (i.e., satisfaction and experience). Given extensive evidence in both general (see for example Carr & Sequeira, 2007; Narayan & Steele-Johnson; 2007; Schouten *et al.,* 2007; Labroo & Ramanathan, 2007) and financial specific (see Donahue & Miller, 2006; Eckel *et al.*, 2007) literature the following hypothesis is proposed.

  H_8: "Experience Outcome" is a determinant of "Overall attitude towards credit cards"

C1.3.3 Phase3: Omission of constructs from TRA

The constructs related to subjective norm have been omitted because it was considered that the cardholder's behaviour is not influenced by social norm. The behaviour is an individual and rational process decision. Behavioural intent was also omitted because it was theorised that behavioural intent equals behaviour. This direct path was also supported in previous studies (Bentler & Speckart, 1979, 1981; Budd, 1986). In other words, under certain conditions individuals act on the basis of their attitudes (see Fazio, 1990).

C1.3.4. Phase 4: Not- changed constructs

The attitude towards a behaviour and actual behaviour constructs found in the TRA have been retained.

C1.4 COMPETING MODEL

Based on sound theoretical foundations (Joshi and Stump, 1999; Kim, 2001) the CABM model is compared against a competing model. The main difference between the CABM and the competing model is the conceptualisation of the central, Overall Attitudes, construct. The higher order structure proposed in the

CABM is relaxed, thus treating each of the seven dimensions of the Overall Attitudes construct as individual variables. This is based on emerging evidence that the functional relationships of higher order constructs confound the behaviour of their dimensions (see for example Megdad, 2003; Ledden *et al.*, 2007).

Following from above, the competing model presented in Figure C1.2, depicts each of the dimensions of Overall Attitude as dependent variables the behaviour of each of the seven constructs is identical to that of the Overall Attitude construct (i.e., same determinants and outcomes). Using the same logic as above the functional relationships of each of the dimensions is the same as of the Overall Attitude and consequently the above stated hypotheses remain albeit in a multiple form (i.e., instead of a single H_1 there are now seven H_1s). Finally, given that not all of the proposed functional relationships can be explicitly found in literature, the competing model is considered to be exploratory in nature.

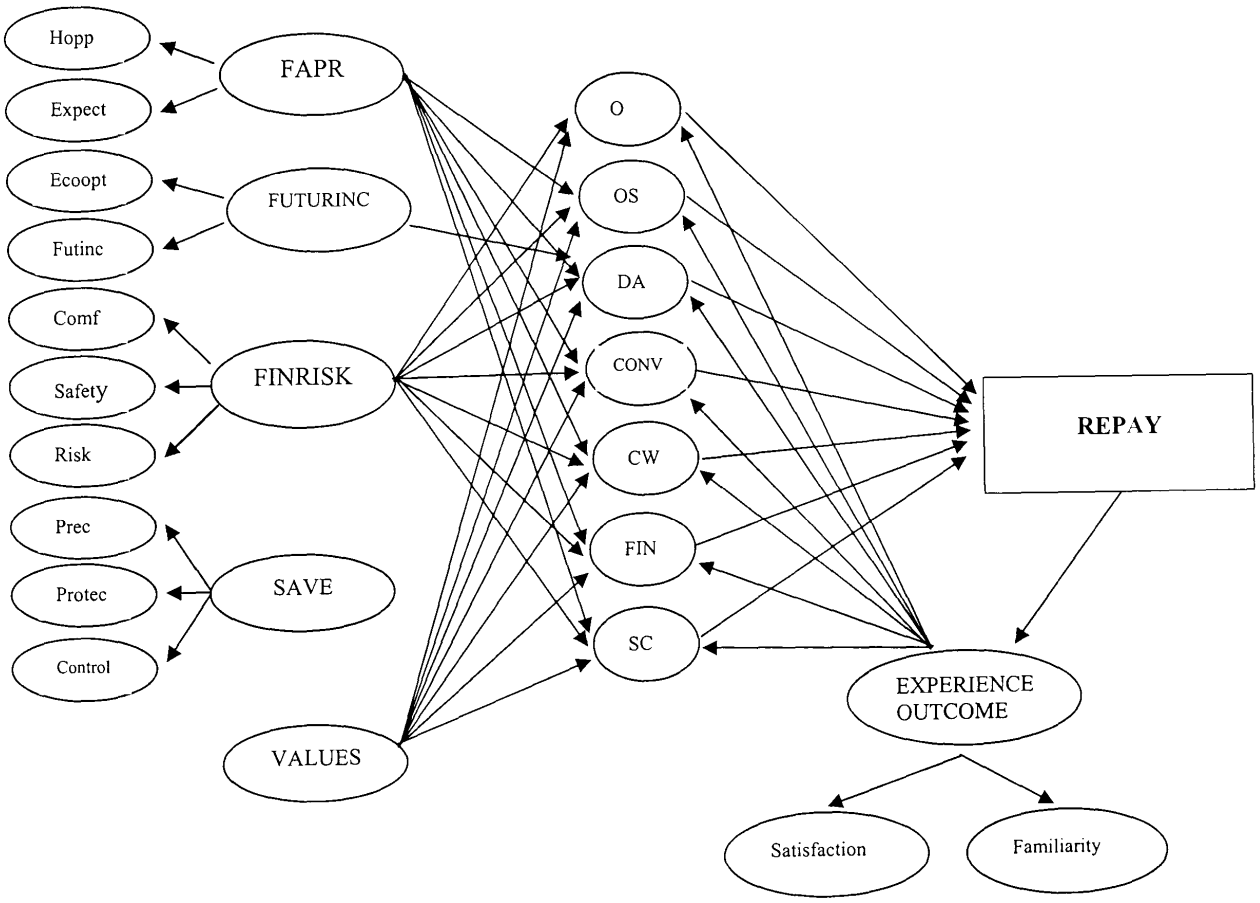

Figure C1.2: The Competing Model

Note: The functional relationships of FAPR, FUTURINC, FINRISK, SAVE and Values to O, OS, DA, CONV, CW, FIN and SC are omitted for purely presentational purposes.

CHAPTER C2: RESEARCH DESIGN (I)

The description of the methodological considerations designed to provide the operational framework for the study is divided into three chapters (i.e., Chapters C2, C3 and C4). Figure C2.1 below highlights the research design issues that are to be discussed in this chapter. These are purpose of the study (Section C2.1), study setting and extent of research interference (Section C2.2), type of investigation (Section C2.3), time horizon (Section C2.4), data collection methods (Section C2.5) and response rate (Section C2.6).

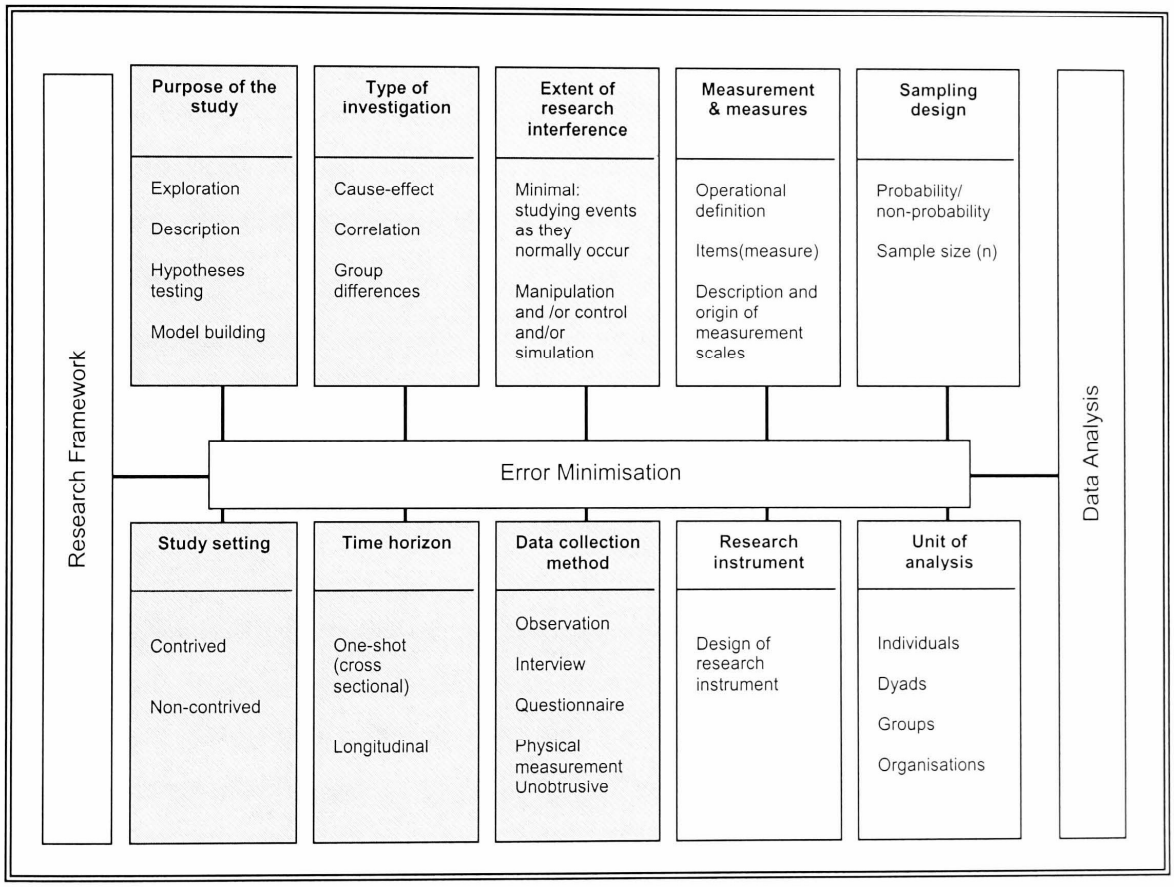

Figure C2.1: The research design(for Chapter C2)

Source: Sekaran, U. (2003) *Research Methods for Business: A skill Building Approach*, 4th edition, New York: John Wiley and Sons Inc.

C2.1 PURPOSE OF THE STUDY

There are four basic types of research that have been employed to investigate marketing phenomena (Churchill & Iacobucci, 2002, Zikmund, 2003). These are exploratory, descriptive, hypotheses testing and model building. Each of these (with the exception of descriptive research) and their role within the study is debated in this section.

C2.1.1 Exploratory research

Prior to the field study, exploratory research was undertaken, designed to shape the direction, structure and operationalisation of the main study (Churchill & Iacobucci, 2001). This involved a thorough review of extant literature, desk research, in-depth personal (face-to-face) interviews and review of industry publications. Exploratory research as described by Kent and Lee (1999) covers the following areas:

1. Increase the author's familiarity with the topic under investigation, i.e. the attitude- behaviour relationship towards credit cards.
2. Diagnosis, analysis and evaluation of the nature of the research problem, i.e. the consistency and strength of the attitude-behaviour relationship among credit cardholders.
3. Establishment of the priorities and objectives of the research, i.e. exploratory research, into the operationalisation of the conceptual model was required before it was possible to decide which particular issues required investigation. This involved consumer focus group discussions and studying the literature focusing on credit cards which provided with an initial "pool" of potential measurement scales for each of the construct examined. This procedure was based upon accepted methods of scale development in consumer research (Churchill, 1979; DeVellis, 1991).
4. Ideas, insights and suggestions for hypotheses that could be tested.

In view of the complex nature of the study (examining marketing, economics and psychology elements), face-to-face interviews were conducted with individual credit cardholders in London and Surrey prior to the commencement of the field data collection phase. The decision to carry out interviews with individual credit cardholders was based on the assertions on the importance of soliciting cardholders' opinions and perceptions about what is essentially a psychological dimension (attitudes). In addition, using potential respondents to carry out interviews in the exploratory stage will help develop robust scales with appropriate psychometric properties. Exploratory research will clarify and define the nature of the research. A key aspect of the exploratory research will be the ability of cardholders to distinguish between the dual function of credit cards (see Garman & Forgue, 1997). The information gathered during this step will help develop questionnaires and discussion topics for the depth interviews and focus group. It is also useful because of limited *a priori* knowledge about the relationship between attitudes towards credit and credit cardholder behaviour. As Zikmund (2000) suggests "exploratory research is a useful initial step that helps ensure that a more rigorous, more conclusive future study will not begin with an inadequate understanding of the nature of the management problem".

In addition, the author had presented his conceptual model during a Research Methodologies seminar held at Kingston Business School in September 2004. Participation in this seminar and conference provided an opportunity to discuss the topic under investigation with academics and researchers with interests in the consumer behaviour/attitude field. This helped to clarify issues related to the initiation and development of attitudes within a retail services context.

C2.1.2 Hypotheses testing

From Sections C1.2 and C1.3 it is apparent that the examination of causal pathways between the research constructs forms a central part of this study. Given the fact that data have been collected specifically in order to formally/statistically test these causal relationships; the author can conclude that the research follows a hypothetico-deductive approach.

Using the results of the causal investigation defined above, normative guidelines for attitudinal determinants of cardholder behaviour will be proposed. With regard to the normative guidelines, this research has assumed that the credit cardholder is rational, utility maximising and his behaviour is not under social influence.

C2.2 STUDY SETTING AND EXTENT OF RESEARCHER INTERFERENCE

Two approaches to study setting are available: contrived and non-contrived (Sekaran, 2003). The purpose of this study was to establish the existence of relationships (through hypothesis testing) because the author want to explain the variance in the dependent variable (cardholder's behaviour) by establishing the nature of the relationship between this dependent variable and the attitudinal and other latent variables through the testing of the hypotheses proposed in Chapter C1. The study was conducted in a natural environment with minimum interference from the researcher. The approach to study setting was therefore non-contrived.

C2.3 TYPE OF INVESTIGATION

Kinnear and Taylor (1996) but also Sekaran (2002) indicated that a researcher (in social science) ought to determine whether a causal or a non-causal study is needed in order to address the research question(s). Causal investigations are needed when the aim is to establish a "cause-effect" relationship. In cases where the purpose of the study is to identify associations between relevant constructs a correlation investigation is employed. Although the aim of this investigation of cause-effect relationships, due to lack of control over events (causality cannot be observed, but only inferred), the author 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 (namely attitude and behaviour towards credit cards). In this respect, this investigation is classified as an *ex post* factor research (Sekaran, 2002; Churchill & Iacobucci, 2001). Since the main purpose of this thesis is to investigate a relationship this type of investigation is more suited to quantitative research. Quantitative research provides statistical and numerical measurement (Gordon & Langmaid, 1988). Punch (2000) simplifies the difference between the two types of research by saying that in quantitative research data is in the form of numbers, while in the case of qualitative it has no numerical nature. Qualitative refers to the meaning of data, whereas quantitative refers to the way it is measured (Dabbs, 1981 as cited in Van Maanen, 1982; Kvale, 1996). For all these reasons, the type of investigation for the particular project is quantitative and the data collection methods will be further discussed.

C2.4 TIME HORIZON

Studies can be either: 1) cross-sectional, i.e. data represent a snapshot of the research issues at a single point in time, or 2) longitudinal, i.e. data are collected at two or more points in time (Sekaran, 2002). Due to time and cost constraints, cross sectional approach has been used in this study. The primary data were collected during a one shot mail survey (sent in three consecutive batches) carried out in the UK between February and April 2004 (for a justification, see Section C2.5.2.1). It should however be noted that the ability of a cross-sectional study in detecting change is weaker than a longitudinal study and, by using a cross-sectional design in this study, the results only provide indirect evidence of the causal relationships between variables. Thus, the research accuracy is lower than if a longitudinal design had been employed (Malhotra, 1999).

C2.5 DATA COLLECTION METHODS

In order to present a clear explanation of the data collection method, this section is divided into two phases: 1) approaches adopted to undertake exploratory research (i.e. development of scales and research instrument) and 2) methods employed for the field research/data collection.

C2.5.1 Phase1: Development/modification of (measurement) scales

All the constructs were measured using multi-item scales. Conceptual definitions as well as research studies in which the same or similar constructs were measured guided measure development. The constructs used in the thesis had all received psychometric attention in the domain of marketing, economics or social psychology.

The exploratory study helped us to refine the data collection instrument, develop survey measures and more specifically with the development of the self-administered questionnaire. The process initially consisted of a thorough review of existing marketing, economics and social psychology literature, then the examination of other forms of published material such as industry publications, and subsequently personal observations. This provided a broad overview of the issues identified as relevant to a study on credit cardholder behaviour. Using this exploratory approach the author was able to identify issues relevant to this study that needed further clarification and elaboration.

Figure C2.2 classifies qualitative research techniques (Malhotra, 2003) as direct or indirect, based on whether the true purpose of the project is known to the respondents. Although the purpose of this study was to discover underlying attitudes or feelings regarding credit cards, a direct approach was adopted. Indeed, from an ethical point of view, the researcher had to disclose the purpose of the questions asked otherwise the respondent might have felt cheated and the use of in-depth interviews appeared appropriate.

Out of the qualitative approaches that are described by authors such as McDaniel and Gates (2002), Churchill and Iacobucci (2001) and given in Figure C2.2, the

face-to-face depth interview method was employed. According to Sekaran (2002) face-to-face depth interviews are suitable in situations where complex issues need to be explored and understood. They are useful tool to bring difficult ideas to surface and then discuss them in further depth. Therefore the selection of face-to-face depth interview method was primarily based on their suitability in exposing the behaviours and attitudes towards credit cards.

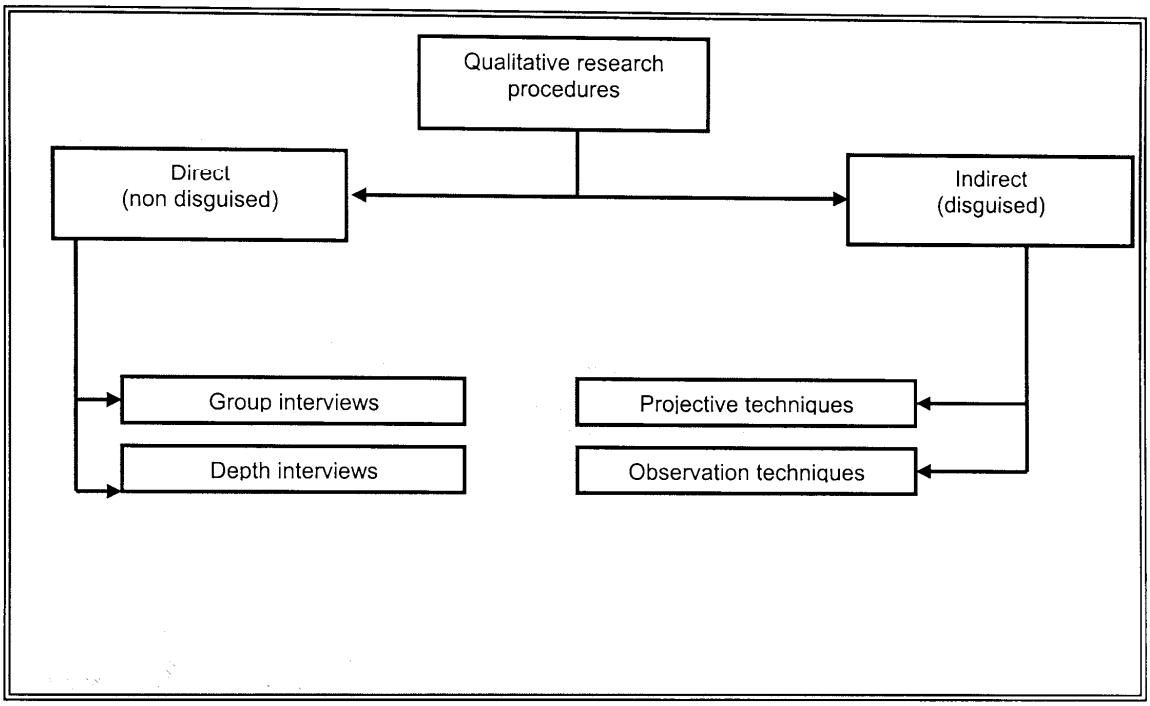

Figure C2.2: Indirect and direct approaches to qualitative research

Source: Malhotra, N. K. (2003), *Marketing Research: an applied orientation*, 4th edition, New Jersey: Prentice Hall, Inc.

- **Face-to-face depth interviews**: Principally, depth face-to-face interview method was used for modifying and updating the existing information about the attitudes/attitudes towards credit scales and acquiring new information about the measurement of attitudes towards credit. Face-to face depth interviews also refer to as 'experience surveys' (Churchill and Iacobucci, 2001) were undertaken with a convenience sample of fifteen credit cardholders as a review of the literature on survey research did not suggest a specific number of participants. Table C2.5.1 presents some key general

characteristics of the participants. In-depth interviews and qualitative data analysis have been suggested to be most appropriate tools for data collection and analysis in complex and largely unknown investigations (see Eisenhardt, 1989).

Each of the credit cardholder was interviewed for 20 to 30 minutes. The time for the interview was agreed informally and immediately and information was discussed in public places. The interview was about discussing credit card repayment behaviour, attitudes, interest rates awareness and therefore directly related to the subject matter. Respondents were given an opportunity to express their views, comments and opinions within the broad domain of attitudes towards credit cards and credit card use in everyday life. Depth face-to-face interviews resulted in the following general and specific information:

- **General information**: The general response of the credit cardholders was in agreement with the scales adequacy and relevance in measuring the proposed constructs sufficiently. Feedback was given about rewording the scale items, merging the items, adding items and removing similar items/statements to avoid duplication. Where addition, modification or deletion was considered relevant it was taken into consideration and actioned. For instance, plain words for the scale items were preferred over complex words. Every respondent had to understand the questions in the same way if general conclusion were to be derived from the data. On the other hand even simple words can, of course, be vague.

- **Specific information**:

    - *Key issues associated with the use of credit cards:* One of the interviewees emphasised additional issues associated with the use/abuse of credit cards when on holiday. Issues such as impulse purchase, immaterial money ("not real money"), incentives offered to use the card were also stressed upon.

    - *The financial risk associated with the use of credit cards:* Interviewees provided improved understanding of the key issues associated with credit cards' interest rates. Respondents admitted not being "too sure

of current APR" on their credit card. The contributions were useful in re-designing the scales for attitudinal factors.

Table C2.5.1: Characteristics of respondents during exploratory stage

Location	Central London and Surrey
Age	All ages
Gender	Both
Occupation	All occupations
When	Between June and September 2004
Duration	Between 20 and 30 minutes

C2.5.2 Phase2: Field research/data collection

Topics that are discussed in this section are primary data collection method, mode of survey administration and communication method.

C2.5.2.1 Primary data collection method

As stated by McDaniel and Gates (2002), the three primary data collection methods used most often in marketing research are survey, observation and experimentation. The survey method includes a questionnaire given to a sample of the population and is designed to elicit the required information. The observation method involves recording the behavioural patterns of people, objects or occurrences without direct interaction, such as questioning or communicating with them. Finally the experimentation method involves the manipulation of one or more independent factors by the experimenter who then measures the effects on one or more dependent factors (*cf.* Malhotra, 2003; McDaniel & Gates, 2002; Tull & Hawkins, 1993). Of these, the survey method was considered to be most suitable method for this study. The reasons that led to this decision were:

- **Comparatively low cost**: Given the geographical distance between the research base and the target population of 35 million spread over the UK, the financial economies associated with the use of a survey made it a preferred method.
- **Economical use of time**: Use of survey method meant that data collection could be managed in 3-4 months which was within the time frame allocated to this activity.
- **Ethical and co-operation issues**: The survey method allows respondents whether or not to reveal their information at their own free will. This option of total willingness to participate aids/improves the quality of response as the respondent is under no obligation or influence to take part.
- **Flexibility of data collection:** Due to the nationwide scope of the study, the flexibility of data collection (in terms of geographical reach) was critical in this study. The survey method provides a number of flexible approaches (e.g., mail survey, telephone survey, e-mail survey), which led to this being the method of choice.
- **Coverage**: By using the survey method based on a detailed questionnaire, a wide variety of questions could be designed in order to elicit respondents' views and opinions. In contrast, by using observation method, issues such as underlying motives, beliefs and attitudes could not be easily brought out and understood (*cf.* Malhotra, 2003; McDaniel & Gates, 2002).
- **Used in the marketing domain**: Finally, survey method has been extensively adopted in papers on the subject of financial services marketing (Chan, 1997; Roberts & Jones, 2001).

Although surveys offer a number of benefits, they are also subject to several drawbacks:

- As surveys contain a list of written questions (irrespective of whether these questions are pre-coded or open-ended), consequently there is the potential of biases which can take the forms of measurement instrument bias, response bias, etc. (McDaniel & Gates, 2002; Malhotra, 2003). These biases were minimised by using a careful research methodology based on pre-pilot and pilot study prior to final data collection (see Section C3.2).

- A number of authors such as McDaniel and Gates (2002) and Aaker *et al.* (2000) have indicated that the use of surveys is just a 'somewhat appropriate method' in causal studies, and go on to state that 'experimentation is the only type of research that has the potential to demonstrate that a change in one variable causes some predictable changes in another variable'. This is supported by Tull and Hawkins (1993) who point out that surveys are seldom used in the examination of causal relationships. That is, there may be discrepancies between given answers and actual behaviour (i.e., response bias, for details refer to Section C4.2.1.1). Therefore, the accuracy provided by responses obtained from surveys is not always as high as that of experimentation. In order to minimise the probability of such circumstances arising, methods such as promised confidentiality and the use of information for academic purposes have been utilised to reduce the potential bias.

C2.5.2.2 Mode of survey administration

Four basic methods of survey administration have been identified by Malhotra (2003) and Churchill and Iacobucci (2001). These are personal (face-to-face) interviews, phone interviews, mail surveys and electronic surveys which include the use of fax, e-mail and Internet (Kent & Lee, 1999). After examining the advantages and disadvantages of the listed survey administration methods, mail survey was considered to be the most suitable for this study. The reasons for this choice were:

- Mail surveys are considered to represent the best method for the collection of sensitive questions (Malhotra, 2003; Aaker *et al.*, 2000; Churchill & Iacobucci, 2001). Due to the need to collect information about a potentially sensitive subject (outstanding credit can be associated to indebtedness, insolvency), mail survey was deemed to be the most appropriate option.
- Mail surveys have been found to be amongst the most cost-effective of the survey administration methods (Malhotra, 2003; Churchill & Iacobucci, 2001; Aaker *et al.*, 2000). Aaker *et al.* (2000) adds to this by stating that once a reliable sampling frame has been obtained, a mail survey represents the most cost-efficient mean of accessing a geographically scattered population. This has

recently being questioned by Kent and Lee (1999) who has pointed that one of the main advantages of using e-mail in recent researches is the low cost of sending e-mail message, speed and geographical coverage. According to Bosnjak and Tuten (2001) Internet-based surveys are superior to traditional survey models because Internet-based surveys can automatically track the response process of participants. The benefits of using electronic surveys include cost savings associated with eliminating the printing and mailing of survey instruments (Cobanoglu *et al.*, 2001) as well as time saving as having data returned in real-time in electronic format (Sills & Song, 2002). However, there is currently no evidence to show that new methodological technologies such as e-mail and Internet-based surveys produce higher response rates than postal mail surveys (Sheehan & Hoy, 2001); What has been found is that the response rate of Internet-based survey methods are highly connected with higher awareness of technology and greater use of e-mail (Ranchhod & Zhou, 2000). Consequently, the diverse type of audience (in terms of IT literacy and age) targeted in this study meant that e-mail was considered an inappropriate method to use, although potentially more cost effective than a mail survey.

- Of the four methods of survey administration, mail surveys have been found to provide the most suitable basis from which to collect accurate information (Aaker *et al.,* 2000). With mail survey, the respondents can give more thought to the questionnaire before completing it at their convenience.

- Mail surveys require less field resource involvement, such as active participation of interviewers and other personnel (Malhotra, 2003; Aaker *et al.,* 2000). In addition, given the limited face-to-face participation, mail surveys were subject to low interviewer bias (see Section C4.2.1).

- Finally, the use of a mail survey was considered to be the most appropriate method when it comes to a large number of questions in the questionnaire (*cf.* Malhotra, 2003; Kinnear & Taylor, 1996). In this study there were 75 questions.

Despite the above advantages, mail surveys have been found to be associated with a number of drawbacks:

- Mail surveys are inappropriate when complex questions are involved (Tull & Hawkins, 1993, Kent & Lee, 1999). Without the adequate clarity, it is possible

that respondents might have had difficulties in understanding the questions. However, at scale development stage (see Section C3.1.2) and at questionnaire development stage (see Section C3.2) face-to-face interviews/meetings, a pre-pilot and a pilot study were conducted in order to minimise such potential errors and ambiguities.

- The response rate of mail surveys has been found to be low in comparison with personal and telephone interviews (Malhotra, 2003; Churchill & Iacobucci, 2001). Reminder letters were used to improve the response rate.
- Compared with other methods of administration of survey, mail surveys usually require a longer time period to collect the data (Tull & Hawkins, 1993). In this study, it took about six weeks to collect the primary data, excluding data entry. In summary, provided data collection instruments are appropriately developed and tested, mail surveys are suitable. They provide a cost-effective method for conducting surveys where immediate turnaround is not required.

C2.5.2.3 Communication method

The mail survey was administered through a structured-undisguised communication method. The reasons for this were:

- **Degree of structure**: This refers to the degree of standardisation imposed on the questionnaire (*cf.* Churchill & Iacobucci, 2001). Using a highly structured method, the questions asked and the responses permitted are strictly predefined. The questionnaire followed a strict sequence and relied primarily on scaled response (7-point Likert scale) and multiple-choice questions (see Section 3.2).
- **Amount of disguise**: This involves the extent to which the respondent is aware of the underlying purpose of the research (Tull & Hawkins, 1993). There was no compelling reason to disguise the research purpose, and it was believed that by stating the purpose of the research at the outset, the respondents could be in a better position to provide accurate and relevant answers (*cf.* Tull & Hawkins, 1993). Consequently, the respondents were informed of the purpose and legitimacy of the study before completing the questionnaire (see cover letters in Appendix B).

- **Respondent targeting**: Name and surname of each of the respondent was written as part of the postal address. Directing questionnaire to a named respondent helps increase/improve the response rate as it is most likely that the questionnaire will reach the person in the best position to complete it (Dillman, 1991). All the addresses were laser printed for legibility and a professional appearance (Greer and Lohtia, 1994).

- **Letterhead**: Kingston Business School letterhead was used for the cover letter to give the questionnaire package a formal/professional look (Taylor & Lynn, 1998). Cover letter was laser printed and was restricted to one page for immediate impact. It explained the purpose of the survey, brief instructions on how to complete the questionnaire and the importance of respondents' reply. It also assured the respondent of complete confidentiality (Faria & Dickinson, 1996). Each letter was signed as an act of personal attention towards each of the respondent (Hawes *et al.,* 1987). Dillman (2000) in his 'Tailored Design Method' argued that enclosing a personalised covering letter could help boost response rate and minimise non-response errors.

- **Cover design:** Research on the effect of questionnaire cover design on mail survey response rates has suggested that a 'likeable' questionnaire cover design can increase the response to a mail survey (see Gendall, 2005) so efforts were made on the use of colours, graphics and photographs to encourage participation

- **Identifying the questionnaire**: Confidentiality was paramount in a survey dealing with personal finance (see Groves & Couper, 1998). Therefore completed questionnaires were only given an Identification Number (ID. No.) when returned. This number matched the observations on the SPSS dataset. The ID No was unique to each questionnaire so that data entry errors could be tracked. Confidentiality was paramount in a survey dealing with personal finance and was guaranteed in this survey.

- **Incentives**: Inducements have been offered within research studies to help increase mail survey response rates (Saunders & Mitchell, 2004; Dillman, 2000) (Nederhof, 1983). The usual explanation for their success is the concept of reciprocation, or the 'norm of social responsibility' – potential respondents are

more willing to participate in a survey if compliance is seen as the repayment of a gift or favour. This expectation is consistent with the theory of social exchange that is often used as a general explanation of survey participation (see Dillman, 2000). In order to increase the response rate, respondents were given the opportunity to enter a prize draw to win 3 iPods. The product was chosen because of its popularity, sometimes seen as a must-have. For this purpose a printed self-addressed and pre-paid post card was included with each questionnaire. The post card was to be returned with contact details so that the respondent could be entered in the prize draw.

- **Sending out of the questionnaire**: All questionnaires were posted second class between February and March 2005.
- **Timing:** The time was considered appropriate as questionnaires were sent to residential addresses at a period considered to be where few people are away (Christmas; August) and card balances were at reasonable level (month of January was to be avoided). Time window was considered effective in improving the response rate which was based on the notion that the respondent had enough time to settle down into the weekly routine after a weekend build-up and post week planning and organisation.
- **Questionnaire return envelopes**: Pre-addressed, postage paid and self adhesive envelopes were enclosed as a part of the questionnaire pack. The absence of return envelopes has been reported to affect the response rate negatively (Cavusgil & Elvey-Kirk, 1998).
- **Follow-up mailing**: No follow-up mailing was deemed necessary due to the acceptable response rate obtained. The sent questionnaires were not coded due to confidentiality reasons. It was therefore impossible to distinguish the individual names of those who had responded from those who had not. Besides, the mailing generated a sufficient target response rate within two weeks of sending the second batch of questionnaires (Claycomb *et al.*, 2000).

C2.5.2.4 Pilot Study

The initial questionnaire was pre-tested with a convenience sample of 50 credit cardholders in the West London and Surrey area during March of 2004. The pilot study gave the researcher an opportunity to verify the face validity of the questions and the clarity in questionnaire wording. Reliability (item-to-total and Cronbach α) and validity (discriminant) tests were performed on the collected data .

As a result of the pilot study, items were added or removed, statements were rephrased and sequence of statements modified. Indeed, respondents made comments regarding duplicate or ambiguous statements. Appropriate actions i.e., scale redesign through modifications and deletions, were taken to rectify the highlighted problems. In essence piloting was regarded as a way of confirming, and at the same time improving, the quality of work before proceeding towards the final stages.

C2.6 RESPONSE RATE

After three mailings, a total of 579 usable questionnaires was received that, excluding undeliverables and refusal to participate, represented a 32% response rate. The composition of the sample (in terms of gender, age and social class) was tested against the information provided in the Mintel 2007 report on Credit and Debit Cards[1] – UK. Goodness of fit tests indicated that the sample was broadly in line with UK national patterns in terms of gender and social class while there was a slight over representation of respondents over 40 years of age compared to national patterns. For analytical adequacy see Section C4.4.

[1] Mintel International, Credit and Debit Cards - UK - July 2007

CHAPTER C3: RESEARCH DESIGN (II)

Generally the measurement of psychological constructs, such as attitudes or values, is influenced by the particular nature of social psychology phenomenon within which the constructs themselves are often latent. That is to say that they are theoretical constructs that cannot be physically observed (i.e. latent in nature) and therefore are not directly quantifiable. However, what are generally measurable are some manifest variables (or self-report) linked to the underlying theoretical construct. These quantifiable and specific variables are assumed as indicators of the latent construct.

It is from this point that fundamental questions arise about the links between the indicators used (the measurement scales), the observed variables (the antecedents and consequences) and the latent construct (i.e., attitudes) to be measured. Important questions about the validity and reliability of the instrument need to be addressed (Schmitt & Klimoski, 1991; Nunnally, 1976). In this respect, the first question relates to the measurement's capacity to express effectively related theoretical concepts (validity). The second question is related to the stability of the measurement when repeated over time (reliability). Thus the measurement of credit cardholder attitude-behaviour model will involve linking abstract conceptualizations from the marketing, social psychology and economics literature to empirical indicators and the main aim is to meet two fundamental psychometric properties (i.e., reliability and validity) of the resultant measures.

The shaded portion in Figure C3.1 depicts the key issues debated in this chapter. These are measurement and measures (Section C3.1) and research instrument (Section C3.2). In the measurement and measures section, the operationalisation, modification, validation, development of measurement scales as well as the description and origin of measurement scales will be discussed. The measurement scales were in part borrowed and modified from attitudes studies in marketing, economics, trade publications and papers and in part obtained from the interviews and pilot study. Other scales were developed following face-to-face interviews and pilot testing.

In the research instrument section, a step-by-step description of the framework utilised to develop the research questionnaire is detailed.

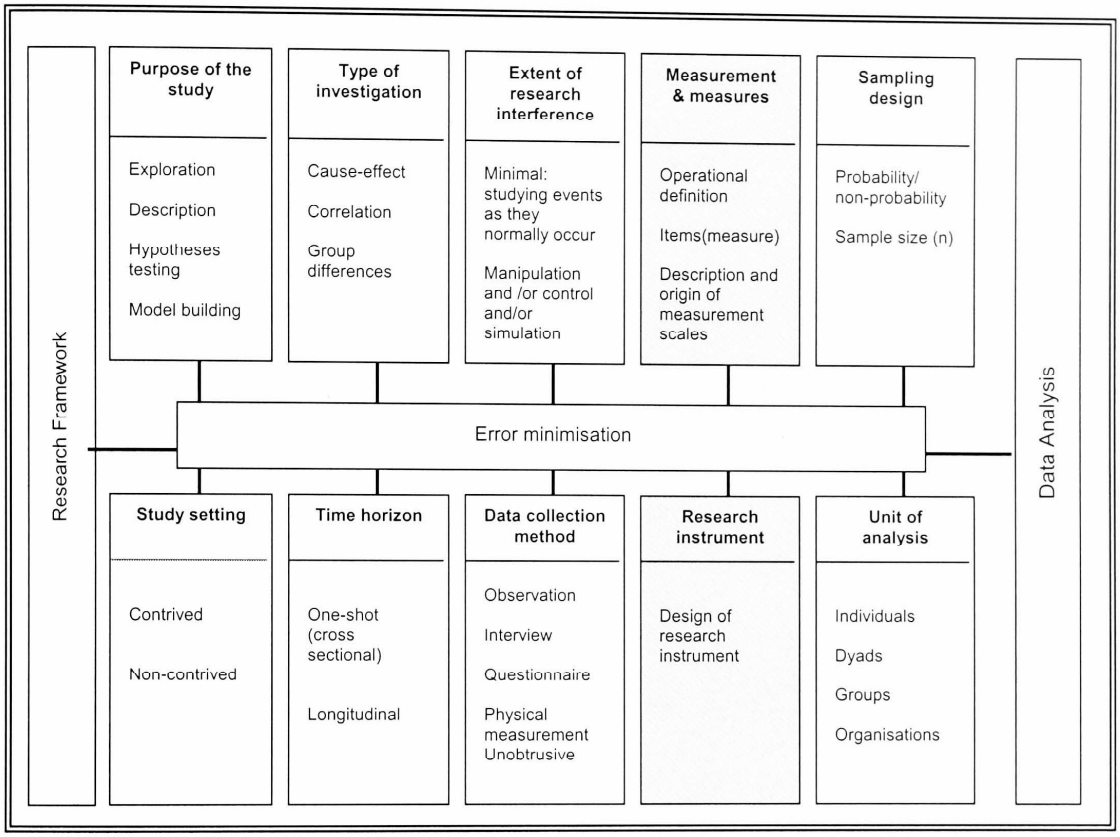

Figure C3.1: The research design (for Chapter C3)

Source: Sekaran, U. (2003) *Research Methods for Business: A skill Building Approach*, 4th edition, New York: John Wiley and Sons Inc.,

C3.1 MEASUREMENT AND MEASURES

Before a research instrument can be formulated, a set of robust measurements needs to be developed. Review of consumer behaviour, economics and social psychology papers, textbooks and marketing literature provided the basis for the specification of

the concepts related to the research constructs and their dimensions. The rigorous procedure adopted in the operationalisation of the scale items in the measurement development and questionnaire design process is believed to have resulted in measurement that exhibit considerable content (face) validity. A seven point likert was used in the operationalisation of all items. Each of the items is explained in Section C.3.1.3.

C3.1.1 Conceptualisation of attitudes

In this section the key points related to the conceptualisation of attitude (dimensionality, development of a measurement scale) discussed in Chapter B.1 are summarised. Attitude has been traditionally conceptualised as multi-dimensional construct (Thurstone, 1928, Kitts, 1995) made up of cognitive, affective and conative components and occasionally as a unidimensional construct. The affective component was generally measured on a semantic differential scale (Regan & Fazio, 1977, Crosby & Muehling, 1982) and represents how an individual feels about the action. The cognitive component which measures the extent to which a reasoning process would suggest the action, considers beliefs regarding possible consequences of performing the behaviour. These are generally operationalised in terms of "expectancy-value" statemement (Ajzen & Fishbein, 1969, 1973, 1977; Bagozzi & Burkrant, 1979) which is a summary of positive and negative outcomes that the respondent expects will occur as a result of performing the behaviour. In this study, a uni-dimensional measurement for attitude towards credit card borrowing does not suffice reasonable comprehension of its complex nature. Indeed, the construct entail cognitive, behavioural and affective elements as well as industry specific measurements. Therefore the multi-dimensional approach was considered more appropriate.

Several conceptualisations have been developed to evaluate attitudes towards a variety of services and brands (Bearden & Netemeyer, 1999; Bruner & Hensel, 1992). For instance, Galloway and Lopez (1999) developed a six-dimension model of attitude towards national parks. Baloglu (1998) proposed a three-dimension model of attitude

towards destinations, including quality of experience, attractions, and value/environment. While Um and Crompton (1991) developed a five-dimension model of attitude towards pleasure travel consisting of social agreement, active needs, travel ability, passive needs, and intellectual needs providing evidence for the need for a multi-dimensional measurement in non-general studies.

C3.1.2 Modification of measurement scales

C3.1.2.1 Borrowed scales

Caution and care had to be taken when borrowing scales from other studies, otherwise discrepancies are likely to occur in their psychometric performance (see Figure C3.1.2.1). The proposed research involved considerable borrowing of scales, hence it was imperative that potential pitfalls/problems linked to scale borrowing were identified, understood and eliminated or at least reduced. Handbooks of marketing scales (e.g. Bearden *et al.*, 1993; Bruner & Hensel 1992) were consulted for the same purpose. This led to the conclusion that measurement scales for some constructs were not available and, consequently, had to be developed for the purpose of this study. Measurement scales for other constructs were available, but had to be adapted in order to suit a consumer credit environment. Table C3.1.2.1, indicates the sources (essentially literature review and in-depth interviews) that were used as input in order to generate items for measuring the constructs in this study.

Table C3.1.2.1: **Sources for Construct Measurement**

HIGHER-ORDER	CONSTRUCTS	ITEMS	SOURCE
Attitude towards future interest rates	Balance-hopping	3	Chen, Hanna and Montalto, 1998) Mester (1994)
	Interest rates expectations	1	
Attitude towards future real income	Economic optimism	3	(Grable and Lytton, 1999) (Devaney, 2001)
	Attitude towards Future income	3	
Attitude towards financial risk	Comfort	2	(Grable and Lytton, 1999) (Grable and Joo, 2000).
	Risk	3	
	Safety	3	
Attitude towards saving	Precaution motive	3	(Grable and Joo, 2000) (Roberts and Jones, 2001)
	Protection motive	3	
	Control	3	
Personal Values	Personal values	8	(Kahle, 1983)
Experience outcome	Experience	4	Bagozzi and Warshaw (1990)
	Satisfaction	1	
Cardholder behaviour	Cardholder behaviour	1	(Hamilton and Khan , 1997) Etzel and Jones (1978)
Overall attitude towards credit cards	Overall attitude towards credit	4	(Kaynak, 1996) Kaynak and Kucukemiroglu, 1996) (Awh and Waters, 2001) (Kaynak and Harcar, 2001) (Brobeck, 1992) (Ho, 1994) (Warneryd 1989) Chebat and Laroche (1988) Etzel and Jones (1978)
	Over-spending	4	
	Debt aversion	3	
	Convenience	3	
	Self-control	3	
	Credit worthiness	4	
	Financing role	3	

Most of the scales were taken from papers published in top ranking journals (Hult *et al.,* 1997) and adapted to the proposed research. Borrowed scales were checked (see Chapter D.1) for their validity, reliability and research context (i.e., services

marketing/consumer behaviour in retail services). The internal consistency of all scales and the inclusive sub-scales were assessed before further analysis was conducted. The unreliable items were then deleted, and the revised scales were reassessed until they met reliability and validity criteria.

The borrowed scales were selected and adapted through the application of framework suggested by Engelland *et al.* (2001). The framework was utlised as a benchmark to assess and acknowledge the fitness of borrowed scales for use within the proposed investigation. The succinct form of Engelland *et al.* (2001) framework is shown in Figure C3.2.

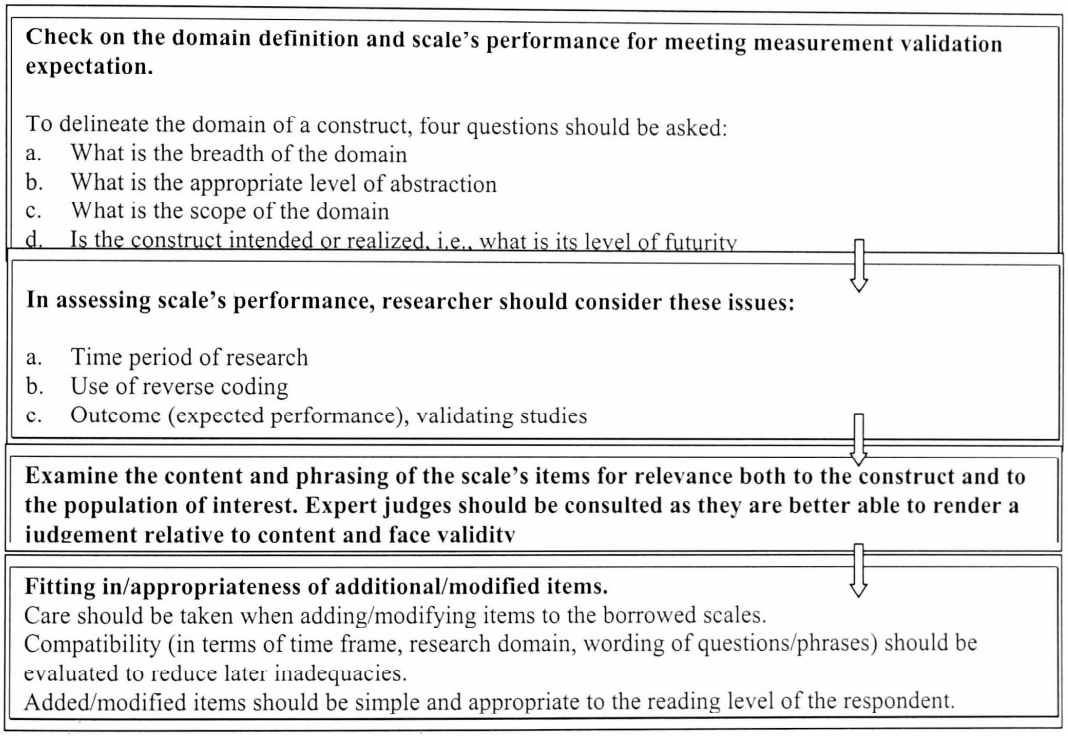

Figure C3.2: Engelland et al. (2001) framework for selecting and adapting scales

Source: Engelland, B. T., Alford, B. L. and Taylor, R. D. (2001): Cautions and precautions on the use of 'borrowed' scales in marketing research, In: T. A. Suter (editor), *Marketing advances in pedagogy, process and philosophy: Proceedings of the annual meeting of the society for marketing advances*, New Orleans, LA, November 6-10, pp. 152-153

The application of the Engelland *et al.* (2001) framework to the proposed research was as follows:

1. **Checking on the domain definition and scale's performance for meeting measurement validation expectation**: A prerequisite of reliability and validity of the scale was to improve the scale's performance. To ensure measurement reliability in operationalising the research constructs, the author attempted to use items that had been validated in prior research.

   The independent constructs were measured with reflective items/sub-constructs. For reflective measures, all items (at sub-construct level) were viewed as parallel (i.e., congeneric) measures capturing the same dimension. Thus, the standard approach for evaluation, where all path loadings from construct to measures are expected to be strong (i.e., 0.70 or higher), was used.

   Review of marketing and economics papers covering attitude and behaviours of credit cardholders, textbooks and other relevant information sources (such as credit card industry publications, magazines and electronic publications) and discussions with credit cardholders provided a sound base for the specification of the concepts related to the research constructs. In particular, a thorough study of published operationalisations in reputable journals (Hult *et al.*, 1997) provided the initial pool of scales. Papers by Kaynak and Ugur (1984), Chebat and Laroche (1988), Mester (1994) Etzel and Jones (1978), Awh and Waters (1974), and Chien and Devaney (2001) were amongst the prime studies that included attitudes and behaviour towards credit constructs and their operationalisations. Furthermore, a number of scale items were obtained from Marketing Scales Handbook: A Compilation of Multi-Item Measures by Bruner et al. (2001) and Handbook of Marketing Scales by Bearden and Netemeyer (1999). These scales have been found to be reliable and valid.

2. **Assessing the scale's performance:** The scales were largely borrowed from papers and books that were published in the last ten years. Even though most of the borrowed scales had acceptable validity and reliability, all the scales were reassessed after the pilot study for reliability and validity (see Sections

D1.1 and D1.2 for reassessed reliability and validity results on whole sample). Hence using scales with acceptable reliability and validity in the first place was considered as a constructive initial step in evaluating their appropriateness for the proposed investigation. Reaffirming their reliability and validity further substantiated their suitability for the intended use. As recommended in the Engelland *et al.* (2001) framework, reverse coding was taken off from all the items before the reassessment of their validity and reliability.

3. **Examining the content and phrasing of the scale's items for relevance both to the construct and to the population of interest:** The effectiveness of measurement scales in conveying the meaning of the intended variable in a clear and succinct manner was tested in pre-test interviews (see Section C2.5.1). Changes relating to the use of jargon, item similarity, duplication of items and rephrasing of items were suggested. Relevant feedback was incorporated to revise the scales.

4. **Appropriateness of modified scales:** After making the changes suggested by credit cardholders, a pilot study was conducted to establish the adequacy and appropriateness of scales in measuring the proposed constructs (see Section 3.2). The results of the pilot study indicated that deployed scales were explicit in their meaning and were clearly understood by majority of the respondents. Validity (content and discriminant validity) and reliability (Cronbach's α value, item-to-total correlation and composite reliability) values were above the 0.50 threshold for correlation(Hair *et al.*, 1998) and above 0.70 for Cronbach's α which further supported the suitability of scales for proposed research (see Tables D1.1.3.1, D1.1.3.3, D1.2.2.1, D1.2.2.2, D1.2.3(a) and D1.2.3(b)) for reliability and validity results).

C3.1.2.2 Development of measurement scale for attitude construct

It is important that the measures used in this research are developed and investigated for their reliability and validity properties before the main study is conducted. In order to develop the new attitudinal scale, 'better measures development' framework suggested by Churchill, (1979) was followed. The main reasons for using the Churchill (1979) framework were:

- Framework detailed a tested methodology for the development and execution of multi-item scales/measures.
- The framework has been previously used for developing marketing measures/scales

The rest of the section details the key steps suggested in Churchill (1979) 'better measurement development' framework and their application in developing the attitudinal scale.

1. **Specify domain of construct:** The first step in this procedure involves specifying the domain of the construct that is to be measured. In this stage the researcher must be exact and precise in the conceptual specification of the construct and what is and what is not included in the domain. A thorough study of cardholder behaviour and attitude papers and books from 1970 to 2004 supported by intensive discussions (see Section C2.6.1) with individual credit cardholders provided the basis for the specification of the concepts that were related to the attitude construct within the credit card sector. Besides consumer credit literature related areas such as household economics, social psychology were also reviewed in order to specify the domain of the construct.
2. **Generate scale items:** The second step in the procedure for developing better measures is to generate items that capture the domain as specified. A comprehensive literature review and discussion with key individuals are generally productive. In this research, two of the techniques suggested above were used in generating scale items. A thorough review of literature was

conducted to determine how the constructs have been defined previously and how many dimensions or components it has. Subsequently, fifteen credit cardholders were interviewed face-to-face. They were asked to express their attitudes regarding credit cards in general and their typical behaviour. Their feedback generated a series of words. The collected information was transformed into multi-item scales for the data collection instrument.

3. **Data collection:** The third step involves collecting data from a pre-test sample.

4. **Purification of scale items:** In this step, the data collected in the previous step were used to "purify" the measure. This step basically involves omitting those items that do not correlate highly with the total score for the overall measure or the specific dimensions with which they are related. In addition, if all items are extracted from the domain of a single construct, responses to those items should be highly inter-correlated. A low inter-item correlation therefore suggests that some items were not extracted from the appropriate domain, thus resulting in error and unreliability (Nunnally, 1967). The recommended measure which results directly from the assumptions of the domain sampling model is the internal consistency of a set of items which provides what is called Cronbach's coefficient alpha. Coefficient alpha should be the first measure computed to evaluate the quality of the instrument. It is full with meaning because the square root of coefficient alpha is the estimated correlation of *k*-item test with errorless true scores (Nunnally, 1967). Thus, a low coefficient alpha indicates the sample of items performs poorly in capturing the construct while a high coefficient alpha suggests that the k-item test correlates well with true scores.

   Nunnally (1967) argues that in the early stages of basic research reliabilities of 0.50 to 0.60 are sufficient and that increasing them beyond 0.80 is unnecessary because at that level, correlations are attenuated very little by measurement error. In most applied settings, when important decisions are made with respect to specific test scores a reliability of 0.90 is the minimum

that should be tolerated and a reliability of 0.95 should be considered the desirable standard. In this research alpha coefficients were calculated for each of the scale components. Since all of these alpha coefficients exceeded 0.60 the instrument seemed worthy of further testing.

5. **Testing the revised instrument:** In this step new data were gathered to conduct further tests of the revised scale. The new data comprise the main study of this research. The length of the questionnaire has been reduced and as a result its appearance had changed since the initial test. The final questionnaire was tested using personal interviews with fifty UK credit cardholders. The questionnaire was of a highly structured format.

6. **Evaluation of reliability:** This step is concerned with determining the reliability of the data that were collected in the main study. The technique adopted in this stage of developing better measures is the calculation of Cronbach's alpha. It was shown previously that internal consistency of an instrument is a critical prerequisite for reliability. If the items are all extracted from the same domain, they should be highly intercorrelated. If the instrument is not internally consistent, it is likely that errors have occurred in the sampling of items. Consequently, the instrument will produce inaccurate and unreliable measurements. Almost all of the alpha coefficients for the overall scale and its components are well above the 0.60 mark; thus the instrument's reliability seems more than adequate for most research applications of this nature.

7. **Evaluation of validity:** The last step in the procedure is the evaluation of validity of the scale used. Several different types of validity have been conceptualised. In general, an instrument is valid if it measures what it is supposed to measure. Peter and Churchill (1986) concluded that in determining the degree of construct validity it is of highest importance that researchers emphasise in particular the theories, the processes used to develop the measures and judgement of content validity. In this research both content

and construct validity were considered in evaluating the overall validity of the measures used in the instrument.

C3.1.3 Descriptions and origins of measurement scales

Attitudes can be measured by a quantitative technique i.e. each person's opinion can be represented by a numerical score. In this study, it is hypothesised that FAPR (attitude towards future APR), FUTURINC (attitude towards future real income), FINRISK (attitude towards financial risk), SAVE (attitude towards saving), VALUES (Personal Values) and EXPER (Experience outcome/evaluation) are independent attitudinal variables that will determine the cardholder's attitude towards card borrowing; In turn, under the modified Fishbein and Ajzen model (1980), attitude towards credit card borrowing will directly (i.e. without mediation by behavioural intent) determine the cardholder's behaviour. Another assumption, was that all attitudinal constructs (FAPR, FUTURINC, FINRISK, SAVE and OVERALL) were conceptualised as higher-order multi-dimensional constructs.

The next step was to decide on the format of individual items. It is proposed to use a seven-point interval Likert-scale for the operationalisation of all attitudinal items (attitudes toward future income, financial risk, future interest rates, saving) and all constructs. The use of a Likert scale implies asking respondents to indicate e.g. a degree of agreement or disagreement with a (series of) statement(s). This scale is regarded as an itemised rating scale because each category of the scale is numbered and/or briefly described (Churchill 1995; Malhotra 1996). Likert scales allow respondents to express the intensity of their feelings (Churchill 1995; DeVellis 1991). Moreover, its ease of construction and the simplicity of respondent directions are regarded as true advantages of the scale (Malhotra 1996). The specific format of the employed Likert scale is characterized by: (1) an odd number of response options, (2) a total number of seven response options, (3) balanced response options, (4) a forced choice of response options (close-ended), (5) accompanying labels for each response option, (6) blank boxes as choice indicators, and (7) only positive item formulations. According to Malhotra (1996), the Likert scale consists by definition of an odd number

of response options. If at least some of the respondents can reveal neutral responses, these respondents should be given the opportunity to express their neutrality (DeVellis 1991; Dillon *et al.*, 1993; Malhotra 1996; Weiers 1988).

Likert scales were also used because of its typical use within the consumer behaviour research. These scales allow respondents to give "more discriminating responses" (Collis & Hussey, 2003). They have also been used in a series of attitudinal studies in the financial services sector (Chan, 1997, Gorniak, 1999, Roberts & Jones, 2001; Furnham, 2001). They are easy to construct and administer, and respondents are familiar with their format. This makes Likert-type scales suitable for survey-type research (either mail or personal interview). A major drawback is that Likert-type scales take longer to complete than other itemized rating scales because the respondents have to read and fully reflect upon each statement (Malhorta & Birks, 2003). A seven-point scale was selected because empirical evidence of a positive relationship between the number of scale points and scale reliability was found (Churchill & Peter, 1984). The larger the number of response options, the finer respondents can be discriminated from each other (Churchill & Peter 1984; Dillon *et al.*, 1990; Malhotra, 1996; Martin, 1978; Parasuraman, 1991; Weiers, 1988). The underlying reason for this is that a larger number of scale points leads to larger variances, resulting in increased reliability (DeVellis, 1991; Nunnally, 1978; Nunnally & Bernstein, 1994).

What follows are the measurement scale details for each construct, starting with attitudes in general.

- **Attitudes towards credit cards (OVERALL):** A multi-item Likert-scale was used because they are the most frequently used attitude measurement scales in social sciences. They have been used in money-related attitudinal research (Godwin, 1997; Gorniak, 1999; Grable & Joo, 2000) and good reliability levels have been found. Kara and Kaynak (1996) but also Jones (2004) developed a 5-point multi-item Likert-scale to assess the attitude of credit cardholders. Similar Likert-type scale was used by Xiao et al. (1995) to measure college students'

attitudes toward credit and by Etzel and Donnelly (1972) and Yiu and Kwoen (1987) to measure attitudes towards credit cards and bank cards.

- **Attitude towards financial risk (FINRISK):** MacCrimmon and Wehrung (1986) recommend the use of a questionnaire-type instrument because this type of measure does not subject a respondent's tolerances to "subtle influences of the decision analyst during the assessment process". Grable and Lytton (1999) have proposed a framework for the development of a financial risk tolerance measurement instrument, and, based upon this framework, propose a financial risk-tolerance assessment instrument with corresponding reliability and validity estimates. The above have found high degree of validity and reliability on their 13-item financial risk-tolerance index. In the classical psychometric approach, constructs such as risk attitude are measured by asking respondents to indicate the extent to which they agree or disagree with a set of statements (Nunnally & Bernstein, 1994) typically likert-type scales. However, few, if any, widely accepted instruments are available to measure individuals' attitude towards financial risk (Roszkowski *et al.*, 1993, p. 230). Researchers have therefore developed their own scales. In this study a multi-item Likert-type scale for the measurement of financial risk attitude is employed. Similar scales (4-points) have been found to produce acceptable reliability levels (see Grable and Jo, 1999).

- **Attitude towards saving (SAVE):** Gorniak (1999) developed a 25-item Likert-scale to measure attitude towards money. Grable and Joo (2000) also used 4-point Likert-type scales for every construct of their "Retirement Investment and Savings Decision Model".

- **Attitude towards future real income (FUTURINC):** The concept has empirically been measured on a categorical scale with Expectation about future family income coded as 1 if the respondent expected total family income to go up more; 0 otherwise (U.S. Survey of consumer finances, 1992, 1996). In this study a multi-item (seven point) Likert-scale based on the similar "scale of economic optimism" which was found to be reliable (see Gorniak, 1999) is employed.

- **Attitude towards future APR (FAPR):** In their study on factors that influence people's attitude toward the use of credit when their income is cut, Devaney and Castellani (2001) coded this variable as 1 if income was lower than expected and 0 if otherwise. To offer consistency in measurement of all attitudinal factors (independent variables) a seven point multi-item Likert-type scale is adopted for the measurement of this attitudinal construct.

- **Personal Values (VALUES):** Kahle (1994) developed the 9-item terminal value scale measuring personal values. Kahle's original List of Values (LOV) consists of nine terminal values, followed by brief explanations describing the nine values. The nine values were measured on a nine-point Likert-scale ranging from "important to me" (1) to "most important to me" (9).

- **Experience outcome (EXPER):** The construct "EXPER" measures the outcomes of previous experiences with other forms of credit. Previous studies (Grady & Fram, 1995) have used likert-type scales to measure this type of construct. A seven point multi-item Likert-type scale is employed for the measurement of this attitudinal construct.

- **Credit Cardholder behaviour (REPAY):** The type of scale used is based on the assumption that the cardholder behaviour varies on a continuum from always pay in full to never pay in full. A nominal scale would therefore not be suitable for this purpose. Besides, they are not amenable to mathematical operations like calculations of means, coefficients of correlation, etc. It is, therefore, proposed to use a seven point single item Likert-scale, improving on Eli Jones (2004) 5-point Likert scale used to measure credit card use.

Overall Attitude Towards Credit Cards (OVERALL)

1. **Measure:** Previous studies (Brobeck, 1992) associated the construct with four dimensions: role as a finance tool, confidence over credit card repayments, satisfaction over interest rates and debt. One-to-one interviews highlighted the following dimensions among cardholders: debt-aversion, self-control, over-

spending and flexibility over repayments. Therefore the measurement items should account for the above dimensions to measure for this construct.

This construct has been initially (i.e. before reliability and validity tests were conducted) conceptualised as containing five dimensions. To psychologists Eagly and Chaiken (1992) attitudes are "a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour... in all classes of responding whether cognitive, affective or behavioural". This construct refers to the credit cardholder's predisposition to use his/her card as borrowing instrument. Using Lutz's (1991) generic definition, attitudes towards credit card borrowing are "predispositions which give consistently favourable or unfavourable responses" to use the credit card as a borrowing instrument by revolving credit card balances.

- Overall attitude towards credit: This sub-construct accounts for the fact that one's attitude towards credit cards is first determined by attitude towards credit in general.

- Debt-aversion: This sub-construct is borrowed from the services marketing literature (O' Curry, 2003). It is improved using a seven-point Likert scale (empirical evidence of a positive relationship between the number of scale points and scale reliability was found (Churchill & Peter, 1984).

- Convenience motive: This sub-construct accounts for the convenience credit cards offer (revolving line of credit, ability to use abroad, safer than cash etc..).

- Over-spending: This item measures for the hypothesis that the credit card borrowing behaviour can be unintentional (Ausubel, 1991) and therefore creates a fear of "over-stretching" one's budget.

- Credit-worthiness: This sub-construct is borrowed from Kaynak and Kucukemiroglu (1995) and accounts for the card holder's self-belief regarding his ability to obtain/access credit.

- Role as a finance tool: This sub-construct is borrowed from Brobeck (1992) and is measured on a seven-point Likert-scale.

- Self-control: This sub-construct was highlighted during interviews with credit cardholders. It was also borrowed from credit card economics studies (Bertaut & Haliassos, 2002).

2. **Measurement:** While several studies measured attitudes towards credit cards as a categorical variable coded either (1) for good or (0) for bad (Durkin, 2000; Devaney, 2001; Lee & Kwon, 2002), the interviews revealed cardholders' attitudes to be less polarised than attitudes towards other types of consumer credit (loans, hire-purchase). Because of the versatility of credit cards, respondents had mixed views on revolving credit card balances.

   Borrowing from Gorniak's money attitude scale (1999) a seven point Likert scale is employed. Previous measurements (Gorniak, 1999; Durkin, 2000; Kaynak & Harcar, 2001) adopted a similar approach.

Attitude towards future interest rates (FAPR)

1. **Measure:** FAPR refers to the cardholder' expectations about future interest payments on his credit card balance. To a cardholder APR is the "price of credit" (Park, 1993) and FAPR (our construct) refers to the cardholder' expectations about future interest rates. Interest rates will effectively affect transactors and revolvers differently. Measurement items should therefore account for both segments.

   - Expectation: Expectation about interest rate were coded on a 7 point semantic scale ranging from "Significantly increase" to "Significantly decrease" improving on previous research were the construct was coded a dichotomical construct i.e. 1 if the respondent expected the interest rate to be higher than current interest rate, 0 otherwise (Chen *et al.*, 1998). A similar measurement was employed in the 1998 U.S. Survey of Consumer Finance where the construct was considered as a categorical variable.

   - Balance-hopping: This is another word for attrition. The phenomenon occurs when cardholder transfer their credit card outstanding balance to a lower APR (see Ausubel, 1999).

2. **Measurement**: The construct was operationalised with two sub-constructs measured on a Likert-scale.

Attitude towards future real income (FUTURINC)

1. **Measure:** The use of credit cards is an act of financing current consumption with anticipated future income (Bryant, 1990). Because future income is uncertain, consumers' borrowing decisions depend on their confidence in the future in particular; confidence about future income may significantly affect the financing decisions of the consumers who rely heavily on future income. When confidence is low, those consumers are discouraged from purchasing goods in the current period (Park, 1993 and Hendricks *et al.*, 1973).

   During the interviews, FUTURINC was associated with "the concept of "expectations" about future of income (Devaney, 2001). Hence, an individual who expects his future income to increase is likely to have less negative attitude towards credit card debt. This form of economic optimism will create confidence over the ability to repay amount owed on the credit card and therefore a less negative attitude towards card debt (Kaili, 1996).

   Measurement items should therefore include the above dimensions of economic optimism and confidence over future real income.

   - Economic optimism (Grable & Lytton, 1999): The general belief that the economy will perform well in the future is closely associated with attitude towards future real income. Although Gorniak (1999) measured "economic optimism" on a Likert-scale, in recent Industry-specific studies (Chen *et al.*, 1998; Devaney, 2001) coded the construct as a categorical variable with 1 if respondent expected his income to go up and 0 otherwise. One-to-one interviews showed less polarised opinions and consequently a seven point Likert-scale is employed that represents an improved version of the one proposed by Gorniak (1999).

- Confidence over future real income: This sub-construct measures the cardholder's confidence about his future real income. This item has been supported in the operationalisation above. This variable was coded as 1 if income was lower than expected and 0 if otherwise (Devaney, 2001). This study employs a seven-point Likert-type scale to measure for this sub-construct.

2. **Measurement:** A Likert-scale is employed for all of the above.

Attitude towards financial risk (FINRISK)

1. **Measure:** While risk is defined as uncertainty about a future outcome, attitude towards financial risk (or financial risk tolerance) is "the maximum amount of volatility someone is willing to accept when making a financial decision"(Grable & Joo, 2000). In the economics and psychology literature the concept (used in an investment context) was associated with safety, returns, comfort, loss, and luck (Grable & Lytton, 1999). In this study FINRISK refers to the credit cardholder's predisposition to incur financial risk. Similar dimensions were identified during the interviews. The concept of "luck" is removed since it applies predominantly to the context of investments rather than credit cards.

   - Safety: This sub-construct has been supported in the literature (see above) and is used to measure the safety motive underlying the cardholder's aversion to risk.
   - Comfort: This sub-construct accounts for the discomfort associated with financial risk. It is adapted from Grable and Lytton (1999) who used it as one of their risk-tolerance assessment items.
   - Financial Loss: This sub-construct refers to the fear of "losing money" or potential illiquidity generated by variable interest rates and associated charges. It is adapted from Grable and Lytton (1999) who used it as one of their risk-tolerance assessment items.

2. **Measurement:** Few, if any, widely accepted instruments are available to measure individuals' attitude towards financial risk (Roszkowski *et al.*, 1993, p.230). Likert-scale based attitude measurement indexes have been popular among economists (Canner & Cyrnak, 1986; MacCrimmon & Wehrung, 1986; Grable & Lytton, 1999). The author also found high degree of validity and reliability for their scales.

   Measurement items for this construct were adapted from Grable and Lytton's Financial Risk-Tolerance Assessment Items (see above). Returns and luck are irrelevant in a credit card context (unlike in investment). Therefore the dimensions of safety, comfort and loss are retained. Questions to assess the financial risk tolerance of the credit cardholder were recorded on a seven-point Likert scale, improving on Grable and Joo(2000)'s four-point Likert-type scale.

Attitude towards saving (SAVE)

1. **Measure:** Saving means "postponing consumption of something so that future consumption is made possible" (Warneryd, 1999). Hence saving is regarded as an "intertemporal trade-off" between present and future consumption. Saving was also seen as a "protection" against financial risk (Dahlback, 1991) and respondents in the interviews associated the construct with "caution". They also mentioned the dimensions of "control" and "financial planning" when asked about attitudes towards saving.

   - Precaution: This sub-construct is used to account for the precautionary function of savings as identified in the economics and psychology literature as well as the interviews.
   - Protection: This sub-construct accounts for basic need of security that underlies saving.
   - Control: This sub-construct is supported in the literature (O'Curry, 2003; Gorniak, 1999).

2. **Measurement:** As before a seven point Likert scale is employed.

Outcome from experienced behaviour (EXPER)

1. **Measure:** This construct refers to the cardholder's overall level of satisfaction with other forms of credit. Albarracin and Wyer's study (2000)'s study examined the processes by which past behaviour influences future behaviour. Bagozzi et al (Bagozzi, 1981; Bagozzi *et al.*, 1989) show that previous purchase history can sometimes be a better predictor of future purchase behaviour than attitudes and intentions. It is assumed that if previous credit exposure is positive then this will reinforce one's attitude towards using credit cards as a credit vehicle.

   - Satisfaction: Satisfaction has previously been measured on attitude Likert-type scales (Usrey & Dooley, 1998 p.4; Torn & Ohman, 2001). In this study, overall satisfaction with the previous credit use was measured using a single item scale that referred to overall satisfaction with obtaining past credit.
   - Familiarity: The scale items for this sub-construct were developed following a series of interviews and pilots with credit cardholders.

2. **Measurement:** Respondents were asked to provide answers to the various statements on a 7-point Likert scale anchored at 'Strongly Agree' and 'Strongly Disagree'.

Cardholder behaviour (REPAY)

1. **Measure:** Cardholder behaviour is defined as the actual dominant type of use of the card for any particular individual (see Canner & Cyrnak, 1985). Although the reality is somehow less contrasted, there are typically two types of cardholder behaviour (excluding inactive cardholders): revolvers and transactors (Hamilton & Khan, 2001; Canner & Cyrnak, 1986). This definition has implications for the classification and measurement of the construct. In the economics and marketing

literature the construct has been associated with outstanding balance on the card and repayment frequency.

2. **Measurement:** In line with authors such as Durkin (2000) and Lee and Kwon (2002) this construct has been measured using a single item. However, unlike the above authors who used a categorical scale (i.e., to indicate whether a revolver or a transactor), in this study a seven point scale anchored at 'Always paid in full' and 'Never paid in full' is employed (an extension of the scale employed by Eli Jones, 2004). Feedback obtained during discussions with credit card holders indicates that their behaviour is not always consistent, thus making a dichotomous classification unrealistic. In addition, this construct is considered to represent a concrete singular according to the classification provided by Rossiter (2002) and thus a single item is appropriate.

Personal values (VALUES)

1. **Measures:** Values have been defined as "an organised set of preferential standards that are used in making selections of objections and actions, resolving conflicts, invoking social sanctions, and coping with needs or claims for social and psychological defences of choice made or proposed" (Rokeach, 1968, 1973, 1979), or "general standards by which individuals formulate attitudes and beliefs and according to which they behave" (Posner *et al.*, 1987). The common theme of above definitions is that values influence behaviour. Many scales have been developed for measuring respondents' personal value systems. However, Rokeach's (1973) Value Survey (RVS), the VALS system (Mitchell, 1983), and Kahle's (1983) List of Values (LOV) are probably the most widely academically quoted and empirically applied value measurement instruments (Pitts & Woodside, 1991).

   In this study Kahle's LOV is adopted on the strength that the marketing and social psychology literature describe the List Of Values (LOV) approach as a more parsimonious way to measure values as compared to other approaches. Moreover, the LOV has been described as containing the most items that people say influence

their daily lives (Beatty *et al.*, 1985). In addition, the LOV is "generally easier to administer and simpler for respondents to complete. Finally, they lend themselves more readily to parametric statistical procedures" (McCarty & Shrum, 2000; Munson & MacIntyre, 1979) Kahle's original List of Values (LOV) consists of nine terminal values. In this study Kahle's LOV is adopted on the strength that the marketing and social psychology literature describe the List Of Values (LOV) approach as a more parsimonious way to measure values as compared to other approaches. Moreover, the LOV has been described as containing the most items that people say influence their daily lives (Beatty *et al.*, 1985). In addition, the LOV is "generally easier to administer and simpler for respondents to complete. Finally, they lend themselves more readily to parametric statistical procedures" (McCarty & Shrum, 2000; Munson & MacIntyre, 1979) Kahle's original List of Values (LOV) consists of the following nine terminal values; Sense of belonging, Self-respect, Sense of accomplishment, Being well, Security, Warm relationships with others, Fun and enjoyment in life, Self-fulfilment, Excitement.

2. **Measurement:** The nine values were measured on a seven Likert-scale ranging from "Very important' to 'Very unimportant'.

C3.2 RESEARCH INSTRUMENT

In the design of the research instrument, good practices (as outlined by Sudman & Bradburn, 1982; Tull & Hawkins, 1993; Oppenheim, 1994; Hair *et al.*, 1998; Churchill & Iacobucci, 2001) have been followed. Figure C3.3 illustrates the decisions that although depicted sequentially are interrelated, that should be viewed as a guide or a checklist.

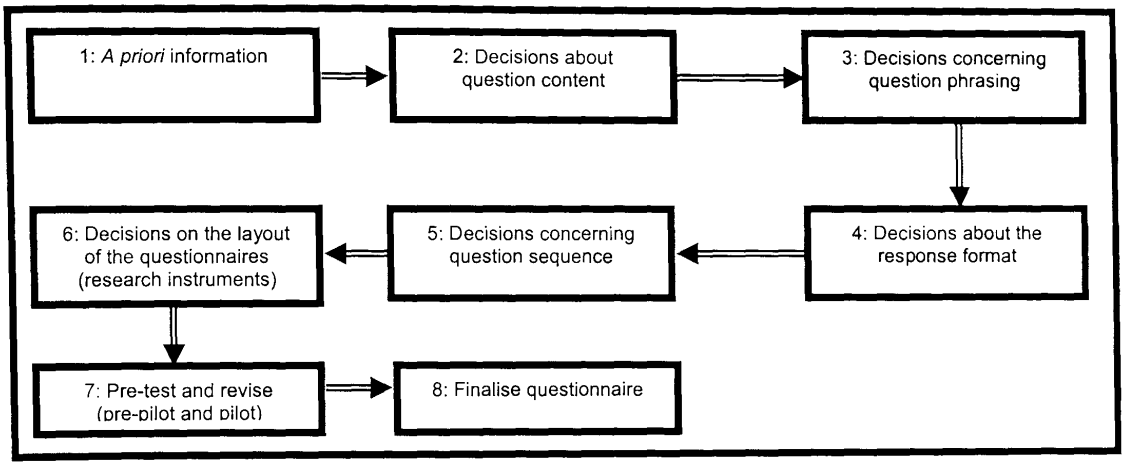

Figure C3.3: Research instrument construction decisions

Source: Churchill, G. A., Jr. and Iacobucci, D. (2001): *Marketing Research: Methodological Foundations,* 7th edition, Holt Rinehart and Winston

Each of the decisions will be discussed in turn.

1. **A priori information**: Prior to the construction of the actual research instruments, decisions regarding the exact type of information sought from different respondents had to be considered in conjunction with the data collection methods to be employed. As debated in detail in Section C2.1.1, the exploratory phase of the research process served to discover aspects about the attitudes and behaviour of credit cardholders.

2. **Decisions about question content**: Once the topic for questions were decided, due consideration was given to the question content, i.e. the words used and the information that they were expected to acquire. Question content was thoroughly verified during pilot stage to ensure the statements presented sufficient face validity. This requirement was deemed to have been met as statements/items were in part borrowed from the literature, in part developed after face-to-face interviews and focus groups having passed the validity tests.

3. **Decisions concerning question phrasing:** Due consideration was given to ensure that the questions were phrased in a way that were clearly understood by individual credit cardholders. Particular attention was placed on the following issues:

- avoiding the use of jargon
- omitting leading, double-edged and biased questions
- omission of negative statements; omission of contradictory statements under same construct.

4. **Decision about response format**: The response format was based on a Likert scale (Chan, 1997;Cobanoglu *et al.*, 2003; Kaynak & Harcar, 2001) because they have been used in services/financial services marketing studies; except in cases where nominal format was used for gender, age group etc.

5. **Decisions concerning the sequence of questions**: The questionnaire was divided in eight sections noted A to H. The questions were sequenced in such an order that made it easier/comfortable for the respondent to complete the questionnaire. The most general and straight forward questions were placed at the beginning of each section. Sensitive questions (e.g., questions related to repayment behaviour) were placed towards the end of the questionnaire and additional 'tick the box' questions were placed at the end of the questionnaires. This allowed time for the respondent to settle down and feel easy with the questionnaire. Additional questions related to gender, postcode, age group were added to the questionnaires.

6. **Decisions on the layout of the research instrument**: The physical characteristics of the research instruments have been found to affect not only the accuracy of the replies, but also the manner in which respondents react and the ease with which the replies can be processed (Sanchez, 1992). Therefore, particular attention was given to the questionnaire design and layout. In particular respondents were asked to comment on the layout of the questionnaire and the clarity of instructions during the pilot stage. As a result of the feedback, the questionnaire was professionally printed with a soft photo design on the front cover displaying the Kingston Business School and Kingston University logos. Furthermore questionnaire was divided into 7 parts (with clear headings from A to H) with each section related to a construct (e.g., credit card use, attitude towards financial risk, etc.).

7. **Pre-test and revise:** Piloting is defined as the activity related to the development of the questionnaire to be used in a survey or experiment (Green *et al.*, 1988). The purpose of a pilot is to ensure that the expectations of the researcher in terms of the information that will be obtained from the questionnaire are met. The literature on piloting/pre-testing (reviewed by Reynolds *et al.*, 1993) identified the following two main issues that should be addressed by a pilot study:

   - Respondents' understanding of the instrument and of individual questions.
   - The physical characteristics such as size and layout of the research instrument.

   In addition the pilot study verified the reliability and validity of the scales. Therefore in order to ensure that potential problems associated with the research instrument were highlighted, and dealt with, the researcher undertook a vigorous pre-testing approach based on an extensive. Despite the extensive exploratory work conducted during the construction of the research instrument the adequacy of the research instrument was an issue that needed attention (Moser and Kalton, 1979). There is a consensus within marketing literature that piloting is an integral part of the research instrument development process with a clear message that no survey should be undertaken without a series of pre-test (Bolton, 1991; Zikmund, 1991; Tull & Hawkins, 1993; Churchill & Iacobucci, 2001). In highlighting the importance of piloting/pre-testing in the research development process, Churchill and Iaccobucci (2001) state that 'the researcher who avoids a questionnaire pre-test is either naive or a fool'. The pre-test is the most inexpensive insurance the researcher can buy to ensure the success of the questionnaire and the research project'.

8. **Finalise questionnaire**: The final version of the research instrument (see Appendix) reflected the improvements made during the pre-pilot and pilot stages.

C3.3 REFLECTIVE VERSUS FORMATIVE CONSTRUCTS

Reflective measures reflect a latent, unobservable construct. These measures are also called effect indicators because they are the effect of a latent construct (Bollen &

Lennox, 1991). On the other hand, formative measures form or create an emergent unobservable latent construct. They are called cause indicators because they cause or form the latent construct (Bollen & Lennox, 1991). As shown in Figure C3.1.2 below, in the case of reflective indicators (R1, R2, R3), the arrows point from the latent construct to the observed indicators, whereas in the case of formative indicators (F1, F2, F3), the arrows point in the opposite direction, from the observed indicators to the emergent latent construct. As demonstrated by Jarvis *et al.* (2003), analysing a formative construct as if it were reflective can lead to falsely conclude that the construct has an effect on other constructs. Since the direction of measure-construct relationship for reflective indicators is the opposite to that for formative indicators, the decision to model indicators as either reflective or formative is an important one when using the SEM-based partial least squares (PLS) approach.

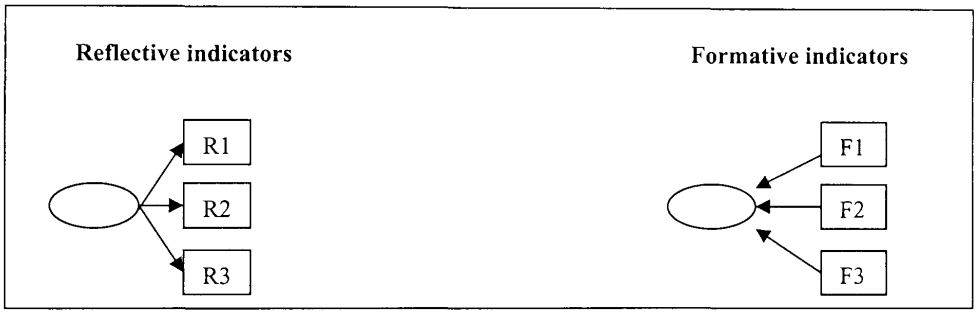

Figure C.3.1.2 Reflective versus formative indicators

According to Chin (1998c), the decision to model indicators as reflective is based on two important considerations. First, it should be possible to conceptually argue that the measures are effects of the latent construct. Second, the measures should be highly (and positively) correlated-both theoretically and empirically. In other words, a change in the latent construct or in one of the measures of the latent construct should result in a reasonably large change in the same direction for all the other measures of the latent construct. If both conditions are not fulfilled, it may be more appropriate to model the indicators as formative.

However, Chin (1998c) warns that if the indicators are modeled as formative, it is important that "the indicators are relatively independent of one another, that is, there are no multicollinearlity problems and the sample size is large enough. Also, the formative modeling option may be debatable if the estimates are not stable, and the lack of multicollinealirity is important if the researcher is concerned with understanding the formation process of the latent variable (Chin, 1998c). Further, with formative indicators, since the observed indicators cause the latent construct, examination of correlation or internal consistency is considered to be inappropriate and illogical (Bollen, 1984). Since there are no measures of internal consistent for formative measures, it is important to have a large number of formative measures, to ensure that the domain of the construct being measured is adequate tapped (Bollen & Lennox, 1991). Based on theoretical considerations and empirical evidence (see Pauwels *et al.,* 2001), all constructs (with the exception of cardholder behaviour) in the proposed model are regarded as representing reflective latent variables.

CHAPTER C4: RESEARCH METHODOLOGY (III)

The shaded cells in Figure C4.1 depict the remaining research methodology components that are dealt with in this chapter. Firstly, the sampling design and unit of analysis will be discussed (see Section C4.1). These are followed by a discussion of the efforts to minimise errors and bias (see Section C4.2). The effects of, and remedies for missing data are also discussed (see Section C4.3). The chapter concludes with a description of the statistical methods that will be employed in the analysis of the data in Part D (see Section C4.4) and analytical approach (Section C4.5).

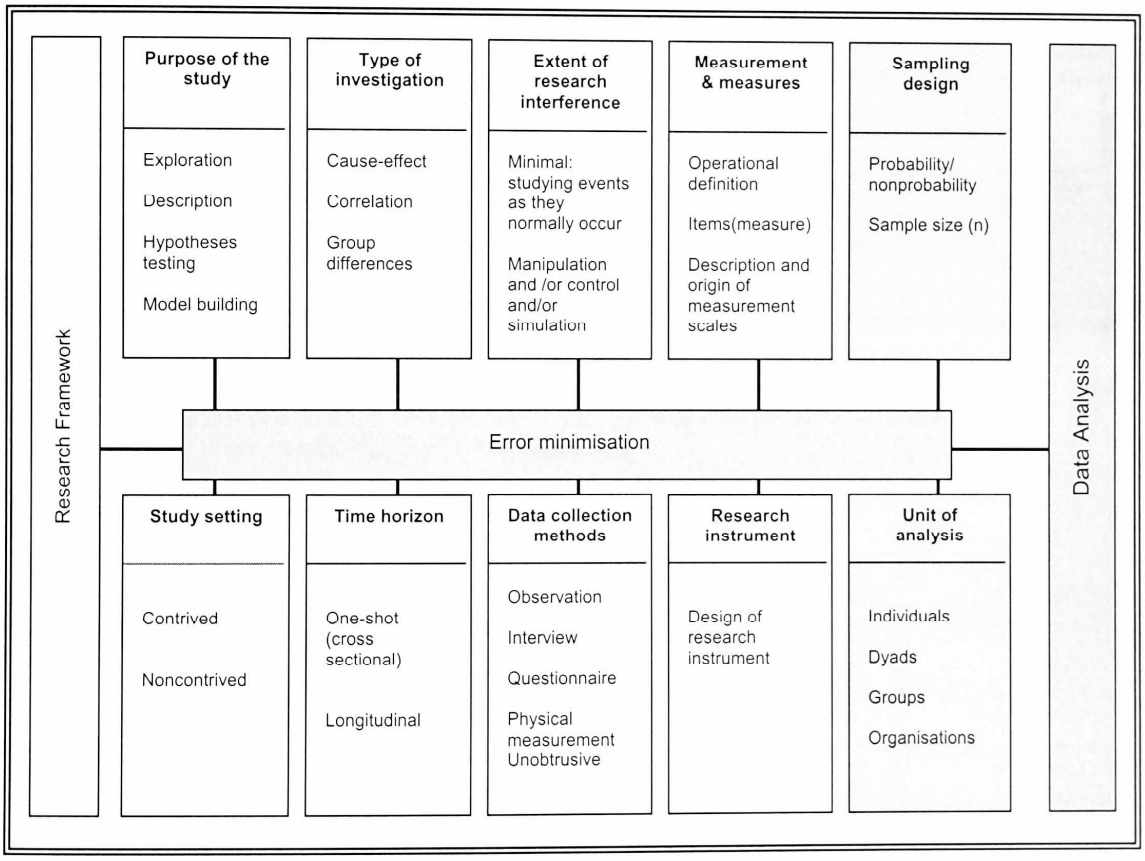

Figure C4.1: The research design (for Chapter C4)

Source: Sekaran, U. (2002), *Research Methods for Business: a skill Building Approach*, 3rd edition, New York: John Wiley and Sons Inc.

C4.1 SAMPLE DESIGN AND UNIT OF ANALYSIS

Using the framework suggested by McDaniel and Gates (2002), the seven steps process for developing an operational sampling plan, depicted in Figure C4.2, was employed. Although, each of the steps is dealt in turn, it must be appreciated that like most of the other methodological considerations, decisions taken at each stage are contingent on other aspects of the research process (e.g., communication method) and determine subsequent decisions (e.g., permissible type(s) of analysis).

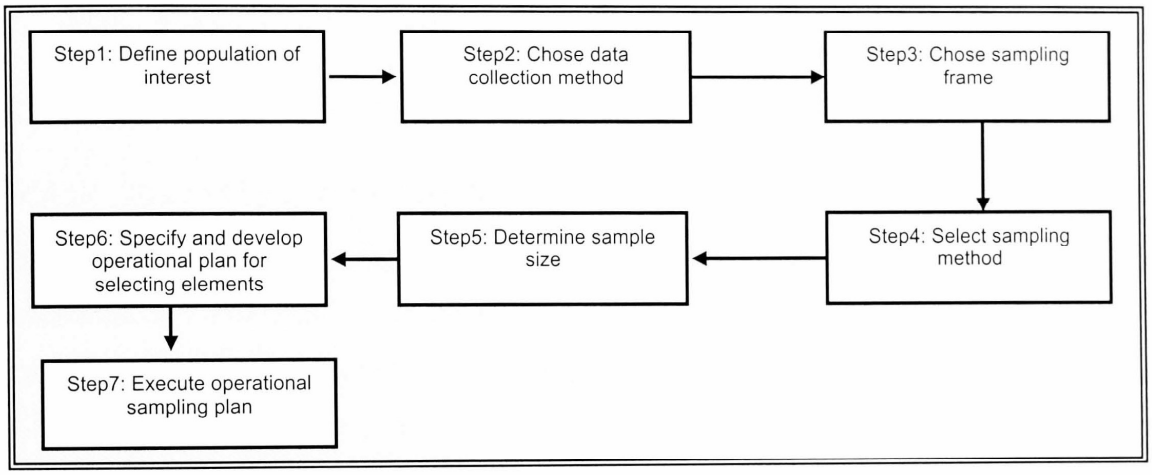

Figure C4.2: Sample design process

Source: McDaniel, C. and Gates R. (2002), *Marketing Research: Impact of the Internet,* 5th edition, Cincinnati, Ohio: South-Western College Publishing

C4.1.1 Step1: 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. Therefore the major decision concerned the selection of appropriate application domain for the investigation of the proposed research issues. It was decided to investigate UK credit cardholders. The choice of a UK-wide population was motivated by the need to generalise results.

Two main issues were taken into account when determining the targeted population:

1. It was presumed that a UK-wide study would allow for future cross-country comparisons.

2. Few studies on credit cardholder outside the United States.
3. UK-wide study made possible with mail survey

For the purpose of this research, the research setting and consequently the target population was defined as follows:

Element and unit: Adults who holds a credit card.

Sampling Frame: Cardholder list issued by a credit reference agency.

Extent: Cardholders resident in the U.K.

Time: During the period August, 2002 – November, 2004

C4.1.2 Step 2: Choice of data collection method

Due consideration was needed in order to ensure the correspondence of the adopted sampling and data collection methods. The choice of a data collection method, sample frame, sampling method and sampling unit will be affected by the nature of that population (or universe) and the nature of the study. Essentially, any selected method should allow fast, convenient reach to a representative sample. With over 23 million people holding a credit card in the UK according to Mintel (July 2002), credit cards is a clearly a retail mass-market. This represents about 60% of the adult population. In this study, postal survey was deemed the most appropriate method of data collection as it ensured the anonymity of respondents as well as allowing to reach a geographically spread population.

C4.1.3 Step 3: Choice of sampling frame

Once the target population was determined, an appropriate sampling frame needed to be defined. Extensive searches at Kingston University Learning Centre, Kensington Public Library and on the Athens (Athens.ac.uk) online academic publications database were conducted to identify the data source that satisfied the information needs for the proposed research. Lists of individual credit cardholders are not publicly available. This is essentially due to legal

requirements (Data protection Act). Access to a sampling frame had therefore to be negotiated. A sample frame containing 2,000 UK credit cardholders was obtained from a specialised direct marketing agency.

The reasons for this selection were:

1. The sampling frame contained address, telephone, e-mail address which made it easier to cross-check whether data was accurate.
2. The price to access the list was within the research budget.
3. The list was deemed to include up-to-date information.
4. The frame was deemed to be representative since the ultimate provider was one of the two UK credit reference agencies which gathers cardholder data from the issuing banks themselves.

After reviewing a number of data sources (direct marketing companies), credit reference agencies (CRA) was selected as a suitable sample source. The reasons for this selection were:

1. CRA act on behalf of banks, they have a duty to keep accurate information on individuals retail banking consumers, telephone, fax, residence for the purpose of voting roll, address, date of birth, other members in the household. The CRA hold information on over 35 million individuals in the UK.
2. As the guide was updated twice a year it was a source of up-to-date information.
3. The sampling frame was provided in a format amenable for mail-merge purposes with clear and separate fields for title, first name, surname, address, postcode and telephone number.

C4.1.4 Step 4: Selection of sampling method

As illustrated in Figure C4.3 the two main types of sampling are probabilistic and non-probabilistic. The relative merits and limitations of theses sampling methods are well documented (Kinnear and Taylor, 1996; Malhotra, 2003; McDaniel and Gates, 2002) and consequently are not debated here.

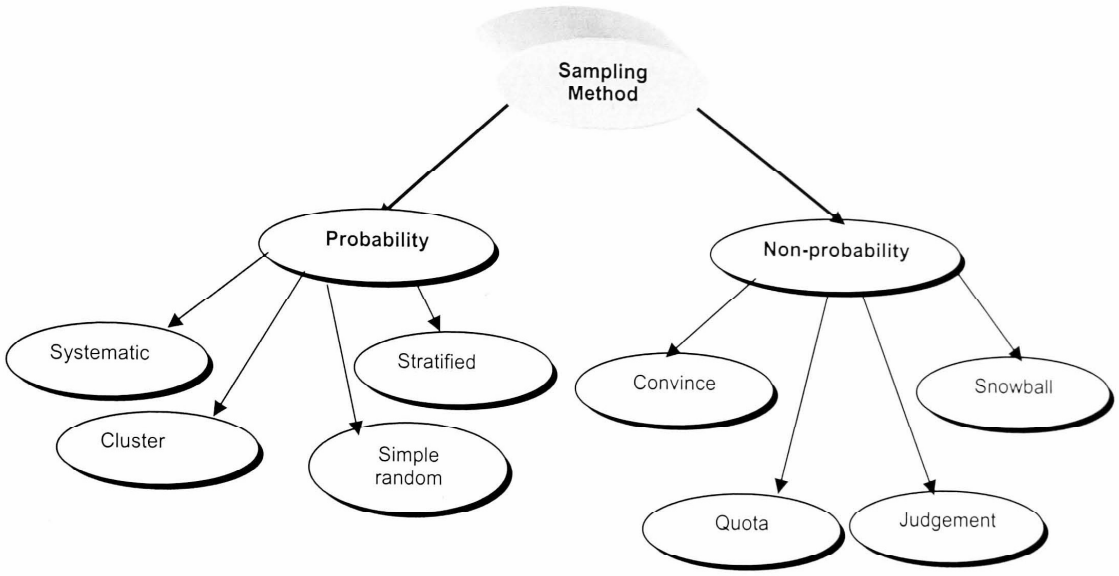

Figure C4.3: Sampling methods

Source: McDaniel, C. and Gates R. (2002), *Marketing Research: Impact of the Internet,* 5th edition, Cincinnati, Ohio: South-Western College Publishing.

When considering the sampling method, two major factors were taken into consideration: cost (probabilistic random sampling being more expensive) and time. However, it is recommended (Hussey and Hussey, 1997) that in a positivistic study, a good sample must be chosen at random, should be large for the purpose of analysis and should be unbiased

Previous similar studies have employed a probabilistic sampling method (most of the studies that have employed the US Survey of Consumer Finance as a sampling frame). The author therefore proposes the use of a probabilistic sampling. This is supported by extant literature that indicates that although previous studies on credit cardholder behaviour have employed non-probabilistic (quota-sample for Meidan and Davo, 1994, convenience sample for Roberts and Jones, 2001), probabilistic samples (see for example Crook *et al.*, 1992; Harrison, 1994; Devaney and Castellani, 2001) dominate the related research.

Moreover, random (probabilistic) samples are generally preferable when the intent is to generalise the results to a full population and to carry out statistical analysis to test hypotheses. It was therefore decided to opt for a random sampling method.

C4.1.5 Step 5: Determination of sample size

Once the sampling method had been chosen, the next step involved the determination of the appropriate sample size. Research academics point to a number of factors that influence sample size, namely: a) the degree of accuracy/confidence required, b) the need/or not to examine sub-groups or populations, c) nature of population, d) proposed analytical technique(s), e) the method of survey administration, f) the cost of additional information, and g) variation in the variables measured (see for example, Sudman, 1976; Tull and Hawkins, 1993; Churchill and Iacobucci, 2001). However, the proposed data analysis technique (PLS-Graph software) did not require a minimum number of usable cases except having at least 10 times the number of items in the most complex construct.

The 'sample size calculator' formulated by Discovery Research Group and illustrated by Malhotra (2003) was used to calculate sample size and determine the margin of error (Table C4.1). The sample size calculator was used as an additional instrument to guide study response rate.

Table C4.1: Sample size calculator

(1) → / (2) ↓	100	200	300	400	500	600	800	1000	1500	2000
5% or 95%	4.4	3.1	2.5	2.2	2.0	1.8	1.5	1.4	1.1	0.96
10% or 90%	6.0	4.3	3.5	3.0	2.7	2.5	2.1	1.9	1.6	1.3
15% or 85%	7.1	5.1	4.1	3.6	3.2	2.9	2.5	2.3	1.9	1.6

Source: Malhotra, N. K. (2003), *Marketing Research: an applied orientation,* 4th edition, New Jersey: Prentice Hall, Inc.

Directions of use:

Read sample size across top row (1)
Move down to percent affirmative replies (2)
Where the column and the row intersect indicates the range of error (percent plus or minus)

By taking the confidence level of 95% and the sample size of 2000, the percentage margin of error worked out to be ±0.96. The range of error of ±0.96 has been acceptable in market research (IPSOS-Mori guidelines). Thus a sample frame of 2000 was considered sufficient for the proposed research.

C4.1.6 Steps 6 and 7: Develop operation procedures for selecting sample elements and execute the operational sampling plan

Sampling plan was formulated by the researcher in the form of identifying a suitable sample source, devising a sample selection criterion and applying selection criteria to put together a sample frame (also refer to Step 4).

C4.2 ERROR MINIMISATION

Examination for the presence and minimisation of errors and biases is a necessary condition for empirical validation of models and hypothesis testing (Churchill and Iacobucci, 2001). However as indicated by McDaniel and Gates (2002), Malhorta (2003) and Churchill and Iacobucci (2001), any effort to obtain information from sample is bound to error. This section attempts to assess how quality of information obtained in a research of this type can be affected by various errors/biases. The section also suggests ways of minimising errors.

A measure for what is actually measured encompasses a true mean value and an error value, termed as 'total error'. According to Malhorta (2003), the total error is the variation between the true mean value in the population of the variable of interest and the observed mean value obtained in the research project. The ideology of a measure value is illustrated by 'True Score Model' where a mathematical expression is provided for the understanding of accuracy of a measure. The measure $\mathbf{X_O}$ represents the sum of a number of values observed (see Malhorta, 2003; Churchill and Iacobucci, 2001):

$$\mathbf{X_O} = \mathbf{X_T} + \text{Total Error}$$

$$\text{Total Error} = (\mathbf{X_R} + \mathbf{X_S})$$

Where: $\mathbf{X_T}$ represents the true mean value of the characteristic being measured

$\mathbf{X_R}$ represents the random error; $\mathbf{X_S}$ represents systematic error

In addition to depicting the relationship between a measured value, a true mean value and an error value, the True Score Model also expounds two components

within a total error value, i.e., random error and a systematic error value (also known as bias). For the purpose of a systematic debate on these two types of errors, the classification of the components of the total error synthesised by McDaniel and Gates (2002) is adapted and depicted in Figure C4.4, where it can be seen that the two basic components of total error are divided into a number of constituent errors. For a full explanation and relevant definitions the interested reader is directed to, among others, Aaker and Day (1990), Kinnear and Taylor (1996), Tull and Hawkins (1993), Dillon *et al.* (1994) and Churchill and Iacobucci (2001)

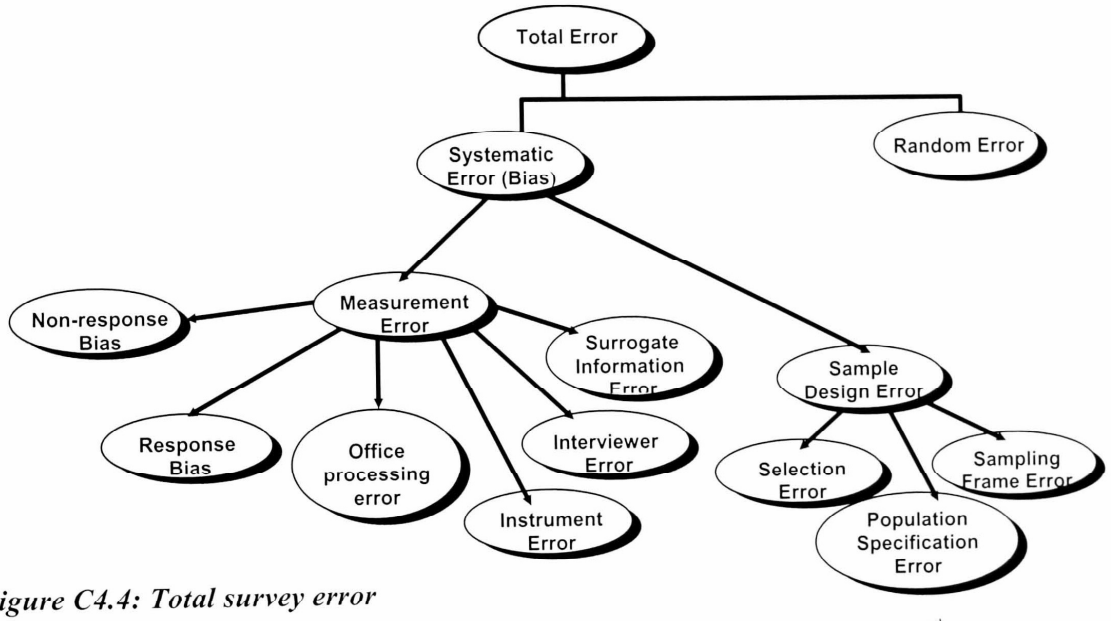

Figure C4.4: Total survey error

Source: McDaniel, C. and Gates R. (2002), *Marketing Research: Impact of the Internet,* 5th edition, Cincinnati, Ohio: South-Western College Publishing, pp. 165

C4.2.1 Systematic errors (bias)

Systematic errors affect the measurements in a constant way and are consequently also known as 'constant errors' or 'constant bias' (Malhorta, 2003, Churchill and Iacobucci, 2001). Such errors result from the research design execution of the research process (McDaniel and Gates, 2002). 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 reliable platform for subsequent data analysis. Systematic error can be further grouped into measurement errors (see Section C4.2.1.1) and sample design errors (see Section C4.2.1.2). These types of systematic error are dealt with individually and the safeguards are debated.

C4.2.1.1 Measurement errors

Measurement errors are the result of variation between the information desired and the information observed during the measurement process (McDaniel and Gates, 2002; Malhotra, 2003). Errors resulting from this situation can be further categorised into:

1. **Surrogate information errors**: These errors occur when there is a discrepancy between the information actually required to solve a problem and the information being sought by the researcher. This problem is mainly, related to how well the researcher can define the research problem (McDaniel and Gates, 2002). An extensive review of the relevant literature covering economics, marketing, social psychology domains ensured these types of errors have been minimised.
2. **Interviewer errors**: This error results from the interviewer influencing a respondent, consciously or unconsciously, to give untrue or inaccurate answers. During the exploratory stage of the study, the interviewer was the researcher himself who is familiar with the research topic and the research process. Taken the fact that the final data were collected through a mail survey, interviewer error was not considered to be problematic.
3. **Instrument errors**: Also called questionnaire bias, these errors are a result of problems associated with research measurements or questionnaire for example, unclear instructions, confusing terms, irrelevant questions and biased words or phrase (McDaniel and Gates, 2002). These errors were minimised at the pre-pilot and pilot stages.
4. **Office processing errors:** Office processing error is the error that arises when editing, coding, tabulating or analysing the data (Churchill and Iacobucci, 2001; McDaniel and Gates, 2002). In order to reduce this error, quality-control checks during the transference of data into the computer were carried out. The data

input were re-checked and SPSS was used to find any out of range data. Consequently, office-processing error was not considered as a problem and could be ignored.

5. **Response errors:** Also referred to as 'field errors' by Churchill and Iacobucci, (2001) accrue mainly from individuals participating in the study giving a wrong information or refusing to answer some of the questions. Responses to embarrassing questions or questions associated with income may be biased (Aaker *et al.,* 2000). Such problems have been reduced by informing the respondents of the scientific/academic purpose of the survey and assuring confidentiality of the survey in the cover letter. In addition the questionnaire was pre-tested, through a pilot study, before being sent out for final data collection. No problems relating to response bias were encountered in the pilot study.

6. **Non response bias:** This bias is associated with serious bias in terms of representatives of the received information to the overall sample (Malhorta, 2003). It occurs "when a researcher fails to obtain information a sizable portion of the sample members and the missing responses affect conclusions about the variables of interest" (Yu and Cooper, 1983). As stated in (Section C2.6.2) mail surveys are associated with relatively poor response rates which in turn increase the probability of non-response bias (Kinnear and Taylor, 1996). Therefore, in order to increase response rate and reduce the probability of non-response bias, a number of strategies were implemented. An overview of methods designed to improve the response rate is given in Figure C4.5.

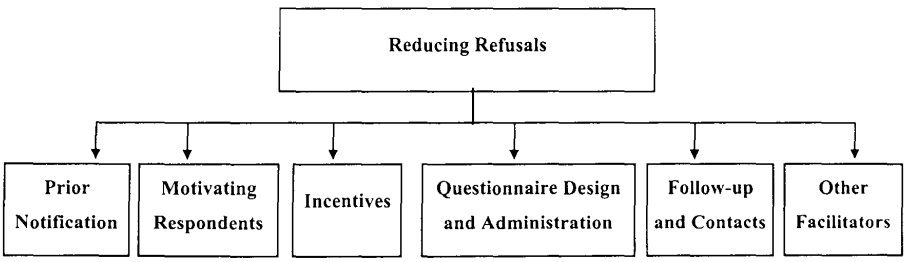

Figure C4.5: Methods to increase response rates

Source: Malhotra, N. (2003), *Marketing Research an Applied Orientation,* 4th ed., Prentice Hall International, New Jersey

Due to cost and time constraints only some of the above methods were employed. These methods were chosen because they were supported by a 'survey on surveys' study conducted in the UK by Diamantopoulos and Schlegelmilch (1996).

The existence/absence of differences between respondents and non-respondents was examined. Although there were differences between respondents and non-respondents in gender and personal characteristics, overall there were very few cases of potential bias. Part of this is due to the relatively high completion rates. In the cases were there was statistically significant bias, the magnitude of the bias was very small. Non-response bias was reduced through assigning weights to the individual sample responses.

1. **Incentives**: A popular form of motivating people to take part in a survey is to offer incentives. The possibility to enter a prize draw and win one of the three mini-Ipods was hence offered as an incentive. Apart from online survey contexts, researchers widely agree that if incentives are to increase response, they need to be given in advance, instead of being made contingent on the return of the questionnaire (James and Bolstein, 1992; Church, 1993). However, non-cash incentives (in mail surveys) to every person who completed the survey were also found to increase the response rate (Shank *et al.*, 1990).
2. **Questionnaire administration**: Persuasive wording was used to impact the response rate positively. Covering letters were written following the recommendations of Dillman, (1999, 2000). The covering letters contained the following messages/statements (see covering letters in Appendix A):
    a. In the event that the respondent did not have time to complete the questionnaire, he was informed that completing the questionnaire would only take ten minutes while a pre-posted envelope was provided.
    b. 'Egoistic' and 'social utility' requests were made. Terms such as 'academic purposed only', 'your clear appreciation', 'the result will be published in international journals', 'your valuable contribution' were included.
3. **Other facilitators**:
    a. Printing paper: The cover letter was printed on official Kingston Business School letterhead.

b. Professionally printed questionnaire: The questionnaire was designed and printed by a professional printing agency. The elegant design and printing of the questionnaire are reported to impact the response rate favourably (Dillman, 1978).

c. Anonymity/confidentiality: Assurance of confidentiality as well as a promise of non-identification was clearly emphasised (De Vaus, 2002).

Despite all the efforts (as listed above) to increase the response rate, not all recipients replied. Therefore potential non-response bias may have existed and it was considered necessary to test for possible non-response bias. Following the suggestion of Armstrong and Overton (1977), it was decided to treat late respondents as behaving similar to non-respondents and to test for possible differences between early and late respondents. In the event of a non-significant difference, this will be taken to indicate a lack/absence of non-response error (*cf.* Maltz, 1994). This assumption has also been adopted by researchers such as Heide and Stump (1995) when testing for non-response bias. For this purpose, the first wave of mailing (422 valid responses) were considered to represent early respondents, while the second wave (157 valid responses) reflected late respondents.

Independent sample *t*-tests were carried out in order to test possible differences between early and late respondents for all 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 items from each of the multi-tem scales plus responses to the Repay construct (single item) were tested (i.e. 20 items). Table C4.2 shows that none of the *t*-tests, and only 1 of the Mann-Whitney (see highlighted cells) tests was found to be significant. Consequently, it can be concluded that no apparent bias between early and late respondents is present and, there is no evidence of serious non-response bias.

Table C4.2: Non-Response Bias Analysis

ITEMS	T Test		Mann-Whitney	
	t- value	2-tailed sign.	Z- value	2-tailed p-value
For me, buy today, pay later is an incorrect approach	0.40	0.96	-0.51	0.61
I find myself overspending on credit cards quite often	0.77	0.43	-0.75	0.43
I find it easy to make payments with credit cards	0.33	0.75	-0.27	0.79
I am always cautious about using my credit card	1.30	0.16	-1.31	0.18
When I think of the word 'risk', the word 'loss' comes to mind	-0.26	0.82	-0.27	0.78
I consider myself to be experienced in using credit cards	0.72	0.48	-0.87	0.37
I am satisfied with previous credit cards I took	1.67	0.09	-1.30	0.18
I think the UK economy will over perform other EU countries	-0.33	0.74	-1.32	0.18
For me it is important to save regularly	-1.44	0.15	-1.97	0.06
I am not an impulse-buying person	-1.28	0.20	-1.54	0.12
I am concerned about meeting my monthly credit card payment	-0.45	0.64	-1.00	0.31
Within the next 6 months I expect interest rates to increase	0.04	0.97	-0.42	0.66
For me sense of belonging is …	1.02	0.30	-1.07	0.28
Whenever I can, I transfer my bank balance to a credit card with a lower interest rate	-0.86	0.36	-0.46	0.63
My credit limit will be increased if I use my credit card frequently	0.51	0.61	-1.05	0.29
I am willing to take substantial financial risk if the expected financial returns are very high	-1.68	0.09	-2.20	0.02
In the next few years I shall be able to afford the things I can't afford at the moment	0.24	0.83	-0.93	0.35
Generous credit limits make me overspend	1.62	.10	-1.45	.14
Obtaining credit from banks has always been easy for me	-.53	.59	-.42	.66
Please indicate your typical repayment behaviour with credit cards over the last 12 months	-.42	.67	-.53	.59

C4.2.1.2 Sampling design errors

Sampling design errors result from errors in the sample or sampling process (McDaniel and Gates, 2002; Tull and Hawkins, 1993; Malhorta, 2003) and encompass: 1) sampling frame errors, 2) population specification errors, and 3) selection errors. It is almost inevitable that empirical research will suffer from

sampling. Nevertheless efforts have been made to minimise such error by careful selection of sampling frames and potential respondents (refer to Section C4.1.3).

1) **Sampling frame errors:** Sampling frame error refers to the variation between the population defined by the researcher and the population implied by the sampling frame used (Malhotra, 2003). This type of error is encountered by using an inaccurate/incomplete sampling frame (McDaniel and Gates, 2002). All respondents matched the defined population requirements (i.e. all UK-based credit cardholders) and this type of error was therefore not found in this thesis. A full debate of the merits of the adopted sampling frame for the target group is provided in Section C4.1.3 and consequently not repeated here.

2) **Population specification errors:** Population specification error arises from an incorrect definition of population from which the sample is chosen (McDaniel, and Gates, 2002). Based on a careful definition of the population of interest this error was considered to have been avoided in this study.

3) **Selection errors:** Selection error occurs when sampling procedures are incomplete or improper or when appropriate selection procedures are not followed (McDaniel, and Gates, 2002). A systematic sampling process was followed where the sampling frame was accurately based on the criterion set in Section C4.1. The probabilistic sampling procedure allows the researcher to estimate this error.

C4.2.2 Random errors

Random error is a measurement error that arises from random changes or differences in respondents or measurement situations (Malhotra, 2003; Churchill and Iacobucci, 2001). This type of research error affects the observed value in different ways. Each time the test is administered, the outcome is the lack of consistency when the measurement is made repeatedly on the same person or subject. As suggested by McDaniel and Gates (2002) this type of error can be reduced only by increasing the sample size.

C4.3 MISSING CASES

Only a very small number of missing cases was detected (less than 5%) and consequently no effort to replace the missing values was deemed unnecessary because less 5% of missing cases in dataset (Allison, 2002)

C4.4 DATA ANALYSIS

Data analysis comprised assessment of measurement accuracy (see Chapter D1), evaluation of measurement structures (see Chapter D2) and testing of the proposed and competing models (see Chapter D3).

The analysis commenced with assessments of reliability and validity of the constructs (Chapter D1). Internal-consistency reliability was examined through Cronbach's α and compositie reliability with further validation provided by confirmatory factor analysis (CFA). With respect to validity, convergent validity was tested by using exploratory factor analysis (EFA) and examination of AVE values, while discriminant validity was tested by comparing the average variance extracted (AVE) with the squared correlation between constructs. Analyses related to the hypothesised second order structures, the research and competing models and their related hypotheses are presented in Chapters D2 and D3.

The Partial Least Squares (PLS) approach to SEM (using the PLS-Graph software) was adopted. PLS is a multivariate technique which incorporates multiple dependent constructs, allows for measurement error, and like the more often found covariance based SEM approaches integrates theory with empirical results (Bagozzi and Fornell, 1982). In recent years PLS has gained interest among researchers (review of the literature indicate that PLS has been applied in a diverse range of business and management problems, e.g. such as relationship marketing in non-profit sector - MacMillan *et al.* (2005), service performance in health-care - Ashill *et al.* (2005); positioning - Vandenbosch (1995); and strategy - Cool *et al.* (1989) because it allows to model latent constructs under conditions of non-normality and small to medium sample sizes (Chin, 1998; Chin and Gopal, 1995).

In addition, compared to covariance based SEM, PLS provides more accurate estimates of path loadings among constructs than techniques such as multiple regressions. In terms of types of measurement PLS can simultaneously handle metric and categorical types of indicators.

The researcher can specify both the relationships among the conceptual factors of interest and the measures underlying each factor. The output indicates how well the measures relate to each construct and whether the hypothesised are empirically supported. In PLS, the measurement (reliability and validity of measures) and a structural (significance of hypothesised pathways) models are simultaneously tested (Barclay *et al.* 1995). This is considered to represent analytical strength when, as in this study, new measures are developed (see Dawes and Lee, 1996).

In addition, compared to covariance based SEM approaches, PLS avoids many of the restrictive assumptions underlying covariance based SEM techniques such as multivariate normality and large sample size (Fornell and Bookstein, 1982; Falk and Miller, 1992). The former is considered to represent an important characteristic because examination of the REPAY (i.e., repayment behaviour of credit card balances) revealed that the distribution of replies did not fulfil normality (highly skewed to the lower end of the scale). Furthermore, PLS is considered to be the preferred SEM analytical approach in, as in this study early stages if theory development (Hulland, 1999). Due to the non-parametric nature of PLS Chin (1998) recommends to use non-parametric measures such as R^2 for dependent LV's, the Stone-Geisser test for predictive relevance of independent variables and resampling procedures (e.g. jack-knife and 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 values of individual dependent values are examined.

As for sample size, Chin (1998) advises that "if one were to use a regression heuristic of 10 cases per indicator," the sample size requirement would be 10 times (1) the largest number of formative indicators or (2) the largest number of independent variables impacting a dependent variable, whichever is the greater. In the CABM model, all items are modelled as reflective indicators because they are viewed as effects (not causes) of latent variables (Bollen & Lennox, 1991), and the largest number of independent variables estimated for a dependent variable is five.

Thus, the sample size of 579 is more than adequate for the PLS estimation procedures.

C4.4.1 Statistical significance

Statistical significance was assessed at the 5% level ($p<0.05$). The measurement model in PLS is assessed by examining internal consistency, convergent validity, and discriminant validity (Barclay *et al.*, 1995). Internal consistencies (similar to Cronbach's alpha) of 0.7 or higher are considered adequate (Barclay *et al.*, 1995; Compeau *et al.*, 1999; Agarwal and Karahanna, 2000). Convergent and discriminant validity are assessed by applying two criteria: (1) the square root of the average variance extracted (AVE) by a construct from its indicators should be at least 0.707 (i.e., AVE>0.50) and should be greater than that construct's correlation with other constructs (Barclay *et al.*, 1995; Chin, 1998), and (2) item loadings (similar to loadings in principal components) should be at least 0.707, and an item should load more highly on the construct it is intended to measure than it does on another construct.

The structural model and hypotheses are assessed by examining the significance of the path coefficients (similar to standardized beta weights in a regression analysis) and the variance accounted for by the antecedent constructs.

Part D - ANALYSIS OF THE DATA

In this part of the thesis the author presents the results of the study according to the data analysis procedures outlined in Section C.4.5. First, the author presents the initial data analysis results including reliability and validity tests (Chapter D1). Then, results of the goodness-of-fit tests of the second order structures are presented (Chapter D2). The final chapter (Chapter D3) reports the results obtained from testing the proposed and the competing models' hypotheses.

CHAPTER D1: MEASUREMENT ACCURACY ANALYSIS

This chapter introduces the data analysis results related to the accuracy of the research. The measurements' accuracy analysis presented here includes reliability and validity tests. According to Churchill (1979), if a measure is valid, it is reliable. Therefore, reliability is a necessary (but not sufficient) condition for validity (Peter, 1979). Authors such as Gronlund (1992) and Spector (1992) agree that the essential property of reliability ought to be established first before conducting validity tests.

D1.1 RELIABILITY

Reliability is an interdependence technique that measures the degree of stability and consistency when a scale is used repeatedly (Malhotra, 2003; Chisnall, 1997). Reliability tests indicate the degree of measurement error present among scale items (Nunnally, 1978) and help determine the degree to which scale items are internally consistent. Reliability assessments are possible on the assumptions that: variables are metric, variances of the various variables are comparable, covariances among the various combinations of variables are comparable, absence of outliers and that the construct is reflective in nature.

D1.1.1 TYPES OF RELIABILITY

Four general types of reliability are available, each of which assesses reliability in a different way. These are scorer reliability, test-retest reliability (repeatability reliability), alternative-form reliability, composite reliability (Fornell & Larcker, 1981) and internal-consistency reliability (see among others, DeVellis, 1991; Malhotra, 2003; Tull & Hawkins, 1993; Zikmund, 1997). Each approach is debated in turn.

D1.1.1.1 Scorer reliability

Scorer reliability (sometimes called inter-observer reliability) is the correlation between two observers' ratings of a set of objects. It is carried out to ensure the reliability of the judgement made by two observers or scorers (Tull & Hawkins, 1993). Data for this study has mainly been obtained through rated-scale items. Scorer reliability was deemed not relevant in this study.

D1.1.1.2 Test-retest reliability

Test-retest reliability involves administering the same set of scale items to an identical sample at two different occasions. The test assumes no substantial change in the construct being measured between the two occasions. In this study, test-retest reliability was not examined because it is used to measure the stability of a scale over time.

D1.1.1.3 Alternative-form reliability

Alternative-form reliability is similar to test-retest reliability and involves administering two similar scales at two different occasions to the same sample/participants (Malhotra, 2003; Tull & Hawkins, 1993). Malhotra (2003) suggests a time interval of 2 to 4 weeks for both test-retest and alternative-form reliability. High correlations between the two tests indicate a high degree of reliability. However, due to difficulties of constructing two similar tests as well as issues of time and funds no such reliability test was carried out for this study.

D1.1.1.4 Composite reliability

Composite reliability is a method developed by Fornell and Larcker (1981) for measuring internal consistency. It is similar to Cronbach's α except that the latter presumes that each item of a construct contributes equally (i.e., the loadings are equal). This method is reported to be a more rigorous estimate for reliability (Chin & Gopal, 1995) as it allows comparisons of the regression weights between scale items.

This Internal Consistency measure is not influenced by the number of items in the scale and therefore more general than Cronbach's α. Minimum recommended level was set at 0.60 (Bagozzi & Yi, 1988) although composite reliability of around 0.70 is seen to be an acceptable level (Hair *et al.*, 1998).

D1.1.1.5 Internal-consistency reliability

Two methods are available for examining internal consistency: split-half and Cronbach's coefficient α . Several academics (Churchill 1979; DeVellis, 1991; Green *et al.*, 1988; Peter, 1979; Peterson, 1994) indicate the usefulness of internal consistency measures in assessing the reliability of measures in marketing research. The concept refers to the extent to which all items of a multi-item scale measure the same underlying construct (Nunnally, 1978); correlations between the scale items indicate the existence of high internal consistency.

1. In the split-half method, a list of items of a construct is split in two parts and the correlation between the two halves is examined. The correlation between the two parts is an indicator of reliability. If they consistently measure the same concept, a high correlation will be obtained. But 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 the method was not employed.

2. Cronbach's α coefficient is the most widely reported test for assessing the reliability of a multi-item scale (Peter, 1979). It involves calculating the average of all possible split-half coefficients. In this study, two Cronbach's coefficient α indices, i.e. the α value and item-to-total correlation were used to evaluate the internal consistency. While there exists no commonly accepted standard for the alpha cut-off value, most academics agree that alpha values within the range of .70 to .95 are desirable (Davis, 1964; Kaplan & Saccuzzo, 1982; Murphy & Davidshofer, 1988; Nunnally, 1967 and 1978; Peterson, 1994). For basic research, the accepted cut-off compromise value varies between 0.5 (Malhotra, 2003) to 0.7 (Churchill, 1997). In this study, the compromise cut-off value adopted was 0.6. If the α value was below 0.6 then the item that could improve the α value to a higher level was removed in order to increase the scale's reliability. Item-to-total correlation measures the correlation of each of the items

to the total scale. Items with a low correlation had to be deleted as per Churchill's (1979) instrument purification guidelines. Therefore, items with item-to-total correlations below the 0.3 benchmark value (Kline, 1994) were removed.

D1.1.1.6 Confirmatory Factor Analysis (CFA)

For sub-constructs presenting more than three scale items, the reliability was re-examined through CFA as suggested by Dabholkar *et al.* (1996). CFA offers a stricter interpretation of unidimensionality than can be provided by more traditional methods such as coefficients α, item-to-total correlation and exploratory factor analysis (Gerbing & Anderson, 1988). The CFA tests were conducted was conducted with AMOS Graph. (Version 5), a path diagram software.

Two CFA indices, the goodness-of-fit (GFI) value and item regression loading value, were employed to test the measurement reliability. The GFI value is viewed as an indicator of reliability of the scales. It represents the overall degree of fit (the squared residuals from prediction compared with the actual data). The benchmark value for GFI was set at 0.9 (cf. Dabholkar *et al* (1996), while the item regression loading values are correlation coefficients indicating the association between items and sub-constructs. The benchmark for standardised regression weights was that all item's regression weights/factor loadings were statistically significant at the 5% level.

Conclusion

In this study, Cronbach's α and Composite reliability along with CFA have been employed to test the internal consistency and unidimensionality of the sub-constructs. This will result in rigorous testing of the measurement reliability. The results are presented in Table D1.1 and each of the sub-constructs is considered in turn.

D1.1.2 RELABILITY ANALYSIS FOR MULTI-ITEM CONSTRUCTS

D1.1.2.1 Sub-constructs of attitude towards future interest rates (FAPR)

- **Balance-hopping (Hopp):** The two Cronbach's α tests for this three-item sub-construct were met with a Cronbach α value of 0.641 (after recoding item hopp1). Although all item-to-total correlation values above 0.30, item hopp2 showed a weak item-to-total correlation and its inclusion or removal will be looked at validity stage. In terms of composite reliability, the criterion was met with an 0.833 output. Consequently, no changes to the scale were deemed necessary.
- **Expectations towards future APR (expect):** This construct is measured using a single item scale so no analysis was appropriate.

D1.1.2.2 Sub-constructs of attitude towards future real income (FUTURINC)

- **Economic optimism (ecoopt)**: The internal consistency tests for the three-item sub-construct were met with a Cronbach's α of .802 and Composite reliability of 0.915. All item-to-total correlations were above 0.3. Consequently, no changes were made to the construct.
- **Attitude towards future income (futinc):** The sub-construct displayed acceptable reliability with initial Cronbach's α and composite reliability values of 0.845 and 0.918 respectively. All item-to-total correlations were above 0.3 and therefore no changes to the construct were deemed necessary.

D1.1.2.3 Sub-constructs of financial risk (FINRISK)

- **Comfort**: This two-item sub-construct displayed a satisfactory internal consistency with a 0.739 Cronbach's α while all item-to-total correlations were acceptable. Reliability was further confirmed with a composite reliability of 0.907. Therefore, no changes to the construct were deemed necessary.
- **Risk**: This sub-construct was found to have acceptable internal consistency with initial Cronbach's α and composite reliability for the 2-item sub-construct of 0.534 (after item risk3 was removed) and 0.811 respectively. Both items showed

acceptable but poor item-to-total correlations. This indicates that the scale does not measure the underlying construct and raises doubts over the item-statements used to measure this "simple" concept.

- **Safety:** The initial Cronbach's α and composite reliability for the 3-item construct were 0.620, (if item safety1 was to be deleted) and 0.844 respectively. Even though all item-to-total correlations were above the 0.3 benchmark, item safety1 showed a weak but acceptable item-to-total correlation of 0.349. Hence, no changes to the construct were considered appropriate.

D1.1.2.4 Sub-constructs of attitude towards savings (SAVE)

- **Precaution motive (prec):** The initial Cronbach's α and Composite reliability values for the 6-item construct were 0.704 and 0.860 respectively, with all item-to-total correlations were above the acceptability level of 0.3. Thus, no changes to the construct were deemed essential.
- **Protection motive (protect):** The initial Cronbach's α and composite reliability value for the 3-item construct were 0.662 and 0.855 respectively, with all item-to-total correlations being above the recommended threshold. No changes to the construct were therefore needed.
- **Control over own finances (control):** Reliability tests indicated adequate internal consistency as all items exhibited reasonable item-to-total correlation with initial Cronbach's α and Composite reliability values of 0.751 and 0.886 respectively. Hence, no changes to the construct were seen fit.

D1.1.2.5 Sub-construct of Personal Values (VALUES)

This construct was originally a nine-item construct. After validity tests were carried out it emerged as two dimensions labelled inner-values and outer-values. Item value9 was dropped due to unacceptable communality value (see Factor analysis tests at validity stage).

- **Inner-values:** This four item sub-construct displayed an acceptable Cronbach's α (0.744). Composite reliability was 0.904. Reliability of the construct was

further confirmed through CFA (GFI = 0.930 with all individual item regression loadings being significant).

- **Outer-values:** This four item sub-construct displayed an acceptable Cronbach's α (0.795). Composite reliability was 0.916. Reliability of the construct was further confirmed through CFA (GFI = 0.967 with all individual item regression loadings being significant).

D1.1.2.6 Sub-constructs of overall attitude towards credit cards (OVERALL)

- **Overall attitude towards credit (overall):** The initial Cronbach's α and composite reliability values for the 5-item construct were acceptable at 0.786 and 0.855 respectively, while all item-to-total correlations above the 0.3 threshold. The reliability of the sub-construct was further confirmed through CFA (GFI = 0.988 with all item regression loadings being significant).
- **Over-spending (os):** Cronbach's α and composite reliability value for the 4-item construct was 0.642 (after item os2 was recoded) and 0.808. Item os5 displayed unacceptable item-to-total correlation and was omitted. The final Cronbach's α and composite reliability value for the 3-item construct was 0.761 and 0.876. All item-to-total correlations were above the threshold. Therefore, no changes were made to the sub-construct.
- **Debt-avoidance (da):** With a Cronbach's α of 0.526, this 3-item construct displayed a poor internal consistency (item da2 was omitted due to poor item-to-total correlation), although all item-to-total correlations were above 0.3 and composite reliability was 0.831. The construct will therefore require further consideration and might be dropped at the validity stage.
- **Convenience (conv):** The initial Cronbach's α and composite reliability values for the 3-item construct were 0.660 and 0.816 respectively and all item-to-total correlations were above 0.3. Hence, no changes were made to the construct.
- **Self-control (sc):** The initial Cronbach's α and composite reliability values for the 3-item construct were 0.779 and 0.880 respectively. All item-to-total correlations were above 0.3. Hence no changes were made to the construct. Item

sc3 will be re-examined at the validity stage as its removal would give a Cronbach of .817.

- **Credit-Worthiness (CW):** The 3-item scale displayed adequate internal consistency with initial Cronbach's α and composite reliability values of 0.811 and 0.88 respectively. All item-to-total correlations were above 0.3. Hence no changes were made to the construct. The reliability of the construct was further confirmed through CFA (GFI = 0.937 with all individual item regression loadings being significant.
- **Credit cards financing role (finance):** The initial Cronbach's α and Composite reliability value for the 3-item construct was 0.613 and 0.805 respectively. All item-to-total correlations were above 0.3. Hence no changes were made to this construct.

D1.1.2.7 Sub-constructs of experience outcome (EXPERIENCE)

- **Experience with credit (exper):** This 4 item sub-construct displayed an acceptable Cronbach's α (0.822). If exper2 is removed, then α improved to 0.839 and composite reliability was 0.903. The inclusion/removal of this item will be looked at the validity stage. Reliability of the construct was further confirmed through CFA (GFI = 0.979 with all individual item regression loadings being significant).
- **Satisfaction with previous credit (satisfy):** This construct is measured using a single item scale so no analysis was appropriate.

Table D1.1: Testing reliability of multi-item constructs

Sub-construct(Items)	Cronbach's α (Initial value)		Cronbach's α (Final value)		Composite reliability		CFA tests	
	Item-to-total correlation	Cronbach's α	Item-to-total	Cronbach's α	Initial	Final	Standadised regression weights	GFI
Attitudes towards future APR (FAPR)								
HOPP (balance-hopping)		**0.641**		**0.641**	**0.833**	**0.833**	Not	
hopp1	0.515		0.515		0.831	0.831	Applicable	
hopp2	0.361		0.361		0.715	0.715		
hopp3	0.485		0.485		0.819	0.819		
Attitudes towards future income (FUTURINC)								
ECOOPT (economic optimism)		**0.802**		**0.802**	**0.915**	**0.915**	Not	
ecoopt1	0.544		0.544		0.8332	0.833	Applicable	
ecoopt2	0.718		0.718		0.9133	0.913		
ecoopt3	0.691		0.691		0.9044	0.904		
FUTINC (future income)		**0.845**		**0.845**	**0.918**	**0.918**	**Not**	
futinc1	0.732		0.732		0.897	0.897	**Applicable**	
futinc3	0.767		0.767		0.917	0.917		
futinc4	0.639		0.639		0.846	0.846		
Attitudes towards financial risk (FINRISK)								
COMFORT		**0.739**		**0.739**	**0.907**	**0.907**	**Not**	
comfort1	0.590		0.590		0.910	0.910	**Applicable**	
comfort2	0.590		0.590		0.910	0.910		
RISK		**0.526**		**0.534**	**0.811**	*	**Not**	
risk1	0.371		0.375		0.784	*	**Applicable**	
risk2	0.400		0.375		0.803	*		
risk3	0.266		*		0.712	*		
SAFETY		**0.620**		**0.620**	**0.844**	**0.844**	Not	
safety1	0.349		0.349		0.749	0.749	Applicable	
safety2	0.453		0.453		0.816	0.816		
safety3	0.507		0.507		0.840	0.840		
Attitudes towards saving (SAVE)								
PREC (precaution)		**0.704**		**0.704**	**0.860**	**0.860**	Not	
prec1	0.565		0.565		0.831	0.831	Applicable	
prec2	0.585		0.585		0.872	0.872		
prec3	0.463		0.463		0.751	0.751		
PROTECT (protection motive)		**0.662**		**0.662**	**0.855**	**0.855**	Not	
protect1	0.450		0.450		0.795	0.795	Applicable	
protect2	0.491		0.491		0.819	0.819		
protect3	0.500		0.500		0.828	0.828		
CONTROL		**0.751**		**0.751**	**0.886**	**0.886**	Not	
control1	0.625		0.625		0.872	0.872	Applicable	
control2	0.673		0.673		0.895	0.895		
control3	0.468		0.468		0.777	0.777		
Personal Values(VALUES)								
INNER		**0.744**		**0.744**	**0.904**	**0.904**		
value1	0.540		0.540		0.812	0.812	0.634***	0.930
value2	0.580		0.580		0.853	0.853	0.660***	
value4	0.506		0.506		0.841	0.841	0.641***	
value5	0.567		0.567		0.845	0.845	0.693***	
OUTER		**0.795**		**0.795**	**0.916**	**0.916**		0.967
value3	0.580		0.580		0.845	0.845	0.674***	
value6	0.552		0.552		0.828	0.828	0.601***	

value7	0.622		0.622		0.862	0.862	0.715***	
value8	0.673		0.673		0.886	0.886	0.810***	
value9(*V)	*		*		*	*	*	
Attitudes towards credit cards (OVERALL)								
O (general credit)		0.786		0.786	0.855	0.855		0.988
overall1 (*V)	0.431		0.431		0.594	0.594	0.486***	
overall3	0.656		0.656		0.804	0.804	0.775***	
overall4	0.595		0.595		0.770	0.770	0.696***	
overall5	0.621		0.621		0.790	0.790	0.718***	
overall7	0.523		0.523		0.709	0.709	0.600***	
OS (over-spending)		0.642		0.761	0.808	0.876	Not	
os1	0.640		0.728		0.882	0.898	Applicable	
os2	0.400		0.424		0.731	0.734		
os4	0.635		0.675		0.869	0.873		
os5 (*V)	0.079		*		0.299	*		
DA (debt-avoidance)		0.526		0.527	0.831	0.831	Not	
da1	0.416		0.358		0.843	0.843	Applicable	
da2	0.281*		*		*	*		
da3	0.368		0.358		0.843	0.843		
CONV (convenience)		0.660		0.660	0.816	0.816	Not	
conv1	0.543		0.543		0.811	0.811	Applicable	
conv3	0.426		0.426		0.736	0.736		
conv4	0.467		0.467		0.766	0.766		
SC (self-control)		0.779		0.779	0.880	0.880	Not	
sc1	0.674		0.674		0.878	0.878	Applicable	
sc2	0.687		0.687		0.880	0.880		
sc3	0.500		0.500		0.763	0.763		
CW (credit-worthiness)		0.811		0.811	0.888	0.888		0.937
cw1	0.637		0.637		0.823	0.823	0.726***	
cw2	0.602		0.602		0.810	0.810	0.682***	
cw3	0.677		0.677		0.840	0.840	0.782***	
cw4	0.604		0.604		0.785	0.785	0.701***	
FIN (role of financing)		0.613		0.613	0.805	0.805	Not	
finance1	0.439		0.439		0.793	0.793	Applicable	
finance2	0.464		0.464		0.806	0.806		
finance3	0.370		0.370		0.681	0.681		
Experience								
EXPER (experience)		0.822		0.822	0.903	0.903		0.979
exper1	0.711		0.711		0.882	0.882	0.827***	
exper2	0.744		0.744		0.895	0.895	0.892***	
exper3	0.501		0.501		0.724	0.724	0.522***	
exper4	0.649		0.649		0.833	0.833	0.724***	

Notes:

- $p < .05$; *V=omitted at validity stage; * Item removed
- CFA tests were conducted only for sub-constructs with 4 or more items, for the rest 'Not Applicable' was used to indicate this fact.

D1.2 VALIDITY

Validity is concerned with the extent to which a measure actually measures what it is designed to measure. This is usually established through factor analysis techniques

examining the items representing a particular construct that have high factor loadings on one construct and low loadings on all other constructs (Stevens, 1996). The validity of the research constructs has been tested through content, convergent and discriminant validity (Tull & Hawkins, 1993; Malhotra, 2003; Churchill, 1997).

D1.2.1 Content validity

Content validity is concerned with a measurement's ability to include or represent all of the content of a particular construct. It is established by showing that the items (statements) are a representative sample of the universe or domain in which the researcher is interested (Cronbach & Meehl, 1955). In this study, a thorough review of the relevant literature followed by in-depth discussions with target population and a pilot study was carried out to ensure that all aspects of the constructs were being covered by the statements/variables. The conceptual framework borrows scales from the social psychology (attitude, values), consumer behaviour and economics literature. This is believed to have provided sufficient evidence of content validity.

D1.2.2 Convergent validity

Convergent validity refers to the extent to which a measure correlates with other measures intending to tap the same construct (Churchill, 1979); High correlation between measures of theoretically similar constructs indicates the existence of convergent validity. In this study, convergent validity has been examined through Factor Analysis. The analysis was initially conducted at sub-construct level in order to decide which items should be retained and which should be omitted for further analysis at first-order level. Where poor validity was found, the reliability-validity tests were redone excluding the omitted variables. Factor analysis was deemed appropriate since the interest here is in the relations between variables (as opposed to relations between respondents) hence creating a correlation matrix of the variables in order to "summarise" data. The steps involved in the FA as recommended by Hair *et al.* (1998) and the discussion of the adopted benchmark values are as follows.

1. **Step 1: Objectives of FA:** As discussed earlier, the main objective is to establish the unidimensionality of the theoretical constructs, Factor analysis can be used in an exploratory manner to summarize variables and identify

communalities through the use of correlations between variables. The most common method is the r-type factor analysis that examines dependent variables and groups them according to underlying structures (factors). Grouping the independent variables in a more homogenous set of variables will allow card-issuers to better identify meaningful variables.

2. **Step 2: Design of FA:** Factor analysis was carried out at the hypothesised construct level. This step involves the calculation of a correlation matrix, the selection of the number of variables to be factored and finally the sample size necessary. The independent variables had 75 items over 8 higher-order constructs. All measurement items were metric and the sample had 8 observations per variable which is acceptable although interpretation of findings should be "cautious" (Hair *et al.*, 1998). The total number of respondents was also above the recommended minimum.

3. **Step 3: Assumptions in FA:** The assumptions that variables are metric and normal were met. Factorability of variables was tested by the means of the Bartlett's test of sphericity (p-value should be lower than .05) and sampling adequacy was examined by reference to the Kaiser-Meyer-Olkin (KMO) statistic. The Bartlett's test statistic is used to examine the hypothesis that the variables are uncorrelated while the KMO index used to examine the appropriateness of factor analysis. In order to proceed with the analysis, the critical value of KMO was set to a threshold of 0.5 (Malhotra, 1996). With regards to the anti-image correlation matrix, the diagonal values were set at minimum value of > 0.5 (Coakes & Steed, 2001) to be acceptable. The off-diagonal values had to be smaller than the diagonal values, indicating that the residual uncorrelated items are only accounting for a fraction of the relationship.

4. **Step 4: Deriving factors and assessing overall fit:** Before determining the number of factors to extract a method of extraction had to be selected. Component analysis (or Principal Component Analysis) was favoured because the objective was to summarise most of the original information in a minimum number of factors for prediction purposes. PCA examines the factor loading of each variable, extracting items that do not load significantly on the construct of interest. In this study, the number of factors to be extracted was based on the eigenvalue criteria (preferably over 1), the amount of variation the factor

accounts for (preferably over 50%, which is satisfactory in social sciences), and the ease of interpretation (Cattell & Vogelmann, 1977; Hair *et al.* 1998; Churchill, 1999).

5. **Step 5: Interpreting the factors:** This step involves the rotation of factors. In this study, the most common method, orthogonal Varimax was employed. The rotation process allows to simplify the rows and columns of factor matrix and to make interpretation easier. The loadings indicate the degree of correspondence between a variable and its factor. As a rule of thumb, loadings of 0.30 and above (Tabachnick & Fidell, 1989) were considered significant for extraction and interpretation purpose. In the case of no variable loading significantly an alternative rotation method was employed. Following Fornell and Larcker's (1981) recommendations, items with insignificant or multiple high factor loadings were dropped (each variable must have a respective factor). Communality values, which can be interpreted as the percentage of individual item variance explained by the extracted factor were set at a cut-off value of 0.3 to be acceptable (Child, 1990)

D1.2.2.1 Factor analysis of sub-constructs of attitude towards future interest rates (FAPR)

- **Balance-hopping (hopp):** The KMO value of 0.617 was above the recommended threshold and the significance associated with the Bartlett test was 0.000 which suggests an acceptable degree of correlation among variables. The researcher was therefore able to proceed with the Factor Analysis that yielded a one-factor solution accounting for 56 % of the total variation in the three items. From Table D1.2, it can be seen that close groupings of all item factor loadings represent a hypothesised a priori latent unidimensional construct. All items had a communality value above the benchmark of 0.3. From these results it can be concluded that the items did exhibit acceptable convergent validity.
- **Expectations towards future APR (expec):** This is a single item sub-construct.

D1.2.2.2 Factor analysis of sub-constructs of attitude towards future real income (FUTURINC)

- **Economic optimism (ecoopt)**: The KMO value was 0.670 and the significance associated with the Bartlett test was 0.000. Therefore, the researcher proceeded with the FA that yielded the one-factor solution which accounted for almost 72% of the total variation. From Table D1.2, it can be seen that close groupings of all item factor loadings represent a hypothesised a priori latent unidimensional construct. All items had communality values above the benchmark of 0.3. From these results it can be concluded that the items exhibited acceptable convergent validity.

- **Attitude towards future income (futinc):** The KMO value was 0.703 and the significance associated with the Bartlett test was 0.000. Therefore, the researcher proceeded with the EFA that yielded the factor which accounted for 76% of the total variation. From Table D1.2, it can be seen that close groupings of all item factor loadings represent a hypothesised a priori latent unidimensional construct. All items had communality values above the benchmark of 0.3. From these results it can be concluded that the items exhibited acceptable convergent validity.

D1.2.2.3 Factor analysis of sub-constructs of attitude towards financial risk (FINRISK)

- **Comfort:** The KMO value of 0.500 is mediocre but within acceptable range while the significance associated with the Bartlett test of 0.000 is acceptable. Therefore proceeded with FA that yielded the factor which accounted for 79 % of the total variation. From Table D1.2, it can be seen that close values of all item factor loadings represent a hypothesised a priori latent unidimensional construct. Both items had communality values above the benchmark of 0.3. These results suggest that the measure demonstrated acceptable convergent validity.

- **Risk:** With a KMO value of 0.592 and significance associated with the Bartlett test at 0.000, the sub-construct met the criteria for factor analysis. The test yielded a one-factor solution which accounted for almost 52 % of the total variance. From Table D1.2, it can be seen that close groupings of all item factor loadings represent the hypothesised a priori latent unidimensional construct. All items exhibited communality values above the benchmark of 0.3. From these

results it can be concluded that the items exhibited poor but acceptable convergent validity.

- **Safety:** A KMO value of 0.614 and a significant Bartlett test ensured factor analysis was appropriate. The test yielded the factor which accounted for 58 % of the total variation. From Table D1.2, it can be seen that all items were closely grouped indicating a hypothesised a priori latent unidimensional construct. All items had communality values above the benchmark of 0.3. From these results it can be concluded that the items exhibited acceptable convergent validity.

D1.2.2.4 Factor analysis of sub-constructs of attitude towards saving (SAVE)

- **Precaution motive (prec):** The KMO measure of sampling adequacy was 0.657 and the significance associated with the Bartlett test was 0.000. Therefore, the researcher proceeded with the EFA that yielded the factor which accounted for almost 65% of the total variation. From Table D1.2, it can be seen that close groupings of all item factor loadings represent a hypothesised a priori latent unidimensional construct. All items had communality values above the benchmark of 0.3. From these results it can be concluded that the items exhibited acceptable convergent validity.

- **Protection motive (protect):** The KMO value was 0.658 and the significance associated with the Bartlett test was 0.000. Therefore, the researcher proceeded with the EFA that yielded the factor which accounted for 60% of the total variation. From Table D1.2, it can be seen that close groupings of all item factor loadings represent a hypothesised a priori latent unidimensional construct. All items had communality values above the benchmark of 0.3. From these results it can be concluded that the items exhibited acceptable convergent validity.

- **Control over own finances (control):** The KMO value was 0.636 and the significance associated with the Bartlett test was 0.000. Therefore, the researcher proceeded with the EFA that yielded the factor which accounted for 56% of the total variation. From Table D1.2, it can be seen that close groupings of all item factor loadings represent a hypothesised a priori latent unidimensional construct. All items had communality values above the benchmark of 0.3. From these

results it can be concluded that the items exhibited acceptable convergent validity.

D1.2.2.5 Factor analysis of sub-constructs of personal values (VALUES)

Convergent validity tests indicated that values are viewed as two distinct groups and existence of two latent constructs. The heaviest loadings on factor1 were variables related to inner-directed values while the heaviest loadings on factor2 were variables related to outer (or social) values. Therefore factor1 was named "inner-values". Factor 2 was labelled "outer-values".

- **Inner-Values sub-construct:** The KMO value of 0.666 and the significance associated with the Bartlett test of 0.000 indicate that factor analysis was appropriate for this sub-construct. FA yielded a single-factor solution which accounted for almost 58% of the total variation. Item value9 (excitement) was omitted due to unacceptable communality value, after which all items had communality values above the benchmark of 0.3. From these results it can be concluded that the items exhibited acceptable convergent validity.
- **Outer-Values sub-construct:** The KMO value of 0.730 and the significance associated with the Bartlett test of 0.000 indicate that factor analysis was appropriate for this sub-construct. FA yielded a one-factor solution accounting for almost 62% of the total variation. All items had communality values above the benchmark of 0.3. From these results it can be concluded that the items exhibited acceptable convergent validity.

D1.2.2.6 Factor analysis of sub-constructs of overall attitude towards credit cards (OVERALL)

- **Attitude towards credit (o):** The KMO value of 0.785 indicated the adequacy of the sampling and the significance associated with the Bartlett test was 0.000. Therefore, the researcher proceeded with the FA that yielded the factor which accounted for almost 61% of the total variation. From Table D1.2, it can be seen that close groupings of all item factor loadings represent a hypothesised a priori latent unidimensional construct. Item overall1 was omitted due to a communality

value below the benchmark of 0.3. All the other items had acceptable communality values. From these results it can be concluded that the items exhibited acceptable convergent validity.

- **Over-spending (os):** The sub-construct met the necessary threshold of sampling adequacy (KMO = 0.612 and Bartlett's test of sphericity = 0.000). Therefore, the researcher proceeded with the FA that yielded the one-factor solution accounting for almost 68% of the total variation. All items had communality values above the benchmark of 0.3. From these results it can be concluded that the items exhibited acceptable convergent validity.

- **Debt-avoidance (da):** The KMO value (0.590) and the significance associated with the Bartlett allowed for factor analysis that yielded the factor which accounted for 51% of the total variation. From Table D1.2, it can be seen that close groupings of all item factor loadings represent a hypothesised a priori latent unidimensional construct. All items had communality values above the benchmark of 0.3. From these results it can be concluded that the items exhibited acceptable convergent validity.

- **Convenience (conv):** The KMO value was 0.635 and the significance associated with the Bartlett test was 0.000. Therefore, the researcher proceeded with the FA that yielded the factor which accounted for 59% of total variation. From Table D1.2, it can be seen that close groupings of all item factor loadings represent a hypothesised a priori latent unidimensional construct. All items had communality values above the benchmark of 0.3. From these results it can be concluded that the items exhibited acceptable convergent validity.

- **Self-control (sc):** The KMO value was 0.657 and the significance associated with the Bartlett test was 0.000. Therefore, the researcher proceeded with the FA that yielded the factor which accounted for 69% of the total variation. From Table D1.2, it can be seen that close groupings of all item factor loadings represent a hypothesised a priori latent unidimensional construct. All items had communality values above the benchmark of 0.3. From these results it can be concluded that the items exhibited acceptable convergent validity.

- **Credit-Worthiness (CW):** The KMO value was 0.731 and the significance associated with the Bartlett test was 0.000. Therefore, the researcher proceeded

with the EFA that yielded the factor which accounted for almost 63% of total variation. From Table D1.2, it can be seen that close groupings of all item factor loadings represent a hypothesised a priori latent unidimensional construct. All items had communality values above the benchmark of 0.3. From these results it can be concluded that the items exhibited acceptable convergent validity.

- **Credit cards financing role (fin):** The KMO value was 0.635 and the significance associated with the Bartlett test was 0.000. Therefore, the researcher proceeded with the FA that yielded the factor which accounted for almost 57% of the total variation. From Table D1.2, it can be seen that close groupings of all item factor loadings represent a hypothesised a priori latent unidimensional construct. All items had communality values above the benchmark of 0.3. From these results it can be concluded that the items exhibited acceptable convergent validity.

D1.2.2.7 Factor analysis of sub-constructs of experience outcome (EXPERIENCE)

- **Experience with credit (exper):** The KMO value was 0.748 and the significance associated with the Bartlett test was 0.000. Therefore, the researcher proceeded with the EFA that yielded the factor which accounted for 66% of the total variation. From Table D1.2, it can be seen that close groupings of all item factor loadings represent a hypothesised a priori latent unidimensional construct. All items had communality values above the 0.3 benchmark. From these results it can be concluded that the items exhibited acceptable convergent validity.
- **Satisfaction with previous credit (Satisfy):** This is a single-item sub-construct.

Table D1.2: Principal component factor analysis for all multi-item constructs

Sub-construct/Items	Derived Common Factors		Eigen Value	% Variation	Cumulative Variation	Communality
	Factor 1	Factor 2				
Attitudes towards future APR (FAPR)						
HOPP (balance-hopping)			1.693	56.420	56.420	
hopp1	0.661					0.438
hopp2	0.786					0.617
hopp3	0.799					0.638
Attitudes towards future income (FUTURINC)						

ECOOPT (economic optimism)			2.160	71.985	71.985	
ecoopt1	0.770					0.593
ecoopt2	0.892					0.795
ecoopt3	0.878					0.771
FUTINC (future income)			2.297	76.557	76.557	
futinc1	0.828					0.685
futinc3	0.889					0.790
futinc4	0.906					0.821
Attitudes towards financial risk (FINRISK)						
COMFORT			1.590	79.516	79.516	
comfort1	0.892					0.795
comfort2	0.892					0.795
RISK			1.555	51.818	51.818	
risk1	0.774					0.576
risk2	0.759					0.599
risk3*	0.616					0.379
SAFETY			1.741	58.025	58.025	
safety1	0.822					0.437
safety2	0.793					0.628
safety3	0.661					0.675
Attitudes towards savings (SAVE)						
PREC(precaution)			1.946	64.862	64.862	
prec1	0.836					0.699
prec2	0.842					0.709
prec3	0.733					0.538
PROTECT (protection motive)			1.807	60.222	60.222	
protect1	0.749					0.560
protect2	0.783					0.614
protect3	0.795					0.633
CONTROL			2.020	67.342	67.342	
control1	0.849					0.721
control2	0.883					0.780
control3	0.720					0.519
Personal values (VALUES)						
			4.335 (F1) 1.081 (F2)	48.165(F1) 12.014(F2)	60.179	
value1	0.672					0.491
value2	0.699					0.580
value3		0.755				0.573
value4	0.650					0.573
value5	0.657					0.585
value6		0.712				0.508
value7	0.419	0.718				0.691
value8		0.768				0.676
value9*	0.600					0.740
Attitudes towards credit cards (OVERALL)						
O (general credit)			2.460	61.498	61.498	
overall1	*		*	*	*	*
overall3	0.838					0.702
overall4	0.790					0.624
overall5	0.780					0.609
overall7	0.724					0.525
OS (over-spending)			2.034	67.796	67.796	
os1	0.899					0.808
os2	0.874					0.462
os4	0.679					0.765

os5	*		*	*	*	*
DT (debt-aversion/avoidance)			1.358	67.899	67.899	
da1	0.824					0.679
da2	*					*
da3	0.824					0.679
CONV (convenience)			1.771	59.033	59.033	
conv1	0.818					0.669
conv3	0.717					0.514
conv4	0.767					0.588
SC (self-control)			2.080	69.335	69.335	
sc1	0.877					0.768
sc2	0.872					0.761
sc3	0.742					0.551
CW (credit-worthiness)			2.520	62.994	62.994	
cw1	0.800					0.640
cw2	0.777					0.603
cw3	0.826					0.682
cw4	0.771					0.594
FIN (role of finance)			1.703	56.763	56.763	
finance1	0.704					0.495
finance2	0.769					0.591
finance3	0.785					0.617
Experience						
EXPER (experience)			2.642	66.047	66.047	
exper1	0.879					0.743
exper2	0.862					0.773
exper3	0.815					0.461
exper4	0.679					0.664

Note: * As a result of unacceptable reliability and/or validity the item was removed from the measuring scale.

D1.2.3 Discriminant validity

Discriminant validity is the degree to which a measurement item on a specific construct (or sub-construct) does not correlate highly with measurement items from other constructs. Low correlation between these items is an evidence for validity.

Discriminant validity was first assessed using the Average Variance Extracted (i.e. the average variance shared between a construct and its measures/items for all the model's sub-constructs). The Average Variance Extracted should be greater than the variance shared between the items and the other constructs in the model. Table D1.3 show the correlation matrix for all the model's sub-constructs and the diagonal values of the matrix represent the square root of the Average Variance Extracted. The table indicates that these values were clearly above the threshold of 0.50 (Barclay *et al.*, 1995). For adequate discriminant validity, the diagonal values of the correlation matrix ought to be greater than the off-diagonal elements in the corresponding rows and columns (Fornell & Larcker, 1981). With the exception of the COMFORT sub-

construct, all sub-constructs met this first criterion which is further evidence in support of discriminant validity of the main sub-constructs.

CHAPTER D2: TESTING SECOND ORDER STRUCTURES

In this chapter the author test the ability of the hypothesised second-order measurement model to fit the collected data employing goodness of fit tests.

The testing of the hypothesised second order structure of the attitude towards future interest rates (FAPR)', 'attitude towards future real income (FUTURINC)', attitude towards financial risk (FINRISK)', attitude towards saving (SAVE), 'overall attitude towards credit card (OVERALL) and 'personal values (VALUE)' is presented in this chapter. Chin and Gopal (1995) recommends considering whether the items form the "emergent" first-order factor or constitute reflective indicators tapping into a "latent" first-order factor. In this study both first-order and higher-order constructs were reflective. This is due to classical test theory where multiple indicators co-vary due to a common underlying latent variable (Churchill, 1979; Bollen and Lennox, 1991).

D2.1 ANALYTICAL METHOD

The author used PLS-Graph (Chin, 2001) to perform the analysis. Tests of significance for all pathways were conducted using the bootstrap resampling (500 replications) procedure. Each hypothesized relationship is plotted as a specific path in the figure. The estimated path coefficients are generated, along with the associated t-statistics. Significant paths are denoted with three asterisks (***) at the 1%; two asterisks (**) at the 5% level and one asterisk (*) at the 10% level. The results of the PLS analysis are presented below.

For second-order factors measured through reflective sub-constructs, Chin *(http://disc-nt.cba.uh.edu/chin/plsfaq/2ndorder.htm)* recommends using the method of repeated manifest variables. Essentially, "the overall factor that represents the first order constructs is created by using all the indicators used for the first two order constructs". The above approach followed by Barclay *et al.* (1995) was deemed consistent with classical examination of quality of measurements (see Churchill,

1979; Spector, 1992; DeVellis, 1991). Analysis related to each of the higher order constructs follows.

D2.2 REPEATED MEASURES ANALYSIS

D2.2.1 Attitude towards future interest rates (FAPR)

This construct is considered to represent a RLV comprising two lower order dimensions are balance-hopping (hopp) and interest rates expectations (expect) which are also RLVs. The information presented in Table D2.1 indicates that both sub-constructs exhibit significant loadings with FAPR and consequently the proposed structure is confirmed.

Table D2.1: Second Order Solution of FAPR

Sub -Constructs	Loadings (t statistics)
hopp	.769 (22.07***)
Expect	.802 (23.62***)

*p<0.05; **p<0.01; ***p<0.001

D2.2.2 Attitudes towards future real income (FUTURINC)

This independent construct is deemed to represent a RLV whose two sub-dimensions or lower order constructs (futurinc, ecoopt) are also RLVs. Examination of the values in Table D2.2 confirms the stability of the conceptualisation with both pathways linking the first order constructs to 'FUTURINC' being significant at the 5% level.

Table D2.2: Second Order Solution of FUTURINC

Sub -Constructs	Loadings (t statistics)
futinc	.886 (36.14***)
ecoopt	.882 (27.25***)

*p<0.05; **p<0.01; ***p<0.001

D2.2.3 Attitudes towards financial risk (FINRISK)

In a similar way to 'FUTURINC' this construct is considered to represent a RLV whose sub-dimensions or lower order constructs (i.e., comfort, risk and safety) are also RLVs. The solution reported in Table D2.3 indicates that the three lower order constructs meet the adopted benchmarks of significance of path coefficients. This provides further evidence as to the stability of the proposed conceptualisation.

Table D2.3: Second Order Solution of FINRISK

Sub-Constructs	Loadings (t statistics)
comfort	.919 (46.73***)
risk	.909 (29.49***)
safety	.923 (50.79***)

***= $p < 0.001$; **= < 0.01; *= < 0.05

D2.2.4 Attitudes towards saving (SAVE)

In a similar way to other latent higher-order variables this construct is considered to represent a RLV whose three sub-dimensions or lower order constructs (i.e., precaution, protect and control) are also RLVs. The solution reported in Table D2.4 indicates that, following some limited purification, the three lower order constructs meet the adopted benchmarks of size and significance of pathways, and values of IC and AVE. This provides further evidence as to the stability of the proposed conceptualisation.

Table D2.4: Second Order Solution of SAVE

Sub-Constructs	Loadings (t statistics)
prec	.888 (28.35***)
protect	.903 (35.09***)
control	.803 (16.45***)

***= $p < 0.001$; **= p< 0.01; *= p < 0.05

D2.2.5 Personal values (VALUES)

In a similar way to other latent higher-order variables this construct is considered to represent a RLV whose two factors were I-V (inner-values) and O-V (outer-values).

The solution reported in Table D2.5 indicates that, the two lower order factors were significant at the 1% level with loadings of more than 0.7, confirming convergent validity.

Table D2.5: Second Order Solution of VALUES

Sub-Constructs	Loadings (t statistics)
I-V	.954 (70.47***)
O-V	.958 (88.16***)

*** = $p < 0.001$; ** = $p < 0.01$; * = $p < 0.05$

D2.2.6 Attitudes towards credit cards (OVERALL)

In a similar way to other latent higher-order variables this construct is considered to represent a RLV whose sub-dimensions or lower order constructs (i.e., overall attitude towards credit, over-spending, debt-avoidance, convenience, self-confidence, credit-worthiness and finance) are also RLVs. The solution reported in Table D2.6 indicates that, two of the sub-constructs (DT and CONV). Consequently, the structure of the OVERALL construct has been modified to comprise only five sub-constructs (i.e., O, OS, SC, CW and FIN). The DT and CONV are treated as separate variables that behaved in the same way as OVERALL, i.e. share the same antecedents and outcomes. This has resulted in a re-specification of the research model (see Section D2.3 below).

Table D2.6: Second Order Solution of OVERALL

	Initial Solution	Final Solution
Sub-Constructs	Loadings (t statistics)	Loadings (t statistics)
O (attitudes towards credit)	.882 (12.97***)	.844 (17.93***)
OS (over-spending)	.796 (10.6059***)	.800 (12.85***)
DT (debt-aversion/avoidance)	.267 (0.96)	
CONV (convenience)	.216 (0.67)	
SC (self-control)	.588 (4.86***)	.613 (6.58***)
CW (credit-worthiness)	.597 (3.17***)	.566 (4.37***)
FIN (role of finance)	.642 (4.43***)	.640 (5.98***)

***= $p < 0.001$; **= < 0.01; *= < 0.05

D2.2.7 Experience (EXPERIENCE)

The EXPIENCE construct is conceptualised as a RLV comprising the two lower order dimensions of experience (also a RLV) and familiarity (single item). The information presented in Table D2.7 indicates that proposed structure is supported.

Table D2.7: Second Order Solution of EXPERIENCE

Sub -Constructs	Loadings (t statistics)
experience	.872 (30.12***)
Familiarity	.861 (29.47***)

*p<0.05; **p<0.01; ***p<0.001

D2.3 CONCLUSIONS

Examination of the proposed second order structures leads to confirmation of the hypothesised structures of FAPR, FUTURINC, FINRISK, SAVE, VALUES and EXPERIENCE. On the other hand, the higher order structure of the .OVERALL construct has not been confirmed with DA and CONV not loading significantly with the higher order construct.

This, together with the empirically identified higher order structure of the VALUES construct, has resulted in the re-specification of the CAMB (see Figure C1.1 in Section C1.2) depicted in Figure D2.1 and the nature and direction of the hypotheses specified in Section C1.3 is maintained. Given the already disaggregate nature of the OVERALL construct no changes to the competing model (see Figure C1.2 in Section C1.4) are necessary.

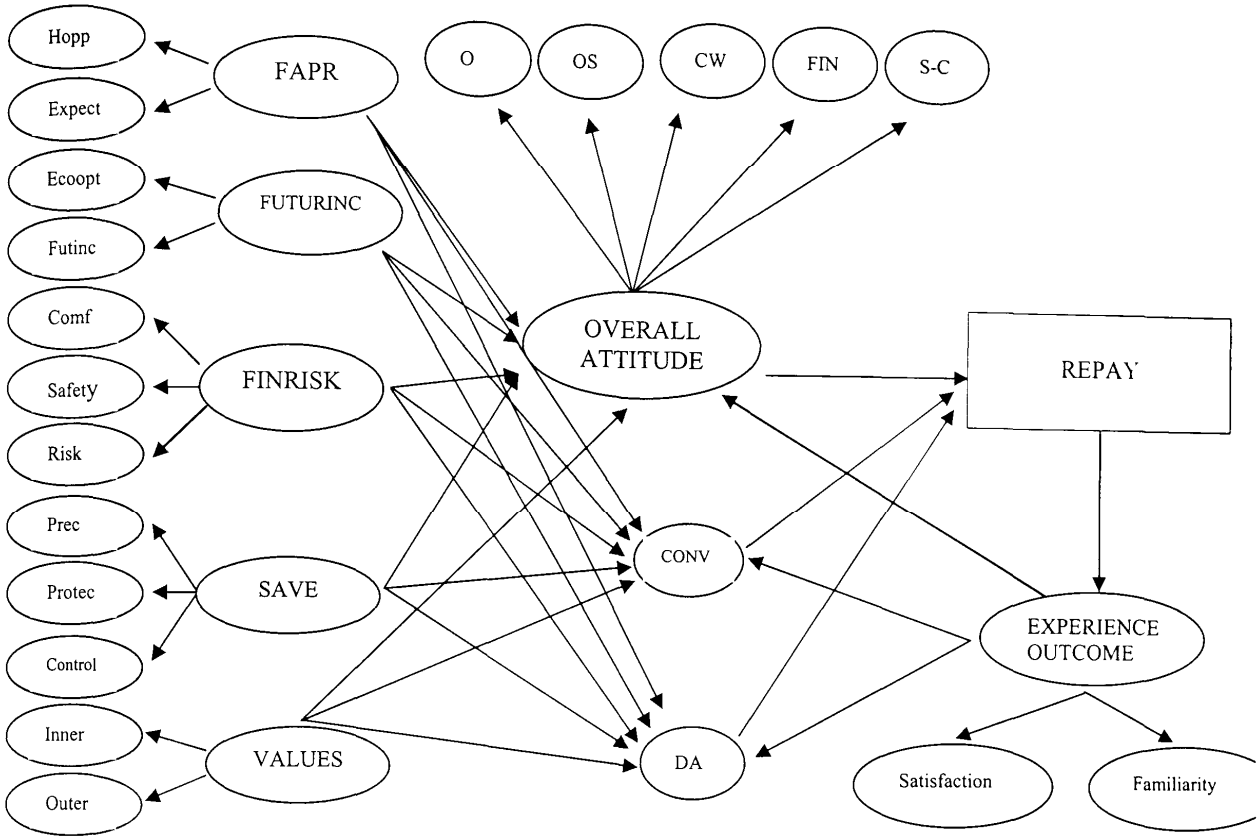

Figure D2.1.:Modified CABM

CHAPTER D3: TESTING GOODNESS OF FIT AND THE STRUCTURAL PARAMETERS OF BASE AND COMPETING MODEL

This chapter reports the results obtained from testing the proposed and the competing model. Initially, the adopted analytical approach is outlined followed by presentation of the results for each of the models. At this stage only minimal effort is made to interpret or explain the results, this is the domain of the final chapter of this thesis (i.e., Chapter E1). To avoid unnecessary duplication, in the remainder of this chapter the weights and loadings of the indicators of lower and higher latent variables are not reported. These can be found in Chapter D2.

D3.1 ANALYTICAL APPROACH

The adopted analytical approach is PLS (see Section C4.5 for a presentation). PLS makes no assumptions about the distribution of the variables and consequently traditional parametric-based approaches cannot be employed. Instead the recommendation (see Chin & Newsted, 1999) is to use nonparametric measures such as R^2 for dependent LVs, the Stone-Geisser test for predictive relevance of independent variables and resampling procedures (e.g., jack-knife and bootstrapping) when testing the significance of estimates. This means that unlike covariance-based methodologies PLS does not provide a single goodness of fit metric for the entire model, instead the R^2 values of individual dependent values are examined. The assessment of the structural model (inner-model) includes the estimation of the path coefficients and R^2. Both R^2 and the path coefficients indicate model fit (effectiveness), i.e., how well the model is performing (Hulland, 1999).

The following borrow heavily from the explanations and guidelines provided by Chin (1998) and Barclay *et al.* (1995).

- Statistical significance: In assessing the statistical significance of loadings, weights and pathway coefficients (given as standardised values) bootstrapping (Chin, 1998) was employed 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 values 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, i.e. indicates the amount of variance explained by the model. Examination of the change in R^2 can help to determine whether a LV has a substantial effect on a particular dependent LV.

Given the exploratory nature of the competing models effort has been made to establish the stability of the results. Consequently, the following approach has been adopted. The collected data were divided into a model development (284 questionnaires) and cross-validation (285 questionnaires) samples. Separate analyses were carried out on each sample and the results were compared for consistency. If the differences were reconcilable analysis of the whole data set was carried out. Otherwise, the separate analyses are reported. In either case, following classical regression analysis, an iterative process of eliminating non-significant pathways was adopted until only significant relationships remained.

D3.2 TESTING THE CABM MODEL

As can be observed from Table D3.1 the patterns of the pathways and the R^2 values obtained from the two samples (development and cross-validation) are very similar. In terms of pathways the only difference related to the FAPR → OVERALL that was significant in the development but not cross-validation solutions. This has impacted on the R^2 of OVERALL which shows a small decline in the cross-validation solution. Nevertheless, there is strong evidence of stability of results and consequently it is legitimate to obtain an overall solution.

Results presented in Table D3.2 (the final solution of only the significant pathways is presented) demonstrates, at 32%, considerable explanatory powers of the OVERALL construct. In addition its explanatory powers of 16% and 15% respectively for CONV and REPAY are considered to have merit. On the other hand, the model demonstrates

low explanatory powers or the DA and EXPER constructs. Out of the twenty two pathways only seven have been found to be significant with the main central pathway between OVERALL (i.e., attitudes towards credit cards) and attitude REPAY (i.e., repay behaviour) supported.

Table D3.1: CABM Model- Development and cross-validation

Structural Pathways	Development Coefficients & (T statistics)	Cross-validation Coefficients & (T statistics)
FAPR → OVERALL	**.34 (2.13*)**	.31(1.50)
FUTURINC → OVERALL	**.40 (3.27***)**	**.38 (2.36***)**
FINRISK → OVERALL	-.018 (0.09)	-.019 (0.08)
SAVE → OVERALL	-.05 (0.40)	-.06 (0.37)
VALUES → OVERALL	.05 (0.42)	.08(0.64)
EXPER → OVERALL	.07 (0.38)	.05(0.18)
FAPR → CONV	.16(1.16)	.09(0.70)
FUTURINC → CONV	-.09(0.75)	-.07 (0.57)
FINRISK → CONV	-.09(0.77)	-.128 (1.01)
SAVE → CONV	.07 (0.50)	.102 (0.65)
VALUES → CONV	.009(0.07)	.008 (0.06)
EXPER → CONV	**.441(2.86**)**	**.449 (2.96**)**
FAPR→ DA	.200(1.56)	.222(1.63)
FUTURINC → DA	.050 (0.52)	.005 (0.04)
FINRISK→ DA	.131 (0.97)	.129(0.91)
SAVE→ DA	.163 (1.32)	.145(1.15)
VALUES → DA	.07 (0.63)	.106 (0.89)
EXPER→ DA	-.10(0.73)	-.109(0.87)
OVERALL → REPAY	**.231 (2.43**)**	**.237(1.73*)**
DA→ REPAY	**.293(3.56***)**	**.240(3.24***)**
CONV → REPAY	**.255 (2.51**)**	**.228 (1.96*)**
REPAY→EXPER	.139 (1.17)	.142 (1.32)
Goodness of Fit	**R^2**	**R^2**
OVERALL	.360	.290
REPAY	.141	.148
EXPERIENCE	.019	.020
CONV	.231	.211
DA	.186	.177

*** = $p < 0.001$; ** = $p < 0.01$; * = $p < 0.05$

Table D3.2: CABM Model - Final Solution

Structural Pathways	Coefficients (& T statistics)
FAPR → OVERALL	.366(1.76*)
FUTURINC → OVERALL	.348(3.22***)
EXPER → CONV	.408 (3.77***)
CONV → REPAY	.296(2.94**)
OVERALL → REPAY	-.234 (2.21*)
REPAY→EXPER	.219 (1.92*)
FINRISK→ DA	.265(2.75**)
Goodness of Fit	**R^2**
OVERALL	.323
CONV	.166
DA	.070
RELAY	.150
EXPER	.048

*** = $p < 0.001$; ** = $p < 0.01$; * = $p < 0.05$

D3.3 TESTING THE COMPETING MODEL

Before proceeding to report the results related to the competing model a reminder of the main differences between the CABM and competing model is helpful. The CABM treats OVERALL as a higher order construct. Relaxation of this structure results in the antecedents and outcomes of OVERALL becoming corresponding antecedents and outcomes of each of the dimensions of the OVERALL construct (results in Section D2.2 that led to the removal of CONV and DA from this proposed structure of OVERALL does not impact on the form of the competing model).

From Table D3.3 it can be concluded that, as with the corresponding results of the CABM model reported above, there is considerable stability in the solutions obtained from the development and cross-validation samples. Consequently, the analysis proceeds by reporting the results obtained from the overall sample.

Table D3.3 – Competing Model- Development and cross-validation

Structural Pathways	Development Coefficients & (T statistics)	Cross-validation Coefficients & (T statistics)
FAPR → OS	**.301(2.31*)**	.194(1.39)
FAPR → O	.214(1.48)	.148(1.02)
FAPR → DA	.185(1.39)	.198 (1.53)
FAPR → SC	.098 (0.75)	.038(0.29)
FAPR → CW	.26 (0.00)	.190(1.33)
FAPR→ FIN	.10 (0.76)	.032(0.22)
FAPR→ CONV	.178(1.38)	-.141(1.02)
FUTURINC → OS	**.361(2.74**)**	**.346 (2.86**)**
FUTURINC → O	**.316(2.44**)**	**.291(2.18*)**
FUTURINC → DA	.056(0.53)	.010(0.09)
FUTURINC → SC	.179 (1.49)	.090(0.79)
FUTURINC → CW	**.266 (2.00*)**	**.235(1.87*)**
FUTURINC → FIN	**.305(2.36**)**	**.286(2.22*)**
FUTURINC → CONV	-.086 (0.66)	-.071(0.58)
FINRISK → OS	-.004(0.03)	.006(0.04)
FINRISK → O	.017(0.11)	.009(0.06)
FINRISK → DA	.129(0.93)	.128(0.93)
FINRISK → SC	**.342(2.86**)**	**.376(3.28***)**
FINRISK → CW	-.202(1.55)	-.192(1.35)
FINRISK → FIN	-.010 (0.07)	-.024(0.16)
FINRISK → CONV	-.107 (0.87)	-.141(1.18)
SAVE → OS	-.065(0.41)	-.132(0.83)
SAVE → O	-.033(0.23)	-.013(0.09)
SAVE → DA	.170 (1.34)	.148(1.11)
SAVE → SC	.026(0.19)	.064(0.53)
SAVE → CW	-.006 (0.04)	-.012(0.09)
SAVE → FIN	-.106 (0.69)	-.057(0.39)
SAVE → CONV	.068 (0.46)	.086(0.64)
VALUES → O	.036(0.31)	.066(0.56)
VALUES → DA	.078(0.68)	.114(0.94)
VALUES → SC	.062 (0.52)	.089(0.72)
VALUES → CW	.016 (0.16)	.035(0.31)
VALUES → FIN	.028 (0.24)	.018(0.13)
VALUES → CONV	.010(0.08)	.009(0.08)
CONV → REPAY	**.231 (2.29**)**	**.203(1.86*)**
EXPER → CONV	**.441 (2.93**)**	**.452(3.09***)**
REPAY → EXPER	.138 (1.17)	.142(1.30)
O → REPAY	**.215(1.79*)**	**.217(2.03*)**

OS → REPAY	.008(0.06)	-.014(0.09)
DA → REPAY	**.283(3.28***)**	**.278(2.94**)**
SC → REPAY	.012(0.11)	.008(0.07)
CW → REPAY	.077(0.69)	.086(0.78)
FIN → REPAY	**.186(1.68*)**	**.170 (1.64*)**
Goodness of Fit	**R^2**	**R^2**
CONV	.232	.210
OS	.251	.157
O	.159	.150
DA	.179	.166
SC	.256	.239
CW	.274	.226
FIN	.120	.099
REPAY	.186	.188
EXPER	.019	.020

*** = $p < 0.001$; ** = $p < 0.01$; * = $p < 0.05$

Examination of the solution presented in Table D3.4 leads to the following conclusions:

- There is considerable variation in the explanatory powers of the solution. The R^2 values range from a high 29% for REPAY and 20% for CONV to values below 10% for DA and FIN and EXPER.
- Only twelve of the forty five pathways have been found to be significant
- Only three (i.e., CONV, O and DA) of the original dimensions of the OVERALL construct have been found to be significant determinants or REPAY (i.e., repayment behaviour). Of these, CONV and DA were separated from OVERALL as a result of empirical evidence.

Table D3.4 Competing Model - Final Solution

Structural Pathways	Coefficients (& T statistics)
FAPR→ CONV	.180(1.91*)
FUTURINC → OS	.347(2.35**)
FUTURINC → O	.253(1.91*)
FUTURINC → CW	.365 (2.82**)
FUTURINC → FIN	.305(2.42**)
FINRISK → SC	.371(3.64***)
SAVE → DA	.333 (2.39**)
CONV → REPAY	.189 (2.09*)
EXPER → CONV	.379 (3.47***)
REPAY → EXPER	.219 (1.95*)
O → REPAY	.227(2.86**)
DA → REPAY	.430(4.62***)
Goodness of Fit	**R^2**
CONV	0.198
OS	0.120
O	0.064
DA	0.111
SC	0.138
CW	0.133
FIN	0.093
REPAY	0.286
EXPER	0.048

*** = $p < 0.001$; ** = $p < 0.01$; * = $p < 0.05$

D3.4 CONCLUSIONS

The main conclusion of the analysis presented in this chapter is that the focal relationship of OVERALL → REPAY in the CABM model has been supported. However, treating OVERALL (i.e., attitudes towards credit cards) as a higher order construct appears to be an over-simplification. Once, the CONV and DA constructs were removed from the proposed structure of OVERALL only one of its remaining dimensions (i.e., O) was found to be a significant determinant of REPAY (i.e., credit card holder repayment behaviour).

On the other hand, the results offer consistent support for the circular set of pathways linking CONV to REPAY, REPAY to EXPER and EXPER to CONV. A more detailed debate, including explanations as well as theoretical and managerial implications of the reported results is presented in the final chapter of this thesis (Chapter E1).

Part E- CONCLUSIONS

This part of the study comprises a single chapter that presents and debates the findings from the data analysis. The theoretical and methodological contributions of the study and the managerial implications of the results are also presented. Directions for future research in the study of attitude among credit card holders are offered.

CHAPTER E1: CONCLUSIONS

In the previous chapter, the results of the research were presented. The purpose of this chapter is to provide a brief overview of the study and the associated research process before presenting the key findings from the data analysis. The author discusses the theoretical and methodological contributions of the study and their managerial implications. Directions for future research in the study of attitude in the retail financial services/services are offered.

E.1.1 INTRODUCTION

This research has attempted to contribute to the advancement of knowledge within the domain of consumer services and specifically financial services. Through an extensive literature review the Theory of Reasoned Action developed by Fishbein and Ajzen (1973) has been identified as offering a robust framework. Nevertheless, the author has identified a series of limitations associated with the use of the TRA model (see Section B.2) and consequently the author has proposed a contextualised version of the model, called Credit Cardholder Attitude-Behaviour Model (CABM). Additions introduced to the model include "personal values" and "experience outcome" constructs (see sections B3.2 and B5.3). In order to test the CABM model, appropriate research constructs were developed and tested via a pilot study. In the model developed here, the constructs "attitude towards credit cards", "attitude towards financial risk", "attitude towards saving", "attitude towards future real income" are represented with multiple sub-constructs, with each sub-construct further represented with multiple items to encompass the broad domain of the constructs. Because the model had lower and higher order constructs, a competing model was proposed to test the pathways at lower order level. Data were collected through a self-completion postal questionnaire. The questionnaire was submitted to 2000 UK credit cardholders and a total of 575 usable questionnaires were obtained.

E.1.2 RESEARCH OBJECTIVES

The aim of this research, as stated in Chapter A.1, has been to enhance our understanding of the consumer behaviour within a financial service domain by investigating the attitude-behaviour link among UK credit card holders. Six specific objectives had been set in order to achieve this aim. Each of these is discussed below:

1. **Identify a relevant theoretical framework to study the attitude-behaviour relationship among credit cardholders**

The literature review indicated that TRA was a suitable generic framework for the study of the attitude-behaviour relationship (see section B1.4.3.2). The literature review also indicated that the basic framework required adaptations and contextualisations in order to fit the domain.

2. **Development of an appropriate model**

Argumentation based on empirical and theoretical grounds (see Chapter B3 to B5) has led to the proposed CABM which formed the basis for the empirical research. The model has been expanded from the basic Theory of Reasoned Action to include industry specific constructs (see section C1.3) as well as appropriate constructs such as "personal values" and "experience outcome" as literature findings indicated their ability to reinforce the attitude-behaviour link. Following good practice (Klayman and Ha, 1987), a competing model was also presented.

3. **Operationalisation of the research constructs**

Measurement scales were adapted mostly from previous studies wherever possible or identified through focus groups, brainstorming sessions and in-depth face to face interviews.

The first phase of research, consistent with the guidelines of scale development recommended by Nunnally (1978) and Churchill (1979), utilised qualitative investigation techniques including literature review, observation of existing practices, focus groups, and in-depth interviews. This qualitative investigation was designed to identify potential variables functioning as determinants, moderators, and outcomes of attitudes towards credit cards. The general procedures of scale development involved starting with more statements (or items) than intended for the final scale and carrying out at least two trials, first to select the best set of items (high item-to-total correlation) to form the scale and second to confirm the selection using a small convenience sample. Good reliability of the scale as assessed by Cronbach's α and item-to-total correlation tests has been established (see Table D1.1). In addition, convergent validity (see Table D1.3) was established through factor analysis by high correlation coefficients between all pairs of variables under study.

4. Testing the research hypotheses and overall model fit

A series of hypotheses were drawn from the literature and the relationships in the model. The statements were formulated as follows: the hypothesised pathways will be significant at the 0.05 level of confidence. In order to test the model hypotheses, a structural equation model (SEM) was developed and the PLS approach was favoured due to the presence of outliers in the data set. The overall model fit was tested using both R^2 and path coefficients. These are commented below.

5. Comment on the strength of the attitude-behaviour relationship

While hypothesised pathways were initially found to be significant on the initial CABM model, further analysis based on the competing model provided a different picture. A discussion of the results in terms of related literature review is presented in the following section.

E.1.3 DISCUSSION OF THE RESULTS

The results first indicate that the competing model represented the most plausible conceptualisation. This alternative model is a more realistic representation of the set of relationships due to the presence of higher-order and lower-order constructs in the model. More importantly, the results provide a number of insights into the credit card holder's behaviour and more specifically how associated latent variables affect this behaviour through the mediating effect of attitude. In this respect, several key areas emerged throughout the study, which illustrate the ambivalence of credit card holders' behaviour. The main findings are:

- The attitude-behaviour link is not confirmed.
- The relationship between personal values and attitude is not confirmed

On the other hand, the results offer support for the following links:

- The convenience-cardholder behaviour link is established
- The cardholder behaviour-experience outcome link is established
- The experience outcome-convenience pathway link is confirmed

The structural model was first evaluated with the explanatory power of the endogenous (intermediate) constructs. The preferred model (or competing model) demonstrates good explanatory power for the constructs "convenience" (conv), and "repayment behaviour" (repay) with values close to .20 and .28 respectively (see table E1.1 below). This is considered acceptable considering the variance can be explained by other variables (see section B2.3.1) that were not examined in this study.

As can be observed form the below table E1.1, twelve hypothesised pathways were supported.

Table E1.1: Final Solution- Competing Model

	Coefficients (& T statistics)
Structural Pathways	
FAPR→ CONV	**.180(1.91*)**
FUTURINC → OS	**.347(2.35**)**
FUTURINC → O	**.253(1.91*)**
FUTURINC → CW	**.365 (2.82**)**
FUTURINC → FIN	**.305(2.42**)**
FINRISK → SC	**.371(3.64***)**
SAVE → DA	**.333 (2.39**)**
CONV → REPAY	**.189 (2.09*)**
EXPER → CONV	**.379 (3.47***)**
REPAY → EXPER	**.219 (1.95*)**
O → REPAY	**-.227(2.86**)**
DA → REPAY	**.430(4.62***)**
Goodness of Fit and Predictive Relevance Values	**R^2**
CONV (convenience)	0.198
OS (Over-Spending)	0.120
O (Overall attitude towards credit)	0.064
DA (Debt-Avoidance)	0.111
SC (Self-Control)	0.138
CW (Credit Worthiness)	0.133
FIN (Finance role)	0.093
REPAY (card holder-Repayment-behaviour)	0.286
EXPER (Experience outcome)	0.048

The discussion below is based on both the initial and competing/revised model. This is justified by the fact that the competing model is a "relaxed structure" of the base CABM model indicating a direct link between the initial and new pathways. Results of this study show that overall attitude towards future interest rates does not have a significant effect on attitude towards credit cards. In the competing model, only the "attitude towards future interest rates"-"convenience motive" (fapr-conv) was supported. This finding tends to support previous research that suggested that the credit cardholders are unable to predict the economic outlook, are irrational and not sensitive to interest rates. Indeed, a number of studies have pointed to several mistakes consumers make in their consumption-saving and financial decisions. For

instance, Ausubel (1991) considered a related hypothesis as a potential explanation: consumers might repeatedly underestimate the probability that they will borrow (in this case use the revolving credit facility on their card), perhaps because they are unable to commit not to borrow, and therefore might be relatively sensitive to interest rates (Ausubel, 1991, 1999). More importantly, Ausubel (1991) refers to a discrepancy between the percentage of consumers who report paying their balance in full (so-called transactors or convenience users) and those actually carrying a balance (so-called revolvers). The findings add support to the view that card holders are unable to accurately report their type of behaviour i.e. incur interest charges unintentionally. This is an interesting field for future research, as previous research has shown a relative inelasticity of credit card interest rates (Ayadi, 1997; Calem and Mester, 1995; Sullivan and Worden, 1995). A more recent study (Braun, 2006) revealed that most consumers have very little knowledge about the credit cards they use including the APR (interest rate) charged.

Table E.1.2: Results of the study

Hypothesised pathways		Results
Constructs as second order factors		
H1	"attitude towards future interest rates" is a determinant of "overall attitude towards credit cards"	None of the pathways was supported
H2	"attitude towards future real income" is a determinant of Overall attitude towards credit cards"	Four of the six pathways were supported
H3	"attitude towards financial risk" is a determinant of "Overall attitude towards credit cards"	One of the six pathways were supported
H4	"attitude towards saving" is a determinant of Overall attitude towards credit cards"	One out of six pathways was significant
H5	"Personal values" are a determinant of Overall attitude towards credit card revolving"	None of the pathways was supported
H6	"Overall attitude towards credit cards" is a determinant of "Cardholder (repayment) behaviour"	Two out of the six pathways were significant
H7	"Cardholder (repayment) behaviour" is a determinant of "Experience outcome".	This pathway was supported
H8	"Experience Outcome" is determinant of "Overall attitude towards credit cards"	This pathway was not supported

In the competing model, only four out of the six hypothesised pathways were significant. Significant pathways found between the card holders attitude towards future real income (futurinc) and overall attitude towards credit (o), over-spending (os), credit-worthiness (cw) and finance role (fin) deserve further attention in future research. This finding means that cardholders' expectations about their future real

income have a substantial (but not significant) impact on their attitude towards credit cards. The concept of future expectations plays a central role in models of household financial behaviour (Das and Van Soest, 1997) but this finding tends to contradict the view (Anzatalous, 1996) that if someone thinks that he will better position financially in a year, then he can afford to borrow more against high income expectations. The results also diverge from Soman and Cheema's (2002) who found that people use their credit card limits as a signal for their future income prospects.

H3 was found to be not significant as confirmed by the competing model where only one of the six pathways was significant. Card holders' attitude towards their future real income had a significant effect on the finance role (borrowing tool) played by credit cards indicating a willingness to incur interest rate charges based on anticipated future income. Yet, the card holder's attitude towards financial risk is not a determinant of his/her attitude towards credit cards. Again, this tends to confirms that the credit card holder does not perceive the use of credit cards as borrowing money, possibly helped by the intangible nature of the medium of payment. This finding is inconsistent with previous findings from Tigges *et al.* (2000) which indicated a significant correlation between low risk-taking attitude and behavioural patterns such as saving, financial control and speculation avoidance. It also contradicts Wong and Carducci (1991)'s findings that risk personality and behaviour correlate highly. Again, this tends to support the view that the credit cardholder does not perceive the use of credit cards as "borrowed money", indicating an irrational type of behaviour. This perception over credit cards is possibly helped by the intangible nature of this medium of payment, a point defended by Prelec (1991, 1998) who argued that credit cards are "insidious" because they "disconnect the pleasure of buying from the pain of paying". The finding also support Simon (1957, 1990) and later Huber's (1997) notion of "bounded rationality" which accounts for the limited cognitive abilities of individuals to accurately evaluate the losses associated with the risks they face through their actions.

Contrary to the hypothesis, H4 was not supported with only one pathway being significant. Attitude towards saving appears not be related to attitude towards credit

cards. The finding means that credit cardholders' orientation towards saving seems to be unrelated to their propensity towards using credit cards. Yet, studies (Engel, 1990; Tucker, 1991; Loewenstein and Prelec, 1998) pointed to a link between attitude and saving behaviour. The so-called inter-temporal trade-off (individuals' preference between present and future consumption) found in the economics literature is not verified among credit card holders. On the other hand the significant found between "attitude towards saving" and "debt-avoidance" is explained by the obvious correspondence between the two constructs.

The most unexpected finding relates to the impact of Personal values on attitude towards credit cards (H5). Contrary to most empirical evidence (see chapter B.3) from the literature no significant relationship was found between the two constructs. The absence of a significant link between values and attitude suggests a low involvement type of behaviour among credit cardholders. Another possible explanation could be attributed to the dual function of credit cards (payment and borrowing instrument).

The central hypothesised relationship (H6) attitude and behaviour is not supported: as argued by Chien and Devaney (2001), the "attitude-behavior relationship in consumer finance may be more complex". Another possible explanation could be attributed to the removal of the mediating "behavioural intent" construct as we assumed a direct pathway between attitude and behaviour. But findings based on the competing model indicated a significant link between the credit card holder's "overall attitude towards credit" and "debt-avoidance" on one hand and his repayment behaviour (repay) on the other hand.

An interesting finding concerns the significant impact of cardholder behaviour on experience outcome (H7). The type of use made by credit card holder (revolver or convenience) strongly determines the positive/evaluation of future use of credit. In other words, a direct and positive relationship exists between the way individuals use their credit cards and their evaluation of the credit cards. This finding tends to support a previous study by Albarracin and Wyer (2000) which examined the process by which past behaviour influences future behaviour. This finding is also consistent with previous research which highlighted the significant link between

customer experience and general attitudinal and behavioural responses in both retail (Ridgway, Dawson and Bloch, 1990) and services settings (Bitner, 1992)

H8 was not supported indicating that the evaluation made by credit card holders of their previous use of credit does not affect their attitude towards credit cards. Although a study by Schoenbacher and Gordon (2002) indicated that consumers evaluate a service "based on previous consumption experiences" the results indicate that the evaluation (positive or negative) credit card holders make of their previous experience with credit does not affect their attitude towards credit cards. Here again, the finding tends to support the view that cardholders are irrational and do not perceive the use of credit cards as "borrowed money".

In summary, the results of the thesis indicate that there is no clear link between attitude and behaviour among credit card holders, contradicting Awh and Waters (1974)'s argument that attitudes are the most important determinant of card use. No evidence has emerged either that the other latent variables are useful predictors of attitude towards credit cards. These findings, in addition to what has been reviewed, strongly suggests that there is a need for a theoretical framework in which to conduct empirical work in the credit cardholder behaviour area.

Yet, although little evidence was found in this study to support the attitude-behaviour assumption, this is no evidence that the link does not exist nor that there is no causality between attitude and behaviour. Despite the weak attitude-behaviour relationship found in this study, these results may in fact over-estimate the strength of the link: cognitive dissonance theory suggests that if attitudes are in conflict with behaviours, then either may be modified to reduce any discrepancies (see Loudon and Della Bitta, 1993). Since the same self-completion questionnaire was used to elicit both attitude and behaviour, cardholders could have adjusted their reported attitude or behaviour to ensure consistency. In addition, even strong supporters of the theory of reasoned action (TRA) may not be surprised by the poor relationships found here. First, they would claim that the questions lacked both TACT (Target, Action, Context, Time) elements and correspondence between the attitude and behaviours under study. Even the specific attitudes used in the analyses of credit card holder behaviour lacked many of the TACT and correspondence requirements. Credit cards are in fact two products under the same name: credit card holders are

therefore not a homogeneous population. This fact could explain why there was no improvement in the predictive ability when specific attitudes were used.
The overall findings tend to indicate that the assumption that the credit card holder is a rational economic agent, sensitive to prices (i.e. interest rates in this context) is not supported. TRA is concerned with the determinants of consciously intended behaviours (Ajzen and Fishbein, 1980) and perhaps the use of credit cards as a borrowing instrument is to some extent unintentional.

E.1.4 CONTRIBUTIONS

This thesis makes theoretical contributions to the consumer behaviour and services marketing literature as well as methodological and managerial contributions.

E1.4.1 Theoretical contributions

From a theoretical standpoint, this thesis contributes to the existing literature and knowledge in the field of financial services marketing and consumer behaviour in several ways. To our knowledge, this is the first study to adapt the Theory of Reasoned Action (TRA) to the credit card domain. The study borrowed from the economics, social psychology and marketing streams to empirically examine the attitude-behaviour relationship among UK credit card holders. While past studies have mainly focused on applying the theory to branded/consumer goods with no known studies applied to the credit card holder behaviour.
The findings strongly suggest that the personal values-attitude link is not supported (at least in this specific setting), contradicting most empirical studies on the subject (see section B3.2). The findings also suggest that the convenience motive for using credit cards should influence the credit card holder behaviour (see table E1.1 above). This link should deserve further attention in financial services marketing studies. Additionally, the study demonstrates that that credit cardholders vary in the use they make of credit cards, and the author identified several variables that explain this variability. Finally, the role played by latent constructs such as attitude and values has been largely ignored in previous studies focusing on credit card holders. This study provides an insight into their impact on that behaviour.

E1.4.2 Methodological contributions

In addition to the theoretical contributions, the study makes important methodological contributions. One methodological contribution is the development and validation of an integrated assessment framework. The author has developed credit-card specific scales that were validated and met psychometric properties at least at the measurement model level. Confirmatory Factor Analysis also indicated that all constructs (with the exception of personal values) were uni-dimensional.

E1.4.3 Managerial contributions

The study has also important practical implications for marketing practitioners in the credit card industry. The cardholder' insensitiveness to interest rates tends to indicate that card issuers should appeal to "emotional" and hedonistic elements when marketing their products. Issuers should stress upon the convenience of credit card usage, its versatility when shopping abroad and its use with internet transaction. The finding also paves the way for the development of so-called "affinity cards" by which a percentage of the transaction is handed to a preferred charity. Affinity cards are credit-cards that contribute to a not-for-profit partner a percentage of the amount charged to the card and/or a certain amount for each card issued to a member of the affinity group.

In addition, the results provide a basis for marketers to better design, assess and improve effectiveness of their segmentation. Credit card issuers have traditionally focused their segmentation efforts on behavioural, and previously socio-economic, gender, demographics and lifestyle criteria. But while empirical studies (see Machauer and Morgner, 2001) indicated that segmentation based on psychological criteria (such as attitude) has predictive power, the findings have demonstrated that attitude on its own is not sufficient either. So it is recommended combining both latent variables (attitude and values) with "traditional" segmentation variables. Finally, card issuers may also reflect on the significant (individual) pathways found in the competing model. For instance, the significant impact of cardholder behaviour on experience outcome (H7) deserves further examination and card

issuers may want to focus their acquisition efforts on customers with previous experience of consumer credit.

E.1.5 RECOMMENDATIONS FOR FUTURE RESEARCH

Two alternative models have been suggested in this research but further research is needed to definitely establish the theoretical relationship between attitude towards credit cards and card holder behaviour.

First, future research should consider the use of a longitudinal approach to determine whether factors influencing the use of credit cards change over time. This should be considered in order to fully validate the findings.

More importantly, the findings suggest that TRA (Theory of Reasoned Action) was not an appropriate basis for this conceptualisation. Since it has been established that the credit card holder is not fully rational, it is recommended to employ the TPB (Theory of Planned behaviour) as a theoretical basis in future studies examining the attitude-behaviour relationship among card holders. TPB has been applied successfully in various consumer settings (Heath and Gifford, 2002; Hansen *et al.*, 2004) and accounts for situations in which individuals lack control over their targeted behaviour.

Third, since the model is fitted in parts, there is no overall measure of model fit available in PLS (Anderson and Garbing, 1988). In future research, it may be useful to re-estimate the model using the covariance-based approaches. However, since the proposed model is quite complex, with a large number of constructs and measures, it may be difficult to estimate the full model with the MLE (maximum likelihood estimation) method used in the covariance-based packages.

Attitude theory suggests that attitudes that are specifically related to a particular behaviour should be better predictors of that behaviour than general attitudes (Ajzen and Fishbein, 1980). Yet, in this particular research, credit cardholder behaviour was considered a single dependent uni-dimensional construct. It is therefore recommended to discriminate between the two dominant behaviours and

treat them as two separate constructs in any future research. The data set should be split into two sub-groups to examine and compare the behaviours of convenience users separately from that of revolvers.

In addition, the significant relationship found between cardholder behaviour and experience outcome is also a possible area for future investigation. Card holders with previous experience in using other forms of credit are likely to behave accordingly with credit cards.

Finally, it is recommended to extend the proposed model to incorporate other modelling variables such as socio-economic, gender, education combined with the latent/psychological variables employed in this research to obtain a more comprehensive model.

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APPENDICES

Appendix 1- Cover letter

Appendix 2- Questionnaire

Appendix 3- Architecture of the credit card industry

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KINGSTON BUSINESS SCHOOL
Professor Stavros P Kalafatis

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Dear

Re: Study in the use of credit cards

As part of my Doctoral studies in marketing at Kingston Business School, I am undertaking a major research among members of the public. This study is very important to the success of my research programme and I should be grateful for your help in completing the enclosed questionnaire.

The purpose of this research is to find out your views of certain issues about credit cards (excluding store cards, debit cards or charge cards). Your answers will help me to better understand the attitudes and behaviour of UK credit cardholders and will contribute to the advancement of consumer behaviour theory. It will take approximately 10 minutes to complete.

I would greatly appreciate you completing the enclosed questionnaire and returning it by post in the pre-paid envelope. The validity of the results depends on obtaining a high response rate and your participation is crucial to the success of this study. You have been randomly selected to represent the UK population of credit cardholders.

You are assured that your answers will be held in the strictest confidence and it will not be possible to identify answers given by individuals. The number that appears on the attached questionnaire is purely to avoid sending reminders to those who have replied. Your name will never appear on the questionnaire.

As a token of appreciation there will be *a prize draw for 3 mini I-Pods*. If you wish your name to be included in the draw please complete the attached postcard and mail it separately. For the questionnaire you will find enclosed a stamped reply envelope for your convenience.

Thank you very much in advance for your help. If you have any questions about this study, you can contact either myself (020 8547 2000 ext. 65245) or my academic supervisor Professor Stavros Kalafatis (020 8547 7121).

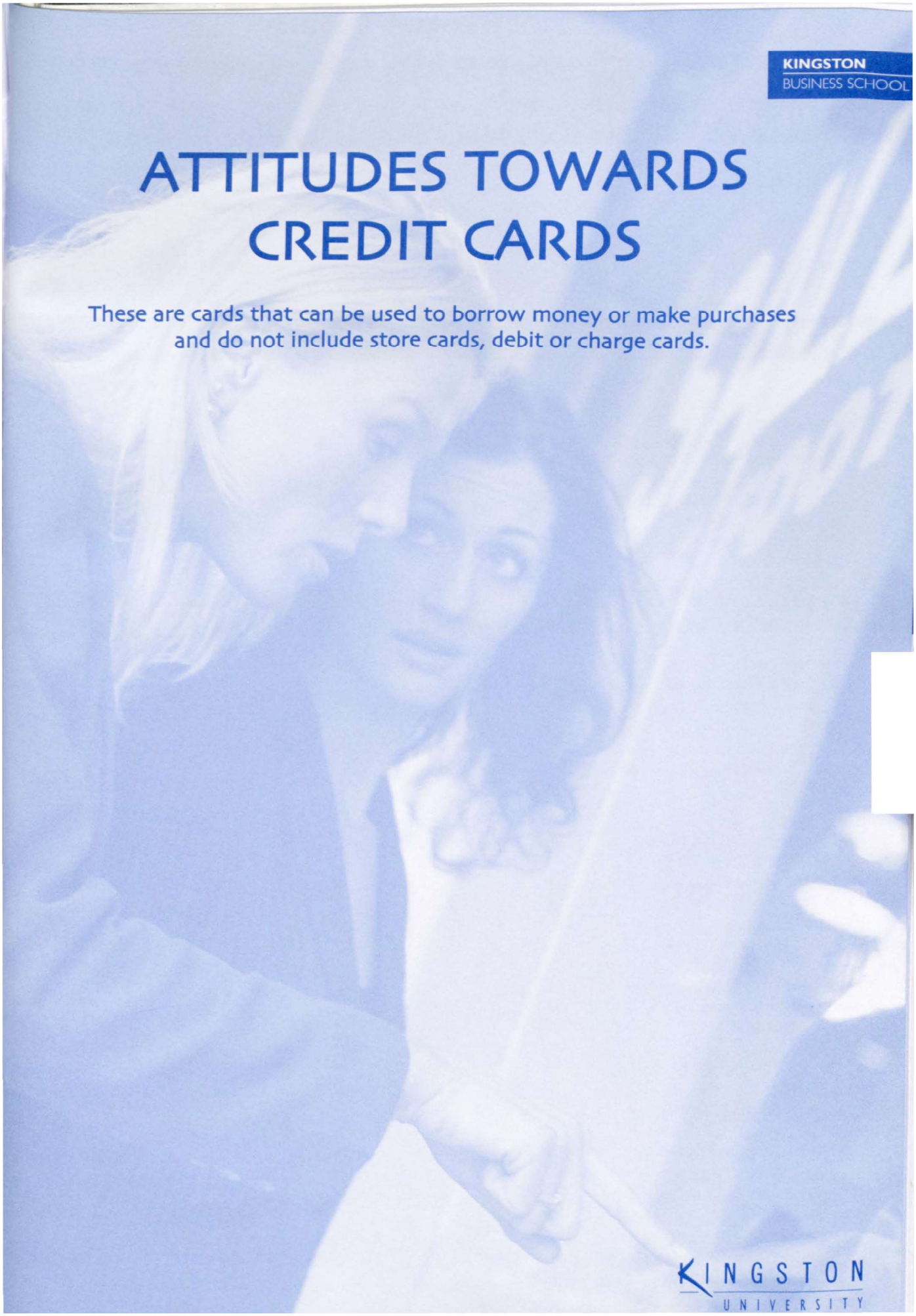
Yours sincerely,

A-Karim Khelifi
PhD Candidate

KINGSTON
BUSINESS SCHOOL

ATTITUDES TOWARDS CREDIT CARDS

These are cards that can be used to borrow money or make purchases and do not include store cards, debit or charge cards.



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Please indicate your views by ticking the relevant box/number on each of the following statements.

SECTION A – YOUR REPAYMENT BEHAVIOUR:

	Always paid in full	Almost always paid in full	Paid in full more often than not	Paid in full approxi-mately half the time	Paid in full occasionally	Almost never paid in full	Never paid in full
Please indicate your typical repayment behaviour with credit cards over last 12 months	1	2	3	4	5	6	7

SECTION B – YOUR ATTITUDES TOWARDS CREDIT CARD:

	Strongly agree	Agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Disagree	Strongly disagree
General issues:							
1. For someone like me, buying on credit cards is acceptable	1	2	3	4	5	6	7
2. For me, buy today, pay later is an incorrect approach	1	2	3	4	5	6	7
3. I try to avoid getting into credit card debt as much as possible	1	2	3	4	5	6	7
4. I find credit card debt to be a stressful experience	1	2	3	4	5	6	7
5. I try to avoid going over my credit card limit	1	2	3	4	5	6	7
6. I find myself overspending on credit cards quite often	1	2	3	4	5	6	7
7. Generous credit limits make me overspend	1	2	3	4	5	6	7
8. I think that people have large debts due to heavy usage of credit cards	1	2	3	4	5	6	7
Using credit cards:							
1. Credit cards are useful when I am short of cash	1	2	3	4	5	6	7
2. Credit cards encourage me to buy things I do not need	1	2	3	4	5	6	7
3. When I use credit cards I don't feel it's real money	1	2	3	4	5	6	7
4. I worry about being able to pay off my credit card balance	1	2	3	4	5	6	7
5. Credit cards encourage impulse buying	1	2	3	4	5	6	7
6. I find it easy to make payments with credit cards	1	2	3	4	5	6	7
7. For me, it is easy to keep track of purchases with credit cards	1	2	3	4	5	6	7
8. I find credit cards more convenient than carrying cash	1	2	3	4	5	6	7
9. I believe credit cards should only be used in an emergency	1	2	3	4	5	6	7
10. I consider that using a credit card when shopping is a bad habit	1	2	3	4	5	6	7
11. I am always cautious about using my credit card	1	2	3	4	5	6	7

SECTION C – YOUR FUTURE EARNINGS' EXPECTATIONS:

	Strongly agree	Agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Disagree	Strongly disagree
1. In a few years time I should be more comfortable financially	1	2	3	4	5	6	7
2. I think more jobs will be created in the UK over the next few years	1	2	3	4	5	6	7
3. I think the UK economy will outperform other EU economies	1	2	3	4	5	6	7
4. I am optimistic about Britain's future economic performance	1	2	3	4	5	6	7
5. I expect my future earnings to be significantly higher than current ones	1	2	3	4	5	6	7
6. In the next few years, I will be able to afford the things I can't afford at the moment	1	2	3	4	5	6	7

SECTION D – YOUR ATTITUDES TOWARDS SAVINGS:

1. For me, it is important to save regularly	1	2	3	4	5	6	7
2. I need enough savings for unexpected outgoings	1	2	3	4	5	6	7
3. My savings will help me in case I lose my job	1	2	3	4	5	6	7
4. I feel safer when I save regularly	1	2	3	4	5	6	7
5. It is important to have enough money to support myself when I retire	1	2	3	4	5	6	7
6. My savings will protect me from potential financial market downturns	1	2	3	4	5	6	7
7. I am always in control of my finances	1	2	3	4	5	6	7
8. My spending never exceeds my income	1	2	3	4	5	6	7
9. I am not an impulse-buying person	1	2	3	4	5	6	7

SECTION E – YOUR ATTITUDES TOWARDS FINANCIAL RISK:

	Strongly agree	Agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Disagree	Strongly disagree
1. I only spend money I already have earned	1	2	3	4	5	6	7
2. I am usually not willing to take any financial risk	1	2	3	4	5	6	7
3. I feel at risk when I borrow money	1	2	3	4	5	6	7
4. To me, safety is more important than uncertain high returns	1	2	3	4	5	6	7
5. The thought of taking financial risks makes me uncomfortable	1	2	3	4	5	6	7
6. I am more comfortable putting my money in a savings accounts than in shares	1	2	3	4	5	6	7
7. When I think of the word "risk", the word "loss" comes to mind immediately	1	2	3	4	5	6	7
8. I am willing to take substantial financial risk if expected financial returns are very high	1	2	3	4	5	6	7

SECTION F – YOUR EXPERIENCE WITH CREDIT:

1. I consider myself to be experienced when using different types of credit (e.g. loans, mortgages, hire-purchase etc.)	1	2	3	4	5	6	7
2. I consider myself to be experienced in using credit cards	1	2	3	4	5	6	7
3. Obtaining credit from banks has always been easy for me	1	2	3	4	5	6	7
4. I know all I need to know about credit cards	1	2	3	4	5	6	7
5. I am satisfied with previous credits (loans, mortgages, hire-purchase, catalogue etc.) I took	1	2	3	4	5	6	7

	Strongly agree	Agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Disagree	Strongly disagree
Credit-worthiness:							
1. Using my credit card(s) builds my credit rating	1	2	3	4	5	6	7
2. My credit limit will be increased if I use my credit card frequently	1	2	3	4	5	6	7
3. My credit limit indicates my credit-worthiness	1	2	3	4	5	6	7
4. Having a Platinum or Gold card indicates my credit-worthiness	1	2	3	4	5	6	7
Payments and interest rates:							
1. I believe that interest rates on credit cards are very high	1	2	3	4	5	6	7
2. I prefer to use credit cards that charge low interest rates	1	2	3	4	5	6	7
3. I am not too sure of the interest rate on my credi card(s)	1	2	3	4	5	6	7
4. For me, credit cards are a useful way of borrowing money	1	2	3	4	5	6	7
5. Credit cards offer me flexibility in how to repay my balance	1	2	3	4	5	6	7
6. When I use a credit card, I feel I can pay it off whenever I want	1	2	3	4	5	6	7
7. I am concerned about meeting my monthly credit card payments	1	2	3	4	5	6	7
8. I find interest rates on credit cards to be unclear	1	2	3	4	5	6	7
9. I find it convenient that I don't need to pay my credit card(s) balance in full	1	2	3	4	5	6	7
10. I can always afford the minimum payments on my credit cards	1	2	3	4	5	6	7
11. To me, transferring a balance to lower interest rates only delays payment	1	2	3	4	5	6	7
12. Whenever I can, I transfer my balance to a credit card with a lower interest rate	1	2	3	4	5	6	7
13. I don't bother transferring my credit card balance, it is too much hassle!	1	2	3	4	5	6	7

	Significantly increase	Increase	Increase slightly	Stay the same	Decrease slightly	Decrease	Significantly decrease
14. In the next six months, I expect interest rates to:	1	2	3	4	5	6	7

SECTION G – YOUR PERSONAL VALUES:

For me	Very important	Quite important	Important	Neither important nor unimportant	Unimportant	Quite unimportant	Very unimportant
1. Sense of belonging is	1	2	3	4	5	6	7
2. Self-respect is	1	2	3	4	5	6	7
3. Sense of accomplishment is	1	2	3	4	5	6	7
4. Being well is	1	2	3	4	5	6	7
5. Security is	1	2	3	4	5	6	7
6. Warm relationship with others is	1	2	3	4	5	6	7
7. Fun and enjoyment in life is	1	2	3	4	5	6	7
8. Self-fulfilment is	1	2	3	4	5	6	7
9. Excitement is	1	2	3	4	5	6	7

SECTION H – ABOUT YOU:

Are you? ☐ Male ☐ Female

What is your age?

☐ 20 or under
☐ 21-30
☐ 31–40
☐ 41–50
☐ 51–60
☐ 61 and over

What is your annual income before tax:

☐ Under £10,000
☐ £10,001-£20,000
☐ £20,001-£30,000
☐ £30,001-£50,000
☐ £50,001 and over

Please indicate the postcode of your permanent residence: ☐

Please indicate the highest level of educational qualification you have achieved so far:

☐ GCSEs BTEC Foundation or equivalent level
☐ O Level/GCSEs BTEC 1st or equivalent level
☐ A Level/GCSE BTEC National or equivalent level
☐ BTEC HND Degree or equivalent level
☐ Undergraduate Degree or equivalent level
☐ Postgraduate Diploma or equivalent level
☐ Masters Degree or equivalent level
☐ Research Degree or equivalent level
☐ Other (please specify)

Please indicate how many credit cards you hold:

☐ One ☐ Two ☐ More than two

Please feel free to add any comments about this study:

Thank you for taking part in this research.
Please return your completed questionnaire either
using the enclosed FREEPOST envelope or post to:

A K Khelifi, Kingston Business School, Kingston Hill, Room 14, FREEPOST KT2430, Surrey KT2 7BR

Architecture of the Credit card market

In order to understand the credit card market dynamics and drivers, it is important to be familiar with the actors involved in a credit card transaction and how their revenue is generated.

1. Origins of the credit card:

According to Encyclopedia Britannica, credit cards originated in the United States in the 1920s when companies, such as entertainment groups and oil companies, began issuing them to preferred customers for purchases made at those businesses. Credit cards were called "metal money" and offered advantages such as an interest free and deferred payment option.

Popularity and use of charge and credit cards increased until World War II when all use was prohibited. However, after the war, charge cards bounced back in use and popularity, becoming more accessible to the general public. In 1950, Diner's Club introduced the first universal credit card, i.e. one that could be used at a variety of restaurants, retailers, and other businesses. This card was designed especially to meet the travel and entertaining needs of business travellers.

In the late 1950s, Bank of America introduced the first bank card system with a "revolving-credit" card. Under this plan, the bank credited the account of the merchant as sales slips were received and assembled charges to be billed to the card holder at the end of the billing period. The cardholder, in turn, paid the bank either the entire balance or in monthly installments with interest ("How Credit Cards Work," 2003). "The 'revolving-credit' plan … marked an important milestone in the development of the credit card industry" ("The History of Credit Cards in the U.S.," 2003).

Bank Card Associations (Master Charge now MasterCard and Visa) emerged across the nation in the 1960s to streamline the credit transaction process and to manage the enormous task of issuing and processing charge cards. In the early 1970s, electronic card authorizations were introduced. This allowed retailers to get approval for transactions 24 hours a day. By the late 1970s, magnetic strips on the back of cards, along with electronic dial up terminals shortened the approval process to 1-2 minutes

("The History of Credit Cards in the U.S.," 2003). Today, Card issuers generate revenues from three main sources:

2. Credit card economics:

2.1 Joining/annual fee:

UK high street banks originally introduced an annual fee to improve the profitability of customers who do not pay interest and/or have a low account turnover. The annual fee also covered for fixed administrative costs such as sending out monthly statements. An important innovation brought by US issuers was to scrap annual fees. With increasing multi-card ownership this fee has become a "hard sell".

2.2 Interest payment:

Interest income is the major source of revenues for credit card issuers. Issuers who can not rely on annual/membership fees are heavily dependent on interest payments. This has important implications for cardholder selection. Use of teaser-rates (or introductory rates) generates short-term losses for issuers but are necessary to capture customers in the revolvers segment.

2.3 Retailer discount:

Credit Card issuers charge a small percentage fee on the merchant (retailer) on every card transaction. This makes credit card a less popular mode of payment among small retailers.

This revenue is important to understand the importance credit card issuers attach to transaction volume (traffic).

3. Other transaction related income:

In addition to annual fees, the fee structure may contain different kinds of fees such as over-the-limit fee, late payment fee, cash advance fees, and fees that may be imposed under certain conditions.

Substantial gains have also been realised through insurance commission on so called "payment protection cover".

4. Credit card transaction cycle:

A typical credit card transaction involves at least four players:
-The credit card issuer

-The card owner (or cardholder)

-The retailer's bank

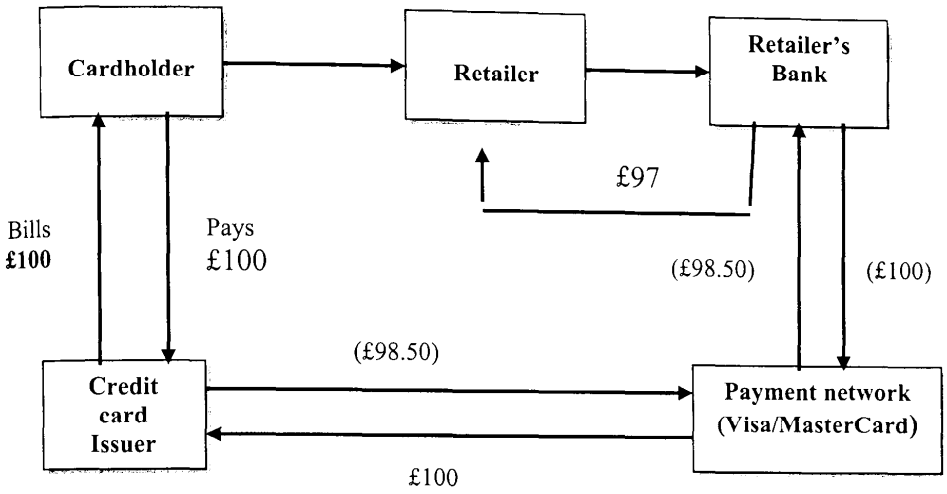
-The payment network (Visa, MasterCard or AmEx)

US credit card issuers operate under Visa or MasterCard. The latter are organised as international payment networks and operate as franchises. American Express operates its own network.
To become a member banks need to fulfil certain criteria. Visa & MasterCard generally set common standards for card logo design and operation.
The issuer decides however on pricing, branding, positioning and customer acquisition strategies.
The franchisers (Visa or MasterCard) provide the banks an extensive information network both within the country and internationally to clear transactions. Communications via satellite and computer networks enable a convenient processing of the credit card transaction all within a few seconds. Banks pay Visa and/or MasterCard a fee in proportion to their volume of transactions, and a franchise royalty (a small percentage of sales volume) as well.

Typical credit card transaction cycle:

The below chart describes a typical credit card transaction cycle.
When a credit cardholder approached a retailer to purchase goods/service the following transaction cycle would result:

Figure 5: Typical credit card purchase transaction cycle:



The retailer would present the £100 voucher to his bank and receive £97 for this transaction. The retailer's bank would generate a £3 (or 3%) revenue from which it would have to make franchise payment to Visa, MasterCard or Amex and another payment to the card issuer called "interchange fee".

The network charges the retailer a fee of approximately 2% of the sale for this service. This fee is the primary source of revenue for the network. Interchange and payment network fees determine card acceptance levels among retailers. In the UK, payment networks have maintained low fees level to ensure a high volume of transactions.