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**Abstract**

We note the perceived risks and uncertainties that might affect consumers' decisions with regard to Internet banking (IB). We highlight the perceived risks that might be associated with this developing service and differentiate these from the perceived uncertainties. We undertook a small qualitative study to identify people's sentiments regarding Internet Banking and a survey involving 150 users and non-users. Consumers were able to identify with the risks put before them; there were also instances where they expressed uncertainties. The main risks and uncertainties affecting adoption are identified. We question the methodologies used to identify perceived risks, namely the imposition of perceived risks on the existing and potential consumer and suggest that research might acknowledge instances where consumers simply 'do not know'. This suggests that researchers need to develop research methodologies that are more subtle and sophisticated.

**Key words: Perceived risk; perceived uncertainty; innovative service; adoption**

Perceived risk (e.g. Bauer, 1960) is a well-recognised, perhaps academically somewhat overstretched, phenomenon that allegedly has a significant effect on consumer decision-making behaviour. It is generally recognized as consisting of the product of consequences and lack of certainty about the outcome. Traditionally, risk *per se* is viewed as distinct from uncertainty which in itself exists when there is a *lack of knowledge* about the possible outcomes and, logically therefore, of the 'probabilities' that can be ascribed to them. Uncertainty as a key player does not have a major role in much of the discussion about consumer decision-making behaviour. Indeed, where it is mentioned, uncertainty is often part of the same conversation as perceived risk; and, where it is acknowledged as having its own identity, it is generally believed that it can be translated into risk (e.g. Hart et al, 1999) by the accumulation of, presumably relevant, information.

The methodologies for identifying perceived risk can involve the presentation to consumers of a set of identified risks and requesting them to rate them on, for example, a Likert scale. The risks are suggested by the researcher(s) often in a closed dialogue. Such research is often undertaken with a view to eliciting from consumers, usually employing the same methodological approach, the means they seek to employ to manage or cope with the perceived risk. It is evident that uncertainty does not have the opportunity to make an appearance, and fails to acknowledge that there are occasions when the consumer simply 'may not know'. In addition, many of the other issues that affect consumer perceptions of in particular innovative offerings are avoided or discarded.

The research reported here aimed to assess consumers' perceptions of the risks and uncertainties associated with an innovative service offering, namely Internet Banking (IB). It was part of a larger study that considered variables affecting consumers' views of and stance towards IB and the strategies they employed to reduce or avoid any perceived disadvantages. The methodology adopted for the survey followed very much the tradition noted above, and it is evident both from this and the limited qualitative study that the assessment of uncertainty obtained by the survey is

somewhat unsatisfactory. Cognitive biases (Hill and Jones, 1995 pp 20-21), for example, often do not enter the scene in many traditional explorations of perceived risk; nor does the tendency for at least some consumers to experiment in an environment where consumers can hold multiple options and where innovation in many sectors has become an accepted part of the everyday experience. There are inevitably questions about the accepted treatments of risk and uncertainty and of the methodologies we use to unravel them from the complexities of consumer decision making.

In this short paper, we consider briefly the traditional views on perceived risk and uncertainty; suggest that uncertainty itself merits analysis in its own right; outline a study of *inter alia* perceived risk and uncertainty perceived by consumers of IB Services using in depth interviews with a small convenience sample and a survey of 150 users and non users of IB; note that the research identifies that uncertainty may be a significant influence on consumers' adoption and use of new services; and conclude by critically assessing the methodology used, and proposing that future considerations of consumers' strategies towards innovative offerings should take account of the range of cognitive biases and other influences that undoubtedly have some bearing on how all of us approach innovative offerings.

### **Traditional Perceptions of Risk and Uncertainty**

Traditionally, perceived risk arises because consumers' actions are faced with consequences that it is not possible to foresee accurately. Simplistically, it has two components: a cost dimension; and a chance, or probability, dimension (Kogan and Wallach, 1964). Cunningham (1967 p 37) noted that it consisted of the amount that would be lost (i.e. that which is at stake) if the consequences of the act were not favourable; and the individual's subjective feeling of certainty that the consequences will be unfavourable. Perceived risk assumes some form of implicit or explicit judgment (Wilkie, 1986 p 333) or calculation that involves probabilities assessment. Often risk and uncertainty are interchanged in the sense that uncertain consequences are considered as a component of risk (e.g. Hoyer and MacInnis, 1997 p 45). However Knight (1921) draw the distinction between risk where *a priori* or statistically it is possible to calculate

probabilities; and the estimate where “there is no valid basis of any kind for classifying instances” (Knight 1921, p225). Uncertainty occurs in the case of the estimate because “there is no valid basis of any kind for classifying instances” (Knight 1921, p225). Decisions can possess significant differences from any preceding them and have results that are unrepeatably. Of course there may always be efforts to try and relate to previous decisions, and to use the experience gained there to manage uncertainty by using scripts (Hirshmann, 1980). But even where it is possible to identify points of similarity, there is likely always in the case of, for example, innovative products to be some residual uncertainty.

Moreover it is not always possible that greater information accumulation results in the effective translation of uncertainty into risk since (a) it assumes that the information gained is relevant; while (b) the process may even intensify uncertainty by exposing areas of ignorance. Consumers may have been quite content to purchase mobile telephones without even considering that they pose a health risk. Pre or even post purchase information accrual may lead to the discovery of health concerns that in turn serve to enhance any perceived uncertainty.

According to Hoyer and MacInnis (1997), there are several forms of perceived risk: financial; performance; time; social; psychological; and physical. Security risk might also be added for IB. There can be uncertainty about: the outcome of adopting any new offering (consequences); whether or not it meets the consumer ‘needs’, about which the consumer may be uncertain anyway (needs); the credibility of the information that is available (information); the range of decision options (knowledge); the criteria that should be employed in evaluating the product/service category or brand (choice); and the ‘qualities’ of the brand (brand). There may also be post-purchase uncertainty.

As has been previously noted, research on consumers’ perceived risk may generally involve the presentation of potential risks which the consumer rates. From this it is possible to rank risks. Studies have tended to focus on fairly low cost convenience food and non-food products that have little consumer involvement (Mitchell, 1999). Such research has often been attended by an

examination of the 'coping strategies' consumers employ. Research purely aimed at identifying uncertainties is rare.

### **Internet Banking**

The UK market for retail banking services has experienced substantial intensified competition because of *inter alia* new entrants such as supermarkets (e.g. Tesco, Sainsbury), other retailers and insurance companies, established mortgage providers (known as 'building societies) and others such as Virgin. Consumers are now faced with a choice of different means of making banking transactions: branches, telephone and the Internet.

Both established and new providers of banking services have moved towards offering some form of IB service (Mintel 2000), either as a stand alone Internet bank or as another point of access for a branch-held account. There are both supply and demand side explanations for the move towards non-branch banking. For providers, an IB service offers significant lower costs, with transactions being 5% or even less of the cost of a full branch arranged transaction (Mintel, 2001) and IB enables many suppliers to extend their market reach at a low cost. For consumers, it promises both time and place convenience that are in tune with lifestyle and other changes; and generally higher interest rates on positive balances to reflect the lower costs to the providers.

There are over 6.5 million people who engage in some form of online banking, out of almost 40 million holders of current accounts (Mintel 2001). However, there are still relatively few people who regularly use IB services as their main means of banking transactions, and the Internet account may be held together with one or more other forms of account, including other Internet accounts (Mintel 2001).

It is recognised that Internet-based banking has attendant mainly security disadvantages, in particular the possibility of people getting access to the account or the leakage of personal banking information. Indeed, according to a study by American Express (2002) there remain significant concerns about the security of online financial services per se. In the UK for instance,

78% of consumers are concerned about security, whereas only 32% considered online financial services more convenient.

## **Methodology**

The empirical study reported here focuses on consumers' perceptions of the risks and uncertainties associated with IB. The research however involved also an analysis of the various influences, such as product usage and features, cognitive factors, and demographics, on these perceptions and the strategies consumers used to reduce their perceived risks and uncertainties.

The methodology consisted of two major stages. The first, small scale, study involved in-depth personal interviews with a small convenience sample of five IB users and non-users of different ages and gender with the aim of highlighting the major issues, generating hypotheses and in turn identifying variables that could be employed in the larger, quantitative part of the study. The interviews were taped and transcribed. Analysis involved coding of the transcriptions from which the major issues were identified that were used together with the analysis of the secondary research to develop a questionnaire. This consisted of closed response questions, multiple choice questions and attitude statement to which respondents were asked to respond using a five point Likert scale (1+ strongly disagree; 5+ strongly agree). Separate questionnaires with slight different wording were employed for users; non-users who had considered IB; and non-users who had not considered using IB. The questionnaire was pilot tested with eight participants.

The questions on perceived risk focused on: security risk; financial risk; performance risk; time risk; social risk; and psychological risk. The questions concerned with eliciting views on uncertainty covered: consequences uncertainty; information uncertainty; knowledge uncertainty; choice uncertainty; brand uncertainty; performance uncertainty; and post-purchase uncertainty.

Data collection consisted of approaching individuals in the centre of a large UK northern city. 150 questionnaires were completed, of which 26 were from IB users (representing 17% of the sample population; IB users in the total population were estimated at 12%). 87 (70.2%) of the

non-users expressed their intention of considering the adoption of IB. Further details of the sample are given in Table One.

**TABLE 1 HERE**

**Empirical Findings**

The qualitative research highlighted significant concerns about security; and the performance of the service (such as availability of the bank server). There was uncertainty about the consequences of using IB; the information available about IB; and the credibility of many of the new Internet banks. There was in many cases a clear perceived uncertainty expressed in phrases such as: “you are not actually sure “, “things go wrong”, “you question....whether that is really true”, there is “no guarantee whatsoever”. In some cases prompts about researcher-identified concerns were not recognized; in all cases the participants did not strive or were encouraged to present estimates of the probabilities of the outcomes.

In the survey, the major risks identified, with the relevant average `scores`, were those associated with security (3.49) and financial risk (3.83). Respondents did not perceive a significant degree of performance risk; social risk; time risk; or psychological risk. There was considerable consequences uncertainty (3.96) and some choice uncertainty. The results were subjected to Chi Square and T-test results to ascertain the relationships between IB usage and the perceived risk; and for IB usage and the perceived uncertainties. The results are given below in Table Two. Although financial risk is perceived as the most significant, it appears to have little influence on the decision to use IB. Rather, it is social (soclrsk 1,2,3), security (secrsk 1,2) and psychological (psychrsk) risks that appear to be more significant. The results suggest that both security risk variables (secrsk 1 and 2) appear to have an influence on consumers’ decision to adopt at the 5% level of significance. With the exception of choice and post-purchase uncertainty, all the suggested uncertainties appear to have some effect on the decision to adopt.

**TABLE 2 HERE**

**Discussion**



So what have we learned? It is evident that there is a clear distinction between risk and uncertainty. The qualitative discussions highlighted the fact that there are occasions when consumers simply 'do not know'. Yet researchers can tailor research instruments to force a response, perhaps to stimuli that previously had not been part of the participant's consciousness. There are questions about the use of a concept, risk, based on a calculation of the loss and the probability of loss. In general, the majority of individuals may not think in terms of probabilities or chances: indeed many may not even have a grasp of what probability or chance means. Often where individuals are forced to provide estimates of risks they are widely inaccurate. Affect can shape a perceptual stance (Daniels, 2003); as can lack of knowledge; bounded rationality; a preconceived desire to effect an outcome; and their ability to handle information about which they are not specialists (Winter, 2003). There is also a wide range of other influences that mould views (Mezias and Starbuck, 2003). As they note they can involve the random attribution of causality; impulsiveness in reaching conclusions; the liberal interpretation of evidence to confirm views; the tendency to recognize only that information that supports a preconceived stance; and to be fallaciously confident in the accuracy of their judgments.

Such perceptual biases might not surface in the simplistic surveys noted and yet they can be powerful shapers of the holistic impression that consumers develop of an innovative offering. It may also be that for certain types of products some consumers do not acknowledge risk because they strive to experiment or are driven by an impulsive urge for novelty. In the case of technologically innovative offerings, Littler (2001, p 11) noted that adaptors "may not necessarily undertake a considered and detailed evaluation, but rather may make leaps from awareness of an innovation to adopting/using it".

Overall, then, we should recognise that often people either know or they do not; the language of perceived risk may be alien to many consumers; perceptual biases should be taken into account when exploring consumers' concerns; consumers often behave impulsively or experimentally; adoption is affected by the quality of information available; and that many research instruments aimed at large-scale discovery may not lead to very insightful conclusions. Researchers should

attempt to gain an understanding of consumers' concerns and what consumers *feel* they know and do not know by elicitation rather than through imposition.

**Table 1: Feature of the Questionnaire Sample**

<b>Age</b>	<b>16-24</b>	<b>25-34</b>	<b>35-44</b>	<b>45-54</b>	<b>55-64</b>	<b>over 65</b>
	22 (14.7%)	37(24.7%)	37 (24.7%)	24(16%)	23(15.3%)	7 (4.7%)
<b>Gender</b>	<b>Female</b>	<b>Male</b>				
	73 (48.7%)	77 (51.3%)				
<b>Occupation</b>						
<b>Higher Managerial</b>	<b>Intermediate Managerial</b>	<b>Supervisory</b>	<b>Skilled Manual</b>	<b>Semi/Unskilled Manual</b>	<b>Students</b>	<b>Retired</b>
	14%	19.3%	14%	16%	15.3%	10%
					10%	11.3%

**Table 2: IB Use and Perceived Risks and Uncertainties**

Risk Variable	t'	Sig.	Uncertainty Variable	t'	Sig.
Secrsk1	3.953	.000	Conseunc	2.887	.005
Secrsk2	3.803	.000	Infounc1	-2.609	.010
Fincrsk1	-.512	.609	Infounc2	.864	.389
Fincrsk2	1.900	.060	Knowunc	-.294	.769
Perfrsk1	1.654	.100	Chounc1	-.317	.751
Perfrsk2	-.354	.724	Chounc2	-.922	.358
Timersk	-.720	.473	Choiunc3	4.036	.000
Soclrsk1	-2.695	.008	Brndunc1	-2.123	.036
Soclrsk2	6.669	.000	Brndunc2	4.855	.000
Soclrsk3	-9.711	.000	Needunc	2.553	.012
Psychrsk	-3.017	.003	Pstprunc	-1.284	.201

Key: Secrsk1=WWW secure place for banking; Secrsk2=Security of account; Fincrsk1=Financial Risk (fraud);Fincrsk2=Financial risk (transactions);Perfrsk1=Performance risk (availability);Perfrsk2= Performance risk (needs);Timersk=Time risk;Soclrsk1=Social risk (lower in eyes of peers);Soclrsk2=Social risk (admiration);Soclrsk3=Social risk (contact with employee);Psychrsk=Psychological risk(annoyed with myself);Conseunc=Consequences uncertainty;Infounc1=Information uncertainty (Internet banking generally);Infounc2=Information uncertainty(Internet banking brands);Knowunc=Knowledge uncertainty;Chounc1=Choice uncertainty(alternative ways); Chounc2=Choice uncertainty(number of alternative ways);Chounc3=Choice uncertainty(time taken to decide);Brndunc1=Brand uncertainty(best option);Brndunc2=Brand uncertainty(satisfy needs);Needsunc=Needs uncertainty;Pstprunc=Post purchase uncertainty

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