

**THE INFLUENCE OF CONSUMERS' RISK ATTITUDES AND BEHAVIOR ON THE ADOPTION OF
ONLINE BANKING SERVICES**

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Because of the growing use of online banking services by consumers and the salience of trust in this domain, research is needed to better understand the conditions and drivers that determine the adoption of online banking. Even if consumers have a positive perception of the functionality of online banking, these attitudes are not automatically translated into actual behavior. This study focuses on the interplay between consumers' individual risk orientation (e.g., risk averseness, innovativeness) and the different risk perception aspects (i.e., financial, functional, individual, and social) that are supposed to influence the attitude towards and usage of online banking.

Keywords: Perceived Risk, Online Banking, Attitude-Behavior-Gap

INTRODUCTION

In consumer behavior research, the construct of perceived risk has become part of the standard inventory (Stone & Grønhaug 1993). Even though a large number of consumer risk perception studies are available in on- and offline contexts (e.g., Jia, Dyer & Butler 1999; Stone & Grønhaug 1993; Ross 1975; Mitchell 1995; Lasser 2005; Keeney 1999; Bhimani 1996), only little research exists with reference to the multifaceted link between consumers' risk attitudes and behavior. Against this background, this study focuses on both the consumers' individual (psychological) risk orientation (e.g., risk averseness, innovativeness) and the different risk aspects (i.e., financial, functional, individual, and social) that consumers associate with the purchase and usage of products or services. As a specific context, the field of online banking services was chosen. Its discrepancy provides a viable research opportunity: on the one hand it has been accepted by a growing number of consumers, on the other it remains associated with uncertainty and security risk problems.

Existing studies in the online banking field have *a)* analyzed the relationship between general internet usage behavior and the adoption of online banking services, *b)* concentrated too narrowly on single aspects of consumers' risk perceptions, such as psychological, individual, or socio-demographic components, or *c)* examined online banking in a specific country context

using perceived risk as one influencing aspect. Only Gerrad and Cunningham (2003) conducted a study based on exploratory interviews to investigate the acceptability rate of Internet banking services including various characteristics.

Because of the growing use of online banking services by consumers and the salience of trust and security in this domain, research is needed to better understand the influence of consumers' risk attitudes and related behavior. Even if consumers do have a positive perception of the functionality of online banking services (e.g., anywhere – anytime), these pro-online banking attitudes are not automatically translated into the concrete usage of online banking services. Therefore, the purpose of this paper is to analyze if and to what extent consumers' risk and value perceptions influence the adoption of online banking services. Based upon our theoretical framework and associated propositions, the financial, functional, individual, and social risk and value aspects are examined through an exploratory study. Its results are used as the basis for clustering and characterizing four types of consumers that differ in their pro-online banking attitudes and usage behavior. Finally, the model, the propositions as well as the exploratory results are discussed with respect to their managerial and research implications.

CONSTRUCT DEFINITION AND LITERATURE REVIEW

The Construct of Consumer Perceived Risk

Generally speaking, the construct of perceived risk rests on the fundament that “(...) any action of a consumer will produce consequences which he cannot anticipate with anything approximating certainty, and some of which are likely to be unpleasant” (Bauer 1960, p. 24). Furthermore, if a consumer perceives a probability of a mismatch between his/her expectations and the incentives offered by the situation, then he/she perceives a risk of not fulfilling his/her motives at that time (Atkinson 1964). Similarly, Cunningham (1967) conceptualized perceived risk based on the components “uncertainty and consequences”. Other researchers examined the interrelationship of an increasing level of perceived risk depending on possibly arising uncertainty or combined negative consequences (Mitchell 1992; Oglethorpe and Monroe 1987; Kogan & Wallach 1964; Taylor 1974). Common to all of the above definitions, perceived risk concerns feelings of uncertainty and potential future adverse consequences.

A more specific field of research considers the impact of perceived risk on consumers' purchase behaviors. Numerous authors have explained the role of adverse consequences in the

context of a buying situation, which is often determined by the costs involved in attempting to achieve a particular set of buying goals (Cox and Rich 1967; Hoover et al. 1978) or the occurrence of losses (Taylor 1974). Specific types of losses often determined include performance and psychosocial risk (Cox 1967; Roselius 1971).

Consequently, the definition of perceived risk as underlying this paper contains a) an interdisciplinary perspective, in which b) potentially positive and negative outcomes are embedded, c) uncertainty about the outcome and uncertainty about its consequences on decision making with respect to every choice situation, d) both positive as well as negative consequences on purchase decisions.

Dimensions of Perceived Risk

Following a comprehensive understanding of the construct of risk perception, all actual and potential sources of individually perceived risks should be integrated into one single model. The dimensions which constitute risk perception must be differentiated along two perspectives: The first perspective acknowledges and accounts for the fact that perceived risk lies in individuality as well as sociality. Perspective two integrates the potential sources of risk. It is thus important to synthesize all relevant cognitive and emotional risk dimensions in a multidimensional model. Thus, for the purposes of this paper, the dimensions of perceived risk will be segmented into the following four, highly interrelated components: financial, functional, individual, and social dimension.

Financial Dimension of Risk Perception: The *financial dimension* addresses direct monetary aspects such as price, resale price, discount, investment etc. It refers to the value of the product expressed in dollars and cents in comparison to what is given up or sacrificed in order to obtain that product (e.g., Roselius 1971; Monroe & Krishnan 1985; Bhimani 1996). In the literature on perceived risk, the financial component traditionally refers to a net financial loss to a customer (Horton 1976), including the possibility that a product fails and may require repair or replacement (Horton 1976, Roselius 1971). Jacoby and Kaplan (1972) further argue that the financial dimension of risk is often weighed as expenditure relative to income or on value-for-money perceptions.

Functional Dimension of Risk Perception: The *functional dimension* of risk refers to the core benefit and basic utilities of a good or service. It includes aspects such as e.g., the quality,

the uniqueness, the usability, the reliability, and durability of the product (Horton 1976; Stone & Grønhaug 1993; Sääksjärvi & Lampinen 2005).

Individual Risk Perception: The *individual dimension* focuses on an individual's personal orientation towards risk perception and addresses psychological matters such as a general personal risk attitude (risk propensity or aversion), but also related concepts such as involvement (e.g., Mitchell 1999; Cunningham et al. 2005) or innovativeness (e.g., Rogers & Shoemaker 1978; Chang 2005).

Social Risk Perception: The perception of risk appears to have a strong social dimension. Even the early studies on perceived risk as published, for example, by Roselius (1971) or Jacoby and Kaplan (1972) account for a social perspective, suggesting that perceived risk is partially influenced by an expectation about the response of people in our social environment: In how far does the purchase of a product or service affect what others think of us. The social dimension thus refers to the utility or approval individuals receive by consuming products or services recognized within their own social group(s). Conspicuousness or expected prestige may significantly affect the evaluation of a potential good or service and thus may impact the perceived risk associated with it (Stone & Grønhaug 1993; Lassar et al. 2005).

CONCEPTUALIZATION AND PROPOSITIONS

Determinants of Perceived Risk Perception

Based on our integral individual risk perception concept of financial, functional, individual, and social aspects, as introduced above, *Figure 1* shows the proposed conceptual model to investigate the strongly correlated dimensions of risk perception, attitudes and behavior. Although the dimensions operate independently, they can interact with each other and have different influences on the individual risk perception. This understanding can be used as the basis for further identification and segmentation of different 'risk type individuals'.

For the purpose of this paper, we will – based on theoretical and empirical research – analyze selected variables in view of possible links to the financial, functional, individual, and social dimensions as well as their associated influence on the individual's overall risk perception.

THE IMPACT OF DIFFERENT VARIABLES

Financial Risk Dimension

Financial risk is one of the underlying dimensions of the perceived risk construct and means the riskiness which refers to the potential monetary loss (Jacoby & Kaplan 1972; Roselius 1971). Concerning the online banking behavior of consumers, financial losses can be expected in the form of erroneous money transfer, data abuse or incomplete knowledge about costs (services) (Bhimani 1996). However, the higher the knowledge level of risk and risky situations, the more tend consumers to undertake greater financial risks (Ricciardi 2007). Hence,

P₁: The positive influence of pro-online banking attitudes on actual online banking usage will be higher, the lower the knowledge about and the perception of the financial risk.

Functional Risk Dimension

Performance Risk Factor: As alluded to above, functional or performance risk has been defined as the occurring loss when a product or service does not perform as expected. It incorporates the future quality and performance of the product back to the point of purchase (Sweeney 1999; Stone & Grønhaug 1993). In the Internet banking context these performance components specifically include a clear and understandable explanation of the procedural technology usage, efficiency and speed of the internet, and the transaction feature (e.g. Ndubisi et al. 2005; Goh 1995; Tan and Teo 2000; Turban et al. 2000). Thus,

P₂: The positive influence of pro-online banking attitudes on actual online banking usage will be higher, the higher the perceived functional performance.

Convenience: Generally convenience is used in terms of psychological and other forms of non-monetary costs (e.g. time, effort, stresses) (Aylott & Mitchell 1998; Ranganathan & Ganapathy 2002) and was adapted as significant influence to the issue of consumer online behavior (Eastlick and Lotz, 1999; Korgaonkar and Smith, 1986; Swaminathan, et al. 1999). Studies found that a) convenience valuing consumers subject the use of Internet shopping more often, spend more money doing so (Swaminathan, et al. 1999) and b) an existing perceived use and credibility by customers increases the use of Online banking and perceive this service to be more convenient, less complex and more combatable (Eriksson et al. 2005; Wang et al. 2003; Kuhlmeier & Knight 2005; Gerrard & Cunningham 2003; Bruno 2003). Summarized, the consumer can choose when and where to use Internet banking, even worldwide. Thus,

P₃: The positive influence of pro-online banking attitudes on actual online banking usage will be higher when the convenience value is perceived to be high.

Individual Risk Dimension

Knowledge & Expertise: In general expertise is defined as the “fact or condition of knowing something with familiarity gained through experience or association” (Webster’s Dictionary). Riccardi (2007) identified factors (e.g. personality traits, personal beliefs, level of expertise, factual information), which have an impact on the interrelationship between a person’s level of knowledge and the related perceived risk. In situations of uncertainty, consumers particularly often seek the advice or opinion of experts in order to best estimate the risk (e.g., Guo 2001). Therefore, the simplicity of using online banking as well as the online and e-banking process experience are the variables that influence the level to which Internet Banking is being used (O’Cass and Fenech 2003; Lassar et al. 2005). Moreover, active ebankers often view Internet banking as their main method of banking. Therefore we propose,

*P₄: The positive influence of pro-online banking attitudes on actual online banking usage will be higher, the higher the **internet users’ general web experience and knowledge.***

Involvement: Referring to consumer behavior, perceived risk has been conceptualized as an “intrinsic part” of involvement (Mitchell 1999), in which the latter is either product or situation related. Two out of four components of Laurent and Kapferer’s (1985) involvement concept – risk importance and probability of purchase error – are risk related. In this regard, the level of involvement with a particular product or service may increase the motivation to disseminate information about a "product or service" as well as reduce the cognitive costs associated with processing new information, allowing for a greater accumulation of knowledge over time (Richins et al. 1992; Bloch & Richins 1983). However, the perceived risk of consumers is higher for online shopping and Internet services, such as online banking, than for “traditional products and services” (Cunningham et al. 2005), because greater financial and psychological risks are perceived (Sinha & Uniyal; Javenpaa & Tractinsky 1999; van den Poel & Leunis 1999). Thus,

P₅: The positive influence of pro-online banking attitudes on actual online banking usage will be higher, the higher a consumer’s level of involvement with banking services.

Individual Risk Tolerance: Within the research on risk behavior it has been argued, that risk perception and tolerance vary among consumers depending on the individual's demographic and psychographic characteristics (Assael 1981; Olson 2001). While ‘risk-averse’ people tend to

minimize or try to avoid any form of risk, 'risk-friendly' people enjoy or expectantly tolerate the associated thrill or uncertainty (Slovic et al. 2003). Adapted from Internet shopping to the context of Internet banking, it is likely that only those consumers with a higher degree of risk tolerance will be motivated to use Internet banking (Soo et al.) Hence, it is hypothesized as follows.

P₆: The positive influence of pro-online banking attitudes on actual online banking usage will be higher, the lower a consumer's level of risk averseness.

Innovativeness: Innovators or "early adopters" are consumers characterized as those, who are among the first to buy new products or use new services, both on- and offline (Rogers 1995; Rogers & Shoemaker 1978; Zhou et al. 2007). Regarding consumers' online behavior, innovativeness is domain or product-category specific and involves the affinity to learn about and adopt innovations within a specific domain of interest (Goldsmith 2001; Chang 2005). Therefore, a resistant behavior with respect to adopting Internet banking is a result of unexpected effects of new product features such as technological complexity, security, high price or newness (Ram and Sheth 1989; Waddell and Cowan 2003; Howcroft et al. 2002). Moreover, adopters of online banking services are financially more innovative (Gerrard & Cunningham 2003). Consequently,

P₇: The positive influence of pro-online banking attitudes on actual online banking usage will be higher, the higher a consumer's degree of innovativeness.

Social Risk Dimension

Finance Maven: Consumers who are characterized by a personal predisposition to disseminate knowledge and opinions (specific or general knowledge/expertise in products, purchase situations and market-related matters) to fellow consumers are called market mavens or opinion leaders (Feick & Price 1987; Lazarsfeld et al. 1944; Kotler and Zaltman 1976; Kassarjian 1981; Slama and Tashchian 1985). In the internet environment, the so-called eMaven, is a trusted person with very low risk relieving utility among consumers and who is known as an expert in reducing consumers' perceived risk in the Internet context (Soo et al. 1999; Walsh & Mitchell 2001; Walsh et al. 2002). Internet banking as a relatively innovative behavioral construct in the field of finances is more likely to be adopted by these Mavens (Lassar et al. 2005), we will call finance mavens. Therefore, we propose,

P8: The positive influence of pro-online banking attitudes on actual online banking usage will be higher among those consumers who have a personal predisposition to disseminate new knowledge and opinions related to financial services.

METHODOLOGY

To measure the underlying dimensions of consumers' risk attitudes and behavior against the background of our multidimensional model, the following two approaches were chosen: the application of already existing and tested measures (e.g. Laukkanen et al. 2007; Stone & Grønhaug 1993; Ndubisi & Sinti 2006; Lassar et al. 2006) as well as the generation of further items resulting from exploratory interviews with respondents who were asked about the risks they associated with online banking. The items were rated on a five-point Likert scale (1=strongly disagree, 5=strongly agree). A first version of our questionnaire was face validated twice using exploratory and expert interviews, and was pre-tested with 25 respondents in order to identify the most important items attempting to reduce the total number of items. Following the pre-test, a total of 153 interviews were conducted during the spring of 2008. The sample used in this study was defined as male or female respondents, aged 18 years and older. A description of the sample characteristics can be found in Table 1.

-----*Insert Table 1 about here*-----

RESULTS AND DISCUSSION

The data was analyzed along three stages: First, the various dimensions underlying consumers' risk attitudes and behavior were disclosed through a factor analysis using the principal component method with varimax rotation. The factor analysis produced a ten factor structure with a Kaiser-Meyer-Olkin measure of .725 that summarized 56 items with medium (>0.5) up to high factor loadings (>0.8); the factors' Cronbach's alpha were .650 up to .966.

-----*Insert Table 2 about here*-----

The factor scores for each respondent were then saved and consequently used in stage two to be clustered into market segments. The focus of the cluster analysis in this study was placed on the comparison of cases according to the natural relationships between the hypothesized risk dimensions and factors. We used both hierarchical and non-hierarchical clustering techniques: An initial hierarchical clustering procedure was employed to obtain a candidate number of clusters

and seed points for a k-means cluster analysis. To identify the right number of clusters, the respondents were partitioned by the hierarchical procedure first. Because it produces tight minimum variance clusters and is regarded as one of the best of the hierarchical clustering techniques (Wishart 1987), Ward's method of minimum variance was chosen to check the cluster differences in each stage of combinations and to maximize homogeneity within and heterogeneity between clusters. The results strongly suggested the existence of four clusters. This four-cluster solution was validated using non-hierarchical k-means clustering. Overall, following the typical criteria for effective segments that consist of consumers with homogeneous needs, attitudes, and responses to marketing variables (McCarthy 1982), are distinctive from one another (Weinstein 1987), are large enough to be managerial useful (McCarthy 1982), and provide operational data that are practical, usable, and readily translatable into strategy (Weinstein 1987), the four-cluster solution most favorably met the above criteria and produced the most interpretable and stable result. With regard to classification accuracy once the clusters were identified, we also used a discriminant analysis to check the cluster groupings (Churchill 1999; Hair et al. 1998). Using the categorical dependent variable a priori-defined four-cluster solution, the result of the discriminant analysis revealed significant differences between the group characteristics. The classification results were used to determine how successfully the discriminant function could work. Overall, 98.7% of the cases were assigned to their correct groups, validating the results of the cluster analysis for the useful classification of consumer subgroups based on their risk attitude and behavior.

-----*Insert Table 3 about here*-----

For market segmentation purposes, profiling the cluster solutions should lead to a classification scheme through describing the characteristics of each cluster in order to explain how they might differ with respect to relevant dimensions. To develop a profile of each market segment, more detailed information comes from looking at the questionnaire variables cross-tabulated by cluster segment. Comparisons among the four clusters were conducted with respect to a variety of descriptive variables including demographic and socioeconomic characteristics. Based on the variables from which they derived, the four clusters were labeled as follows: Cluster 1 as convenience-oriented Experts, Cluster 2 as the hesitant Risk-averse, Cluster 3 as the low-involved Functionalists, and Cluster 4 as the innovative finance-Amateurs:

Cluster	Characteristic
Cluster 1: The convenience-oriented Experts (22.9% of the sample, n=35)	<i>60.0% male, 40.0% female; mean age of 29.7</i> Members in this cluster are more familiar with online banking than the members of other groups; it is their primarily method of banking. They consider themselves as finance mavens, and encourage their social networks to use online banking services, too. In their opinion, the most important value aspect is the convenience that online banking services offer to them: They do not want to waste time and money handling their banking transactions and appreciate the independence of time and place considerations associated with self-service alternatives and online banking. With reference to possible risks, this group is not at all afraid of mistakes by the system or themselves while using online banking services.
Cluster 2: The Risk-averse (32.7% of the sample, n=50)	<i>40.0% male, 60.0% female; mean age of 35.1</i> Overall, this segment does not seem to be greatly excited about online banking services: More than within other clusters, these consumers state that they are not familiar with and do not use online banking services. The main reason given is a fear that their personal account information is not secured and may end up in wrong hands. In addition, they do not perceive themselves to be innovative or risk-taking in general. They state that they have never deliberately taken any big risks, do not like to experiment with new things, and are always very cautious.
Cluster 3: The low-involved Functionalists (24.8% of the sample, n=38)	<i>60.6% male, 36.4% female; mean age of 35.9</i> Members of this group are familiar with online banking and intend to use online banking more often in the next years because they value the convenience aspects of online transactions. Unlike cluster 1, they are not regarded and do not perceive themselves to be finance experts: They state that they do not talk and are not asked for advice about financial services. In sum, they use online banking services because of its functional values (e.g. time and place), but are not high involved in the product category of financial services.
Cluster 4: The finance-Amateurs (19.6% of the sample, n=30)	<i>44.4% male, 55.6% female; mean age of 29.0</i> This group shows highest ratings for active risk-taking and innovativeness: Members of this cluster like to try new ideas, to experiment with new ways of doing things, and are more likely than others to buy new products. They use the Internet in general and online banking services in particular. Nevertheless, this group considers itself as being a bad source of information when it comes to financial services. Comparing all groups, this cluster has the lowest mean scores for the market maven in our financial services context; in their opinion talking about financial services is boring and worthless.

Regarding the clusters some of the demographic characteristics emerge no gender differences in the use of online banking services: whereas woman on the one hand are more risk averse (higher risk perception) (Cluster 2), they are on the other hand overrepresented in Cluster

4 and characterized as active high-risk taking and innovative; instead of that men are more familiar (Cluster 1 and 3), but were overall not more likely with the use of virtual banking. Furthermore, internet banking is favored by educated younger customers, which may reflect the difficulties and higher risk perception of mature consumers according to conduct banking operations on the internet.

The above analysis must be considered as a first step in the attempt to examine the perceived risk and value dimensions of consumers' online banking attitudes, intentional behaviors, and the resulting actual online banking activities. Based on our integrative framework and the exploratory results, the need for further research and its meaning for managerial practice will be discussed below.

FUTURE RESEARCH STEPS AND MANAGERIAL IMPLICATIONS

Future Research Steps

The primary objective of this paper was to establish a multidimensional framework, explore a related factor structure and identify market segments related to the question if and to what extent consumers' risk and value perceptions influence the adoption of online banking services. Our results provide first empirical hints and should be further developed in different a variety of ways. First, based on a larger sample, we should emphasize the interplay between the different variables and value/risk dimensions that lead to a proper causal modeling of effects between the dimensions of perceived risk and value and their impact on consumer online banking attitudes, intention, and the resulting behavior. Furthermore, the knowledge of the relevant risk and value dimensions that influence the adoption of online banking services should be expanded and transferred to other online services and product categories and/or countries in order to explore possible differences or similarities that constitute consumer online attitudes and actual behavior.

A better understanding of the multifaceted aspects that may help to understand consumers' risk attitudes and behavior related to the adoption of online banking services is of course an additional key for managerial practice:

Managerial Implications

Knowledge of the relevant aspects that influence the adoption of online banking may help to explain why different groups of consumers do or do not use these services:

Some consumers are not experienced in using online services and perceive traditional ways of banking to be the most valuable distribution channel, because they appreciate the personal relationship with the bank employees. Others, who have a positive perception of online banking services, hesitate to translate these attitudes into actual online banking behavior because their general attitude is rather risk-averse. A third group of consumers that uses online banking but is not really interested and experienced in financial services may only use standard applications because they are not informed about further benefits. Moreover, there are the so-called experts who generally use online services for functional and convenience-related reasons since they do not want to waste time and money. They perceive themselves as missionaries and encourage others to use online services as primarily method of banking. These consumers may assist marketers with their referral activities to bridge existing gaps between pro-online banking attitudes and related usage behavior.

In sum, referring to our multidimensional conceptualization, marketers might be able to base appropriate strategies on our empirically verified principles to improve purchase value for different segments of consumers, who differ in their value orientations and individual risk perceptions in the context of online banking.

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FIGURES AND TABLES

FIGURE 1: Conceptual Model

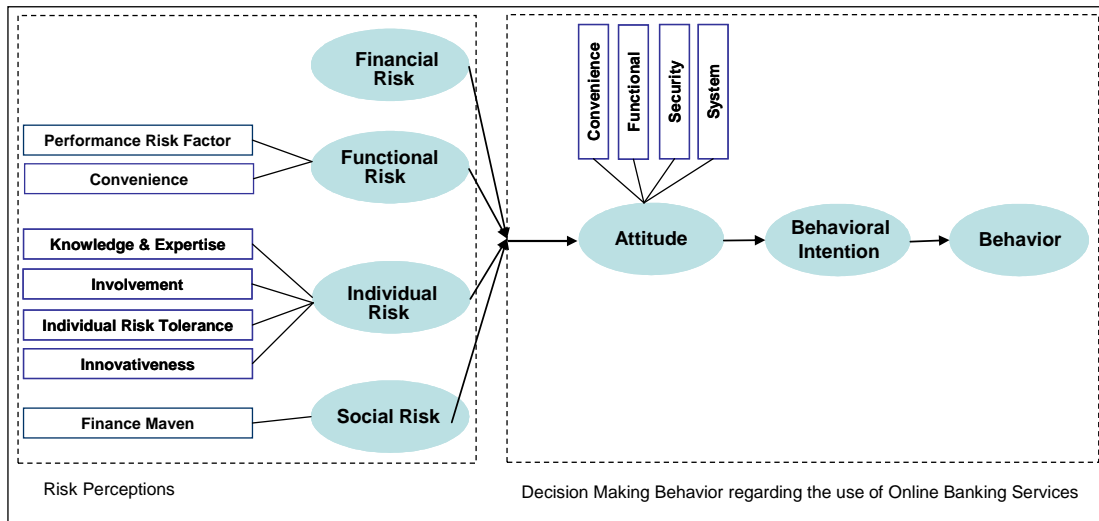


TABLE 1: Demographic Profile of the Sample

Variable		n	in %
Age	≤ 19	0	0.0
	20-29	96	66.2
	30-39	12	8.3
	40-49	8	5.5
	≥ 50	29	20.0
Gender	Male	73	50.3
	Female	71	49.0
Education	Not graduated from high school	1	.7
	Lower secondary school	15	10.6
	Intermediate secondary school	8	5.6
	A-levels	90	63.4
	University degree	28	19.7
Marital status	Single	101	70.1
	Married	26	18.1
	Widowed	11	7.6
	Divorced/separate living	6	4.2
Profession	Full time employed	46	32.4
	Part time employed	12	8.5
	Retired	3	2.1
	Apprenticeship	1	.7
	Student	78	54.9
	Unemployed at the moment	2	1.4
Household net	≤ 500 EUR	16	11.4

TABLE 1: Demographic Profile of the Sample

Variable		n	in %
income	500 ≤ 1.000 EUR	28	20.0
	1.000 ≤ 2.000 EUR	22	15.7
	2.000 ≤ 3.000 EUR	23	16.4
	3.000 ≤ 4.000 EUR	18	12.9
	4.000 ≤ 5.000 EUR	7	5.0
	> 5.000 EUR	9	6.4
	No answer	16	11.4

TABLE 2: Factor Structure

KMO-Test: .725

Items	Factor Loadings	Cluster 1 Mean	Cluster 2 Mean	Cluster 3 Mean	Cluster 4 Mean	F	Sig
N		35	50	38	30		
F1 Risk Taking	α =.804	3.10	2.30	2.00	3.15	14.158	0.000
I think that I am often less cautious than people in general	0.851	3.26	2.48	2.16	3.10	12.360	0.000
I often dare to do risky things that other people are reluctant to do	0.839	3.34	2.36	1.95	3.47	21.566	0.000
I can be rather incautious and take big risks	0.783	2.69	2.06	1.89	2.87	8.548	0.000
F2 Risk Averseness	α =.777	3.51	3.89	3.65	2.95	7.373	0.001
I never take any risks that I can avoid when it comes to important things	0.928	3.83	4.06	3.65	3.17	5.569	0.001
I have never deliberately taken any big risks that I have been able to avoid in important situations	0.904	3.91	4.04	3.89	3.20	5.197	0.002
I am always very cautious and think of safety first	0.546	2.80	3.56	3.41	2.47	11.352	0.000
F3 Innovativeness	α =.720	3.50	2.96	3.08	3.63	5.170	0.008
I take chances more than others do	0.813	3.38	3.04	3.09	3.59	3.367	0.020
I generally like trying out new ideas	0.773	3.94	3.42	3.49	4.00	5.485	0.001
I like to experiment with new ways of doing things	0.749	3.40	2.94	2.94	3.52	3.961	0.009
I buy new products before my others buy them	0.516	3.29	2.42	2.80	3.41	7.865	0.000
F4 Involvement with banking services	α =.857	2.82	3.06	2.95	3.17	13.922	0.000
boring – interesting	-0.825	3.50	3.10	2.83	2.03	10.691	0.000
worthless – valuable	-0.815	3.21	2.53	2.34	1.69	11.867	0.000
unappealing – appealing	0.803	2.32	3.14	3.09	4.10	20.976	0.000
not beneficial – beneficial	0.798	2.50	3.35	3.49	4.21	16.408	0.000
mundane – fascinating	0.747	2.56	3.20	3.00	3.83	9.670	0.000
F5 Market Maven	α =.966	2.97	2.35	1.85	1.37	14.952	0.000
My friends think of me as a good source of information when it comes to financial services	0.937	3.03	2.24	1.69	1.21	21.775	0.000
I talk with various people about financial services during the last six month.	0.912	2.89	2.36	1.68	1.32	14.971	0.000
My friends/ relatives often ask my advice about financial services	0.889	2.71	2.06	1.60	1.21	13.584	0.000
In a discussion of financial services I convince my friends of my ideas mostly	0.877	3.09	2.30	1.74	1.36	19.107	0.000
If I talk to friends/relatives about financial services, I provide the main part of information	0.861	2.94	2.46	1.82	1.46	12.955	0.000
I like introducing new products and vendor of financial services to my friends and relatives	0.860	2.66	1.94	1.63	1.11	12.422	0.000
In general my friends and me talk about banking and	0.859	2.57	2.32	1.56	1.18	15.185	0.000

financial services many a time							
Like helping people by providing them with information about many kinds of financial service products	0.859	2.97	2.36	1.71	1.32	14.279	0.000
I feel that I am regarded by my friends as a good source of advice and/or information about financial services	0.822	3.09	2.66	1.85	1.68	12.926	0.000
I talk with various people about financial services during the last six month..	0.802	3.11	2.44	2.03	1.36	15.569	0.000
If I talk to friends/relatives about financial services, I provide the main part of information.	0.791	3.31	2.56	2.34	1.82	11.792	0.000
In a discussion of financial services I convince my friends of my ideas mostly	0.781	2.97	2.40	2.12	1.43	11.558	0.000
In general my friends and me talk about banking and financial services many a time	0.729	3.31	2.46	2.23	1.39	18.251	0.000
F6 Attitude - Convenience Value	$\alpha = .920$	3.89	3.36	3.47	3.61	10.358	0.000
I value not having to wait in line at the check-out.	0.837	4.82	3.76	4.13	4.35	12.619	0.000
I value not having to consider my bank's opening hours.	0.790	4.74	3.92	4.16	4.50	6.883	0.000
I expect that Online Banking needs less time in handling my banking transactions	0.771	4.68	3.94	4.26	4.31	5.108	0.002
I value that I can handle my banking transactions, independent of time and place considerations	0.765	4.65	3.76	4.16	4.31	8.201	0.000
I value not having to go to a bank	0.754	4.53	3.38	3.81	4.12	11.419	0.000
I am uncertain if the transactions are carried out on time.	-0.610	1.76	2.66	1.94	1.81	9.562	0.000
I have a very positive image of Online Banking services	0.595	4.41	2.84	3.61	3.81	16.322	0.000
I have such an image that Online Banking services are difficult to use	-0.570	1.50	2.60	1.71	1.65	12.753	0.000
F7 Attitude - Functional Risk	$\alpha = .879$	2.57	2.95	2.27	2.54	8.513	0.000
I worry about the technological complexity of the Online Banking Web-Site	0.862	2.41	2.92	1.87	2.23	7.107	0.000
I worry if a certain transaction can be easily found.	0.808	2.38	3.10	2.00	2.65	7.400	0.000
I worry about the ease of use regarding Online Banking services	0.672	2.19	3.00	1.87	2.42	8.395	0.000
I worry about special costs by using Online Banking	0.636	2.15	2.62	1.81	1.85	7.015	0.000
In my opinion, new technology is often to complicated to be useful	0.582	1.88	2.70	1.90	1.88	6.688	0.000
I have such an image that Online Banking services are speedy to use	-0.580	4.38	3.34	4.16	4.23	14.475	0.000
F8 Attitude – Security	$\alpha = .836$	2.50	3.78	2.15	2.75	23.291	0.000
I fear that my account information are not secured and end up in wrong hands	0.828	3.21	4.32	2.55	3.35	22.905	0.000
I fear that while I am using Online Banking services, third parties are able to use my account or see my account information	0.810	2.71	4.04	2.61	3.08	19.139	0.000
I fear that while I am paying a bill by Online Banking, I might make mistakes	0.624	1.91	3.36	1.68	2.42	25.810	0.000
I fear that while I am using Online Banking services, the connection will be lost	0.509	2.18	3.38	1.74	2.15	25.311	0.000
F9 Attitude – System	$\alpha = .650$	3.57	3.28	3.34	3.55	13.293	0.000
I find self-service alternatives more pleasant than personal customer services	0.826	3.74	2.84	2.87	3.54	8.931	0.000
The use of Online Banking services is economical	0.686	4.32	3.10	3.63	4.16	19.302	0.000
I don't want abstain from my banks advice	-0.639	2.66	3.90	3.52	2.96	11.645	0.000
F10 Expertise & Behavior	$\alpha = .903$	4.42	3.06	3.89	3.78	11.892	0.000
Online Banking is my primarily method of banking	0.860	4.42	2.85	3.80	3.78	13.762	0.000
I will suggest Online Banking to everybody who ask my	0.849	4.42	2.79	3.80	3.61	20.252	0.000

advice

I often use Online Banking	0.836	4.71	3.21	4.33	3.87	12.711	0.000
I talk positively about Online Banking.	0.820	4.29	3.00	3.63	3.61	10.862	0.000
I will use Online Banking more often in the next years	0.817	4.52	3.18	4.00	4.04	11.507	0.000
I am familiar with Online Banking	0.739	4.84	3.97	4.60	4.39	6.743	0.000
I encourage my friends and relatives to use Online Banking	0.673	3.74	2.44	3.04	3.13	7.406	0.000

Means were summated from scale items.

TABLE 3: Discriminant Analysis

Discriminant Function	Eigenvalue	Canonical Correlation	Wilk's Lambda	χ^2	Significance
1	2.332	0.837	0.072	382.078	0.000
2	1.215	0.741	0.239	207.545	0.000
3	0.889	0.686	0.529	92.241	0.000
		Function 1	Function 2	Function 3	
Centroids (group means)					
Cluster 1		1.621	1.611	-0.132	
Cluster 2		-1.888	0.321	0.591	
Cluster 3		-0.256	-0.765	-1.472	
Cluster 4		1.580	-1.446	1.034	
Significant variable (structure matrix)					
F10 Expertise & Behavior		0.441	0.218	-0.194	
F9 Attitude – System		0.332	0.112	0.111	
F6 Attitude - Convenience Value		0.302	0.220	0.200	
F3 Innovativeness		0.243	0.009	0.173	
F5 Market Maven		-0.059	0.623	-0.026	
F4 Involvement (banking)		0.021	-0.615	0.285	
F2 Risk Averseness		-0.134	0.257	0.036	
F8 Attitude – Security		-0.314	0.070	0.578	
F1 Risk Taking		0.356	0.175	0.390	
F7 Attitude - Functional Risk		-0.121	0.163	0.296	

Classification matrix revealed that 98,7 % of the cases were classified correctly.