The influence of socio-demographic variables on customer satisfaction and loyalty in the private banking industry

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Abstract

Purpose – In this paper the authors aim to study the impact of customer demographics on service value, customer satisfaction, and customer loyalty in the private banking industry, i.e. a high-involvement context.

Design/methodology/approach – The authors estimate a structural equation model with the help of partial least squares (PLS). In order to examine the influence of socio-demographic variables, they conduct an analysis of variance (ANOVA) to test for differences in the means of the constructs. Furthermore, they conduct an analysis of mediation to test for an indirect influence of service value on customer loyalty.

Findings – The authors find that customer satisfaction has a strong positive impact on customer loyalty. However, service value has no significant direct effect on customer loyalty; the impact of service value on customer loyalty is completely mediated by customer satisfaction. With regards to customer demographics, the authors find significant differences in mean scores as to employment status, type of private banking service provider, and size of liquid assets.

Research limitations/implications – Further research should analyse potential moderating effects of different customer-related variables. A replication study should be conducted in order to underline the authors' findings.

Practical implications – The authors find significant differences for customer satisfaction and customer loyalty ratings as to employment status and size of liquid assets. Hence, managers should focus on high net worth and ultra high net worth individuals as these segments show higher satisfaction and loyalty ratings. Furthermore, customers should be segmented as to employment status in addition to size of liquid assets.

Originality/value – The authors conduct their analysis in a high-involvement setting. Using a unique sample of 286 questionnaires of private banking customers, they find direct effects of socio-demographic variables on service value, customer satisfaction, and customer loyalty. Thus, the authors' findings have important implications for managers in the private banking industry and marketing researchers alike.

Keywords Private banking, Customer satisfaction, Customer loyalty, Partial least squares (PLS), Socio-demographic variables, ANOVA

Paper type Research paper

The authors thank Jessica Köhler, the two anonymous reviewers and the Editor of the *International Journal of Bank Marketing* for their helpful suggestions.

International Journal of Bank Marketing
Vol. 31 No. 4, 2013
pp. 235-258

0265-2323
DOI 10.1108/IJBM-10-2012-0101

1. Introduction

In this paper we investigate the influence of value and customer satisfaction on customer loyalty in the private banking industry. In order to test for differences in the evaluation of service value, customer satisfaction, and customer loyalty that are caused by socio-demographic variables, we conduct an analysis of variance (ANOVA). As the majority of customer satisfaction research is concerned with consumer goods or the retail industry (see e.g. Oliver, 1981; Swan and Trawick, 1981) and therefore a low-involvement setting, we are able to make use of a unique data set of 286 usable questionnaires of private banking customers (high net worth individuals, HNWIs) and thus conduct our analysis in a high-involvement context. We use partial least squares (PLS) (see Ringle *et al.*, 2005) for the estimation of the model.

The theory of customer satisfaction is based on the confirmation/disconfirmation paradigm which postulates that satisfaction is the result of a comparison between the customer's expectations and the perceived performance. In case the perceived performance is equal to (exceeds) the expectations, confirmation (positive disconfirmation), and thus customer satisfaction will be the result; else, negative disconfirmation, and dissatisfaction will prevail (for an extensive discussion on confirmation/disconfirmation and customer satisfaction see Oliver, 1980, 1981; Swan and Trawick, 1981; Churchill and Surprenant, 1982; Woodruff *et al.*, 1983; Cadotte *et al.*, 1987; Halstead *et al.*, 1994). Customer loyalty is viewed as "a deeply held commitment to rebuy or repatronize a preferred product/service consistently in the future […]" (Oliver, 1999, p. 34).

However, customer satisfaction and customer loyalty are not ends in themselves but rather have direct economic consequences such as a higher profitability and market share (Anderson and Sullivan, 1993; Anderson *et al.*, 1994). As the acquisition of new customers is costly, companies that generate the main part of their revenues with their existing client base are more profitable than companies that heavily rely on business with new customers (see Anderson and Fornell, 1994; Mittal and Lassar, 1998; Johnson and Gustafsson, 2000). Besides cost savings, loyal customers generate additional sales via repurchasing (Mittal and Lassar, 1998; Johnson and Gustafsson, 2000). Reichheld and Sasser (1990), for example, argue that service companies can nearly double their revenues via the retention of an additional 5 percent of their customers (see also Heskett *et al.*, 1994).

The private banking industry is not different in that respect: as word-of-mouth is the main source to acquire new customers, the private banking industry is highly dependent on a satisfied and loyal clientele (Datamonitor, 2006). However, only a limited number of private banking service providers systematically tracks the satisfaction and loyalty of its customer base (Mercer Oliver Wyman, 2005). Hence, it is not surprising that more than 25 percent of HNWIs are dissatisfied with their private banking service provider (Capgemini and Merrill Lynch, 2009). This is even more puzzling as it takes on average 11.6 months to acquire a new customer in private banking (PricewaterhouseCoopers, 2003).

Our analysis contributes to the literature in the following: first, we show that the assessment of service value, customer satisfaction, and customer loyalty is influenced by several socio-demographic variables. Consequently, marketing researchers might want to use these socio-demographic variables as controls in their research as they are a potential source of otherwise unobserved heterogeneity and thus wrong conclusions might be drawn. Private banking service providers should take these differences into account as well when approaching their clients or conducting a

customer survey. Second, we are able to show that the effect of perceived value on customer loyalty is mediated via customer satisfaction. This is of interest for marketing researchers as customer satisfaction might be tested for mediating effects in future studies. Furthermore, our findings caution not to wrongly conclude that perceived value has no influence on customer loyalty. This finding is relevant for practitioners alike as they should not only pay attention to customer satisfaction but perceived value, too. Third, we are able to use a sample of private banking customers for our research. Due to the confidentiality of the business, the empirical literature is scarce. In summary, our study contributes to the scant private banking literature and offers insights which are of interest to both, practitioners and marketing researchers.

The paper is structured as follows: Section 2 provides an overview of current customer satisfaction literature with a special focus on effects caused by socio-demographic variables. Section 3 presents the model and the hypotheses to be tested. Section 4 summarizes the methodology and gives an overview over the sample used for the empirical estimation. Section 5 presents the results of the empirical analysis. The managerial implications as well as implications for further research are discussed in Section 6 while Section 7 concludes.

2. Literature review

The majority of customer satisfaction literature is concerned with retail settings (see Oliver, 1981; Swan and Trawick, 1981). The few studies that take a look at the financial services industry are mainly concerned with retail banking (see e.g. Caruana, 2002; Chan *et al.*, 2003).

Concerning the impact of consumer demographics, one of the first studies by Zeithaml (1985) finds significant effects of gender, age, and income. Since then, potential effects of socio-demographic variables have been of interest in various studies. Homburg and Giering (2001) use automobile purchases to analyze the impact of personal characteristics on the relationship between satisfaction and loyalty. Among the variables they consider are gender, age, and income. Mittal and Kamakura (2001) caution managers not to mistakenly conclude that customer satisfaction does not affect repurchase behavior as differences in consumer characteristics might be the cause of differing relationships between the constructs. One of their findings is that women have a higher probability of repurchasing the same brand for a given level of satisfaction than men. Concerning the level of education, they find that subjects with higher levels of education have a lower likelihood of repurchase for a given level of satisfaction than customers with lower levels of education. They explain this result by people with higher education levels having a greater willingness to search for additional information and superior alternatives. Older customers have a higher probability of repurchase than younger customers for the same level of satisfaction. Lambert-Pandraud *et al.* (2005) study repeat purchasing behavior in the automobile sector. They consider the impact of demographic variables such as age, education, income, occupation, and gender. Older customers have a higher probability to repurchase the previous brand than younger consumers. They conclude that older customers limit their search for information in their decision-making process. Homburg *et al.* (2003) test the hypothesis that due to inertia the longer the relationship between buyer and seller, the higher customer loyalty. They conduct their study in a business-to-business context. In contrast to their hypothesis they find that longer relationships do not necessarily lead to greater

loyalty. Walsh *et al.* (2008) analyze the effects of customer demographics in a DIY retailer setting. While they find an effect of income on the relationship between customer satisfaction and customer loyalty, they do not find any impact of age and gender. Walsh *et al.* (2008) explain their findings by the low-involvement context of their research setting (DIY retailers). For high-involvement contexts, they expect effects of age and gender on customer satisfaction and customer loyalty. With regard to the financial services industry, Caruana (2002) finds that retail banking customers exhibit statistically significant lower satisfaction ratings with increasing level of education. Concerning age, younger customers show statistically significant lower mean scores. No effect is found concerning the influence of gender or marital status. Chan *et al.* (2003) develop the model of the Hong Kong consumer satisfaction index and apply their model to a large sample that covers over 10,000 customers and more than 60 products and services which include banking services (general banking services, time deposits, loans). They directly include demographic variables such as age, gender, education, occupation, and income in their model. However, instead of testing the effect of each of the demographic variables on its own basis, they create a formative construct with the demographic characteristics serving as the indicators. Thus, it is not surprising that they find varying relationships with the other constructs. The only studies conducted in the private banking industry so far are Lassar *et al.* (2000) and Horn and Rudolf (2011). Both studies are concerned with the measurement of service quality and the comparison of the nordic model by Grönroos (1984) and the SERVQUAL model by Parasuraman *et al.* (1988). Lassar *et al.* (2000) include communication, i.e., whether an account executive is responsible for a customer's account or not, and service failure in their analysis. They find that the effect of functional quality on overall satisfaction is influenced by service failure and that the effect of functional quality on functional satisfaction is influenced by whether or not an account executive is responsible for a customer's account. However, customer demographics are not being considered by Lassar *et al.* (2000). Horn and Rudolf (2011) do not conduct an analysis of potential effects caused by socio-demographic variables. Given this mixed evidence concerning the influence of different customer related variables and the fact that most studies consider product purchases or retail banking services, the present paper analyzes the impact of socio-demographic variables on customer satisfaction and loyalty in the private banking industry, i.e., in a high-involvement context[1] Table I gives an overview of the literature.

3. Model and hypothesis

We use a simple structural equation model that incorporates service value, customer satisfaction and customer loyalty. We keep our model as simple as possible and focus on the effects of socio-demographic variables. ANOVA is used to study differences due to socio-demographic variables.

3.1 Service value, customer satisfaction, and customer loyalty

According to Bolton and Drew (1991, p. 376), service value results from the customer's evaluation of the costs and benefits of using a service and is regarded as a determinant of customer satisfaction in the literature (see Heskett *et al.*, 1994, p. 166; Rust and Oliver, 1994, p. 10; Cronin *et al.*, 2000). Thus, we test the following hypothesis:

H1. Service value has a positive effect on customer satisfaction.

Author(s)	Industry	Findings
Zeithaml (1985)	Supermarket shoppers	Gender, age, and income influence the preparation for and execution of supermarket shopping
Lassar *et al.* (2000)	Private banking	Service failure moderates the effect of functional quality on overall satisfaction, i.e., the lower the number of service failure encounters, the larger the influence of functional quality on overall satisfaction; communication moderates the effect of functional quality on functional satisfaction
Homburg and Giering (2001)	Automobile purchases	Satisfaction with product has significant effect on repurchase intention for men but not for women; satisfaction with sales process has stronger impact on repurchase intention for women than for men; satisfaction with product has stronger impact on loyalty for older customers than for younger customers; satisfaction with product has weaker impact on loyalty for customers with higher income
Mittal and Kamakura (2001)	Automobile purchases	Consumers with different demographic characteristics show different repurchase behavior for the same level of customer satisfaction; satisfaction ratings are higher for women than men; satisfaction ratings increase with age; customers with a postgraduate degree have higher satisfaction ratings than consumers with only a high school degree or less; for the same level of satisfaction, women are more likely to repurchase the brand than men
Caruana (2002)	Retail banking	Customer satisfaction mediates the effect of service quality on service loyalty; lower mean scores for all three constructs as level of education increases; higher mean scores for all three constructs as age increases; no effect of gender or marital status
Chan *et al.* (2003)	Banking services (general, time deposit, loan)	Value has positive impact on satisfaction; satisfaction has positive impact on consumer loyalty; formative "demographics" construct has no uniform meaning and relationship with other constructs
Homburg *et al.* (2003)	Purchasing managers/B2B (chemical, mechanical, and electrical industries)	Length of relationship reduces impact of satisfaction on loyalty; buyers with shorter buyer-seller relationships exhibit greater loyalty than buyers with longer relationships
Lambert-Pandraud *et al.* (2005)	Automobile purchases	Older consumers repurchase a brand more frequently than younger customers; older people consider fewer brands; older customers are more likely to purchase at the same dealer; older consumers consider fewer models and choose long-established brands more often
Walsh *et al.* (2008)	DIY retailers	Income has a significant influence on the relationship between customer satisfaction and customer loyalty, age, and gender do not

Table I.
Overview of socio-demographic variables in customer satisfaction studies

In order to be able to test whether customer satisfaction mediates the effect service value exhibits on customer loyalty, we have to investigate the direct impact service value has on customer loyalty and formulate the following hypothesis:

H2. Service value has a positive effect on customer loyalty. Customer satisfaction is viewed as the cumulative experience with a certain product or service as satisfaction with a single transaction barely leads to long-lasting customer

loyalty (Fornell, 1992, p. 11; Homburg and Giering, 2001, p. 45). This might especially be true in the context of private banking where the focus lies on long-term relationships. Customer satisfaction exhibits a strong influence on customer loyalty: Swan and Trawick (1981, p. 61) find a strong influence of customer satisfaction on behavioral intentions and LaBarbera and Mazursky (1983, pp. 400-402) observe a significant effect of customer satisfaction on repurchase behavior. Using a meta-analytic study, Szymanski and Henard (2001, p. 25) confirm the positive influence of customer satisfaction on repurchase intentions. Bloemer *et al.* (1998, pp. 279-280) and Caruana (2002) find a positive effect of customer satisfaction on customer loyalty in a retail banking setting. File and Prince (1994, p. 6) find a positive effect of satisfaction on repurchase intention and word-of-mouth among offshore private banking customers. Hence, we test the following hypothesis:

H3. Customer satisfaction has a positive effect on customer loyalty.

Figure 1 summarizes the model.

3.2 Impact of socio-demographic variables

A positive direct effect of length of customer relationship on customer loyalty is formulated and tested by Homburg *et al.* (2003). However, they do not find their hypothesis supported; instead, they find that buyers with shorter buyer-seller relationships exhibit greater loyalty than buyers with longer relationships. It is worth mentioning that Homburg *et al.* (2003) use a business-to-business context for their analysis; hence, their results cannot be directly transferred to a business-to-customer relationship. Moreover, it is likely that the high-involvement nature of the private banking industry reinforces the effect of relationship duration. Hence, we hypothesize a positive influence of length of the customer relationship on customer satisfaction and customer loyalty in the private banking industry:

H4a. The length of the customer relationship has a positive effect on customer satisfaction.

H4b. The length of the customer relationship has a positive effect on customer loyalty.

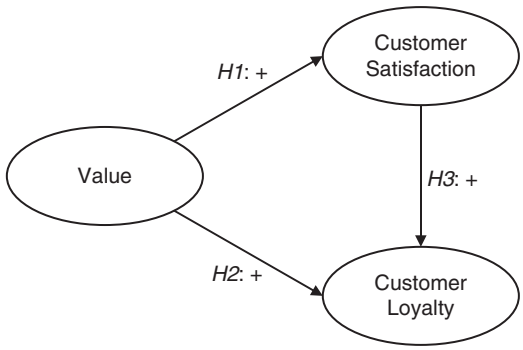


Figure 1.
Structural equation model

Considering socio-demographic variables, Day (1969, pp. 34-35) already found a positive effect of age on brand loyalty. Lambert-Pandraud *et al.* (2005) find a higher probability to repurchase a brand for older customers. Caruana (2002) finds that ratings on customer satisfaction and customer loyalty increase with age. Thus, we formulate the following hypotheses:

H5a. The age of a customer has a positive effect on customer satisfaction.

H5b. The age of a customer has a positive effect on customer loyalty.

The impact of gender is frequently analyzed in retail settings. Whereas Zeithaml (1985) finds an influence of sex on shopping-related variables, Walsh *et al.* (2008) do not find any impact. When it comes to automobile purchases, satisfaction ratings are higher for women than for men (Mittal and Kamakura, 2001). Caruana (2002) does not find any impact of gender in a retail banking setting. Hence, the effect of gender on customer satisfaction and loyalty is unclear, at best. Therefore, we test the following hypotheses:

H6a. Gender has a direct effect on customer satisfaction. Whether women or men exhibit larger satisfaction ratings is unclear, however.

H6b. Gender has a direct effect on customer loyalty. Whether women or men exhibit larger satisfaction ratings is unclear, however.

Several studies analyze the impact of income on customer satisfaction and loyalty (see e.g. Homburg and Giering, 2001; Walsh *et al.*, 2008). In the paper at hand, we do not include income as a potential moderating variable. As private banking customers are segmented according to their liquid assets, we include this variable and test the direct effects of liquid assets on customer satisfaction and customer loyalty. However, as the direction seems not to be clear, we formulate the following hypotheses:

H7a. The size of liquid assets has a direct effect on customer satisfaction. The direction (positive or negative) of the effect is unclear, however.

H7b. The size of liquid assets has a direct effect on customer loyalty. The direction (positive or negative) of the effect is unclear, however.

As private banking customers generally use more than one private banking service provider for their wealth management, the number of providers might influence customer satisfaction and customer loyalty. As an increasing number of relationships with different service providers makes switching easier, we expect a negative effect, i.e.

H8a. The number of service providers has a negative effect on customer satisfaction.

H8b. The number of service providers has a negative effect on customer loyalty.

As two additional variables that might influence ratings of customer satisfaction and loyalty in the private banking industry, we take a closer look at employment status

and type of bank. As self-employed persons and freelancer enjoy greater freedom and independence in their day-to-day job, we expect these two groups to exhibit higher customer satisfaction and loyalty ratings:

H9a. Employment status has a direct effect on customer satisfaction with self-employed and freelancers showing higher customer satisfaction ratings.

H9b. Employment status has a direct effect on customer loyalty with self-employed and freelancers showing higher customer loyalty ratings.

Furthermore, customers of private banks/wealth managers should exhibit higher customer satisfaction and customer loyalty ratings as this type of financial service provider is specialized in catering the needs of wealthy individuals:

H10a. Type of private banking service provider has a direct effect on customer satisfaction with customers of private banks/wealth managers showing higher satisfaction ratings.

H10b. Type of private banking service provider has a direct effect on customer loyalty with customers of private banks/wealth managers showing higher loyalty ratings.

Bolton and Drew (1991, pp. 377, 383) argue that customer characteristics have an influence on the assessment of service value. As an exploratory part of our paper, we thus test the effect of customer demographics on service value without a priori specifying whether demographic variables should lead to higher or lower ratings of service value.

4. Data and methodology

4.1 Measurement models

Established scales for the reflective measurement models are used and adapted to the specific context. Therefore, a review of current customer satisfaction literature has been conducted. Perceived value is measured using value for money and appropriateness of the fees for the service quality delivered (see Fornell, 1992; Fornell *et al.*, 1996; Johnson *et al.*, 2001; Chan *et al.*, 2003).

Customer satisfaction is measured using general satisfaction, satisfaction in comparison to the customer's expectations, i.e. disconfirmation (Swan and Trawick, 1981), and satisfaction in comparison to the customer's ideal (see Fornell, 1992; Fornell *et al.*, 1996; Johnson *et al.*, 2001; Auh *et al.*, 2003; Chan *et al.*, 2003; Gustafsson *et al.*, 2005).

According to Oliver (1999, p. 34) loyalty can be regarded as "a deeply held commitment to rebuy or repatronize a preferred product/service consistently in the future, thereby causing repetitive same-brand or same brand-set purchasing." Customer loyalty is measured using the intention to recommend the private banking service provider, the intention to place additional funds with the private banking service provider and the intention to switch (see Heskett *et al.*, 1994; Jones and Sasser, 1995; Drake *et al.*, 1998). Table II gives an overview of the items used to measure the constructs.

Construct		Item
Service value	VAL01	Value for money is excellent
	VAL02	Private banking service provider is worth it
	VAL03	Fee is adequate for service provided
	VAL04	Fee is too high for service provided (r)
Customer satisfaction	SAT01	Overall satisfaction
	SAT02	Confirmation to expectations
	SAT03	Comparison with ideal service provider
	SAT04	Comparison with alternative service provider (r)
Customer loyalty	LOY01	Willingness to recommend service provider
	LOY02	Willingness to place more funds with the service provider
	LOY03	Desire to change service provider (r)
	LOY04	Would do it once again
	LOY05	Willingness to stay with service provider

Note: (r), reverse coded item

Table II.
Operationalization of the reflective constructs

						Mean	SD
	VAL01	VAL02	VAL03	VAL04			
VAL01	1.00					2.98	0.78
VAL02	0.63	1.00				3.40	0.80
VAL03	0.60	0.74	1.00			3.31	0.75
VAL04	0.59	0.54	0.59	1.00		3.59	0.88
	SAT01	SAT02	SAT03	SAT04			
SAT01	1.00					3.57	0.72
SAT02	0.34	1.00				2.59	0.82
SAT03	0.29	0.73	1.00			2.51	0.77
SAT04	0.25	0.41	0.56	1.00		2.63	0.92
	LOY01	LOY02	LOY03	LOY04	LOY05		
LOY01	1.00					3.27	0.83
LOY02	0.50	1.00				2.79	0.76
LOY03	0.76	0.43	1.00			3.49	1.08
LOY04	0.66	0.53	0.57	1.00		3.39	0.81
LOY05	0.56	0.36	0.42	0.58	1.00	3.50	1.00

Table III.
Item correlations and descriptive statistics of the indicators

4.2 Data collection

In order to gather data from private banking customers we attended several industry meetings such as family business conferences in the time frame February 1, 2011 to August 31, 2011 and distributed questionnaires among the customers. We directly contacted 336 potential participants and handed out printed versions of the questionnaire. The questionnaires could be returned anonymously. We managed to get 303 returned questionnaires. Due to missing values, only 286 (85.12 percent) complete questionnaires are used for the present analysis. Table III shows the correlations and descriptive statistics of the indicators of the three constructs.

Concerning missing data, two respondents refused to disclose their age, six did not convey information regarding the length of the relationship with their private banking service provider, 13 did not indicate the number of providers used for their wealth management and ten refused to disclose the percentage of liquid assets placed with the

principal private banking service provider. As the number of missing values per variable is below 5 percent, we use mean replacement for the imputation of missing values of the socio-demographic variables (see Roth, 1994, p. 551). For the variable size of liquid assets customers had to select a specific range. Hence, mean replacement is not feasible. The same holds true for the type of service provider. Thus, we use multiple imputation to get values for missing variables. Multiple imputation for missing values of size of liquid assets and type of service provider is conducted using NORM (see Schafer and Olsen, 1998; Graham and Schafer, 1999). To get reasonable initial values, we ran the EM-algorithm that converged after nine iterations. For the imputation we ran the data augmentation-algorithm with 1,000 iterations and imputation at every 200th iteration which gives $m = 5$ complete datasets. We then use the mean of these five datasets to replace missing values.

4.3 Descriptive statistics

Tables IV-VI summarize the descriptive statistics of our sample. The average customer is 56 years old and conducts business with two private banking service providers. The average length of the customer-private banking service provider relationship is 17 years and customers place on average 73 percent of their liquid assets with their principal private banking service provider.

Table IV.
Descriptive statistics

	Maximum	Minimum	Mean	SD
Age of customer (years)	88	30	55.79	10.26
Length of relationship (years)	55	1	17.09	12.41
Liquid assets placed with service provider (%)	100	10	72.64	16.34
Number of service providers	4	1	2.27	0.66

Table V.
Composition of sample according to type of private banking service provider

Classification of service providers	*n*	%
Private banks/wealth managers	143	50.00
Large banks with private banking unit	69	24.13
Savings banks	45	15.73
Independent asset managers	14	4.90
Cooperative banks	10	3.50
Landesbanken (federal state banks)	5	1.75

Table VI.
Composition of sample according to size of liquid assets

Size of liquid assets			*n*	%
		Below EUR 100,000	3	1.05
EUR 100,000	_	Below EUR 500,000	84	29.37
EUR 500,000	_	Below EUR 1 million	123	43.01
EUR 1 million	_	Below EUR 5 million	57	19.93
EUR 5 million	_	Below EUR 10 million	15	5.24
EUR 10 million	_	Below EUR 50 million	4	1.40

Taking a look at the different types of service providers, about 75 percent of customers have their principal banking relationship with a classic private bank/wealth manager or a large bank that has a private banking business unit. Cooperative banks, savings banks, and federal state banks (German Landesbanken) play a minor role.

Table VI shows the composition of the data set according to wealth brackets. If one assumes that each customer in a class possesses only the minimum of liquid assets in that class, the average customer has liquid assets of EUR 845,804. If one assumes that each customer possesses the maximum of a class, the average customer has liquid assets of EUR 2,797,203. Taking the mean of each class as the average liquid assets of a customer, customers possess liquid wealth of EUR 1,821,503 on average. Hence, the sample can be regarded representative for private banking/wealth management customers.

5. Results

We estimate the model using the path weighting scheme in PLS (Chin, 1998, p. 309) and standardized variables (mean 0, SD 1). In order to determine the significance of our estimates, we draw 3,000 bootstrap samples (see Efron and Gong, 1983; Efron and Tibshirani, 1993; Yung and Chan, 1999) using the individual-sign-changes option (see Henseler *et al.*, 2009). For the calculation of Stone-Geisser's measure of predictive relevance (see Geisser, 1974, 1975; Stone, 1974), we use an omission distance of $D = 29$ (see Wold, 1982, p. 33; Chin, 1998, p. 318).

5.1 Measurement model

All measurement models are estimated using reflective indicators. An exploratory factor analysis ensures that all three constructs are unidimensional (Danes and Mann, 1984, p. 349; Gerbing and Anderson, 1988, p. 186). All item loadings are statistically significant at the 99 percent level. With the exception of item SAT04, all loadings of the indicators on their respective constructs are $\geqslant 0.70$; hence, the minimum threshold of 0.50 for indicator reliability as required by Fornell and Larcker (1981, p. 45) is met, item SAT04 being the exception, of course. The measurement scales of the three constructs show values for Cronbach's α (see Cronbach, 1951) and Jöreskog's $\rho \geqslant 0.75$ (see Werts *et al.*, 1974; Fornell and Larcker, 1981, p. 45). All in all, we conclude that internal consistency and reliability of the items and the three scales are given.

To assess construct validity (see Cronbach and Meehl, 1955; Peter, 1981), we take a closer look at convergent and discriminant validity. Convergent validity considers the degree of consistency of the items that belong to a scale. Hence, items that belong to a construct should show significant factor loadings (see Anderson and Gerbing, 1988, p. 416). As Table VII indicates, for service value all loadings are $\geqslant 0.80$. With regard to customer satisfaction, all loadings are $\geqslant 0.60$ and for customer loyalty, all loadings are $\geqslant 0.70$. Furthermore, the average variance extracted (AVE) is used to assess convergent validity (see Fornell and Larcker, 1981; Chin, 1998, p. 32). For all three constructs, the minimum threshold of 0.50 is met. Hence, we conclude that convergent validity is given (Table VIII).

Discriminant validity is examined using the cross loadings of the items (see Chin, 1998, p. 321) and the Fornell-Larcker criterion (see Fornell and Larcker, 1981, p. 46). All indicators show higher loadings on their respective constructs than on the other constructs as Table IX indicates. Moreover, the Fornell-Larcker criterion is met as all construct correlations are lower than the square root of the AVE for the respective construct (see Table VIII). All in all we conclude that an acceptable amount of construct validity is given.

Item	Loading	*t*-value	Indicator reliability	Item-to-total correlation	α	ρ	AVE	Stone-Geisser Q^2
VAL01	0.81	32.44	0.66	0.70	0.86	0.91	0.71	0.71
VAL02	0.88	63.04	0.78	0.74				
VAL03	0.88	60.81	0.77	0.76				
VAL04	0.80	28.32	0.63	0.65				
SAT01	0.78	41.77	0.60	0.35	0.75	0.83	0.55	0.55
SAT02	0.79	25.10	0.62	0.64				
SAT03	0.80	21.98	0.61	0.72				
SAT04	0.60	10.20	0.36	0.51				
LOY01	0.89	73.26	0.79	0.81	0.85	0.90	0.63	0.46
LOY02	0.70	21.97	0.49	0.54				
LOY03	0.81	33.01	0.65	0.67				
LOY04	0.85	44.73	0.72	0.73				
LOY05	0.72	20.37	0.52	0.58				

Table VII.
Assessment of the reflective measurement models

	VAL	SAT	LOY
VAL	*0.84*		
SAT	0.52	*0.74*	
LOY	0.40	0.68	*0.80*

Table VIII.
Construct correlations and Fornell-Larcker criterion

	VAL	SAT	LOY
VAL01	*0.81*	0.36	0.27
VAL02	*0.88*	0.50	0.42
VAL03	*0.88*	0.45	0.35
VAL04	*0.80*	0.43	0.30
SAT01	0.51	*0.78*	0.76
SAT02	0.32	*0.79*	0.44
SAT03	0.35	*0.78*	0.35
SAT04	0.28	*0.60*	0.16
LOY01	0.39	0.63	*0.89*
LOY02	0.28	0.49	*0.70*
LOY03	0.28	0.51	*0.81*
LOY04	0.38	0.60	*0.85*
LOY05	0.26	0.45	*0.72*

Table IX.
Cross loadings

As a last validity check we take a look at the predictive validity using the Stone-Geisser Q^2 (see Geisser, 1974, 1975; Stone, 1974; Fornell and Bookstein, 1982, pp. 449-450; Wold, 1982, pp. 30-32; Chin, 1998, p. 318) that is calculated based on the cross-validated communalities for the measurement models. The measurement models of the three constructs show values for Q^2 of 0.46, 0.55, and 0.71 for customer loyalty, customer satisfaction and service value, respectively (see Table VII). All measurement models show good reliability and validity.

5.2 Structural model

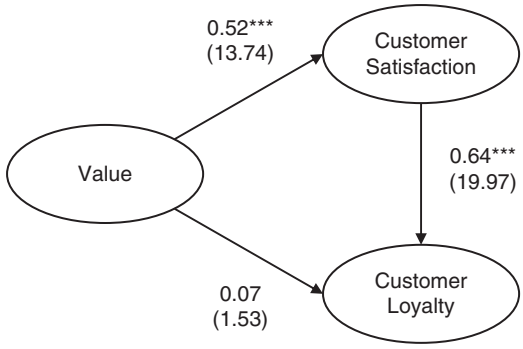
The overall quality of the structural model is evaluated using the coefficient of determination. The R^2-values of the endogenous constructs are 0.27 for customer satisfaction and 0.47 for customer loyalty and can be considered small-medium for customer satisfaction and medium-substantial for customer loyalty (see Chin, 1998, p. 323). Moreover, for the structural model Stone-Geisser Q^2 can be calculated using cross-validated redundancies (see Chin, 1998, pp. 318-323). As the values are 0.13 for customer satisfaction and 0.29 for customer loyalty, predictive validity is given (Table X).

Figure 2 shows the path coefficients and their *t*-values. Service value has a strong and highly significant impact on customer satisfaction but does not exhibit a significant direct effect on customer loyalty. Customer satisfaction has a strong and highly significant direct impact on customer loyalty. This finding is also reflected in the effect size f^2 which is nil for the former and has a value of 0.56 which is substantial for the latter (see Chin, 1998, p. 317). Hence, *H1* and *H3* cannot be rejected whereas *H2* is not supported.

Furthermore, as depicted in Table XI we calculated the variance inflation factor (VIF) for the explanatory variables to ensure that no critical degree of multicollinearity biases our results. The VIF has a value of 1.30 and is below the threshold of 10

Construct	R^2	Q^2
Satisfaction	0.27	0.13
Loyalty	0.47	0.29

Table X.
Assessment of the endogenous constructs



Note: *,**,***Statistically significant at the 90, 95, and 99 percent level

Figure 2.
Model overview – direct effects

Endogenous variable	Exogenous variable	VIF	f^2
Customer loyalty	Service value	1.30	0.00
	Customer satisfaction	1.30	0.56

Table XI.
Assessment of multicollinearity and effect size

(see Marquardt, 1970, p. 619; Cohen *et al.*, 2003, p. 423; Hair *et al.*, 2006, p. 230; Henseler *et al.*, 2009, p. 302).

5.3 Testing the influence of consumer demographics

In contrast to Chan *et al.* (2003) who use consumer demographics as indicators to create a formative construct, we conduct ANOVA (see Wilks, 1932; Nelder and Wedderburn, 1972) to get an impression of the impact of consumer demographics on service value, satisfaction, and loyalty (see Zeithaml, 1985; Mittal and Kamakura, 2001, p. 136; Caruana, 2002, pp. 821-822; Jamal and Naser, 2002, p. 156). Table XII presents the ANOVA results: whereas there are no significant differences in the mean scores for different sex, age, length of customer relationship, and number of banking relationships, we find a significant impact of employment status, type of private banking service provider used and size of liquid assets. Hence, we have to reject *H4a*, *H4b*, *H5a*, *H5b*, *H6a*, *H6b*, *H8a*, and *H8b*. The mean scores for the three constructs by employment status, type of bank, and size of liquid assets are presented in Table XIII.

Concerning employment status, we find no difference in mean scores with regard to customer loyalty and hence have to reject *H9b*. However, freelancer exhibit the highest mean evaluation of service value (3.53) whereas salaried employees show the lowest (3.02). The evaluations of customer satisfaction are generally below the scores for service value with pensioners showing the highest customer satisfaction (2.97) followed by freelancers and self-employed (2.95 and 2.93, respectively) and people not employed the lowest (2.46). Hence, *H9a* is supported.

For type of service provider used to conduct one's private banking, we find significant differences for all three constructs. The lowest and highest mean scores for service value show customers of independent asset managers (3.08) and federal state banks (Landesbanken) (3.52), respectively. Customers of private banks/wealth managers show the second highest service value rating (3.46). Customers of Landesbanken and private banks/wealth managers are by far the most satisfied customers with mean scores of 3.42 and 2.97, respectively. Customers of savings banks show the lowest mean score for customer satisfaction (2.64). With regards to customer loyalty, clients of federal state banks and private banks/wealth managers do not only show the highest mean scores for service value and customer satisfaction but for customer loyalty, as well (3.61 and 3.45). Customers of independent asset managers show the lowest mean loyalty score (2.78). Thus, the results support *H10a* and *H10b*. However, the strong ratings for Landesbanken (federal state banks) have not been hypothesized.

Table XII. ANOVA results of socio-demographic variables

	F-statistics						
Variable	Sex	Age	Relationship lengths	Employment status	Number of banking relationships	Type of bank	Size of liquid assets
Service value	0.42	3.59	1.12	3.41**	1.77	2.97*	10.74****
Customer satisfaction	0.00	2.10	1.45	2.15*	1.29	3.63**	9.37****
Customer loyalty	1.62	2.32	2.05	1.31	2.40	5.85****	7.69****

Notes: *$p \leq 0.05$; **$p \leq 0.01$; ***$p \leq 0.001$, $p \leq 0.0001$

Variable							
			Employment status				
	Self-employed ($n = 135$)	Salaried em-ployee ($n = 64$)	Civil servant ($n = 12$)	Freelancer ($n = 9$)	Pensioner ($n = 47$)	Of independent means ($n = 15$)	Not employed ($n = 4$)
Service value	3.42	3.02	3.06	3.53	3.39	3.46	3.42
Customer satisfaction	2.93	2.68	2.64	2.95	2.97	2.91	2.46
				Type of bank			
	Large banks ($n = 69$)	Private banks/ wealth managers ($n = 143$)	Independent asset managers ($n = 14$)	Cooperative banks ($n = 10$)	Savings banks ($n = 45$)	Landesbanken ($n = 5$)	
Service value	3.16	3.46	3.08	3.10	3.21	3.52	
Customer satisfaction	2.79	2.97	2.69	2.75	2.64	3.42	
Customer loyalty	3.14	3.45	2.78	3.37	2.99	3.61	
				Size of liquid assets			
	< TEUR 100 ($n = 3$)	TEUR 100 – under TEUR 500 ($n = 84$)	TEUR 500 – under EUR 1 million ($n = 123$)	EUR 1 million – under EUR 5 million ($n = 57$)	EUR 5 million – under EUR 10 million ($n = 15$)	EUR 10 million – under EUR 50 million ($n = 4$)	
Service value	1.93	3.00	3.40	3.53	3.72	3.71	
Customer satisfaction	1.99	2.63	2.86	3.01	3.36	3.70	
Customer loyalty	2.35	3.00	3.32	3.43	3.78	4.12	

Table XIII.
Differences in mean scores by significant socio-demographic variables

Taking a closer look at differences in mean scores for the three constructs as to size of liquid assets, customers in the wealth band EUR 5 million to EUR 10 million show the highest score for service value (3.72) with customers in the lowest wealth bracket showing the lowest evaluation (1.93). Customers in the top wealth band (EUR 10 million to EUR 50 million) show the second highest service value score. A similar pattern can be observed for customer satisfaction and customer loyalty: customers with liquid assets below TEUR 100 show the lowest values (1.99 for customer satisfaction and 2.35 for customer loyalty) while clients in the highest wealth bracket (EUR 10 million to EUR 50 million) show the highest mean scores (3.70 for customer satisfaction and 4.12 for customer loyalty) and customers in the second highest wealth racket the second highest mean scores (3.36 and 3.78, respectively). This leads us to accept *H7a* and *H7b*.

As the correlation between customer satisfaction and customer loyalty shows a value of 0.68, the question arises whether the effects we find in our ANOVA are reflections of this correlation. In order to have a look at that, we run a multivariate analysis of variance (MANOVA) (see Wilks, 1932; Nelder and Wedderburn, 1972)[2]. As our data set consists of $n = 286$ observations, we use an α of 0.1 in order to achieve a balance between statistical rigor, number of observations per cell, and power to detect significant effects.

Homoscedasticity is given for each individual dependent variable as well as for the three dependent variables collectively as Levenes' test and Box's M test are nonsignificant. The examination of the effect of the socio-demographic variables on service value, customer satisfaction, and customer loyalty supports the findings of the ANOVA: we only find a significant effect for employment status, type of bank, and size of liquid assets. More precisely, concerning employment status, we find a significant effect on service value ($p \leqslant 0.01$) and customer satisfaction ($p \leqslant 0.05$). No significant effect is detected for customer loyalty. This might at least partially be a reflection of the low observed power (0.638). Concerning type of bank used for conducting one's private banking services, we find significant differences for all three dependent variables (service value ($p \leqslant 0.05$), customer satisfaction ($p \leqslant 0.01$), and customer loyalty ($p \leqslant 0.0001$)). This reflects the results of our ANOVA as the level of significance is highest for customer loyalty and lowest for service value, customer satisfaction being in between. In a similar fashion, the differences concerning size of liquid assets are all highly significant ($p \leqslant 0.0001$ for all three dependent variables). Table AI (see Appendix) gives an overview of the multivariate and univariate tests.

5.4 Testing for mediation

As we do not find a direct effect of service value on customer loyalty, we further analyze whether customer satisfaction mediates the effect of service value on customer loyalty. Mediator variables are variables that account for the effect of the predictor on the dependent variable, i.e., mediation prevails in case of significant effects of the predictor variable on the mediator and of the mediator on the dependent variable and a previously significant direct effect between the predictor and the criterion variable is not significant any longer (James and Brett, 1984, pp. 307-308; Baron and Kenny, 1986, pp. 1176-1177). Shrout and Bolger (2002), however, argue that in case of a small mediation effect or suppression, the requirement of the previously significant direct relationship becoming insignificant should be dropped. If the direct effect and the indirect effect have opposite signs, suppression is said to occur (Shrout and Bolger, 2002, pp. 430-432). Zhao *et al.* (2010, p. 199) speak in this context of competitive

mediation. In case one or both of the two indirect paths are not significant, no mediation is present (Iacobucci *et al.*, 2007, pp. 152-153).

In order to test for the significance of the mediator, we use Sobel's (1982) test (Baron and Kenny, 1986, p. 1177; Iacobucci *et al.*, 2007):

$$z = \frac{a \times b}{\sqrt{b^2 s_a^2 + a^2 s_b^2}}$$

where a denotes the path between the predictor and the mediator variable, b denotes the path between the mediator and the dependent variable and s represents the standard error. In case z is significant but the direct effect of the predictor on the criterion variable is not, complete mediation prevails.

As Figure 2 indicates, the direct effect of value on customer satisfaction and the effect of customer satisfaction on customer loyalty are both significant on the 99 percent-level whereas the direct effect of value on customer loyalty is not significant. The Sobel z-statistic has a value of 11.32. Hence, complete mediation prevails. This is also confirmed by the variance accounted for (VAF) that is the ratio of the indirect effect to the total effect (indirect + direct effect) (see Iacobucci *et al.*, 2007, p. 153):

$$VAF = \frac{a \times b}{a \times b + c}$$

where a represents the path between the predictor and the mediator variable b represents the path between the mediator and the dependent variable and c denotes the direct effect of the predictor on the dependent variable. With a value of 0.83, the *VAF* is close to 1 which indicates complete mediation. Thus, our findings are in line with Caruana (2002): customer satisfaction does not only mediate the effect of service value on customer loyalty in retail banking but in high-involvement settings such as the private banking/wealth management industry alike.

6. Discussion

6.1 Managerial implications

Our analysis shows that customer demographics do have an influence on service value, customer satisfaction, and customer loyalty even in a high-involvement setting such as the private banking industry. This has implications for managers in that industry as well as for researchers: for managers, it is of importance to take into account the differences as to the demographic variables. Size of liquid assets is currently the most frequently used criterion to segment the customer base in private banking. However, in order to better cater the needs of its clientele, private banking service providers should think about further segmentation criteria such as employment status. Our results show that freelancer and self-employed seem to be different from salaried employees when it comes to ratings of service value and customer satisfaction. Hence, private banking service providers should think about specific value propositions for the different segments.

As we find no impact of length of the customer-provider relationship on service value, customer satisfaction, and customer loyalty, private banking service providers should not mistakenly conclude that long relationships automatically imply customer satisfaction and customer loyalty. Rather, service providers should continuously

monitor customer satisfaction and loyalty via surveys in order to be able to detect deteriorations in satisfaction and loyalty ratings and take measures to prevent customers from switching. Furthermore, it seems to be worthwhile to focus on the high net worth (HNWI) and ultra high net worth (UHNWI) segments as customers in the top wealth brackets consistently show higher ratings for service value, customer satisfaction, and customer loyalty. It seems to be difficult for private banking service providers to cater the needs of the lower segments such as affluent clients. If providers decide to offer their services to all wealth segments, special service offerings should be established in order to meet the specific needs. Interestingly, customers of the higher wealth brackets consistently show higher mean scores for service value. This implies that private banking customers are willing to pay for the services as long as they perceive to get "value for money." Hence, private banking service providers should not try to compete on price and thus reduce their margins but to really have a service offering that adds value for the customer.

6.2 Implications for further research

One of the primary limitations is the composition of our sample: as we do not know how many people took notice of the questionnaire, we are not able to calculate a response rate. In order to validate our findings, a replication study with a fresh data set should be conducted.

Concerning the socio-demographic variables that might exhibit an effect on the dependent variables, we only find a significant impact of employment status, type of bank, and size of liquid assets but nonsignificant values for sex, age, length of customer relationship, and number of providers used to conduct one's private banking services. The nonsignificant effect of length of customer relationship on customer satisfaction is in line with Bejou *et al.* (1998) who study customer satisfaction in a retail banking setting and neither find a significant effect. The nongsignificant impact of age and gender however contradicts the findings of Zeithaml (1985). This difference might be due to the different research setting: whereas the impact of socio-demographic variables has been primarily studied in low-involvement settings such as supermarkets (see Zeithaml, 1985) or DIY retailers (see Walsh *et al.*, 2008) we are to our knowledge the first who study the impact of demographic variables in a high-involvement context. With regard to customer loyalty, our findings are contrary to those of Mittal and Kamakura (2001) and Lambert-Pandraud *et al.* (2005). It seems to be the case that decisions such as staying with one's provider or conducting additional business are much more of a concern when it comes to conducting private banking services such as investment advisory and asset management as these activities involve significant amounts of money whereas the purchase of a car might be considered to be not of such a great concern. Hence, the same reasoning applies: in high-involvement settings such as private banking, older customers do not automatically show higher ratings of customer loyalty as the special circumstances prevent them from limiting their search for information concerning alternative private banking service providers. As the influence of demographic variables is still not well understood, marketing researchers should test for further effects of socio-demographic variables in their studies to shed further light on their influence in different research settings. Moreover, marketing researchers might want to include socio-demographic variables in their research to control for potential unobserved heterogeneity.

With regard to the mediation effect, we find that customer satisfaction mediates the influence of service value on customer loyalty. Hence, researchers should test for the

indirect effects and analyze whether mediation prevails in order to not mistakenly conclude that a variable exhibits no influence on the focus construct.

Furthermore, as the majority of research in the banking industry is conducted with a focus on retail banking (see e.g. Caruana, 2002; Chan *et al.*, 2003), we contribute to the scarce literature on private banking/wealth management. Additional studies should be conducted concerning the drivers of customer satisfaction in this industry in order to give managers some advice where to allocate funds in order to increase customer satisfaction. One potential route might be to adapt existing customer satisfaction index models (see e.g. Fornell, 1992; Fornell *et al.*, 1996) to the special research setting of the private banking/wealth management industry.

7. Conclusion

Customer satisfaction and loyalty are essential for private banking service providers as the main source of customer acquisitions is word-of-mouth of the existing clientele. Moreover, the acquisition of new customers is a lengthy and costly process. Thus, providers should ensure customer satisfaction and loyalty of its existing clientele. In order to do so, satisfaction surveys should include socio-demographic variables that allow to get a differentiated view and to be able to use more sophisticated ways for customer segmentation than just classifying customers as to size of liquid assets. A finer customer segmentation itself allows to create a customized service offering and value proposition for the different segments that help to enhance customer satisfaction and loyalty.

Notes

1. Involvement in this context can be described as perceived importance/personal relevance/interest (see Greenwald and Leavitt, 1984; Zaichkowsky, 1985; Mittal and Lee, 1989; Mittal, 1995). Hence, high involvement is associated with complex information processing and decision making, whereas low involvement is not (see Muncy and Hunt, 1984). Given this definition, it should be obvious that private banking services (primarily investment advisory and asset management for HNWIs) can be considered a high-involvement context whereas retail banking services (e.g. deposits and transfers) can be considered a low-involvement context.
2. We thank one of the reviewers for this suggestion.

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Appendix

Table AI.
MANOVA results – multivariate and univariate tests

Statistical test	Value	F	Significance	η^2	Observed power
Employment status					
Pillai's criterion	0.097	1.551	0.066	0.032	0.964
Wilks' λ	0.905	1.565	0.063	0.033	0.953
Hotelling's T^2	0.103	1.578	0.059	0.033	0.966
Roy's greatest characteristic root	0.080	3.698	0.001	0.074	0.980
Dependent variable	Mean square	F	Significance	η^2	Observed power
Service value	1.472	3.409	0.003	0.068	0.970
Customer satisfaction	0.762	2.148	0.048	0.044	0.850
Customer loyalty	0.644	1.307	0.254	0.027	0.638
Type of bank					
Statistical test	Value	F	Significance	η^2	Observed power
Pillai's criterion	0.135	2.634	0.001	0.045	0.998
Wilks' λ	0.869	2.678	0.001	0.046	0.996
Hotelling's T^2	0.147	2.714	0.000	0.047	0.998
Roy's greatest characteristic root	0.115	6.428	0.000	0.103	0.999
Dependent variable	Mean square	F	Significance	η^2	Observed power
Service value	1.301	2.968	0.013	0.050	0.916
Customer satisfaction	1.262	3.632	0.003	0.061	0.960
Customer loyalty	2.672	5.850	0.000	0.095	0.998
Size of liquid assets					
Statistical test	Value	F	Significance	η^2	Observed power
Pillai's criterion	0.234	4.742	0.001	0.078	1.000
Wilks' λ	0.770	5.075	0.001	0.083	1.000
Hotelling's T^2	0.292	5.391	0.000	0.089	1.000
Roy's greatest characteristic root	0.271	15.153	0.000	0.213	1.000
Dependent variable	Mean square	F	Significance	η^2	Observed power
Service value	4.160	10.736	0.000	0.161	1.000
Customer satisfaction	2.971	9.372	0.000	0.143	1.000
Customer loyalty	3.413	7.694	0.000	0.121	1.000

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