

Customer Satisfaction in Private Banking

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Abstract

The paper at hand presents a customer satisfaction model for the private banking industry. We empirically assess the postulated model with the help of partial least squares (PLS) and use formative measurement models for the predictors of customer satisfaction and customer loyalty. The results of the structural model show good quality of the overall model. Customer satisfaction in the private banking industry is mainly determined by service value and the relationship manager. In addition, the relationship manager is an essential predictor of customer loyalty and relationship quality.

Kundenzufriedenheit im Private Banking

Zusammenfassung

Die vorliegende Arbeit postuliert ein Modell zur Kundenzufriedenheit im Private Banking. Im Rahmen der empirischen Studie wird das Modell mit Hilfe von Partial Least Squares (PLS) geschätzt. Methodisch begeht die Arbeit insofern Neuland, als dass die Treiber der Kundenzufriedenheit und -bindung als formative Konstrukte modelliert werden. Die Ergebnisse der Analyse des Strukturmodells zeigen eine gute Gesamtmodellgüte. Hinsichtlich der Determinanten der Kundenzufriedenheit fällt auf, dass diese im Wesentlichen durch das Preis-Leistungs-Verhältnis sowie den Berater determiniert wird. Auch für die Kundenbindung und Beziehungsqualität kommt den Beratern im Private Banking eine entscheidende Bedeutung zu.

Keywords: Private Banking, Private Wealth Management, Customer Satisfaction, Partial Least Squares

JEL Classification: G21, M31, C3

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I. Introduction

The paper at hand studies the influence various predictor variables exhibit on customer satisfaction and customer loyalty in the private banking industry. Private banking is a service that receives limited attention in the academic literature, especially with regard to the measurement of customer satisfaction. Customer satisfaction-focused literature is mainly concerned with consumer goods and retailing.¹ Papers on customer satisfaction in the financial services industry generally focus on retail banking,² a low-involvement setting. Involvement is the perceived importance and relevance.³ In contrast to low-involvement contexts, high-involvement settings are characterized by complex information processing and decision processes.⁴ Given this definition, retail banking (mainly deposit business, money transfers and credit business) can be classified as a low-involvement context whereas private banking, i.e. investment advisory services and portfolio management for high net worth individuals (HNWIs), constitutes a high-involvement setting. This raises the question of whether the insights concerning the predictors of customer satisfaction and loyalty gained in low-involvement settings can be transferred to high-involvement contexts, and specifically to the private banking industry.

Customer satisfaction and customer loyalty are not ends in themselves; rather, they have direct economic consequences such as a larger market share and higher profitability.⁵ Companies that generate the majority of their revenues with their existing customers are more profitable than companies that heavily rely on generating business with new customers, as the acquisition of new customers is generally costly.⁶ *Reichheld/Sasser* (1990) for example argue that service companies are able to nearly double their revenues by keeping an additional 5 % of their clients.⁷ The private banking industry is not different in that respect. On the one hand, it is more expensive to win new customers than to retain existing ones.⁸

¹ See for example *Oliver* (1981); *Swan/Trawick* (1981).

² Cf. *Caruana* (2002); *Chan et al.* (2003).

³ Cf. *Greenwald/Leavitt* (1984); *Zaichkowsky* (1985); *Mittal/Lee* (1989); *Mittal* (1995).

⁴ Cf. *Muncy/Hunt* (1984).

⁵ Cf. *Anderson/Sullivan* (1993); *Anderson et al.* (1994).

⁶ Cf. *Anderson/Fornell* (1994); *Mittal/Lassar* (1998); *Johnson/Gustafsson* (2000).

⁷ Cf. *Heskett et al.* (1994) as well.

⁸ Cf. *Wöhle* (1999); *Datamonitor* (2006).

Schulz/Krönert (2006) gauge that a private banking service provider needs to attract seven new customers to counterbalance the lost revenues from the churn of a single existing client. On the other hand, private banking service providers depend on a satisfied and loyal clientele, as customer recommendations are the main source for attracting new clients.⁹ However, many clients make use of several private banking service providers; this enhances comparability and facilitates the wealth transfer to another wealth manager.¹⁰ A recent survey by *Capgemini/Merrill Lynch* (2009) comes to the conclusion that more than 25 % of HNWIs are dissatisfied with their private banking service provider. However, only a minority of wealth managers systematically track the satisfaction and loyalty of its client base.¹¹

Given this background, the current paper contributes to the academic literature and has implications for practitioners alike. The proposed model extends existing customer satisfaction models for a specific context. As the private banking industry provides the research setting, this paper adds to the relatively scant literature on customer satisfaction and loyalty in the financial services industry. Furthermore, a formative operationalization of the measurement models for the predictor variables is used. The proposed model may serve as a tool for practitioners to assess customer satisfaction and loyalty and to compare the results with the competition. Moreover, the results of the model may be used for decision making concerning the allocation of resources: Management should channel resources into those areas that have a high impact on customer satisfaction and customer loyalty but are perceived to be below average by private banking customers.

The paper is structured as follows: Chapter II. presents an overview of current private banking and customer satisfaction literature. Chapter III. provides the model and the hypotheses to be tested. Chapter IV. summarizes the methodology and gives an overview of the sample used for the empirical estimation. The results of the empirical analysis are presented in chapter V. Chapter VI. presents the conclusion.

⁹ Cf. *Datamonitor* (2006).

¹⁰ Cf. *Schütte/Höfle* (1998); *PricewaterhouseCoopers* (2004); *IBM Corporation* (2005).

¹¹ Cf. *Mercer Oliver Wyman* (2005).

II. Literature Review

Customer satisfaction is a central predictor of customer loyalty and can be regarded as a holistic evaluation of a product or service after its purchase.¹² According to the C/D-paradigm (Confirmation/Disconfirmation-paradigm, also called CS/D-paradigm, i.e. Customer Satisfaction/Dissatisfaction-paradigm), customer satisfaction results from comparing the expected performance with the actually perceived performance. If the perceived performance is equal to expected performance (confirmation) or exceeds expected performance (positive disconfirmation), the customer is satisfied. Negative disconfirmation and thus dissatisfaction result when the perceived performance falls short of expectations.¹³

A relatively new approach is the application of customer satisfaction index models. Instead of evaluating a single transaction, such models focus on a cumulative evaluation of customer satisfaction.¹⁴ The idea is that in order to analyse the general link between customer satisfaction and customer loyalty, previous experiences with a certain product or service have to be taken into account, as satisfaction with a single transaction can hardly be expected to lead to customer loyalty.¹⁵ *Bruhn* (1999), *Anderson/Fornell* (2000a), *Anderson/Fornell* (2000b), *Johnson et al.* (2001) und *Bruhn* (2003) provide an overview of customer satisfaction indices. With regard to the application of customer satisfaction indices, different industries have been analyzed. *Bruhn/Grund* (2000), for example, study 20 industries (retail banks, among others), *Hackl et al.* (2000) analyze customer satisfaction in the food retailing business, *Kristensen et al.* (2000) study satisfaction with post delivery in Denmark and *Martensen et al.* (2000) apply a customer satisfaction index model in 30 companies from 8 industries (retail banks, among others). Further examples of customer satisfaction indices are provided by *Martensen/Grønholdt* (2003), *Johnson et al.* (2001), *Chan et al.* (2003) and *Eskildsen et al.* (2004).

These customer satisfaction indices are generally designed to be universally applicable to a wide variety of industries and services. Hence,

¹² Cf. *Fornell* (1992), p. 11.

¹³ Cf. *Oliver* (1980), p. 460 f.; *Oliver* (1981), p. 35; *Swan/Trawick* (1981), S. 49 ff.; *Churchill/Surprenant* (1982), p. 491 ff.; *Woodruff et al.* (1983), p. 296; *Cadotte et al.* (1987), p. 305; *Halstead et al.* (1994), p. 114; *Homburg et al.* (2005), p. 96 f.

¹⁴ Cf. *Bruhn* (1999), p. 386; *Anderson/Fornell* (2000a), p. 256.

¹⁵ Cf. *Hermann/Johnson* (1999), p. 582 f.; *Homburg/Giering* (2001), p. 45.

Table 1
Overview of Customer Satisfaction Indices

Author(s)	Index	Exogenous constructs	Endogenous constructs
<i>Bruhn</i> (1999); <i>Anderson/Fornell</i> (2000a); <i>Bruhn/Grund</i> (2000); <i>Bruhn</i> (2003)	ACSI	Expectations, quality	Complaints, customer satisfaction, customer loyalty, value
<i>Bruhn</i> (1999); <i>Bruhn/Grund</i> (2000)	SWICS	Expectations, quality, customer orientation	Customer value, customer satisfaction, customer dialogue, customer loyalty
<i>Bruhn/Grund</i> (2000); <i>Grønholdt et al.</i> (2000); <i>Kristensen et al.</i> (2000); <i>Martensen et al.</i> (2000); <i>Bruhn</i> (2003); <i>Eskildsen et al.</i> (2004)	ECSI/ EPSI	Image, product quality, service quality, expectations	Value, customer satisfaction, customer loyalty
<i>Chan et al.</i> (2003)	HKCSI	Demographic characteristics, expectations	Performance, complaints, customer satisfaction, customer loyalty, value

ACSI: American customer satisfaction index; ECSI: European customer satisfaction index; EPSI: European performance satisfaction index; HKCSI: Hong Kong consumer satisfaction index; SWICS: Swiss index of customer satisfaction.

the focus is on general constructs such as service quality rather than on industry-specific predictors of customer satisfaction and loyalty. The recommendation of a specific course of action for single industries is not the main focus, however. Table 1 gives an overview of different customer satisfaction indices.

Customer loyalty consists of attitudinal and behavioural constituents.¹⁶ *Oliver* (1997, p. 392) and *Oliver* (1999, p. 34) define customer loyalty 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, despite situational influences and marketing efforts having the potential to cause switching behaviour.”

¹⁶ Cf. *Fornell* (1992), p. 7 ff.; *Dick/Basu* (1994), p. 100 ff.; *Jones/Sasser* (1995), p. 90; *Bendapudi/Berry* (1997), p. 26 f.; *Drake et al.* (1998), p. 288.

So far, no specific analysis concerning customer satisfaction in the private banking industry has been conducted. Publications with a greater focus on marketing and private banking emphasize topics such as brand management,¹⁷ product strategy,¹⁸ value added services (vas),¹⁹ price acceptance,²⁰ customer value,²¹ customer relationship management,²² service quality²³ and communication quality.²⁴ *Seiler/Rudolf/Krume* (2013) use analysis of variance (ANOVA) to examine the influence of socio-demographic variables on perceived value, customer satisfaction and loyalty in a private banking setting. However, they do not explicitly model the drivers of customer satisfaction and customer loyalty. Moreover, the vast majority of publications focus on Swiss private banking and do not consider other markets.²⁵ As the previous publications on customer satisfaction indices have a very broad scope, these models have to be adapted and complemented to be suitable for the private banking industry.

III. Model

Customer satisfaction results from the evaluation of the different attributes of a product.²⁶ Hence, it is necessary to determine the predictors of customer satisfaction in the private banking industry. However, this is complicated by the fact that private banking is a service rather than a product and is characterized by intangibility, heterogeneity, the inseparability of production and consumption as well as the impossibility of storage.²⁷ When assessing products or services, one can generally distinguish between the search, experience and credence qualities of goods. The differentiation between search and experience qualities of goods was put forth by *Nelson* (1970): Search qualities can be assessed ex ante, before the purchase of a good, whereas experience qualities can only by

¹⁷ Cf. *Walbert* (2006); *Zenz-Spitzweg* (2007).

¹⁸ Cf. *Prinz* (2001).

¹⁹ Cf. *Giesecke* (2009).

²⁰ Cf. *Degen* (2010).

²¹ Cf. *Wöhle* (1999); *Zenker* (2006).

²² Cf. *Galasso* (1999); *Stapfer* (2005).

²³ Cf. *Lassar et al.* (2000); *Horn/Rudolf* (2011).

²⁴ Cf. *Bruhn et al.* (2010).

²⁵ Cf. *Schäli* (1998); *Galasso* (1999); *Wöhle* (1999); *Walbert* (2006).

²⁶ Cf. *Churchill/Surprenant* (1982), p. 493.

²⁷ Cf. *Shostack* (1977), p. 73; *Zeithaml et al.* (1985), p. 35 ff.; *Singh* (1991), p. 227; *Grönroos* (1998), p. 322.

evaluated *ex post*, when using the product. *Darby/Karni* (1973) extend this approach by adding credence qualities, aspects of a product that the consumer is unable to assess at any time.

In order to identify the determinants of customer satisfaction and customer loyalty in the private banking industry, we conducted an extensive review of the literature. To confirm that the constructs distilled from the literature review are indeed those that are relevant for private banking customers (*Johnson/Gustafsson* (2000, p. 5–6) speak of the “lens of the customer”) we conducted a preliminary survey in cooperation with an Austrian wealth manager in the period 1 October, 2007 to 31 January, 2008. This survey gave customers the possibility to specify additional aspects they find relevant when evaluating their private banking service provider.

1. *Structural Model of the Private Banking Customer Satisfaction Index*

One of the essential success factors in the private banking industry is accessibility.²⁸ This includes the geographical coverage of the branch network as well as accessibility in terms of banking hours.

As private banking is a service, its tangible aspects are limited to the servicescape, i.e., the physical surroundings, interior décor and furnishing, and the employees.²⁹ Beyond the service conducted, the interior of the bank is tangible and is essential for service delivery as production and consumption of services take place simultaneously.³⁰ Thus, the service delivery is inseparable from the servicescape.³¹ *Crane/Clarke* (1988), *Mihelis et al.* (2001) and *Reimer/Kuehn* (2005) emphasize the importance of the servicescape in retail banking settings.

Another important performance parameter in private banking is the range of products available for structuring the portfolios. High net worth individuals (HNWIs) expect objective advice and an unbiased selection of products from the investment opportunity set. A broad product range is therefore a must-have for private banking service providers.³² *Loh-*

²⁸ Cf. *Klöppelt* (1996), p. 206. *Schäli* (1998), p. 131 and *Galasso* (1999), p. 179.

²⁹ Cf. *Parasuraman et al.* (1985), p. 42; *Johnson et al.* (1995), p. 9.

³⁰ Cf. *Grönroos* (1984), p. 37; *Rosen et al.* (2003), p. 5.

³¹ Cf. *Shostack* (1977), p. 78.

³² Cf. *Klöppelt* (1996), p. 206.

mann (1997) explicitly considers the product range to be a determinant of customer satisfaction in retail banking.

Besides a broad product range, the investment proposal itself represents the written translation of customer needs into a specific asset allocation and hence forms one of the determinants of customer satisfaction. Customers that took part in the preliminary survey mentioned this aspect to be important when evaluating the service provided by their wealth manager. So far, however, the investment proposal as a predictor of customer satisfaction has not been studied in the academic literature.

Furthermore, the way in which wealth managers document and report the investments to their clients is of importance for HNWIs. Investment reports offer tangible artifacts of the intangible investment activity. They allow clients to trace and oversee the investments being undertaken by the wealth manager;³³ hence, clear and effective reporting is regarded as a success factor in the private banking industry.³⁴

Investment performance, i. e., the result of the investments being undertaken by the private banking service provider, is considered a critical success factor, as investment performance is the overall goal when using the services of a wealth manager.³⁵ Without an appropriate level of performance, private banking clients will not be satisfied.

Next to “hard” criteria, the proposed model also considers “soft” components such as relationship quality to be essential constituents. Generally, customers reflect on their relationship with the service provider when assessing their satisfaction with a service.³⁶ As private banking requires extensive counselling and a substantial amount of explanatory support, relationship quality can be considered a key predictor of customer satisfaction.³⁷

Another soft but essential predictor of customer satisfaction with a service is the person actually conducting the service.³⁸ This is due to the fact that a service is by definition inseparably associated with the person

³³ Cf. *Viebahn* (2005), p. 1 f.

³⁴ Cf. *Klöppelt* (1996), p. 206; *Viebahn* (2005), p. 174 f.

³⁵ Cf. *Klöppelt* (1996), p. 206.

³⁶ Cf. *Crosby* et al. (1990), p. 68; *Johnson/Zinkhan* (1991), p. 5. *Lehtinen/Lehtinen* (1991) refer to this as interactive quality.

³⁷ Cf. *Galasso* (1999), p. 179; *Ehlerding/Lumma* (2006), p. 46; *Volz/Reitinger* (2008), p. 32. For affluent customers see *Surtani* (1992), p. 38; for retail banking see *Levesque/McDougall* (1996), p. 18; *Lohmann* (1997), p. 150.

³⁸ Cf. *Shostack* (1977), p. 79; *Solomon* et al. (1985), p. 99 f.

providing it.³⁹ Hence, the relationship manager, as the customer interface, is of particular importance.⁴⁰ The relationship manager has direct contact to clients and is responsible for ongoing dialogue and for obtaining a thorough understanding of the clients' needs.

A further general predictor of customer satisfaction is value for money.⁴¹ The private banking industry is no exception in this respect.⁴²

As loyal customers are the main driver of profits and corporate growth,⁴³ customer satisfaction and customer loyalty are the focal constructs of the proposed model, in which customer satisfaction is the antecedent to customer loyalty.⁴⁴ This has been well documented for the retail banking industry by *Bloemer et al.* (1998) and *Caruana* (2002).

Based on the literature, we formulate the following hypotheses:

- H1: Accessibility has a positive effect on customer satisfaction.
- H2: The servicescape has a positive effect on customer satisfaction.
- H3a: The range of products has a positive effect on customer satisfaction.
- H3b: The range of products has a positive effect on value for money.
- H4a: The investment proposal has a positive effect on customer satisfaction.
- H4b: The investment proposal has a positive effect on value for money.
- H5: Reporting has a positive effect on customer satisfaction.
- H6a: Performance has a positive effect on customer satisfaction.
- H6b: Performance has a positive effect on customer loyalty.
- H6c: Performance has a positive effect on value for money.
- H6d: Performance has a positive effect on relationship quality.
- H7a: Relationship quality has a positive effect on customer satisfaction.

³⁹ Cf. *Crane/Clarke* (1988), p. 58; *Crosby et al.* (1990), p. 68; *Johnson/Zinkhan* (1991), p. 5; *Bitner* (1992), p. 58. For retail banking see *Lohmann* (1997), p. 27; *Mihelis et al.* (2001), p. 350.

⁴⁰ Cf. *Zeltner* (2006), p. 96.

⁴¹ Cf. *Rust/Oliver* (1994), p. 10; *Cronin et al.* (2000).

⁴² Cf. *Wöhle* (1999), p. 130 ff.; *Degen* (2010).

⁴³ Cf. *Heskett et al.* (1994), p. 164 f.; *Jones/Sasser* (1995), p. 89.

⁴⁴ Cf. *Swan/Trawick* (1981), p. 61; *Szymanski/Henard* (2001), p. 25; *Bruhn* (2003), p. 181.

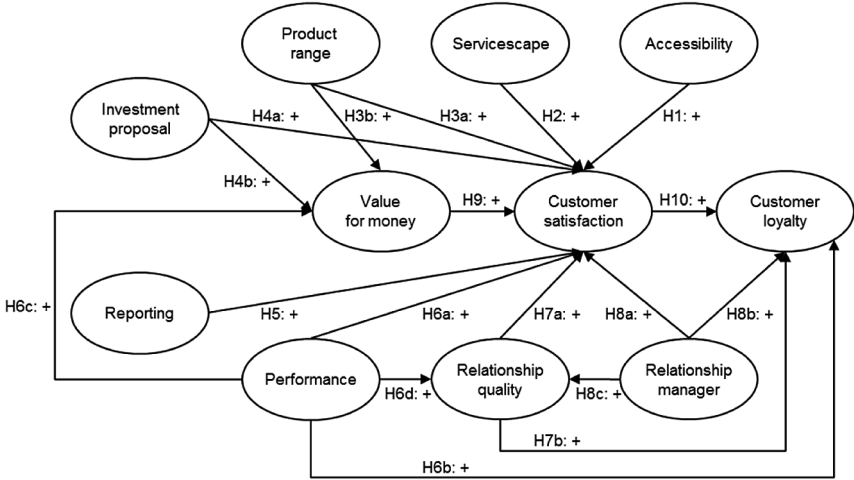


Figure 1: Structural Model of Customer Satisfaction in the Private Banking Industry

- H7b: Relationship quality has a positive effect on customer loyalty.
- H8a: The relationship manager has a positive effect on customer satisfaction.
- H8b: The relationship manager has a positive effect on customer loyalty.
- H8c: The relationship manager has a positive effect on relationship quality.
- H9: Value for money has a positive effect on customer satisfaction.
- H10: Customer satisfaction has a positive effect on customer loyalty.

Figure 1 summarizes the model and the hypotheses.

2. Operationalization of the Measurement Models

In the measurement models, value for money, customer satisfaction and customer loyalty are operationalized as reflective measurement models, whereas for the predictor variables a formative specification is considered more appropriate.⁴⁵ Established scales for the reflective measurement models are used. Value for money is operationalized using items

⁴⁵ Cf. Bollen (1989) p. 66; Jarvis et al. (2003), p. 203; Diller (2004), p. 177; MacKenzie et al. (2005), p. 726; Fassott (2006), p. 71.

Table 2
**Operationalization of the Reflective Measurement Models:
 Constructs and Indicators**

Construct		Item
Value for money	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 of 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

(r): Reverse coded item

that refer to the appropriateness of the fees for the service delivered.⁴⁶ Customer satisfaction is measured in terms of general satisfaction, satisfaction in comparison to the client's ideal⁴⁷ and satisfaction in comparison to the client's expectations.⁴⁸ Customer loyalty is operationalized by indicators reflecting the intention to recommend the service provider, the intention to place additional funds with the wealth manager and the intention to switch.⁴⁹ Table 2 gives an overview of the reflective scale items.

However, it is not possible to make use of existing scales for the formative measurement models.⁵⁰ *Rossiter* (2002) emphasizes the importance of covering all facets of the objects and attributes being measured. Hence, the indicators of the formative measurement models were deduced from

⁴⁶ Cf. *Fornell* (1992); *Fornell et al.* (1996); *Johnson et al.* (2001); *Chan et al.* (2003).

⁴⁷ Cf. *Fornell* (1992); *Fornell et al.* (1996); *Johnson et al.* (2001); *Chan et al.* (2003).

⁴⁸ Cf. *Swan/Trawick* (1981).

⁴⁹ Cf. *Heskett et al.* (1994); *Jones/Sasser* (1995); *Drake et al.* (1998).

⁵⁰ Cf. *Lohmann* (1997), p. 111.

Table 3
**Operationalization of the Formative Measurement Models:
Constructs and Indicators**

Construct	Items
Accessibility	ACC01, ..., ACC06
Servicescape	SER01, ..., SER05
Relationship manager	RMA01, ..., RMA07
Investment proposal	INV01, ..., INV07
Product range	PRO01, ..., PRO05
Performance	PER01, ..., PER06
Reporting	REP01, ..., REP07
Relationship quality	RQU01, ..., RQU06

the literature.⁵¹ Moreover, it is important to consider only those aspects deemed relevant by the customers.⁵² We therefore integrate the findings from the preliminary survey, which gave customers the opportunity to identify aspects they deem important for satisfaction with their private banking service provider. Table 3 shows the number of items per construct.⁵³

IV. Methodology and Data

1. Data Collection and Sample Compilation

Data was collected by questionnaire in the period 12 May 2009 to 12 September 2009. To make sure that the indicators for each construct were adequate and comprehensive, each construct also included a text field where participants could indicate further aspects, not included in the provided set of items, they considered important.⁵⁴ The questionnaire

⁵¹ Cf. *Bruhn/Georgi* (2010), p. 420; *Bruhn et al.* (2010), p. 18 ff.
⁵² Cf. *Johnson/Gustafsson* (2000), p. 5 ff.
⁵³ We refrain from presenting the full text of each item due to a lack of space. The questionnaire with all items is available from the authors upon request.
⁵⁴ Inspection of the text fields revealed that all important facets were already covered by the given indicators.

starts with the items for the measurement models. In order to be able to validate the measurement models using MIMIC models (multiple indicators and multiple causes), each block of items for the formative measurement models contains two reflective indicators that assess overall satisfaction with the respective construct.⁵⁵ The second part of the questionnaire includes questions concerning socio-demographic variables such as age, sex, number of service providers used to conduct private banking services and the size of liquid assets. Responses were measured on a five-point scale.⁵⁶

We used different sources to generate our sample. One Austrian private bank agreed to take part and to forward the questionnaire to their clients. Furthermore, we used private contacts that we screened for eligibility, i.e., individuals we knew were most likely private banking clients. Moreover, we used the database of Fuchsbriefer who publish a mystery shopping-based rating/ranking in the private banking and wealth management industry. In order to attract further participants, we cooperated with Gruner + Jahr, a German publishing house, who advertised the survey in their publications *Capital*, *Börse Online* and *Manager Magazin*. In addition, we used two social networks to attract participants. Participants could choose to either use the paper and pencil or the online version of the survey.

We were able to collect 395 responses during the survey period. We then checked the data for unit non-response⁵⁷ and item non-response. Furthermore, we analysed the type of missingness, i.e., whether missing values are missing completely at random (MCAR).⁵⁸ We aggregated all data in such a way that no more than 5 % of variables of the structural model per participant are missing; altogether, we were left with 268 usable questionnaires.⁵⁹ We replaced missing values of the variables of the structural model with their means.⁶⁰ Missing values of socio-demographic variables were replaced with the help of multiple imputation using

⁵⁵ Cf. *Hauser/Goldberger* (1971), p. 95 ff.; *Jöreskog/Goldberger* (1975); *Diamantopoulos/Winklhofer* (2001), p. 272.

⁵⁶ The scale points were labeled as follows: 1 strongly disagree, 2 disagree, 3 neither agree nor disagree/neutral, 4 agree, 5 strongly agree.

⁵⁷ Cf. *Armstrong/Overton* (1977), p. 397.

⁵⁸ Cf. *Little* (1992), p. 1229; *King et al.* (2001), p. 50; *Sinharay et al.* (2001), p. 318; *Little/Rubin* (2002), p. 12; *Schafer/Graham* (2002), p. 151.

⁵⁹ If we consolidated our data in a way so that the maximum number of missing values is 10 %, we would get a sample size of 271.

⁶⁰ Cf. *Roth* (1994), p. 551.

Table 4
Descriptive Statistics

	Max	Min	Mean	Std. dev.	Median	Modus
Age of customer (years)	85.00	20.00	49.29	12.46	47.00	45.00
Length of relationship (years)	55.00	1.00	11.98	10.71	9.00	10.00
Share of assets placed with main service provider (in %)	100.00	2.00	65.20	22.10	69.30	50.00
Number of service providers	5.00	1.00	2.04	0.69	2.00	2.00

NORM.⁶¹ To get reasonable start values, we first ran the expectation maximization (EM) algorithm,⁶² which converged after 56 iterations. For the imputation we ran 1,000 iterations of the data augmentation algorithm with imputation at every 200th run ($i = 200$) so that we imputed $m = 5$ complete datasets.

Our sample consists of 44 (16.42 %) female and 224 (83.58 %) male participants. The mean age of the participants is 49.29 years; the youngest is 19 and the oldest 85. The mean length of the customer-service provider relationship is 11.98 years; participants use on average 2 service providers to conduct their private banking services. The share of liquid assets managed with the main service provider is on average 65.20 %.

We classify the service providers into seven groups: Large banks with a separate private banking unit, classic private banks/wealth managers, independent asset managers, cooperative banks, savings banks, Landesbanken (federal state banks), and direct banks/online brokers. 36.19 % of respondents use a large bank that has a separate private banking unit as their main service provider, whereas 29.85 % make use of a classic private bank/wealth manager.

Participants could group themselves into different wealth brackets based on the size of their liquid assets. If one assumes that the mean of

⁶¹ Cf. *Schafer/Olsen* (1998); *Graham/Schafer* (1999). Mean replacement is not useful for socio-demographic variables such as “sex”.

⁶² Cf. *Dempster et al.* (1977); *Schafer* (1997), p. 37 ff.; *Little/Rubin* (2002), p. 165 ff.

Table 5
**Composition of Sample According to Type
of Private Banking Service Provider**

Classification	N	%
Large banks with private banking unit	97	36.19
Private banks/wealth managers	80	29.85
Independent asset managers	26	9.70
Cooperative banks	27	10.07
Savings banks	26	9.70
Landesbanken (federal state banks)	3	1.12
Direct banks/online brokers	9	3.36

each class best represents the size of liquid assets, customers possess liquid wealth of EUR 1,812,686.57 on average. Taking the minimum (maximum) of each class, the average customer in our sample has liquid assets of EUR 727,238.81 (EUR 2,989,124.33). Accordingly, the sample seems to be representative for private banking/wealth management customers.

Table 6
Composition of Sample According to Size of Liquid Wealth

Size of liquid wealth			N	%
		below EUR 100,000	47	17.54
EUR 100,000	–	below EUR 500,000	104	38.81
EUR 500,000	–	below EUR 1 million	55	20.52
EUR 1 million	–	below EUR 5 million	47	17.54
EUR 5 million	–	below EUR 10 million	8	2.99
EUR 10 million	–	below EUR 50 million	7	2.61

2. Methodology

We use smartPLS,⁶³ a partial least squares (PLS)-software, to estimate the proposed model. This type of variance-based structural equation modelling has the advantage of being able to work with small samples and data that is not multivariate normal distributed.⁶⁴ Furthermore, PLS is the preferred method for estimating customer satisfaction indices.⁶⁵ Other than covariance-based procedures such as LISREL, PLS does not optimize a global goodness-of-fit criterion. Rather, the reliability and validity of the structural model – which reflect the theoretical relationships between the constructs – and of the measurement models that operationalize these constructs have to be evaluated separately.⁶⁶

V. Empirical Assessment of the Model

1. Reliability and Validity of the Reflective Measurement Models

We first check the reflective measurement models for unidimensionality.⁶⁷ For each construct exactly 1 factor can be extracted, as only the first eigenvalue is > 1 . Total variance explained ranges from 75.73 % for customer satisfaction to 79.02 % for value for money; for all 3 constructs the Kaiser-Meyer-Olkin criterion is > 0.80 and can be considered meritorious/marvellous.⁶⁸

All item loadings are > 0.7 and statistically significant; hence the threshold of 0.5 for indicator reliability is exceeded for the three reflective measurement models.⁶⁹ Furthermore, all corrected item-to-total correlations exceed 0.5. The lowest value of Cronbach's alpha⁷⁰ can be ob-

⁶³ Cf. Ringle et al. (2005).

⁶⁴ Cf. Fornell/Bookstein (1982), p. 442; Jöreskog/Wold (1982), p. 266 ff.; Chin (1998), p. 295.

⁶⁵ Cf. Fornell et al. (1996), p. 11; Esposito Vinzi et al. (2010), p. 4.

⁶⁶ Cf. Lohmöller (1989), p. 52; Herrmann et al. (2006), p. 44 f.

⁶⁷ Cf. Bollen (1984), p. 378; Danes/Mann (1984), p. 349; Anderson/Gerbing (1988), p. 414; Gerbing/Anderson (1988), p. 186.

⁶⁸ Cf. Kaiser/Rice (1974), p. 112.

⁶⁹ Cf. Fornell/Larcker (1981), p. 45; Homburg/Giering (1996), p. 10 ff.; Henseler et al. (2009), p. 229.

⁷⁰ Cf. Cronbach (1951), p. 320 ff.; Carmines/Zeller (1979), p. 44; Churchill (1979), p. 70; Cortina (1993), p. 100; Homburg/Giering (1996), p. 8; Tenenhaus et al. (2005), p. 164.

Table 7
**Inter-item-correlations and Descriptive Statistics
of the Reflective Measurement Models**

	VAL01	VAL02	VAL03	VAL04		Mean	Std. dev.
VAL01	1.00					2.81	1.18
VAL02	0.80	1.00				2.97	1.29
VAL03	0.82	0.87	1.00			2.98	1.19
VAL04	0.58	0.59	0.62	1.00		3.12	1.31
	SAT01	SAT02	SAT03	SAT04		Mean	Std. dev.
SAT01	1.00					3.21	1.26
SAT02	0.77	1.00				2.79	1.26
SAT03	0.85	0.77	1.00			2.87	1.30
SAT04	0.56	0.48	0.57	1.00		3.15	1.25
	LOY01	LOY02	LOY03	LOY04	LOY05	Mean	Std. dev.
LOY01	1.00					3.04	1.42
LOY02	0.68	1.00				2.54	1.33
LOY03	0.77	0.55	1.00			3.39	1.55
LOY04	0.84	0.67	0.76	1.00		3.04	1.43
LOY05	0.83	0.60	0.72	0.79	1.00	3.23	1.34

served for customer satisfaction ($\alpha = 0.89$); for all constructs Jöreskog's ρ^{71} exceeds 0.90. In summary, the 3 reflective measurement models exhibit a satisfactory degree of reliability.

In order to check for an adequate degree of criterion validity we examine the construct correlations between predictor and criterion variables.⁷² The correlation of the latent variable (LV)-scores is 0.83 for value for money and customer satisfaction and 0.91 for customer satisfaction and customer loyalty.

All three reflective measurement models meet the threshold of 0.70 for average variance extracted (AVE); hence, convergent validity has proved satisfactory.⁷³ Furthermore, we use the item cross-loadings and

⁷¹ Cf. *Werts et al. (1974), Fornell/Larcker (1981), p. 45; Henseler et al. (2009), p. 299.*

⁷² Cf. *Carmines/Zeller (1979), p. 17f.*

⁷³ Cf. *Fornell/Larcker (1981), p. 46; Chin (1998), p. 321.*

Table 8
Construct Correlations and
Fornell-Larcker Criterion

	VAL	SAT	LOY
VAL	0.89		
SAT	0.83	0.87	
LOY	0.81	0.91	0.88

the Fornell-Larcker criterion to assess discriminant validity.⁷⁴ All indicators show higher loadings for their respective construct than for all other constructs. For value for money, the square root of the AVE is larger than the correlations of the latent variable scores. However, for customer satisfaction, the Fornell-Larcker criterion is not met as the correlation between customer loyalty and customer satisfaction is larger than the square root of the average variance extracted of customer satisfaction. We make use of the methodology proposed by *Anderson/Gerbing* (1988) as an alternative to the Fornell-Larcker criterion: if the confidence interval of ± 2 standard errors around the correlation between customer satisfaction and customer loyalty does not contain the value 1, a satisfactory degree of discriminant validity is given. The bootstrapping⁷⁵ procedure provides a standard error of 0.04. Accordingly, the lower bound of the confidence interval around the correlation of 0.91 is 0.83 and the upper bound is 0.99. Although the Fornell-Larcker criterion is not met in every case, discriminant validity nevertheless is given.

We use Stone-Geisser’s Q^2 to assess the degree of predictive validity.⁷⁶ For all three reflective constructs $Q^2 > 0.70$; hence, the reflective measurement models exhibit an adequate degree of reliability and validity.

⁷⁴ Cf. *Fornell/Larcker* (1981), p. 46.
⁷⁵ Cf. *Efron/Gong* (1983); *Efron/Tibshirani* (1993); *Chin* (1998), p. 320; *Tenenhaus et al.* (2005), S. 176 p.; *Henseler et al.* (2009), p. 305.
⁷⁶ Cf. *Geisser* (1974), *Stone* (1974); *Geisser* (1975); *Fornell/Bookstein* (1982), p. 449f.; *Wold* (1982), p. 30ff.; *Chin* (1998), p. 318; *Henseler et al.* (2009), p. 305.

Table 9
**Cross Loadings of the Reflective
 Measurement Models**

	VAL	SAT	LOY
VAL01	0.91	0.71	0.70
VAL02	0.94	0.86	0.84
VAL03	0.95	0.77	0.76
VAL04	0.75	0.55	0.55
SAT01	0.82	0.94	0.89
SAT02	0.71	0.88	0.76
SAT03	0.78	0.93	0.88
SAT04	0.53	0.72	0.62
LOY01	0.79	0.92	0.94
LOY02	0.59	0.64	0.78
LOY03	0.69	0.76	0.86
LOY04	0.78	0.85	0.92
LOY05	0.73	0.84	0.90

2. Reliability and Validity of the Formative Measurement Models

For the assessment of the formative measurement models we consider the significance of the indicators as well as the degree of multicollinearity. Moreover, we employ a MIMIC model to analyse the suitability of the formative measurement model specifications. More precisely, in addition to the formative indicators, each of the formative constructs is covered by two reflective items. This allows us to analyse the magnitude and significance between the formative and reflective specification of the same construct.⁷⁷

Concerning the significance of the indicators, 4 of the 7 indicators of reporting are statistically significant. For all remaining formative constructs, the number of statistically significant items is larger. The items used to measure the performance exhibit the maximum degree of multicollinearity with a variance inflation factor (VIF) of 8.26; however, all

⁷⁷ Cf. Hauser/Goldberger (1971), p. 95 ff.; Jöreskog/Goldberger (1975); Diamantopoulos/Winklhofer (2001), p. 272.

Table 10
Assessment of the Reflective Measurement Models

Item	Loading	t-value	Item reliability	Corrected item-to-total correlation	α	ρ	AVE	Q^2
VAL01	0.91	62.91	0.83	0.82	0.91	0.94	0.79	0.79
VAL02	0.94	114.45	0.88	0.85				
VAL03	0.95	138.46	0.89	0.88				
VAL04	0.75	14.38	0.56	0.63				
SAT01	0.94	142.88	0.87	0.85	0.89	0.93	0.76	0.76
SAT02	0.88	45.88	0.77	0.77				
SAT03	0.93	114.18	0.87	0.85				
SAT04	0.72	14.52	0.52	0.58				
LOY01	0.94	126.72	0.88	0.89	0.93	0.95	0.78	0.78
LOY02	0.78	21.42	0.60	0.68				
LOY03	0.86	34.28	0.75	0.78				
LOY04	0.92	75.85	0.85	0.87				
LOY05	0.90	56.19	0.81	0.83				

VIFs are well below the critical threshold of 10:⁷⁸ With the exception of the measurement models of reporting and performance, all VIFs are even below 5. All path coefficients of the MIMIC models are highly significant and well above 0.75.

All construct correlations of the latent variable scores of the formative constructs are below the critical threshold of 0.9;⁷⁹ the correlations range from 0.33 for the correlation between performance and servicescape to 0.83 for the correlation between the relationship manager and relationship quality. Accordingly, the overall goodness of the formative measurement models is satisfactory.

⁷⁸ Cf. *Marquardt* (1970), p. 610; *Cohen et al.* (2003), p. 423.
⁷⁹ Cf. *Huber et al.* (2007), p. 39.

Table 11
Assessment of the Formative Measurement Models

Construct	Formative Indicators	Maximum VIF	MIMIC-model	
			Path coefficient	t-value
Accessibility	5/6 significant	3.47 (ACC02)	0.88	48.36
Servicescape	4/5 significant	2.96 (SER03)	0.85	44.52
Product range	5/5 significant	2.45 (PRO04)	0.77	21.86
Investment proposal	6/7 significant	4.59 (INV05)	0.89	59.23
Reporting	4/7 significant	5.13 (REP03)	0.88	49.56
Performance	6/6 significant	8.26 (PER05)	0.86	50.11
Relationship quality	4/6 significant	2.53 (RQU01)	0.88	56.69
Relationship manager	5/7 significant	4.35 (RMA02)	0.90	58.27

Table 12
Construct Correlations of the Formative Measurement Models

	ACC	SER	PRO	INV	REP	PER	RQU	RMA
ACC	1.00							
SER	0.46	1.00						
PRO	0.54	0.41	1.00					
INV	0.60	0.43	0.68	1.00				
REP	0.55	0.47	0.64	0.69	1.00			
PER	0.49	0.33	0.53	0.65	0.54	1.00		
RQU	0.67	0.48	0.66	0.79	0.66	0.62	1.00	
RMA	0.64	0.50	0.64	0.81	0.62	0.68	0.83	1.00

3. Assessment of the Structural Model

In order to evaluate the endogenous constructs we consider the coefficient of determination R^2 and Stone-Geisser's Q^2 .⁸⁰ As can be seen in table 13, the degree of variance explained by customer satisfaction ($R^2 = 0.82$) and customer loyalty ($R^2 = 0.87$) is substantial.⁸¹ The same applies for relationship quality; the degree of variance explained by value for money is moderate. Stone-Geisser's Q^2 ranges from 0.40 for relationship quality to 0.68 for customer loyalty. We therefore conclude that predictive validity of the model is given.

Table 13
Assessment of the Endogenous Constructs

Construct	R^2	Q^2
Relationship quality	0.69	0.40
Value for money	0.60	0.47
Customer satisfaction	0.82	0.61
Customer loyalty	0.87	0.68

Figure 2 shows the path coefficients and their statistical significance. Seven of the nine direct relationships for customer satisfaction are significant. Value for money exhibits the largest impact on customer satisfaction (path coefficient: 0.35), followed by the relationship manager (path coefficient: 0.19). Both path coefficients are statistically significant at the 1 %-level; hence hypotheses H9 and H8a cannot be rejected. Table 14 shows that value for money has a moderate effect size of $f^2 = 0.237$ whereas the relationship manager only exhibits a weak influence on customer satisfaction ($f^2 = 0.042$).⁸² The influence of the relationship quality is significant on the 1 %-level as well (path coefficient: 0.17). However, due to the low effect size ($f^2 = 0.027$), relationship quality contributes only weakly to explaining the variance of customer satisfaction. The impact of performance is significant at the 5 %-level (path coefficient: 0.09); the effect size ($f^2 = 0.022$) is small.

With regard to customer loyalty, three path coefficients are statistically significant. Customer satisfaction has the largest impact on customer

⁸⁰ Cf. Chin (1998), p. 318 ff.; Tenenhaus et al. (2005), p. 173.
⁸¹ Cf. Chin (1998), p. 323.
⁸² Cf. Chin (1998), p. 316 f.

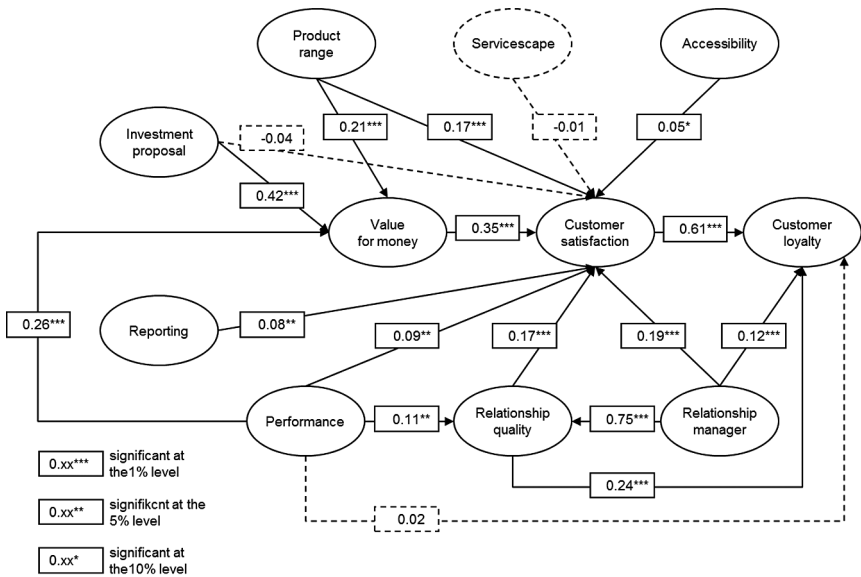


Figure 2: Empirical Assessment of the Structural Model

loyalty; the path coefficient of 0.61 is statistically significant at the 1 %-level. The effect size of $f^2 = 0.821$ is substantial; hence, hypothesis H10 cannot be rejected. Relationship quality and the relationship manager show the second- and third-largest impact (path coefficients: 0.24 and 0.12, respectively). Both path coefficients are statistically significant at the 1 %-level. The effect sizes are small, however (0.122 and 0.035, respectively). Only the performance does not exhibit a direct impact on customer loyalty; hence, we have to reject hypothesis H6b.

The investment proposal exhibits the strongest impact on value for money (path coefficient: 0.42, significant at the 1 %-level). As the effect size of $f^2 = 0.194$ is moderate, we cannot reject hypothesis H4b. The performance and the product range exhibit the second and third largest influence on value for money (path coefficients: 0.26 and 0.21, respectively). Both path coefficients are statistically significant at the 1 %-level. The effect sizes are small (f^2 of 0.069 and 0.054, respectively). Accordingly, we cannot reject hypotheses H6c and H3b.

Concerning the relationship quality, the relationship manager exhibits a much stronger influence (path coefficient: 0.75) than the performance (path coefficient: 0.11). This is corroborated by the effect size, which is

substantial for the relationship manager ($f^2 = 0.972$) but small for the performance ($f^2 = 0.020$). Hence, hypotheses H8c and H6d cannot be rejected. In summary, 15 of the 18 hypotheses, i.e., 83.33 % of the postulated relationships, cannot be rejected. Consequently, the model shows an adequate degree of nomological validity.

The variance inflation factors (VIFs) of the structural model range from 1.47 to 4.55 for customer satisfaction and from 2.05 to 4.08 for customer loyalty, i.e., the critical threshold of 10 is not exceeded for any of the exogenous constructs. The same holds true for value for money and for the relationship quality.

4. Sensitivity Analysis

In order to exclude the possibility that our results are due to an incorrectly specified model or flaws in our data, we performed several robustness checks. Concerning data collection and the compilation of our sample, we repeated the analysis using multiple imputation instead of mean replacement for variables of the structural model showing missing values. The results show that the basic findings concerning the path coefficients do not depend on the method used for imputation of missing values.

Furthermore, we validated the proposed model with a new dataset. We collected an additional 300 usable questionnaires in the period February 2011 to August 2011. The analysis of the postulated model with the fresh dataset did not show any serious differences. In addition, we analysed several alternative specifications of the measurement models. Though all variance inflation factors (VIFs) of the formative measurement models are below the critical threshold of 10, biased estimates due to multicollinearity of the indicators is still possible. In addition to using a reflective specification for these constructs we use the arithmetic mean to generate an index⁸³ of the formative measurement models as well as the first principal component to rule out potential biases due to misspecified measurement models. As shown in table 15, the different measurement model specifications only marginally change the overall results of the model.

⁸³ Cf. *Albers/Hildebrandt* (2006), p. 13 ff.

Table 14
Empirical Assessment of the Structural Model

	Path		Path coefficient	t-value	VIF	f ²
ACC	→	SAT	0.05	1.39	2.00	0.008
SER	→	SAT	-0.01	0.65	1.47	0.001
PRO	→	SAT	0.17	3.74	2.23	0.065
INV	→	SAT	-0.04	0.89	4.05	0.001
REP	→	SAT	0.08	1.98	2.36	0.016
PER	→	SAT	0.09	2.19	2.09	0.022
RQU	→	SAT	0.17	2.75	4.31	0.027
RMA	→	SAT	0.19	2.69	4.55	0.042
VAL	→	SAT	0.35	7.06	2.72	0.237
SAT	→	LOY	0.61	14.55	3.66	0.821
PER	→	LOY	0.02	0.90	2.05	0.001
RQU	→	LOY	0.24	5.70	3.79	0.122
RMA	→	LOY	0.12	2.90	4.08	0.035
PRO	→	VAL	0.21	3.17	1.91	0.054
INV	→	VAL	0.42	6.55	2.34	0.194
PER	→	VAL	0.26	4.33	1.76	0.096
PER	→	RQU	0.11	1.94	1.86	0.020
RMA	→	RQU	0.75	16.90	1.86	0.972

Table 15
**Assessment of the Endogenous Constructs Given
Alternative Measurement Model Specifications**

	Formative		Reflective		Arithmetic mean		Principal component	
Konstrukt	R ²	Q ²	R ²	Q ²	R ²	Q ²	R ²	Q ²
Relationship quality	0.69	0.40	0.63	0.39	0.64	0.64	0.61	0.11
Value for money	0.60	0.47	0.60	0.47	0.58	0.45	0.60	0.30
Customer satisfaction	0.82	0.61	0.81	0.61	0.81	0.61	0.81	0.22
Customer loyalty	0.87	0.68	0.86	0.67	0.87	0.67	0.86	0.18

Besides alternative specifications of the measurement models, we examined alternative specifications of the structural model. First, we eliminated insignificant paths from the model. By eliminating the servicescape and the insignificant path from the investment proposal to customer satisfaction, the impact of reporting on customer satisfaction decreases from 0.08 to 0.07 and the impact of relationship quality on customer satisfaction decreases from 0.17 to 0.16. Similarly, the impact of the relationship manager on customer satisfaction decreases from 0.19 to 0.18. In total, the elimination of insignificant paths from the model does not lead to major adjustments concerning the path coefficients. The second alternative specification of the structural model we consider is to include only the direct paths, i.e., eliminate all indirect effects. This leads to a decrease of the impact of value for money from 0.35 to 0.33; in contrast, the impact of performance and relationship quality increases from 0.09 to 0.10 and from 0.17 to 0.20, respectively. The overall model assessment yields a coefficient of determination of $R^2 = 0.83$ and Stone-Geisser's $Q^2 = 0.62$ for customer satisfaction and $R^2 = 0.84$ and $Q^2 = 0.65$ for customer loyalty, which fall in the range of the originally postulated model.

VI. Conclusion

The paper at hand proposes a model to measure customer satisfaction in the private banking industry. We estimate the model parameters with the help of partial least squares (PLS) and contribute to the scant literature explicitly focused on private banking. From a methodological point of view, we use formative measurement models for the predictors of customer satisfaction and customer loyalty. The results of the analysis of the structural model show a reasonable goodness of fit. Concerning the determinants of customer satisfaction it can be seen that customer satisfaction is mainly driven by value for money, the relationship manager and relationship quality, i.e., experience and credence qualities. Search qualities such as accessibility and the servicescape play a minor role. The other experience qualities that are significant are the product range and investment reporting.

Moreover, investment performance as a “hard” criterion is not a driver of customer loyalty in private banking. Rather, it is experience qualities such as customer satisfaction, relationship quality and the relationship manager that form important predictors of customer loyalty. In this respect our results confirm the results of *Levesque/McDougall* (1996), who

found that relationship quality has by far the largest impact on customer satisfaction and intention to recommend in a retail banking setting. We conclude that the relationship manager is pivotal to private banking. The relationship manager is more important to relationship quality, customer satisfaction and customer loyalty than the performance. Hence, the human resource development of relationship managers should be taken seriously. Only when private banking service providers are able to retain qualified relationship managers can long-lasting and profitable relationships with customers be sustained.

One limitation of the paper at hand is the composition of our sample, which did not allow for calculation of a response rate. On the other hand, the use of several sources has the advantage of counteracting biases due to preselection of participants: Complete reliance on banks willing to forward the questionnaire to their customers would have resulted in a sample pre-selected by the banks themselves and, hence, in potential biases.

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