University of Augsburg
Prof. Dr. Hans Ulrich Buhl
Research Center
Finance & Information Management
Department of Information Systems
Engineering & Financial Management

Universität Augsburg
University

Discussion Paper WI-108

Customer Acquisition and Customer Retention in the Financial Services Industry

by

Jochen Dzienziol, Nicola Mellwig

April 2002

in: Mastoriakis, N., ed., WSEAS Transactions on Communications, Rethymno, Crete, (Greece), July 2002, 1. volume, WSEAS Press, Athens, 2002, p.179-184

Customer Acquisition and Customer Retention in the Financial Services Industry

JOCHEN DZIENZIOL, NICOLA MELLWIG
Lehrstuhl für Betriebswirtschaftslehre, Wirtschaftsinformatik und Financial Engineering
Universität Augsburg
Universitätsstr. 16, 86135 Augsburg
GERMANY
jochen.dzienziol@gmx.de
nicola.mellwig@wiwi.uni-augsburg.de

Abstract: In a world of enormous technological developments and increasing competition between financial services providers customer acquisition and customer retention becomes more and more important. In this paper the authors use a micro-economic model to analyze the circumstances when and why customers change their financial services provider and what parameters influence this decision. The results of this analysis are interpreted in the context of information technology (IT) projects of financial services providers, explaining why IT-enabled/IT-supported personalization and customer lifetime value analysis is crucial for sustaining profits in the middle and long term.

Key-Words: customer acquisition, customer retention, financial services provider, switching barriers, service utility, information technology, personalization, customer lifetime value

1 Introduction

Over the last years, the financial services industry was confronted with decreasing profits and customer loyalty. Driven by this development, financial services providers (FSPs) thought about their product focused strategy and revised it towards a more customer focused strategy (cf. [4]). The discussion of customer retention, customer acquisition and customer lifetime values (c.f. [3]) got increasing attention from the financial services industry in the hope to find ways to stay profitable. It is also interesting to recognize that complimentary gifts (e.g. money for opening a bank-account or a sailing trip for high value customers etc.) as an incentive for customers to change their FSP were applied more and more in the financial services industry. But could these strategies really lead to success? When and why do customers change their FSP and how could a FSP use this knowledge to its advantage?

As a framework and first step in this paper to discuss these questions, the authors introduce a small micro-economic model (section 2). In this model, we imagine a customer who has the choice between two FSPs competing with each other. The customer currently has a relationship with one of these FSPs. He is influenced by the value of the services, complimentary gifts and switching costs if he wants to change his FSP. Both FSPs have the possibility to invest in their services and/or complimentary gifts in order to influence the customer's decision. The authors will deduce an optimal investments strategy for an acquiring FSP and discuss the development of competition between the two FSPs. It will be explained why complimentary gifts only play a significant role in the acquisition strategy if switching costs exist and that the existence of switching costs is essentially necessary for the financial services industry to remain profitable. Unfortunately the switching costs between FSPs are currently sinking e.g. because of recent technological developments. The authors describe that personalized services (e.g. personal finance advice) are a strategy to confront the trend of decreasing switching costs. But personal advice is very and often too costly for FSPs and not valued enough by the customer. An insolvable dilemma?

In section 3, the authors claim that IT-personalization projects as a part of an e-business-strategy could be a solution for this dilemma. The importance of other e-business-projects for the customer acquisition and retention is also discussed. With a short conclusion we would like to close this paper.

2 The Model

As already introduced, we imagine a customer deciding between two FSPs. He values the relationship with his current FSP according to the quality and importance of the offered services (service utility). Nevertheless, he is constantly aware of the other FSP[1] (acquiring FSP) and the value of its services. Additionally he might be offered a complimentary gift for switching to the acquiring FSP (e.g. money for opening a bank-account or a sailing trip for high value customers etc., for a micro-economic analysis focusing on complimentary gifts cf. [6]). But even if the customer values the services and the complimentary

[1] Or the best of a number of other financial services providers.

gift of the acquiring FSP equal or higher than continuing the relationship with his current FSP, the process of switching would induce efforts of time, money, inconvenience etc. called switching costs (for an intensive analysis of switching costs cf. [5] and [7]). They also include e.g. the effort to provide the acquiring FSP with the necessary information to provide its services in the same way as the other FSP. The switching costs might prevent the customer from leaving his FSP.

If the customer is currently not willing to switch, the acquiring FSP could influence the customer's decision through improvements in its services or the presentation of complimentary gifts. Both actions require investments. The efficiency of these investments depends on the ability of the FSP to identify the most valuable improvements for the customer (investment efficiency ability) and on the individual characteristics how the specific customer values service improvements in comparison to complimentary gifts. But naturally it is only interesting for the FSP to acquire the customer, if the FSP assumes that a relationship with this customer generates higher profits, i.e. that the customer has a higher customer lifetime value (for a discussion about the drivers of the customer lifetime value see [3]), than the necessary investments for acquiring him.

In the following subsections, we will represent the described situation in assumptions for a microeconomic model. As a second step, the optimal, necessary investments in services and complimentary gifts for the acquiring FSP to acquire the customer will be calculated. The constraints of these optimal investments will be described in a third step, depending on the motivation of customers to consume only the complimentary gift but not building a relationship with the acquiring financial services provider (sponging). Based on these results, a sensitivity analysis will describe the impact of changes in the influencing parameters on the optimal investments. In a fifth step, the results of the sensitivity analysis will be used to discuss customer retention and the development of competition between financial services providers. The last part of the model clarifies why especially personalization projects could create an advantage in competition but could also guarantee that the financial services industry as a whole remains profitable.

2.1 Assumptions

In the following, the basic assumptions concerning the customer's decision and the acquisition efforts of the acquiring financial services provider are presented.

2.1.1 The Customer

Only one customer exists and he decides for exactly one of two FSP to consume all financial services.[2]
His current FSP is denoted as FSP1, the acquiring FSP as FSP2.
The costs of switching from FSP i to FSP j ($i, j \in \{1;2\}; i \neq j$) are denoted $C_{i \to j}$.
The customer lifetime value is defined as the present value of all future cash-flows with the customer (without consideration of acquisition investments) during a relationship. It is equal for all FSPs and is represented by CLV.

2.1.2 The FSPs

Each FSP i invests a total amount $I_{i,S}$ in its services and an amount $I_{i,G}$ in complimentary gifts. His investment efficiency ability is represented by the coefficient $y_i; y_i > 0$ whereas a high coefficient indicates a high investment efficiency ability. The acquiring FSP2 tries to minimize his total investments I_2 to acquire the customer. The total investments I_i of all FSP i are restricted by the CLV:

(1) $I_i = I_{i,S} + I_{i,G} \leq CLV$.

2.1.3 Customer Utility Function

The utility of building a new or continuing a relationship with an FSP i is calculated as a Cobb-Douglas-Function (customer utility function):

(2) $U_i = y_i \times (I_{i,S})^a \times (I_{i,G} + 1)^b$.

a ($a \in]0;1[$) and b ($ß \in]0;1[; a + b = 1$) represent the individual importance of services (a) in comparison to the individual importance of complimentary gifts (b) for the specific customer.
The service utility – which is only the utility of services without consideration of complimentary gifts – is calculated as

(3) $U_{i,S} = U_i(I_{i,G} = 0) = y_i \times (I_{i,S})^a$.

In contrast to complimentary gifts, services provide their utility not instantly but over the years of the relationship.

2.1.4 Switching Condition:

The customer changes his financial services provider if the total utility of FSP2 at least compensates the service utility of FSP1 **and** switching costs

(4) $U_2 - U_{1,S} - C_{1 \to 2} \geq 0$.

2.2 Acquiring Customers

[2] One could argue that a lot of customers have several relationships to FSPs. Nevertheless, this assumption is uncritical for the general results of the model. The results could also be interpreted for the acquisition/retention of a customer to use a specific bundle of services, which the customer does not want to separate between different FSPs.

FSP2 wants to acquire the customer with minimal investments which should not exceed CLV of the customer. Based on the previous assumptions the customer will change his FSP if the utility of switching to FSP2 at least compensates the service utility of FSP1 and the switching costs. Therefore, FSP2 has to solve the following optimization problem:

(5) $I_2 = I_{2,S} + I_{2,G} \rightarrow \min$.

Constraints:

(I) $U_2 = y_2 \times (I_{2,S})^a \times (I_{2,G} + 1)^{1-a} \geq U_{1,S} + C_{1\rightarrow 2}$

(II) $I_2 = I_{2i,S} + I_{2,G} \leq CLV$

It could be shown easily that the result of this optimization problem is

(6) $$I_{2,S}^* = \left(\frac{a}{1-a}\right)^{1-a} \times \left(\frac{U_{1,S} + C_{1\rightarrow 2}}{y_2}\right)$$

and

(7) $$I_{2,G}^* = \left(\frac{a}{1-a}\right)^{-a} \times \left(\frac{U_{1,S} + C_{1\rightarrow 2}}{y_2}\right) - 1 \quad .$$

In case that the actual investments in services are higher than $I_{2,S}^*$, FSP2 might achieve an optimization and acquisition of the customer by reallocating money from service investments to complementary gift investments without increasing his total investments I_2.

Example:

A customer is characterized by $a = 0{,}7$; $b = 0{,}3$; $C_{1\rightarrow 2} = 20$; $C_{2\rightarrow 1} = 10$; $CLV = 200$.

Initially this customer has a relationship with FSP1. FSP1 is characterized by an investment efficiency ability $y_1 = 2$. He invests a present value of $I_{1,S} = 100$ in its services which creates the following service utility to the customer:

$U_{1,S} = U_1(I_{1,S} = 100,\ I_{1,G} = 0) = 2 \times (100)^{0,7} = 50{,}24$.

FSP2 wants to acquire this customer. He has the same investment efficiency ability as FSP1 and currently invests $I_{2,S} = 70$ in its services. This results in a service utility of $U_{2,S} = 2 \times (70)^{0,7} = 39{,}14$ which is not enough to compensate for the service utility of FSP1 and the switching costs. The optimization result is $I_{2,S}^* = 45{,}28$ for total investments in the services and $I_{2,G}^* = 18{,}41$ for investments in complimentary gifts. These investments create an utility of $U_2 = 2 \times (45{,}28)^{0,7} \times (18{,}41+1)^{0,3} = 70{,}24$ which compensates for the service utility of FSP1 and the switching costs ($U_{1,S} + C_{1\rightarrow 2} = 50{,}24 + 20 = 70{,}24$).

The optimal investments in services are lower than the initial investments. The acquisition could be realized by reallocating the investments to switching gifts with a save in total investments of $I_{2,S}^* + I_{2,G}^* - I_{2,S} = 6{,}31$. The total investments of $63{,}69$ are also lower than the CLV of the customer.

This analysis implicates an important role of complimentary gifts in the investment strategy of the acquiring FSP. But this role is restricted by a problem: the sponger problem, which is described in the following section.

2.3 Avoiding Spongers

After acquisition and consumption of the complimentary gift only the services provide utility for the customer. Thus, if the service utility and a complimentary gift of FSP1 exceed the service utility of FSP2 by more than the switching costs for changing back ($C_{2\rightarrow 1}$), the customer will change back to his old FSP (FSP1) immediately without any additional effort of FSP1:

(8) $U_1 > U_{2,S} + C_{2\rightarrow 1}$.

At the end FSP2 invested some money, gave away a complimentary gift but did not achieve to acquire an additional customer. Therefore, FSP2 has to solve the optimization problem (5) with an additional constraint to prevent sponging (sponging constraint):

(III) $U_1 \leq U_{2,S} + C_{2\rightarrow 1}$.

If this constraint is binding the optimal investments in services and complimentary gifts change. FSP2 has to invest a minimum amount of

(9) $$I_{2,S}^{\min} = \left(\frac{U_1 - C_{2\rightarrow 1}}{y_2}\right)^{\frac{1}{a}}$$

(which is higher than $I_{2,S}^*$) in its services and an amount of

(10) $$I_{2,G}^{\min} = \left(\frac{U_{1,S} + C_{1\rightarrow 2}}{U_1 - C_{2\rightarrow 1}}\right)^{\frac{1}{1-a}} - 1$$

(which is lower than $I_{2,G}^*$) in complimentary gifts in order to acquire **and keep** the customer.

In our example, the customer would sponge the complimentary gift in case of optimal investments because the service utility offered by FSP2 is too low to prevent the customer from changing back ($\underbrace{50{,}24}_{U_1} > \underbrace{28{,}85}_{U_{2,S}} + \underbrace{10}_{C_{2\rightarrow 1}}$). Therefore, FSP2 has to invest the minimum amount of $I_{2,S}^{\min} = 72{,}83$ (higher than $I_{2,S}^* = 45{,}28$), an optimal amount $I_{2,G}^{\min} = 5{,}40$ (lower than $I_{2,G}^* = 18{,}41$) in the complimentary gift and a total

amount of $I_2^{min} = 78{,}24$, which exceeds the previous optimal total investments by $14{,}54$ and requires additional investments of $8{,}24$ compared to the initial situation.

2.4 Sensitivity Analysis

Changes in important factors affect the acquisition-investment optimization as follows:

$\frac{\partial f}{\partial v}$		Analyzed function f:					
		$I_{2,S}^*$	$I_{2,G}^*$	I_2^*	$I_{2,S}^{min}$	$I_{2,G}^{min}$	I_2^{min}
Analyzed variable v:	y_2	<0	<0	<0	<0	$=0$	<0
	$C_{1\to2}$	>0	>0	>0	$=0$	>0	>0
	$C_{2\to1}$	$=0$	$=0$	$=0$	<0	>0	<0
	$I_{1,S}$	>0	>0	>0	>0	<0	>0
	$I_{1,G}$	$=0$	$=0$	$=0$	>0	<0	>0

Logically, a better ability to identify the investments with the highest investment-amount/utility-surplus ratio decreases the necessary total investments to acquire the customer. With sinking switching costs $C_{2\to1}$ complimentary gifts get less and less important, service investments and total investments have to rise in order to prevent sponging. Fig. 1 presents the influence of changing switching costs $C_{1\to2}$ on the optimization results (other factors remain unchanged, optimal investments are marked red) in more detail.

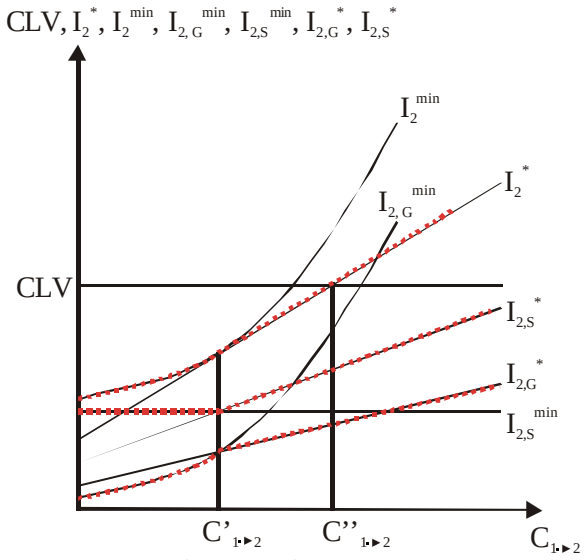

Fig. 1: influence of switching costs $C_{1\to2}$

Logically, with rising switching costs $C_{1\to2}$ the necessary investments to acquire the customer increase. Up to $C'_{1\to2}$, the sponging constraint (III) is binding. For $C_{1\to2} < C'_{1\to2}$, the optimal investments are defined by $I_{2,S}^{min}$ and $I_{2,G}^{min}$. The total investments I_2^{min} and the service investments $I_{2,S}^{min}$ are higher than the investments I_2^*, $I_{2,S}^*$ in the optimization without constraint (III). $I_{2,G}^{min}$ is lower than $I_{2,G}^*$. This means that the customer could be acquired with lower total investments I_2^* and service investments $I_{2,S}^*$ but to prevent him from sponging, a minimum $I_{2,S}^{min}$ of service investments is necessary. With rising switching costs $C_{1\to2}$ the optimal investments with and without the sponging constraint are converging. For $C_{1\to2} > C'_{1\to2}$, constraint (III) looses its binding character and the optimal investments are defined by I_2^*, $I_{2,S}^*$ and $I_{2,G}^*$. But if the switching costs $C_{1\to2}$ are higher than $C''_{1\to2}$, the optimal and necessary investments to acquire the customer exceed its customer lifetime value. FSP2 would have no interest in the acquisition.

The results of the sensitivity analysis will be used in the next two sections to describe the competition between FSPs and the impact of personalization projects.

2.5 Competition between FSPs

So far, we assumed that FSP1 will show no reaction when realizing that FSP2 wants to acquire his customer. Naturally, this behavior is unlikely in reality. Though the extension of the model towards a micro-economic competition analysis would go beyond the scope of this paper, several results could be deduced from the previous analysis.

Regarding the sensitivity analysis in the previous section, one plausible reaction of FSP1 could be to increase its own investments $I_{1,S}$ in the service utility $U_{1,S}$ so that the necessary total investments I_2^* of FSP2 to acquire the customer would exceed the CLV of the customer. Figure 2 illustrates this strategy. In this figure high switching costs are denoted as $C^{**}_{1\to2}$ and low switching costs as $C^*_{1\to2}$. Supported by high switching costs $C^{**}_{1\to2}$ ($C^{**}_{1\to2} > C^*_{1\to2}$, the other influencing factors of I_2^* remain unchanged), FSP2 has no incentive to acquire the customer if FSP1 invests $I^{**}_{1,S}$ or more in its services. This leaves FSP1 a profit of $CLV - I^{**}_{1,S}$. But as switching costs are sinking e.g. because of higher price transparency, possibilities for online account opening etc., increasing investments of FSP1 would be necessary to force FSP2 to spend high acquisition investments. The result is a reduction in profit for both FSPs. In case that FSP2 has a higher investment efficiency ability than FSP1 and switching costs are low ($C^*_{1\to2}$), FSP1 might not be able or want to retain its customer because the

necessary retention investments $I^*_{1,S}$ in the service utility would exceed the CLV.

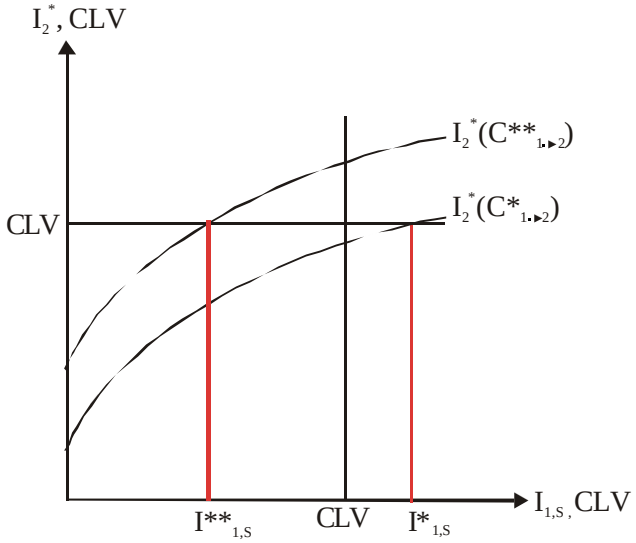

Fig. 2: influence of "retention" investments $I_{1,S}$

In a situation with nearly similar investment efficiency abilities and low switching costs, the investments of both FSPs to acquire or hold the customer would converge against the CLV which makes the business less and less profitable for both FSPs. In this situation, the FSP who estimates the CLV incorrectly will lose: either because he invests more than the true CLV to acquire or keep the customer or he invests less, which will motivate the other FSP to acquire the customer in order to realize a profit (For other approaches to analyze investments in customer acquisition and retention see [2], [3] and [8]).

2.6 Personalization of Services

One of the important statements in the last sections was that in situations with comparable investment efficiency abilities of the FSPs, only high switching costs ensure that the business remains profitable. Thus – to improve customer retention – it would be useful if investments in the services simultaneously increase switching costs. Concerning personalized services this is the case. With a popular example concerning Online-Bookstores we want to illustrate how personalization creates switching cost: Amazon uses and collects customer data (e.g. purchase history, stated customer interests etc.) to personalize purchase suggestions and thus creating value to the customer (and turnover for themselves) if he feels attracted by these suggestions. Even if another Online-Bookstore offers the same personalization service and therefore might be able to provide the same utility, the customer has to transfer all the necessary information to the other bookstore, which at least induces transaction costs.

Consequently personalization projects which increase both, service utility and switching costs, should be preferred to projects with the same or higher investment-amount/utility-surplus ratio – independent whether customer acquisition or retention is considered. In our model world (compare Fig. 2), FSP1 could achieve customer retention with a lower investment $I^{**}_{1,S}$ in a personalization project which – next to the service improvement – increases switching costs from $C^*_{1\to 2}$ up to $C^{**}_{1\to 2}$ compared to investments $I^*_{1,S}$ in "ordinary" service improvements.

Unfortunately, the necessary investments for personalization projects are often high and there could be projects which only increase service utility but have a lower (and therefore better) investment-amount/utility-surplus ratio. Considering customer **retention** the decision which project to choose depends on the existing trade-off between a higher investment-amount/utility-surplus ratio but higher switching costs and their effect on acquisition investments of the acquiring FSP. But personalization projects will only create switching costs e.g. for a switch from FSP1 to FSP2 if FSP2 also offers personalized services based on the same sort of information. If the acquiring FSP is not using the same information for providing utility it is not necessary for the customer to spend effort on a transfer of information to him. In this situation only the increased service utility is useful to evaluate the personalization project.

Considering customer **acquisition**, the switching costs caused by a personalized service of the **acquiring** FSP for leaving him would not have an effect on $C_{2\to 1}$ and therefore not on the minimum investments to avoid sponging. The reason for this is that a customer would not transfer all the necessary information for personalization to and later from the acquiring FSP if she intends to sponge the complimentary gift Thus – concerning customer acquisition – personalization projects have to be evaluated only by their increase in service utility and are inferior to projects with a better investment-amount/utility-surplus ratio.

The concept of personalization is not new for FSPs. Especially high-value customers receive individual, personal advice at all banks. Therefore, they have higher switching costs because of the necessary transfer of information and are more difficult to acquire. Unfortunately, personal advice is quite expensive – too expensive for customers with lower value. Is the financial services industry consequently stuck in an insolvable dilemma of sinking profitability

because of the current trend of sinking switching costs?

3 Implications for E-Business-Strategies in Banking

The authors are convinced that the integration of IT-personalization projects in the E-Business-Strategy provides a way out of this dilemma. Information technology and communication technology are no longer used only for reducing process costs but also enable banks to offer new, utility providing services. E-Business-projects could be distinguished in projects which simultaneously increase switching costs and in projects which do not. Though projects which provide utility to the customer but have no affect on switching costs are necessary and could give a FSP a short-term advantage over competitors, they could and will be copied: Competition drives all FSPs to invest in these utility providing IT-projects.

But especially in financial services, where the individual situation of a customer (concerning income, expenditures, future plans, preferences, taxes, etc.) has a great influence on the utility of financial services [1], IT-based and/or -supported personalization projects could improve significantly the service utility **and** increase switching costs at low costs (**mass customization**). The automated calculation of individual service bundles for financial problems or web based personalization tools (e.g. personalized web content, service offers etc.), enabled by the collected data are examples.

And there is another important role IT has to and could fulfill nowadays. In chapter 2.4, the sensitivity analyses shows the importance of a high investment-efficiency-ability for FSPs. By extracting high quality customer data out of all distribution channels e.g. by the use of Data Warehouses, Customer Relationship Management systems, Web-Tracking or multi-channel-data-integration, the customers' needs could be analyzed which enables the FSPs to invest in targeted service improvements more. These IT-applications also improve the profitability evaluation of customers and therefore the estimation of CLVs. As discussed in chapter 2.5, this is essential to avoid losses in competition.

4 Conclusion

In our work, we presented the interaction of investments in services and complimentary gifts, switching costs and the investment-efficiency-ability in a microeconomic model. Based on the results, we were able to show that complimentary gifts are only a significant part of an optimal acquisition investment strategy if switching costs exist. In a second step, we clarified that only in the presence of switching costs and by the help of CLV-analysis, FSPs could realize profits in the future. This motivated the argument, that IT-based and IT-supported personalization and data analysis is essential for FSPs to sustain profits in the middle and long term. But despite terabit of information about customers, the knowledge of FSPs how to use this data efficiently is essential but very limited at the moment. High fixed costs are spent in CRM projects with not always positive results. Nevertheless, it is now necessary to explore up-to-date data analysis techniques to be able to cope with sinking switching costs as soon as possible.

References:

[1] Buhl, H. U. et al, *Strategies for the Financial Services Industry in the Internet Age*, in: Werthner, H.; Bichler, M., eds., *Lectures in E-Commerce*, Springer, 2001, pp. 27-46.

[2] Blattberg, R., C., Deighton, J, *Manage Marketing by the Customer Equity Test*, in: Harvard Business Review, Volume 74, Issue 4, 1996, pp. 136-145.

[3] Dzienziol, J, Schroeder, N., Wolf, C., *Kundenwertorientierte Unternehmenssteuerung*, in: Buhl, H.U./Kreyer, N./Steck, W., *e-Finance - Innovative Problemlösungen für Informationssysteme in der Finanzwirtschaft*, Springer-Verlag, 2001, pp. 63-86.

[4] Epstein, C., *Financial services firms take aim at customers*, in: Wall Street & Technology, Volume 17, Issue 9, 1999, pp. 34.

[5] Farrell, J., Shapiro, C., *Dynamic competition with switching costs*, in: RAND Journal of Economics, Volume 19, Issue 1, 1988, pp. 123-137.

[6] Fudenberg, D., Tirole, J., *Customer poaching and brand switching*, in: RAND Journal of Economics, Volume 31, Issue 31, 2000, pp. 634-657.

[7] Klemperer, P., *Competition when Consumers have Switching Costs: An Overview with Applications to Industrial Organization, Macroeconomics, and International Trade*, in: Review of Economic Studies, Volume 62, 1995, pp. 515-539.

[8] Thomas, J. S., *A Methodology for Linking Customer Acquisition to Customer Retention*, in: Journal of Marketing Research, Vol. XXXVIII, 2001, pp. 262-269.

[9] Wihofszki, O., *Das große Chaos*, in: INFORMATIONWEEK, Volume 14, 2000