THE CUSTOMER LIFETIME VALUE CONCEPT AND ITS CONTRIBUTION TO CORPORATE VALUATION

*by Hans H. Bauer, Maik Hammerschmidt and Matthias Braehler**

ABSTRACT

The shareholder value and the customer lifetime value approach are conceptually and methodically analogous. Both concepts calculate the value of a particular decision unit by discounting the forecasted net cash flows by the risk-adjusted cost of capital. However, virtually no scholarly attention has been devoted to the question if any of the components of the shareholder value could be determined in a more market-oriented way using individual customer lifetime values. Therefore, the main objective of this paper is to systematically explore the contribution of both concepts to the field of corporate valuation.

At first we present a comprehensive calculation method for estimating both the individual lifetime value of a customer and the customer equity. After a critical examination of the shareholder value concept, a synthesis of both value approaches allowing for a disaggregated and more realistic corporate valuation will be presented.

* *Dr. Hans H. Bauer is Professor and Chairman of the Department of Business Administration and Marketing II and is the Scientific Director of the Institute for Market-Oriented Management at the University of Mannheim.*

Dipl.-Kfm. Maik Hammerschmidt is a Scientific Assistant at this department and doctoral candidate in Marketing. Address: L 5, 1, D-69131 Mannheim, Germany, Phone: +49 (0)621-1811572, Fax: +49 (0)621-1811571, E-Mail: maik.hammerschmidt@bwl.uni-mannheim.de

Dipl.-Kfm. Matthias Braehler is a junior consultant at the Marketing-Partner-Unternehmensberatung, Munich, Germany.

Original contribution, based on an article in GfK Jahrbuch der Absatz- und Verbrauchsforschung, Vol. 48 (2002), No. 4, pp. 324–344.

1. *The Significance of the Customer in Corporate Valuation*

In recent years, the proliferation of value-based management has led to an increasing demand for corporate valuation methods. This development is rooted in external factors, namely in the capital market's requirements. The fulfillment of the need to effectively assess companies is particularly important at a time when a strongly merger-driven economy with a growing monetary transaction volume fosters the danger of false evaluation and misinterpretation. However, internal reasons also play a major role in this context, such as the support of efficient resource allocation, which requires the measurement of the value contribution of functions or business units (*Srivastava/Shervani/Fahey* 2000, pp. 168 f.; *Blattberg/Deighton* 1996, pp. 136–144).

These days, market orientation does not represent a company's key success factor, market value orientation does. In this context, market value orientation is usually interpreted as capital market orientation; for this reason, the concept of shareholder value is frequently employed. Resulting from the financial origins of the shareholder value concept as a predominant evaluation method, marketing as a likewise value-creating area has long been neglected. It is an accepted fact that the field of marketing and – within this broad area – the field of sales represents the crucial company-customer interface, the customer being the most valuable resource of the company (*Srivastava/Shervani/Fahey* 1999, p. 169). It is the customer who creates value – all preceding stages only produce costs. Creation of value solely emerges from economic exchange in business relations.

Against this background, it appears sensible to consider the concept of customer value with regard to tactical decisions and, more importantly, as a strategic metric to assess the overall value of a firm, for example in the context of mergers and acquisitions. The concept of customer value represents the link between the customer as the external factor with regard to a company's revenue and the internal processes representing the costs of a company. Thus, it serves as a useful tool in determining the free cash flow in a more market-oriented way by disaggregating the sales market into different partial profit streams yielded by the customers. Consequently, if corporate valuation is based on the single value-enhancing customer activities (up selling, cross selling, referrals etc.) and the marketing costs incurred to induce these effects, a more realistic and precise determination of the free cash flow is assured. We suggest that long-term values of customers are more stable and relevant metrics of firm value than market capitalization or price-earnings-ratios. The latter are difficult to utilize when a company has negative earnings, as is typical in the early periods of internet-based businesses for example (*Gupta/Lehmann/Stuart* 2001, p. 3).

Our research efforts are aimed at the synthesis of the customer value concept and the shareholder value concept in a corporate valuation framework. It is not within the scope of this paper to explore the causal relationships between the two constructs in order to contribute to the implementation of the value management process (for a review of this research stream see *Payne/Holt/Frow* 2001). Instead, this paper seeks to formally infuse the customer value concept into the shareholder value model by developing an integrated, marketing-based method for the calculation of corporate value. Since both concepts are methodically analogous, this approach seems to be beneficial. Both concepts calculate the value of a particular decision unit by discounting the forecasted net cash flows by the risk-adjusted cost of capital. Nevertheless, as *Payne/Holt/Frow* (2001) indicate, customer value and shareholder value have been treated as separate constructs in individual research streams. Consequently, an integrative modeling of this topic has been neglected so far (*Berger/Nasr* 1998, p. 17; *Payne/Holt/Frow* 2001, p. 788).

2. *The Customer Lifetime Value Concept*

2.1 *The Underlying Idea*

Within the scope of this paper, we define customer value from a supplier-oriented point of view as the customer's economic value to the company, a definition which differs from the frequently employed demand-oriented view of customer value as the company's or its products' value to the customer (*Cornelsen* 2000, pp. 33–37; *Staat/Bauer/Hammerschmidt* 2002, p. 206). A comprehensive understanding of customer value should comprise all different aspects of a customer's contribution to the company's success (*Cornelsen* 2000, p. 38). The customer lifetime value (henceforth CLV) represents such a profound supplier-oriented understanding of customer value. The CLV measures the profit streams of a customer across the entire customer life cycle.

The CLV represents an application of the principles of contemporary finance to the evaluation of customer relations (*Day/Fahey* 1988; *Doyle* 2000). The model is aimed at the assignment of a profitability figure to the customer which is based on all prospective and directly attributable inpayments and outpayments. This procedure also accounts for effects that go beyond customer's own transactions, for example referring the products to other potential customers through word of mouth activities. Although a considerable number of CLV models have been developed so far, no generally accepted, superior approach exists (*Jackson* 1992, p. 44).

Many CLV models do not provide marketing-relevant information regarding customer-specific details, such as expected cross selling revenues or recommendation behavior. Additionally, various models do not consider the construct of customer retention rate

(for models which do not integrate retention rates see *Bruhn et al.* 2000; *Cornelsen* 2000; *Homburg/Schnurr* 1999; *Koehler* 1999; *Wilde/Hickethier* 1997; *Jackson* 1985; *Mulhern* 1999; *Niraj/Gupta/Narasimhan* 2001). The underlying assumption of these approaches contradicts the economic reality, which is marked by customer migration and a strong tendency to switch vendors.

Other CLV models do integrate customer retention rates and often also set out marketing or customer retention costs separately. Yet, these models lack further and more complex elements such as revenues from cross selling or references (see *Berger/Nasr* 1998; *Dwyer* 1997; *Keane/Wang* 1995; *Reinartz/Kumar* 2000; *Wang/Spiegel* 1994). Furthermore, there are approaches which neglect retention rates but consider contribution margins resulting from new customers who have been acquired by referrals (see *Gierl/Kurbel* 1997).

The above-mentioned approaches fail to integrate all relevant value effects of a customer into one single model. These shortcomings call for a suitable approach encompassing all relevant aspects of customer profitability. Solely *Cornelsen* (2000) and *Diller* (2001) succeed in presenting relatively comprehensive CLV models comprising many of the fundamental customer value constituents which have been addressed earlier. In the following, we will – based on the quoted research papers – provide a brief summary of all components of CLV with their respective partial values (subparts) and integrate these facets into a coherent, all-encompassing model.

2.2 *The Components of Customer Lifetime Value*

An examination of the basic CLV-models reveals that the incorporated variables can generally be classified into three categories: revenue, costs and retention rate (*Reinartz/Kumar* 2000, p. 19). Keeping in mind the practical side, which is characterized by large and heterogeneous customer groups, *Blattberg/Deighton* (1991) suggest that firms should partition their customer bases in homogeneous segments that possess different lifetime values. In order to create sufficiently detailed individual CLVs and at the same time minimize calculation efforts, each value component will be calculated separately for each customer segment. These specific value figures of each group will then serve as a basis for the calculation of individual CLVs.

■ Retention Rate

The retention rate is a factor which is typically defined with regard to the individual customer. It refers to the probability that an individual customer remains loyal to a particular supplier and keeps yielding expected revenue as well as costs within a fixed period of time. By means of the retention rates, anticipated contribution margins are adjusted to the probability of occurrence (*Dwyer* 1997, pp. 6 ff.).

The retention rate can be estimated with the help of empirically validated determinants of loyalty, such as customer satisfaction, switching barriers, variety-seeking behavior, and attractiveness of alternatives (*Peter* 1999, pp. 105 ff.; *Jones/Sasser* 1995). Causal analyses such as the LISREL-approach represent adequate analytical instruments in order to quantify the direction and strength of these effects (*Peter* 1999). Further starting points for the analysis of retention rates are customer loyalty models that cover different kinds of relationship settings (contractual vs. non-contractual, see *Jackson* 1992). In contractual settings, representing the 'lost-for-good model', the customer is either totally commited to the vendor or totally lost. In this case the retention rate and expected revenues can be forecasted fairly accurately depending on the usage of the services in the previous period and the contract terms (*Bolton* 1998).

Migration models that are often based on Markov-chains display the non-contractual situation, where customers split their category expenses among several firms (*Dwyer* 1997; *Pfeifer/Carraway* 2000; *Schmittlein/Morrison/Colombo* 1987). In this 'always-a-share' case, the retention rate is not to be regarded as a stable but as a dynamic factor reflecting changes in purchase behavior over the customer life cycle (*Wang/Spiegel* 1994, p. 75).

- Revenue

The second constituent 'revenue' can be classified into four sub-categories: 'autonomous' revenue, up selling revenue, cross selling revenue, and contribution margins resulting from referral activities of existing customers. These facets play a major role in compiling a complete record of a customer's effects over the life cycle and are essential to the identification of operative starting points for controlling these effects.

The 'autonomous' revenue merely accounts for factors that are not directly influenced by the company or that are only affected by standard marketing measures such as TV advertising, i.e. basic revenue not including targeted measures to raise up selling or cross selling. It is usually calculated by means of traditional procedures of demand forecast, e.g. analyses of time sequences or stochastic brand choice models such as multinomial Logit models (*Schmittlein/Peterson* 1994; *Lilien/Kotler/Moorthy* 1992).

Up selling revenue is yielded by the additional selling of the same product as a consequence of increased purchase frequency and intensity in long-life relationships (quantity effect, i.e. higher purchase amount per transaction and more transactions per period). They also emerge from a price effect, that is the selling of higher-priced substitutes of the same category to loyal, long-term customers that are less price sensitive (*Reinartz/Kumar* 2000, pp. 20 f.; *Reichheld/Teal* 1996). Therefore, up selling revenues symbolize the retention value of a customer. They can, for example, be estimated with

the help of frontier function models: these models provide information about the maximum revenue that can be obtained on the basis of efficient marketing and sales processes (*Kim/Kim* 1999; for the concept of efficient frontier and its application in marketing refer to *Bauer/Hammerschmidt/Staat* 2002).

In contrast to up selling, cross selling can be defined as the selling of complementary products or product categories respectively which have not been bought from the vendor (*Reichheld/Sasser* 1990, p. 5); a case in point is the selling of a life insurance to an automobile insurance customer. In addition to cross selling matrices, the same prognosis methods can be employed which have been identified in the context of up selling revenue.

The reference value measures margins stemming from new customers who were won through the referral behavior of existing customers. Its estimation can, for example, be accomplished with the help of the reference value model developed by *Cornelsen* (2000).

- Costs

The basic methods for predicting customer costs are those which are commonly used in product-related accounting. Merely the reference object has changed over various stages from the product to the customer. The traditional forecast methods are being supplemented by findings about cost-reducing effects of long-term customer relationships (*Bruhn et al*. 2000, p. 168; *Diller* 2001; *Reichheld/Sasser* 1990; *Reichheld/Teal* 1996).

Acquisition costs have to be affixed when contemplating the CLV of a future customer. With regard to existing customers, they have to be booked as sunk costs. Since these costs arise only once, they may be characterized as a company's irreversible investment in the customer. Their customer-specific calculation and assignment is conducted depending on the acquisition procedure used (for example direct marketing vs. mass marketing through advertising).

Marketing costs represent costs of customer retention and development. They comprise all marketing measures which are aimed at an improvement of customer profitability for example when the customer's attention is drawn to higher-priced variants (up selling) or other product categories of the same company (cross selling). Promotional expenditures and costs for soliciting, mailing catalogues or sending personalized greeting cards belong to this category. Recovery costs are also included in this category. It has to be differentiated between two kinds of recovery costs: costs incurring before the termination of the relationship in order to avoid defection (*"churn costs ... as the costs of persuading a current subscriber to renew his or her subscription"*, *Keane/Wang* 1995, p. 62) and costs emerging after the completion of the relationship, stemming from efforts targeted at regaining a customer.

Sales costs include both the production costs of the goods sold and all costs of serving the customer, including the cost of order procession, handling, warehousing, and shipping.

When customers are concerned who have defected but are not regarded as worth recovering, termination costs of a business relationship have likewise to be taken into account as the 'final costs'. Administrative expenses when closing an account or costs of taking back mature products are a case in point. This aspect has – to our knowledge – not been integrated into a CLV model so far.

2.3 *Joining the Customer Lifetime Value Components*

As has been mentioned before, no single CLV approach and, most importantly, no single calculation model exists which covers all relevant CLV components that have been identified to date. Some of the approaches presented earlier include effects of referral activities while neglecting retention rates or vice versa. For this reason, a comprehensive model shall be presented which overcomes the afore-mentioned limitations and encompasses all relevant aspects in accordance with the latest state of research in this area (see *Figure 1*).

Figure 1 summarizes all essential facets, including aspects of revenue as well as costs and retention rates. To ensure an appropriate calculation based on the definition of customer value provided in chapter 2.1, indirect-monetary contributions such as information, cooperation and innovation value are also included. Similar to the customer value construct, the term 'information value' consists of monetary information benefits subtractive of information costs and is referred to on a 'net basis'. Effects of innovation and cooperation value arise from know-how transfer or product and process innovations stimulated by lead users, for example in the context of customer integration programs (*Sullivan* 1986).

Concerning our model, the aspect of recommendation has to be estimated using the reference value model presented by *Cornelsen* (2000, pp. 199–202). For reasons of clarity, we do not integrate this calculation step into our model.

2.4 *Calculating Customer Equity*

Since the majority of CLV methods belong to the realm of operative marketing, to the field of direct marketing in particular, most approaches focus on calculating the value of a single customer. In practice, the application of the CLV concept is closely connect-

Figure 1

Comprehensive Calculation Model for Customer Lifetime Value

$$CLV_i = -AC_i + \sum_{t}^{T} \left(r_{ti}^{t} * \frac{(AR_{ti} + UR_{ti} + CR_{ti} + RV_{ti}) - (SC_{ti} + MC_{ti})}{(1+d)^t} - (r_{ti}^{t-1} * (1 - r_{ti})) * \frac{TC_i}{(1+d)^t} + r_{ti}^{t} * \left\{ \frac{InfoV_{ti} + CoopV_{ti} + InnoV_{ti}}{(1+d)^t} \right\} \right)$$

CLV_i	CLV of customer i (net present lifetime profit)
AC_i	Acquisition costs of customer i
r_{ti}	Retention rate of customer i in period t
AR_{ti}	Autonomous revenue of customer i in period t
UR_{ti}	Up selling revenue of customer i in period t (retention value)
CR_{ti}	Cross selling revenue of customer i in period t (cross selling value)
RV_{ti}	Gross contributions from reference activities of customer i in period t (reference value)
MC_{ti}	Marketing costs for retaining customer i in period t
SC	Costs for serving the customer i in period t (Cost of Sales)
TC_i	Termination costs for the relationship with customer i
$InfoV_{ti}$	Information value of customer i in period t
$CoopV_{ti}$	Cooperation value of customer i in period t
$InnoV_{ti}$	Innovation value of customer i in period t
d	Discount rate appropriate for marketing investments
T	Length (in years) of the projection period

ed to database marketing as well as to the value-oriented segmentation and management of customer relations. Furthermore, both approaches focus on the current customer base and sometimes also its future development (*Keane/Wang* 1995, pp. 59–66; *Wang/Spiegel* 1994, pp. 73–81).

Apart from the value of existing relationships, the value of new customers acquired in each future time period has to be taken into account. Further, when considering a company's value, the individual lifetime values of all current and future customers have to be aggregated yielding the customer equity (*Blattberg/Deighton* 1996; *Bayón/Gutsche/Bauer* 2002, p. 213). Thereby it is not sufficient to consider merely the CLVs of customers that are gained with the help of direct marketing instruments. The CLVs of customers which will be attracted by other measures or will migrate autonomously have likewise to be integrated. In this context, 'traditional' procedures of demand prognosis, such as stochastic choice models and attraction models (Logit models) can be employed to predict the acquisition probability of potential customers (*Lilien/Kotler/Moorthy* 1992, pp. 100 ff.; *Bayón/Gutsche/Bauer* 2002, pp. 219–221). An analysis of customer word-of-mouth behavior can provide a first hint with regard to the growth of the customer base.

The majority of customer value models neglect the value of future customer cohorts by focusing solely on the development of an initially acquired, current customer base, thereby implying a continuously decreasing customer base due to migration streams (see *Fischer/Herrmann/Huber* 2001; *Schmittlein/Peterson* 1994). An ultimate customer base of 0 is therefore implicitly assumed.

Taking into account the number of acquired new customers in a particular future time period as well as their corresponding profit patterns (at least on the level of segments), the value of this cohort (per period customer equity) can be determined as the sum of the individual CLVs. While the acquisition costs for all future customers have to be included in the customer costs C, the acquisition of the current customer base is rooted in the past and therefore the related costs are to be regarded as 'sunk'. After discounting the customer equities of the cohorts in each future period, they are summed up over all considered periods yielding the overall customer equity (CE). In this context, the current customer base represents the initial stock at a particular point of time, that is t=0.

Figure 2 shows the formal representation of the above-mentioned procedure for calculating CE. In *Figure 2*, the first sum towards the end of the equation represents a customer's individual CLV; the second sum contains all individual CLVs of the particular cohort. The third sum, the CE, finally adds up all period-specific CLVs, which have been discounted to the present (reporting period) beforehand.

Figure 2

Calculation Model for Customer Equity

$$CE = \sum_{s=0}^{T} \frac{1}{(1+d)^s} \sum_{k=(V_{s-1}+1)}^{V_s} \sum_{t=s}^{T} r_{ti}^{t} * \frac{(R_{ti} - C_{ti})}{(1+d)^t}$$

Simplified CLV of the customer i

Period CLV across all new customers of period s

Sum of all discounted period CLVs across all periods (= CE)

with $v_{-1} = 0$

CE	Customer equity of the company
s	Time index for the forecast period
T	Forecast period in years
d	Discount rate (cost of capital that is employed for marketing investments)
v	Index over new customers of period s
r_{ti}	Retention rate of customer i in period t
t	Time index over the remaining periods of the relationship for customer i
R_{ti}	Revenues of customer i in period t
C_{ti}	Costs of customer i in period t

3. *Relating Customer Lifetime Values to Corporate Valuation*

3.1 *The Shareholder Value Concept*

Since the shareholder value (SHV) concept represents the state of the art in traditional financial valuation, we will only outline the basic idea as a starting point for developing a customer-based valuation method. Like the CLV model, the SHV model concept

Figure 3

Traditional Shareholder Value Model

$$SHV = \sum_{t=1}^{T} \frac{FCF_t}{(1+d)^t} + \frac{CV_T}{(1+d)^T} + NA - D$$

SHV	Shareholder value
T	Forecast (planning) period
FCF_t	Present value of free available net cash flow (cash inflow - cash outflow) during the forecast period
CV_T	Continuing value after the forecast period
d	Discount rate (risk-adjusted weighted average cost of capital)
NA	Non-operating assets (e.g. marketable securities, minority holdings and other investments that are not essential to operating the business)
D	Market value of debt

represents an investment-theoretic approach and is based on the discounted cash flow method. *Rappaport* was the first to present the concept in 1986 and made it popular for corporate valuation. He defines it as follows: *"It estimates the economic value of an investment by discounting forecasted cash flows by the cost of capital"* (*Rappaport* 1998, p. 32). *Figure 3* shows *Rappaport's* well-known formula for the estimation of the SHV (*Rappaport* 1998, pp. 32 ff.; *Day/Fahey* 1988, pp. 46 f.; *Copeland/Koller/Murrin* 2000).

As can be seen from *Figure 3*, the SHV falls into four components. In addition to the market value of debt assigned to the business and non-operating assets (*Copeland/Koller/Murrin* 2000), there are two crucial components. First, the present value of cash flows from operations during the forecast period that can be realistically predicted. And, second, the present value of the cash flows attributable to the period beyond the forecast period (continuing value CV, see *Doyle* 2000, p. 306). The latter is often calculated based on the assumption of constant cash flows. According to *Rappaport* (1998, pp. 32 ff.), the different payment streams and, thus, the SHV are determined by seven value drivers – an aspect which will be critically examined in the following.

3.2 *Critical Assessment of the Shareholder Value Concept*

A major point of criticism of the SHV is not targeted at its conceptual basis, but at the procedure typically put forward to estimate its subparts. Although the level of the SHV undoubtedly depends on the free cash flow (FCF) to a great extent, a lot of research efforts mainly address capital costs, investment structures or aspects of taxation (see, for example, *Eichmann* 1992; *Hachmeister* 2000; *Copeland/Koller/Murrin* 2000). In this context, the question of the trade off between opportunity costs resulting from the incorrect calculation of the discount rate and the faulty calculation of the FCF becomes evident. An exact prognosis of the FCF should be the primary objective of SHV calculations because of the inherent subjectivity of risk mark-ups and, hence, the discount rates.

According to *Rappaport* (1998), the FCF is influenced by the value drivers sales growth, return on sales (operating profit margin), income tax rate, incremental investments in fixed and working capital, weighted average cost of capital, and the value growth duration. These shareholder value drivers are hardly predictable and, for this reason, it is necessary to revert to the original causal factors of success underlying these drivers (*Hachmeister* 2000, p. 78; *Heskett/Sasser/Schlesinger* 1997; *Gregory* 1992). This aspect is indicative of the high aggregation level of the SHV concept. Without exploring the causal factors of the SHV drivers, they cannot be estimated (*Loveman/Heskett* 1999). However, only the first two value drivers mentioned above are of an operative nature. Yet even these metrics, sales growth and operating profit margin, lack a direct linkage to the critical factor 'customer' as the preliminary stage of value creation.

Only a close examination of operative marketing elements and success factors, such as customer satisfaction and customer profitability, permits an exact forecast and a profound evaluation with regard to corporate valuation. For this reason, the disaggregation of strategic aspects along with the prediction of the market value of a company – the FCF in particular – on a lower aggregation level is postulated in the literature (*Eichmann* 1992, pp. 69 and 172; *Gupta/Lehmann/Stuart* 2001, p. 2; *Gregory* 1992, pp. 44 f.). Instead of concentrating mainly on the formal calculation of the FCF, its value components (revenue and cost streams) have to be split up with regard to their different sources represented by different customer activities.

Rappaport (1998) himself seizes this problem and comments as follows: "*Without customer value there can be no shareholder value*" (*Rappaport* 1998, p. 76). For this reason, he thematizes – even though only marginally – the existence of preliminary micro value drivers which may be used for the operationalization of the seven macro value drivers on the level of operative marketing (*Rappaport* 1998, p. 171). However, no detailed explanation as to how the macro drivers may be determined on the basis of the

above-mentioned micro drivers is provided. Micro drivers of revenue are, for example, market share, market size and sales mix. The profit margin is influenced by retail prices, staffing levels, wage rates and raw material prices (*Rappaport* 1998, p. 172). On close examination, however, even these micro drives are not directly related to the customer. Aspects such as market share or size originate from a too high aggregation level and, hence, are not suitable for the exact prediction of customer profitability in heterogeneous markets.

The CLV concept overcomes these limitations by considering the customer as a scarce resource of the company with all his value-related effects and by paying attention to relations between the different micro drivers. Hereby, the CLV concept identifies success factors and potential dependences with the help of partial values. In this manner, expectations concerning customer satisfaction are integrated into the retention rate and activities of innovation are incorporated into the anticipated number of new customers won by new products or services.

Regardless of the actual definition of corporate value, the relationships with the customers and outcomes stimulated by customer management such as customer satisfaction or customer retention, always represent the initial stages of the profit chain (*Heskett/Sasser/Schlesinger* 1997). These initial effects render a customer valuable and finally determine the enhancement, acceleration, and volatility of cash flows (*Srivastava/Shervani/Fahey* 1999, pp. 173–177). In the sequel, the integration of the CLV and the SHV into a marketing-based model for the calculation of corporate value will be explained in detail. We will show how this integration accounts for reclaiming the customer in the field of corporate valuation.

3.3 *The Synthesis of Customer Lifetime Value and Shareholder Value Concept for Corporate Valuation*

Several scholarly works emphasize the importance of the customer value construct for a value-based management (*Blattberg/Deighton* 1996; *Payne/Holt/Frow* 2001; *Bayón/Gutsche/Bauer* 2002). Yet these research efforts do not focus on modeling the integration of customer and corporate valuation, but on the analysis of the customer value as a controlling and target variable in the field of customer relationship management. In the following, we will make it clear that the customer equity model we developed cannot be merely regarded as a key figure in relationship management, but also constitutes the central part of a company's overall cash flow and represents an important metric of corporate value. In this context, a formal synthesis of the SHV and the CLV for the purpose of corporate valuation is performed.

Both the CLV and the SHV draw on the discounted cash flow method and both account for a comparably long forecast horizon. For this reason, both approaches can be combined without great difficulty. Dissimilarities can be noted with regard to the level of aggregation; yet this aspect constitutes the complementary nature of both concepts and calls for a synthesis. While the SHV belongs to the realm of corporate valuation and is therefore located on a high, strategic level of aggregation, the CLV concept – due to its origin – is situated on the operative level (compare the study of *Hoekstra/Huizingh* 1999, which exclusively identifies operative areas of application with regard to the CLV).

The critical reflections on the SHV have already hinted at the fact that the strategic level needs to be concretized with the help of operative aspects. Accordingly, customer-related valuation procedures should be employed, drawing on more comprehensive, individual data with direct purchase behavior relevance (*Reinartz/Kumar* 2000, p. 19; *Gupta/Lehmann/Stuart* 2001, p. 6). This entails a significantly higher forecast quality in comparison to simple market volume or market share analyses, especially with regard to medium-term periods. These market analyses usually employ trend projections of the macro drivers.

■ Estimating the Free Cash Flow by using Customer Equity

Above all, the CLV makes a valuable contribution to the quantification of operating value drivers within the SHV concept, such as, for example, the sales growth rate and the profit margin, the two main components of the FCF. The CE developed in chapter 2 covers these drivers and, therefore, constitutes the lion's share of the FCF. The CE components comprise all cash in-flows in a differentiated way as well as all customer-attributable cash out-flows. They constitute the corporate value, with the exception of residual metrics such as fixed costs and the financial result – aspects which will be dealt with later.

Another value driver is the duration of value-creating growth, which is usually considered to be identical with the forecast period. Beyond this horizon, it is assumed that the cash flows are stable and can be summarized in a residual. The CLV method can serve as a tool for the quantification of the forecast period. The anticipated profit of a specific period provides precious hints as to how long returns above capital costs and thus value enhancement are possible. Yet, the electronic data processing system has to be sufficiently flexible to enable the aggregation of the customer profits per period across all customers, instead of calculating the value per customer across all periods. This can be achieved with the help of OLAP-cubes (*Berry/Linoff* 1999; *Link/Hildebrand* 1994). In this way, a purpose-neutral assignment and organisation of cost and revenue data can be performed, allowing for different kinds of subsequent analyses as well

as the estimation of costs and revenues not only with regard to customers, but also with regard to different products, business units or even the entire company.

■ Estimating the Residuals by using the Shareholder Value Method

All value drivers which are not covered by the CE model, but are sources of the FCF, have to be approximated using the traditional SHV method. Financial and taxation aspects belong to this category, namely income tax rate, changes of net working capital, incremental fixed capital investment, and capital costs. Another residual which can be ascribed to the value driver profit margin, but cannot be estimated using the CLV approach, are fixed costs that are not attributable to the individual customer. These marketing overhead costs (costs for brand management, costs of training the sales force or call center team, costs of market research including complaint management) and fixed product costs (manufacturing costs that can not be allocated to the customer via cost of sales) have to be dealt with separately.

Subsequently, the continuing value, too, has to be calculated according to the concept of SHV. The CLV and its components can merely provide hints concerning the further development beyond the planning horizon. Since the CLV approach of detailed prognosis does not appear reasonable here, the estimation of the continuing value will be performed under the common assumption of constant growth rates (e.g. with long-term brand strength that can be leveraged to future growth options) or the assumption that future cash flows are a perpetuity, that is an infinite stream of identical cash flows (*Doyle* 2000, p. 306).

■ Formal Synthesis of Customer Lifetime Value and Shareholder Value Concept

Merging the CLV method (here, in the form of the CE model) and the SHV method leads us to an integrative model to calculate the corporate value (see *Figure 4*).

The extended method presented in *Figure 4* shows the integration of CE into the traditional SHV formula. The CE is the customer equity metric developed in *Figure 2*, which is derived from the individual CLVs of current and future customers. The income streams which are generated by the customers are the main source of the FCF. The cash in-flows are represented by autonomous revenue, up selling and cross selling revenue, reference value as well as revenues from information, innovation and cooperation. Cash out-flows are acquisition costs, marketing costs, cost of sales, and termination costs.

The fixed costs represent one part of the residual value. The remaining parts investment in net working capital and investment in fixed capital as well as tax payments are factors well-known in the context of the common SHV approach. The same holds true

Figure 4

Customer Value-based Model for Corporate Valuation

$$\text{Corporate Value} = CE - \sum_{t=0}^{T} \frac{FC_t + InvWC_t + InvFC_t + Tax_t}{(1+d)^t} + \frac{CV_T}{(1+d)^t} - D$$

CE	Customer Equity of the company (see figure 2 for calculation)
t	Time index for the forecast period
T	Forecast period in years
d	Discount rate (cost of capital that is employed for marketing investments)
FC_t	Fixed costs in period t
$InvWC_t$	Net investments in working capital in period t
$InvFC_t$	Net investments in fixed capital in period t
Tax_t	Tax payments for cash flow in period t
CV_T	Continuing value
D	Market value of debt

for the continuing value towards the end of the forecast horizon and the market value of debt. The discount rate has to be regarded as identical for all elements, that is, the CE is also discounted along with the capital costs. Even though forecast uncertainty might call for a separate interest rate for discounting within the CLV model, a universal discount rate nevertheless guarantees consistency across all business functions. In this way, a discussion about the equal treatment of marketing investment as measured by the CLV is avoided.

The CLV-based valuation method can be performed for different purposes, such as, for example, the self-evaluation of a company in preparation for a management buy-out, resource allocation within a company and, in this connection, portfolio management of strategic business units. Especially the evaluation of an exterior company with the objective of a merger or acquisition requires a customer-based valuation. With

regard to the assessment of marketing-related synergies, the power of a CLV-based corporate valuation is particularly evident. When measuring the value of an exterior company using individual CLVs one can draw upon detailed publicly available information from annual reports and analysts' researches as well as financial statements (*Gupta/Lehmann/Stuart* 2001, p. 5). Those data include the number of current and past customers, growth rates, marketing expenditures, risk premium and capital costs. Additionally, in order to estimate the number of new customers acquired, industry specific retention rates can be used that are published in several studies (e.g. *Reichheld/Teal* 1996). To model the contribution per customer for future periods, analysts' forecasts for EBITDA margins can be added to the product of acquisition expenditures per customers multiplied with the number of new customers. As for the future periods going beyond the analysts' forecast period, constant growth rates for contribution can be assumed based on data about the market potential and market growth per year.

In the meantime, also the capital market has called for a more appropriate consideration of the customer base for corporate valuation and, in this context, for a synthesis of the SHV and CLV concepts (*Hall* 2002). In contrast to valuation methods employing the traditional SHV approach, our model provides a more detailed and valid prognosis of corporate value by accounting for marketing-related factors, ensuring a multifaceted analysis.

4. *Conclusion*

Marketing-related issues of valuation are gaining increasing attention (*Blattberg/Getz/Thomas* 2001). This development is rooted in the general trend of value-based marketing, which requires the substantiation of the contribution of marketing activities to a company's profitability. This procedure is more and more sought after and at the same time regulated by the financial markets. These developments represent an opportunity for underlining the significance of marketing for value creation (see *Bauer/Hammerschmidt/Staat* 2002 for a broad understanding of the value concept both from a customer and supplier perspective). This paper attempts to show how financial valuation approaches such as the SHV method might be improved by considering individual customers and their value generating activities. By merging the CLV and SHV concepts, our approach attempts to contribute to a more market-oriented valuation. While the traditional SHV method considers cash flows at a highly aggregated level to calculate the corporate value, our approach employs disaggregated cash flows on the level of individual customers (CLVs) as the basis for calculating the corporate value.

Indisputably, a comprehensive CLV-based corporate valuation is more complex than traditional SHV procedures. Yet, at the same time it facilitates more precise and reliable results and reduces the risk of miscalculation, thereby legitimating additional costs resulting from the implementation of CLV systems. Meanwhile, most companies consider a long-term customer value assessment as important and desirable. The major problems of the CLV calculation lie in the creation of customer-oriented data base and information systems, the adequate assignment of costs to the individual customer as well as problems of data procurement (see *Hoekstra/Huizingh* 1999 for an overwiew of barriers to the implementation of CLV systems). The more widespread the CLV concept becomes as a controlling tool in the operative sphere, the more easily corporate valuation efforts via CLV can be undertaken. The method we developed may serve as a starting point for the valuation of firms based on individual CLVs and may at the same time stimulate further research efforts in this field.

References

Bauer, H.H./Hammerschmidt, M./Staat, M. (2002): Analyzing Product Efficiency – A Customer-Oriented Approach, Working Paper W 57, Institute for Market-Oriented Management, University of Mannheim.

Bayón, T./Gutsche, J./Bauer, H.H. (2002): Customer Equity Marketing: Touching the Intangible, European Management Journal, Vol. 20, pp. 213–222.

Berger, P.D./Nasr, N.I. (1998): Customer Lifetime Value: Marketing Models and Applications, Journal of Interactive Marketing, Vol. 12, No. 1, pp. 17–30.

Berry, M.J.A./Linoff, G. (1999): Mastering Data Mining – the Art and Science of Customer Relationship Management, New York.

Blattberg, R.C./Deighton, J. (1991): Interactive Marketing: Exploiting the Age of Addressability, Sloan Management Review, Vol. 33, No. 1, pp. 5–14.

Blattberg, R.C./Deighton, J. (1996): Manage Marketing by Customer Equity, Harvard Business Review, Vol. 74, pp. 136–144.

Blattberg, R.C./Getz, G./Thomas, J.S. (2001): Customer Equity: Building and Managing Relationships as Valuable Assets, Boston.

Bolton, R.N. (1998): A Dynamic Model of the Duration of the Customer's Relationship with a Continuous Service Provider, Marketing Science, Vol. 17, pp. 45–65.

Bruhn, M. et al. (2000): Wertorientiertes Relationship Marketing: Vom Kundenwert zum Customer Lifetime Value (Value-Based Relationship Marketing: From Customer Value to Customer Lifetime Value), Die Unternehmung, Vol. 54, pp. 167–187.

Copeland, T./Koller, T./Murrin, J. (2000): Valuation: Measuring and Managing the Value of Companies, 3rd ed., New York.

Cornelsen, J. (2000): Kundenwertanalysen im Beziehungsmarketing – Theoretische Grundlegung und Ergebnisse einer empirischen Studie im Automobilbereich (Customer Value Analyses in Relationship Marketing – Theoretical Foundation and Results of an Empirical Study in the Automobile Industry), Nürnberg.

Day, G./Fahey, L. (1988): Valuing Market Strategies, Journal of Marketing, Vol. 52, (July), pp. 45–57.

Diller, H. (2002): Probleme des Kundenwerts als Steuerungsgröße im Kundenmanagement (Problems of Customer Value as a Controlling Measure in Customer Management), in: *Böhler, H.* (ed.): Marketing-Management und Unternehmensführung, Stuttgart, pp. 297–326.

Doyle, P. (2000): Value-Based Marketing, Journal of Strategic Marketing, Vol. 8, pp. 299–311.

Dwyer, R.F. (1997): Customer Lifetime Valuation to Support Marketing Decision Making, Journal of Direct Marketing, Vol. 11, No. 4, pp. 6–13.

Eichmann, K. (1992): Marketingorientierte Unternehmensbewertung – Absatzmärkte als Grundlage der Wertfindung (Marketing-Oriented Corporate Valuation – Sales Markets as a Basis of Value Creation), Augsburg.

Fischer, M./Herrmann, A./Huber, F. (2001): Return on Customer Satisfaction, Zeitschrift für Betriebswirtschaft, Vol. 71, pp. 1161–1190.

Gierl, H./Kurbel, T. M. (1997): Möglichkeiten zur Ermittlung des Kundenwertes (Approaches of Customer Value Estimation), in: *Link, J. et al.* (Eds.): Handbuch Database Marketing, Ettlingen, pp. 175–189.

Gregory, A. (1992): Strategic Value Analysis: The Danger of Oversimplification, Management Accounting, Vol. 70, No. 8, pp. 42–46.

Gupta, S./Lehmann, D.R./Stuart, J.A. (2001): Valuing Customers, Working Paper No. 01–119, Marketing Science Institute, Cambridge, MA.

Hachmeister, D. (2000): Der Discounted Cash Flow als Maß der Unternehmenswertsteigerung (Discounted Cash Flow as a Measure of Value Enhancement), 4th ed., Frankfurt/Main et al.

Hall, R. (2002): Linking Customer and Shareholder Value, ABA Bank Marketing, July/August, p. 9.

Heskett, J.L./Sasser Jr., W.E./Schlesinger, L.A. (1997): The Service Profit Chain, New York.

Hoekstra, J.C./Huizingh, E.K.R.E. (1999): The Lifetime Value Concept in Customer-Based Marketing, Journal of Market Focused Management, Vol. 3, pp. 257–274.

Homburg, Ch./Schnurr, P. (1998): Kundenwert als Instrument der wertorientierten Unternehmensführung (Customer Value as an Instrument of Value Based Management), in: *Bruhn, M./Baitsch, Ch.* (eds.): Wertorientierte Unternehmensführung, Wiesbaden, pp. 169–189.

Jackson, D. R. (1992): In Quest of the Grail: Breaking the Barriers to Customer Valuation, Direct Marketing, Vol. 55, No. 3, pp. 44–47.

Jones, T./Sasser Jr., W. E. (1995): Why Satisfied Customers Defect, Harvard Business Review, Vol. 73, pp. 88–89.

Keane, T. J./Wang, P. (1995): Applications for the Lifetime Value Model in Modern Newspaper Publishing, Journal of Direct Marketing, Vol. 9, No. 2, pp. 59–66.

Kim, B.-D./Kim, S.-O. (1999): Measuring Upselling Potential for Life Insurance Customers, Journal of Interactive Marketing, Vol. 13, No. 4, pp. 2–9.

Koehler, R. (1999): Kundenorientiertes Rechnungswesen als Voraussetzung des Kundenbindungsmanagements (Customer Oriented Accountancy as a Prerequisite for Customer Retention Management), in: *Bruhn, M./Homburg, Ch.* (eds.): Handbuch Kundenbindungsmanagement, 2nd ed., Wiesbaden, pp. 329–357.

Lilien, G./Kotler, P./Moorthy, K. S. (1992): Marketing Models, Upper Saddle River.

Link, J./Hildebrand, V. G. (1994): Database Marketing and Computer Aided Selling, Marketing ZFP, Vol. 16, pp. 107–120.

Loveman, G. W./Heskett, J. L. (1999): Service Profit Chain Research, in: *McCraw, T. K./Cruikshank, J. L.* (eds.): The Intellectual Venture Capitalist, Boston, pp. 197–220.

Mulhern, F. J. (1999): Customer Profitability Analysis: Measurement, Concentration, and Research Directions, Journal of Interactive Marketing, Vol. 13, No. 1, pp. 25–40.

Niraj, R./Gupta, M./Narasimhan, C. (2001): Customer Profitability in a Supply Chain, Journal of Marketing, Vol. 65 (July), pp. 1–16.

Payne, A./Holt, S./Frow, P. (2001): Relationship Value Management, Journal of Marketing Management, Vol. 17, pp. 785–817.

Peter, S. I. (1999): Kundenbindung als Marketingziel: Identifikation und Analyse zentraler Determinanten (Customer Retention as a Marketing Objective: Identification and Analysis of Central Determinants), 2nd ed., Wiesbaden.

Pfeifer, P. E./Carraway, R. L. (2000): Modeling Customer Relationships as Markov Chains, Journal of Interactive Marketing, Vol. 14, No. 2, pp. 43–55.

Rappaport, A. (1998): Creating Shareholder Value: A Guide for Managers and Investors, 2nd ed., New York etc.

Reichheld, F. F./Sasser Jr., E. W. (1990): Zero Defection: Quality Comes to Service, Harvard Business Review, Vol. 68, pp. 2–8.

Reichheld, F. F./Teal, T. (1996): The Loyalty Effect, Boston.

Reinartz, W. J./Kumar, V. (2000): On the Profitability of Long-Life Customers in a Noncontractual Setting: An Empirical Investigation and Implications for Marketing, Journal of Marketing, Vol. 64, (October), pp. 17–35.

Schmittlein, D. C./Peterson, R. A. (1994): Customer Base Analysis, Marketing Science, Vol. 13, No. 1, pp. 41–67.

Schmittlein, D. C./Morrison, D. G./Colombo, R. (1987): Counting Your Customers: Who Are They and What Will They Do Next?, Management Science, Vol. 33, (January), pp. 1–24.

Srivastava, R. K./Shervani, T. A./Fahey, L. (1999): Marketing, Business Processes and Shareholder Value, Journal of Marketing, Vol. 63, Special Issue 1999, pp. 168–179.

Staat, M./Bauer, H. H./Hammerschmidt, M. (2002): Structuring Product-Markets: An Approach Based on Customer Value, Marketing Theory and Applications, Vol. 13, No. 1, pp. 205–212.

Sullivan, L. P. (1986): Quality Function Deployment – A System to Assure That Customer Needs Drive the Product Design and Process, Quality Progress, Vol. 19, (June), pp. 39–50.

Wang, P./Spiegel, T. (1994): Database Marketing and Its Measurements of Success: Designing a Managerial Instrument to Calculate the Value of a Repeat Customer Base, Journal of Direct Marketing, Vol. 8, No. 2, pp. 73–81.