

CHAPTER 1

General introduction:

Relevance of customer relationships
as intangible firm assets

1.1 Introduction and research focus

The thesis at hand focuses on the valuation of dynamic customer relationships and its integration into the corporate performance management process to enhance firm performance. Specifically, the impact of customer valuation on firm performance, interdisciplinary character of customer lifetime value (CLV), antecedents of CLV, dynamic aspects of CLV modeling as well as the role of customer equity in marketing performance management are examined in five independent papers. The papers are presented in Chapter 2 – 6. Hence, this thesis contributes to literature and practice in key areas of marketing and accounting management: The discussion about performance impact of customer valuation, CLV antecedents, dynamic modeling of CLV, and cross-functional integration of CLV as performance metric. Thereby, the thesis addresses six concrete research goals.

The first research goal is to provide evidence for the performance impact of customer accounting. Past research has proposed strong theoretical arguments and empirical evidence on the link between CLV and firm performance in terms of shareholder value (SHV) (Bauer and Hammerschmidt 2005; Berger et al. 2006; Gupta, Lehmann, and Stuart 2004; Kumar and Shah 2009). However, researchers highlight that the link between CLV and SHV needs further investigation (Kumar, Lemon, and Parasuraman 2006). Specifically, we need a more detailed understanding of whether the use of advanced CLV models in the form of dynamic methods has an impact on firm performance (Berger et al. 2006). Also, the assumption that the use of customer valuation models may have a positive impact on firm performance remains yet to be tested (Bijmolt et al. 2010). By empirically analyzing the current use of customer accounting methods and their performance impact, the thesis addresses the following research question:

Research question 1: *Does the use of customer accounting methods in general and dynamic methods in particular affect firm performance?*

The second research goal is to examine the interdisciplinary differences between the marketing and management accounting discipline in terms of practical application of and academic research on CLV, and therefore, create a cross-functional understanding of the CLV concept. The implementation of CLV management requires systematic cross-functional cooperation of all areas of the company. As Holm, Kumar, and Rhode (2011, p. 11) point out: “key barrier to address [in CLV measurement] is the cross-functional collaboration required across parts of the organization like marketing and finance/accounting departments, departments that have traditionally been far apart.” Specifically, marketing managers need to develop a dialogue with management accountants to explore the cost side of the CLV equation (Gupta et al. 2006). However, only limited research has been dedicated to the synergy of marketing and management accounting in CLV analysis (Gleaves et al. 2008; McManus and Guilding 2008). Thus, by empirically analyzing interdisciplinary differences in the current usage of customer accounting and by providing an overview of past interdisciplinary research on CLV, the thesis addresses the following research question:

Research question 2: *Which differences exist between the marketing and management accounting discipline in terms of practical implementation of (2a) and research on CLV (2b)?*

The third research goal aims to provide empirical generalizations of the diverse findings from previous research on CLV antecedents. Despite the extensive research on CLV, the understanding of customer- and company-specific antecedents of CLV is still limited. Bolton, Lemon, and Verhoef (2004, p. 287) point out that “many studies have focused on a single industry or a limited number of marketing factors. Moreover, studies sometimes rely on self-report measures rather than on actual customer behavior.” In addition, past modeling approaches often ignore the effects of individual customer characteristics on CLV (Berger et al. 2002). However, “understanding both the drivers and the levers of [CLV] may provide more targeted guidance to managers tasked with improving the return on their relationship marketing investments” (Palmatier 2008, p. 76). Thus, recent research claims for further understanding of how marketing actions, customer’s behavior and attitudes affect CLV (Blattberg, Malthouse, and Neslin 2009; Bolton, Lemon, and Verhoef 2004). By systematically analyzing the results of prior studies and empirically evaluating the impact of customer- and firm-specific factors, the thesis addresses the following research question:

Research question 3: *Which customer- and company-specific factors determine CLV?*

The fourth research goal aims to develop a profit-based predictive segmentation approach, and thus, provide a starting point for effectively evaluating and monitoring customer segments. Market segmentation is essential for marketing managers “to target and acquire the ‘right’ customers, as well as spend retention dollars wisely, to maximize the value of the customer base” (Berger et al. 2002, p. 45). Thus, researchers demand models that value “a portfolio of customers and develop rules that guide the marketing manager to undertake actions that maximize the value of the portfolio rather than the value of the next-acquired customer” (Gupta et al. 2006, p. 150). Through the increasing data availability and new segmentation techniques, new opportunities for customer segmentation and customer selection approaches become possible (Kumar, Lemon, and Parasuraman 2006). Using predictive data mining models and identifying profit-segments over time, this thesis approaches the following research question:

Research question 4: *How can a segmentation model be designed that incorporates dynamic, customer- and company-specific components?*

The fifth research goal is to develop a dynamic CLV model that captures customer relationship dynamics and provides managerial guidance for marketing resource allocation. The customer relationship “is a dynamic entity whose value will change over time due to the evolution of the relationship or due to external factors” (Libai, Narayandas, and Humby 2002, p. 71). Thus, research claims to “move from static models of CLV to models that include customer dynamics and changes in customer segmentation over time” (Kumar, Lemon, and Parasuraman 2006, p. 93). Thereby, customer dynamics become increasingly important due to fast changing market environment and growing customer heterogeneity

(Johnson and Selnes 2004; Netzer, Lattin, and Srinivasan 2008). Some initial research has included customer dynamics in CLV measurement (e.g., Homburg, Steiner, and Totzek 2009; Rust, Lemon, and Zeithaml 2004). However, “more work needs to be done on the dynamic nature of customer relationships and customer value” (Hogan, Lemon, and Rust 2002, p. 10). Thus, by introducing a Markov-modulated dynamic CLV model, the thesis addresses the following research question:

Research question 5: *How can a dynamic CLV model be designed that enables the integration of customer dynamics and firm activities?*

Finally, the sixth research goal is to develop an understanding of customer equity as a key strategic performance metric by integrating customer equity in the performance management process. As firms adopt a CLV-oriented management approach, organizational processes and structures must be realigned around the goal of growing customer equity (Hogan, Lemon, and Rust 2002). The realignment will affect many aspects of the firm such as planning processes, performance requirements, budgets, and reward systems. Thus, additional research is needed to gain “a more complete understanding of how to integrate customer management strategy successfully throughout the firm” (Kumar, Lemon, and Parasuraman 2006, p. 92). By developing a conceptual customer equity-based performance management (CEPM) framework, the thesis approaches the following research question:

Research question 6: *How can corporate management integrate customer equity in an overall performance management process?*

The thesis at hand addresses these six research questions in five independent chapters. In chapter 2, the impact of customer accounting on firm performance and the interdisciplinary differences in the current usage of customer accounting are analyzed. Chapter 3 examines antecedents of CLV and past research on CLV in marketing and management accounting. Chapter 4 develops a predictive segmentation model that identifies profitable customer segment, customer profitability drivers and provides managerial guidance for resource allocation. Chapter 5 focuses on the development of a dynamic CLV model that integrates the dynamic nature of customer relationships and related customer and firm characteristics in the CLV calculation. Finally, chapter 6 conceptualizes an integrated CEPM framework, underlying the importance of customer equity as key strategic performance metric, and examines the relevance of permanent adjustments in strategy, resources, and capabilities according to this metric.

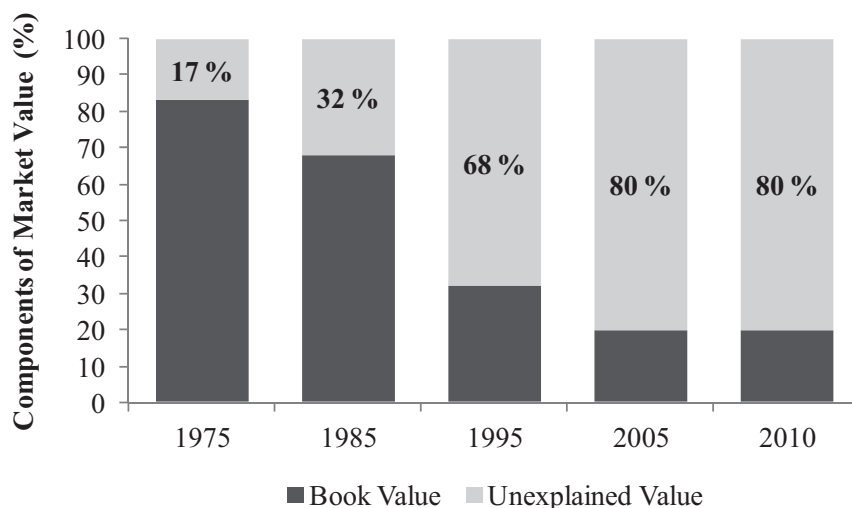
The next section of this chapter gives an overview of recent trends in firms’ asset composition as well as characteristics and modeling of CLV. Afterwards, a brief overview of managerial challenges inherent in CLV modeling in terms of customer dynamics and cross-functional integration is presented. Following this, a short summary of all five chapters included in this thesis is given. The chapter concludes with a short presentation of main findings and their implications for managers and academics.

1.2 Value-based management through customer lifetime value

1.2.1 Relevance of customer relationships as intangible firm assets

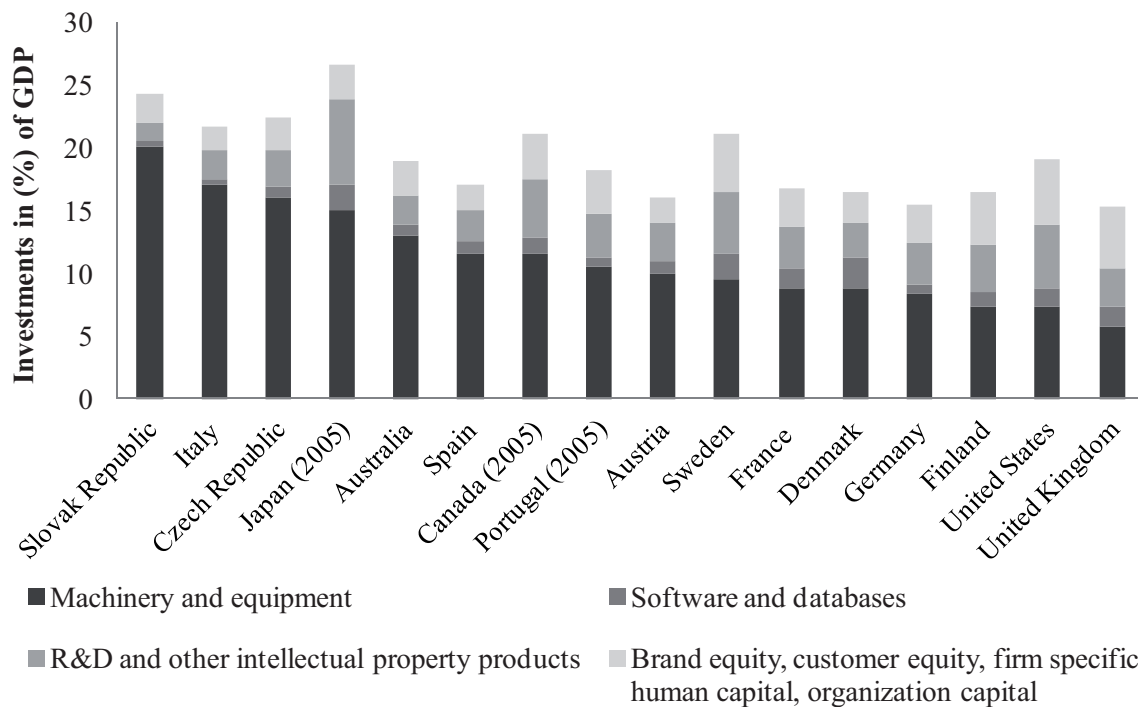
Due to global competition, advancements in information and communication technology, and the growing importance of the services sector, intangible assets, such as brand names, customer lists, customer relationships, trademarks and patents, have become increasingly important to achieve substantial and sustained competitive advantage (Eskildsen, Westlund, and Kristensen 2003; Lev 2001; Lev and Daum 2004; Möller, Piwinger, and Zerfaß 2009). The increasing importance of intangible assets is reflected in the rise of the proportion of off-balance-sheet assets to on-balance-sheet assets. About 30 years ago, the book value of the Standard & Poor (S&P) 500 companies composed about 80 percent of the market value. Nowadays, the book value only determines 20 percent of a firm's market value (see Figure 1.1).

Figure 1.1: Growing relevance of intangible assets in S&P 500 companies



Source: Ocean Tomo 2011.

This value gap indicates that intangible assets constitute a great proportion of the true value of the average firm. Thereby, the relevance of intangibles is not only limited to American firms as investments in intangible assets is growing rapidly in many OECD countries (OECD 2010). However, there are still differences between countries like the Slovak Republic that is still assigning a great proportion of total investments in machinery and equipment and countries like the United Kingdom or the United States that attribute high investments in intangible assets (see Figure 1.2).

Figure 1.2: Investments in tangible and intangible assets as a share of GDP (2006)

Source: OECD 2010.

The growing importance of intangible assets also leads to a need for new accounting approaches that provide more information on intangible assets. As Kaplan and Norton (1992, p. 71) point out “executives [...] understand that traditional financial accounting measures [...] can give misleading signals for continuous improvement and innovation.” As a consequence, the International Accounting Standards Board (IASB) has published an International Accounting Standard 38 (IAS 38) to prescribe the accounting treatment for intangible assets (IASB 2009). Thereby, firms may choose the cost or revaluation model to assess the value of intangible assets defined as identifiable nonmonetary assets without physical substance that are controlled by the entity as a result of past events and from which future economic benefits (inflows of cash or other assets) are expected (IAS 38.72; IAS 38.8). At the same time, researchers have attempted to formulate valuation methods measuring intangible assets and providing new-accounting metrics that can be used in conjunction with the already available financial metrics. Examples of these types of valuation methods include Balanced Scorecard approach (Kaplan and Norton 1992), Value Chain Scoreboard (Lev 2001), and Performance Prism (Neely, Adams, and Kennerley 2002). However, these measurement approaches do not provide concrete methods for customer asset valuation, and thus do not indicate estimates on the value of customer relationships. However, this measure of customer value is increasingly requested in practice and academia. This is also reflected by the past years research priorities of the Marketing Science Institute (2002-2010) that focused on assessing marketing productivity and marketing metrics (valuation of customers, measuring lifetime value, etc.).

1.2.2 Theoretical roots of customer lifetime value

The notion that customer relationships can be viewed as an asset is grounded in both the relationship-marketing paradigm (Hunt and Morgan 1995; Jackson 1985; Storbacka, Strandvik, and Grönroos 1994) and the resource-based view of the firm (Barney 1991; Hunt and Morgan 1995). The focus on customers as strategic assets has been initially driven by the relationship marketers that direct all marketing activities toward “establishing, developing, and maintaining successful relational exchanges” (Morgan and Hunt 1994, p. 22). Hence, relationship marketing focuses on a sequence of customer-firm interactions rather than on single transactions and emphasizes on maintaining and enhancing customer relationships (Storbacka, Strandvik, and Grönroos 1994). Consequently, the relationship marketing paradigm enhances the firm’s perspective on building long-term customer relationships and recognizing these relationships as a key marketing asset within the firm (Hunt 1997).

According to the resourced based theory, a firm can achieve sustained competitive advantage by holding resources and capabilities that are valuable, rare, inimitable, and non-substitutable (Barney 2001; Conner and Prahalad 1996; Day and Wensley 1988; Wernerfelt 1984). Thereby, managers increasingly concentrate on customers as key resources rather than on product lines. As stated by Rust, Lemon, and Zeithaml (2001, p. 3) “products come and go, but customers remain.” Thus, firms no longer view marketing expenditures as short-term expense in products but rather as an “investment in customer assets that create long-term value for the firm and its shareholders” (Hogan, Lemon, and Rust 2002, p. 4). As a consequence, customer relationships become a “super asset” (Hogan, Lemon, and Rust 2002, p. 7), whose value is derived from the way the firm chooses to combine its tangible and intangible resources, and thus close the gap between marketing actions and SHV.

1.2.3 Definition and key components of customer lifetime value and customer equity

This shift towards a value-oriented customer relationship management (CRM) has resulted in the customer equity management approach. In line with Blattberg, Getz, and Thomas (2001, p. 3) customer equity management can be defined as “a dynamic, integrative marketing system that uses financial valuation techniques and data about customers to optimize the acquisition of, retention of, and selling of additional products to a firm’s customers, and that maximizes the value to the company of the customer relationship throughout its life cycle.” Thus, customer equity management is perceived as a new marketing approach and not just a method for calculating the asset of customer relationships. This is also reflected by Lemon, Rust, and Zeithaml (2001, p. 25) who define customer equity as “a powerful new approach to marketing strategy, replacing product-based strategy with a competitive strategy approach based on growing the long-term value of the firm.”

Thereby, the customer equity approach is based on the CLV construct. While CLV reflects the long-term value generated by a customer during his/her relationship with the company (Gupta and Zeithaml 2006), customer equity represents, on an aggregated level, the sum of the lifetime values of all the present and future customers (Rust, Lemon, and

Zeithaml 2004).¹ The CLV measures the cash flows of a customer across the entire life cycle and thus considers customers as strategic assets that create long-term value for the firm (Bauer and Hammerschmidt 2005). From a financial perspective, the lifetime value approach is consistent with the capital budgeting model in which managers attempt to value projects using models such as the Capital Asset Pricing Model (CAPM) (Brealy and Myers 2000). Thus, customers can be seen as risky assets that may produce cash flow for the firm over time. As a consequence, the value of the customer asset is then “the expected risk-adjusted profits they produce over time including the acquisition, retention, expansion, and deletion costs” (Hogan et al. 2002, p. 27). However, contrary to discounted cash flow (DCF) approaches in finance, CLV is defined and estimated at an individual customer or segment level which allows for a differentiated rather than an average estimate of customer profitability (Gupta et al. 2006). Moreover, the CLV approach incorporates the possibility that customers may defect to competitors in the future.

The customers’ cash flows are determined by the revenues generated by the customer, the costs of serving and marketing to the customer and the relationship duration that represents the customer’s likelihood of continuing its relationship with the company (Blattberg, Malthouse and Neslin 2009). These four basic components of CLV are further influenced by (1) customer’s behavior (e.g. purchasing frequency, recency of purchase, cross-buying, multi-channel purchasing, customer referrals) (Campbell and Frei 2010; Fader, Hardie, and Lee 2005; Kumar, Petersen, and Leone 2010; Kumar and Venkatesan 2005; Larivière 2008; Reinartz and Kumar 2003; Venkatesan and Kumar 2004), (2) customer’s attitudes (e.g. customer satisfaction, value equity, relationship equity, brand equity) (Niraj et al. 2008; Rust, Lemon, and Zeithaml 2004), (3) customer demographics (e.g. age, income, lifestyle), and (4) firm’s marketing activities (e.g. price, promotion, product/services, distribution policy) (Homburg, Steiner, and Totzek 2009; Lee, Lin, and Chen 2010; Lewis 2005; Lewis 2006). Thus, CLV “not only influences the eventual allocation of marketing resources but also is influenced by that allocation” (Berger et al. 2002, p. 41).

To accurately model CLV, marketing researchers have developed a considerable number of CLV approaches so far (Gupta et al. 2006). However, a generally-accepted superior approach does not currently exist. The temporal perspectives and scope of measurement (individual or aggregate level) differ across customer valuation approaches. According to the time horizon, the methods can be divided in static and dynamic models.² Static CLV models, also referred to as customer profitability analysis, measure the absolute

¹ In this thesis, the focus is on asset value of customers from a firm’s standpoint, that is, customers’ lifetime value to the firm. Thus, we contrast our customer value metrics to the term of customer perceived value that represents “customers’ perceptions of the benefits they receive from a firm relative to what they give up in the form of monetary and nonmonetary costs” (Berger et al. 2002, p. 41). As such, throughout this thesis, the customer value construct represents the asset value of the customer.

² In this thesis, all approaches modeling the value of their customers are subsumed under the term of customer accounting (McManus and Guilding 2008). The terms customer accounting and customer valuation are used synonymously in the following.

and relative contribution of a customer over some defined past periods (Jacobs, Johnston, and Kotchetova 2001). A number of well-established methods such as contribution margin analysis, cash flow analysis, ABC analysis, or scoring models are used to assess the customer profitability (Forster and Gupta 1994; Mulhern 1999; Storbacka 1997; Zeithaml, Rust, and Lemon 2001). These methods still seem to be predominant in today's management practice (Homburg, Droll, and Totzek 2008; Rudolf-Sipötz and Tomczak 2001). In contrast, dynamic CLV models extend the time horizon of the analysis and include the future. Dynamic CLV models can be distinguished into recency, frequency, and monetary value (RFM) models, probability models (e.g. NBD/Pareto models, BG/NBD models), econometric models (e.g. logit models, hazard models, Markov models), persistence models (e.g. vectorautoregressive models), and computer science models (e.g. neural network models, decision tree models, and spline-based models) (Gupta et al. 2006).

However, the implementation of CLV models is subject to challenges of today's businesses in terms of dynamic and complex environments and existing cross-functional boundaries between the marketing and accounting departments within the organization.

1.3 Challenges confronting customer equity management

1.3.1 The challenge of customer behavior dynamics

For a successful implementation of customer accounting, managers need to evaluate and monitor the underlying causes for customer dynamics (Libai, Narayandas, and Humby 2002). As Hogan and colleagues (2002, p. 28) point out: "accounting for future customer dynamics, particularly those that represent changes in margin contribution or changes in the degree of a customer's loyalty, are critical to linking customer assets to shareholder value." Thus, the first challenge customer accounting faces is the uncertainty of CLV prediction. Even forecasting the cash flow from current customers is nontrivial as "adjusting for the risk associated with consumer behavior dynamics is a substantial issue for current customers and is even more difficult for valuing potential customers that have yet to be acquired" (Hogan et al. 2002, p. 27). In general, the uncertainty in CLV forecasting can be caused by the CLV model's failure to accurately reflect the real cash flow stream of all customers and by the stochastic nature of customers' behavior.

According to previous research, customers evolve over time and, consequently, become more or less valuable in future periods (Dwyer, Schurr, and Oh 1987; Homburg, Steiner, and Totzek 2009; Johnson and Selnes 2004; Mittal and Kamakura 2001). Thereby, reasons for changes in customer behavior can rely in the industry environment, firm's policy, or customer's structure and attitudes (Johnson and Selnes 2004; Keaveney 1995). In terms of industry structure, the intensification of competition and globalization causes higher customer switching probabilities due to the growth in number of companies offering high product and service variety worldwide (Cravens and Shipp 1991; D'Aveni 1994; Roos, Edvardsson, and Gustafsson 2004; Slater 1997). Moreover, the rate of technological change is very rapid and is often discontinuous rather than incremental, which leads to relatively short product lifecycles (Achrol 1991; Slater 1997). In addition, information

technology and knowledge have emphasized the environmental dynamism (Day 1994; Glazer 1991; Slater and Narver 1995). Research on customer switching behavior further identified changes in firm's policy as reasons for customer dynamics. Thereby, customers may switch the company due to perceptions of unfair pricing, insufficient service fulfillment, unqualified service personnel, small product portfolio, unethical marketing communication messages, or the closure of local stores (e.g., Keaveney 1995; Keaveney and Parthasarathy 2001; Roos, Edvardsson, and Gustafsson 2004). Moreover, weak relational bonds and low switching costs may enhance customer switching (Burnham, Frels, and Mahajan 2003; Chiu et al. 2005; Jones et al. 2007). Customer structure and attitudes may be further reasons for customer dynamics. As stated by Slater (1997, p. 163) "the face of the marketplace is changing rapidly due to the unprecedented magnitude of demographic and socioeconomic shifts." More specifically, markets have fragmented into numerous segments constituted by different value equations (Slater 1997). Thereby, customers constantly change value perceptions, making them "moving targets" (Flint 2004, p. 46). Taken together, the various reasons of customer behavior dynamics lead to an increasing dynamism and complexity of the market environment (Baum and Wally 2003; Holm, Kumar, and Rhode 2011; Mason 2007). Hence, managers face challenges of measuring an instable, fast changing and increasingly heterogeneous customer base.

As a consequence managers need to identify the causes for the time-related changes in customer behavior, to acquire, maintain, and enhance profitable customer relationships and proactively allocate firm resources accordingly (Gopinath 2005; Libai, Narayandas, and Humby 2002). Firms should align their marketing processes to match the external market conditions and changing customer behavior (Eisenhardt and Martin 2000; Teece, Pisano, and Shuen 1997). Thus, change resulting from adapting to environmental contingencies results in a dynamic management of customer relationships (Baum and Wally 2003; Sirmon, Hitt, and Ireland 2007). Thereby, an implementation of a truly dynamic CLV model may support firms to account for uncertainty surrounding relationships and accurately quantify dynamic customer relationships, and consequently, ensure a sustainable allocation of marketing resources.

1.3.2 The challenge of cross-functional customer lifetime value integration

The development of a cross-functional understanding and assessment of CLV is an additional challenge that customer accounting faces (Holm, Kumar, and Rohde 2011). Thereby, the interdisciplinary character of CLV at the interface of marketing and management accounting still hinders an integrated perspective and assessment of this performance metric in the overall management accounting system (Gleaves et al. 2008). From an academic perspective, research on customer accounting and CLV has been mainly driven by the marketing discipline. In contrast, management accounting research has devoted limited attention to customer accounting thus far (Foster and Gupta 1994; Gleaves et al. 2008; Guilding and McManus 2002; Luft and Shields 2003). From a managerial perspective, initial empirical findings also conclude that customer accounting is mainly anchored in the marketing or sales department (Rudolf-Sipötz and Tomczak 2001).

However, a greater communication and collaboration between the accounting and marketing function is essential.

First, essential information required for customer accounting is stored in both marketing and management accounting databases. While basic metrics required for customer accounting such as customer's costs and revenues are mainly provided by accountants (Proctor 1991; Sidhu and Roberts 2008), customer-related attributes such as customer retention, cross-selling, positive referrals or service usage are mainly stored in the marketing database (Mulhern 1999). Hence, if marketing managers cannot directly access information on costs and revenues, they need to rely on the collaboration of accounting managers. Second, to ensure the role of CLV as a strategic managerial control metric, it needs to be integrated in the overall management accounting system of a company to provide more sophisticated information that will not only facilitate decision making within marketing departments but will also facilitate co-ordination between functional departments (Atkinson, Kaplan, and Young 2003; Bouwens and Abernethy 2000; Horngren, Foster, and Datar 1997). The integration of CLV in a management accounting system will enhance the importance of CLV as a key performance metric. Thus, marketing managers should not evaluate and manage the lifetime value in isolation but rather exchange knowledge and metrics with management accountants.

1.4 Summary: Content of this thesis

Five independent papers will be presented in this thesis with regard to the performance impact, cross-functional character, determinants, segmentation, dynamics and performance management of CLV. In the next sections, a short summary of these five papers will be given together with a brief description of the theoretical background and their main findings. Thereby, the analysis is based on four different samples and a variety of analytical methods (see Figure 1.3).

Chapter 2 relies on cross-sectional data from 51 firms collected in 2011 to examine the performance impact and organizational anchoring of customer accounting by using moderated regression and t-test. To analyze the interdisciplinary research on CLV and the antecedents of CLV, Chapter 3 draws on existing literature on CLV using bibliometric analysis and meta-analysis. Chapter 4 relies on two independent longitudinal data samples of business-to-customer (B2C) business settings: an insurance firm and a lottery company. Thereby, profit segments are identified by classification and regression trees (CART) and predictive performance is examined by introducing comparative methods in the form of neural network and multiple regression models. To analyze the dynamics in customer relationships, Chapter 5 also relies on the two data samples of the insurance and lottery firm using CART models, and four variations of Markov models. Thereby, the time non-homogenous Markov models draw on the ROOT procedure, and the autoregressive integrated moving average (ARIMA) method. Finally, the empirical illustration of the strategic CEPM framework (Chapter 6) is based on the insurance data sample already used in Chapter 4 and 5 and includes the same analytical methods used in Chapter 5.