

# 5. The use and perceived managerial merit of customer profitability models in Norway

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**SAMMENDRAG** Formålet med dette kapitlet er å studere bruksgrader, nyttenivåer og sammenhenger mellom bruk og oppfattet nytte av kundelønnsomhetsmodeller. En litteraturgjennomgang avdekker fem modeller: lønnsomhetsanalyser av enkeltkunder, kundesegmentmodeller, livsløpsmodeller, verdsettingsmodeller og modeller der kunder sees på som investeringsobjekter. I tillegg studeres kundelønnsomhetsanalyser som et overordnet eller helhetlig begrep. På dette overordnede nivået er potensiell nytte tatt med i tillegg til bruk og oppfattet nytte. Konteksten er store norske selskap. Totalt ble 437 foretak invitert til å delta i en markedsundersøkelse. Det var 171 som svarte på spørreskjemaet, en responsrate på 39 %. Det avdekkes interaksjonseffekter mellom bruk, nytte og potensiell nytte, dvs. jo større bruk, desto større nytte og vice versa. For alle fem modellene finnes positive sammenhenger mellom bruk og oppfattet nytte, men to modeller peker seg ut: (1) kundesegmentmodeller og (2) kundelønnsomhetsanalyser av enkeltkunder. Imidlertid har kundelønnsomhetsanalyser av enkeltkunder sterkere relasjon til oppfattet og potensiell nytte på overordnet nivå enn det kundesegmentmodeller har. Et annet funn er at respondenter ikke sonderer mellom følgende modeller: livsløpsmodeller, verdsettingsmodeller og modeller der kunder sees på som investeringsobjekter. Artikkelen drøfter funnene, deres ledelsesmessige implikasjoner, peker på områder for videre forskning og tilbyr en konklusjon.

**ABSTRACT** The purpose of this paper is to study the extent of use, the level of perceived managerial merit and the relationships between use and perceived managerial merit of CPA-models. A literature review identifies five CPA-models: profitability models

of individual customers, customer segment models, customer lifetime models, customer valuation models, and models of customers as investments. In addition, CPA at an overall level (holistic notion) is analysed. At this level, perceived potential managerial merit is included in addition to use and perceived managerial merit. The context is large Norwegian companies. A total of 437 companies were invited to answer a questionnaire, of which 171 participated – a response rate of about 39%. There seems to be interaction effects between use and perceived merit, the higher the use, the higher the perceived merit and vice versa. Regarding all the five CAP-models, positive relationships are found between use and perceived merit, however, the strengths of the relationships are highest for customer segment models and profitability models of individual customers. However, the findings indicate that profitability models of individual customers have the strongest relationship with perceived managerial merit and perceived potential merit at the overall level. Another result indicates that managers have problems distinguishing between the following CPA-models: customer lifetime models, customer valuation models and customers as investment models. The paper discusses the findings, addresses managerial implications, makes suggestions for further research and offers a conclusion.

**KEYWORDS** customer profitability | customer profitability analysis (CPA) | customer profitability models | managerial merit | potential managerial merit

## **MERKNADER**

Forfatterne har ingen interessekonflikter.

## **5.1 INTRODUCTION**

Over the last few decades, there has been a growing interest in market-oriented managerial accounting (Ratnatunga et al. 1988; Ward 1992; Foster and Gupta 1994; Farris et al. 2010; Atkinson et al. 2012; Datar and Rajan 2018). Most attention has been directed to customer profitability accounting and analyses, cf. scientific articles, management accounting textbooks, and teaching cases (e.g., Anandarajan and Christopher 1987; Howell and Soucy 1990; Storbacka 1995; McManus and Guilding 2008; Atkinson et al. 2012; Horngren et al. 2015; Fang et al. 2016; Helgesen et al. 2018). The extent of managerial use of customer profitability analyses (CPA) has been addressed in a number of studies, however, usually at an overall level (an all-embracing approach), (e.g., Ratnatunga et al. 1988;

Abdel-Kader and Luther 2006; Helgesen and Voldsund 2009; Bjørnenak 2013). Few studies have addressed the extent of use and the perceived managerial merit of CPA both at an overall level and at the model level (Guilding and McManus 2002; Lord et al. 2007; Al-Mawali et al. 2012; Havelin et al. 2013; Tanima and Bates 2015). Presumably, greater insight into CPA figures should result in better decision support and increased usefulness and business performance (Helgesen 1999; Bjørnenak and Helgesen 2016). This paper addresses the extent of use, the level of perceived managerial merits as well as the relationships between use and perceived managerial merits of CPA both at an overall level and at the model level.

Based on a literature review, five CPA-models have been identified: (1) profitability models of individual customers, (2) customer segment models, (3) customer lifetime (value) models, (4) customer valuation models, and (5) models of customers as investments. The approach denoting customers as investments has not been included in any of the studies referred to above. By including a fifth CPA-model, this paper contributes to broaden the insight regarding CPA. Moreover, perceived potential managerial merit is included in addition to the use and the perceived managerial merit at an overall level (holistic), implying that the relationships between managerial use, perceived managerial merit and perceived potential managerial merit also are analysed both at an overall level and at the model-level.

This paper has two purposes. The first purpose is to study the relationships between the use and the perceived managerial merit of CPA both at the overall level (holistic) and at the model level. With respect to this purpose, two research questions are addressed: (1) What are the strengths of the relationships between use and perceived managerial merit? (2) At the overall level, what is the strength of the relationship between perceived managerial merit and potential perceived merit? The second purpose is to study the relationships between the use of the five CPA-models and the perceived managerial merit as well as the potential merit at the overall level. Thus, two additional research questions are addressed: (3) What are the strengths of the relationships between the use of each of the five CPA-models and the perceived managerial merit at the overall level? (4) What are the strengths of the relationships between the use of each of the five CPA-models and the potential perceived merit at the overall level?

This is an empirical paper that aims to contribute by adding evidence. The context is large Norwegian companies taken from a register published each year, which gives an overview of the 500 largest Norwegian companies. Four hundred and thirty-seven companies were invited to answer a questionnaire, of which 171 participated, giving a response rate of 39.1%.

The rest of the paper is organized as follows. The next section gives a brief literature review, followed by a brief discussion of the context, the data and the methodology. Next the results are presented along with a discussion of the findings, managerial implications, limitations and implications for further research. Finally, the paper offers a conclusion.

## 5.2 LITERATURE

### 5.2.1 PERCEIVED MANAGERIAL MERIT (PERFORMANCE)

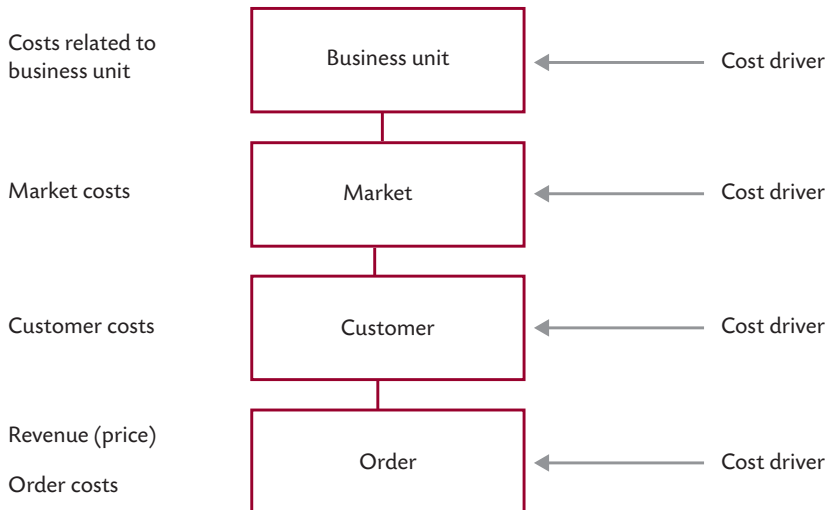
In order to study relationships between the use of CPA and performance, there is a need for a measure representing performance. Business performance may be described, defined and measured in various ways (Eccles 1991; Neely et al. 1995; Kaplan and Norton 2004; Richard et al. 2009). With respect to the analyses of relationships between managerial accounting tools (such as CPA) and business performance, former studies have applied different performance measures such as (perceived) usefulness (e.g., Mia and Chenhall 1994; Lev et al. 2010; Belso-Martínez et al. 2013; Costantini and Zanin 2017), (perceived) managerial merit (e.g., Guilding and McManus 2002; Lord et al. 2007; Havelin et al. 2013; Tanim and Bates 2015), multiple performance measures (Govindarajan 1984; Gupta and Govindarajan 1984; Neely and Adams 2002; Bjørnenak 2013), or organizational performance as an all-embracing measure (Varadarajan and Ramanujam 1990; Richard et al. 2009; Al-Mawali et al. 2012; Helgesen et al. 2018). This paper uses perceived managerial merit as a proxy (measure) of performance.

### 5.2.2 CUSTOMER AND CUSTOMER PROFITABILITY MODELS

In a distribution channel or value chain, there are customers at the various links from suppliers of raw material to consumers or end users. The various intermediaries (producers, wholesalers, retailers, etc.) have suppliers and customers. Some are suppliers of suppliers and others are customers of customers. Thus, the definition of the construct denoted “customer” is not straightforward. However, with respect to customer profitability accounting and analyses (CPA), a customer is defined as the direct buyer of products or services of a business (Helgesen 2007). Five CPA-models have been identified. These models are linked together in various ways as addressed below. In addition to CPA-models, customer accounting and analyses as a holistic notion is briefly addressed.

### 5.2.3 MODELS FOR INDIVIDUAL CUSTOMERS

Profitability models of individual customers estimate the customer results (profits) based on historical data of revenues and costs for one or more periods, such as the previous year or month and hitherto this year. Customer revenues are the sum of incomes of all relevant invoices for the given time period. Customer costs can be established by using different cost estimation methods: (1) full costing, (2) variable costing, (3) activity-based costing (ABC), or (4) time-driven (or capacity-driven) activity-based costing (TDABC). (Standard costs may also be used (Ryals 2008)). These methods will of course tend to result in different designs of the specified models. However, the most important aspect to remember is that different approaches result in different estimates of customer profitability. TDABC gives the most detailed approach and appears to be very useful with respect to customer profitability analyses of individual customers (Kaplan and Anderson 2004; Everaert et al. 2008a; Everaert et al. 2008b; Demeere et al. 2009). Based on a TDABC approach, individual customer profitability analyses may provide detailed and reliable customer profitability figures.



**FIGURE 5.1** Market hierarchy for order-handling marketing companies.

The ABC-approach came into focus because of the size and the composition of the indirect costs (Brimson 1991; Cooper and Kaplan 1999; Østebø and Helgesen 2014). According to this approach indirect costs are allocated to various cost hierarchy-related objects in proportion to the use of different activities. With respect

to products (production) the following four levels of a hierarchy are often considered for cost assignments: (1) unit level activities, (2) batch activities, (3) product sustaining activities, and (4) product line activities (Atkinson et al. 2012). Figure 5.1 shows an analogous hierarchy for market levels: (1) order activities, (2) customer activities, (3) market activities, and (4) business unit activities. This hierarchy is best suited for the order handling industry; however, it can be adjusted and refined to be suited for other industries, including service industries such as the banking industry. Figure 5.1 also illustrates the assignment of costs to the different levels and reflects a market-oriented accounting framework. Both the direct and the indirect costs are assigned to the level where they are incurred (orders, customers, markets, etc.). All the revenues are related to the order level. The costs of the orders are subtracted from the revenues from orders. In this way the order result can be estimated for each order. Then revenues and costs from orders are transferred to the customer level. The customer result for a given period is the aggregate revenues from orders related to the actual customer less the aggregate costs related to the orders as well as the costs related to the customer. Then revenues and costs from the customers are used on the market level. The market result for a given period is the aggregate revenues from the customers that are related to the actual market less the aggregate customer and the market related costs. Analogously the result of the strategic business unit is estimated.

In order to trace the costs, it is necessary to go into details. This implies the need to study all accounts, all vouchers and all items. With respect to cost items the task is to classify all traceable costs (direct costs) and assign the costs to the right level of the market hierarchy. The remaining costs may be addressed as indirect costs (fixed costs that are divisible) and assigned to the different levels of the market hierarchy by way of TDABC (Kaplan and Anderson 2007). Most often the design and use of customer profitability accounting will be industry specific. Nevertheless, there are some common concepts that may help in the design of a customer profitability report. Table 5.1 presents a model that includes the main concepts based on a TDABC-approach. Analogous models can be established for the other levels of the hierarchy (Helgesen 2007; Bjørnenak and Helgesen 2013).

**TABLE 5.1** Profitability model for individual customers (model 1)

		NOK	%
	Customer income (customer revenue) (CI)	1 021 690	100,00
–	Customer income (revenue) reductions	400	0,04
=	Net customer income (revenue)	1 021 290	99,96
–	Direct customer product costs	923 480	90,39
=	Customer product margin (CPM)	97 810	9,57
–	Direct order-related marketing costs	71 170	6,96
–	Direct customer-related marketing costs	370	0,04
=	Customer direct margin (CDM)	26 270	2,57
–	Indirect order-related costs	8 090	0,79
–	Indirect customer-related costs	2 100	0,21
=	Customer operating margin (COM)	16 080	1,57
–	Direct customer-related capital costs	8 360	0,82
=	Customer result (CR)	7 720	0,75

The presented customer profitability model is very simple, thus only giving an overview. Of course, much more detailed information regarding revenues and costs may be included. Even more important, the model has to be adjusted in accordance with the information that is needed for decision making. Thus a model for a bank would be different from the model presented above, however the leading principle is still the same implying that all revenues and all relevant costs are included. The managerial accounting system may be extended to include balance sheets, budgets and key measures for each of the customers and also for instance, information regarding the solvency of each customer (Helgesen 2008a). The classification of customers with respect to creditworthiness, that is the customers' rating codes, may be looked upon as supplementary information or incorporated in the customer accounts. In this way the profitability figures may be risk-adjusted. Of course, there is a lot of information that can be included in the customer data base of a business unit.

Profitability models of individual customers assign costs to the profitability and cost objects based on a thorough and time-consuming work. Thus, this approach may be characterized as being bottom-up. This may be elaborated ad hoc or as part

of the ongoing management accounting system of a business unit (Helgesen 2007; Bjørnenak and Helgesen 2009).

#### 5.2.4 MODELS FOR CUSTOMER SEGMENTS

While models for individual customers have a bottom-up approach, customer segment models usually have a top-down approach. The profitability object is now the individual customer segment and not the individual customer (Ryals 2008). Various characteristics are used as segmentation variables for both consumer and business markets. For consumer markets, the types of segmentation most often used are based on variables related to geographical, demographic, psychographic and behavioural characteristics. For business markets, additional types of segmentation have been introduced, for example industry sector, buying process characteristics, structure of procurement or buyer-seller relationships (Helgesen 2006a).

**TABLE 5.2** Profitability model for customer segments (model 2)

<b>NOK</b>	<b>Segment A</b>	<b>Segment B</b>	<b>Segment C</b>	<b>Total</b>
Revenues	200 000	200 000	100 000	500 000
Direct costs	115 000	100 000	40 000	255 000
Indirect costs	80 000	80 000	40 000	200 000
Total segment costs	195 000	180 000	80 000	455 000
Customer segment result (NOK)	5 000	20 000	20 000	45 000
Customer segment result (in %)	2.50	10.00	20.00	9.00

Thus, the top-down method starts from the total customer base and establishes revenue and cost figures for the customer segments (groups). Table 5.2 presents a profitability model for customer segments (model 2). In this example indirect costs are assigned to the various segments as a proportion of the revenues (40%). When indirect costs (fixed costs) represent a large proportion of the total costs, a top-down approach may result in unreliable cost allocation to the customer segments (Howell and Soucy 1990; Ryals 2002). Thus, customer segment profitability reports may be unreliable. In addition, the analyses do not give insight into the customer profitability of individual customers except for conclusions that might be drawn based on the average figures of customer segments.



Customer segment profitability reports may also be established based on customer profitability analyses of individual customers. When detailed information is available, this may be aggregated in different ways (Helgesen 2006a, 2008a).

Models for individual customers and models for customer segments focus on past revenue and cost figures. Thus, there are limitations to customer profitability figures that reduce their usefulness for decision-making. The past may not be a good guide to the future.

### 5.2.5 MODELS FOR CUSTOMER LIFETIME VALUE

When estimating customer lifetime value (CLV), the focus is on each customer and future cash flows (Berger and Nasr 1998; Ryals 2002; Cokins et al. 2013). “Customer lifetime value refers to the net present value of future profit from a customer. The beauty of the metric lies in the fact that it is forward-looking, unlike traditional measures based on passed contributions to profit. Hence, it enables marketers to adopt the right marketing activities today to increase future profitability” (Kumar 2008, p. 4). “Customer lifetime value is the expected value of the future relationship with that customer” (Ryals 2008, p. 87). CLV may be calculated as the net present value of future cash flows (Berger and Nasr 1998; Gupta and Lehmann 2003; Kumar 2008; Farris et al. 2010). Model 3 illustrates how customer lifetime value may be calculated for Customer C.

$$\text{Model 3: } NV(C) = \sum_{t=1}^T \frac{E(i_t - o_t)}{(1 + c_t)}$$

This financial model (approach) with respect to the estimation and the evaluation of long-term customer profitability is based on four topics:

1. The composition of the customer cash flow over time ( $i_t - o_t$ ), where  $i_t$  represents the incoming cash flow for one time period and  $o_t$  the outgoing cash flow for the same time period.
2. The inclusion of uncertainty (risks) regarding the customer cash flow ( $E$ ).
3. The cost of capital ( $c_t$ ).
4. Time horizon ( $T$ ).

When estimating CLV, at least the following information is needed: (1) the remaining customer lifetime (time horizon, e.g. in years), (2) the net cash flow for these years (i.e. incoming and outgoing cash flows) and (3) the cost of capital. Risks such as credit risks may also be included (Helgesen 2008a, Brodtkorb

2014). A number of CLV methods are available (Gupta and Lehmann 2005; Kumar 2008; Rust et al. 2011).

### 5.2.6 MODELS FOR CUSTOMER VALUATION

When assessing the customer value (CV), externalities may also be evaluated (Helgesen 1999). External effects relate to the consequences of an action by one entity or group of entities as they have an impact on others. This implies that the customer relationship explicitly or implicitly influences the cash flow of other customers' relationships with the business unit. Model 4 illustrates how customer lifetime valuation may be calculated for Customer C when externalities ("Net external effects") are included as part of the equation.

$$\text{Model 4: } NV(C) = \sum_{t=1}^T \frac{E(i_t - o_t) + (\text{Net external effects})_t}{(1 + c_t)^2}$$

The customer valuation model (model 4) is based on five topics, that is the four topics addressed above (see model 3) and the net external effects. External effects may be positive or negative, implying that the "real" customer value (CV) may be higher or lower than the customer lifetime value (CLV).

Various externalities have been addressed in literature such as attraction, learning and volume (van Raaij 2005). Attraction may be split into references and referrals (Ryals 2008). Some well-known customers can serve as references for the acquisition of new customers and some customers may speak positively and thus act as advocates for the business (Helm and Salminen 2010; Jalkala and Salminen 2010). According to Ryals (2008), learning and innovation may be perceived as being linked together. Learning and innovation may include shared information, process innovation, product testing and benchmarking. Thus, learning and innovation may increase revenues and/or reduce costs for the company. It should be mentioned that in addition to "customer value", this approach has been denoted "strategic value" (van Raaij 2005), "relational value" (Ryals 2008) and "customer equity" (Tanima and Bates 2015).

### 5.2.7 MODELS FOR CUSTOMERS AS INVESTMENTS

The two first models addressed (customer profitability analyses of individual customers and customer segment models) have a retrospective approach, and the next two (customer lifetime value and customer valuation) a prospective approach. Customer as investment models combine these perspectives. This approach

focuses on the whole lifetime of a customer relationship (i.e. “from the cradle to the grave”). Thus, model 5 may be defined as follows:

$$\text{Model 5: } NV(C) = NV(C)_{t_0} + \sum_{t=1}^T \frac{E(i_t - o_t)}{(1 + c_t)^t}$$

Model 5 is based on five topics, that is the four topics of model 3 representing the net cash flow in the future and a fifth one representing the net present value of the relationship hitherto. Of course, “Net external effects”, cf. model 4, may also be included in model 5. If the first part ( $NV(C)_{t_0}$ ) is negative, it may be looked upon as an investment for the future. Often the net present value may be negative in the beginning of a relationship, however, this should change sign over time (Reinartz and Kumar 2000; Irvine et al. 2016). This is often the situation in business-to-business relationships, but is also relevant for the private sector (Reichheld 1996; Egan 2008). These “investments” are usually denoted acquisition costs, and are often compared with retention costs of customers. Insight into acquisition and retention costs may help decision makers to make the right decisions so customer profitability is achieved (Reinartz et al. 2005; Egan 2008).

Calculations may be carried out in various ways (Rust et al. 2000; Gupta and Lehmann 2005; Kumar 2008; Ryals 2008), both for customer segments and individual customers. Insight regarding the past may be useful with respect to the customer management for the coming periods, for example by establishing budgets for each customer account (Helgesen 2007).

### 5.2.8 CUSTOMER PROFITABILITY ACCOUNTING AND ANALYSES AS A HOLISTIC NOTION

Above, five CPA-models have been briefly addressed. Owing to the fact that the subject is rather “new”, an over-arching construct that intends to define the subject area is included as is often done in former studies (Guilding and McManus 2002; Tanima and Bates 2015). This holistic notion or construct has been labelled “customer accounting” and may be defined as “the process of identifying, measuring, communicating and reporting economic information relating to a customer or customer group” (McManus 2013, p. 140). Various approaches and measurements may be used. “Customer profitability measurements models are means of quantifying an individual customer’s or a group of customers’ contribution to the financial performance of the firm. Hence, any customer metric incorporating financial outcomes such as profits or cash flows at the customer or segment level are to be in this categorization” (Holm et al. 2012, p. 388). This implies that “customer

accounting includes all accounting practices towards appraising profit, sales, or present value earnings relating to a customer or group of customers” (Guinding and McManus 2002, p. 48).

### 5.2.9 SOME FORMER STUDIES

Some former studies have addressed the extent of use of CPA-models, usually in combination with other concepts and variables such as perceived managerial merit. Below, the findings of five former studies are briefly addressed: Guinding and McManus (2002), Lord et al. (2007), Al-Mawali et al. (2012), Havelin et al. (2013) and Tanima and Bates (2015). The contexts of the studies are businesses in Australia, Jordan, New Zealand (two studies) and Norway. Table 5.3 presents the main findings regarding the extent of use and the perceived merit of CPA-models.

Guinding and McManus (2002) report the frequency and managerial merit of customer profitability practices. Based on a literature review, the two authors assert that this study is the first one that addresses customer profitability practices. The following five “dimensions” were included in the study: (1) individual customer profitability analysis, (2) customer segment profitability analysis, (3) lifetime customer profitability analysis, (4) valuation of customers or groups of customers as assets, and (5) customer accounting (i.e. the holistic notion). Data were collected via a mailed questionnaire survey. The initial sample comprised the top 300 Australian listed companies measured by market capitalization. The final adjusted sample size was 251 companies of which 148 usable responses were received representing a response rate of 49.4%. All the perceptual items of the questionnaire were measured at a Likert-scale from “1” to “7”, where “1” represented the lowest level (“not at all”) and “7” the highest level (“to a large extent”).

Lord et al. (2007) replicate Guinding and McManus (2002) in a New Zealand context. The questionnaires were mailed both to the chief financial officer (CFO) and the marketing manager (CMO) of all the 143 organisations listed on the NZ stock exchange. There were 70 usable responses, 47 from CFOs and 23 from marketing managers. Thus, the response rate was 24.5%. The usage and perceived merit of customer accounting practices were lower in New Zealand than in the Australian study.

**TABLE 5.3** Five former studies' findings regarding the extent of use and managerial merit of customer profitability models

	<b>Guilding and McManus (2002)</b>	<b>Lord et al. (2007)</b>	<b>Al-Mawali et al. (2012)</b>	<b>Havelin et al. (2013)</b>	<b>Tanima and Bates (2015)</b>
Scale used	1–7 <sup>a</sup> )	1–7 <sup>a</sup> )	1–7 <sup>a</sup> )	1–7 <sup>b</sup> )	1–7 <sup>a</sup> )
<i>Customer accounting as a holistic notion:</i>					
Use	4.22	3.08	–	5.17	–
Perceived merit	5.21	3.82	–	5.34	–
Perceived potential merit	–	–	–	5.96	–
<i>Customer profitability models:</i>					
<i>Use:</i>					
Profitability models of individual customers	4.03	3.98	5.02	4.74	4.30
Customer segment models	4.12	3.70	–	5.44	4.55
Customer lifetime models	2.64	2.37	4.14	3.57	2.65
Customer valuation models	2.58	2.58	3.23	4.39	2.05
Customers as invest- ments models	–	–	–	–	–
<i>Managerial merits:</i>					
Profitability models of individual customers	5.08	4.86	–	5.44	5.36
Customer segment models	5.28	4.35	–	5.86	5.59
Customer lifetime models	4.38	3.57	–	4.27	4.30
Customer valuation models	4.19	3.56	–	4.54	3.48
Customers as invest- ments models	–	–	–	–	–

	<b>Guilding and McManus (2002)</b>	<b>Lord et al. (2007)</b>	<b>Al-Mawali et al. (2012)</b>	<b>Havelin et al. (2013)</b>	<b>Tanima and Bates (2015)</b>
<i>Context:</i>	<i>Australia:</i> 300 largest companies. Sampling frame: 251 companies	<i>New Zealand:</i> All compa- nies listed at NZSX. Sampling frame: 143 compa- nies	<i>Jordan:</i> Service companies at Amman Stock Exchange. Sampling frame: 192 compa- nies	<i>Norway:</i> 300 largest companies. Sampling frame: 233 companies	<i>New Zealand:</i> All compa- nies listed at NZSX. Sampling frame: 145 compa- nies
Response rate:	49.4%	24.5%	55.2%	22.7%	32.4%

a) From 1 (not at all) to 7 (to a large extent). b) From 1 (to a small extent) to 7 (to a large extent), however, the respondents had an additional alternative: not used

Al-Mawali et al. (2012) address the relationship between customer accounting (CA) information usage and organizational performance, thus the study does not report the managerial merit, only the levels of use. Three CA methods were included and measured using a number of items (statements on a seven-point Likert scale): (1) customer profitability analyses of individual customers (six items), (2) customer lifetime value analysis (six items), and (3) customer valuation (five items). All the perceptual items of the questionnaire were measured at a Likert-scale from “1” to “7”, where “1” represented the lowest level (“not at all”) and “7” the highest level (“to a large extent”). The context is service companies listed on Amman Stock Exchange 2009, that is 192 companies. The sample represents 55.2% of this population (sample frame).

Havelin et al. (2013) address two levels of customer profitability analyses, first at an overall level and next at the model level. At the holistic level, three concepts are included: (1) use, (2) perceived merit, and (3) perceived potential merit. This latter concept was not included in the former studies. Four CPA-models are included: (1) individual customer profitability models, (2) customer segment models, (3) lifetime customer profitability models, and (4) valuation of customers as assets. Information of the 300 largest companies in Norway were studied, resulting in an adjusted list of 233 companies. All these companies were contacted. Fifty-three usable responses were received representing a response rate of 22.7%. All the perceptual items of the questionnaire were measured on a Likert-scale from “1” to “7”, where “1” represented the lowest level (“to a small extent”)

and “7” the highest level (“to a large extent”). Thus, the anchors of the scale are different from the four other studies presented in table 5.3.

Tanima and Bates (2015) replicate Guilding and McManus (2002) in a New Zealand context. This is done because the two prior papers (Guilding and McManus 2002; Lord et al. 2007) disclosed contrasting results on the use and perceived merit of customer accounting practices in Australia and in New Zealand. The focus of the study is the model level where the following four models are included: (1) individual customer profitability analysis, (2) customer segment analysis, (3) lifetime analysis, and (4) customer equity (i.e. the same as the valuation of customers or groups of customers as assets). All the 145 companies listed on the NZ stock exchange were contacted. A mail questionnaire survey was used to measure the use and perceived merit. There were 44 usable responses, 37 from CFOs and seven from marketing managers. Thus, the response rate was 32.4%. The usage and perceived merit of customer accounting practices seem to be higher in New Zealand than found by Lord et al. (2007) and similar to those found in Australia in 2002.

Thus former studies have examined four of the five CPA-models that have been identified in this paper: profitability models of individual customers, customer segment models, customer lifetime (value) models and customer valuation models. The model denoting customers as investments has not been included in any of the studies referred to above. By including a fifth CPA-model, this paper contributes to broaden the insight regarding CPA. Besides, only one former study has included perceived potential managerial merit in addition to the use and the perceived managerial merit at an overall level (holistic). Thus, this paper analyses the relationships between managerial use, perceived managerial merit and perceived potential managerial merit both at the model-level and an overall level.

### 5.3 CONTEXT, DATA AND METHODOLOGY

The context of this study is large Norwegian companies taken from a list (Proff Forvalt 2015) published in the newspaper Dagens Næringsliv. This register gives an overview of the 500 largest Norwegian companies based on revenues and is published each year. Some companies were excluded (health companies, holding companies, etc.) owing to the fact that CPA-models were not relevant for those industries, implying that the revised list consisted of 437 companies (sample frame). These companies were invited to participate in the project.

A total of 171 questionnaires were answered, representing a response rate of 39.1%. The companies are from 15 different industries. According to information

in the questionnaires, the yearly revenues were on average about NOK 5.7 billion. The composition of the sample largely corresponds with the composition of the sample frame of 437 companies. Thus, it may be asserted that the sample is representative of the population (the sample frame). CFOs of the companies were the most frequent respondents (76%). However, the other respondents also represented the top management teams of the companies, suggesting that all the respondents should have perfect insight into the subject area of this paper.

At the start of the questionnaire the purpose of the study was briefly described. All the concepts included were explained before they were addressed in the questionnaire. The respondents were initially asked about the extent of use of customer profitability analyses (CPA) as a total appraisal (holistic notion): "Please, indicate the extent of use of customer profitability analyses the last three years". Next, the respondents answered analogous questions regarding the perceived merit and the potential merit of CPA. It was underscored that these items in the questionnaire were meant to embrace all kinds of customer profitability analyses. Next, the five CPA-models were described in accordance with the discussion in part two above. The following questions were asked: "Please indicate to what extent the following CPA-models have been used during the last three years: (1) customer profitability analysis of individual customers, (2) profitability analysis of customer segments, (3) customer lifetime value, (4) customer valuation, and (5) customers as investments. Five statements (items) were included to validate the measurements of each of the five CAP-models: (1) the basis of our CPA is individual customer profitability analysis, (2) our CPA is solely based on calculations of customer segments, (3) when doing CPA, we use net present value calculations, (4) when doing CPA, we also include external effects, and (5) when doing CPA, we consider both the past and the future. All the five correlation coefficients are significant at the 0.001 level. Analogous questions were asked regarding the perceived merit of each of the five CPA-models. All the perceptual items of the questionnaire were measured at a Likert-scale from "1" to "7", where "1" represented the lowest level ("to a small extent") and "7" the highest level ("to a large extent"). Thus, the anchors of the scale are the same as in the study of Havelin et al. (2013), however different from the four other studies presented in table 5.3.

## 5.4 RESULTS

### 5.4.1 USE, PERCEIVED AND POTENTIAL MERITS – DESCRIPTIVE STATISTICS

Table 5.4 presents the responses of the managers of the 171 companies, that is the descriptive statistics of the variables (items). The first part addresses CPA as a



holistic notion: the use, the perceived managerial merit and the potential managerial merit. The second part presents the use of the five CPA-models and the third part the perceived managerial merit of the five CPA-models.

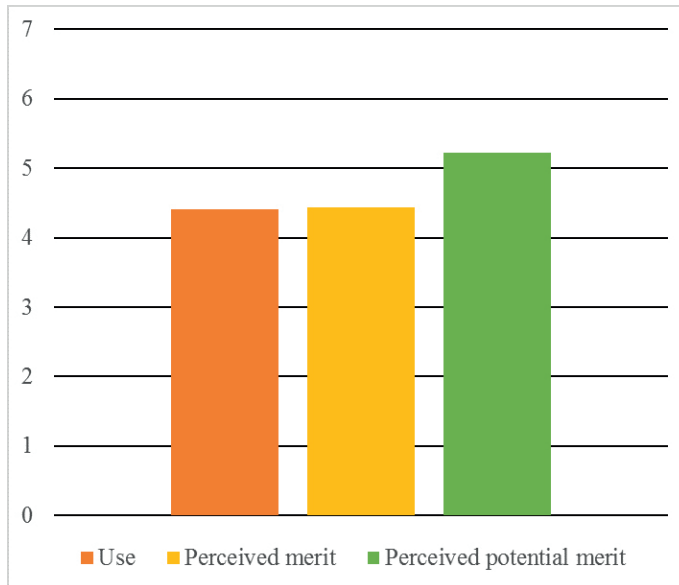
**TABLE 5.4** This studies' findings regarding the extent of use and perceived managerial merit of customer profitability model (n=171)<sup>a)</sup>

<b>Customer profitability models</b>	<b>1<sup>b)</sup></b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>Mean</b>	<b>SD</b>	<b>Skewness</b>	<b>Kurtosis</b>
<i>Customer profitability accounting as a holistic notion:</i>											
Use	2.3	12.3	15.8	18.1	23.4	19.3	8.8	4.41	1.58	-.193	-.866
Perceived merit	2.3	12.3	13.5	21.1	24.0	16.4	10.5	4.43	1.58	-.172	-.779
Perceived potential merit	0.0	3.5	8.8	14.6	22.8	35.7	14.6	5.22	1.31	-.642	-.276
<i>The use of the various models:</i>											
Profitability models of individual customers	12.9	12.9	12.9	11.1	20.5	16.4	13.5	4.16	1.97	-.184	-1.199
Customer segment models	5.3	12.3	9.4	17.5	22.8	21.1	11.7	4.50	1.72	-.397	-.790
Customer lifetime models	40.4	19.9	11.7	15.8	5.3	5.8	1.2	2.48	1.62	.882	-.243
Customer valuation models	40.4	22.8	11.7	12.3	8.2	2.9	1.8	2.41	1.58	.989	.065
Customers as investments models	51.5	21.1	10.5	9.4	5.8	1.2	0.6	2.03	1.37	1.294	.880
<i>The perceived merit of the various models:</i>											
Profitability models of individual customers	15.8	10.5	14.6	11.7	17.0	19.9	10.5	4.05	1.98	-.166	-1.244
Customer segment models	7.0	8.2	14.0	15.2	24.6	21.1	9.9	4.45	1.70	-.425	-.698
Customer lifetime models	42.7	18.7	12.3	12.9	6.4	5.3	1.8	2.44	1.66	.964	-.097
Customer valuation models	41.5	21.6	15.2	10.5	7.0	2.9	1.2	2.33	1.51	1.033	.255
Customers as investments models	53.2	20.5	10.5	7.6	4.7	2.3	1.2	2.02	1.43	1.500	1.609

a) Norway: 500 largest companies. Final sample frame: 437 companies, giving a response rate of 39.1%.

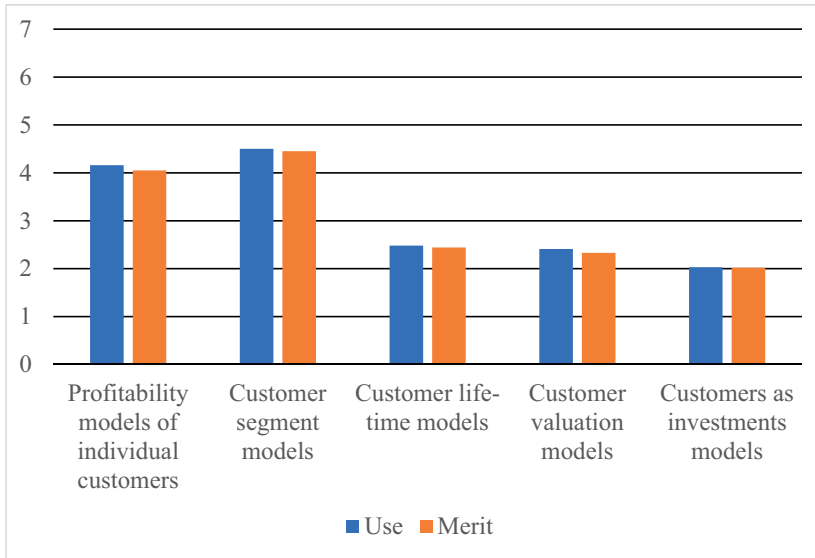
b) From 1(to a small extent) to 7 (to a large extent).

The findings indicate that the average use of customer accounting at an overall level is 4.41; a little lower than the average of the perceived merit (4.43), however much lower than the average of the perceived potential merit (5.22). Figure 5.2 illustrates these findings.



**FIGURE 5.2** The levels of use, perceived managerial merit and potential managerial merit of customer profitability models (a holistic notion).

Table 5.4 shows that the ranking of the five CAP-models is as follows: (1) customer segment models (4.50), (2) profitability models of individual customers (4.16), (3) customer lifetime models (2.48), (4) customer valuation models (2.41), and (5) customers as investments models (2.03). Customer segment models are the most used CPA-models. Next comes profitability models of individual customers. The three other models are far less used. Regarding the perceived merit of the various models, table 5.4 shows that the ranking of the five models is as follows: (1) customer segments models (4.45), (2) profitability models of individual customers (4.05), (3) customer lifetime models (2.44), (4) customer valuation models (2.33), and (5) customers as investments models (2.02). Customer segment models have the highest managerial merit. Next comes profitability models of individual customers. With respect to the three other models, the managerial merits are perceived as being much lower than for the two first models mentioned. Figure 5.3 illustrates these findings.



**FIGURE 5.3** The levels of use and perceived managerial merit of the five CAP-models.

**5.4.2 USE, PERCEIVED MERIT AND POTENTIAL MERIT: STRENGTH OF BIVARIATE RELATIONSHIPS**

Analyses of relationships between the variables that measure the extent of use and the level of perceived managerial merit may give additional insight. First the overall level is addressed and next the CPA-model level.

**TABLE 5.5** Correlation coefficients at the overall level (holistic notion) (n=171)

Variables	Use	Perceived merit
Perceived merit	.87 <sup>a)</sup>	
Perceived potential merit	.59 <sup>a)</sup>	.67 <sup>a)</sup>

a) p<.01

Table 5.5 presents the three Pearsons’ correlation coefficients between use, perceived merit and potential merit of CPA at the overall level, and table 5.6 the Pearsons’ correlation coefficients between use and perceived merit for each of the five CPA-models. According to Cohen (1988), all the eight correlation coefficients are large ( $r > .5$ ). One of the three coefficients at the overall level and all the five CPA-model coefficients are higher than .71, implying that the relationships may be per-

ceived as strong. Statistical analyses using a non-parametric parametric approach (Spearman's rho) give approximately the same results, particularly with respect to the five CPA-models.

**TABLE 5.6** Correlation coefficients at the cap-model level (n=171)

Variables (use – perceived merits)	Pearson's r
Profitability models of individual customers	.92 <sup>a)</sup>
Customer segment models	.86 <sup>a)</sup>
Customer lifetime models	.91 <sup>a)</sup>
Customer valuation models	.87 <sup>a)</sup>
Customers as investments models	.91 <sup>a)</sup>

a)  $p < .001$

#### 5.4.3 A CLOSER LOOK AT THE FIVE CPA-MODELS

When analysing the relationships between the pairs of the five CPA-models (n=171), the correlation coefficients between the models 3, 4 and 5 are the strongest (.45, .51 and .56) implying that the three models represent different CAP-models that are somewhat linked together. An exploratory factor analysis result in three factors implying that the CAP-models denoted customer lifetime models, customer valuation models and customers as investments models seem to measure one construct according to the respondents' perceptions. One factor is extracted when doing a confirmatory factor analysis of the three variables. Of the variance, 67.1% is extracted. Cronbach's alpha is 0.75 and is reduced if one of the items is excluded. Thus, a new variable is established as a summated scale of the three variables. This new variable is denoted "Advanced CPA-models".

**TABLE 5.7** Cap-models used in the regression analyses – descriptive statistics and correlation coefficients (n=171)

Variables	Mean	SD	Skewness	Kurtosis	1	2	3
1. Individual customer profitability models	4.16	1.97	-.18	-1.20	1.00		
2. Customer segments models	4.50	1.72	-.40	-.79	.31 <sup>a)</sup>	1.00	
3. Advanced CAP-models	2.31	1.25	.73	-.38	.31 <sup>a)</sup>	.14 <sup>b)</sup>	1.00

a)  $p < .001$

b)  $p < .n.s.$

Table 5.7 presents the descriptive statistics and correlation coefficients regarding the models that are included in the remaining analyses, that is (1) customer profitability analysis of individual customers, (2) profitability analysis of customer segments, and (3) advanced CAP-models.

#### 5.4.4 THE CPA-MODELS' RELATIONSHIPS TO PERCEIVED MANAGERIAL MERIT AND TO POTENTIAL MANAGERIAL MERIT AT THE OVERALL LEVEL

Multiple regression analyses are used to find the strengths of the relationships between the use of the CPA-models and perceived managerial merits at an overall level (model 1), and the use of the CPA-models and potential perceived merits at an overall level (model 2). In both models revenues and respondent categories are included as control variables; the respondent category as a dummy variable (CFO=1 and other respondents=0).

**TABLE 5.8** Cap-models: i. used → perceived merit (n=170), and ii. used → potential merit (n=170)

	B	t	R <sup>2</sup> <sub>adj</sub>
I. USED → PERCEIVED MERIT:			
Constant	1.42	4.07 <sup>a</sup>	
Individual customer profitability models	.40	7.97 <sup>a</sup>	
Customer segments models	.34	6.15 <sup>a</sup>	
Advanced CAP-models	-.04	-.51 <sup>b</sup>	
Revenues last year	.01	1.26 <sup>b</sup>	
CFO	-.15	-.71 <sup>b</sup>	.47
II. USED → PERCEIVED MERIT:			
Constant	3.49	10.46 <sup>a</sup>	
Individual customer profitability models	.23	4.92 <sup>a</sup>	
Customer segments models	.20	3.86 <sup>a</sup>	
Advanced CAP-models	.03	.43 <sup>b</sup>	
Revenues last year	.01	1.43 <sup>b</sup>	
CFO	-.36	-1.79 <sup>b</sup>	.28

a)  $p < .001$

b)  $p < .n.s.$

The first part of table 5.8 presents the estimates of the regression coefficients and the t-values of the first model. The Kolmogorov-Smirnov statistic obtained a value of .05 ( $p=.20$ ), implying that one cannot say that the residual is not normally distributed. Statistics regarding collinearity and outliers are also found to be satisfactory. The model is significant at the .001-level ( $F=30.8$ ) and the independent variable explains about 47% of the variance of the dependent variable. Two of the included independent variables are significantly linked ( $p<.001$ ) to the dependent variable, that is individual customer profitability models and customer segments models. The coefficient estimate of individual customer profitability models is .40 and coefficient estimate of customer segment models is .34.

The second part of table 5.8 presents the estimates of the regression coefficients and the t-values of the second model. The Kolmogorov-Smirnov statistic obtained a value of .04 ( $p=.20$ ), implying that one cannot say that the residual is not normally distributed. Statistics regarding collinearity and outliers are also found to be satisfactory. The model is significant at the 0.001-level ( $F=13.9$ ) and the independent variable explains about 28% of the variance of the dependent variable. Two of the independent variables included are significantly linked ( $p<.001$ ) to the dependent variable, that is individual customer profitability models and customer segments models. The coefficient estimate of individual customer profitability models is .23 and coefficient estimate of customer segment models is .20.

## 5.5 DISCUSSION

This paper addresses customer profitability accounting and analyses (CPA) at two levels: (1) at an overall level (holistic) and (2) at the model level. Five CPA-models are included in the study: (1) profitability analyses of individual customers, (2) profitability analyses of customer segments, (3) assessments of customer lifetime value, (4) valuations of customers, and (5) customers as investments. The paper has two purposes. The first purpose is to study the relationships between the use and the perceived managerial merit of CPA both at the overall level (holistic) and at the model level. The second purpose is to study the relationships between the use of the five CPA-models and the perceived managerial merit as well as the potential merit at the overall level. The paper addresses four research questions.

The findings of this study are compared with the findings of five former studies: Guilding and McManus (2002), Lord et al. (2007), Al-Mawali et al. (2012), Havelin et al. (2013) and Tanima and Bates (2015). The contexts of these studies are businesses in Australia, Jordan, New Zealand and Norway. It should be mentioned that even though the scales in all these studies are the same (1-7), the anchors dif-

fer, implying that it is not simple to compare; however, some suggestions may be put forward.

Regarding the extent of the use of CPA, this study finds the average to be 4.41 at an overall level. This variable was included in three of the former studies. The average level of use of these three studies is a little lower. At the model level, this study has found that customer segment models are the most used (4.50), while profitability models of individual customers are the second most used approach (4.16). These use-levels are pretty close to the averages of the studies that are included for comparisons. The findings regarding the use of the three other CPA-models are at the two-level: customer lifetime models (2.48), customer valuation models (2.41) and customers as investment models (2.03). This study is the only one that has included customers as investment models. Thus, there is no study for comparison. For the two other CPA-models (customer lifetime models and customer valuation models) this study finds that the use-levels are much lower than reported in the former studies.

With respect to the level of managers' perceived merit of CPA, this study finds the average to be 4.43 at an overall level. This is a little lower than the average of the three former studies. At the CPA-model level, this study has found that customer segment profitability models have the highest perceived managerial merit (4.45), while profitability models of individual customers are number two (4.16). The averages of the former studies are at the five-level implying that this study reports merit levels that are lower than in former studies. For the remaining three CPA-models the perceived managerial merit are as follows: customer lifetime models (2.44), customer valuation models (2.33) and customers as investment models (2.02). With respect to the customers as investment model there is no study for comparison. For the two other CPA-models, this study finds that the merit-levels are much lower than reported in former studies. This study finds the average of perceived potential managerial merit to be 5.22. Only one former study included this measure and reported a higher level for this variable.

The two first research questions are focusing on bivariate relationships: (1) What are the strengths of the relationships between use and perceived managerial merit? (2) At the overall level, what is the strength of the relationship between perceived managerial merit and potential perceived merit? The study uses correlation analyses to find the strength of the bivariate relationships addressed. At the CPA-model level, all the five correlation coefficients between use and perceived merits are very high (from .86 to .92). Thus, the relationships are strong. At the overall level, the three coefficients are a little lower (from .59 to .87). Still the correlation coefficients are large ( $r > .5$ ). Thus, there seems to be an interaction between the use

and the perceived merit, the higher the use, the higher the perceived merit and vice versa.

The two final research questions were formulated as follows: (3) What are the strengths of the relationships between the use of each of the five CPA-models and the perceived managerial merit at the overall level? (4) What are the strengths of the relationships between the use of each of the five CPA-models and the potential perceived merit at the overall level? A closer look at the relationships among the five CPA-models using factor analysis resulted in a three-factor solution: individual customer profitability models, customer segments models and advanced CPA-models (that was established as a summated scale of the remaining models, i.e. customer lifetime models, customer valuation models and customers as investment models). In order to analyse the relationships between the three CAP-variables (factors) and the two perceived merit variables, two multivariate regression analyses were elaborated. In both analyses, revenues and respondent categories were included as control variables; the respondent category as a dummy variable (CFO=1; other respondents=0). The coefficient estimates can be perceived as representing the strength of a relationship controlled for the other variables included in the regression model. In both regression analyses the two same independent variables were significantly linked to the dependent variable ( $p < .001$ ), i.e. individual customer profitability models and customer segments models. Regarding the relationships to perceived managerial merit at an overall level the coefficient estimates were as follows; individual customer profitability models (.40), and customer segment models (.34). Regarding the relationships to perceived potential managerial merit at an overall level, the coefficient estimates were as follows; individual customer profitability models: .23, and customer segment models: .20.

With respect to managerial implications, the findings indicate that customer segment models and profitability models of individual customers are the most used models and the CPA-models that are assigned the highest merits. Customer segment models are the most used and the most appreciated CPA-model. However, the findings indicate that profitability models of individual customers have the strongest relationship with perceived managerial merit and perceived potential merit at the overall level. These findings indicate that managers should look a little closer at this CPA-model. The elaboration of profitability models of individual customers is a thorough and time-consuming work as underscored above (see part 2). However, this bottom-up approach opens up for the use of all the other CPA-models. When detailed information is available, this information may be aggregated in different ways, thus offering customer segment profitability reports. Insight into the profitability of individual customers is also useful with respect to



the forward-looking CPA-models: assessments of customer lifetime value, valuations of customers and customers as investments. Thus, profitability analyses of individual customers can be looked upon as a base for the four other CPA-models (see chapter 5.2).

Managers perceive at an overall level (holistic notion) that the levels of use seem to be somewhere between 4.0 and 4.5 on a scale from 1 to 7 (cf. tables 5.3 and 5.4). The average perceived managerial merit at an overall level seems to be a little higher and the perceived potential managerial merit seems to be even higher (at the five-level). One way of explaining these findings is as follows. CPA-models are used for decision making. Existing CPA-models seem to be less useful than they could be. However, the respondents' perceptions with respect to the potential is positive. This is a good starting point. Thus further research should try to identify how CPA-models should be elaborated and presented so the perceived managerial merit increases. Maybe detailed case studies and interviews of managers can give insight into details that may be useful for further development of this subject area.

Managers have problems distinguishing between the following CPA-models: customer lifetime models, customer valuation models and customers as investment models (cf. chapter 5.2). The last-mentioned model represents one of the cornerstones of relationship marketing (Egan 2008; Helgesen 2006b, 2008b). This approach focuses on the whole lifetime of a customer relationship (i.e. "from the cradle to the grave"). Acquisition costs ("investments") are usually compared with retention costs of customers. The RM-approach is much used in the Nordic countries especially in business-to-business relationships (Grönroos 2000). When managers seem to have problems distinguishing between the three mentioned models, this indicates that there is a need for dissemination of knowledge. Knowledge regarding CPA-models may be imparted to a number of (target) groups in industry, services, academia, and so on. Remember that market orientation has two main objectives: (1) to satisfy the needs of customers by offering products, which meet their desires, requests and demands, and (2) to satisfy their own entity by carrying out exchanges that result in long-term profitability (Helgesen 2006b). Thus insight into customer profitability form one of the two main pillars of marketing.

Similar studies are highly recommended, analysing not only large companies, but also small and medium sized companies owing to the fact that the costs of furnishing detailed customer profitability accounts may be relatively higher for such companies (see e.g. Neely et al. 1995). Customer costs may be estimated by different costing methods: (1) full costing, (2) variable costing, (3) activity-based

costing (ABC), and (4) time-driven (or capacity-driven) activity-based costing (TDABC). Combinations of costing methods and customer profitability models may give additional insight.

## 5.6 CONCLUSION

This paper addresses the extent of use and the level of perceived managerial merits as well as the relationships between use and perceived managerial merits of CPA both at an overall level (holistic notion) and at the model level. Five CPA-models have been identified: (1) profitability models of individual customers, (2) customer segment models, (3) customer lifetime (value) models, (4) customer valuation models, and (5) models of customers as investments. Customer segment models and profitability models of individual customers are the most used and the most appreciated models. According to managers' perceptions, existing CPA-models seem to be less useful than they could be. However, with respect to the potential merits they are positive. As long as the findings indicate that profitability models of individual customers have the strongest relationship with perceived managerial merit and perceived potential merit at the overall level, managers should probably look a little closer at this CPA-model. This bottom-up approach opens up for the use of all the other CPA-models and can be looked upon as a base for the four other CPA-models. Regarding the relationships between use and perceived managerial merits of CPA both at an overall level and at the model level there seems to be an interaction between the use and the perceived merit; the higher the use, the higher the perceived merit and vice versa.

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