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**Can perceptual measures of customers
profitability replace more objective ones?**

by

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CONTENTS:

0. ABSTRACT	1
1. INTRODUCTION	1
2. LITERATURE REVIEW	3
3. SOME THEORETICAL ASPECTS	5
4. RESEARCH PROBLEMS	9
5. RESEARCH DESIGN, RESEARCH METHODS AND MEASUREMENTS	10
5.1. Customer profitability accounting and customer profitability	11
5.2. Credit reports – customer rating codes (solvency)	15
5.3. Management’s ex-ante perceptions of the profitability of individual customer accounts and of the creditworthiness of some of the customers	16
6. FINDINGS	17
6.1. Ex-ante perceptions of customer profitability - absolute accounting figures	18
6.2. Ex-ante perceptions of customer profitability - relative accounting figures	20
6.3. Customer solvency (creditworthiness)	22
6.4. Managers’ education, experience, etc.	25
6.5. Managers’ common perceptions (“paradigms”)	26
7. DISCUSSION AND MANAGERIAL IMPLICATIONS	29
8. LIMITATIONS AND IMPLICATIONS FOR FUTURE RESEARCH	31
9. CONCLUSION	32
LITERATURE	34

0. ABSTRACT¹

Business performance is closely related to decisions. When making decisions, managers need reliable information concerning the decision situation, e.g. the profitability of orders, the profitability of customers, credit risks, etc. Empirical studies have disclosed that insight in this area to a large degree can be characterized as insufficient. Nevertheless, businessmen are frequently making decisions about exchanges with customers. When making such decisions they have some sort of conception of the decision situation. The focus of this working paper is the relationships between “perceptual” and “objective” measures of profitability of customers. The context is the order-handling industry; that is four Norwegian exporters of fish products and their customers. The main research question that is addressed is: Can perceptual measures of customer profitability replace more objectives ones? Furthermore, managers’ conceptions of the solvency of customers are compared with rating codes (credit reports) furnished by professional credit agencies: What relationships are found between the managers’ assessment of the creditworthiness of the customers of their company and the rating codes that are furnished by international credit agencies? Managers may have different educational backgrounds, different experiences, etc: In what extent does education or experience have any influence on the perceptions of the managers concerning the profitability and the solvency of their customers? Usually, the managers work close together and are sharing the experiences that they have concerning markets, customers, etc. Thus, it is a reason to believe that they have a common understanding concerning product markets, customers, agents, etc.: In what extent has the managers formed common perceptions (“paradigms”) concerning the profitability and the creditworthiness of their customers? The findings of the study are rather convincing. Neither the “objective” measures of customer profitability (absolute and relative customer results) nor the rating codes furnished by the international credit rating agencies, should be replaced by the “perceptual” measures of the managers. It is a reason to believe that the customer-related problems are so complex that there is a need for profound insight when judging the financial measures under consideration. Neither education nor experience (“rules of thumbs”) can compensate for insufficient or missing customer accounts that are presenting reliable profitability figures. Besides, it seems as if the managers of all of the four exporting companies have common perceptions or “paradigms” concerning customer profitability and customer solvency. Such common perceptions may often be looked upon as an advantage. But, of course, then the perceptions should be correct. Here the findings are so convincing that it may be asserted or at least questioned whether the perceptions are right. Thus, the only way of amending the situation of the decision makers, is to include customer accounting as part of the managerial information system of a business. Further managerial implications are discussed at the end of the working paper. Finally, some central problems and problem areas and suggestions for further research are presented.

1. INTRODUCTION

Business performance is closely related to decisions. Only in situations of decisions the profitability of a business can be improved (Demski, 1997). To gain important insights concerning decisions that are related to customers, there is a need for valid and reliable figures for customer accounting (Helgesen, 1999a; 1999b). In addition a decision maker needs insight into the causes of profitability and primarily the variables that may explain differences (Coase, 1938). Thus figures in customer accounting or “Images of Customer Profitability” (ICPs) may

¹ This working paper is based on Helgesen (1999a), a dissertation for obtaining the degree doctor oeconomiae at the Norwegian School of Economics and Business Administration, Bergen. The problems which are addressed in this working paper are among the topics which are discussed in the dissertation, but more studies (literature)

be broadly divided into two groups: (1) descriptive, and (2) causal images of customer profitability. Causal ICPs, that is images indicating connections between causes and effects, can only be estimated² when descriptive ICPs are established. Furthermore, there is a need for registrations of potential factors³ explaining variations in customer profitability so that a causal analysis can be carried out.

Regarding customer accounting and customer profitability analysis, empirical studies have disclosed that the insight in this area to a large degree can be characterized as insufficient (see e.g. Foster & Gupta, 1994; Storbacka, 1995; Hallowell, 1996; Söderlund, 1997). Very few firms have good knowledge of the costs incurred and the profitability obtained by exchanges (see e.g. Shapiro & al., 1987; Howell & Soucy, 1990; Reichheld & Sasser, 1990; Selnes, 1992; Connolly & Ashworth, 1994; Foster & al., 1996). This situation may not be related to only one single cause. Partly, the marketers have not been clever enough when making demands about information about managerial accounting and marketing, and, partly, the accountants and the economists have been more interested in financial accounting, cost accounting, product costing, financial analysis, etc., than various managerial accounting analysis related to customer markets, e.g. customer accounting, market-segment accounting, etc. (see e.g. Wilson & Bancroft, 1983; Ratnatunga & al., 1988; Lewis, 1991; Schiff & al., 1991; Foster & Gupta, 1994; Söderlund, 1997; Shields, 1997).

Nevertheless, businessmen are frequently making decisions about exchanges with customers. Of course, their intentions are to make decisions which are in accordance with the principle objectives of their companies. When making such decisions they have some sort of concep-

related to business performance have been examined and further analyses of the data sets have been carried out in order answer the research questions.

² Many models can be used when analyzing the relationships between strategic revenue drivers and customer profitability (see e.g. Day & Wensley 1988; Narver & Slater, 1989; 1990; 1994; Kohli & Jaworski, 1990; 1993; Fornell, 1992; Anderson & al., 1994; Fornell & al., 1996). Analogously, there exists a lot of models or strategic cost drivers which are supposed to explain variances in costs that have a profound impact on profitability (see e.g. Lewis, 1987; Riley, 1987; Ghemawat, 1986, 1992; Shank & Govindarajan, 1989, 1992, 1993).

³ By establishing a database, various cause- and effect models or relationships can be analyzed. Over time this can give insight into the causalities under scrutiny, and thereby revealing the drivers that seem to have the strongest influence on the performance of the business. These variables may be perceived as key drivers of the performance of the business. Such strategic revenue and cost drivers may be disclosed for various aspects or perspectives of the business under consideration. By putting them together into a scoreboard, the decision makers get a multi-dimensional insight into the decision situation. Such a balanced scorecard can form a natural part of the managerial accounting information that is provided for the managers of a company (see e.g. Richardson & Gordon, 1980; Sloma, 1980; Globerson, 1985; Wisner & Fawcett, 1991; Kaplan & Norton, 1992, 1993, 1996a, 1996b; Lebas, 1996; Rucci & al., 1998).

tion of the decision situation, particularly the profitability of the exchange situation (order and customer profitability) and the risk that they are confronted with, e.g. the creditworthiness of the customer.

The focus of this working paper is the relationships between “perceptual” and “objective” measures of profitability of customers. The main research question that is addressed is: Can perceptual measures of customer profitability replace more objectives ones? Furthermore, managers’ conceptions of the solvency of customers are compared with rating codes (credit reports) furnished by professional credit agencies: What relationships are found between the managers’ assessment of the creditworthiness of some of the customers of their company and the rating codes that are furnished by international credit agencies? The context is the order-handling industry which in this working paper is four Norwegian exporters of fish products and their customers (Helgesen, 1999a; 1999b). This industry is characterized by almost world-wide export activities with respect to product markets (geographical areas). In each of these product markets a lot of actors participate, both on the buyer side as well as on the seller side. The competition in the fishing industry is strong both for Norwegian competitors and for foreign companies.

2. LITERATURE REVIEW

Business performance has become an important component of empirical research in various fields of managerial accounting (see e.g. Capon & al, 1990; Kohli & Jaworski, 1990, 1993; Gale, 1992; Foster & Gupta, 1994; Anderson & al., 1994; Fornell & al., 1996; Ittner & Larcker, 1997; Demski, 1997). Researchers often take the performance of a business into account when investigating such organizational phenomena as structure, strategy, quality of products and services, market orientation, customer orientation, customer satisfaction and customer loyalty, etc. Business performance has been treated in various ways in the different models or approaches of the researchers: (1) as a consequence, (2) as an objective, or (3) as a part of the concept under consideration. However, the central issue in this relationship is not the models or the approaches of the researchers, but their measurements of business performance.

Let us as an example take a short look at eight studies focusing on market orientation and business performance: Narver & Slater, 1990; Jaworski & Kohli, 1992; Ruckert, 1992; Hart & Diamantopoulos, 1993; Slater & Narver, 1994; Greenley, 1995; Selnes & al., 1996; Pelham & Wilson, 1996. The principle aim of the studies has been to prove a positive relationship⁴ between the degree of market orientation and the performance of a business. When estimating business performance various measures are used: subjective performance, relative return on investments, market share, organizational commitment, esprit de corps, job satisfaction, trust in management, sales growth, new product success, etc. Even if objective measures are used, subjective performance or subjective measures are often considered as the ultimate indicator of business performance:

“Subjective measures of performance commonly are used in research on private companies and on business units of large companies. Previous studies have found a strong correlation between subjective assessments and their objective counterparts (e.g., Dess and Robinson, 1984; Pearce, Robbins, and Robinson, 1987)” (Narver & Slater, 1990; op. cit. p. 27).

The same way of thinking is found in other areas of business research, e.g. business strategy and business performance (see e.g. Miles & Snow, 1978; Snow & Hrebiniak, 1980; Galbraith & Schendel, 1983; Dess & Davis, 1984; Hambrick, 1983a; 1983b; 1985; Hitt & Ireland, 1986); and customer orientation (see e.g. Fornell, 1992; Anderson & Sullivan, 1993; Rust & Zahorik, 1993; Evans & Laskin, 1994; Leuthesser & Kohli, 1995; Rust & al., 1996; Fornell & al., 1996; Anderson & al., 1994; 1997).

However, when using perceptual measures of business performance, almost all researchers are referring to studies indicating strong associations between perceptual and objective measures of business performance (see e.g. Bourgeois, 1980; Dess & Robinson, 1984; Venkatraman & Ramajunam, 1986; Pearce & al., 1987). This implies that the researchers are not convenient, thus indicating a preference for more objective measures of business performance. On the other hand, the results of the sited studies are not at all convincing and the researchers are formulating the results in different ways:

“Perhaps the most appropriate way to begin a discussion of this research is to discuss what is not suggested by the findings. This study does not suggest that subjective measures are preferable to objective measures of organizational performance, particularly economic performance. This study should not be interpreted to suggest that subjective measures are convenient substitutes for objective measures of a firm’s economic performance.

⁴ In six of the eight studies a positive relationship is found between market orientation and business performance. However, both the market orientation concept and the performances of a business are measured in various ways in the different studies. Nevertheless one may assert that positive relationships do exist.

Where accurate objective measures of performance (particularly economic) are available, their use is strongly supported and encouraged” (Dess & Robinson, 1984; op. cit. s. 270).

“Overall, our findings seem to question Dess and Robinson’s claims that objective measures are generally preferred and that perceptual evaluations are good substitutes for objective data whenever “(1) accurate objective measures are unavailable, and (2) the alternative is to remove the consideration of performance from the research design” (1984, p. 271). Based on our results, we would caution against treating any one particular method of measuring business economic performance (or any other construct) as being universally superior” (Venkatraman & Ramanujam, 1987; op. cit. s. 119).

The cited studies are considering relationships between perceptual and objective measures at the business level. Usually the chosen objective measures are easily available, such as revenue growth, return on assets, return on sales, etc. Those measures are compared with perceptual measures such as overall performance. Even if significant associations are found between the variables (the measures), the results are not unambiguous. Therefore it is not straightforward to assert that perceptual measures of performance may replace more objective ones, cf. the conclusions of the cited studies above. However, it should be noted that the content of perceptual measures may comprise more than their objective counterparts, for instance a more longitudinal perception of the chosen variable.

The studies above are investigating relationships between perceptual and more objective measures at the business level. The focus in this working paper is on the customer level. Before addressing the research questions some further theoretical aspects are presented.

3. SOME THEORETICAL ASPECTS

A decision maker’s perception of a decision problem or the framing of a decision (Demski, 1997) is among other things depending on the information available and the decision maker’s application of the information that is available. Thus, the apprehension of the decision situation is both related to the theoretical and the empirical insights of the decision makers, e.g. measures of profitability (relevant costs and related concepts), time, uncertainty and context (Helgesen 1999a; 1999b). Consequently, the framing of the decision is obviously subjective.

A lot of relationships, factors and variables may be taken into consideration in a decision situation. Information may be provided both from internal and external sources of information and may be based on both (1) primary and (2) secondary data. The methods of measurement may broadly be divided into two groups: (1) objective and (2) perceptual. This makes a two-

by-two matrix, cf. exhibit 1, which also gives some examples of helpful information for decisions at the customer level.

Exhibit 1. Customer profitability: Sources of information and methods of measurement

	Primary data	Secondary data
Objective	Established systems/models for customer accounting/analyses of customer profitability as well as other information concerning customers and markets	Reports concerning markets and customers The customers' annual reports etc. Consultancy and research reports
Perceptual	Market- and customer surveys (e.g. measurements of C/S) Subjective information related to visits to customers and other contacts with the customers, episodes, relations, etc.	General information or reports concerning markets, market segments, customers, etc.

The managerial accounting system of a business consists of various sub-systems that all contribute in different ways to the decision makers' insight in the decision situation. In order to provide relevant information or "images of customer profitability" the sub-systems have to be market oriented and coordinated (Helgesen 1999a; 1999b). Of course, it is inconceivable that a managerial accounting system may easily furnish all relevant information for any decision in any situation that may occur. At least the aim should be to arrange the managerial system of accounting in such a way that the most important problems of market-strategy may be easily analyzed. After gaining experience, the system may gradually be extended. Such an approach should contribute to better insight into various market-strategic situations. In a well-established managerial accounting system a lot of the existing information is taken into consideration. This does not only comprise accounting figures, but much more, such as registrations done by the employees of the purchasing department, the salesmen, the recipients of orders, the employees of the credit department, etc. The basis and the principle elements of a managerial accounting system may probably be elaborated from the information that already is available in the organization.

In addition to the primary data there is also a need for secondary data, e.g. the annual reports of the customers, credit reports, etc. This information is essential when establishing insight

concerning context and uncertainty (Helgesen 2000c). Secondary data may be provided from various sources of information (see e.g. Bradley, 1991; Paliwoda, 1993; Burton & McBride, 1993; Albaum & al., 1998; Burns & Dewhurst, 1996).

It may be considered as an advantage to use information from all the four parts of exhibit 1 when images of customer profitability are worked out. Thus, the decision maker should have a profound insight in the decision situation.

Customer profitability may be measured at different levels⁵ of measurement. Ratio scales are commonly used for financial data, that is scales which have a unique zero point and possess all the properties that is necessary for any statistical analysis (Parasuraman, 1991; Frankfort-Nachmias & Nachmias, 1992). However, other scales may also be used, for instance when separating objects of profitability into groups, when classifying customers according to their creditworthiness, etc. Besides, customer profitability may be estimated in absolute and relative figures. In absolute figures monetary units are used. In relative figures the concept is usually measured as a proportion of a factor of scarcity.

The conclusion so far should be that a profound theoretical understanding of the profitability concept does depend on various factors (Helgesen, 1999a; 1999b). One factor of great interest is uncertainty that may be broadly classified into three groups: (1) commercial risks, (2) economic risks, and (3) political risks (see e.g. Paliwoda, 1993; Eiteman & al., 1998; Solberg, 1999). Here the focus is on credit risk or payment risk that usually is perceived as being a part of the commercial risk of a business. An exporter may reduce or even eliminate this risk by way of prepayments, commercial letters of credit, cash against documents (CAD), and various arrangements of credit insurance⁶ (GIEK⁷, credit insurance companies, finance companies

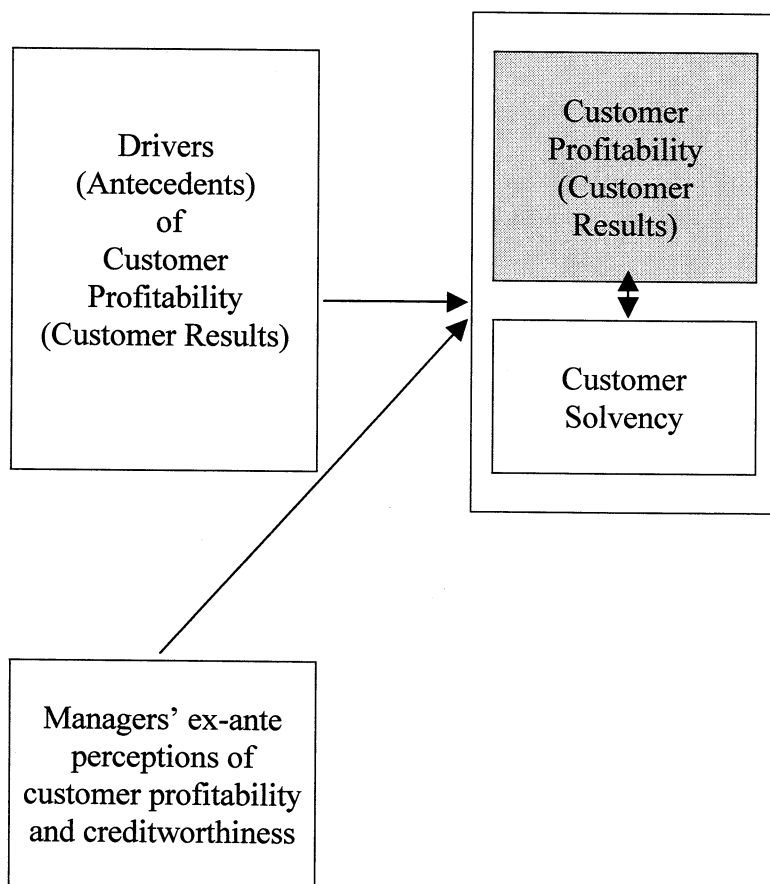
⁵ A typical definition of measurement is "the assignment of numbers to observations (or responses) according to some set of rules" (Summers, 1970). Levels of measurement are divided into four: (1) nominal (categorical) scale, (2) ordinal scale, (3) interval scale and (4) ration scale (see e.g. Parasuraman, 1991; Frankfort-Nachmias & Nachmias, 1992). Each scale possesses the attributes of the scale above it. That is, the ratio scales have the properties of interval scales, which, in turn, have the properties of ordinal scales, and so on. A ratio scale has a unique zero point and possesses all the properties that is necessary for any statistical analysis.

⁶ Usually, the export is then carried out on terms that may be called open accounts. However, the accounts receivable are either wholly or partly secured by various guarantee arrangements.

⁷ GIEK = Garantiinstituttet for Eksportkreditt (The Norwegian Institute for Export Credits). Similar export credit agencies are established in many other countries (see e.g. Paliwoda, 1993).

also offering credit assurances, etc.⁸) Delayed remittances usually result in extra costs for a company. Insufficient payment or no payment usually⁹ results in direct losses.

Exhibit 2. Customer profitability, solvency of customers, drivers of profitability and managers' ex-ante perceptions



The code for the solvency of a customer or the rating code of a customer may be perceived as a measure for the payment risk (the commercial risk) related to transactions with the actual customer. Credit reports inclusive rating codes¹⁰ are prepared by credit rating agencies and have various applications. These reports are used as the basis for applications for limits of credits (warranties) from the credit insurance companies and therefore also form the basis for possible settlements of claims. If the credit reports say that a customer may be perceived as not creditworthy, the manager of an exporting company usually tries to take precautions by way of prepayments, commercial letters of credit, cash against documents (CAD), etc. If the

⁸ Holt & al. (1998) has provided a synopsis.

⁹ There exist guarantee arrangements that do ensure a settlement of 100 percent because of insufficient payment or no payment. However, those insurance policies do not usually cover political risks.

¹⁰ A rating code or a code for the solvency of customers may be perceived as giving very concentrated credit information, that is a synthesis of all the information gathered concerning the juridical person which is rated.

rating code of a customer is favorable, this indicates that the customer at least has the ability to pay. Consequently the rating codes may also be used to estimate the quality¹¹ of cash flows.

The classification of credit risks or the rating of customers may be carried out in various ways. However, most emphasis is usually placed on the financial aspects such as liquidity, solidity, profitability and financial structure. But other aspects such as market opportunities and the ability and qualifications of managers are also taken into consideration. Even if the classification work with respect to the solvency of customers is based on objective criteria, obviously the rating codes are subjective¹² judgments. The measurements are carried out on an ordinal scale.

The solvency of customers or their rating codes (credit risks) can be looked upon as one set of variables that are explaining variations of customer profitability, or as part of the concept of customer profitability, cf. exhibit 2. Nevertheless, the two concepts may be viewed as closely related.

4. RESEARCH PROBLEMS

The starting point of the study is the following research question: Can perceptual measures of customer profitability replace more objectives ones? Furthermore, managers' conceptions of the solvency of customers are compared with rating codes (credit reports) furnished by professional credit agencies: What relationships are found between the managers' assessment of the creditworthiness of some of the customers of their company and the rating codes that are furnished by international credit agencies? The context is the order-handling industry that in this working paper is four Norwegian exporters of fish products and their customers (Helgesen, 1999a; 1999b).

¹¹ The quality of the revenues of a given period of time may be estimated as a weighted average of the rating codes of all the customers. (The customer revenues of the respective customers for the period are used as weights.) Analogous analyses of quality classes may be carried out for cash flows and for various measures of profitability, such as the absolute customer results that have been obtained during the period of time (Helgesen 1999a).

¹² Credit committees usually make the decisions related to rating codes (risk classes) for customers and credit limits (based on reports prepared by credit analysts). Generally a credit committee consists of 3 to 5 co-workers

The analyses of customer accounts are carried out in exporting companies that earlier did not have profitability figures available. Nevertheless the managers have some sort of conception concerning the profitability of their customers and of their creditworthiness. Of course, the managers' perceptions may differ for various reasons: different educational backgrounds, different experiences, etc. Such factors are also taken into consideration in this working paper: In what extent does education or experience influence on the perceptions of the managers concerning the profitability and the solvency of their customers?

The working situation of the fish exporting industry may be characterized as rather hectic. Often the managers have to make quick decisions. Usually the managers work close together and are sharing the experiences that they have concerning markets, customers, etc. Consequently, it is a reason to believe that they have a common understanding concerning product markets, customers, agents, etc. This leads to the following research question: In what extent has the managers formed common perceptions ("paradigms") concerning the profitability and the creditworthiness of their customers?

5. RESEARCH DESIGN, RESEARCH METHODS AND MEASUREMENTS

In order to answer the research questions there is a need for empirical data, and in this study Norwegian exporters of klipfish and frozen fish are chosen as a context. These types of products are based on groundfish as raw material. This part of the Norwegian fishing industry is amongst other things characterized by almost world-wide export activities orientated towards various product markets (geographical areas). In each of these product markets a lot of actors participate both on the buyer side and the seller side. The products that are offered for sale may be perceived as generic and the trading patterns tend to show seasonal fluctuations. Usually, the importers buy products from several exporters that are often located in different countries. Repurchases often form a crucial part of the picture of the trade with fish products. Consequently, the customers do have a lot of experience when judging the method of delivery and the quality of the products. Altogether, the part of the Norwegian industry that has been selected as a context for this working paper can be viewed as suitable. Nevertheless, it may correctly be asserted that the two groups of products are somewhat different; for example based on different methods of preservation or technologies. However, the two lines

with appropriate education and experience. The composition of the committee and the procedures carried through

of business have so much in common (groundfish as their raw material, generic products, high level of competition, order-oriented marketing, distribution, etc.) that there should be no doubt that they belong to the same industrial sector.

The empirical data are collected from four Norwegian exporters and their customers. Two of the companies in the sample are exporting klipfish while the other two are exporting frozen fish/filets. Measured in annual revenues, their sizes vary from about 20 million NOK to about 200 million NOK (1996). Information has been collected by three¹³ means:

- Customer accounts (order accounts) and profitability analyses based on accounting information from the four exporting companies
- Customer creditworthiness (rating codes) including financial statements furnished by customer rating agencies
- Management's ex-ante perceptions of the profitability of individual customer accounts and of the creditworthiness of some of the customers

5.1. Customer profitability accounting and customer profitability

For many industrial enterprises there may be several links in the distribution channels between the firm and the ultimate buyers, i.e. consumers or end users, e.g. importers, wholesalers and retailers, and thus various customer markets to take into consideration (see e.g. Kotler, 1992; Paliwoda, 1993; Tellefsen, 1995; Solberg, 1999). However, in this working paper the understanding of the customer concept is traditional. Thus, a customer is defined as the direct buyer of a firm's products and/or services (usually a company).

In order to estimate customer account profitability (CAP) at the individual customer-level a market-oriented accounting model had to be established (Helgesen 1999a; 1999b). Establishing reliable profitability figures of customer accounts or "Images of Customer Profitability" (ICPs)¹⁴ is not straightforward, cf. Helgesen (1999b) which is focusing on problems related to

concerning the decisions should ensure that the rating codes and the credit limits are reliable.

¹³ In order to answer all the research questions in Helgesen (1999a) more data was collected: Market surveys (measurements of customer satisfaction, etc.) among the customers of the four Norwegian exporters.

¹⁴ "Images of Customer Profitability" (ICPs) may be divided into two main groups: "descriptive" and "causal" ICPs. "Causal" ICPs, that is images indicating nexuses of causes and effects, can only be worked out when

seven topics or problem areas: (1) theory basis, (2) cost basis and cost estimation methods, (3) market hierarchy – a market-oriented accounting framework, (4) the separation of costs into main groups, (5) the understanding and assignment of costs to cost groups, (6) the market-oriented accounting concepts and models, and (7) analytical methods. The choices made for each problem area have practical implications. “Descriptive” ICPs may for instance be established by using different estimation methods: (1) full costing (the absorption method), (2) variable costing (the contribution margin method) or (3) activity based costing (the “hierarchy-method”). These methods will of course tend to result in different designs of the specified accounts. However, the most important aspect to remember is that different approaches result in different estimates of customer profitability. Consequently, arguments may be put forward to make use of various methods simultaneously. However, the ABC-approach has advantages compared with the two other methods (Helgesen, 1999a; 1999b). Therefore this approach is chosen.

Exhibit 3. Market hierarchy for order-handling marketing companies

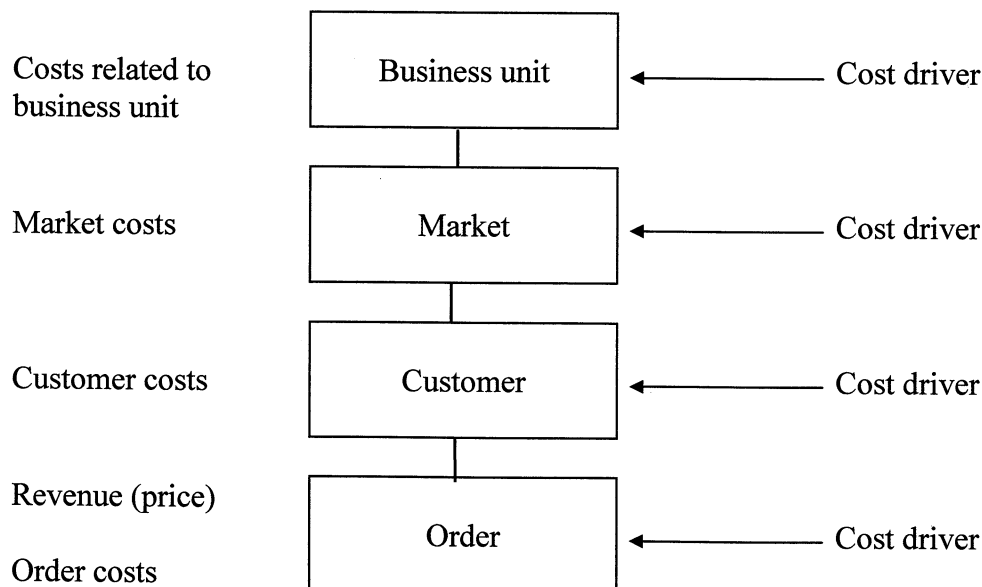


Exhibit 3 shows the market hierarchy¹⁵ chosen and illustrates the assignment of costs to different levels. It also reflects the chosen market-oriented accounting framework. Costs are

“descriptive” ICPs are established. Furthermore, there is a need for registrations of potential factors explaining variations of customer profitability so that causal analysis may be carried out.

¹⁵ Accounts are kept on the transaction-level. Consequently, marketing activities may be related to different levels: Transaction, order-line, invoice, part order, order, customer, customer category, product market, market segment, market area, distribution channel/value chain, agent area, etc. Thus, profitability images may be elaborated for various objects with respect to the market.

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 results 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 market¹⁶ 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. Analogously¹⁷ the result of the strategic business unit is estimated. This approach¹⁸ is consistent with the ABC-approach and the Nordic step analysis (Bjørnenak, 1994b).

During the period of analysis (the financial year of 1996), the total revenue of the four Norwegian exporting companies amounted to 350 million NOK. The sample of orders comprises revenues of about 180 million NOK, that is about 52 % of their¹⁹ total revenue during the year. The total Norwegian export of klipfish and frozen fish/filets for the same period summed up to about 4,5 billion NOK, and the total Norwegian export of fish and fish products reached approximately 22,5 billion NOK (Norwegian Seafood Export Council, 1996). Thus, the lines of business of current interest represent about 20 % of the total Norwegian exports of fish products. And the sample, consisting of 564 orders related to 176 customer and 36 geographical markets, represents about 4 % of the total Norwegian exports of products from these lines of business.

¹⁶ Markets can be categorised and segmented in various ways (Abell, 1980,1993; Shapiro & Bonona, 1984; Kotler, 1992). As long as descriptive ICPs are available, the chosen approach makes it possible to estimate the profitability of various market segments based on the assumption that the costs related to the appropriate market segment level are handled according to the ABC-approach.

¹⁷ The outlined methodology makes it possible to establish designs of the specified accounts for each level of the market hierarchy (Helgesen, 1999a;1999b).

¹⁸ The approach is also consistent with propositions formulated by Kaplan, referred to in Robinson (1990). The principle objective of Kaplan's speech was related to product costs, but he also touched on customer accounts and distribution channels: "Another way to look at operating expenses focuses on customers and distribution channels. We can compute the margins earned by each customer or distribution channel by summing the product-level margins of the products sold to each customer or through each channel and then subtracting expenses incurred for individual customers or channels. We need to find out what causes expenses to vary and at what level of the organization, but expenses need not and should not be allocated below the level at which they are incurred" (Kaplan/Robinson, 1990; op. cit. p. 13).

¹⁹ The sample sizes vary from about 37 percent to 100 percent.

None of the four exporting companies had earlier worked out customer accounts or customer profitability analyses in a systematic way. But all of them had well arranged systems of managerial accounting. In two of the companies the intention for some time had been to carry through customer profitability analyses. Thus, some of the necessary information such as the revenues and the easily traceable parts of the costs was recorded. This basic work contributed to facilitate the work. Nevertheless, all the accounts and all the vouchers had to be thoroughly revised. By means of various ways of recording this information (data bases and cross tables) all the accounting information was reregistered and assigned to profitability objects according to the chosen procedure. Later on all the accounts were balanced with the ledger. The job was time-consuming, but the insight acquired clearly justified the chosen method of approach. Revenues were assigned to the order-level and the costs were traced and assigned to the various levels of the market hierarchy. In this way about 98,5 % of the total costs were traced and assigned directly to the costs objects. Thus, only 1,5 % of the costs (indirect costs) had to be accumulated into cost pools and allocated to the various cost objects according to the²⁰ ABC-approach. The proportion of direct costs was much higher than thought in beforehand. The chosen approach allowed for the use of accounts and profitability analysis for various market objects based on a market-orientation (Helgesen, 1999a; 1999b).

The rearrangement of the accounting figures was worked out in close collaboration with the marketers, accountants and managers of the four exporting companies. There was no disagreement concerning the results that were elaborated. The orders included in the sample were selected at random in such a way that several succeeding orders were analyzed in order to simplify the balancing work. However, it should be mentioned that the selected exporting companies are looked upon as being in the vanguard of the industry. And surely, this was one of the reasons for choosing them as working partners. This choice proved to be successful. Consequently, it may be questioned whether the sample is representative. The established sample is analyzed at the market level, comparing the four exporters' market-revenue figures with the total Norwegian export for these lines of business for the period under consideration to each of the 36 geographical markets. The analysis shows a strong and significant correlation ($r=0,804$; $p<0,001$). In addition, the 20-25 most important geographical markets for this

²⁰ Cost drivers representing causalities were used to assign the indirect costs to the objects. In this way the complexities of the transactions (number of products lines per order, number of batches per order, etc.) were taken care of.

part of the Norwegian fishing industry are represented in «the sample revenue». Thus, it may at least be asserted that the sample is not non-representative of the population.

5.2. Credit reports – customer rating codes (solvency)

The credit reports were received from Dun & Bradstreet Norge AS²¹ and FactoNor AS. Dun & Bradstreet Norge AS is a credit rating agency that is belonging to a company with representatives almost all over the world. Consequently, when preparing the credit reports, Dun & Bradstreet Norge AS could get the necessary information from sister companies in the country where the actual customer is operating. FactoNor AS²² is a Norwegian financial service company that has been specializing in factoring (both domestic and foreign) for many years. The company is one of very few financial companies in Norway that is offering factoring inclusive credit ratings and guarantees. Thus, both of the companies should be highly qualified for working out credit reports and classify the customers according to credit risks. The measurements are carried out on an ordinal scale. In this case the customers are divided into four risk groups according to an increasing degree of solvency (decreasing credit risks): (1) not solvent (2) solvent, (3) more solvent and (4) very solvent.

Out of the 176 customers in the profitability sample only 150²³ were randomly rated with respect to creditworthiness. For six of these customers enough information was not available. Thus, the customer credit sample consists of 144 customers, which is about 82 percent of the profitability sample. The customers that are not rated have been treated as a separate group of customers and compared with the other four groups. Differences that are statistical significant are not found between this customer group²⁴ and the other groups. Consequently, it may not be maintained that the customer credit sample is non-representative of the population (the profitability sample). The customers are situated in 32 countries. The geographical areas of the

²¹ Dun & Bradstreet Norge AS, Oslo, is a daughter company of the Dun & Bradstreet Corporation. The group of companies offers various services such as credit reports with respect to various countries and business enterprises. The group of companies is currently updating credit information for about 120 countries and about 40 million business enterprises in more than 200 countries.

²² FactoNor AS, Ålesund, is a Norwegian finance company with experience and long tradition concerning factoring. The company offers "complete factoring", that is administration of accounts receivable, financing, supervision of customer credits, credit guarantees, and administering estates. The company is member of an international chain of financing companies, Factors Chain International (FCI), which has members in more than 60 different countries on all continents.

²³ Preferably all customers should have been classified. However, for financial reasons the number of customers was limited to 150. It should be mentioned that a credit report usually costs about 800 NOK.

²⁴ This is found both for analyses of variances where these 32 customers are compared with all the other 144 customers, and analyses where this customer group is treated as one of five groups (group No. «0»).

profitability sample that are not represented, are of minor importance both for the four Norwegian exporting companies, for their lines of business, and for the Norwegian fishing industry.

The risk classification of the customers was worked out during the period²⁵ between August and October 1997. Thus, the judgments concerning credit risks were worked out about one year after the orders were carried out. Even if the credit reports were based on accounting data of the customers for the same period of time as the orders were carried out, the time sequence may be questioned. Usually, credit reports are used to judge credit risks related to transactions in the future. But, obviously such reports may also be used for ex-post analyses. However, this does not imply that the credit reports reflect the credit risks the exporting companies were confronted with at the actual point in time, but rather the credit risks the fish exporters were confronted with in the future. Nevertheless, during a period of about a year the rating codes are usually quite stable. Besides, when the classification of the customers are based on only four risk categories, it may be supposed that the rating codes would have been much the same if the credit reports had been worked out about one year earlier. Nevertheless, the credit reports should ideally have been estimated in advance or preferably along with the deliveries.

5.3. Management's ex-ante perceptions of the profitability of individual customer accounts and of the creditworthiness of some of the customers

Analyses of customer profitability are carried out in exporting companies that earlier did not have that kind of financial information easily available. Nevertheless the managers of the businesses obviously had some sort of images or perceptions concerning the profitability of the customers. Thus the principle question is whether their perceptions are in accordance with the customer profitability figures that are worked out. The creditworthiness of customers, that is their rating codes, may be looked upon analogously.

In order to handle the stated research questions, surveys were carried out in each of the four exporting companies. The questionnaires were worked out in beforehand and presented to the

²⁵ Accounting figures for the financial year of 1996 are used for the larger part of the customers, that is figures from the same period of time as the prepared customer accounts (analyses of customer profitability) of the four Norwegian fishing exporting companies. For some of the customers the figures from 1995 are used. Besides some companies operate with a diverging financial year.

managers at the very beginning of the research work in each of the four participating companies. Managers were asked to estimate absolute and relative profitability as well as creditworthiness concerning approximately²⁶ 30 customers. The questionnaires were related to the same period of time as for the two other sources of information (customer profitability and customer solvency). Fifteen managers responded to the questionnaires that of course were adjusted to the customer bases of each of the exporting companies. The participation was as follows: Five managers in one of the companies, four in two of them, and two in the fourth exporting company. All of them were top managers that frequently made decisions concerning customer transactions. Thus, the sample may be said to be to the purpose.

The questionnaires were based on a Likert-scale approach. For each selected customer the managers were presented five response alternatives, both concerning relative and absolute customer profitability, and concerning the solvency of the customers. Of course, the managers could use all available information when answering the questionnaires. However, they were kindly asked not to cooperate when answering the surveys. There is a good reason to believe that this request was accommodated by all of them. Consequently, one may assume that all questionnaires were answered individually.

6. FINDINGS

The presentation of the findings is organized as follows. First, managers' ex-ante perceptions of customer profitability measured in absolute accounting figures are compared with corresponding figures taken from the customer profitability analyses that were worked out (6.1.). Second, analogous comparisons are done for relative figures of customer profitability (6.2.) and the solvency (creditworthiness) of customers (6.3.). Then managers' education and experience is taken into consideration (6.4.). At the end of this part of the working paper (6.5.) it is analysed whether the managers seem to have common perceptions ("paradigms").

²⁶ In each company from 30 till 35 customers were included in the surveys. However, not each of the customers was included in the other samples: (1) the customer profitability sample, and (2) the rating sample. Consequently, the number of observations (customers) varies from one exporting company to another, cf. the following part of this working paper. However, the number of observations is in the interval 20 till 32 customers.

6.1. Ex-ante perceptions of customer profitability - absolute accounting figures

In order to analyze the correspondence between the managers' perceptions of customer profitability and the estimates of customer profitability that are worked out, simple measures of association are used. Kendall's tau statistic is based on pair-wise comparisons of observations and is a suitable measure, taken into consideration the levels of measurement of the variables under consideration (see e.g. Dickinson Gibbons, 1993b).

However, Kendall's tau statistic only indicates the degree of association between the subjective perceptions of the respondents and the more objective measures of customer profitability that is worked out. To be able to say something about the distributions of the pair-wise variables, sign tests are carried out. The sign test is a nonparametric method that may be used for two related samples in order to test whether the distributions of the variables may be said to have the same shapes. No assumption is needed concerning the shapes of the distributions for using this test. The sign test is carried out for each of the fifteen respondents.

Concerning absolute²⁷ accounting figures, exhibit 4 presents both the measures of association between variables and the results of the sign tests for all the fifteen managers. In the column to the left the number of the respondent is found. Then the number of cases (customers) for each respondent is presented. The variation concerning number of cases is explained earlier, cf. part 5.3. above. In the next two columns the coefficients of association (Kendall's tau) and their levels of significance are presented, that is the associations between the subjective perceptions of the respondents and the more objective measures of absolute customer profitability that are worked out. The stated levels of significance are two-sided. Subsequently the numbers of positive differences are specified (the sign test). There are no ties between anyone of the variables for anyone of the respondents. Thus, the numbers of negative differences are found as the sum of observations minus the number of positive differences. In the column to the right the levels of significance of the sign tests are found for each of the respondents.

Exhibit 4 shows that all the 15 coefficients of associations are positive and vary from 0,028 to 0,615. Under the assumption that the customer accounts bring to light the real absolute

²⁷ When the managers of the exporting companies were answering this part of the questionnaires, they obviously took into consideration all the customer revenues for the actual period of time. However, the estimates of customer profitability are based on samples from the exporting companies. Therefore the absolute customer

profitability of the customers, this implies that the managers on the average are more right than wrong concerning their judgments of the absolute profitability of the selected customers. This result is confirmed by the sign tests. The results of these tests indicate that it may not be asserted that two distributions are different for anyone of the fifteen managers. This is based on the supposition that a level of significance of less than 0,05 ($p < 0,05$) is required in order to maintain dissimilarity.

Exhibit 4. Absolute customer accounting figures: (1) associations between managers' ex-ante perceptions and estimated figures taken from customer accounts, and (2) sign tests

Respondent	No. of cases	(1) Kendall's tau		(2) Sign tests	
		Coefficient	Level of sig. ²⁸	No. of positive differences	Level of sig.
1	22	0,209	0,223	15	0,134
2	22	0,225	0,180	15	0,134
3	22	0,615	0,001	15	0,134
4	22	0,175	0,298	15	0,134
5	22	0,136	0,420	15	0,134
6	22	0,222	0,201	9	0,523
7	22	0,058	0,738	9	0,523
8	22	0,096	0,578	9	0,523
9	21	0,285	0,128	9	0,664
10	30	0,028	0,847	18	0,361
11	30	0,285	0,052	18	0,361
12	30	0,357	0,020	15	1,000
13	31	0,135	0,345	15	1,000
14	31	0,351	0,015	15	1,000
15	31	0,165	0,238	15	1,000

However, an evident hypothesis is a positive association between customer revenues and absolute customer results; that is the higher the customer revenues, the higher the absolute customer results. Having no insight in the decision situation but an overview of the customer revenues for the given period of time, a natural best guess would be to rank the customers according to their customer revenues. Of course, it should be expected that the managers of the exporting companies should do a lot better than this simple decision rule. Surely, the coefficients of association vary from one company to another. However, when comparing the

results are found as the estimated relative customer results multiplied by the customers' revenues for the actual period of time.

²⁸ If nothing else is explicitly told, two-sided levels of significances are presented in all the succeeding analyses.

specific correlation coefficients²⁹ for each of the companies with the estimated coefficients for each of the managers, only six of the managers are “beating” this decision rule. Thus, it may be asserted that only 40 % of the managers obtained a better result than an outsider could have obtained by ranking the absolute customer results according to customer revenues.

Furthermore, in exhibit 4 the levels of significance are two-sided. Implicitly it is assumed that the respondents as a point of departure do not have any insight in the decision situation. Thus the basic philosophy is that the respondents are compared with the results that outsiders could have obtained by just guessing. Of course, one may operate with various levels of significance. Here a level of significance of 0,05 is chosen. In order to maintain that a manager has a better insight than an outsider, the requirement is that the coefficient of association should be positive and significant at the 0,05-level. Exhibit 4 shows that only three of the managers meet those requirements. For two of them the coefficients of association are about 0,35 while the coefficient for the third one is about 0,62. It may not be asserted that coefficients at the 0,3-level are satisfactory concerning managers insight about central business matters. It even may be questioned whether a coefficient-level of 0,6 is satisfactory.

In spite of the fact that both the directions of the coefficients of association and the results of the sign tests imply that the fifteen managers were more right than wrong concerning their judgments of the absolute customer results of the selected customers, it may nevertheless not be asserted a good fit or accordance between the perceptual and the more objective images of customer profitability. For at least 80 % of the managers (12 out of 15) one may say that the results are rather unsatisfactory. The reasons for this are manifold and are discussed later on. Now analogous analyses are presented concerning relative customer results.

6.2. Ex-ante perceptions of customer profitability - relative accounting figures

In this section the focus is on the relative customer results. The analyses that are carried out are the same as in the section above. Exhibit 5 presents both the measures of association between variables and the results of the sign tests for the managers concerning relative customer profitability figures. Exhibit 5 shows that one of the managers did not answer this part of the questionnaire. Thus the analyses are based on fourteen managers.

²⁹ When making the comparisons, Kendall's tau statistic is used.

In exhibit 5 the column to the left presents the number of the respondent. Then the number of cases (customers) for each respondent is presented. The variation concerning number of cases is explained earlier, cf. part 5.3. above. In the next two columns the coefficients of association (Kendall's tau) and their levels of significance are presented, that is the associations between the subjective perceptions of the respondents and the more objective measures of relative customer profitability that are worked out. The stated levels of significance are two-sided. Subsequently the numbers of positive differences are specified (the sign test). There are no ties between anyone of the variables for anyone of the respondents. Thus, the numbers of negative differences are found as the sum of observations minus the number of positive differences. In the column to the right the levels of significance of the sign tests are found for each of the respondents.

Exhibit 5. Relative customer accounting figures: (1) associations between managers' ex-ante perceptions and estimated figures taken from customer accounts, and (2) sign tests

Respondent	No. of cases	(1) Kendall's tau		(2) Sign tests	
		Coefficient	Level of sig.	No. of positive differences	Level of sig.
1	22	0,339	0,048	7	0,134
2	22	0,097	0,568	6	0,052
3	22	0,353	0,037	6	0,052
4	22	0,295	0,081	6	0,052
5	22	0,232	0,164	6	0,052
6	22	0,015	0,930	4	0,004
7	22	0,173	0,316	3	0,001
8	22	0,335	0,051	3	0,001
9	21	0,006	0,972	2	0,001
10	-	-	-	-	-
11	30	-0,207	0,163	5	0,001
12	30	0,380	0,012	4	0,001
13	31	0,138	0,320	5	0,001
14	31	0,354	0,014	4	0,001
15	31	0,183	0,198	5	0,001

Exhibit 5 shows that 13 of the 14 coefficients of associations are positive and 1 is negative. They vary from about -0,21 to about +0,38. Under the assumption that the customer accounts bring to light the real relative profitability of the customers, this implies that 13 of the 14 managers on the average are more right than wrong concerning their judgments of the relative profitability of the selected customers. However, many of the coefficients are close to zero

(0,0). Besides their levels of significance³⁰ are rather high, indicating feeble associations between the perceptual and the more objective variables for the respondents. These results are confirmed by the sign tests. For 9 of the 14 respondents the levels of significance are below 0,01. For the rest the levels of significance are above 0,05 (two-sided), but it may be maintained that the two distributions only may be said to be similar³¹ for one of the managers (respondent no. 1).

The levels of significance are two-sided, that is analogous to the presentation in part 6.1. If a level of significance of 0,05 is chosen, 4 of the 14 managers meet those requirements. For all of them the coefficients of association are at the 0,30-level (from about 0,34 to about 0,38). The question then is whether coefficients of association at the 0,3-level are satisfactory concerning managers insight about central business matters?

From the statistical analyses worked out one may assert that for only 1 of the 14 managers there is accordance between judgments and objective measures of relative customer results. Taken into consideration the number of respondents, this is very low. Thus, it may be maintained that the degree of correspondence between objective and perceptual measures of relative customer results is rather feeble for the 14 managers. The reasons for this are manifold and are discussed later on. First we take a look at customers' solvencies.

6.3. Customer solvency (creditworthiness)

Hitherto in part 6 of this working paper the focus has been on comparisons between managers' perceptions (perceptual data) and the more objective data which is based on the managerial accounting information system in each of the four exporting companies. Thus, primary data has been the basis for the statistical analysis. In this section the basis is secondary data; that is credit reports (rating codes) that are furnished by credit agencies (Dun & Bradstreet Norge AS and FactoNor AS). Still the intention is to make comparisons between the ex-ante perceptions of the managers and more objective measures, here the rating codes that are prepared by the rating agencies.

³⁰ Of course there is a close relationship between the magnitude of a coefficient of correlations and it's level of significance.

In order to analyze the associations between the variables under consideration, Kendall's tau statistic could still be used, but because of the levels of measurement of the variables, Spearman's rho is preferred. This statistic is based on ranks and is therefore more suitable (see e.g. Dickinson Gibbons, 1993b). Besides, the sign test is replaced by Wilcoxon's sign rank test. The sign test is based on calculations that only take into consideration the directions of the differences of the pair-wise comparisons. However, the Wilcoxon's sign rank test also take into consideration the magnitudes of the differences. Thus, Wilcoxon's sign rank test may be said to use more of the information that is available. In this nonparametric test it is assumed that the scores are symmetric around the median that under the zero hypothesis is supposed to be equal to zero ($H_0: M_D=0$). The test is carried out for each of the 15 respondents.

Exhibit 6. The solvency of customers: (1) associations between managers' ex-ante perceptions and existing estimates from credit agencies, and (2) Wilcoxon's sign rank tests

Respondent	No. of cases	(1) Spearman's rho		(2) Wilcoxon's sign rank tests	
		Coefficient	Level of sig.	Z	Level of sig.
1	20	-0,123	0,604	-2,650	0,008
2	20	-0,318	0,171	-2,758	0,006
3	20	0,444	0,050	-2,352	0,019
4	20	-0,389	0,090	-3,200	0,001
5	20	-0,393	0,086	-0,715	0,475
6	21	0,093	0,688	-2,739	0,006
7	21	0,444	0,044	-2,230	0,026
8	21	-0,504	0,020	-1,750	0,080
9	21	-0,091	0,695	-3,072	0,002
10	29	0,422	0,023	-2,673	0,008
11	29	0,561	0,002	-3,987	0,001
12	32	0,022	0,904	-3,743	0,001
13	32	0,224	0,218	-3,541	0,001
14	32	0,161	0,380	-2,756	0,006
15	32	-0,173	0,343	-2,214	0,027

Exhibit 6 presents the results of the statistical analyses. All of the 15 managers have answered this part of the questionnaires. In the column to the left the number of the respondent is found. Then the number of cases (customers) for each respondent is presented. The variation concerning number of cases is explained earlier, cf. part 5.3. above. In the next two columns

³¹ This is based on the supposition that a level of significance of less than 0,05 ($p<0,05$) is required in order to maintain dissimilarity. For 4 of the managers the levels of significance are close to this level.

the coefficients of association (Spearman's rho) and their levels of significance are presented, that is the associations between the subjective perceptions of the respondents and the rating codes that the credit agencies have worked out. The stated levels of significance are two-sided. Subsequently the estimated Z-values are specified (Wilcoxon's sign rank test), that is departures from the zero hypotheses. In the column to the right the levels of significance of the sign rank tests are found for each of the respondents.

Exhibit 6 shows that 8 of the 15 estimated coefficients of associations are positive and 7 are negative. They vary from about -0,50 to about +0,56. This implies that only 8 of the 15 managers on the average are more right than wrong concerning their judgments of the solvency of the selected customers. If a level of significance of 0,05 is chosen, 4 of the 14 managers meet those requirements. For 3 of the 4 respondents the coefficients of association are on the 0,4-level (from 0,42 to 0,44) and for the last one on the 0,5-level (0,56). Based on the presented analyses of correlation it may be maintained that 4 of the 15 managers have documented better insight than the results that an outsider may have obtained by chance. The other 11 managers have not passed this "test". And it should be mentioned that for one of them the coefficient of association is at the 0,5-level, but unfortunately negative.

In Wilcoxon's sign rank test the magnitudes of the differences between the perceptions of the respondents and the rating codes furnished by the rating agencies are taken into consideration. Those differences are ranked and then summed both for positive and negative differences (see e.g. Dickinson Gibbons, 1993a; SPSS, 1993). Exhibit 6 shows that the two-sided levels of significance pass 0,05 for only two of the respondents. However, for both of them the coefficients of association are negative.

Summing up, the statistical results of the analyses of association and of the Wilcoxon's sign rank tests imply that the correspondence between perceptual and more objective measures of customer solvency is rather weak. This result may be maintained for all of the 15 managers. These results are in accordance with the findings above, particularly the results of section 6.2.

6.4. Managers' education, experience, etc.

Above it has been found variations from one manager to another concerning insight related to absolute and relative customer profitability figures and the solvency of customers. In the survey the managers were asked to state the number of years of education beyond compulsory schooling, as well as the number of years of work experience, experience in the business, and experience that may be classified as relevant for their work now. The purpose of this part of the working paper is to analyse whether dissimilarities concerning the mentioned factors have any influence on the results of the statistical analyses that have been carried out.

Exhibit 7 shows comprised descriptive statistics for each of the variables under consideration. Everyone answered this part of the survey. At an average the managers had about seven years of education beyond compulsory³² schooling. The variation is not high. Therefore it may be asserted that the managers have solid educational background. Exhibit 7 also shows their experience; that is work experience, experience in the line of business, and totally relevant experience. At an average they all have solid experience. However, the variation is somewhat higher than concerning education.

Exhibit 7. An overview with regard to education and experience of the managers of the survey

	Number of resp.	Min. Year	Max. Year	Mean Year	St.dev. Year	Median
Education	15	5	9	6,7	1,8	6,0
Work experience	15	2	43	17,0	9,5	17,0
Experience in the business	15	1	40	12,1	9,2	11,0
Relevant experience	15	2	40	13,7	8,7	12,0

In order to analyze relationships between the managers' education, work experience, etc. and their perceptions of customer profitability and of solvency of customers, t-tests are carried out. For each of the four variables of exhibit 7 the sample is divided into two subgroups by using the medians as the grouping variable. This implies that for each of the classifications, one subgroup consists of eight respondents and the other one of seven respondents. The analyses

³² Compulsory schooling is here defined as seven years before (approximately) 1965 ("elementary school") and nine years from then on ("junior high school"). The respondents seemed to have no difficulty in understanding what was meant.

of variances are only carried out for the coefficients of association and their levels of significance, cf. the exhibits 4 to 6 above.

The statistical analyses that are worked out do not disclose differences that are statistical conclusive at the 0,05-level for anyone of the considered variables. Thus, neither education nor experience (work experience, experience in the business or experience that may be classified as relevant for their work now) seems to influence on the perceptions of the managers concerning the profitability or the creditworthiness of customers. The implications of these results are discussed later on in the working paper. First we take a closer look at possible common perceptions of the managers of the four fish exporting companies.

6.5. Managers' common perceptions ("paradigms")

The purpose of this part of the working paper is to analyse whether the managers agree with each other; that is whether the managers have common perceptions concerning the profitability and the solvency of their customers. Thus, the attention is particularly devoted to the perceptual variables.

When working out the measures of association that are presented above, cf. the exhibits 4 to 6, analogous measures of association related to each pair of the respondents are also worked out at the same time. Exhibit 8 shows the coefficients of association concerning relative customer results related to the respondents of one of the exporting companies. The exhibit shows that 5 managers answered the questionnaire; that is all the managers of the company.

The average measure of association for this company concerning relative customer results, i.e. the average coefficient of correlation of all the 5 respondents, is estimated³³ to about 0,29. Comparing this figure with the coefficients of exhibit 8 reveals that only 1 of the 10 coefficients of association is smaller than this average number. Besides, 9 of the 10 coefficients are significant on the 0,05-level and 7 on the 0,01-level. This indicates that the managers of this exporting company have common perceptions concerning the profitability of their customers. This may be analyzed further for all of the companies and for all the chosen measures.

³³ Cf. exhibit 9 and the comments below.

Exhibit 8. Relative customer profitability: associations concerning the perceptions of the managers of one of the fish exporting companies

Kendall's tau statistic	Manager A	Manager B	Manager C	Manager D	Manager E
<u>Coefficient of association:</u>					
Manager A	1,000				
Manager B	0,502	1,000			
Manager C	0,502	0,436	1,000		
Manager D	0,735	0,645	0,568	1,000	
Manager E	0,248	0,386	0,620	0,497	1,000
<u>Level of significance:</u>					
Manager A	,				
Manager B	0,009	,			
Manager C	0,008	0,021	,		
Manager D	0,001	0,001	0,002	,	
Manager E	0,185	0,038	0,001	0,007	,

In order to make a closer inspection of the relationships between the managers of the companies concerning their common perceptions, Kendall's W ("Kendall's coefficient of concordance") is taken into use. This statistic shows the degree of agreement between "various judges of the same object". The level of the coefficient is between 0 and 1. The higher the agreement, the closer the value of the coefficient is to 1. In addition to the degree of correspondence, the strength of the relationships (their levels of significance) also may be estimated. Kendall's W statistics including levels of significance are estimated for all the managers of all the exporting companies concerning each of the areas of analysis (all the chosen measures) treated above: (1) absolute customer results, (2) relative customer results, and (3) credit codes of customers. Besides, the average coefficients of association including levels of significance are calculated concerning the relationships between the perceptual and the objective primary and secondary data, cf. part 6.1 - 6.3. These measures of association are estimated for each of the four exporting companies and for each of the three sets of variables.

Exhibit 9 shows the results of the calculations. The first column indicates area of analysis (variables) and company. The next column shows the number of respondents ("judges") of each of the analyses. In the next two columns Kendall's W statistic including levels of significance are presented; and, finally, the average coefficients of association including their levels of significance are shown. It should be noted that the Kendall's W statistics and the

average coefficients of association are not directly comparable³⁴ (see e.g. Dickinson Gibbons, 1993b). However, the purpose is solely to give some indications. Therefore the proceeding comments are not only based on the figures of exhibit 9, but also on the figures that were presented above, cf. part 6.1 to 6.3 of this working paper.

Exhibit 9. Comprised judgments of the managers of each of the four exporting companies

	No of resp.	(1) Kendall's W		(2) Average cor. coeff. ³⁵	
		Coefficient	Level of sig.	Coefficient	Level of sig.
<u>Absolute customer</u>					
<u>profitability:</u>					
Company A	5	0,367	0,011	0,408	0,012
Company B	2	0,620	0,175	0,184	0,188
Company C	4	0,341	0,092	0,308	0,025
Company D	4	0,521	0,003	0,191	0,251
<u>Relative customer</u>					
<u>profitability:</u>					
Company A	5	0,653	0,001	0,294	0,061
Company B	2	-	-	-	-
Company C	4	0,406	0,018	0,341	0,012
Company D	4	0,478	0,008	0,142	0,388
<u>Customer solvency</u>					
<u>(creditworthiness):</u>					
Company A	5	0,505	0,001	-0,192	0,416
Company B	2	0,768	0,033	0,516	0,004
Company C	4	0,460	0,003	0,109	0,554
Company D	4	0,444	0,014	-0,004	0,986

According to the findings of exhibit 9 the managers are very much in accordance concerning their judgments or their perceptions of the variables that are analyzed. Kendall's W statistic is calculated for 11 variables. The values of the statistic vary from 0,341 to 0,768. 9 of the 11 coefficients are significant on the 0,05-level. Concerning the estimated average coefficients of association between the perceptual and the objective primary and secondary data, a pattern is not easily seen, a finding that is in accordance with the findings above, cf. part 6.1 to 6.3 of

³⁴ A coefficient (W_a) that is related to average tau has been proposed and discussed. Thus, it is possible to make comparisons more easily. However, the proposal is not unambiguous: "The value of W_a is not necessarily equal to that of W , however" (Dickinson Gibbons, 1993b, op. cit. p. 35).

³⁵ The coefficients of association concerning absolute and relative customer results are Kendall's tau, cf. part 6.1 and 6.2. Concerning customer solvency (rating codes) Spearman's rho is used, cf. part 6.3. The presented figures are the estimated averages of the coefficients of association related to the respondents of current interest. The estimates have been worked out separately. This implies that the levels of significance related to each of the coefficients are a natural part of the calculations that have been carried out.

this working paper. The values of the coefficients vary from -0,192 to 0,516. Only 4 of the 11 coefficients are significant on the 0,05-level, a result that also may be said to be in accordance with the earlier findings. There seems to be no divergences concerning areas of analysis: (1) absolute customer results, (2) relative customer results, and (3) customer rating codes.

The presented statistical analyses indicate that common perceptions have been formed concerning customer profitability and customer solvency among the managers of each of the four fish exporting companies. However, these common perceptions are unfortunately not in accordance with the estimated figures of customer profitability that have been established by doing a thorough recalculation of the accounting figures of the four companies. The conclusion is just the same concerning absolute customer results as well as relative customer results. Analogous results are found concerning customer solvency. It seems as if the managers of the companies have common perceptions that are not in accordance with the conclusions (rating codes) of the professional credit agencies.

Thus, the statistical analyses that have been carried out indicate that the managers of all of the four exporting companies have common perceptions or “paradigms” concerning customer profitability and customer solvency. Such common perceptions may often be looked upon as an advantage. But, of course, then the perceptions should be correct. Here the findings are so convincing that it may be asserted or at least questioned whether the perceptions are right.

7. DISCUSSION AND MANAGERIAL IMPLICATIONS

In the discussion above it is assumed that the estimated absolute and relative customer results present correct images of customer profitability. However, this concept may be perceived in different ways, cf. the discussion of part 3 and part 5.1 of this working paper (see also Helgesen 1999a; 1999b). It is evident that the concept is complex, is consisting of several dimensions, may be related to various cause- and effect relationships, and may be operationalized in different ways. And the managers of the 4 exporting companies were not asked to define their understanding of the concept, what dimensions or aspects they emphasize, etc. May be that

their images of customer profitability are different³⁶ from the images that were worked out? Then the conclusions above may be wrong.

However, the divergences between the perceptions of the managers and the more objective measures are not only limited to the customer profitability figures. Similar divergences are found concerning customers' creditworthiness. Also in this area of analyses the estimated statistics reveal discrepancies between perceptual and objective data. Taking into consideration that customers' rating codes are not often changed, this finding is supporting the assumption that the perceptions of the managers may be somewhat distorted concerning central topics related to customer economics.

However, it should be noted that the perceptual variables may comprise factors, aspects or relationships that are not included in the "objective" variables. This may be related to various topics. The perceptions of the managers may for instance be related to another time horizon; e.g. a longer period than the last year. Besides, they may unconsciously take into consideration possibilities related to transactions in future; that is the profitability potentials of each of the customers under consideration. Thus, of course divergences will appear between the perceptual and the more objective measures of customer economics. This is found in analogous studies (see e.g. Dess & Robinson, 1984; Pearce & al., 1987; Venkatraman & Ramanujam, 1986; 1987). Even if the questionnaires used should be unambiguous, the managers may have included such aspects when judging their customers.

The main research question that is addressed in this working paper is whether perceptual measures of customer profitability can replace more objective ones? In analogous studies this research question has been analysed on the business-level (see e.g. Dess & Robinson, 1984; Pearce & al., 1987; Venkatraman & Ramanujam, 1986; 1987). Even if association has been found between variables that have been analyzed, the conclusions are not unambiguous, cf. part 2 of this working paper.

Of course, it is much more demanding to judge profitability figures on the customer-level than on the business-level. Thus, the findings of this study should not be perceived as surprising. It

³⁶ It should be pointed out that the survey was carried out in beforehand and presented to the managers at the very beginning of the research work in each of the four participating companies.

is a reason to believe that the customer-related problems are so complex that there is a need for profound insight when judging the financial measures under consideration. Neither education nor experience (“rules of thumbs”) can compensate for insufficient or missing customer accounts that are presenting reliable profitability figures. When such information is not available, the managers’ judgments have to be based on best guesses. In order to use perceptual measures when judging various profitability objects it is of fundamental importance that the decision makers are well informed concerning the profitability objects under consideration. Using the managerial accounting system of today, such insight may be established for business units, but hardly for customers. Thus, the only way of solving this problem is to include customer accounting as part of the managerial information system of a business. With profitability figures available at the customer-level, the decision makers should be able to make decisions that are in accordance with the principle objective of the company, probably long-term profitability.

In what extent the survey among the managers of the four fish exporting companies are representative for the fishing industry (external validity), is difficult to say. However, it should be mentioned that the selected companies are looked upon as being in the vanguard of the industry. Consequently, it is a reason to believe that findings are valid beyond the four exporting companies; that is to say both for the fishing industry and for other businesses. Besides, market surveys have shown that customer accounting and customer profitability analyses are not included in the managerial accounting systems of a business (see e.g. Foster & Gupta, 1994; Foster & al., 1996). Taking into consideration the findings of this study, this part of the managerial accounting system should receive much more attention in future.

8. LIMITATIONS AND IMPLICATIONS FOR FUTURE RESEARCH

The findings of this working paper may be perceived as convincing: Objective measures of customer profitability cannot and should not be replaced by perceptual measures. Nevertheless, some limitations should be mentioned. The suggestions below may hopefully provide some ideas for further research in this area of managerial economics.

The chosen context of this study is order handling exporting companies of the Norwegian fishing industry. Even if the samples of the survey may be perceived as satisfactory and the

findings rather convincing, similar studies should be carried through. Because of the supposed generality of the relationships it is recommended that other contexts are being used. This may give new insight and a better understanding of the relationships between perceptual and more objective measures of customer economics.

In order to get a more profound insight, it may be favorable to analyze various levels of one or more companies for the same period of time; that is on the business-level, for instance on the market-level as well as on the customer-level. Both perceptual as well as more objective measures should be considered. In this way one should be able to say a lot more about relationships and perhaps also get insight into causes of divergences:

”When different measures yield dissimilar results, they demand that the researcher reconcile the differences somehow. In fact, divergences can often turn out to be an opportunity for enriching the explanation” (Jick, 1979, p. 607).

Hopefully, such analyses should include various measures at the individual customer level (cf. Helgesen, 1999a; 1999b). As long as customer accounting is not a natural part of the managerial accounting system of a company, this part of the study is supposed to be the most time-consuming. Nevertheless, this part may turn out to be the most interesting one concerning insight that may result in more efficient use of the total resources of a company, thus increasing the profitability of the company.

9. CONCLUSION

The focus of this working paper has been the relationships between “perceptual” and “objective” measures of profitability of customers. The main research question that is addressed is: Can perceptual measures of customer profitability replace more objectives ones? Furthermore, managers’ conceptions of the solvency of customers have been compared with rating codes (credit reports) furnished by professional credit agencies. The findings indicate that neither the “objective” measures of customer profitability (absolute and relative customer results) nor the rating codes furnished by the international credit rating agencies, should be replaced by the “perceptual” measures of the managers of the four exporting companies that have been analysed. Thus, the managerial accounting systems of the companies should be extended in such a way that the decision makers have available reliable and updated customer-related figures when making decisions. By market orienting the managerial accounting

system of a company, the decision makers should be able make decisions that are contributing to the achievement of the long-term objective of the company.

It should be noted that a market-oriented businesses operates with two main goals: (1) to satisfy the customers needs by offering products which accommodate the desires, requests and demands of the customers, and (2) to satisfy the business unit's needs by carrying out exchanges that result in long-term profitability. Thus, it may be asserted that a company's implementation of the marketing concept is not in accordance with the original intentions if the company's efforts are concentrated towards the customers and their needs, wishes and requests. In order to claim market-orientation the own interest of the business also have to be fulfilled, i.e. that the customers have to be profitable.

LITERATURE

- Abell, Derek F. Defining the Business: The Starting Point of Strategic Planning. Prentice-Hall, Inc., 1980.
- Abell, Derek F. Managing With Dual Strategies. Mastering the Present. Preempting the Future. The Free Press, 1993.
- Albaum, Gerald
Strandskov, Jesper
Duerr, Edwin
Dowd, Laurence International Marketing and Export Management. Third edition. Addison-Wesley, 1998.
- Anderson, Eugene W.
Fornell, Claes
Rust, Roland, T. Customer Satisfaction, Productivity, and Profitability: Differences Between Goods and Services. Marketing Science, 1997, Vol. 16, No. 2, pp. 129-145.
- Anderson, Eugene W.
Sullivan, Mary W. The Antecedents and Consequences of Customer Satisfaction For Firms. Marketing Science, 1993, Vol. 12, pp. 125-143.
- Bjørnenak, Trond Bidrags- eller selvkostkalkulasjon ? Dagens kalkyledebatt i et historisk perspektiv. Beta, Nr. 2, pp. 1-10, 1994b.
- Bourgeois, L. J. Performance and Consensus.. Strategic Management Journal, 1980, Vol. 1, pp. 227-248.
- Bradley, Frank International Marketing Strategy. Prentice Hall, 1991.
- Burns, Paul
Dewhurst, Jim Small Business and Entrepreneurship. Second Edition. MacMillan Small Business Series, 1996.
- Burton, E. James
McBride, W. Blan Håndbok i bedriftsplanlegging. Universitetsforlaget, 1993.
- Capon, Noel
Farley, John U.
Hoenig, Scott Determinants of Financial Performance: A Meta-Analysis. Management Science, 1990, Vol. 36, No. 10, pp. 1143-1159.
- Coase, Ronald Harry Business Organisation and the Accountant. The Accountant, 1938, October 1 - December 17.
- Connolly, Tim
Ashworth, Gary Managing Customers to Profit. Management Accounting, 1994, April, pp. 34-39.
- Cooper, Robin
Kaplan, Robert S. The Design of Cost Management Systems. Prentice Hall, 1991.
- Day, George S.
Wensley, Robin Assessing Advantage: A Framework for Diagnosing Competitive Superiority. Journal of Marketing, 1988, Vol. 52 (April), pp. 1-20.
- Demski, Joel Managerial Uses of Accounting Information. Kluwer Academic Publishers, 1997.
- Dess, Gregory D.
Davis, Peter S. Porter's (1980) Generic Strategies as Determinants of Strategic Group Membership and Organizational Performance. Academy of Management Journal, 1984, Vol. 27, No. 3, pp. 467-488.

- Dess, Gregory G.
Robinson jr., Richard B. Measuring Organizational Performance in the Absence of Objective Measures: The Case of the Privately-held Firm and Conglomerate Business Unit. *Strategic Management Journal*, 1984, Vol. 5, pp. 265-273.
- Dickinson Gibbons, Jean Nonparametric Statistics. An Introduction. Sage Publications, 1993a.
- Dickinson Gibbons, Jean Nonparametric Measures of Association. Sage Publications, 1993b.
- Eitemann, David K.,
Stonehill Arthur I.
Moffet, Michael H. Multinational Business Finance. 8th Edition. Addison-Wesley Publishing Company, 1998.
- Evans, Joel R.
Laskin, Richard L. The Relationship Marketing Process: A Conceptualization and Application. *Industrial Marketing Management*, 1994, Vol. 23, pp. 439-452.
- Fornell, Claes A National Customer Satisfaction Barometer: The Swedish Experience. *Journal of Marketing*, 1992, Vol. 56, pp. 6-21.
- Fornell, Claes
Johnson, Michael, D.
Anderson, Eugene W.
Cha, Jaesung
Bryant, Barbara Everitt The American Customer Satisfaction Index: Nature, Purpose, and Findings. *Journal of Marketing*, 1996, Vol. 60 (Oct.), pp. 7-18.
- Foster, George
Gupta, Mahendra Marketing, Cost Accounting and Management Accounting. *Journal of Management Accounting Research*, 1994, Autumn, pp. 43-77.
- Foster, George
Gupta, Mahendra
Sjoblom, Leif Customer Profitability Analysis: Challenges and New Directions. *Journal of Cost Management*, 1996, Spring, Vol. 10, No. 1, pp. 5-17.
- Frankfort-Nachmias, C.
Nachmias, David Research Methods in the Social Sciences. Fourth Edition. St. Martin's Press Inc., 1992.
- Galbraith, Craig
Schendel, Dan An Empirical Analysis of Strategy Types. *Strategic Management Journal*, 1983, Vol. 4, pp. 153-173.
- Gale, Bardley T. Monitoring Customer Satisfaction and Market-Perceived Quality. American Marketing Association Worth Repeating Series, Number 922CSO I. Chicago: American Marketing Association, 1992.
- Ghemawat, Pankaj The Arithmetic of Strategic Cost Management. Working Paper, Harvard Business School, 1986.
- Ghemawat, Pankaj Building Strategy on the Experience Curve. *Harvard Business Review*, 1992, March/April, pp. 143-149.
- Globerson, Shlomo Issues in developing a performance criteria system for an organization. *Int. Journal of Production Research*, 1985, Vol. 23, No. 4, pp. 639-646.
- Greenley, Gordon E. Market Orientation and Company Performance: Empirical Evidence From UK Companies. *British Journal of Management*, 1995a, Vol. 6, pp. 1-13.
- Greenley, Gordon E. Forms of Market Orientation in UK Companies. *Journal of Management Studies*, 1995b, January pp. 47-66.
- Hallowell, Roger The relationships of customer satisfaction, customer loyalty and profitability: an empirical study. *International Journal of Service*, 1996, Vol. 7, pp. 27-42.

- Hambrick, Donald C. Some Tests of the Effectiveness and Functional Attributes of Miles and Snow's Strategic Types. *Academy of Man. Journal*, 1983a, Vol. 26, No. 1, pp. 5-26.
- Hambrick, Donald C. An Empirical Typology of Mature Industrial-Product Environments. *Academy of Management Journal*, 1983b, Vol. 26, No. 2, pp. 213-230.
- Hambrick, Donald C. Lei, David. Toward an Empirical Prioritization of Contingency Variables for Business Strategy. *Academy of Management Journal*, 1985, Vol. 28, No. 4, pp. 763-788.
- Hart, Susan Diamantopoulos. Linking market orientation and company performance: preliminary evidence on Kohli & Jaworski's framework. *Journal of Strategic Marketing*, 1993, Vol. 1, No. 2, pp. 93-122.
- Helgesen, Øyvind. Kundelønnsomhet, 1999a. Avhandling for graden dr. oecon. ved Norges Handelshøyskole, våren 1999/Monografi No. 6, Senter for fiskeriøkonomi, Norges Handelshøyskole, 1999.
- Helgesen, Øyvind. Customer Accounting and Customer Profitability Analysis – Some Theoretical Aspects and some Empirical Results, 1999b. Working Paper No. 67/1999, Stiftelsen for samfunns- og næringslivsforskning, Bergen.
- Helgesen, Øyvind. Are Loyal Customers Profitable? Customer Satisfaction, Customer Loyalty and Customer Profitability at the Individual Level. Working Paper No. 07/2000, Stiftelsen for samfunns- og næringslivsforskning, Bergen.
- Helgesen, Øyvind. Does Quality Pay? Working Paper No. 71/2000, Stiftelsen for samfunns- og næringslivsforskning, Bergen.
- Helgesen, Øyvind. Is Customer Profitability Related to Solvency of Customers? Working Paper No. 90/2000, Stiftelsen for samfunns- og næringslivsforskning, Bergen.
- Hitt, Michael A. Ireland, Duane R. Relationships among Corporate Level Distinctive Competencies, Diversification Strategy, Corporate Structure and Performance. *Journal of Management Studies*, 1986, Vol. 23, No. 4, pp. 401-416.
- Holt, Morten Thalberg jr., Jan M. Våge, Rolf Kristian. Kredittsikring ved eksport. Kandidatoppgave - Høgskolen i Ålesund, vårsemesteret 1998.
- Howell, Robert A. Soucy, Stephen R. Customer Profitability as Critical as Product Profitability. *Management Accounting*, Oct. 1990, pp. 43-47.
- Ittner, Christopher D. Larcker, David F. Quality Strategy, Strategic Control Systems, and Organizational Performance. *Accounting, Organizations and Society*, 1997a, Vol. 22, No. 3-4, pp. 293-314.
- Ittner, Christopher D. Larcker, David F. The Activity-Based Cost Hierarchy, Production Policies and Firm Profitability. *Journal of Management Accounting Research*, 1997b, Fall, pp. 143-162.
- Ittner, Christopher D. Larcker, David F. Are Non-Financial Measures Leading Indicators of Financial Performance? An Analysis of Customer Satisfaction. Working Paper, Wharton School. University of Pennsylvania, 1997c, Sept.
- Jaworski, Bernhard J. Kohli, Ajay K. Market Orientation: Antecedents and Consequences. *Journal of Marketing*, 1993, Vol. 57, pp. 50-70.
- Jick, T. D. Mixing qualitative and quantitative methods: Triangulation in action. *Administrative Science Quarterly*, 1979 No. 24, pp. 602-611.

- Kaplan, Robert S.
Norton, David P. The Balanced Scorecard - Measures That Drive Performance.
Harvard Business Review, 1992, Jan./Febr., pp. 71-79.
- Kaplan, Robert S.
Norton, David P. Putting the Balanced Scorecard to Work.
Harvard Business Review, 1993, Sept./Oct., pp. 134-149.
- Kaplan, Robert S.
Norton, David P. Using the Balanced Scorecard as a Strategic Management System.
Harvard Business Review, 1996a, Jan./Febr., pp. 75-87.
- Kaplan, Robert S.
Norton, David P. The Balanced Scorecard.
Harvard Business School Press, 1996b.
- Kohli, Ajay K.
Jaworski, Bernhard J. Market Orientation : The Construct, Research Propositions, and Managerial
Implications. Journal of Marketing, 1990, Vol. 54, pp. 1-18.
- Kotler, Philip
(Blom, Svein-Erik) Markedsføringsledelse.
Universitetsforlaget (Prentice Hall International), 1992.
- Lebas, Michel Management Accounting Practice in France.
Management Accounting, European Perspectives, 1996, pp. 74-99.
- Leuthesser, Lance
Kohli, Ajay K. Relational Behavior in Business Markets. Implications for Relationship Marketing.
Journal of Business Research, 1995, Vol. 34, pp. 221-233.
- Lewis, Daniel C. Operations Strategies for the Changing Aerospace Industry.
I Manufacturing Issues, 1987. Booz•Allen & Hamilton, Inc.
- Lewis, Ronald J. Activity-based Costing for Marketing.
Management Accounting, 1991, Nov., pp. 33-38.
- Miles, Raymond E.
Snow, Charles C. Organizational Strategy, Structure and Process.
McGraw-Hill, New York, 1978.
- Narver, John. H.
Slater, Stanley F. The Effect Of Market Orientation On Business Profitability.
Working Paper. Marketing Science Institute, Cambridge, Massachusetts, 1989.
- Narver, John. H.
Slater, Stanley F. The Effect Of Market Orientation On Business Profitability.
Journal of Marketing, 1990, Oct., pp. 20-35.
- Narver, John. H.
Slater, Stanley F. Market Oriented Isn't Enough: Building a Learning Organization.
Rep. No. 94-103. Marketing Science Inst., Cambridge, Mass., 1994, pp. 1-30.
- Paliwoda, Stan International Marketing. Butterworth Heinemann, 1993.
- Parasuraman, A. Marketing Research. 2nd Edition. Addison-Wesley Publishing Company, 1991.
- Pearce II, John A.
Robbins, D. Keith
Robinson jr., Richard B. The Impact of Grand Strategy and Planning Formality on Financial Performance.
Strategic Management Journal, 1987, Vol. 8, pp. 125-134.
- Pelham, Alfred M.
Wilson, David T. A Longitudinal Study of the Impact of Market Structure, Firm Structure, Strategy,
and Market Orientation Culture on Dimensions of Small-Firm Performance.
J. of the Ac. of Mark. Science, 1996, Vol. 24, No. 1, pp. 27-43.
- Ratnatunga, J.
Pike, R.
Hooley, G. J. The Application of Management Accounting Techniques to Marketing.
Accounting and Business Research, 1988, Vol. 18/No. 72, pp. 363-370.

- Reichheld, Frederick F.
Sasser, W Earl Zero Defections: Quality Comes to Services.
Harvard Business Review, 1990, Sept./Oct., pp. 105-111.
- Richardson, Peter R.
Gordon, Hohn R. M. Measuring Total Manufacturing Performance.
Sloan Management Review, 1980, Vol. 21, No. 2, pp. 47-58.
- Riley, Daniel Competitive Cost Based Investment Strategies for Industrial Companies.
I Manufacturing Issues, 1987. New York: Booz• Allen & Hamilton.
- Robinson, Michael A. Contribution Margin Analysis: No Longer Relevant/Strategic Cost Management:
The New Paradigm. Journal of Management Accounting, 1990, Autumn, pp. 1-32.
- Rucci, Anhony J.
Kirn, Steven P.
Quinn, Richard T. The Employee-Customer-Profit Chain at Sears.
Harvard Business Review, Jan-Febr. 1998, pp. 83-97.
- Ruekert, Robert W. Developing a market orientation: An organizational strategy perspective.
International Journal of Research in Marketing, 1992, Vol. 9, pp. 225-245.
- Rust, Roland T.
Zahorik, Anthony J. Customer Satisfaction, Customer Retention and Market Share.
Journal of Retailing, 1993, Summer, pp. 193-215.
- Rust, Roland T.
Zahorik, Anthony J.
Keiningham, Timothy L. Service Marketing.
HarperCollins, 1996.
- Schiff, Allen I.
Schiff, Jonathan B.
Sciff, Michael Marketing costs: back to basics.
Financial Executive, 1991, May/June, pp. 34-37.
- Selnes, Fred Analysing Marketing Profitability: Sales Are a Dangerous Cost Driver.
European Journal of Marketing, 1992, Vol. 26, No. 2, pp. 15-26.
- Selnes, Fred
Jaworski, Bernhard J.
Kohli, Ajay K. Market Orientation in United States and Scandinavian Companies. A Cross-
Cultural Study. Scandinavian Journal of Man., 1996, Vol. 12, No. 2, pp. 139-157.
- Shank, John K.
Govindarajan, Vijay Strategic Cost Analysis. The Evolution from Managerial to Strategic Accounting.
Richard D. Irwin, Inc., 1989.
- Shank, John K.
Govindarajan, Vijay Strategic Cost Analysis of Technological Investments.
Sloan Management Review, 1992a, Vol. 34, No. 1, pp. 39-52.
- Shank, John K.
Govindarajan, Vijay Strategic Cost Management: The Value Chain Perspective.
Journal of Managment Accounting Research, 1992b, No. 4, pp. 179-197.
- Shank, John K.
Govindarajan, Vijay Strategic Cost Management and the Value Chain.
Journal of Cost Management, 1992c, Winter, pp. 5-21.
- Shank, John K.
Govindarajan, Vijay Strategic Cost Management: Tailoring Controls to Strategies.
Journal of Cost Management, 1992d, Autumn, pp. 14-24.
- Shank, John K.
Govindarajan, Vijay Strategic Cost Management. The New Tool for Competitive Advantage.
The Free Press, 1993.
- Shapiro, B.P.
Bonona, T.V. How to segment industrial markets.
Harvard Business Review, 1984, May-June, pp. 104-110.

- Shapiro, Benson P.
Rangan, Kasturi V.
Moriarty, Rowland T.
Ross, Elliot B.
- Manage customers for profits (not just sales).
Harvard Business Review, 1987, Sep./Oct., pp. 101-108.
- Sloma, Richard S.
- How To Measure Managerial Performance.
Macmillan Publishing, New York, 1980.
- Snow, Charles C.
Hrebiniak, Lawrence G.
- Strategy, Distinctive Competence, and Organizational Performance.
Administrative Science Quarterly, 1980, Vol. 25, pp. 317-336.
- Solberg, Carl Arthur
- Internasjonal Markedsføring. Tano, 1999.
- SPSS
- SPSS for Windows. Base System User's Guide. Release 6.0. SPSS Inc., 1993.
- Storbacka, Kaj
- The Nature of Customer Relationship Profitability. Analysis of Relationships and Customer Bases in Retail Banking. Svenska Handelshögskolan, Helsingfors, 1995.
- Summers, Gene F.
- Attitude Measurement.
Rand McNally, Chicago, 1970.
- Söderlund, Magnus
- Den nöjda kunden. Kundtillfredsställelse – orsaker och effekter.
Liber Ekonomi, Malmö, 1997.
- Tellefsen, Brynjulf
- Market Orientation. Fagbokforlaget, 1995.
- Venkatraman, N.
Ramanujam, Vasudevan
- Measurement of Business Performance in Strategy Research: A Comparison of Approaches. Academy of Management Review, 1986, Vol. 11, No. 4, pp. 801-814.
- Venkatraman, N.
Ramanujam, Vasudevan
- Measuring of Business Economic Performance: An Examination of Method Convergence. Journal of Management, 1987, Vol. 13, No. 1, pp. 109-122.
- Wilson, R.M.S.
Bancroft, A.L.
- The Application of Management Accounting Techniques to the Planning and Control of Marketing Consumer Non-Durables.
Occasional Paper Series, Institute of Cost and Management Accountants, 1983.
- Wisner, Joel D.
Fawcett, Stanley E.
- Linking Firm Strategy To Operating Decisions Through Performance Measurement. Production & Inventory Management Journal, Vol. 32, No. 3, 1991, pp. 5-11.