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# ASSESSMENT OF CUSTOMER VALUE AND EVALUATION OF CUSTOMER EQUITY

**Abstract:** Issues of customer value assessment are discussed from the perspective of customer relationship management concept. Advantages of customer relationship management are presented on the example of customer margin and net cash flows. Their respective values are used in evaluation of customer lifetime value and evaluation of customer equity. The relationships between customer profitability and customer costs are also presented.

**Keywords:** customer relationship management, customer profitability, customer value, customer equity.

## 1. Introduction

Customers are an important asset of any modern company operating in the context of increased market competition. Modern economy faces no real obstacles in product manufacture, but the problem of sale remains an issue. Moreover, sale is generated in company environment and realized on the market, so sales figures depend primarily on customer base. Hence, modern companies are characterized by the tendency to depart from traditional product orientation towards customer-oriented approach. One of manifestations of this trend is the growing concern of companies with maintaining proper customer relationship.

Customer relationship management is a concept oriented on gaining long-term benefits from customer relations. Customer relationship management (CRM) covers a wide range of company activities aimed at attracting, retaining and servicing customer base with the view of increasing their loyalty and satisfaction. The end result of these activities is to increase company profit from sales of products and commodities. The principal goal of CRM is to improve company market value through maximization of potential offered by good customer relationship. Customer orientation becomes a priority for all activities undertaken with the view of maintaining long-term relationship with customers.

Maintaining proper customer relations may be perceived as a specific form of company long-term investment. For this reason, assessment of customer value may follow the principles of standard assessment of financial profit as used in evaluation

of investment projects. The universally adopted measure of this profit is the net adjusted present value. The most fundamental problem in this approach is the method of measuring financial profit resulting from customer relations.

This paper presents some of the methods of estimating customer value for a company using financial profits resulting from customer relationship, together with an overview of the relationship between customer costs and customer profitability.

## 2. Measuring customer results

The primary concern in estimation of customer value is the method of measuring company profits resulting from relations with customers. The measurement may be conducted using different weights, which may yield different result categories. It is worth noting that customer profit measurement can be done both for the purpose of financial reporting and for the internal company management purposes.

The International Financial Reporting Standards 8 (IFRS 8) *Operating segments* require that an economic entity disclose information about transactions with major customers in its financial reports. Information on customer varieties and groups are disclosed within financial reports pertaining to operating segments of the entity. The major information applying to major customers and customer groups includes:

– revenues from external customers,
– revenues from internal customer transactions,
– customer sales results.

An economic entity is bound to disclose information on the extent of its reliance on its major customers. This duty applies to situations when revenues from transactions conducted with any single external customer amount to ten percent or more of the total entity revenue. In addition, the entity need not disclose the identity of a major customer nor the amount of revenues reported from that customer.

Information on customer results is also used for customer relationship management purposes, as this type of information is fundamental for appraising customer profitability of individual customers or customer groups, as well as for selection of most profitable customers. Customer demands have increased: customers seek products of considerable utility value and high quality, they expect highest standard of service, they adjust their preferences and compare product offer of different suppliers. These phenomena are accompanied by shortening of the product life cycle, introduction of flexible production processes and short product series. All the above trends contribute to profitability differentiation of individual customers and customer groups.

Customer results account is focused primarily on measuring the results, reaching different values for individual customers and customer groups. These differences may be attributed to different customer expectations in regard to: features of purchased products, supply and shipment preferences, range of customer services offered, forms of customer acquisition, methods of financing as well as the risk of cooperation with a given customer [11, p. 6-1].

In a traditional company accounts system, customer results segment is rarely distinguished. Consequently, customer results data is dispersed across account records and not reported separately in the profit and loss account. Moreover, this data is recorded across budget records of different operating segments. For the purpose of customer relationship management, it seems advisable to separate customer results account as a distinct segment of company results account. The method of calculation is largely dependent on the employed method of cost accounting.

Customer results account based on total cost account presents as follows:

Revenue from product sale to customer
– Manufacture cost of products sold to customer

= Gross results of product sale to customer
– Customer cost

= Results from product sale to customer.

The above method of calculating results from product sale to customer corresponds with calculative variant of results accounting. Gross results of product sale to customer is a surplus of revenue from product sale over the cost of this product manufacture. The result, reduced by the cost of customer relationship, produces the result from product sale to customer.

A market-oriented variant of cost accounting system is the variable costing system, together with its various alternatives, such as multilevel and multi-block income statement. This system may be adjusted for calculation of customer results for individual customers and customer groups. A diagram of multilevel account of customer results presents as follows:

revenue from product sale
– variable cost of products sold

contribution margin I
– fixed cost of sold products manufacture

contribution margin II
– fixed costs of customer (customer groups)

contribution margin III
– fixed company costs

sales results.

From the viewpoint of this paper's main subject, the most important contribution margin category is the contribution margin III, which represents contribution margin of customers (customer groups). This margin is the result of contribution margin II minus fixed cost of customers (customer groups). Contribution margin III forms a base for evaluating profitability of individual customers or customer groups. This margin, reduced by company fixed costs, represents the sales results.

Multilevel account of client results is only one of viable approaches. For large companies with complex market structure, this diagram may be extended and adapted

to requirements of multilevel profitability analysis of individual sales segments. Such potential is offered by multidimensional cost account, distinguishing such sales segments as: market segments, sales regions, distribution channels, customer groups and individual customers. In this way, contribution margin for individual sales segments can be evaluated, such as: regions, distribution channels, customers. Based on this margin, a company may evaluate sales profitability per region, per channel or per individual customer (or customer group).

Overhead costing and variable costing lead to the so-called cost averaging, resulting in averaging of sales prices. At present, there is a marked tendency to increase the share of sales costs, management costs and fixed costs in the overhead costs which include the majority of customer relationship costs. This is why such approach is insufficient in respect of calculating customer costs for the purpose of customer profitability evaluation. More detailed information on customer costs can be obtained by employing the system of activity-based costing (ABC). In this type of costing, customer costs are related to diversity of relationship complexity in respect to individual customers and customer groups.

Activity-based costing, as employed to calculation of customer costs and customer results, offers the prospect of attributing customer relationship costs to particular customers. Such assignment of costs to customers takes into consideration the diversity of servicing complexity as well as requirements of particular customers. In this manner, the results of customer cost calculations reflect the level of costs incurred in relation to particular customers, since sales costs and management costs that include various items related to customer relationship costs are allocated to particular customers and customer groups.

## 3. Estimation of customer lifetime value

Customers are a source of financial profits for a company; those profits result from the sale of products to customers. Estimation of customer lifetime value may follow the approach used in estimation of company investment profitability, as maintaining proper customer relationship can be viewed as a specific form of long-term investment.

Evaluation of customer relationship profitability is based on the so-called customer lifetime value (CLV). Customer lifetime value is an adjusted net value of company profits attributed to a customer over the whole life cycle of the customer relationship with the company. Therefore, estimation of customer lifetime value follows principles similar to those employed in calculation of net present value (NPV), as used in assessment of investment project profitability.

Estimation of customer value for a company is based on an assumed period of relationship with a given customer: $n$ years. For each year of this period $t = 0, 1, 2, ..., n$ the company anticipates the level of profits gained from the customer as well as the level of costs incurred as a result of maintaining relationship with the customer.

These are represented in terms of net cash flow, i.e. the difference between revenue and expenditure for each consecutive year. The resulting values represent anticipated profits gained each year as a result of maintaining relationship with the customer under evaluation. For the purpose of value comparability, net cash flows for each consecutive year are discounted at an anticipated discount rate which, for most cases, is calculated as cost of capital used in marketing investment project.

Customer lifetime value for the company is calculated using the following formula:

$$\mathrm{CLV} = \sum_{t=0}^{n} \frac{\mathrm{NCF}_t}{(1+r)^t},$$

where: CLV – customer lifetime value,
$\mathrm{NCF}_t$ – net cash flow from customer relationship per year $t$,
$r$ – discount rate.

CLV is a sum of discounted annual net cash flows resulting from relationship with a given customer for the assumed duration. This sum represents an appraisal of company financial profits gained from the customer during the whole period under evaluation.

Estimation of future cash flows resulting from relationship with present and potential customers is a difficult task. Hence, in practical applications, it is often simplified by assuming that net cash flows from customer relationship are equal to the margin from products sold to that customer. In other words, it is assumed that anticipated receipts from products sold to the customer will generate equal sum of revenue, and that anticipated cost of relationship with the customer will generate equal sum of expenditure.

Estimation of customer lifetime value should account for all costs incurred by the company in relation to the customer under evaluation. This includes not only the cost of manufacturing products sold to the customer, but also the cost of customer acquisition, customer servicing and customer retention. By comparing these costs with revenue from products sold, customer-related margin can be calculated, which is a measure of financial profit gained in relation to the customer.

Margin obtained from product sale to a particular customer is usually calculated on the basis of multilevel account. One of the applicable methods in this respect presents as follows:

revenue from products sold to the customer
– cost of manufacturing the products sold
_____
= gross customer margin
– cost of customer acquisition
_____
= customer margin I
– cost of customer servicing
_____
= customer margin II

– cost of customer retention

= customer margin.

In this case, the formula for calculating customer lifetime value is as follows [3]:

$$\mathrm{CLV} = \sum_{t=0}^{n} \frac{m_t}{(1+r)^t}.$$

In the above equation, $m_t$ represents margin from products sold to the customer over the period $t$.

CLV for individual customers is estimated only for major customers, i.e. the most important ones, from the standpoint of the company. In accordance with Pareto principle, roughly 80% of company revenues comes from 20% of its major customers. Consequently, any customer loss in this group is bound to effect significant loss of profit for the company. The remaining customers, i.e. those less significant from company financial standpoint, may be grouped into separate segments and perform group estimates of their respective lifetime values.

Estimation of customer lifetime using the above formula is based on the assumption that the customer will continue to purchase company products for the next $n$ years. In reality, some customers remain faithful to the company, others choose to depart for another supplier. Consequently, the formula for customer lifetime value may include a coefficient that represents customer attachment, typically referred to as customer retention coefficient. Its value reflects the ratio between number of repeat customers and the overall number of company customers for a given period [3].

By assuming fixed value of the customer retention coefficient, resulting customer lifetime value can be expressed as follows:

$$\mathrm{CLV} = \sum_{t=0}^{n} \frac{M_t \cdot z^t}{(1+r)^t},$$

where: $M_t$ – global margin obtained from all customers in year $t$,
$z$ – customer retention coefficient in the range of $0 < z < 1$.

One significant problem in relation to customer lifetime value assessment based on the above formula is the calculation of global margin for each consecutive year. One can simplify the formula by assuming that this margin value remains fixed over consecutive years of the period under study. Assuming indefinite period of retaining customer relationship, the following CLV formula may be postulated [3]:

$$\mathrm{CLV} = M \cdot \frac{z}{1+r-z}.$$

In the above equation, $M$ represents global annual margin obtained from all customers, which is assumed constant.

The assumption of fixed annual customer margin can be waived. Assuming that this margin grows at the fixed rate of $s$, the following CLV equation may be postulated [3]:

$$\mathrm{CLV} = M \cdot \frac{z}{1 + r - z \cdot (1 + s)}.$$

The above customer lifetime value equation is based on a number of assumptions. For the most part, it is assumed that all parameters influencing customer lifetime value are constant for the whole period, for which the CLV is estimated. This is a considerable simplification, but the formula itself proves acceptable and is frequently used in practice.

## 4. Evaluation of customer equity

Customers are an important element of company invisible assets, contributing to company intellectual capital. Intellectual capital of a company consists of two fundamental categories: human capital and company structural capital. The latter comprises of organizational capital and customer (consumer) equity. Measuring intellectual capital allows the company to appraise the value-adding potential of invisible assets. This applies also to customer equity, as one of major sources of company added value.

Customer equity is basically construed outside the company, since revenue from products sold is generated on the market. It means that the company itself finds it hard to manage this form of capital. Moreover, the capital is created over a long period. Another problem in measuring customer equity is the fact that customer equity value is largely dependent on customer decisions, i.e. their satisfaction from purchased products and services [6, pp. 215-217].

R.C. Blattberg, G. Getrz and S. Thomas [1, pp. 53-55] present an interesting and mathematically accurate formula for customer equity evaluation, postulated as follows:

$$\mathrm{CE}_i(t) = \sum_{i=1}^{I} \left[ \mathrm{CE}_{pi}(t) + \mathrm{CE}_{ui}(t) \right],$$

where: $\mathrm{CE}_i(t)$ – customer equity in segment $i$ at time $t$,
$\mathrm{CE}_{pi}(t)$ – profit in segment $i$ from first time buyers at time $t$,
$\mathrm{CE}_{ui}(t)$ – anticipated profit from future sales to the customer in segment $i$ at time $t$.

The above formula takes a fairly complex mathematical form, but it offers considerable application value. By interpreting this equation, it can be observed that customer equity equals the sum of profits gained in three periods of customer relationship:

1) profits from customer acquisition,
2) profits from customer retention,
3) profits from additional sale.

Profit from customer acquisition is represented by $\mathrm{CE}_{pi}(t)$ calculated from the following formula:

$$\mathrm{CE}_{pi}(t) = N_{it}\,\alpha_{it}\,(S_{it} - C_{it}) - N_{it}\,\beta_{iat},$$

where: $N_{it}$ – number of potential customers in segment $i$ at time $t$,
$\alpha_{it}$ – probability of acquiring customer in segment $i$ at time $t$,
$S_{it}$ – receipts from sale of products in segment $i$ at time $t$,
$C_{it}$ – cost of manufacture of products sold in segment $i$ at time $t$,
$\beta_{iat}$ – cost of marketing used to acquire customers in segment $i$ at time $t$.

Sum of profits from customer retention and additional sale is represented by $\mathrm{CE}_{ui}(t)$, calculated using the following formula:

$$\mathrm{CE}_{ut}(t) = \sum_{k=1}^{\infty} N_{it}\alpha_{it}\left(\prod_{j=1}^{k} p_{j,ttk}\right)\left(S_{i,t+k} - C_{i,t+k} - B_{ir,t+k} - B_{iA0,tk}\right)\left(\frac{1}{1+d}\right)^{k},$$

where: $p_{it}$ – probability of retaining customers in segment $i$ at time $t$,
$B_{irt}$ – cost of marketing used to retain customers in segment $i$ at time $t$,
$B_{iA0t}$ – cost of marketing used to obtain additional sale in segment $i$ at time $t$,
$d$ – discount rate.

This value is calculated for the whole customer portfolio for a given duration of relationship with customers under study.

The equation postulated by R.C. Blattberg, G. Getz and S. Thomas can be used as a basis for selecting a balanced strategy of customer relationship. It may also help establish activities aimed at maximizing customer equity value on each stage of customer relationship: customer acquisition, customer retention and additional sale. As such, it may be regarded an essential tool from the customer relationship management viewpoint.

## 5. Evaluation of customer profitability

Customer equity is a complex category. According to R. Rust, V.A. Zeithaml and K. Lemon [10], customer equity consists of three elements: value of products and services offered, value of the model, and value of relations between company and its customers [2]. These elements are presented on Figure 1.

As shown in Figure 1, construction of customer equity may be influenced by different activities. Three major approaches to increasing customer equity can be distinguished, namely:

– increasing the value of products and services offered,
– increasing the value of brand for the customer,
– improving the value of customer relationship.

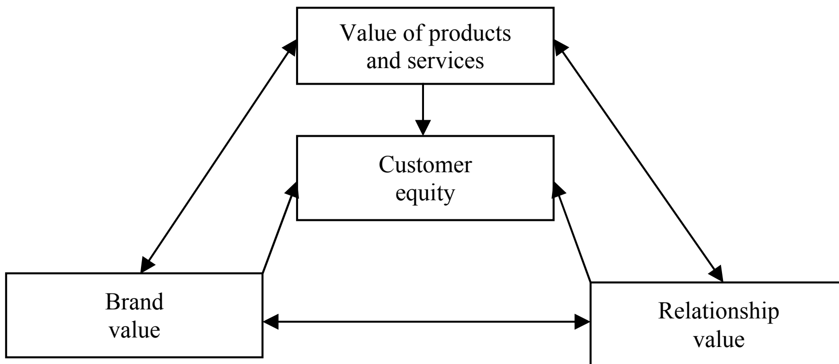


**Figure 1.** Components of customer equity

Source: [10], after: [2].

Consequently, companies should introduce appropriate programs aimed at increasing the value of the above elements. At the same time, mutual correlation of these three elements should be noted.

One important aspect of any company strategy aimed at increasing customer equity value is the classification of customer base according to the profitability level. This classification may be based on various criteria.

Based on the criterion of customer profitability, R. Rust, V.A. Zeithaml and K. Lemon [10] postulate the following four categories of customers:

1) lead customers, of no profitability to company,
2) iron customers, of low profitability to company,
3) golden customers, of high profitability to company,
4) platinum customers, of top profitability to company.

At the same time, the authors postulate activity strategies to shift the customer affiliation to a higher level of profitability. These strategies follow the basic customer equity structure presented above.

R.S. Kaplan and D.P. Norton [5, pp. 238-240] postulate a two-fold division of customer base, according to their servicing cost level:

1) high service cost customers, associated with “latent loss”,
2) low service cost customers, associated with “latent profit”.

Loss or profit is “latent” when the cost of marketing, sale and customer servicing is calculated traditionally, i.e. per product, and not in relation to customer. In a typical setting, the majority of customers of any company require relatively high servicing cost. Low service cost customers are a rare commodity. Aware of this fact, they may, in some cases, expect (or demand) preferential treatment, such as lower prices on delivery.

The level of servicing cost should be analyzed against the level of margin from customer. Based on this criterion, B.P. Shapiro, V.K. Rangan, R.T. Moriarty and F.B. Ross [12] differentiate four categories of customers:

1. Low shelf customers, serviced at low cost, offering low margin – this group is considered profitable.

2. Top shelf customers, serviced at high cost, offering high margin and potential latent loss – this group may turn out profitable.

3. Passive customers, serviced at low cost, offering outstanding margin and latent profit – this group is considered highly profitable.

4. Aggressive customers, serviced at high cost, offering low margin – this group is considered unprofitable.

Customer segmentation for the purpose of profitability analysis may also be related to customer value. Based on this criterion, four groups of customers can be distinguished [8]:

1. "Champions" offering high revenue and requiring low servicing cost; this group offers high margin and is considered profitable.

2. "Demanders" offering high revenue at high servicing cost; this group is typically considered profitable, but offers relatively low margin.

3. "Acquaintances" offering low revenue at low servicing cost; this group offers low margin and low profitability.

4. "Losers" offering low revenue at high servicing cost; this group offers negative margin and is considered unprofitable.

Improving customer profitability may be obtained through margin optimization, using customer target costing approach. This concept is based on cost management aimed at reaching the optimal level of customer margin. The optimal level is the level at which customer equity reaches the lowest acceptable level.

Customer cost reduction objectives are set using target costing calculation based on importance of individual product functions [7, p. 130]. Moreover, customer target costing considers the significance of activities undertaken in relation to customer. Hence, this approach analyses customer costs in terms of activities undertaken in relation to customer.

Based on target margin from customer, acceptable cost of activities is calculated. With predetermined significance of particular activities, acceptable cost per activity may be calculated. Current cost of activities can then be compared to their acceptable cost levels, to determine the target costing of individual activities. The difference between current and target cost of activities per customer shows the reduction potential of particular costly activities. To reach the acceptable costing level, existing relationship with customer is reconstructed and applicable changes are introduced on organizational level, i.e. on the level of customer relationship management that satisfies the target costing values. In this way, customer target costing may be integrated with the concept of activity based management.

## 6. Conclusions

Proper customer relationship management requires knowledge of each customer's (customer group's) value, from the viewpoint of the effect to the company. This allows the company to determine the range of activities needed to improve customer profitability. To do this, companies should verify their product pricing and properly manage the customer servicing costs. It is also important to segment customer base according to customer profitability, in order to focus the activities on acquisition of customers that offer the highest margin. Information on customer value is fundamental in all the above areas of company activities.

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### SZACOWANIE WARTOŚCI KLIENTA I POMIAR KAPITAŁU KLIENTA

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