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Analyzing the applications of customer lifetime value (CLV) based on benefit segmentation for the banking sector

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Abstract

Segmentation is central to marketing strategy because different customer groups imply the need for different marketing mixes. The technique of segmenting a market also reveals profit opportunities and strategic matter for new competitors to challenge established market leaders. As a market develops, new segments open up and older ones tend to decline. So, achieving a reliable and valid approach to segment the market for any activity-based markets is necessary. This study aims to understand a good approach to segment the market namely benefit segmentation based on customer lifetime value. Benefit segmentation is an approach to market segmentation whereby it is possible to identify market segments by causal factors rather than descriptive factors. On the other hand a valuable tool for measuring the real values of customers is customer lifetime value or CLV. The more a marketing paradigm evolves, the more long-term relationship with customers gains its importance. CLV aims to measure a just real value of customers of special part of market. Thus CLV is a basic valuable tool to understanding the benefits segmentation strategy. This paper aims to propose a framework to measure the value of each segment of customers based on the CLV calculation with focus on banking sector.

Keywords: benefit segmentation, customer relationship management, customer lifetime value, strategy, banking sector;

1. Introduction

According to Kotler (1980), Market segmentation is the subdividing of a market into distinct subsets of customers, where any subset may conceivably be selected as a market target to be reached with a distinct marketing mix. The largest problem is how to subdivide the market. The criterion for appropriate segmenting most often cited is that the segments be "homogeneous within and heterogeneous between" (F. Roland, 1972). In consumer markets, researchers began with demographic and socioeconomic variables, such as age, income, and education, as the basis for segmentation. Segmentation bases now include personality and lifestyle, attitude, behavior, product usage, and purchase pattern variables (Rowland et al, 1986). In industrial markets, similar variables have been applied to organizations rather than to individuals to serve as segmentation bases. On the other hand to measure the real value of each of the segments of customers the customer lifetime value has become a valuable and practical tool. Therefore, it is essential to build refined strategies for customers based on their value (Kim et al, 2006). The move towards a customer centric approach to marketing, coupled with the increasing availability of customer-transaction

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data, has led to an interest in estimating and understanding Customer Lifetime Value (Benoit and Poel, 2009). CLV is viewed as the present value of the future cash flows associated with a customer (Pfeifer et al, 2005). Knowing the CLV of individual customers enables the decision maker to improve the customer segmentation and marketing resource allocation efforts (Kim and Lee, 2007; Kumar et al, 2006) and this in turn will lead to higher retention rates and profits for the firm (Hawkes, 2000). This research paper investigates the role of CLV on the benefit segmentation with focus on the banking sector. Each segment of customers will be analyzed based on the calculated customer lifetime value.

2. Benefit Segmentation

Segmentation is central to marketing strategy because different customer groups imply the need for different marketing mixes (Doyle, 1987). The nature of the financial services industry is such that banks, building societies and insurance companies cannot discriminate in terms of locality or region. Demographic and socio-economic segmentation, based on age, sex, marital status, income, occupation, education, religion, social class and so on, assumes these variables have an influence on consumer behavior, and that they can therefore be used as proxies for direct needs analysis. Lifestyle segmentation divides the market into segments based on activities, interests, and opinions (Plummer, 1974). However, in contrast to demographics, where it is possible to define characteristics, there are no fixed definitions for lifestyle.

Because the ultimate objective of segmentation is to produce segments that are homogeneous within and heterogeneous between with respect to benefits sought, a logical alternative is to begin the segmentation by grouping consumers or organizations based directly on measures of benefits sought. This approach was appropriately named "benefit segmentation" by Russell Haley, who in 1968 described it thus: An approach to market segmentation whereby it is possible to identify market segments by causal factors rather than descriptive factors might be called "benefit segmentation". The belief underlying this segmentation strategy is that the benefits, which people are seeking in consuming a given product, are the basic reasons for the existence of true market segments (Russell, 1968). Benefit segmentation can, therefore, be regarded as an approach to market segmentation, which identifies market segments, by causal factors rather than descriptive factors.

In many markets, segmentation based on benefits, needs, or motivations has proven to be more powerful than demographic factors or product features in understanding market dynamics (Plummer, 1974; Wind, 1978; Lesser and Hughes, 1986). Benefit segmentation studies frequently treat attributes as benefits. As a result, benefits as the reason for attribute preferences are often overlooked because the same attribute may lead to different benefits, a case of multifinality (Pieters, 1993), and because a single benefit may be based on multiple attributes, a case of equifinality (Pieters, 1993), segments based on attributes may differ from segments based on benefits sought, and benefit segmentation which is actually based on attributes instead of on actual benefits soughts may be grossly misleading (Botschen, et al, 1999). Benefit analysis allows a building society or bank to concentrate its marketing effort on its strengths, and to target benefit segments in keeping with them. That is, different segments are suitable for building societies and banks with particular marketing strengths.

3. Customer Lifetime Value

Customer Lifetime Value has been studied under the name of LTV, Customer Value, Customer Equity and Customer Profitability. The concept is defined as the sum of the revenues gained from company's customers over the lifetime of transactions after deduction of the total cost of attracting, selling and servicing customers, taking into account the time value of money (Hwang et al, 2004). The basic formula for calculating CLV for customer i at time t for a finite time horizon T (Berger & Nasr, 2004) is:

$$CLV_{i,t} = \sum_{t=0}^{T} \frac{profit_{i,t}}{(1+d)^t} \quad , \quad CLV_i = \sum_{t=1}^{T} \frac{Revenue_{i,t}}{(1+d)^t} - \sum_{t=1}^{T} \frac{Cost_{i,t}}{(1+d)^t}$$

Theoretically, CLV models should estimate the value of a customer over the entire customer's lifetime. However, in practice most researchers use a finite time horizon of three or four years (Donkers et al, 2007; Rust et al, 2000, Beniot and Poel, 2009). Three to four years is a good estimate for the horizon over which the current business environment would not substantially change and even then, there is significant uncertainty in predicting customer behavior (Venkatesan et al, 2007). Moreover, some research considers an even shorter time horizon (Hwang et al, 2004).

Given that one of the key issues when decision makers use the CLV metric is whether the firm can provide an adequate prediction of the CLV of each customer in the database (Malthouse & Blattberg, 2005; Venkatesan & Kumar, 2004), it is clear that the predictive accuracy of the CLV is of primordial importance. Furthermore, these predictions are often used as guidelines for investments in segments of customers (Zeithaml et al, 2001; Beniot and Poel, 2009). Data inputs commonly used when making customer lifetime value calculations are: *Acquisition cost - Churn rate - Discount rate - Retention cost - Time period Periodic Revenue - Profit Margin.*

- *Acquisition cost:* The amount of money a marketing department has to spend, on average, to acquire a single new customer.
- *Churn rate:* The percentage of customers who end their relationship with a company in a given time period. Churn rate typically applies to subscription services, such as long distance phone service or magazines.
- *Discount rate:* the cost of capital used to discount future revenue from a customer. Discounting is an advanced topic that is frequently ignored in customer lifetime value calculations.
- *Retention cost:* The amount of money a company has to spend in a given time period to retain an existing customer. Retention costs include customer support, billing, promotional incentives, etc.
- *Time period*: The unit of time into which a customer relationship is divided for analysis.
- *Periodic Revenue:* The amount of revenue collected from a customer in the time period.
- *Profit Margin:* Profit as a percentage of revenue. Depending on circumstances this may be reflected as a percentage of gross or net profit. For incremental marketing that does not incur any incremental overhead that would be allocated against profit, gross profit margins are acceptable (Safari Kahreh and Safari Kahreh, 2012).

4. Methodology

This research aims to best valuate the customers of each of the segmentations based on the benefit segmentation. For this purpose a framework of customer lifetime value analysis has been presented. This framework consists of basic elements for CLV calculation for gathered data. Table 1 shows this framework. Also, required data has been gained from one of the commercial bank's customers for 4 consecutive years. Accordance with these data and based on the framework of CLV, all customers segmented to 6 basic categories. Each segment has own characteristics and requires appropriate marketing plans and programs to success bank's strategic marketing.

Table 1. Introducing the essential parameters for CLV model of the research (Safari Kahreh et al, 2011)

CLV parameters	Descriptions
P_t	The probability of continues interaction of customer with the bank; retention rate; or loyalty rate of customers. This rate will calculated from the following formula: $P_t = 1 - C.R$, and also C.R is the amount of churn rate of customers, as follow: C.R = Churn Rate
S_t	The average amount of customer's accounts after subtracting by legal and liquidity saving rate; this amount of accounts inventory is the free deposits for retail banks.
M_t	The marginal profits for S_t; or in the other hand, marginal profits for free deposits practices and activities.
d^t	Discount rate that is equal to: 1 + inflation rate.
D_t	This is the first group of costs that associated with the direct costs about the accounts.
R_t	This is the first group of costs that associated with the indirect costs. This group are including of costs such as: advertising and marketing costs, depreciation costs, administrative costs, other personnel costs, etc.
n	Number of periods.

Here is the mathematical model for CLV measuring of the research: $CLV = \sum_{t=1}^{n} \frac{P_t(S_t \times M_t)}{d^t} - \sum_{t=1}^{n} \frac{(P_t \times D_t) + (R_t)}{d^t}$

5. Findings

Accordance with gained data from bank's customer accounts and based on the above CLV formula all accounts has been segmented to 6 diffident groups. These different groups are including: G.C (Gold Customers), A, B, C, D and E. after all calculation based on the CLV formula, table 2 presents the results of data gathering and analysis for 4 consecutive years encompasses: 2005 to 2008.

Table 2. Customer segmentation based on the CLV calculation for 4 consecutive years 2005 to 2008

Segments	2005		2006		2007		2008	
	Numbers (n)	Average	Numbers (n)	Average	Numbers (n)	Average	Numbers (n)	Average
GC	1000	286021	1000	598808	1000	485829	1000	188254
A	1200	39720	1524	69980	1000	29250	825	24800
B	173	32519	390	49680	198	20870	165	16560
C	396	20399	444	29309	411	14678	400	11850
D	949	9513	930	23459	1001	5325	980	7435
E	6282	2245	5712	3645	6390	3222	6630	2080
Total	10000	3705231030	10000	7801647940	10000	5503425720	10000	2373618840

6. Conclusion and Future Research

Benefit segmentation is a useful concept in customers grouping into different categories. The belief underlying this segmentation strategy is that the benefits which people are seeking in consuming a given product are the basic reasons for the existence of true market segments (Russell, 1968). Benefit segmentation can, therefore, be regarded as an approach to market segmentation which identifies market segments by causal factors rather than descriptive factors. On the other hand, the more a marketing paradigm evolves, the more long-term relationship with customers gains its importance. Nowadays most of corporations and firms in the world, including manufacturers and servicers, increasingly gain their incomes and profits through constructing and maintaining long-term relationship with customers. The move towards a customer-centred approach to marketing, coupled with the increasing availability of customer transaction data, has led to an interest in understanding and estimating customer lifetime value (CLV). This paper aimed to measure the real values of each segments of customers based on the CLV. To achieve this purpose, based on the CLV formula and data gained from one of the commercial bank's accounts, segmentation has been presented. All customers divided into 6 basic segments. According to these measurements, policy makers will best deal with profitable customers in each of the market segments and also appropriate strategies and programs can be applied for each segmented customers. Based on this method, the measuring the efficiency of marketing strategies will be possible. Future researchers recommended presenting a new confirmed framework to measure the efficiency of marketing programs in the developing markets.

References

Benoit, Dries F and Poel, Dirk Van den. (2009). Benefits of quantile regression for the analysis of customer lifetime value in a contractual setting: An application in financial services. *Expert Systems with Applications*, Volume 36, Issue 7, Pp: 10475-10484.

Berger, P., & Nasr, N. (1998). Customer lifetime value: marketing models and applications. *Journal of Interactive Marketing,* 12(1), 49-61.

Bieda, J. and Kassarjian, H. (1969). "An overview of market segmentation. In Bernard, A. and Morin, N. (Eds), *Marketing in a Changing World*. AMA, Chicago, IL. pp. 250-3.

Donkers, B., Verhoef, P. & de Jong, M. (2007). Modeling CLV: a test of competing models in the insurance industry. *Quantitative Marketing and Economics*, 5(2), 163-190.

Doyle, P. (1987). Managing the marketing mix. In Baker, M. (Ed.), The Marketing Book, Heinemann, London, Ch. 12.

Evans, F.B. (1999). ”Psychological and objective factors in the prediction of brand choice”. *Journal of Business*, Vol. 33 No. 4, October, pp. 340-69.

Gordon & et al. (1994). Benefit Segmentation Using Service Quality Dimensions: An Investigation in Retail Banking. *International Journal of Bank Marketing,* Vol. 12 No. 2, 1994, pp. 15-23.

Hawkes, V. A. (2000). The heart of the matter: the challenge of customer lifetime value. *CRM Forum Resources*, 13, 2-10.

Hwang, H., Jung, T. & Suh, E. (2004). An LTV model and customer segmentation based on customer value: a case study on the wireless telecommunication industry. *Expert Systems with Applications*, 26(2), 181-188.

Johnson, M.D. (1989). “On the nature of product attributes and attribute relationship”. In Srull, T.K. (Ed.), *Advances in Consumer Research*, Vol. 16, pp. 598-604.

Kim, E. & Lee, B. (2007). An economic analysis of customer selection and leverage strategies in a market where network externalities exist. *Decision Support Systems*, 44(1), 124-134.

Kim, S., Jung, T., Suh, E., Hwang, H. (2006). Customer segmentation and strategy development based on customer lifetime value: A case study. *Expert Systems with Applications*, 31, 101-107.

Kotler, Philip. (1980). *Marketing Management: Analysis, Planning, and Control.* 4th ed. Prentice-Hall, Englewood Cliffs, N.J. p: 195.

Kumar, V., Lemon, K. & Parasuraman, A. (2006). Managing customers for value: An overview and research agenda. *Journal of Service Research*, 9(2), 87-94.

Lesser, Jack A., and Hughes, Marie Adele. (1986). The Generalizability of Psychographic Market Segments across Geographic Location. *J. Marketing* 50 January: 18-27.

Malthouse, E.C. & Blattberg, R.C (2005). Can we predict customer lifetime value? *Journal of Interactive Marketing*, 19(1), 2-16.

McCann, John M. (1974). Market Segmentation Response to the Marketing Decision Variables. *Journal of Marketing Research* 11 November: 399-412.

Mendoza, Luis E.; Marius, Alejandro; Pérez, María; Grimán, Anna C. (2006). Critical success factors for a customer relationship management strategy. *Information and Software Technology*.

Michel Wedel, Jan-Benedict E.M. Steenkamp. (1989). A fuzzy clusterwise regression approach to benefit segmentation. *Intern. J. of Research in Marketing* 6, 241-258.

Parasuraman, A., Berry, L.L. and Zeithaml, V.A. (1991). Refinement and Reassessment of the SERVQUAL Scale. *Journal of Retailing*, Vol. 67, winter, pp. 420-50.

Pfeifer, P.E., Haskins, M.E. & Conroy, R.M. (2005). Customer lifetime value, customer profitability and the treatment of acquisition spending. *Journal of Managerial Issues*, 17(1).

Pieters, R. (1993). A Control View on the Behavior of Consumers: Turning the Triangle. In Van Raaij, W.F. and Bamossy, G.J. (Eds), *European Advances in Consumer Research,* Vol. 1, PP. 507-12.

Plummer, J.T. (1974), “The concept and application of life style segmentation”, *Journal of Marketing*, Vol. 38 No. 1, January, pp. 33-7.

Plummer, Joseph T. (1974). The Concept and Application of Life Style Segmentation. *Journal of Marketing*, 38, January: 33-37.

Rowland T. Moriarty David J. Reibstein. (1986). Benefit Segmentation in Industrial Markets. *Journal of Business Research* 14, 463-486.

Rust, R. Zeithaml, V. & Lemon, K. (2000). *Driving customer equity: How customer lifetime value is reshaping corporate strategy*. New-York: The Free Press.

Safari Kahreh, Mohammad and Safari Kahreh, Zahra. (2012). An Empirical Analysis to Design Enhanced Customer Lifetime Value Based on Customer Loyalty: Evidences from Iranian Banking Sector. *Iranian Journal of Management Studies*, Vol. 5, No 2, pp: 145-167.

Safari Kahreh, Mohammad; Haghighi, Mohammad and Hesan, Mostafa. (2011). How can a Business Best Dealing with Profitable Customers? Analysis a New Model for Customer Lifetime Value. *International Journal of Innovation, Management and Technology,* Vol. 2, No. 4, pp: 321-325.

Venkatesan, R., Kumar, V. & Bohling, T. (2007). Optimal customer relationship management using Bayesian decision theory: An application for customer selection. *Journal of Marketing Research*, 44(4), 579-594.

Wind, Y. (1978). Issues and advances in segmentation research. *Journal of Marketing Research,* Vol. 15, pp. 317-37.

Zeithaml, V.A, Rust, R.T. & Lemon, K.N. (2001). The customer pyramid: Creating and serving profitable customers. *California Management Review*, 42(4), 118-142.