

Customer Lifetime Value: A Vital Marketing/Financial Concept For Businesses

Michael Pepe, Siena College, USA

ABSTRACT

One of the most important decisions in finance is the investment decision. The investment decision involves the allocation of capital for investment proposals whose benefits are projected to be realized in the future. Investment decisions should be evaluated in terms of their expected risk and return. “The investment decision, then, determines the total amount of assets held by the firm, the composition of these assets, and the business-risk complexion of the firm as perceived by suppliers of capital” (Van Horne, 2002).

Customers have been identified by retailers as one of five critical assets that need to be managed effectively in order to achieve their financial objectives. Every customer varies in their lifetime value to a particular organization. The focus of companies has shifted from treating customers as just an entity involved in the business process to treating them as a critical part of their business success. In particular, the importance of a customer is judged by the longevity of a series of potential or actual transactions as opposed to his or her single transaction with the firm. Because of this, activities of a company are now targeted toward developing a long-term relationship with a customer.

This paper will focus on the need for retail businesses to establish a collaborative marketing/financial function in the recognition and management of their customer base as a separate, identifiable asset. Financial concepts such as the time value of money and return on investment have been applied mainly to fixed assets such as buildings, fixtures, equipment, land, etc. and have not been utilized toward the valuation of customers. Marketing concepts such as customer profitability and retention have focused on revenues generated from customers and have ignored financial functions such as the time value of money. Companies that create maximum value for their customers will survive and thrive in today’s marketplace and achieve a sustainable competitive advantage.

All customers are not equally important to businesses. Companies can increase their profitability by identifying and building relationships with their better customers. Marketers know that a relatively small number of customers account for the majority of their profits. This principle, called the 80-20 rule, states that 80 percent of the sales or profits for a business are generated from 20 percent of the customer base. Marketers need to segment and rank their customer base in terms of importance and develop marketing programs aimed at their highly valued customers. Only through the use of financial concepts such as the time value of money and investment principles can a marketer accurately access the importance of individual customers.

Keywords: Lifetime Value; CLV, 80-20 Rule; RFM

CUSTOMER LIFETIME VALUE (CLV)

To survive in today’s competitive markets, food retailers must create and maintain a loyal customer base. Customer loyalty and retention was most frequently mentioned by food executives when asked to prioritize their 2003 goals. Customer loyalty is a vital concern to food retailers because consumers spend an average of 78 % of their food dollars at one primary store with highly loyal supermarket customers spending an average of 32 percent more than other customers. Customer loyalty can result in favorable operating cost advantages for retailers, fewer markdowns, reduction in inventory and simplified capacity forecasting due to lesser fluctuations in demand (Huddleston et al., 2004).

Obtaining new customers costs five to six times as much as retaining current customers. The total lifetime profits from a typical customer can increase by 75 percent by retaining an additional 5 percent of existing customers. Loyal customers refer other shoppers to the retail store thereby building word-of-mouth reputation and potentially expanding the customer base (Huddleston et al., 2004).

Loyal customers to a particular store are less likely to patronize a competitor. As customer loyalty increases, the more resistant customers are to change, the more stable their behavior will be and the more likely they are to speak favorably about a store. Commonly used measures of store loyalty in prior research studies have incorporated variables such as percentage of purchases at a particular store, dollars spent, frequency of patronage, and degree of store switching. Food Business News defined customer loyalty as ‘creating the strongest possible relationship between the retailer and customer, so that people feel they will miss something if they go to another store’ (Huddleston et al., 2004).

Kotler and Armstrong (1996) define a profitable customer as “a person, household, or company whose revenues over time exceed, by an acceptable amount, the company costs of attracting, selling, and servicing that customer.” This excess is called customer lifetime value (CLV). The focus on relationship management makes it extremely important to understand CLV because CLV models are a systematic way to understand and evaluate a firm’s relationship with its customers. The concept of CLV has been widely accepted by both researchers and business practitioners since it is believed that long-lifetime customers are more profitable to a firm.

CLV is the sum of cumulated cash flows-discounted using the weighted average cost of capital-of a customer over his or her entire lifetime with the company (Kumar et al., 2004). The lifetime value of a customer is the net value of the revenues obtained from that customer over the lifetime of transactions minus acquisition costs such as attracting, selling, and servicing that customer, taking into account the time value of money (Berger & Nasr, 1998). The basic insight that comes from looking at the economics of customer lifetime value is that one begins to view customers in terms of ongoing relationships, rather than transactions. Targeted marketing is replacing the era of mass marketing with knowledge of CLV allowing companies to establish customer-specific marketing programs leading to an increase in efficiency and effectiveness of such programs.

CLV models provide a systematic way of understanding which customers to focus primarily on, estimating the lifetime value of a customer, and analyzing the effects of different actions of the firm on this lifetime value and value of the firm. Customer relationship management allows firms to distinguish between customers that are profitable, nearly profitable, unprofitable, and have the potential to be profitable (Jain & Singh, 2002).

Reischheld and Teal (1996) attributed the increase in profits from loyal customers to the price premium paid by loyal customers, additional profits from sales through referrals, profit from cost savings obtained by serving an old customer, and revenue growth from a loyal customer due to increase in sales to that customer. The concentration on relationship management makes it vital to understand CLV because CLV models are a way of understanding and evaluating a firm’s relationship with its customers (Jain & Singh, 2002).

The use of customer profitability models as an individual-level decision tool that is integrated into the CRM system requires two elements. First, it is necessary to have a model of customer profitability based on individual customer data and second, the model must be able to be updated based on observed changes in customer behavior (Libai et al., 2002).

Research pertaining to CLV models has taken 3 separate directions:

- 1) The development of models to calculate the CLV for each specific customer. These articles focus on elements such as customer acquisition cost, customer retention cost, other marketing costs, and the revenue stream from the customer to calculate CLV.
- 2) Various methods of customer base analysis where researchers have proposed to analyze information about the existing customer base and predict the probabilistic value of future customer transactions.
- 3) The use of analytical models to analyze CLV and its implications for managerial relevant decisions.

Limitations of CLV models include:

- 1) Restrictions on the amount of cash flow from a customer, or the timing of cash flow, or the type of business the model is applicable to.
- 2) Many CLV models lack empirical validation.
- 4) Reischheld and Teal (1996) mention that long-lifetime customers are profitable because they pay premium prices, refer other customers to the store, are less costly to serve, and pay more. Reinartz and Kumar (2000) reject all 4 of these propositions.
- 5) Demographic variables and product usage variables are not included in many CLV models.
- 6) The consumer side of the transaction is not taken into account by existing CLV models.
- 7) Very few current CLV models account for both customer acquisition and retention costs.
- 8) Deterministic cash flow streams from the customer are used in most models.
- 9) More research is needed in accurately predicting CLV based on history usage and prior estimates of CLV. (Jain & Singh, 2002)

CLV models can be beneficial to help firms make strategic and tactical decisions. Strategic decisions are comprised of identifying who the company’s customers are and their characteristics and which customers to go after in the long run, and tactical decisions in terms of short-term resource allocations among marketing variables and the focus of marketing activities. CLV models help quantify the relationship of the firm with its customers and subsequently allow the firm to make more informed decisions in a structured framework (Jain & Singh, 2002).

Each customer varies in their lifetime value to a company. How should companies decide which customers should be provided preferential and sometimes personal treatment? How should companies then decide the timing of an offering to a customer? Companies today face a challenge of implementing an optimal blend of differential levels of treatments over each customer’s lifetime in order to ensure that profits are maximized (Kumar et al., 2004).

MODELS FOR THE CALCULATION OF CLV

Customer Lifetime Value (CLV) is a forward looking concept that seeks to forecast the future net profit or loss to the company over the life of transactions between the customer and company by using historical purchase behaviors as predictors.

A basic structural model of CLV is:

$$CLV = \sum_{i=1}^n \frac{(R_i - C_i)}{(1 + d)^{i-0.5}}$$

i=period of cash flow from customer transaction

R=revenue from the customer in period *i*

C=total cost of generating the revenue R in period *i*

n= total number of periods of projected life of the customer under consideration

All cash flows are assumed to take place at the end of a time period and are based on the net present value (NPV) of future cash flows from customers. Berger and Nasr (1998) built their research from the above model. This model assumes cash flows that are the same in each time period, apply to existing customers, and ignore acquisition costs (Jain & Singh, 2002).

One of the primary objectives of retailers, particularly supermarkets, is the emphasis place on frequency of customer visits and store inventory turns. Berger and Nasr (1998) address the situation of continuous cash flows as depicted by the diagram below. The curve illustrates customer lifecycle profit:

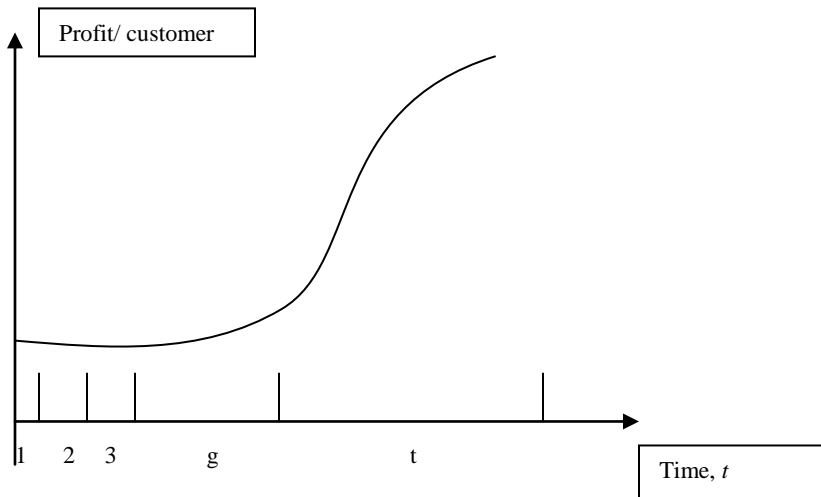


Figure 1

CLV is the sum of the discounted profits for each period taking retention rate into consideration. In their model, a yearly discount rate is required and when compounded continuously, is equal to the desired effective rate.

Relationship marketing is the process of creating, maintaining and enhancing strong, relationships with customers and other stakeholders (Kotler & Armstrong, 1996). This is extremely important due to most businesses operating in mature markets and facing increasing competitive pressures. To know which relationships between a company and its customers are profitable, the relationship needs to be quantified using various financial techniques. CLV models can help businesses identify the profit variance between market segments and direct promotional campaigns toward servicing the more lucrative segments. The major result of CLV implementation is that customers are viewed as ongoing relationships rather than individual transactions (Berger & Nasr, 1998).

DIFFERENT APPROACHES/DEFINITIONS OF CLV

There have been several different models of CLV developed through various research studies. Jain and Singh (2002) determined that customer acquisition costs should be included in CLV calculations and are contrary to the model developed by Berger and Nasr (1998) that exclude customer acquisition costs (Pfeifer et al. 2005). Jain and Singh (2002) state they do not share the understanding and meaning of Berger and Nasr's (1998) definition of CLV since customer acquisition costs are an integral component of any definition.

Not all authors agree, but I would argue that CLV models need to incorporate the time value of money and present value techniques. I agree that the term value in CLV calculations should match the financial use of value consistent with the valuation of an asset by determining its net present value.

The conceptual "common characteristic of all assets is "future economic benefit eventually resulting in net cash inflows to the enterprise" (FASB 1985:para,28). Financial techniques state that the proper valuation of an asset is its present value of all future period's net cash inflows. If customers are identified as assets, then they should also be valued at their present value where their projected cash flows over the lifetime relationship with the firm are discounted at the determined discount rate (Pfeifer et al. 2005).

Consistent with financial principles, the cash flow and not profit from each customer is discounted in most current models. Again, CLV calculations should account for the present value of the cash inflows and outflows accruing to the firm over the lifetime of the relationship with the customer.

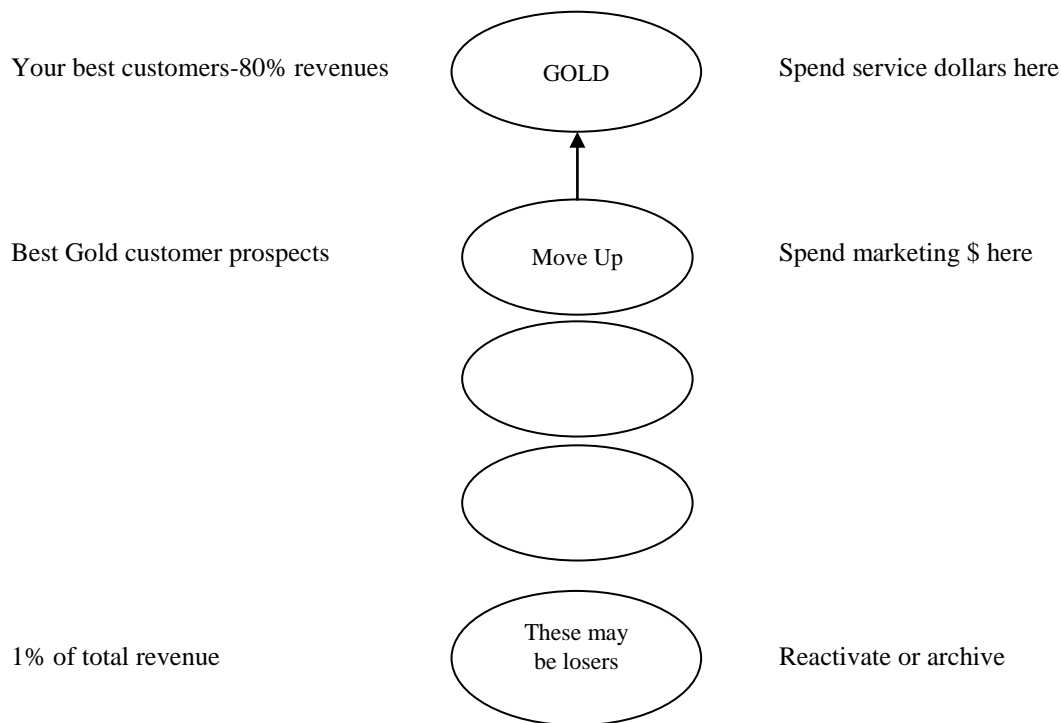
Pfeifer et al. (2005) choose to use the term present value as opposed to net present value. Brealey et al. (1995) defines the net present value of an investment as the present value of the cash flows minus the initial

investment. The word “net” signifies that at time zero of the investment, the initial investment is subtracted from the present value of future cash flows. If companies implement a CLV initiative, their analysis may be based upon their existing customer base and consequently no initial investment or acquisition cost can be accounted for. Therefore, in this situation, it would make little sense to use the term net present value. Treating an initial cash outflow in the immediate future as a negative cash flow at time zero in present value calculations is equal to netting out the investment (Pfeifer et al., 2005).

Since CLV calculations are based upon forecasted future cash inflows, there are inherent risks associated with the construct. This is consistent with any asset risk that uses an appropriate risk-adjusted discount factor. Many existing customers for companies are not profitable. Fleet Bank discovered that more than half of their existing customers were not profitable. Most companies have goals of increasing sales-but at what cost? Incremental customers that generate a negative cash flow could lead a company to financial ruin. Fredrich Reichheld, author of *The Loyalty Effect*, stated that the “net present value of the customer base should be at the top of the measurement hierarchy” (Hughes, 2005).

CLV models project future earnings from customers using past behaviors. Therefore, it is necessary that customers provide data upon enrollment in a loyalty program in order for their purchasing patterns to be identified. Once information is obtained from customers, their purchasing patterns can be segmented and ranked in terms of profitability.

The following depicts this: (Hughes, 2005)



The importance of identifying the profitable consumer segments will allow businesses to tailor marketing campaigns aimed specifically at them. The chart on the next page is typical of a CLV chart employed by companies.

Table 1
CLV Before New Programs

	Year 1	Year 2	Year 3
Customers	5,000	3,500	2,590
Retention Rate	70.00%	74.00%	80.00%
Visits/week	0.64	0.69	0.78
Average Basket	\$33	\$45	\$55
Total Sales	\$5,280,000	\$5,433,750	\$5,555,550
Cost Percent	83.0%	80.0%	79.0%
Direct Costs	\$4,382,400	\$4,347,000	\$4,388,885
Labor + Benefits	\$580,800	\$597,713	\$611,111
Card Program	\$80,000	\$28,000	\$20,720
Advertising-2%	\$105,600	\$108,675	\$111,111
Total Costs	\$5,148,800	\$5,081,388	\$5,131,826
Gross Profit	\$131,200	\$352,363	\$423,724
Discount Rate	1.00	1.20	1.44
NPV Profit	\$131,200	\$293,635	\$294,253
Cum. NPV Profit	\$131,200	\$424,835	\$719,088
CLV	\$26.24	\$84.97	\$143.82

(Hughes, 2005)

The above chart is based on tracking the performance of 5,000 newly acquired customers over three years with a 70% retention rate the initial year. Marketing theory proposes that retention rates will go up in subsequent years as loyal customers are sorted from disloyal ones. The increase in loyalty will lead to increased frequency of purchases and average order size per transaction. Outflow expenses are 2% of revenue on advertising and \$16 per customer annually on customer database maintenance fees.

The lifetime value of these customers is \$143 by year three based on the net present value of their profits adjusted by a discount rate. The discount rate is $D = (1+i)^n$ where i = the current interest rate plus a risk factor and n = the number of years that the company has to wait to realize the future revenue.

Based upon the identification of the companies most valued consumers, this segment has been offered the following reward programs by various firms:

- Birthday Programs
- Rewards for frequency
- Rewards for large baskets
- Personal recognition and relationship programs
- Customer specific pricing

The impact for a retailer if some of these programs are adapted are:

Table 2
CLV results with a Loyalty Program

	Year 1	Year 2	Year 3
Customers	5,000	3,750	2,963
Retention Rate	75.00%	79.00%	85.00%
Visits/week	0.68	0.73	0.82
Average Basket	\$38	\$50	\$61
Total Sales	\$6,120,000	\$6,843,750	\$7,409,213
Cost Percent	83.0%	80.0%	79.0%
Direct Costs	\$5,079,600	\$5,475,000	\$5,853,278
Labor + Benefits	\$673,200	\$752,813	\$815,013
Card Program	\$80,000	\$30,000	\$23,700
Customer Specific marketing	\$61,200	\$68,438	\$74,092
Advertising-1%	\$61,200	\$68,438	\$74,092
Total Costs	\$5,955,200	\$6,394,688	\$6,840,176
Gross Profit	\$164,800	\$449,063	\$569,037
Discount Rate	1.00	1.20	1.44
NPV Profit	\$164,800	\$374,219	\$395,165
Cum. NPV Profit	\$164,800	\$539,019	\$934,183
CLV	\$32.96	\$107.80	\$186.84

The results for a typical company, with a Loyalty Program in effect resulting from an emphasis on CLV are:

- The retention rate increased from 70 to 75%
- Visits per week rose 0.64 to 0.68
- The average transaction amount increased from \$33 to \$36
- The CLV in year 3 has risen from \$143 to \$186

Table 3
The overall effects for the company are:

New CLV	\$32.96	\$107.80	\$186.84
Previous CLV	\$26.24	\$84.97	\$143.82
Gain	\$6.72	\$22.83	\$43.02
With 200,000 customers	\$1,344,000	\$4,566,000	\$8,604,000

Assuming the company has 200,000 customers that are using their frequent shopper loyalty cards, the profits to the firm in the third year will be in excess of \$8 million. This is real profit since the costs have been accounted for (Hughes, 2005).

Recency, Frequency, and Monetary value

The concept of CLV is based upon projecting the future transactions of consumers using their historical purchasing behavior. To predict future purchase behavior, a method generally used is recency, frequency and monetary value (RFM). RFM allows companies to segment profitable from unprofitable customers allowing valuable resources to be directed toward the best consumers. The concept of recency, frequency and monetary value has been used extensively to predict consumer behavior for the past 50 years. Using information from a company's database regarding past purchase history is all that is necessary for RFM forecasting. Depending on various models in past research, each of the three variables is assigned a varying weight for the calculation of RFM and subsequently CLV (Shih & Liu, 2003).

Each of the 3 variables are explained: (1) R (recency) is the time period since the customer’s last purchase and the lower the value, the higher the probability of the customer making a future repeat purchase (2) F (frequency) is the number of purchases made by the consumer within a certain time period with a higher frequency indicating a higher level of loyalty and expected business in the future (3) M (monetary) is the amount of money spent during a certain time frame. The larger the monetary amount, the higher the rating for the particular customer.

An example of a scoring system for RFM is as follows:

Table 4

Variables	The scoring of each criterion	The weighting level
R (recency)	last 3 months=24, last 6-9 months =6 last 3-6 months=12, last 9-12 months=3 More than 1 year=0	Medium
F (frequency)	Number of purchases multiplied by 4	Highest
M (monetary)	amount of purchases multiplied by 10 percent (the highest is 9)	Lowest

(Shih & Liu, 2003)

FINAL ANALYSIS AND CONCLUSION

Building, maintaining & enhancing relationships with consumers is a primary focus of businesses today with customers representing the most valued asset of any company. If it is true that customers are the most valuable asset to a company, it would necessitate the valuation of this asset base consistent with financial principles used for other assets of a company. The identification of and relationship building process with profitable customers is aimed at enhancing long term loyal relationships. Consequently, CLV is a concept that should be implemented by all companies.

Customer Lifetime Value is a viable concept that should not be considered a marketing concept but a collaborative financial/marketing concept that identifies customers as vital assets whose return needs to be calculated using various financial methods based upon the time value of money. There have been a variety of CLV models developed for their calculation of customer profitability. A company needs to identify the particular model that best suits their way of doing business. Entering a new market should mean the inclusion of customer acquisition costs whereas the continuing relationship with existing customers should not include acquisition costs in the model, consistent with the model developed by Berger and Nasr (1998).

Businesses have a finite annual marketing budget that needs to be allocated toward the company’s most valuable customers. The financial concept of capital rationing is consistent with CLV theory in that investment opportunities are ranked in terms of importance for a company. The objective of capital rationing is the selection of combination investment proposals that provide the highest net present value, subject to a budget constraint for a particular period (Van Horne, 2002). By ranking customers by importance using CLV, companies can ration their limited marketing budget.

Future CLV analysis should account for inflationary measures. Financial measures adjust cash flows measures for inflation and CLV models should also. Inflation for CLV would add to future cash flows for retailers as the revenue generated from goods/services would increase in the future.

Basic financial investment decision making involves evaluating investment proposals using return on investment techniques. The following questions need to be asked when evaluating decision criteria:

- Does the decision rule adjust for the time value of money?
- Does the decision rule adjust for risk?
- Does the decision rule provide information on whether we are best maximizing shareholder wealth?

All CLV models should answer these three basic questions. Most CLV models that have been developed do not take into account risk. Risk is the possibility of an outcome different than what was expected. If creditors and investors of a company are risk adverse, it makes sense for management to account for the risk of an investment proposal into the analysis of the worth of a proposal. Without identifying risk, capital budgeting decisions will not be consistent with the objective of maximizing shareholder wealth (Van Horne, 2002).

The size and timing of all projected customer cash flows need to be calculated for accurate CLV measures. Customer purchase behavior tends to fluctuate dramatically throughout the course of a year for retailers and this inflow of revenue needs to be precisely measured to accurately assess customer valuation. Many current models calculate cash flows as being received only the end of yearly time periods. This is not consistent with the frequency of store visits for consumers at supermarkets as the average household visits a supermarket every 6 to 9 days.

The biggest criticism I have with current CLV models is that they utilize consumer sales for CLV calculations. I propose the use of gross margin (profit) dollars as the leading indicator and forecaster of customer lifetime value. A typical supermarket operates at a 28 percent gross profit from the cost of goods sold to consumers. Due to the enormous operating costs that retailers must incur in the normal course of doing business, net profits are typically only between 3 to 5 percent. Therefore, it is vital that consumer transactions represent a profitable markup to cover the costs of operating expenses.

Many retailers feature several loss leader or zero gross margin items each week to entice consumers to visit their stores. These products by themselves, although not profitable, represent exceptional values to consumers by selling at prices substantially below their normal weekly levels. Only by consumers purchasing many other items in the store at profitable levels with an overall margin of around 28 percent per average shopping cart can a supermarket continue to exist. Many consumers typically only purchase the best deals per week and represent an overall gross margin substantially below the average consumer. These ‘cherry pickers,’ although loyal consumers that typically represent a substantial annual revenue stream, are not profitable consumers.

This example indicates my belief why customer gross margin dollars and not sales should be used for the calculation of Customer Lifetime Value. Profit dollars from purchases and not sales revenue can be used to meet expenses and increase shareholder wealth. Sales revenue without profits for retailer’s only pays suppliers for the purchase of the goods sold to consumers and does not allow for a sufficient residual amount to cover operating expenses.

The final assessment of CLV is as follows:

- CLV is a marketing/financial concept that should be implemented by all businesses.
- Financial concepts such as the size and timing of cash flows, risk factors, and Net Present Value need to be incorporated for any CLV model.
- Pertinent acquisition and retention costs need to be taken into account.
- Net profit dollars, not sales revenue, should serve as the basis for CLV calculations.

AUTHOR INFORMATION

Michael Pepe, DBA, is an assistant professor of marketing in the School of Business. Dr. Pepe's teaching interests pertain to marketing strategy, retailing, marketing metrics, and international marketing. An integral component of Dr. Pepe's teaching methodology is application of all concepts presented to students that were developed during his 19 years of professional marketing experience.

Michael has published his research in areas involving branding, organizational commitment, point of sale data analysis, and customer lifetime value. He has published in journals such as the *Journal of Product and Brand Management*, *Journal of Marketing Management*, and the *Journal of Business and Economics Research*. Michael has been a member of the American Marketing Association for numerous years and is currently the co-advisor for the Siena student chapter. E-mail: mpepe@siena.edu

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