A Study on the Impact of Customer Lifetime Value on Shareholder Value in Taiwan's Credit Card Market

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ABSTRACT

It has been a difficult but critical subject, academically and practically, for a public corporation to estimate Customer Lifetime Value (CLV) by way of sorting out and interpreting open information in stock market. Taiwan and its credit card market are selected to explore above topic in this paper. The prospective link between CLV and shareholder value is distinguished to help management and academics to assess CLV comprehensively.

INTRODUCTION

The goal of the company is to deliver value to investors (Knight, 1998). According to Fornell (2000), in 1970 the book value for the companies in the Dow Jones Industrial Average accounted for about 50 percent of their market value. In 1999, only 20 percent of market value was being accounted for in the balance sheet, with the remaining 80 percent consisting of intangible assets. Elsewhere, Doyle (2000) indicates, the market-to-book ratio in Britain's largest companies averages three, suggesting that two-thirds of the market value of these companies lies in intangible assets. Market-based assets such as customers and channels are intangibles assets that must be cultivated and leveraged and should be seen as a principal bridge between marketing and shareholder value.

The emerging trend suggests that the purpose of marketing is creating and managing market-based assets to deliver shareholder value (Srivastava et al., 1998, Doyle, 2000). Hogan et al. (2002) suggest that customer equity is a means of growing shareholder value. But, conventional accounting has treated marketing expenditures as costs rather than investments in intangible assets. Market-based assets do not normally appear on the balance sheet because accountants believe that their value cannot be measured with sufficient accuracy, i.e., those assets are treated as costs rather than investments. They will not be depreciated, which may lead to insufficient spending on developing brands, retaining customers and creating channel partnerships (Doyle, 2000). Srivastava et al.(1998) established a framework linking the contribution of market-based assets to market performance and to enhance the financial performance (measured by shareholder value) of firms. The authors mentioned that the value of a firm is based on expectations of future performance, so that resources allocated to marketing strategies should be viewed as investments that create assets and which can be leveraged to enhance future performance, provide potential for growth, or reduce risk.

Shareholder value is not based on accounting conventions; instead it is derived on cash basis. Expenditure on developing marketing assets would make sense if the sum of the discounted net cash flow generated by the expenditures is positive. According to Rappaport (1998), the free cash flow (FCF) is influenced by seven value drivers: sales growth, return on sales (operating profit margin), income tax rate, incremental investments in fixed and working capital, weighted average cost of capital, and the value

growth duration. However, only the first two value drivers, sales growth and operating profit margin, are of an operative nature. Yet even these metrics lack a direct linkage to the critical factor customer as the source of value creation. These drivers originate from a too high aggregation level and are not suitable for the exact prediction of customer profitability in heterogeneous markets. Both the CLV and the SHV draw on discounting forecasted net cash flows by the risk-adjusted cost of capital and both account for a comparably long forecast horizon. While the SHV belongs to the category of financial valuation methods and is therefore, located on a high, strategic level of aggregation, the CLV concept-due to its origin-is situated on the operative management level (Hoekstra and Huizingh, 1999).

LITERATURE REVIEWS

The CLV Concept

It views customers as a company's most important asset, since ultimately cash flows are based on customer-generated revenues and the investments made to generate those revenues. Therefore, to continuously grow total company cash flows, a company must, therefore, continuously increase customer-generated cash flows (Hansotia, 2002). All of the definitions of CLV from academics can be summarized as "the sum of the lifetime value of its current and future customer" (Dwyer, 1997, Berger and Nasr, 1998, Hogan et al., 2002, Jain and Singh, 2002, Gupta et al., 2004 and Pfeifer et al., 2005). The benefit from CLV calculations is two-fold: understanding the potential value of customers and prompting firms to learn more about the patterns of individuals or groups of customers. This information allows the firm to devise optimal strategies for each customer, eliminate wasteful costs, and create a long-term perspective of the potential relationship with customers. Firms can tailor strategies to deal with different customer segments that exhibit differences in buying characteristics at any given time, and they can also customize different strategies for the same customer depending on the stage of relationship between the customer and the firm. In other words, the main benefit derived from the CLV analysis is that the manager can take advantage of the analysis of results to predict the future profitability of customers and make more appropriate marketing strategies and decisions relating to customers (Gurau and Ranchhod, 2002). The customer lifetime value models offer insights in managing existing customer base. For example, classifying customers into high, medium, and low value customers not only allows differentiation of product/service according to expected customer value, but provides an objective basis to direct retention efforts toward high value customers. In addition, CLV can be used to develop a profile of high value customers which can then be applied to a prospect list to make customer acquisition efforts more efficient and effective (Hansotia and Wang, 1997).

Many ways have been proposed for measuring CLV since the articles by Dwyer (1989) and Berger and Nasr (1998). The required data and skill include: (1) datasets with specific time span and content are a must; (2) statistical techniques must be used to forecast and model future customer behavior in terms of spending frequency, spending rate, and how long the customer will patronize the firm; (3) analysts need to fully comprehend the limitations of the models used and implications of the assumptions built into the CLV models. Many models have been developed for determining the CLV. All of them have different assumptions under different backgrounds. Nevertheless, two basic steps for evaluating CLV can be concluded as following: (1) project the net cash flows that the firm expects to receive from the customer over time; (2) calculate the present value of that stream of cash flows. So far, no generally accepted superior CLV evaluation approach exists (Jain and Singh, 2002).

The Shareholder Value Concept

Maximizing shareholder wealth is an important goal of any investor-owned organization. The way in which shareholder wealth is increased is by maximizing the difference between an organization's total market value and the amount of capital that investors have supplied to the organization. This difference is called market value added (MVA) and is expressed by the equation: MVA = total market value – total capital supplied. (Total market value is the sum of the book value of debt and the market value of equity, while total capital supplied is the sum of the book values of debt and equity). However, there are some reasons which the MVA is not practical as an internal performance measure: (1) operating units do not usually have share prices or market-determined valuations; (2) not all companies are publicly traded; and (3) market values are subject to significant market volatility that may be unrelated to the operating decisions of management (Uyemura et al., 1996).

However, unlike MVA, the measure of economic value added (EVA) does not focus directly on market values and, therefore, can be applied both to investor-owned organizations and not-for-profit organizations. The performance measure "Economic Value Added" has trademarked as EVA® by the Stern Stewart & Co., a New York consulting firm. Stern Stewart argues that the key test of all management actions is whether or not they contribute to the creation of owners' wealth. The formula for EVA is: EVA = operating profit – total capital supplied x cost of capital. This says the company is earning $5 million more in profit than is required to cover all costs, including the opportunity cost of trying up scare capital on the balance sheet. The formula can also be shown as: EVA＝(ROIC－WACC) × Invested Capital (ROIC: return on invested capital; WACC: weighted average cost of capital). Uyemura et al. (1996) indicate EVA provides the strongest correlation with MVA. A similar analysis of the Stern Stewart 1000 sample of industrial companies also reach the same result which support the concept that EVA provides the best operational performance measure. In the other words, EVA is correlated with firm's shareholder value.

Relationship between CLV and Shareholder Value

Many authors have advocated growing the value of customer as a means of growing shareholder value (Hogan et al., 2002, Fornell, 2000). In the other words, marketing is entering a stage where investment and returns can be credibly measured and indeed marketing functions can be related to market capitalization and shareholder value creation. Customers are important intangible assets of a firm and, like any other assets, their value should be measured and managed (Gupta & Lehmann, 2003). Srivastava et al. (1998) present a conceptual framework that links the contribution of market-based assets to the financial performance of the firm and suggest ways in which the value of marketing activities can be identified, measured, and communicated. The framework proposes that marketing is concerned with the task of developing and managing market-based assets, or assets that arise from the commingling of the firm with entities in its external environment. Many literatures indicate some issues about this area (see Bauer and Hammerschmidt, 2005; Gupta et al., 2003, 2004; Stahl and Hinterhuber, 2003; Bell et al. 2002; Fornell, 2000 and Kim, et all., 1995).

DATA SOURCES AND EVALUATION

Given the restriction of accessing full information, eventually six domestic banks are ready for the CLV and EVA evaluation in the study, namely, Taichung Commercial Bank, Taishin International Bank, Cathay United Bank, Taipei Fubon Commercial Bank, First Commercial Bank and Huanan Commercial

Bank. The credit card department of banks was selected as sample cases for our research purpose. Because many industries left Taiwan for other countries (for example: China) due to the recession of economics, the need for corporate finance is decreasing. As a result, the business of corporate finance of banks is gradually been replaced by the consumer finance. Furthermore, the speedy increase of credit card business is evidently in the consumer finance area. However, the total revenue acquired from the credit card business is up to NTD $ 72,015 million dollars in year 2006, but, the write-off amount is reached to NTD $ 109,684 million dollars. That means the total loss from the Taiwanese credit card business is up to NTD $ 37,669 million before deducting other expenses, such as debt preparation, operating expense. Besides, after deducting the write-off amount, there are just 13 banks left which remain keep positive profits from the credit card business. In sum, bed debt plays the critical role on defeating the card profits in Taiwanese banking system. Allocating the limited resources more effectively on profitable and valuable customers might be a pressing challenge for all banks, in particular, for domestic banks.

Customer Lifetime Value (CLV)

Various models based on different assumptions can be found from many literatures (see the models of Berger and Nasr, 1998, Blattberg and Deighton, 1996, Blattberg et al., 2001, Dwyer, 1997, Reinartz and Kumar, 2000, Rust et al., 2000, Gupta, Lehmann and Stuart, 2003; 2004, Jackson,1989, Mulhern,1999, and Niraj et al., 2001). Because of the difficulties of acquiring the internal customer relevant data (such as the numbers of customers) for evaluating CLV, we plan to use the method devoted by Gupta, Lehmann and Stuart (2003) to compute the CLV. The benefit of the method offered by Gupta et al. (2003) is that the publicly published information can be used to estimate the value of their customer base. Besides, based on their research result, it can be said that a firm's CLV reflects the SHV of the firm reasonably well.

Based on the following assumptions: (1) margins are constant over time, (b) retention rate is constant over time, and (c) the length of the projection period is infinite, Gupta et al (2003) write the lifetime value of a customer as:

$$\text{CLV}= m\left(\frac{r}{1+i-r}\right)$$

The CLV is equal to margin (m) multiplied by a factor r / (1+i-r). The factor is called "margin multiple", detailed descriptions for all components described as follows:

1. The margin *(m)* can be defined as: the average margin for each customer is revenue minus operating expenses divided by the number of customer.
2. The retention rate (r) can be calculated by the following equation:

$$r=\frac{(\text{Total numbers of customers at the end of this current period}-\text{The increase of numbers of customers from the end of last period to this current period})}{\text{Total numbers of customers at the end of last period}}\ \text{x } 100\%$$

3. The *(i)* can be computed by the weighted average cost of capital (WACC):

$$WACC=\mathbf{1}RD\ x\ (1\text{-}t)\ \text{x}\ \frac{Liabilities}{Liabilities+Market Value of Equity}+\mathbf{2}RE\ \text{x}\ \frac{Market Value of Equity}{Liabilities+Market Value of Equity}$$

$$\mathbf{1}\ RD=\frac{Interest Expense}{Long\text{–}term(short\text{–}term)Liabilities with Interest}$$

2 *RE* = Rf + βx(Rm-Rf); Rf = Rate of Certificates of Deposit; Rm-Rf = Index of Weighted Average of Return Rate of TSEC – Rate of Certificates of Deposit

β=Measured by the average responsiveness of a security's returns to the movement of the general market

The CLV plays an important role in our research model; however it is not easy for researchers to acquire the internal customer detailed information of a firm. However, in the credit card department, the retention rate can be evaluated by the numbers of the issued credit cards and the accumulated issued credit cards and these related information can be found from the publicly information. The numbers of issued cards related information can be acquired on the publicly website—" ***Financial Supervisory Commission, Executive Yuan***". In addition, referring to the revenues and expenses derived from the credit card business can be acquired from the publicly "***Taiwan Economic Journal Data Bank***"—***TEJ Finance*** database. Furthermore, the related information for evaluating discount rate can be acquired from the ***TEJ Equity***.

Economic Value Added (EVA)

As for banks, Uyemura et al. (1996) indicated that there are four major adjustments that are common in customizing EVA for banks:(1) Loan loss provision; (2) Taxes; (3) Non-recurring events (such as restructuring charges); and (4) Securities accounting.

The formula to evaluate EVA is as follows:

EVA＝NOPAT－ (WACC × Invested Capital)

＝(NOPAT × Invested Capital)/Invested Capital －(WACC × Invested Capital)

＝(ROIC × Invested Capital) － (WACC × Invested Capital)

＝(ROIC－WACC) × Invested Capital

The factors in the EVA formula are computed as follows:

1. Invested Capital＝Liabilities＋Market Value of Equity

＝(Book Value of Liabilities－**1**Non-Interest Bearing Current Liabilities)＋(Book Value of Equity + **2**Equity Equivalent)

＝Total Book Value of Assets－Non-Interest Bearing Current Liabilities＋ Equity Equivalent

1 Non-Interest Bearing Current Liabilities = Accounts & Notes Payable + Accrued Expense +Advance Receipts + Other Payables + Accrued Taxes Payable + Other Current Liabilities

2 Equity Equivalent = R&D Expense + Selling Expense + Deferred Income Tax Assets + Allowance for Reduction of Short-Term +Allowance for Reduction of Inventory + Allowance of Uncollectible Accounts

2. ROIC= $\frac{NOPATadj}{InvestedCapital}$

3. NOPAT adj ＝Operation Profits＋Interest after tax＋Deferred Income Tax Assets＋ Allowance for Reduction of Short-Term + Allowance for Reduction of Inventory＋Allowance of Uncollectible Accounts

4. WACC=$\mathbf{1}RD\ x\ (1\text{-}t)$ x $\frac{Liabilities}{Liabilities+MarketValueofEquity}$ +$\mathbf{2}RE$ x $\frac{MarketVAlueofEquity}{Liabilities+MarketValueofEquity}$

1 RD= $\frac{InterestExpense}{Long\text{–}term(short\text{–}term)Liabilities withInterest}$

2 RE = Rf + βx(Rm-Rf) ; Rf = Rate of Certificates of Deposit; Rm-Rf = Index of Weighted Average of Return Rate of TSEC – Rate of Certificates of Deposit

β=Measured by the average responsiveness of a security's returns to the movement of the general market,.

RESULTS AND DISCUSSIONS

According to Table 2, there exists a big difference between CLV/PC and CM/PC in 2006. The ranking in order for CM/PC is Cathay, Fubon, Taishin, Huanan, First and Taichung. However, the ranking in order for CLV/PC is Huanan, Cathay, Fubon, First, Taishin and Taichung. For example, Huanan ranks the fourth on CM/PC, but the first on CLV/PC. The CLV formula is consisted of contribution margin, retention rate and WACC. The prospective correlation between the factors and CLV/CM performance is explored in Table 2.

An important implication from the comparative analysis emerges between Table 3 and Table 4. In Huanan, for example, each 1% increase of retention leads to an 11.97% increase on CLV. A good and long-term relationship with customers should be a key vehicle used to upgrade profits. Reichheld (1996) testified a similar outcome in his study, a 5% increase in retention had impacts as high as 95% on the net present value delivered by customers. Our results show a increase from 3.01% to 11.97% in CLV for a 1% increase in customer retention for all of the sample banks (Table 3).There is a highest impact on CLV derived from the increase of retention rate (3.01% to 11.97%) than the increase of CM (1%) and the decrease of WACC (0.03% to 0.20%). Furthermore, our results also show that a 5 % increase in retention had impacts as high as 89.11% on the CLV of Huanan (Table 4). The information revealed from Table 2, 3 and 4 illustrates a clear picture for managers to understand the impact of each factor on CLV and then adopt a set of competitive strategies to increase it according to the bank's strategic objects.

Because CLV may fairly contribute part of firm's total shareholder value, a big difference should exist between it and the shareholder value of the bank. A comparative analysis is conducted in the study for the reason of comparing the relationship between two measures (Table 5). EVA is used as the measure designed to evaluate firm's shareholder value for this research purpose. Based on the difference of the numbers of card holders and amounts of invested capital among banks (Figure 1), the CLV represents the CLV of each individual customer of a bank (Total CLV/Total numbers of issued cards) and the EVA represents the EVA of each dollar of capital invested in the banks (EVA/Total Invested Capital) in order to increase the comparability among sample banks.

According to the Figure 1, the study in Taiwan confirms the theory of the correlation between CLV and shareholder value. The results show that except for the First commercial Bank, the CLV of other five banks approximate shareholder value. Furthermore, there is a same percentile ranking for the Taipei Fubon. Although CLV doesn't match the whole source of shareholder value very well, it does provide a strong guideline for managers to understand the impact of CLV on firm's shareholder value.

Table 2: Comparisons on CM and CLV (2006)

Bank	Retention Rate	Revenue (thousand)	Expense (thousand)	Numbers of Issued Card	**1**CM/PC (thousand)	CM Ranking	WACC	**2**CLV/PC (thousand)	CLV Ranking
Taichung	49.96%	$ 37,584	$ 16,315	159,553	$ 133	6	1.43 %	$ 129.37	6
Fubon	78.35%	2,159,646	796,382	2,292,391	595	2	1.31 %	2028.87	3
Taishin	65.20%	1,974,849	443,413	3,393,882	451	3	2.26 %	793.87	5
Cathay	83.80%	3,433,551	731,236	3,413,173	792	1	2.95 %	3465.63	2

First	80.57%	367,151	113,721	599,551	423	5	1.92%	1595.16	4
Huanan	91.79%	763,329	460,762	700,230	432	4	2.11%	3843.76	1

1 CM=contribution margin ((revenue-expense)/numbers of issued card); CM/PC: CM/per customer
2 CLV/PC: customer lifetime value/per customer

Table 3: Impact of 1% change of CM, Retention Rate and WACC on CLV (2006)

Bank	CLV/PC (thousand)	1% increase of CM	1% increase of retention rate	1% decrease of WACC
Taichung	$ 129.37	1.00%	3.01%	0.03%
Fubon	2028.87	1.00%	5.61%	0.06%
Taishin	793.87	1.00%	3.84%	0.06%
Cathay	3465.63	1.00%	6.68%	0.15%
First	1595.16	1.00%	6.01%	0.09%
Huanan	3843.76	1.00%	11.97%	0.20%

Table 4: Impact of 5% increase of retention rate on CLV (2006)

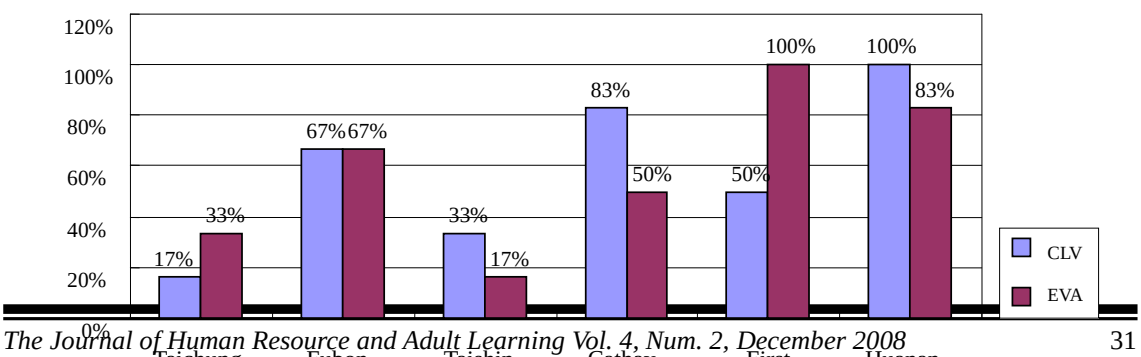
Bank	5% increase of retention rate
Taichung	10.35%
Fubon	26.59%
Taishin	15.13%
Cathay	34.42%
First	29.42%
Huanan	89.11%

The findings of the study are twofold: (1) to conceptualize and operationalize the CLV, (2) to identify the influence of CLV on firm's performance. For customer acquisition strategy, managers can make use of the CLV to evaluate whether the marketing expenses spent on prospective customers can be recovered or not. For example, assuming each prospective customer of Hunnan has the same CLV (NT$3843.76) as the current ones, their manager can figure out that the profits from the prosper customers can be earned as long as the average marketing expenses spent on each customer below NT$3843.76. Besides, manager can categorize their customers and use the data to evaluate the CLV of different types of customers in order to concentrate limited resources and implement diversionary strategies on different profitable customers. In other words, the manager can take advantage of the analysis of CLV results to predict the future profitability of customers and adopt more appropriate marketing strategies to satisfy the potential customers.

Table 5: The EVA results

Bank	CAPITAL	ROIC	WACC	(ROIC-WACC)	Ranking	EVA
Taichung	$ 254,588,213	-1.32%	1.43%	-2.76%	5	-$ 7,014,281
Fubon	1,083,471,779	-0.04%	1.31%	-1.43%	3	- 15,485,966
Taishin	811,054,803	-3.03%	2.26%	-5.30%	6	- 42,950,082
Cathay	1,169,779,381	0.62%	3.25%	-2.63%	4	- 30,736,262
First	1,528,036,637	1.96%	1.92%	0.03%	1	475,467
Huanan	1,549,343,038	-0.12%	2.11%	-0.25%	2	- 3,936,058

Figure 1: The relative percentile of CLV and EVA (2006)



Customer relationship management (CRM) is another concept and research field in past three decades academically and practically. Many studies in this area encouraged a new movement towards customer relationships rather than customer transactions (Christopher et al., 1991). Besides, the quick developments in IT technology, databases and data warehouses have triggered a fierce tide on implementing CRM since the early 1990s. It was estimated that the market scale of CRM system will be increasing from $8,188 (millions USD) to $11,083 (millions USD) from 2003 to 2009 (Ovum, 1999). However, according to the survey of implementation of CRM among Taiwanese industries, 80% is made up by financial industry, and the other 20% is made by other industries (such as, telecommunication, airline, computer, motor, hotel, department store etc (Yan-Chin consulting firm, 2002). Furthermore, 40% of financial industry is made up by banks and 27% of it is occupied by insurance firms. The widespread CRM system among Taiwanese firms implies that, the product-centric concept has been gradually replaced by the customer-centric one. Furthermore, the measure of CLV plays an important role on evaluating the efficiencies of firm's CRM program. It fully demonstrated that a strong correlation exists between the retention rate and the CLV. Therefore, evaluating the CLV should be an important mission for the financial institutions accompanying with the popularities of implementation of CRM.

Treating customers as an asset requires managing them, measuring them, and maximizing them. It views customers as a company's most important asset, since ultimately cash flows are based on customer-generated revenues and the investments made to generate those revenues. Therefore, to continuously grow total company cash flows, a company must, therefore, continuously increase customer-generated cash flows. In sum, CLV, shareholder value and other techniques encourage the firm's managers to take a broad and long-term view, not just the present target of profits.

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