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The customer lifetime value in Taiwanese credit card market

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Evaluating customer lifetime value (CLV) is becoming increasingly important in order for firms to identify and invest the limited resources on their different customers. We showed how the publicly available information can be used to estimate the lifetime value of any credit card holder. A comparative analysis is used in this paper to explore the presumable relationship between CLV and shareholder value. And we provided a link between customer and shareholder value. The findings were expected to encourage corporate decision-makers to rethink their customer-centric strategies by which both CLV and shareholder value might step up significantly.

Key words: CLV, shareholder value, credit card market, Taiwan.

INTRODUCTION

Customers are viewed as a company's most important asset, because ultimately, cash flows are based on customer - generated revenues and the investments made to generate those revenues. In recent years, the marketing literature has developed and discussed the concept of customer lifetime value, which is the present value of all future profits generated from a customer (Berger and Nasr, 1998; Gupta and Lehmann, 2003; Gupta, Lehmann, and Stuart, 2004). Nevertheless, many authors have advocated growing the value of customers as a means of growing shareholder value (Bell, Deighton, Reinartz, Rust, and Swartz, 2002; Fornell, 2000; Gupta and Lehmann, 2003; Gupta et al., 2004; Hogan, Lehmann, Merino, Srivastava, Thomas and Verhoef 2002). Most of the researches require extensive internal data and complex modeling. Gupta and Lehmann (2003) developed the model which can use publicly available information and a simple formula to estimate the lifetime value of a customer for a publicly traded firm.

Researchers have recommended CLV as a metric for selecting customers, designing marketing programs and taking informed decisions in a structured framework (Gupta and Mala, 2008; Jain and Singh, 2002; Reinartz and Kumar, 2003; Rust et al., 2004; Venkatesan et al., 2007). Customer lifetime value (CLV) is a metric that indicates the value of the customer. During the lifetime, the card issuer company needs to decide on the credit limit and price for each customer. At the time of acquisition, customers with high CLV can be given priority and accordingly the channel to acquire can be decided. At the retention stage, the firm can air to retain customers with high CLV and can accordingly decide on the cost of retention efforts. That is, at the retention stage, a firm has to decide whom to retain and how many resources to allocate for retention. These decisions can be guided by the CLV of the customer. The Taiwanese credit card industry became international in 1989. Many banks became involved in the credit card business because of the free financial environment. The convenience and popularity of credit cards mean it has become a popular tool for Taiwanese firms and people. There are 40 - 69 banks that implemented the credit card business in 2008. Furthermore, according to the statistical results declared by the Financial Supervisory Commission, Executive Yuan, the total number of issued cards as of the end of 2008 is 33,950,000. That is, every Taiwanese owns approximately 2.6 cards on average under 13,000,000

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populations. However, the portion of bad debt plays an important role that leads to a decrease of the profits for Taiwanese banks, because the results showed that there is a high bad debt amounts to $1,100,000,000 US dollars ($37,965,991,000) derived from the credit card business of card issued banks declared by the Financial Supervisory Commission, Executive Yuan in 2008. We address two issues in this article. First, we show how one can use publicly available information and formula developed on Gupta and Lehmann (2003) to estimate the lifetime value of a credit card holder. Second, a comparative analysis is also proposed in this paper to explore the presumable relationship between CLV and shareholder value. The results show most of the CLV of banks in our study approximate their shareholder values. This study result is expected to allow management to better focus and plan related strategies to enhance CLV - driven factors.

LITERATURE REVIEW

The goal of the company is to deliver value to investors (Knight, 1997). According to Fornell (2000), early in 1970 the book value for the companies in the Dow Jones Industrial Average accounted for about 50 percent of their market value. Till 1999, however, 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) found that 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. The emerging trend suggests that the purpose of marketing is creating and managing market - based assets to deliver shareholder value (Srivastava et al., 1998). Hogan et al. (2002) also believe that customer equity is an approach to growing shareholder value. However, abundant and conventional accounting has been treating 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. For this logic of thought, these assets cannot be depreciated so as to induce insufficient spending on developing brands, retaining customers and creating channel partnerships (Doyle, 2000).

The CLV concept

In Hansotia's (2004) point of view, customers should be viewed as a company's most important asset because cash flows are ultimately based on customer - generated revenues and the investments made to generate those revenues. Following this thread, the continual growth of total company cash flows largely depends on a continual increase on customer - generated cash flows. All of the

definitions of CLV from academics may be generally defined as "the sum of the lifetime value of its current and future customer" (Dwyer 1997; Berger and Nasr 1998; Dipak and Siddhartha 2002; Hogan et al. 2002; Gupta et al. 2004; Pfeifer, Haskins and Conroy 2005). In general, 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 then are able to tailor strategies to deal with different customer segments that exhibit differences in buying characteristics at any given time. In addition, 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 managers can take advantage of the analysis technique to properly predict the future profitability of customers. Nevertheless, it is also expected to come up with 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 Berger and Nasr published their findings decade ago (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 since then. All of them have different assumptions under different backgrounds. Yet 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 of increasing

shareholder wealth is often interpreted as maximizing the difference between an organization's total market value and the amount of capital that investors have supplied. This difference is also called "market value added" (MVA) or expressed via the equation:

MVA = Total market value – Total capital supplied

Total market value is referred to the sum of the book value of debt and the market value of equity. Total capital supplied represents the sum of the book values of debt and equity. However, some factors discourage the MVA from a practical metric employed to measure internal performance: 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 probably are unrelated to the operating decisions of management (Uyemura et al., 1996).

   Unlike MVA, however, the measure of economic value added (EVA) does not focus directly on market values. Therefore, it can be applied both to investor - owned organizations and not - for - profit organizations. The performance measure "Economic Value Added" has been trademarked as EVA by the Stern Stewart and Co., a New York consulting firm. In their view, the key test of all management actions should focus on whether or not they contribute to the creation of owners' wealth. As of today, the formula for EVA is generally written as:

EVA = operating profit – total capital supplied × cost of capital

That is to say, a company is expected to make enough money to cover not only all costs but also those underlying opportunity cost on the balance sheet. For this reason, this formula can also be rewritten as:

EVA = (ROIC - WACC) × invested capital

ROIC refers to the return on invested capital. WACC is the abbreviation of the weighted average cost of capital. It has been verified by Uyemura et al. (1996) that EVA provides the strongest correlation with MVA. Another analysis similar to the Stern Stewart's also got the same result and proved that EVA provides the best operational performance measure. Thus the EVA metric is empirically examined to be closely correlated with a firm's shareholder value.

Relationship between CLV and shareholder value

Many authors figured that shareholder value could be raised through elevating the value of customer (Fornell, 2000; Hogan et al., 2002). In their views, marketing evaluation should not be looked down upon anymore as a sort of extensive cultivation against an era of actuarial science. Therefore, investment and returns can now be credibly measured and indeed marketing functions also can be related to market capitalization and shareholder

value creation. Today customers have been deemed as a kind of intangible assets of a firm and like any other assets, their value should be measured and managed (Gupta and 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 other researchers shared the similar views and supported above framework (Anderson and Fornell 2000; Bauer and Hammerschmidt 2005; Bell 2002; Fornell 2000; Gupta and Lehmann 2003; Gupta et al., 2004; Kim et al., 1995; Harley and Trahan, 2007; Stahl et al., 2002).

Customer relationship management (CRM)

Customer relationship management (CRM) is the key competitive strategy that firms need in order to stay focused on the needs of their customers and to integrate a customer - facing approach throughout the organiza-tion. A complete CRM consists of two perspectives: management and technology (Kalakota and Robinson, 1999; Reinartz et al., 2004). Moreover, the implemen-tation of customer - related strategies is a critical factor of successful CRM programs (Reinartz et al. 2004). Much evidence indicates that there is a high relationship between the technology perspective of CRM (CRMt (technology) and customer - related strategies (Eckerson and Watson, 2000; McKim and Hughes, 2001). In addition, customer lifetime values (CLV), customer satisfaction, customer loyalty are all critical factors of a successful CRM program. Blattberg et al. (2001) and Thomas (2001) indicated that there is an interrelationship between customer-related strategies. CRM starts with well-established strategies (Reinartz, Krafft and Hoyer 2004). A wrong strategy decision will result in a loss (such as investing limited resources in unprofitable customers), regardless of the adoption of a well - established CRM technology.

DATA SOURCES AND EVALUATION

The credit card departments of Taiwanese banks were determinate as sample pool of this study. One of the rationales underlying sampling is ascribed to emerging consumer finance industry in Taiwan since 1990's. Meanwhile the credit card business became boomed as an accompanied service. It is inconceivable, however, that till now the total revenue acquired from this section cannot overpass the traditional operation of the bed debt, which yet plays the critical role within Taiwanese banking system. So it has been a rigorous challenge for managers to allocate more resources and work harder on profitable and valuable customers of their banks. By dint of a comprehensive and well - established customer databases, the TEJ Finance Database 2009, all Taiwanese banks with credit

card business are chosen as object of this study. It is firstly found that there are 40 of 69 banks own credit card business as of the year of 2008. Finally 9 banks are eligible for sampling in this study because only they are listed by the TSE/GTSM (Taiwan Securities Exchange Market and GreTai Securities Exchange Market). In this instance, their credit card data can be fully shared, especially those information like revenues and expenses on their card holders. Given above proceeding and rationale, 9 domestic banks eventually are ready for the CLV and EVA evaluation in the study. A comparative analysis is used in this paper for the premier purpose of exploring the presumable relationship between CLV and shareholder value.

Customer lifetime value (CLV)

Various models based on different assumptions can be found from many literatures (Berger and Nasr, 1998; Blattberg and Deighton, 1996; Blattberg et al., 2001; Jackson, 1989; Mulhern, 1999; Niraj, 2001; Reinartz and Kumar, 2000; Rust et al., 2000;), because of the difficulties of acquiring the internal customer relevant data (such as the numbers of customers) for evaluating CLV, the method devoted by Gupta and Lehmann (2003) is adopt to compute the CLV value. The all - important benefit of this method consists in that the publicly published information can be used to estimate the value of their customer base. Recurring to its outcome of computing, a firm's CLV may be reasonably assumed that its value also reflects the SHV soundly. Based on the following assumptions: 1) margins are constant over time; 2) retention rate is constant over time; and 3) the length of the projection period is infinite, Gupta and Lehmann (2003) set forth the lifetime value of a customer as:

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

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:

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

$r = $ *(Total numbers of customers at the end of this current period*
 - @The increase of numbers of customers from the end of last Period to this current period

- The (I) can be computed by the weighted average cost of capital (WACC):

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

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

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

In this study, the retention rate is evaluated by dint of the numbers of valid credit cards and the accumulated. All cards - concerned data can be sourced from an official database, Financial Supervisory Commission, Executive Yuan. As of evaluating discount rate, it can be obtained from the TEJ Equity databank.

Economic value added (EVA)

According to Uyemura et al. (1996), 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 illustrated as follows:

$$\begin{aligned} EVA\ &= NOPAT - (WACC \times invested\ capital) \\ &= (NOPAT \times invested\ capital)/invested\ capital - (WACC \times invested\ capital) \\ &= (ROIC \times invested\ capital) - (WACC \times invested\ capital) = (ROIC - WACC) \times invested\ capital \end{aligned}$$

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 and Notes Payable + Accrued Expense +Advance Receipts + Other Payables + Accrued Taxes Payable + Other Current Liabilities
2 Equity Equivalent = R and D Expense + Selling Expense + Deferred Income Tax Assets + Allowance for Reduction of Short-Term + Allowance for Reduction of Inventory + Allowance of Uncollectible Accounts

$$ROIC = \frac{NOPAT\ adj}{Invested\ Capital}$$

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

$$4.\quad WACC = 1RD \times (1-t) \times \frac{Liabilities}{Liabilities + Market\ Value} $$

$$1RD = \frac{interest\ Expense}{Long - term(short - term)Liabilities\ with\ l}$$

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

RESULTS

According to Table 1, a big difference can be found between CLV/PC and CM/PC in 2008. The ranking in order for CM/PC is China Trust, Kaohsiung, Cathay, First, Cooperative, Fubon, King Town, Taichung and Yuanta according to their respective value of 1538, 1337, 557, 524, 485, 357, 189, 167 and 100. However, the ranking in order for CLV/PC is Kaohsiung, China Trust, Cathay, First, Fubon, King Town, Cooperative, Taichung and Yuanta according their respective value of 7149, 6479, 3021, 1876, 1201, 1180, 884, 553 and 359. Surprisingly, Kaohsiung ranks the second on CM/PC but the first on

Table 1. Comparisons on CM and CLV (2008).

Bank	Retention rate (%)	Revenue (thousand)	Expense (thousand)	Numbers of issued card	1CM/PC (thousand)	CM Ranking	WACC (%)	2CLV/PC (thousand)	CLV ranking
First	78.98	358,375	112,923	468,186	524	4	1.05	1876	4
King Town	87.36	20,996	11,640	49,483	189	7	1.36	1180	6
Taichung	77.50	33,589	15,712	106,810	167	8	0.96	553	8
China Trust	81.68	7,875,451	2,672	5,117,509	1538	1	1.07	6479	2
Cathay	85.33	2,658,672	801,959	3,332,108	557	3	1.07	3021	3
Fubon	78.02	1,784,973	1,003,905	2,187,774	357	6	1.21	1201	5
Kaohsiung	85.17	47,630	39,167	6,331	1337	2	1.10	7149	1
Yuanta	79.09	169,633	139,450	301,380	100	9	1.16	359	9
Cooperative	66.69	370,465	136,572	482,609	485	5	3.23	884	7

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

Table 2. Impact of 1% change of CM, retention rate and WACC on CLV (2008).

| Bank	CLV/PC (thousand)	1% increase of CM (%)	1% increase of retention rate (%)	1% decrease of WACC (%)
First	1876	1.00	4.75	27.96
King Town	1180	1.00	7.72	52.86
Taichung	553	1.00	4.45	25.83
China Trust	6479	1.00	5.44	33.10
Cathay	3021	1.00	6.79	44.19
Fubon	1201	1.00	4.52	26.31
Kaohsiung	7149	1.00	6.71	43.46
Yuanta	359	1.00	4.75	28.00
Cooperative	884	1.00	2.88	15.66

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. With the help of above comparative analyses, an important implication may be concluded from Tables 2 and 3. In Kaohsiung, for example, each 1% increase of retention leads to a 6.71% increase on CLV. A good and long-term relationship with customers should be a key vehicle used to upgrade profits. That's the reason the Kaohsiung Bank emerged significantly with relatively small economic scale among Taiwanese banks acquires a highest CLV in our study. 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. The outcomes of this study show an

Table 3. Impact of 5% increase of retention rate on CLV (2008).

Bank	5% increase of retention rate (%)
First	27.88
King Town	52.65
Taichung	25.77
China Trust	33.01
Cathay	44.06
Fubon	26.24
Kaohsiung	43.32
Yuanta	27.92
Cooperative	15.54
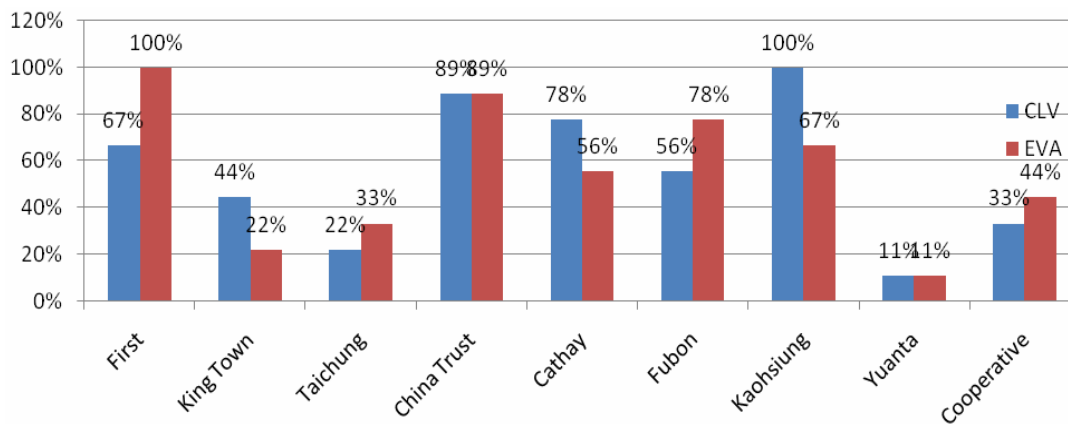
Figure 1. The relative percentile of CLV and EVA (2008).

increase from 2.88 to 7.72% in CLV for a 1% increase in customer retention for all of sampled banks (see Table 2). There is also a highest impact on CLV derived from the increase of WACC (15.66 - 52.86%) than the increase of CM (1%) and the decrease of retention rate (2.88 to 7.72%). Furthermore, the results also show that a 5% increase in retention has impacts as high as 52.65% on the CLV of King Town (Table 3). The information revealed from Tables 1, 2 and 3 adequately 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 and achieve corporate strategic objects.

Now that 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. Another comparative analysis is conducted in the study in order to compare conceivable correlation between two measures (Table 4). EVA is used as the measure designed to evaluate firm's shareholder value for this research purpose. According to the difference between the amount of card holders and that of invested capital cross 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. As revealed from Figure 1, this study conducted in Taiwan confirms the theory of the correlation between CLV and shareholder value (Fornell, 2000; Gupta and Mala, 2008; Hogan et al., 2002; Srivastava et al. 1998; Stahl, Matzler, and Hinterhuber, 2002). The results also show that the CLV of other seven banks approximate their shareholder values except for the First and Kaohsiung. Same percentile-ranking applied to the China Trust and Yuanta samples. Although CLV do not absolutely match the whole source of shareholder value, it does provide a strong guideline for managers to perceive potential impacts from CLV on a firm's shareholder value.

Conclusion

To sum up, the findings of this study are twofold: 1) to conceptualize and operationalize the CLV; and 2) to

identify the influence of CLV on firms' financial performance. For customer acquisition strategy, for instance, managers can make use of the CLV analysis to evaluate whether the marketing expenses spent on prospective customers can be recovered or not. Assuming each prospective customer of a bank (that is Kaohsiung) has the same level of CLV value (NT$7,149) as the current level. Their manager can figure out that the profits from the prosper customers may be earned as long as the average marketing expenses are spent less than NT$7,149 on individual customer. Also management is able to segmentalize their customers and evaluate their CLV values respectively so as to concentrate limited resources and implement diversionary strategies on diversified stratum levels of customers. In other words, the manager can take advantage of the sound CLV analyses to adequately predict prospective profitability of customers, and hereby adopt more appropriate marketing strategies to satisfy their potential customers. Customer relationship management (CRM) is another theory which has attracted abundant business scholars from multiple disciplines in the past three decades. Many studies encouraged a new movement towards customer relationships rather than customer transactions (Christopher et al., 1991). By the dint of the quick developments in IT technology, databases and data warehouses have triggered a fierce tide on implementing CRM since the early 1990s. The widespread CRM systems applied by large numbers of Taiwanese firms soundly manifest that, the product-centric concept has been gradually replaced by the customer-centric one. Underlying this trend, a well-rounded CLV theory plays a crucial role on evaluating the efficiencies of a firm's CRM program. This study also fully verified a strong correlation between the retention rate and the CLV. Therefore, evaluating the CLV should be regarded as a mandatory mission for the financial institutions while introducing their CRM systems. In conclusion, management of a firm is strongly recommended to clearly catch on the circumstance: it is the time of transforming ultimate purpose of marketing activities from product-oriented to customer-oriented, or shareholder-value-oriented. Also their marketing arrangement should be justified in terms of their ability to increase the CLV and other perspectives of financial performance. To a great extent customers are exalted as the most important asset of any firm, since ultimately cash flows are sourced from the balance between customer-generated revenues and cor-responding investments made. In this view, a firm is advised to realize their object of marketing through continuously increasing customer-generated cash flows. In a word, no matter CLV or shareholder value, all financial evaluating rationales concerned encourage the decision-makers of any firm to look deeper and think further in terms of financial performance. Due to the difficulties of obtaining the internal information from the target enterprises, the only method available for evaluating CLV in this research is the formula developed by Gupta and Lehmann (2003). This method takes advantage of publicly available information to estimate the lifetime value of a customer for a public company, and therefore is adopted here. However, in practice, firms can examine their own situation to evaluate the CLV by the means of the most appropriate assessment method. In addition, firms can evaluate the CLV of individual customers instead of the average CLV as used in our research. CLV is especially important for credit card firms in taking various decisions, from acquisition to retention of customers. In this paper, the results showed that customer value approximates market value of most of sampled firms very well. Although it is possible that customer value does not capture all the sources of market value for any given firm, the results do provide a strong guideline for firms.

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