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Customer Equity Evaluation: A Study With Reference to Jammu and Kashmir Bank of India

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Abstract

Because of intensified competitions among companies that highlight the unprecedented importance of the customers, various studies on customer equity are carried out to relate the key focus of marketing efforts (i.e. customer) to the key measures of firm's financial success (i.e. market value). This type of research is gaining significant attention among the academicians, researchers and practitioners to know worth of the customers to the company. Despite the growing significance of customer equity, its measurement has been the issue of new discussion among the scholars. Hence, there is still need to continue to refine the measurement of customer equity model. The present study provides an overview of customer equity literatures that highlights the unprecedented importance of customers towards the business of any enterprises and considers customer as a valuable asset that can be measured, managed and maximised just like any other assets of the company. Based on existing literature, this study begins with an overview of customer equity, showing how it is measured and modeled in the business research. To help one to understand the concept better, the researchers use the example of the Jammu Kashmir Bank, Pvt Ltd, and analyses its customer equity for a period of ten years from 2002–03 to 2011–12. The study has identified, conceptualised and measured customer equity and its metrics, using data from J&K bank to provide new empirical insights into the marketing literature on customer equity.

Keywords: Customer equity, Customer lifetime value, Customer margin, Customer retention rate

1. Introduction

Over the past decades, customer equity has come to the forefront as an important metric that considered the customers as valuable assets of company (Blattberg, Getz & Thomas, 2001).

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Recently, the term customer equity has received significant attention among practitioners, academicians and researchers in assessing how well a company is performing with regard to the tactical decisions it makes in handling and extracting value from the customer. Academic researchers have written scores of articles and books on this topic (for examples; Rust, Zeithaml & Lemon, 2000; Blattberg, Getz & Thomas, 2001; Gupta & Lehmann, 2005). The growing interest in this concept is due to several reasons. First, customer equity forces a company to be customer-centric. Second, by its very definition, it focuses on long-term profitability instead of market share or sales. Third, it allows a firm to assess the value of customer and target them through customized offerings. Fourth, the improvement in information technology and the availability of customer-level transaction data permits companies to perform detailed analyses instead of relying on aggregate survey-based measures such as satisfaction.

Marketing scholars namely Blattberg & Deighton, (1996); Berger & Nasr, (1998); Blattberg et al., (2001); Gupta and Lehmann, (2003); Rust et al., (2004) and Venkatesan & Kumar, (2004), have made substantial contribution in the field of customer equity. Companies such as Harrah's, IBM, Capital One and others are routinely measuring customer equity as a tool to determine the marketing success of their firms (Ventakesan & Kumar, 2004). Although, previous studies have empirically verified customer equity is directly related to shareholder value (Gupta, Lehmann, and Stuart, 2004; Berger et al., 2006; Wiesel and Skiera, 2005) but its measurement is still a debating issues. First, as put forth by Chang (2008), reporting of information on marketing metrics is quite difficult and cannot be measured with accuracy. For instance, customer equity, which is based on customer transactions data, is difficult to measure and record. Customer equity assumes certain length of association of customers with the firm, to calculate value of a customer, which is not only subjective but complex in terms of measurement and modeling. Second, Doyle,(2000) mentioned that market-based assets do not figure/ appear in the balance sheet as accountants believe that these assets can be better represented in terms of cost incurred as per the traditional accounting approach rather than investments.

Thirdly, the concept, customer equity is very much new in marketing domain, unlike company valuation measures which have a long research and enjoy a high degree of acceptance at the levels of management and for different types of firms (Villanuessva & Hanssens, 2007).

For these reasons, the present study firstly provides a details overview of customer equity literature to know what is customer equity and how it is measured and modeled as a key measure for operating performance with special references to the Jammu and Kashmir Bank Pvt Ltd. Besides, the study also analyses the trend and growth of customer equity in J&K Bank and offer suitable suggestions for measuring and maximising customer equity.

2. Literature Review

2.1 Customer Equity

Customer equity (CE) is relatively a new approach to marketing strategy and marketing accountability that views customers as a company's valuable asset, as they are difficult to retain and acquire (Villanueva, Yoo & Hanssens, 2008). According to proponents of customer equity, customer equity is marketing tool that bridge a chasm between the two different departments (i.e. marketing and finance) for most of the organizations. The term customer equity (CE) as a concept was firstly introduced by Blattberg and Deighton (1996) and who defined it as "the total of discounted lifetime values of all the firm's customers". Later, Rust, Zeithaml, & Lemon (2000) stated that "the long-term value of the company is largely determined by the value of the company's customer relationships, which is called customer equity" (pp. 4). In line with this, Villanueva & Hanssens (2007) remarked that customer equity is one of the most important determinants of the long-term value of a company that encourages organisations to consider customers as the major source of their current and future cash flows. Although, previous studies have empirically verified that customer equity is directly related to shareholder value (Berger et al., 2006; Gupta, Lehmann & Stuart, 2004; Wiesel & Skiera, 2005) but its measurement is still a debatable issues. The important definitions of customer equity are given in table 2.1.

Table 2.1 Definitions of Customer Equity

Authors	Definitions of Customer Equity
Blattberg &Deighton, (1996)	Customer equity is an optimal balance between what is spent on customer acquisition versus what is spent on customer retention
Rust, Zeithaml & Lemon (2000)	Customer equity is defined as the total of the discounted lifetime values summed over all of firm's current and potential customers.
Blattberg, Getz & Thomas, (2001)	Customer equity is the profit from first time customers, minus the cost of acquiring the customers, plus expected profits from future sales to these newly acquired customers, summed across all customer segments and cohorts".
Hogan, Lemon & Rust, (2002)	Customer equity is a combination of the value of a firm's current customer assets (those customers who currently buy from them) and the value of the firm's potential customer assets (those customers who currently do not buy from them because they buy from a competitor or because they are not yet in the market).
Hansotia, (2004)	Customer equity is the product of the numbers of customers by the average lifetime value of its customers.

In the backdrop, it can be stated that customer equity is a relevant metric to measure the worth of the customers to the company; to measure the marketing success of a company; to classify the customers based on their contribution to the company profits; to know how much money should be invested in retaining and acquiring profitable customers in an organisation to achieve positive return on investment and to determine the true profitability and shareholder value of a company. However, despites its growing significance there are numbers of challenges in calculating customer equity. The major challenges in measuring customer equity include data requirements, accuracy of the metrics and scope of the metric in formulating individual, customer-level, and firm-level strategies (Kumar& George, 2007). Many customer equity research advocate that customer equity is baet calculated using customer lifetime value (Hansotia,2004). The review on CLV is discussed in the next section.

2.1.1 Customer Lifetime Value

Customer lifetime value (CLV) is a core concept of customer equity. Customer lifetime value is defined as the net present value of all profits obtained from an individual customer over the lifetime of his/her relationship with a firm (Berger & Nasr, 1998; Gupta, Lehmann & Stuart, 2004; Rust, Zeithaml & Lemon, 2000). In other words, it is a customer lifetime contribution to a company, used as a measure of a company's success (Gupta & Zeithmal, 2006). Venkatesan & Kumar, (2004) noted that customer lifetime value is a viable metric for customer selection and marketing resource allocation. Recent academic literature (Kumar and Petersen 2005) have shown evidence that customer lifetime value can be used to generate customer level strategies and optimise firm performance. Specifically these strategies include customer selection, customer segmentation, optimal resource allocation, purchase sequence analysis, and targeting profitable prospects. These strategies help the firms to maximise customer equity and profitability of the firm, thereby increasing the shareholder value. Malthouse & Blattberg, (2005) emphasised that firms can be more profitable if they identify and retain the most profitable customers (with high customer lifetime value) rather than customers providing lower customer lifetime value.

2.1.2 Customer Equity Measurement Models

Several models have been developed in an existing marketing literature to measure customer equity under different assumptions and different backgrounds such as (Blattberg & Deighton (1996), Berger & Nasr (1998), Blattberg et al. (2001), Gupta & Lehmann (2003) Rust et al. (2004), and Venkatesan & Kumar (2004). Kumar & George (2007) classified these models under two different approaches i.e. aggregate and disaggregate. Under aggregate approach, firms use segment or firm-level data to compute the average lifetime value of a customer which is then multiplied by the number of customers to arrive at the customer equity. However, individual lifetime value is not available under this approach. Under disaggregate approach, each customer's value to the firm is computed individually for all existing customers, then customer equity calculated by summing up the lifetime values of all the customers'. The detail descriptions of six customer equity models that exist in the literature are discussed below:

2.1.2.1 Blattberg & Deighton (1996)

Defined customer equity as the sum of two net present values i.e. return from acquisition spending and return from retention spending. This model assumed three assumptions: contribution margin per customer varies across time, retention rate and acquisition probability varies across time and finite projections period. Based on these assumptions, they proposed the following formula for computing customer equity:

$$Customer\ Equity\ = am - A + a(m - R/r)\left[\frac{r'}{(1 + r')}\right]$$

with $r' = \frac{r}{1+d}$

Where, a is acquisition rate given a specific level of acquisition cost, A; m is contribution margin; A is acquisition cost per prospect; r' is retention cost per customer;r is yearly retention rate and; d is yearly discount rate.

2.1.2.2 Berger & Nasr (1998)

Introduced the mathematical customer life time value model based on three main assumptions: sales takes place once a year; yearly retention spending and retention rate remains constant over time; and yearly gross contribution margin (GC) remains the same. Under these assumptions customer lifetime value is computed as:

$$CLV = \left\{GC \times \sum_{i=0}^{n}\left[r^i/(1 + d)^i\right]\right\} - \left\{M \times \sum_{i=1}^{n}\left[r^{i-1}/(1 + d)^{i-0.5}\right]\right\}$$

Where,CLV is average customer lifetime value; GC is yearly gross contribution it is, therefore, equal to revenues minus cost of sales; M is annual promotion costs per customer; n is length (in years); r *is* yearly retention rate i.e. the probability of the customer expected to continue buying the company's goods or services in the subsequent year; and d is yearly discount rate.

In this model, firm level data are used to compute average lifetime value of the customer, which is then multiplied by the number of customers in order to measure customer equity.

2.1.2.3 Blattberg, Getz, & Thomas (2001)

Developed customer equity model by using three metrics namely return on acquisition, return on retention, and return on add on selling . They defined customer equity as the sum of three net present value of return on acquisition, return on retention, and return on add-on selling. The developed model is represented as under :

$$CE_{(t)} = \sum_{i-o}^{I}\Big[N_{i,t}a_{i,t}\big(S_{i,t} - C_{i,t}\big) - N_{it}B_{i,a,t}s + \sum_{k=1}^{\infty} N_{i,t}a_{i,t}\big(\prod_{i=1}^{k} P_{i,t+k}\big) \times \big(S_{i,t+k} - c_{i,t+k} - B_{i,rt+k} - B_{i,AO,t+k}\big)\big(\frac{1}{1+d}\big)^{k}\Big]$$

Where, $CE_{(t)}$ is customer equity value for customers acquired at time t; $N_{i,t}$ is number of potential customers at time t for segment i ; $a_{i,t}$ is acquisition probability at time t for segment i; P_{it} is retention probability at time t for segment i ; $B_{i,a,t}$ is marketing cost per prospect (N) for acquiring customers at time t for segment i; $B_{i,r,t}$ is marketing costs in time period t for retained customers for segment i ; $B_{i,AO,t}$ is marketing costs in time period t for add-on selling for segment i; d is discount rate;$S_{i,t}$ is sales of the product/services offered by the firm at time t for segment i; $c_{i,t}$ is cost of goods at time t for segment i; I is number of segments; i is segment designation; to is initial time period.

The model assumes that contribution margin for each segment varies across the time; retention rate and acquisition rate for each segment vary across time and finite projection period to measure customer equity. In this model, computation of customer equity is for each segment or cohort rather than for individual customers. The model uses average acquisition rate and retention rate for the customer segment and then overall customer equity is calculated by adding customer equities for all the customers.

2.1.2.4 Gupta & Lehmann 2003

Proposed a simplified formula for computing customer lifetime value with certain assumptions such as constant average margins(m), constant retention rate (r) and infinite projection period. Based on these assumptions customer lifetime value is calculated in the form of following equation:

Case 1: When the average margins are constant

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

Case 2: When the margins grow at a constant rate g per period,

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

Where, CLV is average customer lifetime value; m is constant average margin for each customer; i is discount rate and; r is constant retention rate.

In this model, customer lifetime value is calculated by multiplying the margin(m) by factor $\left(\frac{r}{1+i-r}\right)$ when average margin are constant and by factor $\left(\frac{r}{1+i-r(1+g)}\right)$ when margin grow at a constant rate. These factors are called margin multiples. Once average customer lifetime value is calculated, it is multiplied by number of customers to arrive at customer equity.

2.1.2.5 Rust, Zeithaml, & Lemon (2004)

*P*roposed customer lifetime value model, which incorporates customer-specific brand-switching matrices only for those customers that are selected in the sample. The model used information about both the focal brand and the competing brands to model acquisition and retention of customers in the context of brand switching. Respondents in a selected sample provide information such as the brand purchased in the previous purchase occasion, the probability of purchasing different brands, and individual-specific customer equity driver ratings. The Markov brand-switching matrix is used to model individual customers' probability of switching from one brand to another based on individual-level utilities.

The probability thus calculated is multiplied by the contribution per purchase to arrive at the customer's expected contribution to each brand for each future purchase. Summation of expected contribution over a fixed time period after making adjustments for the time value of money (i.e. applying a discount factor) yields the customer lifetime value for the customer. The lifetime value of the customer i.e. CLV_{ij}, of customer i to brand j is given as:

$$CLV_{ij} = \sum_{t=o}^{T_{ij}} \frac{1}{(1 + d_j)^{t/fi}} V_{ijt} \times \pi_{ijt} \times B_{ijt}$$

Where, T_{ij} is number of purchases customer i makes during the specified time period; $d_j$is discount rate; f_i is average number of purchases customer i makes in a unit time (e.g. per year); V_{ijt} is customer i expected purchase volume of brand j in purchase t; $\pi_{i,j,t}$ is expected contribution margin per unit of brand j from customer i in purchase t; and B_{ijt} is probability that customer i buys brand j in purchase t. Hence, customer equity of firm j i.e. CE_j is calculated as:

$$CE_j = mean_i\left(CLV_{ij}\right) \times POP$$

Where, $mean_i$ CLV_{ij} is the average lifetime value for firm js customers i across the sample

POP is the total number of customers in the market across all the brands.

2.1.2.6 Venkatesan & Kumar (2004)

Calculated the lifetime value of individual customer based on predicted purchase patterns of customers, marketing costs, and net contribution over the expected period of the relationship or specified period, which is then aggregated to the firm level to arrive at the customer equity. Future purchases in a given year are assumed to occur in intervals inversely proportional to the predicted purchase frequency and finite projections period are the major assumption of this model.

Thus, by predicting following metrics (such as contribution margin, purchase frequency, and variable costs), the individual customer lifetime value can be represented as follows:

$$CLV_i = \sum_{Y=l}^{T_i} \frac{CM_{i,y}}{(1+r)^{y/frequency_i}} - \sum_{l=1}^{n} \frac{\sum_m c_{i,m,l} \times x_{i,m,l}}{(1+r)^{l-1}}$$

Where, CLV_i is lifetime value of customer i; $CM_{i'y}$ is predicted contribution margin from customer;i is purchase occasion y; r is discount rate; $c_{i,m,l}$ is unit marketing cost for customer i in channel m in year l, $x_{i,m,l}$ is number of contacts to customer i in channel m in year l, $frequency_i$is predicted purchase frequency for customer i; n is number of years to forecast, and T_i is predicted number of purchases made by customer i until the end of the planning period. Table 2.2 provides an evaluation of all the measurement models of customer equity that are differs in terms of features, assumptions, benefits, and shortcomings.

Table 2.2 Evaluation of Customer Equity Measurement Models

Model	Berger & Nasr (1998)	Blattberg, Getz, & Thomas (2001)	Gupta & Lehmann (2003)	Rust, Zeithaml, & Lemon (2004)	Venkatesan &Kumar (2004)
Features	Measures CLV and CE.	Measures CE.	Measures CLV and CE.	Measures CE.	Measures CE.
Data	Company Internal records.	Segment level data from internal records.	Company reported data.	Survey data from customers.	Customer transaction data.
Metrics	Contribution margin per purchase and retention rate.	Return on retention, acquisition and add-on selling.	Contribution margin, retention rate and discount rate	Marketing costs, purchase probability and contribution.	Purchase frequency, contribution margin, and marketing costs.
Assumptions	Sales take place once a year. Yearly gross margin, retention spending and retention rate remain constant over time.	Contribution margin for each segment varies across the time. Retention rate and acquisition probability for each segment vary across time. Finite projection period.	Constant average margins and retention rate. Infinite projection period.	Customers in the sample represent the firm customer base. Purchases in a given time are assumed to occur in intervals inversely proportional to the average number of purchases. Finite time period.	Future purchases in a given year are assumed to occur in intervals inversely proportional to the predicted purchase frequency. Finite projections period.
Benefits	Evaluates financial performance of the firm. Measures worth of the customer to the firm	Considered marketing spending on retention, acquisitions, and add-on selling. Formulates firm level strategies.	Simple and easy. Formulates firm level strategies. Determine customer based firm value. Low estimation costs.	Considers customer equity drivers. Formulates firm level strategies. Evaluates financial performance.	Formulates both firm and customer level strategies. Take short period of time to implement.
Shortcomings	Constant contribution and retention rate do not reflect the real life scenario.	Difficult to allocate marketing spending on acquisition, retention and add-on selling.	Based on unrealistic assumptions. Fails to differentiate customer contribution.	Difficult to measure. Take long time to implement. Involve high cost.	Customer purchases from competitor are difficult to assess. Difficult to implement.

3. Research Methodology

Given the restriction of accessing full information about various parameters, eventually Jammu and Kashmir Bank (J&K Bank) is the only bank that is ready for customer equity evaluation. Since, any commercial bank would not be open to provide specific transaction information of its business to the public and similarly it is difficult for the customers to provide technical information such as customer margin ,customer retention rate etc., it makes the method of questionnaire infeasible to get the required data from customers. Hence, the present research used secondary data of J&K Bank to measure customer equity for a period of ten years ranging from 2002-03 to 2011-12.

3.1 Profile of the Jammu and Kashmir Bank

The Jammu and Kashmir Bank was founded on October 1, 1938 by the Maharaja of Jammu and Kashmir, Hari Singh. The Bank was the first in the country as a State owned bank. According to the extended Central laws of the State, J&K Bank was defined as a Government Company as per the provision of Indian companies Act (1956). In 1971, the Bank received the status of scheduled bank. In 1976, it was declared as "A" Class Bank by RBI. From last two decades, J&K Bank is being consistently rated as "A" class bank by RBI. It finds a listing on the National Stock Exchange and Bombay Stock Exchange as well. Today the bank has more than 600 branches across the country On May 15, 2013, bank achieved the target of promised Rs 1000 crores profit and has recently became a 10 billion Dollar Company. Table 3.1 provides financial highlights of J&K Bank from 2007-08 to 2012-13.

Table 3.1 Financial Highlights of the J&K Bank (2007-08 to 2012-13)

Particulars / Years	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Networth	2280.83	2622.86	3010.46	344786	409318	484669
Deposits	285932	330441	372371	446759	533469	105510
Advances	188826	209304	230572	261936	330774	392004
Investment	87577	107363	139563	196958	216243	257410
Total Income	26792.4	32331	34731.1	40778	51697	66205
Net Profit	3600.1	4098.4	5123.8	6152.0	8032.5	1055.0
EPS (in Rs)	74.3	84.5	105.7	126.9	165.7	217.65
Dividend	115	169	220	260	335	283

Source: Annual Reports

Unique Characteristics of J&K Bank

- J&K Bank is the one and only banker and lender of last resort to the Government of J&K.
- In spite of a Government holding 53 percent equity, J&K Bank is regarded as a private bank.
- J&K Bank claims the distinction of being the only private sector bank that has been designated as agent of Reserve Bank of India (RBI) for banking.
- The services of J&K Bank are utilised for the purposes of disbursing the salaries of Government officials.
- J&K Bank collects taxes pertaining to Central Board of Direct Taxes, in J&K state.
- Plan and non-plan funds, taxes and non-tax revenues are routed through the J&K Bank.

3.2 Data Source and Evaluation

The present research used secondary data of J&K Bank to measure customer equity for a period of ten years ranging from 2002-03 to 2011-12. Data regarding costs of capital, operating profit as reported by the company are collected from the annual reports of J&K Bank for the respective years. The financial information related to number of customers and customer retention rate are provided by the bank from its internal records. The secondary data are processed and analysed using SPSS and MS Excel programmes.

Regression technique is also used to test the impact of customer margin, customer retention rate, discount rate and number of customers on customer equity.

3.3 Customer Equity Evaluation

Several customer equity models are found in business literature (see the models of Berger and Nasr, 1998, Blattberg and Deighton, 1996, Blattberg et al., 2001, Rust et al., 2000, Gupta, Lehmann and Stuart, 2003), which differ in terms of their features, assumptions, benefits and shortcomings (already discussed in the previous section 2.3) Among various models Gupta and Lehmann (2003) model offers more benefits and is easier to calculate and implement customer equity as followed by Berger and Nasr (1998), Blattberg and Deighton (1996), Blattberg et al. (2001), Rust et al. (2004) and Venkatesan and Kumar (2004). Based on the comparison and analysis of customer equity measurement models, and combining with the available sources of data, the present study adopts the methodology of Gupta and Lehman (2003) for determining customer lifetime value. The benefit of Gupta and Lehman (2003) model 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 customer equity provides a good proxy for firm value. Gupta and Lehman (2003) calculate the lifetime value of a customer as:

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

Where,m represent annual margin for each customer, d represent annual discount rate and r represent annual customer retention rate. According to this model, customer lifetime value (CLV) is calculated by multiplying annual margin for each customer by factor multiple i.e. $\left(\frac{r}{1+d-r}\right)$, detailed descriptions for all components described as follows:

3.3.1 Customer Margin (m)

Customer margin (m) is an average margin for each customer that is generally determined by revenues generated by the customer, the costs of serving and marketing to the customer and the relationship duration that represents the customer's likelihood of continuing its relationship with the company (Blattberg, Malthouse, and Neslin 2009). In other words, it is a mean of quantifying an individual customer's or a group of customers' contribution to the financial performance of the firm (Chang 2008).

It constitutes an important element of customer equity, which is calculated by dividing the revenues minus operating expenses by the total number of customers at the end of the period. This can be expressed as:

$$\text{Customer Margin (m)} = \left(\frac{Revenues - Expenses}{Number\ of\ customers\ at\ the\ end\ of\ the\ period}\right)$$

3.3.2 Customer Retention Rate (r)

Customer retention rate (r) reflects the probability of a customer being "alive," or remains loyal to the company. Retention rate is one of the most difficult metrics to empirically estimate but at the same time is one of the most important factors that affect the lifetime value of the customer (Gupta and Lehmann 2003). For this study, the formula given by (Chang 2008) to measure customer retention rate for each financial year, is used. This can be expressed as:

$$r = \frac{Total\ Number\ of Customers\ at\ the\ Begining\ of\ the\ Period - Total\ Number\ of New\ Customers\ Acquired\ During\ the\ Period}{Total\ Number\ of\ Customers\ at\ the\ End\ of\ the\ Period} \times 100$$

3.3.3 Discount Rate (d)

Discount rate or cost of capital is also one of the most important components of customer equity. Basically, it is a critical variable in the evaluation of the net present value of any cash flow stream and firm valuation that reflects the fact that current money is more valuable than tomorrow's money, and thus the organisation of finance community spends considerable effort in measuring and managing a firm's cost of capital (Brealey and Myers 1996). Generally, financial experts suggest a range of discount rate, related to the nature of enterprises. For most mature enterprises, the discount rate is lies between 8 to 16 percent. For high-risk enterprises, such as Internet companies, the discount rate may be between 20 to 30 percent, financial methods (e.g., cost of capital) can be used to estimate discount rates (Gupta, Lehmann, and Stuart 2004). In this, cost of capital is used as proxy for discount rate. Pastor, Sinha, and Swaminathan (2008) argued that the implied cost of capital, computed using earnings forecasts is useful in capturing time variation in expected stock returns. Their study shows that cost of capital is perfectly correlated with the conditional expected stock return under plausible conditions.

3.3.4 Number of Customers (NOC)

Based on the CE calculations, number of customers at the end of the period is important parameter for the calculation of customer retention rate or defection rate, and acquisition rate. The number of customers at the end of a period equals to the number of customers at the beginning of a period plus the number of customers acquired less the number of customers lost (Skiera and Wiesel 2005). For this study, number of customers represent the total number of customers at the end which is equal to the total number of customers retained plus acquired during the period. This is expressed as:

$$NOC = Number\ of\ Customers\ Retained + Number\ of\ Customers\ Acquired$$

Once Customer lifetime value (CLV) is calculated, it is then multiplied by the number of customers (NOC) at the end of the period to arrive at customer equity.

$$CE = CLV \times NOC$$

In this model, we relaxed the assumptions in connection with the constant margin, constant retention rate, because such assumptions do not reflect the reality that there is possibility of changes in relationship between firms and customers. Table 3.1 also provides a brief overview of proposed customer equity measurement model in term of features, benefits and shortcomings.

Table 3.1 Overview of Proposed Customer Equity Measurement Model

Proposed Customer Equity Measurement Model	
Features	Measures average customer lifetime value and customer equity. Modified model of Gupta and Lehmann (2003) Relaxed assumptions in connection with constant customer margin and retention rate.
Data	Publicy available data and company internal record
Metric	Customer margin, retention rate, and discount rate
Benefits	Simple and easy to calculate. Useful to formulate firm level strategies. Enables the firm to determine the customer based firm value. Useful for comparing two firms in term of their customer base. Involve low estimation costs.
Shortcomings	Followed quite simplistic approach. Customer acquisition and retention costs not taken in to account. Lack of data availability might limit the feasibility of model.

4. Data Analysis

4.1 Customer Equity Analysis

To measure customer equity, the study firstly identified and measured the four core metrics/ components of customer equity namely customer margin, customer retention rate, discount rate and number of customers. Table 4.1 lists the way we calculate the various components of customer equity and also customer equity. The components- wise analysis is given as below :

4.1.1 Number of Customers (NOC)

The data related to the number of current and potential customers as well as the number of new customers are extracted from internal records of the bank for a period of 2002-03 to 2011-12, as illustrated in table 4.1. According to table 4.1, number of customers (NOC) of the J&K Bank has been constantly increasing from 2002 – 2003 to 2011 – 2012 and which resulted in a net increase of 38,88,139 in number of customers at the end (NOC) over the study period.

4.1.2 Customer Margin (m)

Customer margin (m) of the J&K Bank which is calculated annually by dividing the operating profit (operating revenue minus operating expenses) by the number of customers at the end of the year (Table 4.1), is found to increase by 12 percent (with some ups and downs in the financial years 2004-05 and 2005-06) over the study period. It is also observed from table that the financial period 2011-2012, has the highest customer margin (Rs 1,932), compared to other financial years, indicating that J&K Bank has earned highest amount of profit from its customer base in 2011-12. This is followed by 2003-04 (customer margin of Rs 1,873), 2010-11 (Rs 1,852), 2009 -10 was Rs 1539 and the least was in 2004-05 (Rs 1,031).

4.1.3 Customer Retention Rate (r)

According to the table 4.1, customer retention rate (which is calculated as number of customers at the beginning minus number of customers acquired divided by the number of customers at the end of the period) depicts retention rate of J&K Bank to be highest in 2004-05 with 96.65 percent followed by 2002-03 and 2003-04 which were recorded 93.98 and 92.59 percent, retention rates respectively. It is also observed that in 2005-06, there was sharp drop in the rate of customer retention by 8.07 percent and thereafter, retention rates were 93.27, 91.24, 90.35, 88.48, 88.03 and 89.68 percent in 2006-07, 2007-08 ,2008-09, 2009-10, 2010-11 and 2011-12 respectively. Overall, J&K Bank showed fluctuating but increasing trend in customer retention rate during the study period.

Table 4.1 Customer Equity Calculations over the Study Period

Period	Number of customers in lakhs (at the beginning of the period) A)	Number of customers lost in lakhs (during the period) B)	Number of customers acquired in lakhs (during the period) C)	Number of customers (NOC) in akhs (at the end of the period) A-B+C)	Operating revenue Rs in Crores (D)	Operating expenses Rs in Crores E)	Customer margin (m) Rs in Thousands D-E/NOC)	Customer retention rate (r) NOC-C/A) r (A-B/NOC)	Discount rate (d) %	CLVs in Thousands (r/1+d-r)	CE Rs in Crores ($CLV \times NOC$)
2002-03	29,67,273	1,78,630	4,17,167	32,05,810	813.59	259.87	1,727	93.98	5.13	14,558	4,667.13
2003-04	32,05,810	2,37,551	3,87,262	33,55,521	921.59	293.17	1,873	92.59	2.02	18,388	6,170.24
2004-05	33,55,521	1,12,410	3,42,465	35,85,576	692.35	322.79	1,031	96.65	2.75	16,331	5,855.46
2005-06	35,85,576	4,09,477	7,27,049	39,03,148	774.57	345.25	1,100	88.58	1.75	7,398	2,887.56
2006-07	39,03,148	2,62,682	5,10,160	41,50,626	928.06	372.44	1,339	93.27	1.61	14,971	6,213.75
2007-08	41,50,626	3,63,595	8,36,740	46,23,771	1,055.45	403.61	1,410	91.24	2.41	11,515	5,324.42
2008-09	46,23,771	4,46,194	8,55,318	50,32,895	1,245.32	470.86	1,539	90.35	3.45	10,613	5,341.40
2009-10	50,32,895	5,79,790	11,36,047	55,89,152	1,535.58	577.37	1,715	88.48	2.90	10,520	5,879.50
2010-11	55,89,152	6,69,021	12,86,234	62,06,365	1,908.41	758.93	1,852	88.03	3.21	10,741	6,665.92
2011-12	62,06,365	6,40,497	15,28,081	70,93,949	2,172.35	802.51	1,932	89.68	3.95	12,139	8,611.03
Average	42,62,014	3,89,985	8,026,52	46,74,681	1,204.72	460.68	1,552	91.28	2.91	12,718	5,761.64

Source : Annual Reports and Internal Records of the J&K Bank.

4.1.4 Discount Rate (d)

As revealed from the table 4.1, bank's cost of capital (used as a proxy for discount Rate) was to the range of 5.13 percent (2002-03) to 1.61 percent (2006-07), which refects quite fluctuating trend during the study period.

4.1.5 Customer Lifetime Value

According to table 4.1, customer lifetime value (CLV) which is calculated by multi plying the customer margin (m) by the margin multiples i.e. $\left(\frac{r}{1+d-r}\right)$ showed fluctuating but increasing ternd, over the study period. The maximum and minimum values of CLV of J&K Bank were recorded as Rs 18,388 and Rs 7,398 in 2003-04 and 2005-06 respectively.

4.1.6 Customer Equity

After determining CLV, table (4.1) presents the values of customer equity which are measured by multiplying the values of the CLV by the number of customers at the end of the respective financial periods. The analysis of the table 4.1 clearly reveals that the CE (in absolute figures) of the J&K Bank, although fluctuating but has positive increasing trend, over the study period. The maximum and minimum values of CE were recorded in the financial periods; 2011-12 and 2005-06 which showed values as Rs 8,611.03 and 2,887.56 crores respectively. However, at the onset of the economic downturn bank performance deteriorated slightly in the financial year 2005-06. Thereafter, the values customer base i.e. customer equity are constantly increased from 2007-08 to 2011-12, may be due to the increases of customer margin and number of customer base. Figure 4.1 illustrates the values changes of customer equity and its components over time.

Figure 4.1 Customer Equity and its Metrics Over time

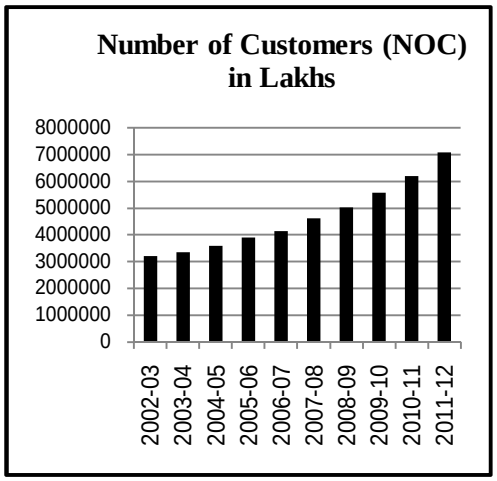

Figure 5.1.1

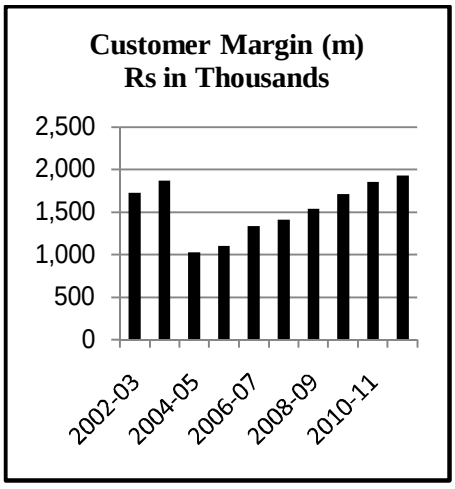

Figure 5.1.2

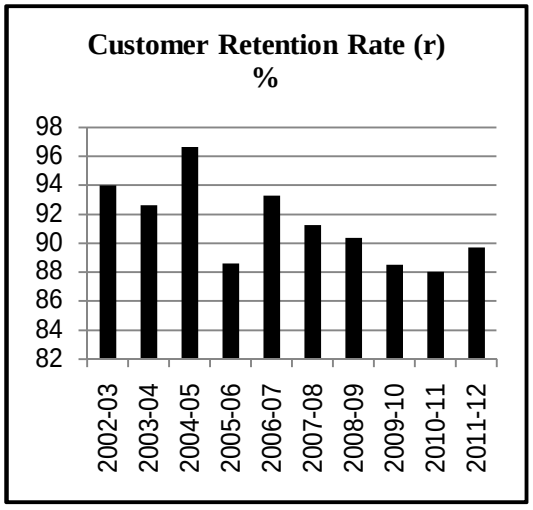

Figure 5.1.3

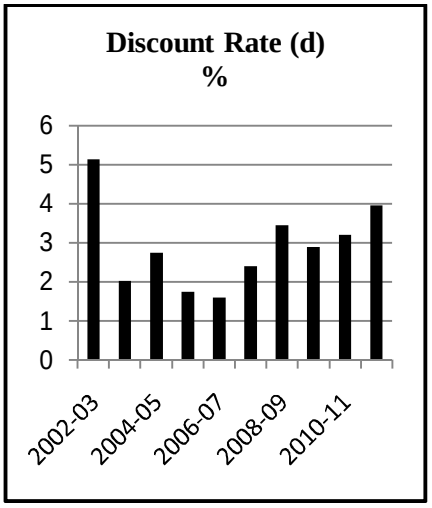

Figure 5.1.4

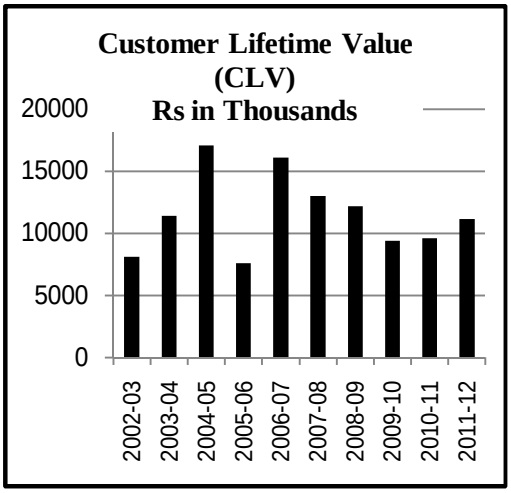

Figure 5.1.5

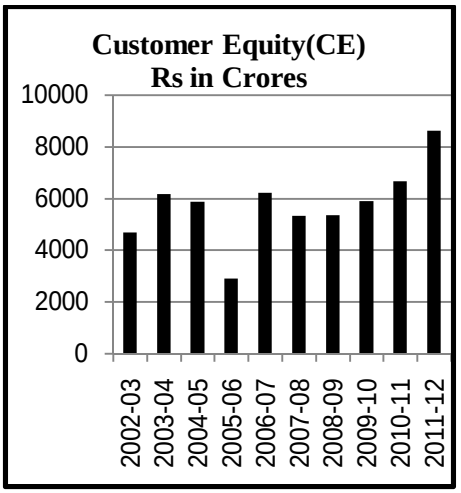

Figure 5.1.6

4.2 Impact of Customer Equity Metrics (Customer Margin, Customer Retention Rate and Discount Rate) on Customer Equity

To gauge the research intention how significantly customer equity metrics relate to customer equity, the study used the following regression equation:

$$CE = \alpha + m\beta 1 + r\beta 2 + d\beta 3 + NOC\beta 4 + € \quad \text{--------- (1)}$$

Where, CE is the customer equity, m is the customer margin / margin per customer, r is customer retention rate, d represents the discount rate / cost of capital of the bank , NOC represent the total number of customers at the end of the period, α represents regression equation intercept, β represent regression equation coefficient and € represent the error term.

4.2.1 Regression Statistic Results

The impact of customer equity metrics that is, customer margin (m), customer retention rate (r), discount rate (d) and number of customers (NOC) on customer equity presented in table 4.2 depicts that all independent variables have significant association with customer equity.

Specifically customer margin (m), customer retention rate (r) and number of customers (NOC) have positive association while discount rate (d) has negative association with customer equity (CE). The standardised coefficients (represented by ß) shows that as the customer margin, customer retention rate and number of customers increase by 1 unit, the customer equity goes up by .6 percent, .10 percent and 1.11 percent respectively and as the discount rate decreases by 1 unit, the customer equity decreases by .37 percent. It is observed from the regression results that the p-values for all the independent variables are lower than 0.05, which confirm that all customer equity metrics significantly contribute to customer equity and which are in line with the findings of (Chang 2008; Gupta and Lehmann 2003; Gupta, Lehmann, and Stuart 2004; Skiera and Wiesel 2005). The value of Dubin Watson test 1.259 less than 2 but greater than 1 reflects that the problem of serial correlation among the variables is nonexistent (Kholer,1994).

Table 4.2 Regression Results using Customer Equity (CE) as Dependent Variable

	Unstandardised Coefficients		Standardised Coefficients		
Variables	B	Std. Error	Beta(β)	t-value	p-value
Constant	- 4.995E11	2.355E10			.000**
m	2.755E7	1879501.980	.609	14.660	.000**
r	5.156E11	2.382E10	.992	21.645	.000**
d	-5.121E11	5.202E10	-.379	-9.844	.000**
NOC	1254.122	524.708	1.114	23.901	.000**
F-Statistic 253.450 Prob.(F-statistic) .000**				R-Square .995 Dubin- Watson test 1.259	

Overall, the f-statistics of 253.450 is very significant and it shows that the independent variables greatly explain changes in the dependent variable. In addition, to measures the success of regression model, R-square is also examined. The R-square value of 0.995 reveals that the 99.5 percent of the variance of the dependent variable is explained by the independent variables. Further, the value R-square shows that the regression equation is best fitted.

Further, the result of collinearity statistics presented in table 4.2.1 shows that collinearity statistics such as tolerance value (ranging from 0.452 and 0.662) and variance inflation factors (ranging from from 1.510 and 2.214), indicate no violation of the assumption underlying the use of regression analysis as regards to the existence of multicollinearity among the independent variables.

Table 4.2.1 Collinearity Statistics

Variables	Tolerance	VIF
Customer Margin (m)	.467	2.140
Customer retention rate (r)	.662	1.510
Discount rate (d)	.569	1.759
Number of Customers (NOC)	.452	2.214

Gujarati 2004 remarked that tolerance value greater than .10 and variance inflation factors less than 10 indicates that the multicolinearity may not to be threat to the validity of the study findings.

5. Conclusion and Discussion

The overall objective of this paper is to measure and analysis the trend and growth of the J&K Bank's performance in term of its customer equity (CE). The discussion of this paper concludes that J&K has increasing customer equity, customer retention rate and customer margin. The discount rate (as measure by cost of capital) of the J&K has fluctuating trend. It is also found that, customer base of bank has been increasing year after year and shows net increase of 38,88,139 customers over the study period. It is quite interesting to see that when customer equity metrics decreased/increased, the value of the customer base is also decreased/ increased in the same year. For example decrease in metrics such as customer margin, customer retention rate and number of customers have resulted in decrease in customer equity in 2005-06 due to hardening interest rate and economic recession.

Moreover, Multiple Linear Regression Analysis proves that all metrics (customer margin, retention rate, discount rate and number of customers) significantly contribute to the value of customer equity.

This result provides support to the argument of previous research that customer margin, customer retention rate, discount rate and number of customer are seem to be relevant metrics/ components for measuring the marketing success of the company in term of customer equity (Skiera and Wiesel 2004; Wiesel and Skiera 2005). And also, support the argument that customer retention rate has greatest impact on customer equity than customer margin and discount rate.

6. Policy Recommendations

The study provides detail overview of customer equity. It identified, conceptualised and measured four metrics of customer equity, used data from J&K bank to contribute new empirical insights into the marketing literature on customer equity. Such knowledge is important because it reveals which customer based metrics managers especially bank manager should monitor and manage with the most care. The present study has several policy recommendations: first, the study recommends that investors and analysts should make better use of customer based metrics and add Customer Based Valuation (CBV) approaches to traditional methods to assess the value of the company. The CBV approach might be especially relevant for customer-centric companies and situations in which traditional approaches are known to be weak. Second, the study suggests that when practitioners employing customer equity as a measure for evaluating company's performance over time, they may identify clearly the area(s) in which the company has succeeded or failed. Third, the study suggest bank's need to introduce best-benchmarked customer service which can help the bank to improve customer retention rate and in turn profitability and performance in the future. Because retaining existing customers is very critical to financial success of the business than acquiring the new customers. It is recommended that bank should introduce loyalty programs in an attempt to improve customer retention. For maximum return, these programmes should discriminate between low-and high-value customers. Hence, customer retention strategy deserves first place in its resource allocation agenda.

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