Measuring and managing customer relationship risk in business markets.

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Teaser:
Developing a scorecard to assess customer relationship risk

Abstract

There have been repeated calls from top management and marketing academics for greater accountability in marketing so that the financial returns of marketing investments can be more robustly evaluated. These are coalescing around the issue of whether or not marketing delivers shareholder value. One promising line of enquiry explores customer lifetime value and the profitable management of these relationships. Although helpful, this approach fails to make the final link with shareholder value since customer lifetime value is still essentially a profit or cash flow measure and does not fully account for customer risk. This paper describes empirical research which explores differing approaches to measuring customer risk and the creation of shareholder value through customer relationship management (CRM). We develop a customer relationship scorecard which proves an innovative tool for managers to use in determining the risks in their customer relationships and developing risk mitigation strategies. The scorecard is then used to forecast retention probabilities, from which a risk-adjusted customer lifetime value is calculated. Both the scorecard and the calculations have an impact on the CRM practices of the customer relationship managers. From a theoretical perspective, an enhanced consideration of customer risk and returns is an important additional step towards demonstrating that marketing creates shareholder value.

Keywords: customer lifetime value; customer risk; customer relationship management; shareholder value

1. Introduction

The emergence of relationship marketing with its emphasis on customer retention has sparked considerable interest in how these customer relationships can be managed more effectively since they are now regarded as one of the firm's primary assets (Gupta et al. 2004; Hunt 1997; Kutner and Cripps 1997; Srivastava et al. 1998). Traditional accounting practices focus mainly on measuring tangible assets as a statutory requirement on the balance sheet. However, nowadays it is more usual for intangible assets such as brand, employee and customer relationships to be the critical and often dominant determinants of shareholder value (Amir and Lev 1996). Given that customer relationship management (CRM) is becoming a core business strategy (Buttle 2004) with investments ranging in value from $60m to over $100m for a highly complex installation (Ebner et al. 2002), the business risk and returns of CRM investments needs to be fully quantified. However, it is not purely the financial risk to the firm that needs to be mitigated; research suggests that some 20 per cent of users of recent CRM installations report *actual damage* to long-standing customer relationships (Rigby et al. 2002). So, as firms develop their marketing strategies based on the principles of customer retention by forging deeper, closer relationships with key customers (Reichheld 1996; Reichheld and Sasser 1990), the risk and returns of these customer relationships also need to be assessed more systematically. In his seminal paper, Doyle (2000a) argues that, as marketing is the custodian of customer insights and responsible for customer relationships generally, it needs to take the lead in developing more transparent metrics for measuring these risk and returns. He also argues that since marketing investments are often directed towards building intangible, off-balance sheet assets that can be difficult to quantify, the

challenge for senior marketers is to demonstrate to their Boards how effectively they are contributing to shareholder value creation[1].

With this research agenda in mind, Rust, Lemon and Zeithaml (2004a) have developed and tested a strategic framework that enables a firm's competing marketing strategy options to be traded-off on the basis of projected financial returns. Using a Markov switching-matrix approach which accounts for competitive brand switching and discounted customer lifetime value (CLV) measures, the authors are able to calculate the returns on marketing investments across five consumer markets. Based upon changes in customer equity relative to the incremental expenditures needed to produce these changes, their 'what if' evaluations of marketing returns represents a very significant advance in enabling marketing management to develop greater financial legitimacy and, consequently, to make more informed choices about their investment decisions. However, by their own admission, their pioneering work does have some limitations such as the inability to incorporate multi-product cross-selling options or to accommodate temporal changes in the size of markets under study. In a subsequent paper, Rust et al (2004b) develop a meta-analysis of marketing productivity in which they catalogue the methods proposed in the last ten years for assessing how marketing expenditures add to shareholder value. While they conclude that it is possible to link marketing value-add to shareholder value in theory, they call upon the research community to carry out further, essential research to increase the empirical validity and practicability of such methods.

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[1] For the purposes of this paper, we adopt Doyle's (2000b) definition of shareholder value which he states *increases* when senior managers make decisions that *increase* the discounted value of all future cash flows.

In this paper, we respond to the challenges raised by Rust et al. by presenting a conceptual framework and an empirical study that attempt to link the risk and returns from customer relationship management (CRM) with shareholder value.

First, we discuss this framework which we argue complements the pioneering work by Rust and co-workers (2004a) as our study is concerned with the returns of CRM investments in a business–to–business context rather than the marketing returns on investments such as advertising and loyalty programs in consumer markets. We are also able to address the issue of cross-selling to customers from a multi-product portfolio and to estimate revenue streams over time in dynamic market situations; two of the limitations highlighted in the Rust (2004a) paper mentioned earlier.

We then briefly outline our methodology involving a collaborative case study approach within a major business-to-business insurer and conclude that an important aspect of risk in a firm's relationships with its major accounts is not the risk of financial default but the risk of a total or partial loss of the relationship. We propose a method of evaluating this aspect of risk through a customer relationship risk scorecard which we then use to develop a risk-based approach to customer lifetime value (CLV) calculations.

 The theoretical implications of our paper relate to the efficacy of CRM in managing customer relationship risk, and to the use of risk-adjusted CLVs so that marketing is better able to deliver shareholder value. The managerial implications are that this scorecard can help customer relationship managers to evaluate and reduce risk in their individual accounts and

across the key account portfolio generally so a more effective CRM strategy can be developed.

2. Research Rationale and Conceptual Framework

While it is axiomatic that effective marketing is closely dependent upon understanding customer motivation, behaviors and purchasing styles, it is perhaps less well established *how* marketing strategies, particularly CRM, should be adapted as more is discovered about the risk and returns of particular customers and what impact these customized CRM strategies have on shareholder value creation. For example, simple customer retention strategies need to be adjusted as firms come to understand that they destroy value if the costs of retention exceed the benefits (Reinartz and Kumar 2002; Thomas, Reinartz and Kumar 2004). Ryals (2005) presents striking evidence to suggest that by developing *profitable* customer retention strategies with selected customers over time, for instance by targeting marginally unprofitable customers and either cross-selling to them and/ or reducing their costs-to-serve, the firm's overall performance is likely to improve. As customers become ever more demanding, she calls for further research on measuring customer profitability, risk and returns as well as into the impact that customized CRM strategies have on shareholder value creation.

Earlier studies in this area tend to focus on single-period customer profitability (e.g. Wilson 1996) and customer lifetime value using a discount rate (Berger and Nasr 1998; Mulhern 1999). However, linking marketing investments to shareholder value requires both the use of weighted average cost of capital (WACC) rather than discount rates (Cornelius and Davies

1997) and a measure of the risk and returns from customers (Dhar and Glazer 2003; Stahl, Matzler, and Hinterhuber 2003). Although Dhar and Glazer (2003) demonstrate a method of adjusting customer lifetime value for the riskiness of the customer, they use a method based on financial portfolio theory; an approach that has proved controversial in its application to marketing since it was originally proposed by Cardozo and Smith (1983; see the objections raised by Devinney, Stewart and Shocker 1985 and the response by Cardozo and Smith 1985).

Recently the issue of customer risk, expressed as the probability of securing customer lifetime value, has re-emerged alongside interest in customer equity measures and marketing returns (Rust, Lemon and Zeithaml (2004a). As indicated earlier, these researchers demonstrate an elegant statistical approach to measuring marketing returns in a data-rich, consumer marketing environment. In contrast to this research, the work we report here deals with business-to-business marketing in which the risk of the customer is assessed through key account profiling so that the shareholder value generated by CRM investments can be estimated.

In essence, we argue that there are research gaps both in theory development and managerial practice which connect CRM investments with the creation (or destruction) of shareholder value. Specifically, these are the calculation of individual CLVs of major customers using WACC and a method of assessing customer relationship risk (Figure 1):

-Insert Figure 1 about here-

2.1 Single period customer profitability analysis (CPA)

The Economist Intelligence Unit (1998) found that most firms measure customer profitability in a top-down way based on the level of sales, the increase in order volume and the size of transactions. A frequently-encountered difficulty for companies wishing to measure customer profitability is that management accounting and reporting systems have tended to reflect product profitability rather than customer profitability (Balachandran 2005). Where product profitability is known, the direct product costs of customer purchases can be determined with reasonable accuracy. Indirect costs (principally the costs of sales, marketing and general administration [SGA]) are then allocated across the customer base, often in proportion to the total sales of each customer.

However, this approach assumes each customer uses equivalent amounts of company time and effort in relation to sales revenue; whereas some customers are just more costly to serve than others, often due to their behavior. For instance, new customers may demand more information about products and service levels, seek to customize the offer as far as possible and then buy on a limited basis as a trial measure. The costs-to-serve of this customer, excluding acquisition costs, point towards an *overstatement* of profitability in the period. By contrast, customers who purchase on a regular basis and whose purchasing habits are routine and predictable, can be relatively easy to serve. Thus, the profitability of such customers stemming from a proportional allocation of costs can be *understated*.

A fundamental problem which applies to all current (and historical) customer profitability analysis is that it does not necessarily act as a guide to the future (Reinartz and Kumar 2002; Wilson 1996). This is a problem for CRM which aims to maximize the longer-term value of close customer relationships and hence contribute to shareholder value (Zablah, Bellenger, and Johnston 2004). For this reason, customer lifetime value may be a more useful and appropriate measure of the value created by marketing.

2.2 Customer lifetime value (CLV) using discount rates

As companies move towards relationship marketing strategies involving CRM, they need to develop a longer-term view of the value of their customer relationships than current data can provide (Peppers and Rogers 1994; 1998; 2001). Effectively, marketers need to predict the future purchasing behavior of customers to arrive at their Customer Lifetime Value (CLV) (Ryals 2002). CLV looks at what the retained customer is worth to the organization now, based on the predicted future transactions and costs (Berger and Nasr 1998; Mulhern 1999). Looking forward to the value of future sales and costs (expressed as the present value of a stream of future profits) fits more comfortably with the development of CRM strategies than current period profits (Dorman and Hasan 1996; Zablah, Bellenger and Johnston 2004). Also, forward-looking customer lifetime value measures are more consistent with the principles of shareholder value creation. To calculate the lifetime value of a customer, three types of information are needed: the anticipated lifetime of the customer relationship in months or years; the profit in each future period adjusted for any customer-specific capital costs, such as marketing and customized services; and an agreed discount rate (Berger and Nasr 1998;

Mulhern 1999). CLV analysis demonstrates that the value of the relationship with a customer can be increased either by increasing the amount of profit (by increasing the revenue from the customer and/or decreasing costs-to-serve) or by extending the relationship lifetime.

Unfortunately, even if CLV calculations show a positive return, it is still possible that a customer relationship could destroy shareholder value. One reason is that commonly-used profit measures do not necessarily reflect shareholder value creation because they do not take into account the true cost of capital (Cornelius and Davies 1997; Koller 1994).

2.3 CLV based on the WACC

In calculating profit using CLV, the cost of debt interest is usually deducted but not the (often higher) cost of equity. A company's cost of capital is the weighted average of its cost of debt and its cost of equity (or WACC) determined by the return its investors require on the money they invest in the business. The capital used by a business comes either from debt or from equity funding; thus the overall cost of capital for a business is the weighted average of the cost of its equity and the cost of its debt. It is only if the return on capital exceeds its cost of capital that an investment creates shareholder value (Cornelius and Davies 1997; Lieber 1996; Reimann 1990). Thus, using WACC as a basis for calculating the present value of future returns from customer relationships moves the CLV concept closer to direct shareholder value analysis.

Even with this refinement in the CLV calculation, there are still important aspects missing from the full measurement of CRM returns. For instance, little account has been given to the risks associated with building lifetime relationships with key customers (Stahl, Matzler, and Hinterhuber 2003) nor the dynamic relationship between CRM and the lifetime value of these customers (Ryals 2005).

2.4 Risk of the individual customer

Regarding customer risk assessment, CLV analysis – even WACC-adjusted measures – tends to reflect supplier risk more than the risk generated by their customers. As the fundamental source of a business's cash flow, customers are a risky asset, particularly as the size and power of key customers continues to grow (McDonald et al. 1994) and businesses seek to differentiate through a greater degree of customization of their products, services and processes (Womack and Jones 2005). In other words, as marketing and sales make choices about their CRM priorities, there is a need for a new approach to customer risk assessment.

So how should marketers adjust the CLV of a particular customer for risk? Many companies assess the risk of their customers using some form of risk or credit scoring. Risk scoring is an effective way of evaluating specific types of risk in a customer relationship, normally credit scoring to evaluate the risk of default (Hoogenberg and auf dem Brinke2004; Wagner 2004). However, defaulting on payments is only likely to be relevant in a minority of business-to-business relationships and is a remote possibility in the relationships that suppliers have with their major customers. Also, credit scoring measures risk at a point in time and neither

reflects the commercial possibilities over the relationship lifetime nor offers guidance to

longer-term relationship management. Although credit scoring has a role to play in managing

the financial risk in major business-to-business relationships, it needs to be dynamic to reflect

the changes in risk over time (Ryals 2002) and it may not reflect the true risk in the

relationship. In major customer relationships, other types of risk associated with a customer,

particularly the risk of defection or purchasing swings, may be far more of a risk but are not

captured by traditional risk scoring.

For the purposes of developing CRM and shareholder value measures, we propose a different

definition of risk that addresses relationship risk. The benefit of defining risk in this way is

that it offers managers the opportunity directly to diagnose the health of their relationships

with major customers for themselves (McNamara and Bromiley 1999). This evaluation can

take one of two forms.

- The WACC discount rate used to calculate customer lifetime value can be further

  adjusted for the risk associated with that customer; or

- The risk evaluation can be expressed as a probability of obtaining the forecast future

  revenue stream from that particular customer.

Both methods will now be discussed.

2.5 Adjusting discount rates to reflect individual customer risk

Drawing on McNamara and Bromley's approach, an assessment of customer risk factors is

based upon a review of the company's CRM capabilities, general insights about their

customers and other germane market conditions, such as growth potential, customer defection

rates and competitive intensity. Each factor is then assigned an importance weighting and

customers are scored against these factors. The weighted risk score for each customer is then

calculated relative to the average. So, a customer with a risk scorecard which is 50 % higher

than the average across the customer portfolio would be assigned a risk-adjusted discount rate

50% greater than the WACC rate in calculating their CLV. A minor drawback of this method

is that risk is calculated relative to the *average* of the account portfolio. Changes in this

portfolio average (i.e. losing or gaining a major customer) may result in changes to the

apparent risk and returns of all remaining key accounts. A more substantial objection to this

approach for major accounts is that unless the relationship lifetime is predicted to be very

long or the WACC is very high, even very large changes to the risk-adjusted discount rate

would have little impact on the actual customer lifetime value. In practice, most managers

find it difficult to predict customer lifetime value more than a few years ahead. These

limitations in the use of risk-adjusted WACC (or credit scoring) as the sole risk measure in a

customer relationship have led us to develop a relationship risk scorecard.

2.6 The relationship risk scorecard

The underlying concept behind the relationship risk scorecard is that the main risk in major

account relationships is the total loss of the customer or reduction in a customer's "share of

wallet". The relationship risk scorecard method can be operationalized using a personal

construct or critical incident analysis; CRM managers are asked to consider why certain customers defect and why others migrate. Analysis of the results produces a series of factors that can be used to evaluate the riskiness of a relationship. These factors might include the number of contacts that customer has with the company, how warm the relationship is, etc. Once the customer risk scorecard has been developed, it is then possible to assign a probability to forecast profits in each future year of the customer's relationship lifetime.

Thus, rather than risk-adjusting the WACC, managers can adjust their forecasts of future revenues of their individual customers by the estimated probability that these future revenues will be achieved. Probability forecasting overcomes the objection to the low impact of risk-adjusting the WACC since changes in probability have a substantial impact on the value of the customer.

2.7 Optimizing shareholder return on a customer relationship

Bell and co-workers (2002) point out that, beyond estimating CLVs, there is the need to optimize shareholder value from each of these customer relationship through effective CRM practices. Clearly, how this shareholder return is optimized is totally dependent on a thorough understanding of the customer's strategy, its market position, and the supplier's own CRM skills and competencies. For instance, should a particular key account have a strong brand name in their market, the supplier's CRM strategy may be to seek to acquire new customers in this market through the customer's endorsement and by word-of-mouth referrals. In other instances, a particularly innovative account may support the co-development of new products

and services or help evaluate new product concepts. It may be simply that the biggest

accounts are found to contribute the most economic value and should be managed to

maximize shareholder value on this basis.

In sum, the creation of shareholder value through CRM can only be managed effectively if

the company's CRM strategy is based upon an analysis of its key account portfolio; by

measuring and managing risk-adjusted CLVs of key accounts individually to reflect

shareholder gains (and losses). In optimizing the CRM investment across the portfolio, the

link between CRM strategy and shareholder value becomes more evident, less assumptive

and provides a mechanism for risk reduction in decision making.

In the next section, we briefly outline the methodology that enables us to do this with a

business-to-business insurance company which manages a portfolio of key accounts in a

number of different markets.

3. Methodology

Our research is about building and testing a new approach to assessing CRM risk, so the

methodology used is inductive theory discovery (Strauss and Corbin 1990). We selected a

collaborative case study approach which suits a descriptive and explanatory enquiry (Patton

and Appelbaum 2003). However, the case study includes both quantitative as well as

qualitative data (Yin 2002). A single participating company from the financial services

industry was selected to explore a defined process (Eisenhardt 1989; Yin 2002). In case study

research the context is important (Patton and Appelbaum 2003); the theoretical sample of

industry and participant company in the current research is based on an acceptance of the

need for risk measurement and a relative familiarity with risk and net present value concepts.

The participating company is a very large European business-to-business insurer and the

research was carried out with its key account management (KAM[2]) team. Across the team,

there was a developing distinction between insurance risk (which was its main business and

already built in to its pricing and risk management process) and relationship risk (which was

not). It is this state of readiness among the team that makes the inductive methodology of

collaborative enquiry, using various one-one-one interviews and team-based workshops,

appropriate (Boer, Gertson, Kaltoft and Nielsen 2005; Eden and Huxham 1996; Gummesson

2000).

The key account portfolio studied consisted of a total of 18 major accounts of which it was

possible to carry out risk evaluations on 10. All 10 had annual contractual relationships with

the insurer and all were managed by the KAM team throughout the research period of 9

months. The key accounts operated in a variety of industry sectors, from building and hotels

to chemicals manufacturing and charities. They all bought at least three business lines

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[2] In this company, key account management provides the main marketing role and accounts for most of the marketing expenditure.

(products) from this insurer and the total lifetime value of this key account portfolio exceeds £50m.

3.1 Developing the customer relationship risk scorecard

A collaborative research process was used to develop the relationship risk scorecard. First, the researchers carried out a review of current practices in risk evaluation of customers and circulated a short document outlining the different approaches to risk evaluation described earlier in this paper. Then, the researchers and the KAM team agreed the research protocol.

This research protocol utilised an elicitation process based on Repertory Grid technique (Kelly 1955; 1969), which has been widely used in marketing and has been previously applied in a study of business-to-business risk management practices (Sparrow 1999). The name of each key account was written onto separate cards (Daniels, de Chernatony and Johnson 1995) and, in individual interviews, each KAM team member was presented with the names of three key accounts. They were asked to say which of the three was the most risky, and why. This was repeated four times so that each of the key accounts was presented. To aid further probing, the four 'riskiest' accounts identified were presented in two random sets of three cards and the interviewee again asked which was the riskiest and why. Finally, as a check on previous responses, each interviewees were asked to order all the cards in descending order of risk (Daniels, de Chernatony and Johnson 1995).

To ensure that the widest possible definition of risk had been captured, similar interviews were carried out with three senior managers, not part of the KAM team, who had extensive client management responsibilities. At the end of all eight interviews, some open questions were asked about what the participants thought made a customer relationship risky, specifically probing for the factors that might cause their key accounts to leave or to migrate part of their business to a competitor. The participants were also prompted to discuss examples. The purpose of the open questions and the examples was to ensure that all relevant relationship risks were elicited and to aid the researchers in establishing a common language for each of the risk factors. The results were discussed with the KAM team and a list of nine relationship risk factors developed. These were grouped by general subject into a relationship risk scorecard. We then worked with the KAMs to collect the information to populate the relationship risk scorecard for each of the 10 accounts. In conjunction with the Senior Actuary and the head of the KAM team, we subsequently assigned retention probability weightings to each of the factors on the scorecard.

Finally, the probability weightings results of the relationship risk scorecard were fed back to the KAM team and used as the basis for a series of workshop discussions to finalize the CLV-WACC calculations, the relationship risk scorecard and the CLV calculations for their accounts based on this scorecard. Throughout these discussions, new ideas for developing CRM strategies for retaining and acquiring customers also emerged.

4. Findings and Discussion

4.1 CLV using Discount Rate and WACC

Extensive discussions with the insurer's Senior Actuary led to the calculation of a WACC of 4.8% against the company's then discount rate of 12%. This rather unusual situation in which the company's WACC was considerably lower than its discount rate needs some explanation. WACC is defined as (cost of debt x proportion of debt) plus (cost of equity x proportion of equity). The cost of debt and cost of equity reflect the lenders' views of the riskiness of investing in the company; WACC is *externally* determined. In this case, the low WACC indicated that lenders considered this to be a low risk business. The discount rate is determined *internally* and reflects the company's own view of its risk. At 12%, the discount rate was considerably higher than the cost at which the company could borrow, indicating a conservative approach to risk on the part of the insurer.

Following the procedure described earlier (*CLV using discount rate*), CLVs were calculated using both the regular discount rate of 12% and the WACC of 4.8% (Table 1).

-Insert Table 1 about here-

The first finding was that varying the discount rate or WACC did not seem to have a major impact on customer lifetime value. The difference between the total values of the customer portfolio calculated using a discount rate of 12% or a WACC of 4.8% for the average customer lifetime of 4 years was £2,137,385.97 or 13.8%. The largest individual change was

for customer H, whose lifetime value changed by 21%. The smallest change was for customers C and F, whose lifetime value changed by 6% (Table 1, column 3). By contrast, the lifetime value for the largest customer in the portfolio (I) was almost 30 times greater than the value of the smallest customer (F). The small differences in lifetime value caused by the recalculation using WACC were swamped by the much larger differences in value between the accounts.

The reason that lifetime values calculated using WACC hardly differ from lifetime values calculated using the discount rate, even when the discount rate is two and a half times greater than the WACC, is due to the relatively short customer lifetimes predictions. The maximum predicted remaining lifetime was 6 years and the mean was just over 4 years. Mathematically, the longer the predicted customer lifetime, the greater the impact of a change in discount rate on the present-day value. However, in practice asking account managers or sales people to predict revenues and costs to serve over long time periods into the future is likely to be problematic.

While reflecting on these results, the KAMs made some intriguing comments that the risk of the customer varies over time for reasons largely unconnected with financial risk. Therefore, risk needed to be considered at the level of the individual customer and in terms of relationship, not just financial, risk. This finding led to the development of a relationship risk scorecard.

4.2 The customer relationship risk scorecard

The analysis of the eight semi-structured interviews showed that more than half of the factors identified related to insurance risk (such as industry risk or whether the client had a dedicated Risk Manager) rather than relationship risk. Following further discussions with the KAM team and their senior managers, the insurance risk factors were excluded. Nine customer relationship risk factors were eventually identified. These were then grouped into one of three categories:

- The customer's overall relationship with the company (including other parts of the insurer)

- Account relationships

- Knowledge of the customer.

This relationship risk scorecard was then used to analyze the 10 key accounts for which full data were available (see Table 2 below). Where the relationship risk factor was subjective (factors 4, 5, 8, and 9), the key account manager for that account was asked to evaluate the customer relationship using a five-point scale. The last two columns of Table 2 show the maximum and minimum values of the 9 risk factors found for the customers studied. In every case the direction of risk is consistent: the minimum values always indicate higher relationship risk and the maximum values indicate lower risk.

-Insert Table 2 about here-

The first surprising finding is the degree of variation in key account management practices; for example, there were very substantial differences between accounts in terms of their overall relationship with the company, number of products bought and the number of personal contacts on both sides. A cross-comparison of the results for factors 6 and 7 indicated that customers with the most contacts at the company are also those with whom the company had most contacts (i.e. the relationships tended to be either one-to-few or many-to-many). It is possible that these results can be explained in terms of different kinds of KAM relationship (McDonald, Millman and Rogers 1997). However, judging by the surprised reaction of the KAM team to these variations, the differences in customer relationships were not intended and had arisen purely from differing approaches to account management across the team. Certainly the disparity of results on factors 1 and 2 indicates areas of opportunity for a more consistent CRM approach.

Another interesting result concerns the responses to the subjective factors 4, 5, 8, and 9 in table 2. In all cases, the account managers graded at least one of their score as just 1 out of 5 (very poor), whether it was their relationship with their broker, the quality of their relationship with the customer or their understanding of customer's business and industry. It should be emphasized that these 10 customers were *the most important accounts* for this business unit, so to find minimum scores at all here was somewhat surprising. This finding indicates considerable disparities between account managers and suggests the possibility of the transfer of best practice within the team, perhaps coupled with a need for training for some of the key account managers. In addition to sharing best practice across the team, the senior management may also choose to introduce customer-centered key performance

indicators to measure the growth (or decline) of the key accounts being managed by the team. Davidson (2002) suggests five metrics to measure such levels of customer commitment:

- What customers do:

  - share of market

  - share of customer spend in category

  - loyalty and levels of retention

- What customers feel:

  - Customer satisfaction surveys

  - Levels of advocacy

The latter measure can readily be incorporated into the risk scorecard developed here (see the conclusions section).

Discussion about the longevity of customer relationships (factor 3) revealed that the KAMs had asymmetric knowledge about their success or failure with customers. Where a customer was lost, a 'post mortem' was held and there was good information about why the defection had occurred. However, customers who renewed their contracts did not trigger this type of analysis; consequently the key account managers didn't really know why they had been successful in retaining some accounts. This finding led to a managerial action to improve the analysis of success as well as failure and to disseminate that to the team.

4.3 Developing probability-adjusted CLVs

Once the relationship risk scorecard had been agreed, it was then used to predict the probability of future revenues based upon two insights:

- Rather than adjusting the discount rate, a probability weighting should be applied to future revenues to reflect relationship risk; and

- This probability could range from 40% to 90% on the basis that no account could be retained with 100% probability but neither should any key account have less than a 40% probability of retention.

By working with the head of the KAM team and the Senior Actuary, probabilities were assigned to all values for each of the nine relationship risk factors. These probabilities were then programmed into Excel. A simplified version of these probabilities for each risk factor is presented in Table 3.

-Insert Table 3 about here-

The probability scaling was informed by the actual values in the account portfolio and it is interesting to note that this scaling is non-linear. To test the scaling, further analysis and questioning was carried out, factor by factor. For example, the probability scaling for factor 2 suggested that the retention impact of more than four lines was relatively slight. Analysis of the customer portfolio revealed that the actual number of products held by each customer was as shown in Table 4.

-Insert Table 4 about here-

Two customers held 3 business lines; seven had 4 each; two had 6 lines; and two had 10

lines. Thus, the distribution of product holdings with most customers holding 4 lines or fewer

explains the probability scaling.

Similarly, further analysis was carried out on factors 6 and 7 (numbers of contacts). Across

all the accounts there was more than one contact point since one-to-one relationships were

regarded as risky by the KAM team. The assigned probability for factors 6 and 7 indicated

that more than 3 contacts were sufficient to give a very high probability of account renewal.

This probability was supported by further analysis which found that the mean number of

contacts at the customer was 3.8 with most key account managers having 3 contacts. The

mean number of customer contacts at the company was 3.4, with most customers having 3 or

4 contacts.

A slightly different example was factor 3 where the scaling suggested that the duration of the

relationship beyond five years did not substantially increase the probability of retention.

Intuitively, the assumption that long-lived customer relationships do not simply become any

more likely to endure just because they are long-lived seems appealing. This factor was

identified by the team as an issue that warrants further research.

In the final stage of our research work, these probabilities were applied to the potential future

revenues of all 10 key accounts and their probability-adjusted CLVs were calculated (column

3 of Table 5 below). First, the overall risk probability of each customer was calculated as a

straight average of the probabilities of the individual relationship risk factors for that

customer. This probability was then multiplied by the year-by-year forecast revenues to give probability-adjusted revenues. Then, costs-to-serve[3] and claims costs[4] were deducted from the probability-adjusted revenues. Finally, the probability-adjusted customer lifetime value was calculated using WACC.

-Insert Table 5 about here-

A relatively high retention probability was to be expected for those customers whose relationship was regarded as key to the company. The predicted probability of retention for the 10 key accounts ranged from 68% to 82% with an average of 75%; probabilities that were considered to be high by the key account managers but which were validated by calculating the average actual duration of key account relationships as just under 5 years.

The power of the probability-adjusted CLV was in the impact on the apparent value of the customer portfolio and on the impact on the organization's CRM strategies. The total value of the account portfolio more than halved (Table 5, column 4). Two key accounts (C and J) went from positive to negative CLVs (column 3). From the key account managers' perspective, the impact of changes in value of certain accounts and the sensitivity of the results to changes in probabilities was perhaps more important than their absolute value. An immediate and important impact on CRM practices was to increase the account managers' focus on risk.

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[3] The team has made a simplifying assumption that their costs- to-serve would be similar whether or not they won the client (effectively, that they would spend as much time during the year trying to win back the client if they defected, as they would have done managing the client if it had renewed).

[4] Claims costs (analogous to product costs) were bipolar (they were either incurred or not, depending on whether the client was won or lost) and temporally asymmetric (claims could occur in later years relating to revenues in earlier years). Because of these complex characteristics, it was decided to leave claims costs unadjusted, with the result that adjusting the probability of revenues exaggerated the difference from customer lifetime value.

They looked at strategies that could both increase returns and reduce risk, such as cross-selling more products to customers buying fewer product lines (E, F, G, H and L). Numbers of contacts at the customer and at the company were also reviewed.

The results also serve to underline that certain key accounts which may be generating large revenues for the company can have low year-on-year profitability and may easily become value-destroying if their risk increases. In this case, the firm's relationship with C and J, the two customers who had gone from positive to negative value once risk was taken into account, were carefully scrutinized to explore whether these relationships were really worth the level of expensive KAM resource they receive or whether they should be managed at lower service levels by a more generalist team. The process has helped the team to identify which of their accounts were truly key accounts and to adjust their service levels accordingly.

As a result of this analysis, key account managers of customers with lower retention probabilities talked about spending more time on trying to acquire additional key accounts to replace those most likely to defect. This was an interesting development since the KAM team had previously focused primarily on existing customer relationships. Although the key account managers were responsible for customer acquisition as well as retention, they found it difficult to manage the balance of these two activities and felt that the probability weightings indicated where and how they should spend their time. Thus, the relationship risk scorecard can have a role to play in marketing resource allocation in these kinds of relationships, sitting alongside other portfolio management tools.

Moreover, the incorporation of risk into their thinking now influences which new customers the team tries to acquire. In one case, the team made a decision not to bid for a huge international account despite being invited by the potential customer to do so; they calculated that the potential lifetime value was too low to compensate for the risk.

5. Conclusions and Limitations

This research addresses the challenges thrown out by Doyle (2000a), Rust et al. (2004b) and others to examine the accountability of marketing and its contribution to shareholder value creation. Conceptually, this research has taken a very different approach to the financial portfolio application of customer risk and returns suggested by Dhar and Glazer (2003) mentioned earlier. Whilst acknowledging that the notion of managing customers as a portfolio is an interesting and attractive one, we feel that financial portfolio approach has many drawbacks. It is computationally complex and it relies for its measurement on betas which require a substantial number of data points (i.e. considerable historic data) and a suitable market benchmark (Anderson 1981). More importantly, the hidden assumption in applying financial portfolio theory to customer portfolios is that a company's CRM activities do not affect relationship risk with its customers.

Our research based on this CRM perspective suggests that the actions that suppliers take to manage their customer relationships *do* affect the risk of those relationships and that effective CRM practices can help reduce this customer risk. Moreover, the relevant risk for CRM is

not purely or even mainly the financial risk of default, but the relationship risk of the loss (total or partial) of the customer's business.

In this paper, we present a conceptual framework linking CRM to shareholder value through the adjustment of CLV for relationship risk and propose a tool for measuring this risk; the customer relationship risk scorecard.

Although the specific factors in the scorecard proposed here might not be directly generalizable, the principle and process of designing such a scorecard is. The process was to use an elicitation technique as the basis for discussions with KAMs and senior managers about customer relationship risk, and then applying probabilities to the results. There are also other theoretical and empirical limitations that need to be highlighted.

The theoretical limitations concern the unweighted nature of the scorecard presented here and the application of risk percentages. Both aspects need further testing. Empirically, this process could be used in other business-to-business markets, provided that the KAMs were able to make informed assessments of risk and it is operationally possible to collect the data relating to each risk factor, particularly where the relationship with the customer extends across more than one business unit. In a more data-rich environment than the current research context, it may be possible to derive the factors driving customer retention statistically and perhaps also to give them an importance weighing. Unlike Rust, Lemon and Zeithaml (2004a), we were not in a position to explore the 'outside-in' dimensions of customer equity and retention probabilities by questioning customers directly. Thus, the unweighted nature of

the relationship risk scorecard used here and the reliance on judgment-based, 'inside-out'

customer insights to estimate them is a limitation of this research.

There may also be practical limitations to the usefulness of the risk scorecard in less valuable

relationships or where default risk, rather than retention risk, is the main issue. In such

circumstances, traditional credit scoring may give a more useful picture of risk.

The results suggest that the tool is managerially useful and helps marketing with their CRM

strategy. For instance, some key account managers were tasked to improve their knowledge

of the customer or the industry; others to increase the numbers of business lines sold or the

number of contacts; still others to improve the quality of their relationships with the customer

or the broker. The range of marketing actions stemming from this research suggests that the

risk scorecard may be useful in conjunction with other CRM tools such as market research

and marketing portfolio management (Buttle 2004). For example, risk-adjusted customer

lifetime value could be used as the measure of customer attractiveness in a Directional Policy

Matrix (McDonald 1990), enabling the evaluation of both existing and potential customers in

terms of their potential to create shareholder value.

More generally, there are some drawbacks to looking at customers purely in terms of lifetime

value. Lifetime value is a forecast, which can be more - or less - accurate. The lifetime value

a company secures from its customers is affected by both acquisition and retention costs

(Thomas, Reinartz and Kumar 2004). Thus, longer-lifetime customers are not necessarily

more profitable (East, Hammond and Gendall 2006). In other firms, where historic data on

the value of customers going back several years are available, 'backcasting' could be used to determine an optimal value for the customer portfolio. From this, marketing managers could deduce what has to be done to retain the necessary amount of customers to reach the desired pay-off.

Moreover, customer behavior such as advocacy has been identified as an indirect source of value creation in that it may assist customer acquisition (East, Hammond and Gendall 2006; Reichheld 2003). Although advocacy has not been considered in this research, it could readily be included in the risk scorecard as a part-measure for both the KAM team and individual KAMs. Such a metric has recently been successfully introduced by General Electric across its business units and Reichheld and Allen (2006) report that a significant portion of the GE managers' bonuses is now tied into achieving agreed levels of 'Net Promoter Scores'. Other customer behaviors, such as sharing knowledge to access markets or engaging in the co-production of new services (Vargo and Lusch 2004), need to be factored into CLV calculations in order to optimize shareholder value across the customer portfolio. Again, these indirect sources of value could be incorporated into the scorecard as such shared activities mitigate relationship risk; customers co-operating in aspects of market development are arguably less likely to migrate or defect. We acknowledge these limitations in our scorecard and, more generally, in our main research focus of calculating a customer's economic value.

We have also demonstrated how one firm uses the relationship risk scorecard to assign specific probabilities of customer retention and to adjust their CLV calculations. We

recognize that these probabilities were at least partially subjective, although we have shown that further analysis provided a rationale for many of them. Longitudinal research over several years could test these probabilities against observed renewals and also explore whether some factors were more important than others.

Although the call for more accountable marketing is growing in intensity, the academic response to date has been limited, particularly in demonstrating how CRM activities link to the creation of shareholder value. In fact, the whole area of the risk of customer relationships and how that risk can be managed is under-explored by marketing academics. We propose a conceptual framework to make that link, and we demonstrate a step-by-step operationalization that delivers useful insight into the profitable management of customer relationships. However, much more needs to be done to improve our understanding of the risk, as well as the returns, in customer relationships.

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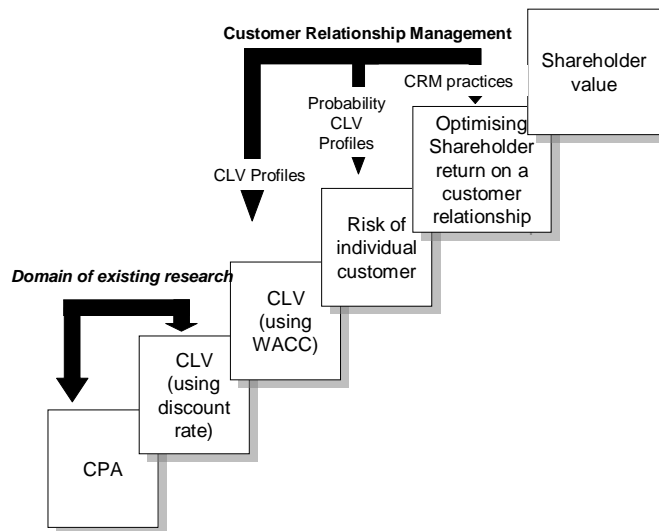**Figure 1: Linking CRM with shareholder value – a conceptual framework**

Table 1: CLVs calculated using Discount Rate and WACC

	1	2	3
Customers	**CUSTOMER LIFETIME VALUE** **Using Discount Rate (12%)**	**CUSTOMER LIFETIME VALUE** **Using WACC (4.8%)**	**2/1*100**
B	1,869,980.76	2,085,478.59	111.5%
C	313,848.23	334,434.24	106.6%
E	920,172.37	1,047,973.33	113.9%
F	157,123.98	166,571.33	106.0%
G	1,355,200.14	1,471,931.26	108.6%
H	2,939,410.64	3,553,664.32	120.9%
I	4,634,637.18	5,272,831.15	113.8%
J	408,922.62	471,671.59	115.3%
K	2,724,553.64	3,032,929.21	111.3%
L	207,221.20	230,971.72	111.5%
TOTALS	**15,531,070.76**	**17,668,456.73**	**113.8%**

Table 2: The Customer Relationship Risk Scorecard

Grouping	Customer Relationship Risk factor	Minimum value	Maximum value
Overall Relationship			
1.	Number of customer relationships with other parts of the company	0	3
2.	Number of business lines (products) bought by the customer	3	10
3.	Longevity of the relationship (in years)	0.5	16
Account Relationship			
*4.	Company's relationship with the broker**	1	5
*5.	Quality of relationship with the customer	1	5
6.	Number of people contacts the company has at the customer	2	8
7.	Number of people contacts the customer has with the company	3	10
Knowledge of Customer			
*8.	How good is the company's understanding of customer's company	1	5
*9.	How good is the company's understanding of the customer's industry	1	5

* These four subjective factors were assessed confidentially by the relevant account manager(s) using the following scale: 1 = very poor; 2 = poor; 3 = fair; 4 = good; 5 = excellent

** Although the insurer had a direct KAM relationship with the customer in all cases, some customers also used an insurance broker and therefore the insurer needed to have a relationship with this third party.

Table 3: Relationship Risk Factors, Assigned Probabilities and Range of Values

	Relationship risk factor	**Assigned probability**	**Range of actual values**
	Overall Relationship		
1.	Number of customer relationships with other parts of the company	0=40%, 1 = 60%, 2=80%, >2=90%	0 to 3
2.	Number of business lines (products) bought by the customer	1=40%, 2=50%, 3=60%, 4=70%, 5 to 10=80%, >10=90%	3 to 10
3.	Longevity of the relationship (in years)	<3=40%, 3=60%, 4=70%, 5=80%, >5=90%	0.5 to 16
	Account Relationship		
4.	Company's relationship with the broker	1=40%, 2=60%, 3=70%, 4=80%, 5=90%	1 to 5
5.	Quality of relationship with the customer	1=40%, 2=60%, 3=70%, 4=80%, 5=90%	1 to 5
6.	Number of people contacts company has at the customer	1=50%, 2=60%, 3=80%, >3=90%	2 to 8
7.	Number of people contacts customer has at the company	1=50%, 2=60%, 3=80%, >3=90%	3 to 10
	Knowledge of Customer		
8.	How good is the company's understanding of customer's company	1=40%, 2=60%, 3=70%, 4=80%, 5=90%	1 to 5
9.	How good is the company's understanding of customer's industry	1=40%, 2=60%, 3=70%, 4=80%, 5=90%	1 to 5

Table 4: Number of Business Lines held by Key Accounts

Number of business lines	Number of accounts
3	2
4	7
6	2
10	2

Table 5: Comparing Probability-adjusted CLVs

	1	2	3	4
Customers	**CUSTOMER LIFETIME VALUE** **Using Discount Rate** **(12%)**	**CUSTOMER LIFETIME VALUE** **Using WACC** **(4. 8%)**	**CUSTOMER LIFETIME VALUE** **Probability-Adjusted**	**3/2*100**
B	1,869,980.76	2,085,478.59	1,394,374.32	66.9%
C	313,848.23	334,434.24	-101,301.63	-30.3%
E	920,172.37	1,047,973.33	152,959.42	14.6%
F	157,123.98	166,571.33	157,123.98	94.3%
G	1,355,200.14	1,471,931.26	454,221.14	30.9%
H	2,939,410.64	3,553,664.32	657,826.15	18.5%
I	4,634,637.18	5,272,831.15	3,892,303.19	73.8%
J	408,922.62	471,671.59	-551,208.89	-116.9%
K	2,724,553.64	3,032,929.21	1,190,854.05	39.3%
L	207,221.20	230,971.72	105,259.62	45.6%
TOTALS	**15,531,070.76**	**17,668,456.73**	**7,352,411.35**	**41.6%**