Valuing customer relationships: Using the capital asset pricing model (CAPM) to incorporate relationship risk

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Abstract The paper argues the necessity to consider risk and return when valuing customer relationships or developing relationship strategies. It discusses how risk might be calculated and proposes the use of the Capital Asset Pricing Model. The model's adaptation to customer contexts and implications for strategy are discussed. Differences between relational exchange in business markets and transactional exchange on investment markets are highlighted. In the light of these, the model should guide rather than prescribe strategic direction.

INTRODUCTION

Many commentators¹ assert that customer relationships are a key organisational asset. According to this view, relationships lie at the core of the organisation's ability to generate shareholder value and therefore become the focus of strategic planning. Decisions regarding the organisational future and choices regarding the allocation of resources to build towards that future, will be framed around the organisation's extant or potential relationships. Important strategic decisions involve the identification of relationships to initiate and relationships to terminate and the levels of investment to be made in particular relationships.^{2–6} This strategic

focus upon relationships, rather than upon markets or products, is perhaps the most important and radical challenge that relationship marketing poses to more traditional understandings of marketing planning and activity.

A preliminary requirement for firms that wish to achieve this strategic focus upon relationships is a robust set of methods to value relationships. Two surmountable barriers impede the development of such methods. To date, many factors that influence relationship value have been identified. By and large these remain as disparate factors, inadequately integrated within comprehensive models that allow an organisation to place a value upon its

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various relationships. Secondly, relationship valuation brings together marketing or strategic planning skills with financial skills. An apparent rift between these areas, both in management⁷ and in academia, acts against such union. This paper aims to present a generic model of customer valuation, grounded in a contemporary understanding of business relationships, that adapts theories developed in the area of financial management to the context of strategic relationship planning.

The potential contribution of financial portfolio theory to both marketing planning and relationship management has been recognised^{8–12} but remains largely under-developed. A particular concern of financial portfolio theory is risk and this underlies its promise in the arena of relationship planning since risk is largely ignored in extant calculations of relationship value.¹³ The authors envisage two discrete contributions that portfolio theory can make. First, the value of an investment derives from a calculation of risk and return. Investors require that the return from an equity investment reflect its risk. If an identical return is anticipated from a low-risk investment (for example in food retailing) and a high-risk investment (for example in the airline industry) the lower-risk investment is valued more highly. This thinking can be applied to relationship valuation. Relationships that are of higher risk, because they are very volatile, would have a lower value than those that generate more constant returns. The first contribution of financial portfolio theory, then, is to enable calculations of value based on risk and return in order to discriminate between companies that contribute to and those that destroy shareholder value so that appropriate strategic plans are made to increase the overall value of the organisation. Secondly, financial portfolio

theory offers methods such as the single index model and stock selection technique¹⁴ to select investments that optimise the risk–return profile of the combined portfolio. This second adaptation of financial portfolio theory would generate prescriptive advice concerning the relationships to terminate and the precise allocation of resources among those that remain.

While the authors return to the latter proposal in the conclusions, this paper looks at the first of these contributions. That is, the paper explores why and how organisations might include calculations of risk in the valuation of relationships and also at the strategic directions that this valuation suggests. In particular, the authors advocate the Capital Asset Pricing Model (CAPM) as a robust valuation method that combines considerations of risk with return. CAPM is a widely accepted model in financial and stock markets. The adaptation intends to provide a viable model that allows the manager to value customer relationships so that they may identify appropriate strategies to increase the value of their weaker relationships.

The paper is organised in the following way. First, it looks at what risk is and why an organisation should be concerned with the riskiness of their customer relationships. Then the net present value (NPV) calculation is introduced. A brief look is taken at the calculation of return before calculations of riskiness in the context of customer relationships are examined in more detail. Consideration is given to how CAPM may be applied here. The discussion section draws upon the authors' experience working with the model to question the appropriateness and limitations of this financial markets model to customer relationship contexts. Finally, the key arguments are drawn together and future directions

for development of the work suggested.

RISK IN CUSTOMER RELATIONSHIPS — AN EXAMPLE

With respect to equity investments, Mullins¹⁵ defines risk as the possibility that actual returns deviate from those expected and the degree of risk is determined by the degree of potential fluctuations.¹⁵ Risk in financial markets refers, then, to the volatility of return and the same concept may be applied in the evaluation of an organisation's relationships. The importance of the volatility of return (risk) can be shown by reference to an illustrative company. A brief outline of an organisational marketing context is given to demonstrate the relevance of risk and this context is used subsequently to ground the theoretic discussion. The authors do not want the illustration to dominate the discussion since a model with wider application is proposed. Nevertheless, it is possible to draw from the illustration some general industrial factors that would make an analysis of risk particularly compelling.

London Travel is an incoming tour operator providing UK ground services to over 250 tour operators based, predominantly, in mainland Europe. These organisational customers then retail travel packages to consumers in their local markets. Thus, the organisational customers operate in markets that are always defined geographically, perhaps by country, region or town. Additionally, a customer may operate only in one type of travel such as coach tour groups or conference and incentive travel. Within that, a customer may also specialise within a certain price bracket. Thus, customers' markets differ by several, overlayed variables.

The travel trade is notorious for its

volatility as it is highly susceptible to national economic conditions, exchange rates and a host of non-economic factors. UK incoming trade in 2001 clearly illustrates this vulnerability. Exchange rates, foot and mouth disease and then travel security fears each posed their threats. For the incoming tour operator, reliant upon demand derived from many markets, this susceptibility generates a complex picture of risk. Different markets (defined by geography, type of travel and budget) may face different conditions. Alternatively, they may react to similar conditions with differing levels of intensity, for example, budget tourism from Germany may be more resilient to a security crisis than is up-market incentive travel from Spain. Additionally, there are specific risks attaching to each customer arising from its own business practices and acumen. For example, the media might highlight poor vehicle maintenance on the part of a local coach tour operator with drastic consequences for trade from that customer.

Risk is a concern for London Travel for several reasons. Any travel industry organisation expects marked fluctuations in trade levels over time and in line with a host of environmental factors. All other things being equal, however, customers who are more resilient to changing conditions, that is, those whose trade is less volatile, are preferred. More constant trade allows London Travel to ensure that it can meet its financial obligations. It also makes it easier to plan and invest with respect to intangible human resources. Finally, if London Travel is able to secure trade that is less volatile than the UK incoming trade in general, then it will be able to gain a favourable position, and terms of trade, with its own suppliers. Therefore, if two relationships offer an identical expected return, London Travel would value more highly the relationship with lower risk,

that is, with a lower degree of potential fluctuation. Conversely, with more risky partners, London Travel would expect to be compensated by a higher return. Thus, a valuation of its relationships that captures both return and risk allows London Travel to assess and review its operations and its strategic direction in particular relationships. In the next sections the paper draws on financial theory to develop a two-step model for these calculations.

INVESTMENT APPRAISAL

Various methods are used to evaluate the viability of a project or investment (eg payback period, accounting rate of return, internal rate of return, net present value). Of these, net present value (NPV) is favoured because it is theoretically robust and provides an optimal solution to appraisal¹⁶ and it measures value in absolute monetary terms.¹⁷ The NPV of an investment is equal to the total stream of future net cash inflows discounted at the present rate of interest less the investment's initial outlay.¹⁸ Thus, investments with a positive NPV produce a return greater than the discount rate where the discount rate represents the minimum acceptable rate of return.¹⁹ Shareholder value analysis represents a development of the NPV approach based upon the idea that positive NPV creates shareholder value.²⁰

Clearly, a problem that arises in NPV calculation is that future return cannot be known with certainty. This may be estimated by combining consideration of past performance with a forecast of future events.²¹ Therefore, simple calculations of NPV ignore the risk, that is, the variability between expected and achieved net cash inflow, associated with an investment. This is addressed by use of a risk-adjusted discount rate^{22,23} based

on the logic that an investor requires a greater reward for accepting a higher level of risk. This concept handles risk, by increasing the discount rate (minimum rate of return) to reflect a higher risk. A risk premium, specific to the investment, is added to the 'risk-free' rate of return,²⁴ the risk-free rate usually being equated with the current interest yield on government bonds.^{25,26} Risk-adjusted NPV calculations involve two steps. First, the calculation of expected return and secondly the calculation and application of an appropriate discount rate to reflect risk.

An NPV approach has clear promise within a relationship marketing framework. Relationships can be regarded as investments and the NPV approach places a monetary value upon an investment. Calculation of monetary value provides a stark comparison of relationships. Ryals develops an NPV model and demonstrates how this approach distinguishes relationships that increase from those that destroy shareholder value.²⁷ Calculation of the numerator, that is the net cash inflow, and the denominator, that is the risk adjusted discount rate, in a relationship valuation model are now discussed.

NET CASH INFLOW

Calculation of the numerator, or the net cash inflow of the relationship, is problematic, although this step of the calculation has received fuller consideration in extant literature than has the second step. The net cash inflow calculation is presented only briefly and without exhaustive review of the many contributions made in this area in order to be able to give fuller attention to the second step (calculation of a risk-adjusted discount rate).

An organisation has accurate historic data regarding cash inflow from each

customer. These may be adjusted for future growth either by extrapolating from recent growth, or through deliberation within the company, or by using industry-wide estimates of growth by sector. Of these the latter has the advantage of being independent and ostensibly objective. In the case of London Travel, the British Tourist Authority estimates growth in different incoming markets.

The 'cost to serve' a customer includes many types of expenses that have been categorised in various ways.²⁸⁻³¹ Costs such as the 'cost of sales' and specific entertainment costs can be readily traced and apportioned to particular customers. Average debtor days per customer allow accurate calculation of 'costs of financing'. Other indirect and general costs are very difficult to allocate accurately to particular customers.³² These costs include management time, office overheads and marketing expenses such as representation at a trade fair, membership of marketing consortia and multi-customer sales trips. The accurate apportionment of indirect costs is enhanced through relatively sophisticated accounting systems such as 'activity based costing'.^{33,34} Where such systems are not routinely applied then a 'cost allocation base' can be developed. There remains, however, a danger that inaccurate allocation of expenses skews the final calculations. This fundamental problem applies also to calculations of customer value that ignore risk.

Relationships may generate tangible 'extra-relationship' benefits. These may take the form of cost savings achieved from the relationship but not realised directly in that relationship³⁵⁻³⁹ or of the development of value-generating competencies and transferable technical know-how.⁴⁰⁻⁴² Inclusion of such benefits in the source relationship's value requires that they are subtracted from

relationships within which the benefit is realised to avoid double counting. There is therefore some judgment involved in attributing these benefits. Where these benefits are quantifiable, are expected to continue and create a benefit that can be readily transferred between customers, then, the authors believe, they should be included within the calculation of return of the source relationship.

Further benefits that may result from the relationship's effect in a network are less quantifiable. These include the customer's capacity to improve the seller's image or network position⁴³⁻⁴⁶ and ability to act as a reference customer in new markets.⁴⁷⁻⁴⁹ These factors are omitted from the relationship valuation since it is not possible to determine objectively their exact effect in monetary terms. The exclusion of intangible aspects of value must however be highlighted for those using the results of these calculations.

Factors relating to the character of the relationship are also sometimes seen as important influences upon value. These include the similarity of culture between two organisations,^{50,51} the level of customer commitment,⁵² goal congruence^{53,54} and the strength of relationship.⁵⁵ These factors are excluded since, to the extent that they generate financial benefit, this should already be reflected in the existing trade that forms the basis of the projected return.

The net cash inflow (equation 1) forms the numerator of the present model.

$$\text{Return} = V + C + D - \text{cost to serve} \times (1 + g) \quad (1)$$

where V = volume of purchases;
 C = value of extra-relationship transferable cost savings achieved through the relationship;
 D = extra-relationship value of development of competencies and technical know-how; cost to

serve = presale + production + distribution + postsale costs; g = anticipated rate of growth.

It should be noted that Equation 1 captures all costs associated with customer retention, such as marketing activity (included in cost of sales) or loyalty discounts (reflected in volume of purchases). The equation excludes the very important acquisition costs associated with relationships. The model is intended to assess the contribution of extant relationships towards shareholder value. Acquisition costs may therefore be seen as 'sunk costs' — where these have already been incurred their magnitude should not influence decisions about future investment.

ALTERNATIVE APPROACHES TO RISK CALCULATION

Ryals suggests several methods to adjust the weighted average cost of capital (WACC) for risk and generate a discount rate to calculate relationship value.⁵⁶ Existing risk scorecard approaches and appraisal of the dispersion of range forecasts both provide some idea of risk. Ryals argues, however, that extant scorecard systems do not focus upon the behaviours of interest for relationship value, while range forecasts are often not available. Drawing on Harris,⁵⁷ Ryals proposes a repertory grid technique through which managers develop a list of risk factors and their perceived importance.

Ryals' approach has important advantages. Managers define and assess risk factors. This process encourages a thoughtful approach towards risk and thorough consideration of the firm's environment. The value of this reflection cannot be overstated but its pitfalls should also be recognised. Working with construct theory, Kelly developed the repertory grid as a

cognitive mapping technique.⁵⁸ The technique is intended to elucidate mental models — while recognising these as 'distortions' of an independent, external, 'real' world. Interacting managers may operate with similar mental models^{59,60} so that authors such as Weick⁶¹ and Ford, Hakansson and Johanson⁶² argue that whole organisations or even networks share a perceived environment. Therefore, while multiple managerial participants in the repertory grid technique are intended to eliminate subjectivity and generate a realistic view of risk, it may rather give strong support for a particular subjective view. Possibly, some real risks are overlooked while other particular fears are overemphasised by the repertory grid technique. Furthermore, different types of risk may be conflated and 'specific risk' may dominate calculations in opposition to financial theory (this distinction is developed below). It is suggested, therefore, that a managerial assessment of risk should at least be supplemented by more objective measures.

How CAPM values an investment

CAPM is utilised in several types of investment decisions.⁶³ Its particular advantage is that it provides an objective method for quantifying risk and translating that risk into estimates of expected return.⁶⁴ First the types of risk that CAPM takes account of are examined and then the CAPM calculation is explained.

The total risk of an investment is divided into systematic (market) risk and unsystematic (specific) risk. Unsystematic risk is the portion of risk that is unique to the individual investment. Unsystematic risk was illustrated in the example of a London Travel customer receiving adverse media coverage.

Figure 1 The security market line showing how required return varies with Beta value

According to investment theory, unsystematic risk can be eliminated through diversification when the investor holds a portfolio of investments.^{65,66} Differential movements in particular markets that arise from more generalised environmental conditions relate to systematic risk. Systematic risk is non-diversifiable and unavoidable since it is related to the movement of the stock market.⁶⁷ CAPM considers systematic risk as the portion of risk relevant to investment decisions since only this portion is non-diversifiable and thus the aspect of risk for which investors will expect reward.

CAPM focuses upon systematic risk to conceptualise the risk/expected return relationship. It proposes the 'Beta (β) value' as a measure of the systematic risk of an investment. More formally, it measures the expected change in the rate of return on a security that is associated with a 1 per cent change in the market return. Equation 2 provides the

calculation of expected return incorporating β and is illustrated by the securities market line (SML) shown in Figure 1.

$$ER_i = R_f + \beta_i (ER_m - R_f) \quad (2)$$

where, ER_i = Expected return on investment i ; R_f = Risk free rate of return (government bond); ER_m = Return on the market; β_i = Systematic risk of i ; note: $(ER_m - R_f)$ = the market premium.

In the world of CAPM, all securities fall on the SML and their location on that line depends upon their β value. Conceptually, turning to the world of customer relationships, the SML can be replaced by a line plotting relationship return against risk as illustrated by Ryals⁶⁸ and reproduced in Figure 2. London Travel's relationships could be charted in that figure with the more volatile customers located to the right and with vertical position determined by

Figure 2 The relationship value line

expected return. The 'relationship value line' represents the cut-off, below which a relationship destroys customer value since the return is too low given the relationship riskiness.

In financial markets, β relates the fluctuation of the individual security to that of the stock market. Standard statistical measures of standard deviation (σ) and variance (σ^2) capture the features of interest.^{69,70} Their use to calculate β is given in Equation 3.

$$\beta_i = \frac{\sigma_{im}}{\sigma_m^2} \quad (3)$$

where, β_i = Beta of asset I;
 σ_{im} = covariance of asset I with the market;
 σ_m^2 = the variance of the market.

In practice, portfolio managers need not calculate β since the risk management service publishes these for all listed securities. Equation 3 may be transferred to calculate the β value of a relationship so long as 'the market' can be appropriately defined. To define this it

is necessary to recall what the objectives of the model are.

Calculating β in 'customer markets'

The market could be defined very generally as the total of economic activity and stock market measures could be incorporated into the calculations. This assumes that London Travel's owners are able to transfer their investment between different activities.

Measures of the UK incoming trade provide the second definition of the market. Methodologically this definition would require access to vast quantities of data, particularly relating to return, that are both sensitive and inaccessible. Furthermore, it assumes that London Travel can access all incoming markets, which may not be the case.

Since the concern here is to increase shareholder value in London Travel, it is legitimate to take the total of this organisation's business as the market. By

accepting this definition, the strategic recommendations derived from use of the model are intended to increase performance of the company from its current base and this meets the objectives. The organisation already possesses all data required.

The number and length of periods to be used to calculate the movement of the market and the co-movement of each customer must also be stipulated. The more time periods included the better, since this will reflect more possible states of the market. Where an industry is highly seasonal, these seasons should be used as the basis of calculations. This is the case in the travel industry. For London Travel it was found that three periods of four months summarised seasonality. These periods are Easter and spring break, (March–June), touring holiday period (July–October), the winter ‘trough’ (November–February). These ‘within-year’ periods allow patterns of seasonality that recur to be addressed, though with differing intensity, across the years. This ensures that the calculations best address London Travel’s needs since seasonality poses considerable human resource and purchasing problems in this trade. In this case therefore three ‘within-year’ periods using data across two years were used, that is, six time periods. These periods captured rather different market conditions including the onset of foot and mouth. Six time periods were therefore seen as sufficient for the calculations and were considered to reflect adequately different states of the incoming travel trade. Decisions regarding the number and length of periods necessary to calculate market and relationship return and their co-movement should therefore be made in the light of factors particular to the industry.

The appropriate use of CAPM in relationship ‘markets’.

CAPM has been drawn from the context in which it was developed (financial markets) and it has been shown how this might be applied to value an organisation’s relationships. Two questions that arise out of the treatment of CAPM are now addressed. First, is it appropriate to draw this from the financial market context and apply it in a different context? Secondly, can CAPM be applied within a range of relationship contexts or would its use be limited to restricted types of relationship?

‘The market’ was defined as the total of the organisation’s business. This calls into question whether it is appropriate to think in terms of ‘a market’ in this context and, consequently, whether it is appropriate to draw upon ‘a market’ model. Insights generated by the use here of CAPM throw light upon this.

The notion of an ‘exchange continuum’⁷¹ contrasts relationship marketing to transactional marketing. As exchange draws more upon relationships, some features of market exchange are removed. In market exchange, pricing is established by ‘the market mechanism’, according to the aggregated needs of multiple buyers and sellers. Relational exchange acts, in effect, to exclude some potential buyers and sellers through various mechanisms including resource interdependence, social bonds, mutual adaptation and relationship specific investments. The non-market characteristics of relational exchange explain some of the differences that are encountered in the translation of CAPM from financial to relationship contexts.

As previously explained, in the world of CAPM all securities will fall along the SML (Figure 1). CAPM is related directly to the ‘efficient market hypothesis’ which, in its strong form asserts that investors have access to all

information relevant to a share's value.⁷² The efficient market also implies that there are many buyers and sellers and low switching costs. Proponents of CAPM argue that, where empirical evidence does not support the model, this is because the market is imperfect rather than because the model is flawed. The authors' work with CAPM locates customer relationships throughout Figure 2 rather than nestling around the relationship valuation line. This provides interesting empirical support for the 'imperfection' of business markets — an imperfection that may be very welcome. London Travel, it is suggested, is able to create super shareholder value from relationships located in the top left corner because of asymmetries of information between London Travel and its competitors and because of its customers' perceptions of the costs of transfer. In the absence of these factors, there would be active competition for these customers through which the return would drop towards the relationship value line. Equally, London Travel is likely to tackle poorly performing relationships with caution and be wary of losing them. This is understandable since the organisation cannot necessarily shift its resources with the ease that a stock market investor can.

Customer relationships assets are not therefore identical to shareholding assets because of the very different nature of trading in the two types of 'markets'. The 'enclosed' nature of relational exchange means that further development and testing of financial models in customer markets is a necessary precursor to the use of stock (or relationship) selection techniques.⁷³ Beyond this, intangible but important aspects of value that are excluded from the model have been raised and concern has been expressed with respect to cost allocations. While further research may address these

issues it is inappropriate, at the moment, to move towards prescriptions.

Nevertheless, CAPM is useful to calculate relationship value and indicate appropriate strategies. The identification of relationships that offer a low return for a given level of risk allows the manager to consider strategies to increase the return (either by lowering costs or increasing gross profit margins) or to reduce risk (perhaps through pricing strategies that encourage greater constancy). Alternatively, relationships that offer a poor return for a given level of risk become candidates for possible relationship termination. While managers may initially be unwilling to follow this course, the possibility of redirecting attention to attract new customers with a better risk–return profile should be considered. Identification of relationships where the expected return exceeds the level of risk involved, provides a happier scenario. At the same time the imperative to retain these customers is underlined. Managers may wish to increase investment in these relationships or, even, reduce return if faced with considerable competition.

CAPM provides, then, a useful model to assist in the development of relationship strategies. The question remains as to whether it may be applied to value any commercial relationships or whether it is useful only in particular contexts. Drawing upon the illustration (London Travel), certain features of their trade can be identified that make this a compelling form of analysis.

First, as highlighted, London Travel's customers operate in markets that differ by several overlaid variables. The CAPM approach allows the organisation to calculate the effects, in terms of profitability, of customer heterogeneity that arises from simultaneous presence in different markets. Heterogeneity may be associated with differences in national

markets, in the types of product purchased, or in consumer characteristics (for example, socioeconomic). Heterogeneous customers face different demand conditions in one period and therefore their trade will be patterned differently. CAPM associates different trade patternings with profitability and is therefore useful where there are heterogeneous customers.

Secondly, the effects of customer heterogeneity may be accentuated where a purchase is discretionary so that demand is elastic. Hence, demand for travel services, which is largely discretionary, fluctuates according to economic conditions. Nevertheless, some travel markets are less susceptible than others to economic factors. Demand elasticity according to an environmental factor therefore indicates the usefulness of the CAPM approach. The environmental factor is likely to be economic but could relate to other factors such as climate or politics.

Thirdly, London Travel is involved in organisational marketing. They have a relatively small number of accounts (approximately 250) and certain customers who provide a substantial proportion of their turnover. This pattern of few, relatively valuable customers favours the analysis of particular relationships. These conditions are more likely to occur in business than in consumer marketing contexts. Certain consumer marketing sectors, such as private banking or insurance, are however very concerned with customer value and can identify 'profitable' segments in which to encourage exchange relationships. It would be possible to incorporate risk within that assessment of average customer profitability according to segment. Using CAPM in this way, the riskiness of key groups would become an additional factor that guides the

allocation of resources towards relationship building.

In summary, then, customer heterogeneity and demand volatility are recognised as features of an organisation's business that suggest the ready applicability of CAPM. CAPM may be applied to assess the riskiness of individual customers where a firm is involved with relatively few customers. In other cases CAPM may be applied to segments of customers to allocate relationship building resources. Since, however, this is regarded as an indicative rather than prescriptive planning tool, the authors do not wish to rigidly define the limits within which it may be used.

CONCLUSIONS

In this paper the authors have reviewed CAPM and shown how the model might be adapted to the area of customer relationship management. Their use of CAPM gives empirical support for the non-market character of relational exchange and highlights differences between stock and relationship markets. This does not negate the contribution that CAPM can make to relationship managers but does urge some caution in its use. CAPM allows managers to value their relationships objectively taking into account the often neglected but very important factor of risk. It has been shown how the risk/return profile of a relationship can assist strategic planning specific to that relationship to increase shareholder value. CAPM therefore is a useful tool for managers since it uses internal data to identify appropriate strategic direction.

There are several problems associated with the application of CAPM. First, the statistical calculations are lengthy but rendered viable through current spreadsheet capability. Secondly, and less easily surmountable, are problems

associated with the apportionment of costs among customers. The authors have looked briefly at how these may be resolved, but there is a clear need for more critical exploration of the issues raised. It is important that managers scrutinise calculations and bear possible limitations in mind as they consider the strategic directions the calculations suggest. Thirdly, the objectivity of the model has led to the exclusion of some network and intangible aspects that might make one relationship more desirable than another. Since the relationship value line is considered to be indicative rather than prescriptive, the exclusion of these factors is not considered to be a serious shortcoming. Nevertheless, they must be considered in appraising the results. Ultimately a firm may decide to operate a high-risk relationship for a low return because of peripheral benefits, however, it is important that this is accepted through deliberation rather than default.

Plenty of scope is seen for further development of financial models in customer relationship contexts. Fuller discussion of cost allocation to relationships would strengthen many approaches including the authors' own approach. The use of CAPM in other organisations and particularly to appraise consumer relationships will also be useful in refining its adaptation. These developments would be welcomed since they will create more robust modelling which might then make it appropriate to consider prescriptive models of relationship selection.

References

- 1 Ford, D. (1998) 'Managing business relationships', John Wiley & Sons Ltd., Chichester.
- 2 Cunningham, M. T. and Homse, E. (1986) 'Controlling the marketing-purchasing interface: Resource development and organisational implications', *Industrial Marketing and Purchasing*, Vol. 1, No. 2, pp. 3-27.
- 3 Turnbull, P. W. and Valla, J.-P. (1987) 'Strategic planning in industrial marketing — An interaction approach', *European Journal of Marketing*, Vol. 121, No. 5, pp. 5-20.
- 4 Hakansson, H. and Snehota, I. (1989) 'No business is an island: The network concept of business strategy', 'Understanding business markets: Interaction, relationships and networks', Ford, D. (ed.), Academic Press, London, pp. 526-540.
- 5 Krapfel, R. E. Jr., Salmond, D. and Spekman, R. (1991) 'A strategic approach to managing buyer-seller relationships', *European Journal of Marketing*, Vol. 25, No. 9, pp. 22-37.
- 6 Pels, J. (1992) 'Identification and management of key clients', *European Journal of Marketing*, Vol. 26, No. 5, pp. 5-21.
- 7 Blois, K. J. (1999) 'Relationships in business-to-business marketing — How is their value assessed?', *Marketing Intelligence and Planning*, Vol. 17, No. 2, pp. 91-99.
- 8 Haspeslagh, P. (1982) 'Portfolio planning: Uses and limits', *Harvard Business Review*, Jan-Feb, pp. 58-73.
- 9 Cardozo, R. N. and Smith, D. K. (1983) 'Applying financial portfolio theory to product portfolio decisions: An empirical study', *Journal of Marketing*, Vol. 47, Spring, pp. 110-119.
- 10 Cardozo, R. N. and Wind, J. (1985) 'Risk return approach to product portfolio strategy', *Long Range Planning*, Vol. 18, No. 2, pp. 77-85.
- 11 Turnbull, P. W. (1989) 'A review of portfolio planning models for industrial marketing and purchasing management', *European Journal of Marketing*, Vol. 24, No. 3, pp. 7-21.
- 12 Yorke, D. A. and Droussiotis, G. (1994) 'The use of customer portfolio theory', *Journal of Business and Industrial Marketing*, Vol. 9, No. 3, pp. 6-18.
- 13 Ryals, L. (2001) 'Risk, returns and the customer portfolio', competitive paper for the Academy of Marketing Annual Conference, pp. 1-25.
- 14 Elton, E. J. and Gruber, M. J. (1995) 'Modern portfolio theory and investment analysis', 5th edition, John Wiley & Sons, New York.
- 15 Mullins, D. W. Jr. (1982) 'Does the capital assets pricing model work?', *Harvard Business Review*, Jan-Feb, pp. 105-114.
- 16 Levy, H. and Sarnat (1990) 'Capital investment and financial decisions', 4th edition, Prentice Hall, London.
- 17 Arnold, G. (1998) 'Corporate financial management', Pitman Publishing, London.
- 18 Drury, C. (2000) 'Management & cost accounting', 5th edition, Thompson Learning, London.
- 19 Lumby, S. (1994) 'Investment appraisal & financing decisions', 5th edition, Chapman and Hall, London.
- 20 Pike, R. and Neale, B. (1999) 'Corporate finance and investment: Decisions and strategies', 3rd edition, Prentice Hall, London.
- 21 Levy and Sarnat (1990) *op. cit.*
- 22 Lumby (1994) *op. cit.*
- 23 Arnold (1998) *op. cit.*
- 24 Lumby (1994) *op. cit.*
- 25 Arnold (1998) *op. cit.*

- 26 Samuels, J. M. (1986) 'The required return on investment projects', in Firth, M. and Keane, S. M. (eds), 'Issues in finance', Philip Allan, Oxford, pp. 89–102.
- 27 Ryals (2001) *op. cit.*
- 28 Shapiro, B. P., Rangan, V. K., Moriarty, R. T. and Elliot, B. R. (1987) 'Manage customers for profits (not just sales)', *Harvard Business Review*, Sept–Oct, pp. 101–108.
- 29 Easton, G. and Araujo, L. (1994) 'Market exchange, social structures and time', *European Journal of Marketing*, Vol. 28, No. 3, pp. 72–84.
- 30 Blois, K. J. (1999) 'Relationships in business-to-business marketing — How is their value assessed?', *Marketing Intelligence and Planning*, Vol. 17, No. 2, pp. 91–99.
- 31 Ness, J. A., Schroeck, M. J., Letendre, R. A. and Douglas, W. J. (2001) 'The role of ABM in measuring customer value (Part 2)', *Strategic Finance*, April, pp. 44–49.
- 32 Turnbull, P. W. and Zolkiewski, J. (1997) 'Profitability in customer portfolio planning', 'Understanding business markets: Interaction, relationships and networks', 2nd edition, Ford, D. (ed.) (1997) The Dryden Press, London, pp. 305–325.
- 33 Lere, J. C. (2000) 'Activity-based costing: A powerful tool for pricing', *Journal of Business and Industrial Marketing*, Vol. 15, No. 1, pp. 23–33.
- 34 Drury (2000) *op. cit.*
- 35 Wilson, D. T. and Jantrania, S. (1996) 'Understanding the value of a relationship', 'Understanding business markets: Interaction, relationships and networks', 2nd edition, Ford, D. (ed.) (1997) The Dryden Press, London, pp. 288–305.
- 36 Krapfel, Salmond, and Spekman (1991) *op. cit.*
- 37 Turnbull and Zolkiewski (1997) *op. cit.*
- 38 Spencer, R. (1999) 'Key accounts: Effectively managing strategic complexity', *Journal of Business and Industrial Marketing*, Vol. 14, No. 4, pp. 291–309.
- 39 Cunningham, M. T. and Homse, E. (1982) 'An interaction approach to marketing strategy', 'International marketing and purchasing of industrial goods: An interaction approach', Hakansson, H. (ed.) (1982) John Wiley & Sons, New York, pp. 328–357.
- 40 Wilson and Jantrania (1996) *op. cit.*
- 41 Pels, J. (1992) 'Identification and management of key clients', *European Journal of Marketing*, Vol. 26, No. 5, pp. 5–21.
- 42 Cunningham and Homse (1982) *op. cit.*
- 43 Campbell, N. C. G. and Cunningham, M. T. (1983) 'Customer analysis for strategy development in industrial markets', *Strategic Management Journal*, Vol. 1, pp. 360–380.
- 44 Pels (1992) *op. cit.*
- 45 Spencer (1999) *op. cit.*
- 46 Fiocca, R. (1982) 'Account portfolio analysis and strategy development', *Industrial Marketing Management*, Vol. 13, pp. 33–41.
- 47 Pels (1992) *op. cit.*
- 48 Spencer (1999) *op. cit.*
- 49 Cunningham and Homse (1982) *op. cit.*
- 50 Wilson and Jantrania (1996) *op. cit.*
- 51 Blois (1999) *op. cit.*
- 52 Ojasalo, J. (2001) 'Key account management at company and individual levels in business-to-business relationships', *Journal of Business and Industrial Marketing*, Vol. 16, No. 3, pp. 199–218.
- 53 Krapfel, Salmond and Spekman (1991) *op. cit.*
- 54 Ojasalo (2001) *op. cit.*
- 55 Fiocca (1982) *op. cit.*
- 56 Ryals (2001) *op. cit.*
- 57 Harris, E. (1999) 'Project risk assessment: A European field study', *British Accounting Review*, Vol. 31, No. 3, pp. 347–371.
- 58 Kelly, G. A. (1955) 'The psychology of personal constructs (Vols. 1 and 2)', Norton, New York.
- 59 Porac, J. F., Thomas, H. and Baden-Fuller, C. (1989) 'Competitive groups as cognitive communities: The case of Scottish knitwear manufacturers', *Journal of Management Studies*, Vol. 26, pp. 397–416.
- 60 Reger, R. and Huff, A. S. (1993) 'Strategic groups: A cognitive perspective', *Strategic Management Journal*, Vol. 14, pp. 103–124.
- 61 Weick, K. E. (1995) 'Sensemaking in organizations', Sage, London.
- 62 Ford, D., Hakansson, H. and Johanson, J. (1986) 'How do companies interact?', 'Understanding business markets: Interaction, relationships and networks', Ford, D. (ed.) (1990) Academic Press, London.
- 63 Peasnell (1986) 'The capital asset pricing model', Firth, M. and Keane, S. M. (eds), 'Issues in Finance', Philip Allan, Oxford, pp. 28–44.
- 64 Mullins, D. W. Jr. (1982) 'Does the capital assets pricing model work?', *Harvard Business Review*, Jan–Feb, pp. 105–114.
- 65 Samuels, J. M., Wilkes, F. M. and Brayshaw, R. E. (1995) 'Management of company finance', 6th edition, Chapman and Hall, London.
- 66 Mullins (1982) *op. cit.*
- 67 *Ibid.*
- 68 Ryals (2001) *op. cit.*
- 69 Brealey, R. A. and Myers, S. C. (2000) 'Principles of corporate finance', 6th edition, McGraw-Hill, London.
- 70 Sharpe, W. F., Alexander, G. J. and Bailey J. V. (1999) 'Investments', 6th edition, Prentice Hall, New Jersey.
- 71 Grönroos, C. (1991) 'The marketing strategy continuum: Towards a marketing concept for the 1990s', *Management Decision*, Vol. 29, No. 1, pp. 7–14.
- 72 Pike, R. and Neale, B. (1999) 'Corporate finance and investment: Decisions and strategies', 3rd edition, Prentice Hall, London.
- 73 Elton, E. J. and Gruber, M. J. (1995) 'Modern portfolio theory and investment analysis', 5th edition, John Wiley & Sons, New York.