Are there returns from ancillary marketing communication expenditure? - A case study in the Australian financial services sector

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ARE THERE RETURNS FROM ANCILLARY MARKETING COMMUNICATION EXPENDITURE? - A CASE STUDY IN THE AUSTRALIAN FINANCIAL SERVICES SECTOR

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ABSTRACT

This paper tests if there are returns from investing in marketing communications expenditure (MCE) by using excess risk weighted accounting earnings as an output metric. We utilise panel data techniques and a case study of Australian credit unions that successfully invest in core relational activities designed to establish customer assets, and who also undertake the option to heavily invest in ancillary MCE. The data allows a direct test of the Gronroos (1997) hypothesis - that resources are better spent on relational marketing to develop core customer assets. We determine that there are size, leverage and marketing mix effects. For large credit unions MCE is financially successful, driven by a marketing leverage effect determined by the current level of earnings and transaction marketing. For small credit unions, the Gronroos' hypothesis is supported.

Key words: ancillary marketing communications expenditure, risk weighted earnings, relational customer assets, marketing leverage.

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INTRODUCTION

In this paper we examine the financial impact of marketing communication expenditures (MCE)[1] in the financial services sector. Our research is unique in that we utilise a case study of Australian credit unions who embrace co-operative philosophies, intense competition in the banking industry, and who encompass a dual approach to marketing expenditure. In an international context we add to a growing body of literature that examines marketing in the financial services sector (Farley, Hayes and Kopalle 2004) and extend the research on the accounting-finance-marketing interface into an Australian context.

Credit unions invest heavily in building customer relationship brands and then expend additional resources on MCE. The amount expended on additional MCE is substantial, on average accounting for seventy three percent (73%) of annual profits. Whilst, customer relationship marketing emphasises the importance of developing long term supportive relationships with existing customers, MCE marketing is generally aimed at attracting new customers. Gronroos (1997) hypothesises that energy and resources are better spent on building customer assets through relational marketing than on attracting new customers and MacMillan, Money, Money and Downing (2005) offer similar arguments in the not-for-profit sector. Our sample of credit unions allows a direct test of the Gronroos hypothesis in the financial services sector.

As a whole, the financial services sector focuses on creating relational customer assets by utilising an internally generated and dispersed marketing orientation. This approach places

[1] MCE includes (1) transaction marketing: mass advertising via TV, radio, newspapers and billboards; (2) database marketing: targeted marketing via print pamphlets, brochures, newsletters and information mail-outs; (3) interaction marketing: interpersonal marketing such as one-to-one personal telephone contacts, mobile teller services and investment counseling; and (4) network marketing and sponsorships.

emphasis on frontline employees and customer service representatives who concentrate on delivering high quality customer service and on continually evaluating customer welfare and satisfaction (Kordupleski, Rust and Zahorik 1993). Credit unions are particularly successful in building high quality customer relationships and have maintained dominance over banks in this activity by expending greater funds on staffing levels and training programs (Duncan and Elliot 2002).

Hence, the major research question posed in this paper is whether, given the high levels of expenditure on core customer asset building, the additional expenditure on MCE can be financially justified. This causes us to examine such questions as whether firm size, the intensity of MCE expenditure, the marketing mix, or the marketing-to-earnings leverage explains financial success. We also assess whether MCE creates long term returns or requires continual reinvestment. We do so by using cross-sectional time-varying panel techniques to examine the statistical association between MCE and excess risk-weighted accounting earnings using a quarterly data set of 143 New South Wales over the 1987-1994 period. We find significant size and leverage factors. Small credit unions have lower MCE intensity, a different marketing mix, and the level of MCE is positively associated with excess risk weighted earnings for large firms, but not for small firms. Additional analysis on the large firm sample reveals that MCE should be considered a renewable investment (not a long-lived intangible asset) and MCE linearly increases in financial effectiveness as the current level of profitability is reduced. These results support the Gronroos hypothesis for small firms, but not large firms, and shows that the financial successful marketing mix varies with size.

Our research also adds to the marketing literature that recognises that whilst customer attitudes, perceptions, and improving sales and marketing share can be important to any marketing effort, financial returns are also a critical arbiter of success (Rust, Zahorik and Keiningham 2004, p.82). In particular, we expound a model that makes risk adjustments to accounting earnings in order to mitigate the effect of marketing efforts that attract higher/lower risk customers. This approach has not been considered before in the marketing literature. Finally, our research emphasises a micro approach that recognises a firm's marketing and financial constructs not only vary across industries but within industry.

The paper now proceeds as follows. The next section provides a background overview of to the research motivation for the paper. The first part provides a brief overview of the major marketing processes used by credit unions and an overview of the expenditure patterns in MCE. The second part provides a basis for utilising risk weighted accounting earnings as a financial metric. The third section describes the data, the statistical model is outlined in the fourth section, results are presented in the fifth section, and the paper is concluded in section six.

BACKGROUND OVERVIEW

Marketing in the Financial Services Sector

In the financial services sector the establishment of customer assets is a core activity with customer relationship marketing aimed at firm differentiation and the building of sustained competitive advantage (Duncan and Elliot 2002).[2] Credit unions, are singularly successful

[2] This approach evolved because the financial services sector is a mature industry with competing firms having major strategic and informational problems in a marketplace distinguished by homogeneity in customer demand and product supply. For example, compared to the technology sector, banking and financial product innovations are relatively rare (and easily replicated) with the primary source of income growth coming from business related to servicing the customer base.

at providing customer service quality and in gaining brand name and competitive advantage over banks and other financial service sector providers through the establishment of relational customer assets. This is achieved through comparatively greater expenditures that supply higher comparative staffing levels (particularly at the front line) and in developing a service culture that emphasises the importance of consistent excellence to customers within a functional marketing framework (Narver and Slater 1990).[3] In the financial services sector, credit unions consistently rate the highest in providing customer service quality and in linking service quality to profitability (Allred 2001, Allred and Adams 2000).

> "The fact that such small, ostensibly cooperative organisations, can manage to survive (even thrive) is a reflection of their distinctive organisational cultures which appear to produce satisfied and loyal customers who are prepared to pay a premium price for loans and yet who are staunch and loyal advocates." (Duncan and Elliot 2002, p.23).

In our research, we maintain that this relatively higher endogenous expenditure is successful and, hence, an essential and core marketing activity for credit unions. Thus, within the bounds of our enquiry, the functional problem is what ancillary marketing process best fulfils a financial return role. That is, is marketing in credit unions more financially effective if it expands core relational activities to encompass an externally focussed and specialist approach aimed at attracting new customers, or should credit unions limit marketing to an organisational and internal market orientation that simply concentrates on developing direct customer relationships? Day (1997) points out that this involves a trade-off between developing deep functional expertise through specialisation,

[3] These customer assets and established brand quality are derived at a considerable cost. Credit unions in Australia fund over twice the number of employees per branch, provide almost four times the number of branches per asset dollar employed, and have almost double

versus subordinating functions to teams that manage linked processes. However, (Coviello, Brodie, Danaher and Johnston 2002) see marketing as a multiple complex process which requires credit unions to utilise a number of approaches.

There is considerable debate on which marketing approach provides the greatest value to the firm. Mizek and Jacobson (2003) argue that in stable markets (such as financial services) where innovation is less central, firms should place greater emphasis on transaction marketing, argued to be superior in attracting further customers. On the other hand, Gronroos (1997) and MacMillan et al. (2005) argue that resources are better spent on building customer assets through relational marketing than on attracting new customers. Further, Hogan et al. (2002) point out that attracting new customers is a riskier strategy than consolidating established customers; increasing service quality further has a positive impact on customer retention and profitability (Anderson, Fornell and Rust 1997, Rust, Zahorik and Keiningham 1995), which in turn, improves the magnitude of cross-selling success (Verhoef, Franses and Hoekstra 2001). However, Bolton, Lemon and Verhoef (2001) show that the costs of additional loyalty programs often exceeds the additional revenues generated, and Doyle (2001) points out there is a danger of over investing in marketing aimed to increase brand value. Hence, the literature is mixed and does not provide a strong directional bias for the financial impact of MCE after a strong customer relational brand has been established. Our data provides the opportunity to undertake such a test.

A preliminary examination of the data (see Table 1) indicates that MCE is a large component of expenditure and, hence, a multiple approach is taken by the credit unions in our data set. In order to assess the financial effectiveness of this approach, we derive three measures that proxy

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the operating expense to asset ratio when compared to the four major banks (KPMG 1996).

for marketing intensity; the proportion of MCE relative to earnings, equity and total expenditure and decompose the results into small and large credit unions.[4] As a percentage of earnings MCE is very high at 72.93%, and accounts for 0.71% of equity and 1.89% of total expenditure. An interesting observation is the different intensity patterns between small and large credit unions. As a proportion of earnings, MCE for small credit unions is higher (96.28%) than large credit unions (32.52%), and small credit unions spend relatively less of their expenditure to MCE (1.62% *cf* 2.49%). Thus, for small credit unions both the input allocation (expenditure) and the output indicator (earnings) are lower.

INSERT TABLE 1 ABOUT HERE

However, MCE reported by credit unions consists of total expenditure without any breakdown into the different components. In order to obtain an indication of expenditure breakdown a random sample of 20 small and 10 large credit unions was surveyed by questionnaire.[5] Each of these credit unions was mailed a questionnaire directed to the financial controller/senior accountant requesting them to provide a breakdown of MCE quarter over the period 1987-1994.

MCE was broken down into four categories as follows: (1) transaction marketing - mass advertising via TV, radio, newspapers and billboards; (2) database marketing - targeted marketing via print pamphlets, brochures, newsletters and information mail-outs; (3) interaction marketing - interpersonal marketing such as one-to-one personal telephone contacts, mobile teller services and investment counseling; and (4) network marketing and sponsorships. Response times were slow with non-responding credit unions continually

[4] Small credit unions are defined as having less than $20m in assets as at 30 June 1992.
[5] The sample proxies the overall ratio of small and large credit unions in the data set (one third large and two thirds small).

followed up with a direct telephone call from the authors explaining the nature of the research and answering any questions on the classification categories. This finally resulted in a response rate of 100% with the results presented in Table 2.

INSERT TABLE 2 ABOUT HERE

All categories of MCE, between small and large, were significantly different at the 5% level. Large credit unions spent over half of their budget on transaction marketing compared with the 19% spent by small credit unions, who concentrate their marketing expenditure on database marketing (78%). Large credit unions also have a more diversified MCE budget. Hence, based on the representative sample it seems reasonable to conclude significant differences between MCE in large and small credit unions and a more mixed transactional/relational marketing perspective in large credit unions aimed at attracting additional customers. This may reflect the possibility that large credit unions have a lower comparative advantage in establishing core customer assets and have a greater preponderance to directly compete with the banks in the mass market. Therefore, we decompose the data based on size.

Measuring the Financial Impact of MCE

Some recent marketing research has conceptualised the interface between marketing activities and shareholder value (Mizik and Jacobson 2003, MSI 2002, Doyle 2000, Srivastava, Shervani and Fahey 1998). But the precise specification of metrics to proxy for the financial impact on shareholder value is still far from settled. There are two aspects to this problem; (i) which basic financial metric to use, and (ii) how to adjust for risk. In

marketing, an adjustment for risk is important because some marketing strategies are designed to attract marginal customers or to change customer purchase behaviour.[6]

The evaluation task is made easier when a firm is listed on liquid stock markets and stock prices can be used as a surrogate for shareholder value. A number of previous studies make widespread use of the Tobin's q ratio, (see for example Erikson and Jacobson 1992, Rao, Agarwal and Dahloff 2004, Lee and Grewal 2004, and Anderson, Fornell and Mazvanchery 2004), whilst others use event studies to examine the short term impact of warranty extensions, product recall, and product return policies on stock prices (see Erikson and Jacobson 1992, Aaker and Jacobson (1994), and Balasubramanian and Mathur 2002). These studies make some adjustment for risk, either indirectly through the q ratio, or directly through the event study methodology.

However, credit unions are not traded on a listed stock market,[7] so financial success cannot be judged by stock price metrics or a capital asset pricing model. As a surrogate for stock prices, much of the previous research utilises sales whilst others use accounting measures, such as the cash or earnings return on investment (ROI), return on assets (ROA) or the return on equity (ROE) (Aaker and Jacobson 1994, Dekimpe and Hanssens 1999, Srivatsava et al. 1998), but they are silent on any adjustment for risk. This study uses accounting earnings and makes adjustments to the asset base by applying the Australian Financial Institutions Code (AFIC) that replicates the international Basle Accord asset risk weightings.[8] The application of risk weightings to each asset class means that any change

[6] This is particularly the case in the financial services sector where the attraction of marginal borrowers will increase the probability of bad debts or change the portfolio of loan assets into a higher (lower) risk class such as personal or business (mortgage) loans.

[7] Note: Listed firms represent less than 1% of total firms. For example, in 2004 there were approximately 7,700 firms listed on the US stock exchanges (NYSE (2800), NASDAQ (4100), AMEX (800)) and some 5,820,000 unlisted firms. Source: Office of Advocacy, US Small Business Administration and the various exchanges

[8] The AFIC risk weights are derived from the Basle Accord template as follows: notes, coin and short -term federal government debt 0% risk weight; long-term federal government debt, state government debt 10% risk weight; bank liabilities, local government debt 20% risk

in risk caused by a changed customer mix through marketing activities is reflected in the type of loan purchased. We use a derivative of the Ohlson (1995) accounting valuation model to calculate excess accounting earnings because, in the financial services sector, cash flows and cash holdings are not highly correlated with financial success and high cash liquidity represents the holding of high levels of dormant funds. We also rely on research in accounting that determines accounting earnings as the dominant valuation and predictive metric (Dechow 1994, Ohlson 1995).

THE DATA

Data were provided by the New South Wales (NSW) state supervisor of co-operative societies and consists of quarterly financial reports extending from June 1987 through to December 1994 for one hundred and forty three credit unions. The NSW sector numerically represents approximately half of the Australian market. Contained in the data are details of revenue, expenditure, operating earnings, assets (split into various risk classes), and MCE. Quarterly risk weighted earnings (QRWE) were measured by taking the ratio of quarterly operating earnings divided by quarterly risk weighted assets (QRWA) using the AFIC definition of risk weighting. AFIC provides weightings for only financial assets, which is the major component (over 90%) of credit union assets. The remaining assets consist of buildings and fittings and these were weighted at 50% consistent with the weighting applied to real estate mortgages. Finally, quarterly (Q)MCE is reported on a macro basis with no sub-grouping of expenditure and this was transformed into an intensity ratio by dividing QMCE by total quarterly firm expenditure (see section 2).

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weight; residential mortgage loans 50% risk weight; and unsecured business loans, personal loans, lines of credit 100% risk weight. These risk weights apply to all international financial service providers.

There are a number of important attributes to this data set that provides an interesting case study. First, the AFIC risk weightings allows an adjustment to be made to accounting earnings by the risk generated by the credit union's operating and marketing activities. Second, the data is reported on a quarterly basis and this enables us to control for time-series factors and the impact of seasonalities on the earnings series. Third, earnings series (as well as cash flows) are at times susceptible to manipulation by management. The data set included such an event. In July 1992, the AFIC code was introduced with the stated purpose to impose minimum prudential regulations on co-operative financial institutions. The code was defined in terms of accounting ratios with the major requirement being to maintain a minimum of 8% risk weighted capital. The penalties for failing to meet minimum requirements included management reputation effects, covenants on operations, being placed under external management, and possible loss of managerial employment. Thus, managers had strong incentives to manage their earnings' ratios to meet minimum requirements around the time of the AFIC intervention.[9] We control this effect by using a dummy variable.

Fourth, we decompose the data into small and large size groupings based upon the discussion in Section 2, and a stream of literature that shows smaller firms have a higher idiosyncratic risk structure. Small firms have higher unsystematic risk, greater seasonality in earnings, higher probability of failure, lower diversification of asset base, and lower management quality (Dekimpe, Hanssens and Silva-Risso 1999, Jacobson 1988). The decomposition is based on small credit unions having assets up to $20 million and large credit unions having assets greater than $20 million as at June 30, 1992. Small credit unions account for ninety-nine firms, or 69% of the total sample, and large credit unions represent forty-four firms, or 31% of the sample.

[9] Empirical results on this issue are consistent with capital ratio manipulation by accountants in the financial institutions area that are more likely to be detected after regulatory shocks (Kim and Kross 1998).

RESEARCH DESIGN

Our objective is to assess whether QMCE (as an ancillary marketing expenditure) is associated with excess QRWE. We interpret failure to detect a significant relation as evidence that additional expenditure through MCE in an attempt to leverage the core customer asset and/or to attract additional customers, is not financially justified. Second, a finding that there is a significant long term lagged association is both evidence that QMCE is financially relevant and arguably should be treated as an intangible asset that produces excess earnings in future periods. On the other hand, finding there is a significant, but short term relation, is evidence that QMCE adds financial value but must be continually monitored and renewed.

Our research design is contained in Figure 1 and is a derivation of the residual earnings model of Ohlson (1995). First, excess earnings are determined after the required rate of return from assets in place is determined by industry risk averages or past firm specific risk. Second, QMCE can be interpreted as other information that causes mean reversion in the return linear dynamics. The major attribute of the Ohlson model is that shareholder value added by intangibles or goodwill is only evidenced by increments above required risk weighted earnings.

INSERT FIGURE 1 ABOUT HERE

Estimation of the association is undertaken using cross-section panel and time-series regressions.[10] Coefficient values and the covariance matrix were estimated by the standard

[10] With time-series/cross-sectional data a choice has to be made between estimating a random effect and a fixed effect model. We estimate the fixed effect model because it allows us to estimate cross-section specific coefficients, autoregressive terms and cross-section weightings on the residuals. We also replicate the Hausman and Taylor (1981) instrument variables approach in order to maintain efficient estimates from different between firm variances and to remove time-varying autoregressive terms from the empirical error term.

generalized least squares estimator with cross section weightings used to control for residuals that are heteroskedastic in the cross-section and contemporaneously uncorrelated (Baltagi 2001, pp.18-19). The following model represents the situation where the all coefficients are unconstrained, that is, $\beta_{i,1,}\beta_{i,2},\beta_{i,3},\beta_{i,4},\lambda_{i,1},\lambda_{i,2},\lambda_{i,3},\beta_{0,}$ and α_i vary across all firms.

$$\begin{bmatrix} QRWE_{t,1} \\ QRWE_{t,2} \\ . \\ . \\ QRWE_{t,n} \end{bmatrix} - \begin{bmatrix} b_{i,1} \\ b_{i,2} \\ b_{i,3} \\ b_{i,4} \end{bmatrix}' \begin{bmatrix} QRWE_{t-1} \\ . \\ . \\ QRWE_{t-4} \end{bmatrix} - \begin{bmatrix} l_{i,1} \\ l_{i,2} \\ l_{i,3} \end{bmatrix}' \begin{bmatrix} D_1 QRWE_{923} \\ D_2 QRWE_{924} \\ D_3 QRWE_{931} \end{bmatrix}$$

$$- \begin{bmatrix} b_{0,1} \\ b_{0,2} \\ . \\ . \\ b_{0,n} \end{bmatrix}' \begin{bmatrix} \mathrm{i} & 0 & \cdot & \cdot & \cdot & 0 \\ 0 & \mathrm{i} & \cdot & \cdot & \cdot & 0 \\ & & & . & & \\ & & & . & & \\ 0 & 0 & \cdot & \cdot & \cdot & \mathrm{i} \end{bmatrix} = \begin{bmatrix} a_{i,1} \\ a_{i,2} \\ . \\ . \\ a_{i,5} \end{bmatrix}' \begin{bmatrix} QMCE_t \\ QMCE_{t-1} \\ . \\ . \\ QMCE_{t-4} \end{bmatrix} + \begin{bmatrix} e_{t,1} \\ e_{t,2} \\ . \\ . \\ e_{t,n} \end{bmatrix} \qquad \ldots (1)$$

The vectors $QRWE_t$ represents realised quarterly risk weighted earnings for individual credit unions, $QRWE_{t-1,2,3,4}$ lagged earnings, D_1 D_2 D_3 dummy variables that capture unusual increases in earnings in the three quarters after AFIC was enacted in July 1992, and $\mathrm{QMCE}_{t,t-1,t-2,t-3,t-4}$ is quarterly expenditure that is contemporaneous and lagged up to four quarters. The time-series estimates plus the intercept can be viewed as the expected risk weighted earnings from core assets in place. Hence, by subtracting this expected earnings plus the unusual earnings induced by AFIC we obtain a measure of unexpected (or excess earnings) for each firm.

We also estimate two additional constrained variants of the above model using pooled data from the small and large size data sets. The first model enforces a pooled intercept and

time-series that effectively assumes that pooled marketing effectiveness is only estimated after imposing expected earnings that are determined by average industry and size factors. The exception is the dummy variables, $D_{1,923}$, $D_{2,924}$, $D_{3,931}$, which vary from firm to firm. This is because the motivation (and probability) of managing accounting earnings is not a function of size, but determined individually by how far each firm is below the minimum 8% risk weighted assets benchmark imposed by AFIC. The second variant allows the intercept and time-series of earnings, as well as the dummy variables, to be determined by the past time-series rate of earnings for each individual credit union.

The importance of these models is that they allow flexibility in the estimation process and endow two financial bases to the business: (i) required earnings determined by expected risk weighted earnings based on the pooled and time series risk characteristics faced by small and large credit unions, and (ii) required risk weighted earnings determined by individual credit unions. Whilst panel techniques have previously been applied in marketing (see Boulding and Christen 2003) we extend the analysis in order to take into account size, individual firm characteristics and various marketing impact scenarios.

RESULTS

Is QMCE Associated With Excess QRWE Determined by Size Factors?

The first results presented are from the constrained model that estimates an association between pooled QMCE and excess QRWE. These results are reported in table 3 and reveal a number of factors. First, the pooled intercept return for small firms is 0.201% compared to 0.158% per quarter for large firms, which is significantly different at the 5% level using a spatial Chow test. Hence, risk weighted earnings for small credit unions are on average higher, supporting the proposition that small credit unions have a comparative advantage in

generating higher returns from core assets which include customer assets. Second, the pooled lagged coefficients on QRWE(-4) show that earnings have an annual seasonal component that is stronger for small credit unions (0.294) compared to large credit unions (0.219) and there is a higher positive first order lag effect for large firms (0.322 v 0.238). These results demonstrate an overall lower dependence on seasonal consumer lending and a more stable income stream for large credit unions. Third, the average dummy variables around AFIC show a greater jump in above normal expected QRWE of twenty eight basis points (0.28%) for large credit unions compared to twenty two basis points (0.22%) for small credit unions. This reflects the greater incentive that managers of large credit unions have to manage the earnings figure because of higher potential salary and perquisite losses.

INSERT TABLE 3 ABOUT HERE

Once earnings' factors are controlled, the pooled effect of QMCE can be analysed and this reveals that the impact of QMCE on excess QRWA varies by size. For small credit unions there is no significant impact on excess earnings for any quarter. For large credit unions, QMCE in the current quarter is contemporaneously associated with a reduction in earnings (-1.52) followed by significantly increased earnings in the following quarter (2.25), in turn followed by a positive increase (1.30) in the next quarter. This result is consistent with viewing QMCE as a lagged short term investment. Thus, QMCE in the current period has a negative impact on earnings (reflecting the cost of the investment), which is then followed by positive contributions to earnings in the following two quarters, which in total, outweighs the initial investment. In summary, QMCE in large credit unions can be viewed as an investment that requires renewing, associated with lagged positive increases in excess

earnings in the short term that are greater than the initial QMCE outlay. There was no association between QMCE and excess QRWE for small credit unions.

Is QMCE Associated With Excess QRWE for Individual Credit Unions?

Table 4 presents the results for panel regressions that allow the intercept, time series and dummy variables for the earnings series to vary for individual credit unions. This procedure tests whether pooled QMCE is associated with excess QRWE when expected QRWE is determined on an individual credit union basis. For small credit unions, QMCE in the current period has a significant negative impact (-0.798) with a weaker positive impact of 0.709 after three lagged periods (at the 10% level). Overall, the coefficient of QMCE for small credit unions is not associated with excess QRWE. In contrast, the coefficient on QMCE for large credit unions is negative in the current period and significantly positive at the first and second lags.

INSERT TABLE 4 ABOUT HERE

These results mirror the results in Table 3 and validate the robustness of the conclusion that QMCE is not financially effective for small credit unions. This result can be related to a number of factors. First, small credit unions have a strong comparative advantage in generating service quality and customer assets through process managed marketing expenditure that is not captured in the MCE accounts. If this expenditure has been effective, then additional MCE focussed on interaction marketing is unlikely to generate further financial returns. Essentially, small credit unions face a non-linear return function to interaction marketing that has already peaked and is now generating decreasing returns to scale. Second, small credit unions may not have adequate resources to set up specialist

marketing functions. Therefore, expenditure in small credit unions aimed at specialised marketing functions (such as transaction marketing or database marketing) is probably not administered by specialist marketers and thus proves to be ineffective. Third, based on the questionnaire survey, if representative most of MCE is focussed on database marketing which is aimed at levering from the current customer base by providing information and cross-selling opportunities, but this is ineffective. Small credit unions, on an individual basis, should therefore evaluate whether this expenditure is redundant ancillary expenditure.

On the other hand, QMCE is associated with significant positive (albeit lagged) excess returns in large credit unions. Thus QMCE has a short term impact on excess QRWE and thus can be classified as a renewable investment. The observation that QMCE in large credit unions has a more powerful impact on earnings than small credit union is in concordance with past research that marketing/earnings elasticities are higher for large firms (Vernon and Nourse 1974, Metwally 1976, Jones 1990, Dekimpe et al. 1999) and TV and media advertising is more effective than print and pamphlet (Dekimpe and Hanssens 1995, Scott and Solomon 1998, Masterson 1999). Also, when current earnings fall large credit unions react by taking a pro-active stance by increasing proportionate expenditure on QMCE in an attempt to increase subsequent earnings. Finally, the fact that large credit unions receive a higher return from specialised MCE more likely reflects higher economies of scale and possibly more efficient management (Jacobson 1988).

Regardless of the emphasis on transaction marketing and attracting marginal higher risk and transient customers QMCE is profitable and the average return can be estimated by a transfer function in the general form:

$$h = \frac{m_0 + m_1 + \cdots + m_s}{1 - b_1 - b_2 - \cdots - b_r} \qquad (2)$$

This captures the ultimate long run change in the equilibrium level of QRWE precipitated by a one unit change (shock) in the input variable QMCE. The average impact can be defined after appropriate algebraic manipulation of equation (2) and using the results from a common earnings time-series with a different intercept for each firm, viz:

$$h = \frac{m_0 + m_1 B + m_2 B^2 + m_3 B^3 + m_4 B^4}{1 - b_1 B^1 - b_2 B^2 - b_4 B^4} QMCE \qquad (3)$$

$$h = \frac{-1.72 + 2.01 + 0.81 - 0.31 + 0.39}{\left[\ 1 - 0.24 - 0.14\ -0.14\ \right]} = 2.65\ QMCE \qquad (4)$$

That is, a 1% increase in QMCE will increase the average risk weighted earnings for large credit unions by 2.65%. In terms of average raw dollars, this translates into a $28,390 annual increase in earnings or approximately a 31% annualised return on the average QMCE investment. Finally, the impact of QMCE for large credit unions is relatively minor, or negative, after the second lagged quarter again supporting the conclusion that QMCE should be continually monitored, renewed and not capitalised as a one-off intangible marketing asset.

Additional Analysis

The analysis in the above section reveals that MCE is effective in adding excess risk weighted earnings to large credit unions but not small credit unions. This section continues the analysis by asking whether marketing effectiveness is linearly associated with size (in comparison with a size benchmark) or whether there is a leverage effect related to earnings levels.

We have already established that MCE effectiveness has a broad dichotomous relationship based on a benchmark size greater than $20 million in net assets. Size can be a surrogate for higher economies of scale, greater infrastructure resources, management expertise, and the ability to expend a higher proportion of the budget on MCE. Thus, as size increases so does the hypothesised ability of the credit union to lever the established customer asset and generate excess earnings. Thus, a prediction of this hypothesis is that MCE effectiveness is positively and linearly related to the size of the credit union.

Another possible explanation of MCE effectiveness is marketing/earnings leverage (MEL) defined as the change in marketing expenditure divided by the change in operating earnings.[11] High MEL is usually associated with high operating leverage, which occurs when assets are underutilised and firms are operating below earnings breakeven. These conditions provide an opportunity for marketing expenditure to enhance the usage of underutilised resources, without significantly increasing fixed and variable costs. On the other hand, in low MEL firms, MCE may prove to be profit reducing and/or lead to a change in the fundamental risk characteristics of the firm. For example, by selling to marginal or high-risk customers, by overselling and exposing the balance sheet of the firm to undiversified asset risk, or by significantly increasing fixed or variable costs because firm assets are operating at full capacity. Hence, the MEL hypothesis predicts that MCE effectiveness is related to the current level of earnings, which is not necessarily related to firm size. These two competing hypotheses are now examined for large firms.

[11] More formally, marketing leverage is measured as [% change in marketing/% change in sales] and operating leverage as [% change in sales/% change in operating profit]. Marketing to earnings leverage is therefore the product of marketing and operating leverage.

A proxy variable is used to measure MCE effectiveness. For all large credit unions we run panel equation 1 that allows the intercept, time-series and dummy variables to vary across all credit unions, as well as the marketing impact coefficients. We then sum the marketing coefficients from period t_0 to period t_4 to get an index variable of marketing effectiveness (MKTEFF). MKTEFF is then regressed against average QRWE for each credit union and the natural log of total assets (LnASSET). As a benchmark proxy for breakeven earnings we use the pooled earnings intercept obtained from Table (3), which is 15.7% for large firms. The results of the regression are reported in Table 5 and a visual representation plotted in Figure 2.

INSERT TABLE 5 ABOUT HERE AND FIGURE 2 ABOUT HERE

MCE effectiveness is not significantly related to size for large credit unions, but is negatively associated with the level of earnings.[12] On further examination, the breakeven point (when AQMCE effectiveness is zero) occurs at a QRWE figure of 0.365%, above the average required rate of return for large credit unions (0.157%). These results suggest the following: (i) MCE effectiveness for large credit unions is related to the level of earnings - if current earnings are below the pooled size related average earnings then large credit unions should undertake MCE in order to take advantage of asset underutilization, (ii) MCE should not be undertaken once current QRWE (and predicted QRWE) reach 0.365% as investment beyond this point is a negative net present value proposition, and (iii) Between 0.157% and 0.365% MCE investment adds excess QRWE above the average QRWE for large credit unions. This result suggests that MCE effectiveness in this range may not be strictly related to asset underutilisation but may be driven by specific marketing

[12] We also repeated this analysis for small credit unions but the results were not significant.

policies such as transaction or database marketing that levers the core customer asset. That is, this shift in the earnings curve to the right appears to be an additional 'branding' return that effectively further increases earnings. This might be explained as an externality from large credit unions that pursue further relational marketing or the residual from transactional marketing. Thus, the type of marketing undertaken also appears to be important.

CONCLUSION AND DISCUSSION

This paper applies the concept of excess risk weighted earnings as a financial metric to test for any statistical associations with MCE in a quarterly data set obtained from the Australian credit union sector. That is, whether ancillary MCE is associated with excess accounting earnings obtained from a derivative of the Ohlson model (1995) which provides a direct test of Gronroos (1997) who hypothesises that energy and resources are better spent on building customer assets through relational marketing than on attracting new customers. We also examine such questions as whether firm size, the intensity of MCE expenditure, the marketing mix, or the marketing-to-earnings leverage explains financial success. Panel data models that control for endogenous time-series and cross-sectional factors in both size and individual firm panels are used to test for statistical associations. We first document the successful internal strategy employed credit unions in establishing core customer assets through relationship policies. We also note that MCE, which is associated with more specialised marketing activities, is a significant component of credit union expenditure (representing almost 2% of expenditure and about 73% of earnings), and there are different MCE patterns between small and large credit unions, indicating heterogenous marketing practices within the credit union industry.

Results show the QMCE of large credit unions is statistically associated with excess QRWE that are economically significant for large credit unions but not for small credit unions. Thus, in relation to the Gronroos hypothesis we conclude that energy and resources are better spent on building customer assets through relational marketing for small credit unions, whilst for large credit unions a mixed model is superior. In the extended analysis we found the effectiveness of MCE in large credit unions was not driven by size related factors that can proxy for specialisation, but by the current level of earnings. This result has particular managerial implications for large credit unions. MCE should be increased and renewed when the current earnings level is below the industry average and when there is evidence of effective marketing policies. However, returns are not exponential and the type and level of MCE should carefully evaluated when earnings are above industry averages. Finally, for small credit unions an important related finding is that the prior establishment of a strong and loyal customer asset base does not guarantee additional returns from undertaking ancillary MCE.

There are a number of other managerial implications. We cannot say that the finding MCE is not associated with excess QRWE in small credit unions means that such expenditure is unwarranted. For example, the fact that the intercept return from small credit unions was higher compared to large credit unions (0.201% cf 0.157%) reflects the comparative advantage small credit unions have in developing core customer assets. It may well mean that further relational expenditure, either through the MCE or through the general budget, is required to maintain this established customer base and these higher returns. But any such decision requires careful justification. Further, a research focus on obtaining excess returns from MCE emphasises that marketers need to obtain a detailed understanding of the drivers of asset values, future economic value, and the potential of marketing to contribute to

greater marketing manager involvement in the accounting and budgetary process. In this regard, whilst there has been a call for the development of metrics to evaluate the financial effectiveness of marketing, very little research has addressed the practical issue of what is the appropriate financial metric for different industries and how risk should be incorporated into the metric. Thus we recommend future research that compares and evaluates all financial metrics as well as the important question of whether the outcome of marketing constitutes an intangible or a renewable financial investment.

One limitation of this study also provides a fertile area for further research. The decomposition of MCE outlays into finer partitions in order to analyse the relative linear (and non-linear) effectiveness of the different components is an obvious extension. In addition, metrics that back up the financial analysis such as the number of new customers, new accounts, or changes in account size per customer would add further insights to the financial analysis. A final avenue is to examine whether MCE and other forms of marketing directly or indirectly affect the risk structure of the firm.

REFERENCES

Aaker, D. and R. Jacobson (1994). The financial information content of perceived quality, *Journal of Marketing Research,* 31 (May), 191-201.

Allred, A. T. (2001). Employee evaluations of service quality at banks and credit unions, *International Journal of Bank Management*, 19, 4, 179-185.

Allred, A.T. and H. L. Adams (2000). Service quality at banks and credit unions: What do their customers say?, *Managing Service Quality,* 10, 1, 52-60.

Anderson, E.W., C. Fornell, and S.K. Mazvancheryl (2004). Customer satisfaction and shareholder value, *Journal of Marketing,* 68 (October), 172-185.

Anderson, E.W., C. Fornell, and R. T. Rust (1997). Customer satisfaction, productivity, and profitability: Differences between goods and services. *Marketing Science,* 2, 129-145.

Baltagi, B. H. (2001), *Econometric Analysis of Panel Data*, John Wiley and Sons, London.

Bendixen, M. T. (1993). Advertising effects and effectiveness. *European Journal of Marketing,* 27 (October), 19-32.

Bolton, R. N., K. N. Lemon and P. C. Verhoef (2001). CUSAMS: customer asset management decision support systems in service industries. Working Paper, University of Oklahoma, Norman.

Boulding, W., E. Lee and R. Staelin (1994). Mastering the mix: Do advertising, promotion, and sales force activities lead to differentiation. *Journal of Marketing Research,* 31 (May), 159-172.

Coviello, N, R. Brodie, P. Danaher, and W. Johnston (2002). How firms relate to their markets: An empirical examination of contemporary marketing practices, *Journal of Marketing*, 66(3), 33-47.

Day, G. (1997). Aligning the Organisation to the Market in D Lehmann and K Jocz (eds). *Reflections on the Future of Marketing*, 67-93, Marketing Science Institute, Cambridge Ma.

Dechow, P. (1994). Accounting earnings and cash flows as measures of firm performance: The role of accounting accruals. *Journal of Accounting and Economics,* 14, 51-89.

Dekimpe, M.G. and D.M. Hanssens (1995). The persistence of marketing effects on sales, *Marketing Science,* 14, 1-21.

Dekimpe, M.G. and D.M. Hanssens (1999). Sustained spending and persistent response: A new look at long-term marketing profitability. *Journal of Marketing Research,* 36 (November), 397-41.

Dekimpe, M.G., D.M. Hanssens and J. Silva-Risso (1999). Long-run effects of price promotions in scanner markets. *Journal of Econometrics,* 89, 269-291.

Doyle, P. (2001). Shareholder-value-based brand strategies. *Journal of Brand Management*, 9, 1 (September), 20-30.

Doyle, P. (2000). Valuing marketing's contribution. *European Management Journal*, 18, 3, 233-245.

Duncan, E. and G. Elliot (2002). Customer service quality and financial performance among Australian retail financial institutions. *Journal of Financial Services Marketing*, 25-41.

Erikson, G. and R. Jacobson (1992). Gaining comparative advantage through discretionary expenditures: The returns to R&D and advertising. *Management Science*, 38, 9, 1264-1279

Farley J.U., A. F. Hayes and P. K. Kopalle (2004). Choosing and upgrading financial services dealers in the US and UK. *International Journal of Research in Marketing*, 21, 359-375.

Gronroos, C. (1997). Value-driven relational marketing: from products to resources and competencies. *Journal of Marketing Management*, 13 (July), 407-419.

Hausman, J.A. and W.E. Taylor (1981). Panel data and unobservable effects. *Econometrica*, 49 (November), 1377-1398.

Hogan, J. E., D. R. Lehmann, M. Merino, R. K. Srivastava, J. S. Thomas, P. C. Verhoef (2002). Linking customer assets to financial performance. *Journal of Service Research*, 5 1 (August), 26-38.

Jacobson, R. (1988). Distinguishing among competing theories of the market share effect. *Journal of Marketing*, 52 (October), 68-80.

Jones, J. (1990). Ad spending: Maintaining market share. *Harvard Business Review*, (January/February), 38-42.

Kim, M-S. and W. Kross (1998). The impact of the 1989 change in bank capital standards on loan loss provisions and loan write-offs. *Journal of Accounting and Economics*, 25, 69-99.

Kordupleski, R.F., R. Rust and A. Zahorik (1993). Why improving quality quality (or whatever happened to marketing?). California Management review, 35, 3, 82-95.

KPMG (1996). *The 1995 Financial Institutions Survey*. KPMG, Sydney.

Lee, R.P. and R. Grewal (2004). Strategic responses to new technologies and their impact on firm performance. *Journal of Marketing*, 68 (October), 157-171.

Lukas, B.A., G. J. Whitwell and P. Doyle (2005). How can a shareholder value approach improve marketing's strategic influence?. *Journal of Business Research*, 58, 414-422.

MacMillan K., K. Money, A. Money and S. Downing (2005). Relationship marketing in the not-for-profit sector: An extension and application of the commitment-trust theory. *Journal of Business Research*, 58, 806-818.

Masterson, P. (1999). The wearout phenomenon. *Marketing Research*, Fall, 27-31.

Mela, C., S. Gupta and D. Lehmann (1997). The long-term impact of promotion and advertising on consumer brand choice. *Journal of Marketing Research*, 34 (May), 248-261.

Metwally, M. (1976). Profitability of advertising in Australia: A case study. *The Journal of Industrial Economics*, 24 (March), 221-231.

Mizek, N. and R. Jacobson (2003). Trading off between value creation and value appropriation: The financial implications of shifts in strategic emphasis. *Journal of Marketing*, 67, 1, 63-76.

MSI (2002). *Measuring Marketing Productivity: Linking Marketing to Financial Returns, MSI Conference*. Dallas, October.

Narver, J and S Slater. (1990). The effects of a market orientation on business profitability. *Journal of Marketing*, 54 (October), 20-35

Ohlson, J. (1995). Earnings, book values, and dividends in equity valuation. *Contemporary Accounting Research*, 11, 661-687

Rao, V.R., M.K. Agarwal and D. Dahlhoff. (2004). How is manifest branding strategy related to the intangible value of a corporation?. *Journal of Marketing*, 68 (October), 126-141.

Rust, R., K., A. J. Zahorik and T. L. Keiningham (1995). Return on quality (ROQ): making service quality financially accountable. *Journal of Marketing*, 59 (April), 58-70.

Scott, D. and D. Solomon (1998). What is wearout anyway?. *Journal of Advertising Research*, (September-October), 19-28.

Srivatsava, R. K., T. A. Shervani and L. Fahey (1998). Market-based assets and shareholder value: A framework for analysis. *Journal of Marketing*, 62 (January), 2-18.

Verhoef, P. C., P. H. Frances and J. C. Hoekstra (2001). The impact of satisfaction and payment equity on cross-buying: a dynamic model for a multi-service provider. *Journal of Retailing*, 77, 359-378.

Vernon, J., and R. Nourse (1974). Profit rates and market structure of advertising intensive firms. *Journal of Industrial Economics*, 3 (March), 1-20.

Table 1. Intensity of Marketing Communication Expenditure (MCE)

The sample is for 143 credit unions in NSW during the period June 1987 to December 1994. Small credit unions are less than $20m in assets as at 30 June 1992. Small credits unions number 99 and large credit unions number 44. The figures are reported on a quarterly basis.

MCE as a percentage of:

	Total Expenditure		*Earnings*		*Book Value of Equity*	
	Mean	***Median***	***Mean***	***Median***	***Mean***	***Median***
All Credit Unions	1.89	1.53	72.93	41.52	0.71	0.48
Small Credit Unions	1.62	1.10	96.28	96.28	0.55	0.32
Large Credit Unions	2.49	2.30	32.52	21.31	1.06	0.94

Table 2. Decomposition of MCE by Category – The Marketing Mix of a Sample of Small and Large Credit Unions

The representative sample consists of 10 large and 20 small credit unions with small credit unions defined as having less than $20m in assets as at June 30, 1992. Categories were defined as: (1) *transaction marketing*: mass advertising via TV, radio, newspapers and billboards; (2*) database marketing*: targeted marketing via print pamphlets, brochures, newsletters and information mail-outs; (3) *interaction marketing*: interpersonal marketing such as one-to-one personal telephone contacts, mobile teller services, and investment counseling; and (4) *network marketing*: network marketing and sponsorships. Non-parametric Mann-Whitney test used to estimate significance, * indicates significant difference at 5% level and ** at the 1% level.

Marketing perspective as a percentage of total MCE

MCE Category	***Small***	***Large***	***Mean Rank Small***	***Mean Rank Large***	***Significance***
Transaction Marketing	19%	53%	6500	11000	0.05*
Database Marketing	78%	20%	9800	4400	0.02*
Interaction Marketing	3%	17%	6000	12000	0.01**
Network Marketing	0%	10%	6500	11000	0.01**

Figure 1. Calculating the Financial Impact of MCE

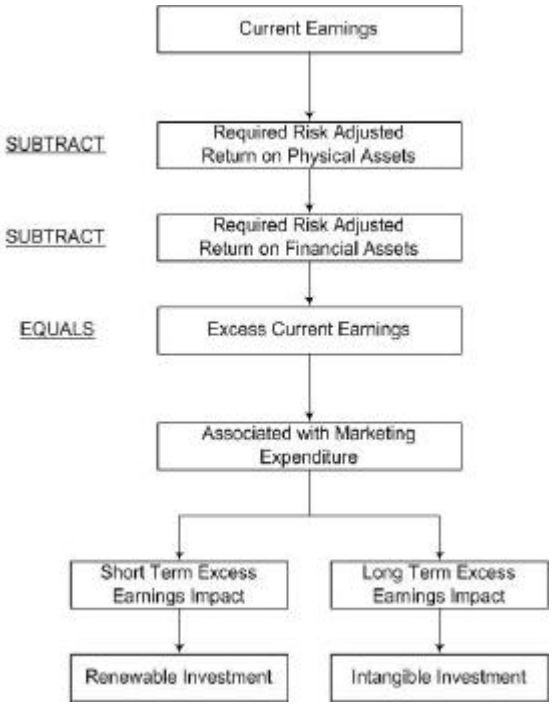

Table 3. Is QMCE Associated With Excess QRWE Determined by Size Factors?

The impact of QMCE is estimated after imposing a pooled expected risk weighted earnings across small and large credit unions by estimating a common intercept and time-series across the panel. Dummy variables for AFIC vary for each credit union and the reported figures are averages. Insignificant time-series coefficients are not reported. QMCE signifies ability to increase firm risk weighted earnings over and above expected average earnings for small or large credit unions.

Panel A: Small Credit Unions

Variable	*Coefficient*	*Std. Error*	*t-Statistic*	*Probability*	*Description*
$\beta_{0,s}$	0.2007	0.0136	14.702	0.0000	Intercept
$\alpha_{1,s}$	-0.3212	0.3384	-0.9490	0.3427	Contemporaneous MCE
$\alpha_{2,s}$	0.1669	0.3276	0.5096	0.6103	QMCE lagged 1 period
$\alpha_{3,s}$	-0.1983	0.3250	-0.6102	0.5417	QMCE lagged 2 periods
$\alpha_{4,s}$	0.5204	0.3257	1.5980	0.1102	QMCE lagged 3 periods
$\alpha_{5,s}$	-0.0551	0.3410	-0.1616	0.8716	QMCE lagged 4 periods
$\beta_{1,s}$	0.2376	0.0183	12.960	0.0000	QRWE lagged 1 period
$\beta_{4,s}$	0.2944	0.0185	15.860	0.0000	QRWE lagged 4 periods
D_1923	0.0764				Impact AFIC Sep Qtr 92
D_2924	0.0720				Impact AFIC Dec Qtr 92
D_3931	0.0672				Impact AFIC Mar Qtr 93

Dependent Variable: QRWE		R-squared	0.4080
Method: GLS (Cross Section Weights)		Adjusted R-squared	0.4056
Sample: 1988:2 1994:4		S.E. of regression	0.5051
Number of cross-sections used: 99		F-statistic	175.2111
Total panel (unbalanced) observations: 2561		Prob (F-statistic)	0.0000
One-step weighting matrix		Durbin-Watson statistic	2.0476

Panel B: Large Credit Unions

Variable	*Coefficient*	*Std. Error*	*t-Statistic*	*Probability*	*Description*
$\beta_{0,L}$	0.1574	0.0237	6.6285	0.0000	Intercept
$\alpha_{1,L}$	-1.5290	0.5993	-2.5510	0.0109	Contemporaneous MCE
$\alpha_{2,L}$	2.2548	0.6276	3.5923	0.0003	QMCE lagged 1 period
$\alpha_{3,L}$	1.3005	0.6488	2.0044	0.0453	QMCE lagged 2 periods
$\alpha_{4,L}$	0.0420	0.6397	0.0657	0.9476	QMCE lagged 3 periods
$\alpha_{5,L}$	-0.1077	0.6460	-0.1668	0.8675	QMCE lagged 4 periods
$\beta_{1,L}$	0.3219	0.0288	11.1741	0.0000	QRWE lagged 1 period
$\beta_{2,L}$	0.2002	0.0308	6.4956	0.0000	QRWE lagged 2 periods
$\beta_{4,L}$	0.2196	0.0308	7.8050	0.0000	QRWE lagged 4 periods
D_j923	0.0633				Impact AFIC Sep Qtr 92
D_j924	0.1009				Impact AFIC Dec Qtr 92
D_j931	0.1180				Impact AFIC Mar Qtr 93

Dependent Variable: QRWE		R-squared	0.7546
Method: GLS (Cross Section Weights)		Adjusted R-squared	0.6791
Sample: 1988:2 1994:4		S.E. of regression	0.2152
Number of cross-sections used: 44		F-statistic	9.9923
Total panel (unbalanced) observations: 1144		Prob (F-statistic)	0.0000
One-step weighting matrix		Durbin-Watson statistic	2.0143

Table 4. Is QMCE Associated With Excess QRWE for Individual Credit Unions?

The impact of QMCE is estimated after controlling for the time series of risk weighted earnings for individual credit unions with the intercept, time-series and dummy variables varying for each credit union. QMCE association signifies ability to increase risk weighted earnings over and above the expected time-series of past earnings for each credit union.

Panel A: Small Credit Unions

Variable	*Coefficient*	*Std. Error*	*t-Statistic*	*Probability*	*Description*
$\alpha_{1,s}$	-0.7983	0.3593	-2.2217	0.0264	Contemporaneous MCE
$\alpha_{2,s}$	-0.1257	0.3758	-0.3344	0.7381	QMCE lagged 1 period
$\alpha_{3,s}$	0.0114	0.3746	0.0304	0.9757	QMCE lagged 2 periods
$\alpha_{4,s}$	0.7094	0.3704	1.9151	0.0556	QMCE lagged 3 periods
$\alpha_{5,s}$	0.0428	0.3818	0.1121	0.9107	QMCE lagged 4 periods

Dependent Variable: QRWE		R-squared	0.6278
Method: GLS (Cross Section Weights)		Adjusted R-squared	0.5367
Sample: 1988:2 1994:4		S.E. of regression	0.4751
Number of cross-sections used: 99		F-statistic	6.8892
Total panel (unbalanced) observations: 2561		Prob (F-statistic)	0.0000
One-step weighting matrix		Durbin-Watson statistic	1.9762

Panel B: Large Credit Unions

Variable	*Coefficient*	*Std. Error*	*t-Statistic*	*Probability*	*Description*
$\alpha_{1,L}$	-1.2014	0.6209	-1.9347	0.0534	Contemporaneous MCE
$\alpha_{2,L}$	2.4157	0.6568	3.6776	0.0003	QMCE lagged 1 period
$\alpha_{3,L}$	1.4646	0.6758	2.1669	0.0305	QMCE lagged 2 periods
$\alpha_{4,L}$	0.2784	0.6627	0.4201	0.6745	QMCE lagged 3 periods
$\alpha_{5,L}$	0.0205	0.6784	0.0302	0.9759	QMCE lagged 4 periods

Dependent Variable: QRWE		R-squared	0.7817
Method: GLS (Cross Section Weights)		Adjusted R-squared	0.6830
Sample: 1988:2 1994:4		S.E. of regression	0.2173
Number of cross-sections used: 44		F-statistic	7.9204
Total panel (unbalanced) observations: 1144		Prob (F-statistic)	0.0000
One-step weighting matrix		Durbin-Watson statistic	1.9864

Table 5. MCE Effectiveness for Large Credit Unions

Model: $MKTEFF = b_1 + b_2\ AQRWE + b_3\ LnASSETS$	β_1	β_2	β_3	Adj. R^2
Large credit unions	37.54	-46.641*	-0.965	0.531
	(0.431)	(-7.162)	(-0.197)	

Notes: * significant at the 1% level. t-statistics in brackets.

Figure 2. MCE Effectiveness and the Level of Risk Weighted Earnings for Large Credit Unions