What Influences Customer Profitability? Service–Profit Chain

Non-financial drivers of customer profitability in personal retail banking

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Abstract The first of its kind in the public domain in New Zealand, this study presents an empirical analysis, for one bank, of non-financial factors that help generate profitable customers. Just over 1,100 personal retail customers of a New Zealand regional bank were surveyed and these customers' contribution to the bank's revenue and costs for three months were calculated using activity-based accounting procedures. For that period, one third of the bank's customers were unprofitable, one third hovered around breakeven and one third contributed 98 per cent of customer profit. In general, the greater the share of a customer's banking business, the more profitable that customer is to the bank. The overriding theme is that customers are assets and can be managed accordingly. The distribution of customer contribution is discussed along with its implications for the study bank and retail bank marketing in general.

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BACKGROUND

The banking industry in New Zealand has had its share of trials and tribulations. In the early 1990s the New Zealand government 'bailed out' the people's bank — the Bank of New Zealand — to the value of $NZ1bn. Paltschik and Storbacka[1] reported similar turmoil in Scandinavian countries and showed how banking systems tended to value short–term profitability. Consequently branch management tended to finance risky projects in the boom times and the high interest earned from these projects helped promote these managers. Yet the legacy of a portfolio of risk–loaded financing was left at bank branch level which in the recessions of the late 1980s and early 1990s led to customer insolvencies.

The New Zealand personal retail banking industry of the 21st century is now quite different. Only one bank is in local ownership while the four major banks are all foreign owned. The 'service scape' is quite different too. In 1994 there were nearly 1,500 full service retail bank branches; by 2001 there were less than 1,000[2] as the realities of bank mergers, mobile mortgage banking,
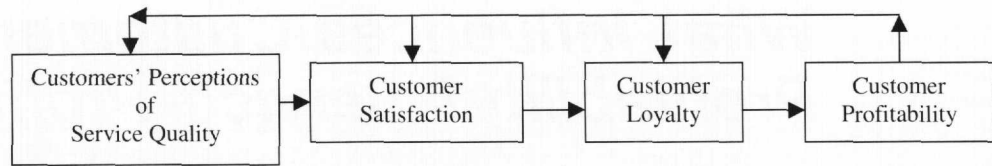
Figure 1 *The abbreviated service-profit chain*

electronic banking and telephone banking take effect. When the primary research for this paper was conducted, Internet banking (with its interactive online systems allowing customised solutions for banking customers) was in its infancy in New Zealand but it too is now a reality.

The study bank for this paper's empirical research is New Zealand's only locally owned bank. It is one of the smaller banks and has a regional clientele served by 12 branches, although it actively encourages customer acquisition from beyond its region by electronic and telephone banking. In 1999 nearly half of the region's adult population claimed the study bank to be their 'main bank' (that in which the majority of their personal retail banking business is done) while nearly two thirds of the adult population had some type of banking relationship with this bank.

INTRODUCTION

Relationships between customers and their service providers have been at the forefront of marketing inquiry for decades. The value of enduring long-term relationships has been a recurring theme to such an extent in services marketing research that in 1999 Gummesson[3] began calling for a 'return-on-relationship' (ROR) measure. Actually this type of measure was mooted rather earlier, albeit in a retail banking context, by Storbacka.[4] He coined this measure 'customer relationship profitability' (CRP), being an

individual customer's contribution, derived from relationship revenue minus relationship cost.

Relating the contribution that individual customers make to a bank's profitability has long been handicapped by an inability to allocate transaction costs to individual customers. Modern activity-based accounting procedures have made it possible to trace the contribution of individual customers to profitability in personal retail banking which, in turn, allows customers to be viewed as assets and to be managed accordingly.

In this paper, activity-based cost accounting measures were used by the bank under study to derive a measure of customer contribution. This measure, used as a proxy for customer profitability, was then used to investigate relationships and associations with various independent variables in an attempt to isolate the non-financial 'drivers' of customer profitability. Readers familiar with the service quality literature will see parallels with the abbreviated service–profit chain[5] as depicted in Figure 1.

Examination of customer profitability and the service–profit chain as it applies to personal retail banking builds upon previous research in services marketing and services management. Many researchers have examined the associations between some of the constructs of the chain: perceived service quality, customer satisfaction and customer loyalty. Few have been able to link these constructs to customer contribution although some researchers[6]

have investigated the profitability of service quality using aggregate, cross-sectional data while the Harvard 'school' of researchers[7] have described the profit impact of reducing customer defection.

Studies by Rust and his co-authors, Zahorik[8] and Keiningham,[9] and by Loveman[10] are among the few that have endeavoured to trace the chain of effects from service quality programmes to customer satisfaction to customer retention (measures of behavioural loyalty) to measures of profitability. In a banking context this translates to gaining a greater 'share of wallet or purse' among existing customers as well as gaining greater share of customers. Yet in services, with their intangible qualities (like the quality of the personal interactions with service providers), results are not always immediate or measurable. Nevertheless, the benefits of quality improvements help customer acquisition in the form of improved ability to attract new customers by positive word-of-mouth and confidence in knowing the bank is offering quality products in a quality 'envelope' of service. Quality improvements also support the defensive marketing strategies of gaining more patronage from existing customers (that is, a greater share of their 'wallets or purses') coupled with higher retention (lower customer 'churn'). Small increases in retention rates have been shown to have measurable effects on profitability.[11] Existing customers tend to buy more than newly acquired customers do.

Personal retail banking context

In a banking context, the longer that customers are with their main bank, the greater the 'share of wallet' given to that bank, and, as this paper shows, the greater the share of wallet, the more profitable customers are to their bank.

Storbacka[12] demonstrated this relationship in his study of two Scandinavian banks while Colgate[13] in his study of customer satisfaction with New Zealand banks writes of the depth of their relationships with their customers (the quality of their market share) rather than the quantity of that share as being important. Gummesson[14] echoes these sentiments in the context of long-term customer relationships, along with earlier work by Fornell and his co-authors.[15-17]

Customers' value to the study bank is at the heart of the customer contribution measure used in this study. As Storbacka[18] noted, among a bank's customer base at any time there are those who are profitable, those clustering around a breakeven point and those who are unprofitable. Point-in-time studies like the one reported here tend to exacerbate the rigidity of these categories but using customer asset management strategies over time, banks try and move their unprofitable customers into profitability.[19]

Building relationships based on customer life cycle is important. Storbacka[20] reports that youthful customers can be unprofitable initially (if they have small account balances but many transactions) but will become profitable later in life. Hence enduring, long-term relationships with customers are especially important to banks. Attempting to optimise returns from a bank's customer base relies heavily on the relationship marketing paradigm and its essential premise that it is cheaper to retain customers than to recruit new ones.

Profitability from customer relationships

In retail banking, revenue is generated in two main ways. First, revenue is derived from the margin the bank earns on its lending and investment activities. Secondly, revenue from fees for

transactions, credit cards, etc needs to be included too. Customer profitability analysis can be conducted on activity-based accounting principles.[21-23] As many costs as possible are set against the relationship with each customer and then the costs are deducted from the revenue the bank earns from that customer. The resultant positive or negative amount is profit or, more correctly, contribution. Hence a bank can influence profitability in three major ways:

— by taking an operations management approach which usually means striving for better performance in cost control, and/or increased efficiency, ie an internal approach
— by taking an external approach or a service management and marketing approach which is based on customer satisfaction driving profitability
— by both internal and external approaches simultaneously.

The notion that customer satisfaction 'drives' profitability has been discussed above in relation to reviewing Reichheld and Sasser's,[24] Heskett *et al.*'s[25] and Rust *et al.*'s[26] work. Stated even more simply, but with a more behavioural emphasis (rather than a more attitudinal emphasis), is that customer retention drives profitability — satisfied customers tend to be loyal and hence they tend to repeat buy. A satisfied customer, however, may not always be profitable.[27-29] Such customers might have many automatic payments and direct debits but small account balances, meaning that the interest margin earned by the bank on these customers' funds (both investments and borrowings) is not enough to cover transaction costs. While customer satisfaction appears to be necessary for profitability in some sectors it is not sufficient in retail banking, which serves private customers, households and small business operators. Retail banking is characterised by many customers, many of whom make relatively small transactions (measured in dollar terms). Cross-subsidisation of customers is common. Customers who borrow from or invest with a bank subsidise those who merely use banks to pay their bills by automatic payment. And certain customers are 'locked in' to their obligations with their bank by contract (for example, loans and mortgages) which acts as a switching barrier. Loans are considered as relatively binding and customers show substantial levels of 'claimed' loyalty during the duration of the loans or mortgage. As soon as the loan or mortgage is cleared there is, however, evidence of movement in banks' customer files, especially around age 40–49.[30,31] This is the very stage in the conventional (that is, excluding the effects of divorce, late marriage, etc) life cycle that the bank is likely to make profits on its customers with further profitability potential in customers' later lives from investment potential.

Calculating customer profitability in personal retail banking

Storbacka,[32] Barnes and Cumby[33] and Connell[34] have provided working examples of methods for calculating customer profitability in the standard accountancy-based schemes of revenue minus costs. It should be noted that such analysis is extremely difficult in retail banking because bank record formats are dictated by legislative requirement (as well as certain accounting requirements). For example, only changes in account balances are recorded; the costs of selling efforts and advice given are not recorded systematically. And while it would be desirable to estimate profitability over

the total length of a customer relationship (by calculating net present value of yearly revenues and costs), difficulties in accessing data longitudinally restrict profitability analysis to smaller time periods.

Measuring customer contribution

At its simplest, a business's total profit is the sum of every one of its customers' contributions.[35] In personal retail banking this definition suffices but not, of course, in wholesale banking where large sums are placed on wholesale markets for varying terms. In personal retail banking, which dominates the study bank's business, however, the contribution each customer makes requires each income and cost activity to be traced. With cost centre control at branch banking level, many costs are accrued by each branch (costs like rent, utilities and staff) and the study bank's own analysis shows that 70 per cent of its branches' functions are transaction based. Obviously, there are costs in recruiting customers in the first place and costs for exiting customers too. Unfortunately, none of these are reported separately in the study bank's general ledger and have to be overlooked. It is acknowledged that this paper's customer contribution analysis gives a cross-sectional, static picture of customer relationships for a short period of time (three months). Obviously banking relationships last longer, often decades, with customer acquisition costs amortised over such time periods as stated by a number of commentators.[36–40]

The analysis presented here is better described as customer contribution rather than customer profitability because contribution is the difference between income and expenditure per customer over the time period of the analysis. Comparatively, the term profit is better used to describe the net of the study bank's income over expenditure for the financial year.

The contribution (income generated minus costs incurred) any one customer makes to the bank under study was depicted by Storbacka[41] as customer relationship profitability (CRP) and for any time period can be expressed as:

$$\text{Contribution} = \text{Relationship Revenue} - \text{Relationship Cost.}$$

Given that the study bank levies few fees on its customers (apart from the recognised 'front-end' fees for establishing mortgages, buying foreign exchange, arranging insurance, etc) the revenue generated per customer is relatively straightforward. It comes almost exclusively from volume-based income, being the weighted rate of return (a confidential figure but in the range 5–8 per cent per annum) on individuals' average daily balances. Expressed another way, at the aggregate level, the net after tax margin between the bank's investment income and its cost of funds was 2.91 per cent in 1998–1999. As stated above, the study bank does not charge its personal retail banking customers any transaction fees. Several small fees, however, like setting up automatic payments, changing automatic payments and the telephone banking fee ($10 per annum) which affected only 9 per cent of personal customers at the time of the study had to be overlooked for the contribution analysis. As Connell states, 'it may have to be accepted that some data will never be available because it is just not economical to capture or generate costs for every activity. If this is the case, an acceptable error in the calculated results will need to be determined and, provided this deviation is less than the likely error in the forecast results, there will be no problems.[42] Storbacka[43] expresses similar sentiments

when accounting for the omission of cross-selling attempts (such as insurance, travel, superannuation, which are part of the study bank's portfolio), especially those that did not result in any type of sale. Nor is it possible to factor in the costs of establishing the relationship apart from the transaction costs of account opening; true longitudinal analysis to establish contribution over a customer's life cycle would require careful recording of all costs incurred in establishing, nurturing and ending the relationship.

Calculating the expenditure side of the equation — relationship costs (to the bank) — is more difficult. Interest paid out to customers on their accounts' average daily balances is relatively easy but the difficulties come with transaction costs. Connell[44] has likened the derivation of these costs for each customer to the peeling of an onion, with each layer of costing being exposed progressively. The first layer involves activities relating to cash flow like interest and charges, balance levels for the cost of funds, etc. These have been discussed already. The next layer is direct costs, apportioned to customers, which vary in direct relationship to customer activity, such as issuing chequebooks, issuing statements etc. 'The third layer adds the costs of the operational parts of the organisation that have a direct impact upon the customer. For ease of application this third part can be further divided into personnel costs, such as the wages of the branch staff, and the fixed costs of branches'.[45] The fourth layer includes all remaining personnel and infrastructure costs from the central departments.

In this paper, the allocation of costs to customers was approached in a similar vein to Connell's suggestions. All items in the study bank's Annual Report's Income and Expenditure Statement were scrutinised and costs apportioned where possible. Obviously, certain assumptions were made at this stage. To take one example for illustration, telephone costs (rental and tolls) were available from the general ledger and internal bank analysis showed that 70 per cent of telephone costs accrue to branches, 10 per cent each to head office lending and finance sections, and the remaining 10 per cent to head office's branch servicing facility, information services, marketing, etc. Hence 70 per cent of telephone costs are directly related to customer transactions and need to be apportioned accordingly. For the time period (in this case three months) transaction volume was divided into telephone costs yielding a per transaction telephone cost of $0.0197. Allocating transaction volume per customer per time period for telephone costs then becomes easy, as does the apportioning per customer of the remaining 30 per cent of telephone costs.

The same approach was used for direct transaction costs relating to customer activity for the following expenditure items: cleaning, computing, heating and lighting, rates and insurance, repairs and maintenance, salaries, security, staff costs and allowances, stationery, sundry costs, superannuation and training. The actual per transaction rate struck for each of these is confidential. The study bank spent six months testing its customer contribution algorithm before releasing it for use in this paper. Interestingly, the driving forces for building the customer contribution model came from the marketing director and the information technology director, just as predicted by Connell.[46] Further, the case for managing customers as assets has been cemented with top management, and a managerial appointment made to coordinate customer asset management.

The overall aim of this paper is to

identify the 'non-financial drivers' of customer profitability for a New Zealand regional bank. The emphasis is upon 'non-financial drivers' because it is obvious that the contract terms and conditions of financial instruments such as loans and investments will always account for substantial proportions of the variance in the analysis for any applied research. An ancillary objective of the research is to describe the behavioural and demographic characteristics of profitable and unprofitable customers.

Table 1: Summary statistics: Customer contribution

	All customers (1,128)
Customer contribution	**$**
Mean	320.02
Median	45.39
Standard deviation	797.13
Minimum	−1,957.93
Maximum	11,291.12
Range	13,249.05
Sum	360,980.82
Percentiles 20	−15.16
40	10.79
60	107.78
80	457.27

SURVEY METHODOLOGY

The research was conducted in several phases. First, it involved two group discussions with customers of the study bank where the elements of service quality, customer satisfaction and customer loyalty received special attention. The issues raised in these group discussions shaped the research objectives and measurement procedures used in the later phases of the research process. A pilot study followed that led to refinement of the customer loyalty measurement process as well as providing a forum for trialling multivariate methods of analysis. Then 1,700 randomly selected personal retail banking customers were surveyed by mail and after three waves the response rate (after allowing for deaths, gone away addresses, sickness, mental incapacity, etc) was 70 per cent resulting in a processing sample of n = 1,128. The maximum margin of error, at 95 per cent confidence, on this random sample is just under 3 per cent.

The survey instrument contained a mixture of seven-point Likert-type scale questions on service quality, customer satisfaction and customer loyalty, behavioural questions on customers' personal retail banking and questions on demographics. The usual limitations are expressed about the advisability of

deriving means from Likert-type scales, about inferring attitudinal dispositions as precursors to behaviour and about non-sampling errors generated in the data collection phase.

RESULTS AND DISCUSSION

The study bank provided the customer contribution data for each customer in the sample after its own validation testing. Data are for a business quarter (three months). Deliberately, there is no extrapolation from the sample of 1,128 cases in this study to the bank's entire personal retail customer population (although this has been done by the study bank) to preserve confidentiality for the study bank. Hence the following analysis is confined to the sample results. Note that all statistics (chi-squared, *t tests* and ANOVA outputs) in Tables 2–7 are based on the actual frequencies in any given cell although percentages are shown in the tables so as to emphasise the relative differences between results.

An immediate reaction to the results in Table 1 is the wide range of contribution but the substantial number of customers (40 per cent) clustered in a narrow band between −$15 and +$107. Consequently there is a high standard deviation of $797 and a mean value

Table 2: Three category customer contribution

Customer contribution	All customers (1,128)		Contribution		Mean number of years with main bank
	N	%	$	%	Mean
Negative or $0	356	32	−15,059.98	−4	16
Small profit ($0.01–$170.84)	386	34	20,807.45	6	20
Medium–large profit (>$170.84)	386	34	355,233.35	98	21
Total			360,980.82		$F = 11.31$ $p = 0.00$

($320) skewed to positive contribution by the few customers making massive contributions. The median of $45 is a more appropriate gauge of central tendency here. The non-normal distribution of the disaggregated customer contribution variable violates one of the crucial assumptions for multiple regression analysis. Hence, for the purpose of subsequent analysis, customer contribution has been recoded into a three-category variable with similar sized (but meaningful) categories as depicted in Table 2. The major findings from Table 2 are that 32 per cent (one third) of the study bank's customers were 'unprofitable' (make no or negative contribution to the bank's revenue), while two thirds were 'profitable', in a three-month period. Yet within the 'profitable' segment there is a cogent finding: the 32 per cent of customers who each contributed in excess of $170 per quarter in net revenue for the study bank (the more 'profitable' customers) accounted for almost all (98 per cent) of the dollar profit.

Notable too is that profitable customers have banked with their main bank longer than unprofitable customers have. The results presented here in Table 2 show the efficacy for profitability of longer rather than shorter banking relationships. This trend has been noted by bank marketing researchers such as Storbacka[47] and Colgate,[48] and by relationship marketing commentators

such as Gummesson,[49] Fornell[50] and Anderson.[51] Hence, over time, banks have the opportunity to generate revenue from their customers by selling them banking products and services that align with customer life cycles. Youthful customers, especially those in tertiary education or in their early working lives, may be unprofitable in the short term given their use of banking resources relative to the revenue they generate for their bank. Typically, numerous account transactions and borrowing will preoccupy these customers in the early years of their banking behaviour. As the banking relationship matures, along with the maturation of these customers, opportunities for the 'main bank' to 'cross-sell' its customers into superannuation, insurance, travel (foreign exchange) and various investment products present themselves. Customers who buy multiple products and services from their main bank, recommend this bank to others, and perhaps act as 'gatekeepers' for their families, etc may then become very profitable.

Identifying who the various types of 'contributors' are dominates the ensuing results. It should be noted though that the proportions of unprofitable customers reported in the marketing and management literature vary across industrial sectors, with commentators such as Reichheld and Sasser[52] and Cooper and Kaplan[53] suggesting revision of the 80:20 rule upwards to account for

Table 3: Customer contribution by main bank and age

	Main bank			Age				
Customer contribution	All customers (1,128) %	Study bank (886) %	Competitors (242) %	<30 (226) %	30–39 (221) %	40–49 (224) %	50–64 (164) %	65+ (293) %
Negative or $0	32	30	39	52	32	32	23	20
Small profit	34	32	44	33	27	25	38	45
Medium–large profit	34	38	17	15	41	43	39	35
	$\chi^2 = 41.05$, df = 2, $p = 0.00$			$\chi^2 = 98.86$, df = 8, $p = 0.00$				
Sum	$360,980	$333,960	$27,019	$33,188	$108,697	$106,801	$55,464	$56,831
Mean	$320	$376	$113	$147	$492	$477	$338	$194
	$t = 20.80$, $p = 0.00$			$F = 9.53$, $p = 0.00$				

Note: The *t* values refer to tests of means where the average $ amount is derived from a two category variable. Otherwise results are standard ANOVAs

Table 4: Customer contribution by household income

		Household income							
Customer contribution	All customers (1,128) %	<$20k (231) %	$20k–$29.9k (182) %	$30k–$39.9k (195) %	$40k–$49.9k (114) %	$50k–$59.9k (113) %	$60k–$79.9k (121) %	$80k–$99.9k (59) %	$100k+ (69) %
Negative/$0	32	43	32	32	33	22	28	22	20
Small profit	34	40	37	29	21	31	31	39	45
Medium–large profit	34	17	31	39	46	47	41	39	35
		$\chi^2 = 187.82$, df = 14, $p = 0.00$							
Sum	$360,980	$22,783	$31,648	$66,762	$58,161	$73,069	$57,811	$20,181	$20,681
Mean	$320	$99	$174	$342	$510	$647	$478	$342	$300
		$F = 7.18$, $p = 0.00$							

Table 5: Customer contribution by proportion of business (share of wallet)

		Proportion of business with main bank				
Customer contribution	All customers (1,128) %	<68% (64) %	68–80% (78) %	81–90% (138) %	91–99% (265) %	100% (562) %
Negative or $0	32	48	29	38	28	30
Small profit	34	31	40	37	38	32
Medium–large profit	34	21	31	25	34	38
		$\chi^2 = 24.82$, df = 8, $p = 0.01$				
Sum	$360,980	$4,568	$22,053	$28,380	$85,106	$214,760
Mean	$320	$71	$286	$206	$321	$382
		$F = 2.58$, $p = 0.03$				

even smaller numbers of profitable customers carrying many 'unprofitable' customers. In studies of customer contribution in retail banking these examples of few customers contributing almost all the 'profit' seem to hold true.

Profitable and unprofitable customers

The following analyses of customers, in terms of their contributions to the study bank's revenue, are supported by the results presented in Tables 3–7 and Figure 2. The analyses in the tables

Table 6: Customer contribution by time with main bank

| Customer contribution | All customers (1,128) % | Time with main bank (quartiles) | | | |
		Up to 7 years (282) %	8–15 years (268) %	16–29 years (259) %	30+ years (260) %
Negative or $0	32	40	34	31	20
Small profit	34	33	31	33	39
Medium–large profit	34	27	35	36	41
		$\chi^2 = 26.77$, df $= 6$, $p = 0.00$			
Sum	$360,980	$79,816	$91,920	$89,494	$87,090
Mean	$320	$282	$342	$343	$329
		$F = 0.35$, $p = 0.79$			

cover two streams of data. First, there are the proportions of unprofitable and profitable customers and how they are characterised by age, household income, banking behaviour etc. These results are portrayed in the upper levels of each table and their associations (or lack of) are assessed by the accompanying chi-squared statistics. Secondly, each table carries data, in the lower levels of the table, on customer value, that allow the assessment of how much (in dollars) each group of customers contributes. Comparative testing here is by means tests and their *t test* or *F-ratio* statistics.

To address the complex data portrayed in Tables 3–7, Table 3 is analysed in detail here to assist the reader. Two variables (namely 'main bank' and customer's age) are cross-tabulated separately (for convenience of table layout) with customer contribution. The upper portion of Table 3 displays the percentage results for each category of the customer's main bank (either the study bank itself or a competitor bank because customers can bank with more than one bank) and for each age group (under 30 years, 30–39 years, etc). Interpretation of the upper portion of the table suggests that the study bank's customers who claimed it as their 'main bank' were actually more profitable (in the three months of the customer

contribution data) and the chi-squared test statistic bears this out. In the age versus customer contribution part of Table 3, 52 per cent of the under 30 years group were 'unprofitable' contrasted with only 20 per cent of the over 65 years group. Strong associations between age and customer contribution are prevalent throughout these data as verified by the chi-squared test statistic. Turning to the lower portion of Table 3, two descriptive statistics (sum and mean) are displayed there for the cross-tabulated data investigated in the upper portion of the table. The first cell in the lower portion of the table shows the total sample's sum of customer contribution ($360,980) and the mean (being $360,980 divided by 1,128 customers = $320, rounded to the nearest whole dollar). The subsequent cells in the lower portion of Table 3 display the relevant customer contribution sums and means (in dollars) for each type of customer. For example, customers who regard the study bank as their 'main bank' on average contributed $376 each to the (three monthly) customer contribution whereas study bank customers who regarded another (competitor) bank as their main bank contributed, on average, only $113 to the (three monthly) customer contribution for the study bank. These differences in mean contribution are

Table 7: Customer contribution by joint account

Customer contribution	All customers (1,128) %	Yes (691) %	No (437) %
Negative or $0	32	27	39
Small profit	34	31	39
Medium–large profit	34	42	22
$\chi^2 = 52.54$, df = 2, $p = 0.00$			
Sum	$360,980	$306,903	$54,079
Mean	$320	$444	$124
$t = 22.47$, df = 1, $p = 0.00$			

statistically significant ($t = 20.8$, $p = 0.00$). The lower right-hand portion of Table 3 displays the relevant sum and mean contributions for each age group. For example, customers aged under 30 years made significantly lower contributions (mean $147) than their 40–49-year-old counterparts (mean $477). The variation in mean contribution by age is highly significant ($F = 9.53$, $p = 0.00$). In turn, Tables 4–7 follow the same format as Table 3.

Unprofitable customers

Customers with negative or zero contribution are more likely than average to be youthful. Over half are aged under 30 (see Table 3) and while the under 30s form 20 per cent of the study bank's customer base, they contribute only 9 per cent of the profit, with a mean per capita profit of $147 compared to the study bank average of $320. Not unexpectedly, those with the lowest household incomes are less profitable (see Table 4) as are those who spread their banking business across several banks (see Table 5). While those with access to annual household incomes of under $20,000 make up 20 per cent of the customers, 43 per cent of them are unprofitable, returning only 6 per cent of the profit, with a meagre average of $99. Even worse are the few (6 per cent) customers who give the study bank less

than 68 per cent of their banking business (Table 5).

Half of these customers were unprofitable, with the group as a whole returning only 1 per cent of the profit. This trend is supported by the results in Table 3 where those customers nominating their main bank to be the study bank are more profitable (average of $376) than those nominating a competitor bank (average of $113).

No significant differences emerged in the results between customer contribution and gender, education or recent defection from a bank. For time with main bank (see Table 6), more recent customers (0–7 years) are less likely to be profitable in proportional terms, but this has no statistically significant effect in dollar terms.

The presence of joint accounts (Table 7) seems to be an important indicator of customer profitability with the 39 per cent of customers with no joint accounts contributing only 15 per cent of the profit.

Turning to satisfaction constructs, Figure 2 shows that satisfaction with main bank does not vary by customer profitability except for satisfaction with the main bank's borrowing (lending) section ($F = 4.96$, $p < 0.01$) where unprofitable customers are, on average, less enamoured. Herein may lie a predictable association between attitude and behaviour in that some unprofitable customers may have had requests for loans denied.

Low profit customers

Customers whose contributions were between $0.01 and $170 for the three months under analysis were more likely than average to be the over 50s and especially the over 65s (see Table 3). Their annual household incomes are either quite low or very high (but
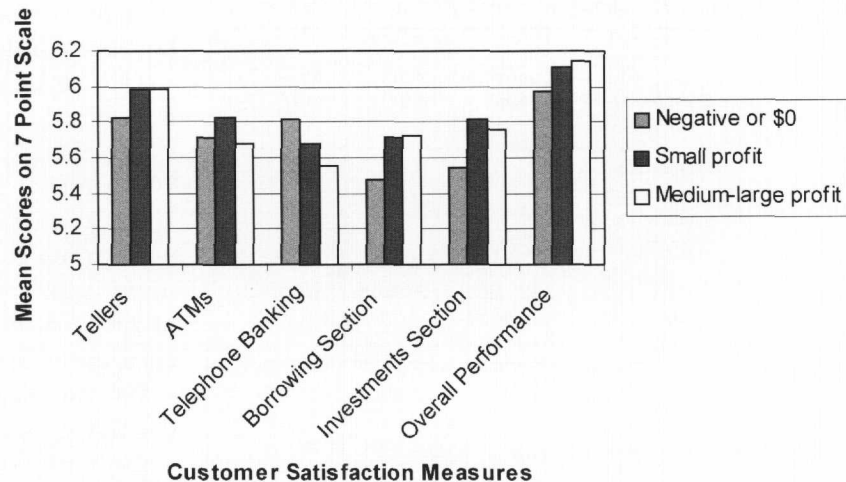
Figure 2 Customer contribution by customer satisfaction

under-represented in the middle ranges of $30,000–$80,000 per annum) and their banking business tends to be spread across more than one bank (see Tables 4 and 5). For the high-income customers one could speculate that their main bank is not receiving much of their financial business (investments, etc) as opposed to their 'banking business'. Higher than average numbers of these 'low profit' customers have been with their main bank for more than 30 years, which aligns well with their older age profile.

Medium–high profit customers

Obviously, some profitable customers are a necessary prerequisite for successful retail banking. In the analysis in Table 3, the study bank had an over-representation of highly profitable customers. In turn, these customers are over-represented by middle-aged people (30–64 years) who collectively comprise 54 per cent of customers but return 75 per cent of the 'profit'. Annual household incomes are most likely to exceed $40,000 (Table 4), their banking business tends to be concentrated mostly

in one bank (Table 5), and there is a direct relationship between time (in years) with main bank and the number of profitable customers (Table 6). This particular relationship does not, however, follow through to customer contribution by dollars. People with short (less than eight year) histories yield fewer profits for the study bank, but beyond this period, time with main bank does not necessarily guarantee profitability.

Attitudinally, the medium–high profit customers are little different to the lower profit customers (Figure 2) though notably their global satisfaction with their main bank is extremely high at 6.14 on a seven-point scale.

Multivariate analysis

To test the degree of impact that any one of the independent variables has upon customer contribution, multiple stepwise regression was used and the impact captured by the beta coefficient. Hair *et al.*[54] warn that beta coefficients should only be used as indicators of relative impact when collinearity is minimal. In no instance did any correlations between independent

Table 8: Stepwise regression results: Customer contribution

| Independent variable | Variables in the equation* | | | |
	Beta	Standard error	T	Sig t
Age group	0.25	0.02	3.71	0.00
Main bank's share of wallet	0.20	0.03	2.76	0.01
Household income	0.16	0.02	2.35	0.02
Joint accounts?	0.13	0.07	−1.93	0.04
(Constant)	1.16	0.19	5.99	–

Adjusted R^2 = 0.14 F = 6.42 Significance F = 0.00
*Probability for inclusion = 0.10

variables used in the regression analysis here exceed 0.30 suggesting that any confounding effects between variables due to multicollinearity are minimal. The multiple regression results are shown in Table 8. Probability for inclusion of variables into the regression was lifted from the rather severe default setting of 0.05 to the less severe 0.10. The dependent variable customer contribution was recoded into a binary profit/loss variable because of the non-parametric distribution of the original, disaggregated customer contribution data. While it may have seemed apposite to use logistic regression, which relies on binary (zero–one) dependent variables,

'if the purpose of doing an analysis is simply to determine whether the dependent variable relates to the independent variables, or if the purpose is to compare the relative contributions of various independent variables, logistic regression is not needed. A conventional multiple regression will provide satisfactory results in these circumstances'.[55]

Hence the multivariate analysis reported here is restricted to ordinary least squares multiple regression.

A stepwise regression of 26 independent variables (representing perceived service quality, customer satisfaction, customer loyalty and demographics) on the level of customer

contribution to the study bank identified a weak relationship (adjusted R^2 = 0.14) between it and four independent variables as shown in Table 8. These explanatory variables (in their order of importance) were: age group, 'share of wallet' (percentage of banking business with main bank — a measure of behavioural loyalty), level of household income and the presence of joint accounts. The relatively small number of significant explanatory variables probably reflects the use of the dichotomous structure of the dependent variable, customer contribution.

The stepwise regression results do show a semblance of relationships between customer contribution and two key demographics, age and income, in that increases in the former result from increases in the latter. This confirms Tables 3 and 4 at the bivariate analysis level — the study bank's 'better' customers are older and more 'well heeled'. Similarly, share of wallet (Table 5) is reconfirmed in that the greater the share of a customer's personal retail banking business the study bank has, the more profitable that customer is to the study bank; that is, high share of wallet leads to high contribution. And the presence of joint accounts is a signal of more profitability for the study bank. (This variable had the value of 0 as having joint accounts and 1 no joint accounts, yielding the negative beta

coefficient.) This confirms Table 7's results.

MANAGERIAL IMPLICATIONS AND FUTURE RESEARCH

As demonstrated in this study, there are managerial benefits in quantitative empirical research into customer profitability derived from personal retail banking. A bank's population of customers contains individuals who are, at any one time, unprofitable given their use of resources relative to the revenue they supply. In this study's case, one third of the study bank's customers were unprofitable at the time of the analysis. While the individuals who were unprofitable at that time may not always remain so, it is expected that a substantial proportion of a bank's personal retail customers will remain unprofitable. Indeed, these findings substantiate those found previously.[56,57] Having unprofitable customers in a customer portfolio has implications for banks as they move towards managing customers as assets. There is now widespread understanding among bankers that relatively small segments of profitable customers subsidise large groups of less profitable or even loss-making customers. Bankers are developing strategies to nurture their most profitable relationships and realign their unprofitable customers. In New Zealand this is being done with bank fees, aimed at persuading the most expensive-to-service customers to change their costly habits or pay for them directly. Currently, banks are loathe to lose customers; it would appear they would rather try (at least initially) to convert them to a 'profitable' state.

This paper set out to investigate the non-financial drivers of customer profitability in personal retail banking. While the multivariate results on the non-financial factors that drive customer profitability are not as unequivocal as hoped for, they still offer some comfort for bank management. Nothing can be done directly about two of the most potent variables — customer age and annual household income — but the confirmation that older and wealthier customers are more profitable gives credence to the 'lifetime value of customers' and 'cradle-to-grave' philosophies prevalent among some managers. Relationship length is a crucial driver of profitability along with gaining as big a share of the customer's personal retail banking business as possible. This is rather obvious but is unlikely without a relationship that suits customers on their terms. Rewarding 'profitable' customers in inexpensive but compelling ways seems appropriate and indeed New Zealand banks offer their most valuable retail clients fee waivers, lottery prize draws, enhancements and bonus points in their customer loyalty programmes, etc.

It is recognised that the relationship between customer contribution (profitability) and the independent variables that help 'explain' this crucial dependent variable is quite weak. It should also be remembered that the profitability measure (customer contribution) is the study bank's assessment (and not the customer's assessment) of the customer–main bank relationship. Herein may lie some of the reasons for weak relationships between customer contribution and preceding constructs in the service–profit chain. Nevertheless, knowing that non-financial drivers seem to have only moderate impact on customer profitability leads to speculation that various financial variables to do with the breadth of relationship are the biggest contributors to customer profitability. Hence, the terms of loans and investments that individual customers have with their banks, the terms of the

accounts in which they keep their savings, the size of their average daily balances, the portfolio of financial services that they have with their main bank, etc will all directly affect customer contribution. These are all entwined in the customer contribution measure used in this study but are impossible for the author to disaggregate.

Determining customer profitability in personal retail banking is neither easy nor straightforward. Once this capability exists, however, customers can be managed by the bank as business assets. The results of this study show that different customers have different value profiles and can be managed accordingly to enable banks to improve their financial performance. Segmenting customers on the basis of their value to their banks affects both long- and short-term decision making. The former state is much more oriented to market positioning endeavours; the latter (short-term) state addresses day-to-day operational actions where, for example, customer profitability data can help drive level of service delivery. Selective offers of fee waivers and interest rate reductions to retain profitable customers are becoming commonplace. Front-line banking staff need information systems that allow service to be aligned to individual customers based on customer profitability (at a minimum) but ideally also on customer value. Certain clients can act as gatekeepers to other profitable customers and thus are more important to the bank than the simple netting of financial costs and earnings. If a marketing cum management system can be implemented that includes qualitative data on customer value (referral sales, potential for future revenue growth, etc) alongside standard customer profitability data then management decisions ought to be stronger. In turn, use of such an information system would allow bank

management to, for instance, tailor service levels to specific customers or customer groups, and to anticipate when a change in customer lifecycle might threaten or change the banking relationship.

Future research in the field of customer contribution in personal retail banking is obviously required to help generalise results and examine variations in different settings. This call for macro-level future research is really a form of replication research conducted to corroborate or refute the findings reported above. It could be argued that the content and time periods used to measure customer contribution in this paper still require modification as does the customer profitability algorithm. Perhaps the last word on future research can be left to Zeithaml in her review of academic research on customer profitability where she states that

> 'few rigorous studies have been published documenting the moderating effects of tiers of customers on profits...developing the skill to tier customers may be the most essential step companies must take to link service quality and profitability.'[58]

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