The relationships of customer satisfaction, customer loyalty, and profitability: an empirical study

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Introduction

This paper's purpose is to illustrate the relationship of profitability to intermediate, customer-related outcomes that managers can influence directly. It is predominantly a general management discussion, consistent with the Nordic School's view that services are highly interdisciplinary, requiring a "service management" approach (see Grönroos, 1984, 1991). Its findings support the theory that customer satisfaction is related to customer loyalty, which in turn is related to profitability (Heskett *et al*., 1994, and discussed in Storbacka *et al.,* 1994). While this theory has been advocated for service firms as a class, this paper presents an empirical analysis of one retail bank, limiting the findings' generalizability.

The service profit chain (Heskett *et al.,* 1994) hypothesizes that:

Customer satisfaction --> customer loyalty --> profitability.

The research presented here, while unable to demonstrate causality because of its reliance on OLS regression of cross-sectional data, does illustrate that customer satisfaction, customer loyalty, and profitability are related to one another. Thus:

Customer satisfaction <--> customer loyalty <--> profitability.

To this end, this research examined two hypotheses:

H1: Customer satisfaction is related to customer loyalty.

H2: Customer loyalty is related to profitability.

This research intentionally focuses at a relatively high level of abstraction in an effort to contribute to the growing body of theoretical and empirical knowledge on the relationships among customer satisfaction, customer loyalty, and profitability (see Heskett *et al.,* 1994; Nelson *et al.,* 1992; Rust and Zahorik, 1991; Storbacka *et al.,* 1994, among others). Such research is called for in a paper authored by Storbacka *et al.* (1994) published in this journal.

Relevant literature

The literature pertaining to relationships among customer satisfaction, customer loyalty, and profitability can be divided into two groups. The first,

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service management literature, proposes that customer satisfaction influences customer loyalty, which in turn affects profitability. Proponents of this theory include researchers such as Anderson and Fornell (1994); Gummesson (1993); Heskett *et al.* (1990); Heskett *et al.* (1994); Reicheld and Sasser (1990); Rust, *et al.* (1995); Schneider and Bowen (1995); Storbacka *et al.* (1994); and Zeithaml *et al.* (1990). These researchers discuss the links between satisfaction, loyalty, and profitability. Statistically-driven examination of these links has been initiated by Nelson *et al.* (1992), who demonstrated the relationship of customer satisfaction to profitability among hospitals, and Rust and Zahorik (1991), who examine the relationship of customer satisfaction to customer retention in retail banking. The Bank Administration Institute has also explored these ideas, in particular Roth and van der Velde (1990, 1991)[1].

The service management literature argues that customer satisfaction is the result of a customer's perception of the value received in a transaction or relationship – where value equals perceived service quality relative to price and customer acquisition costs (see Blanchard and Galloway, 1994; Heskett *et al.*, 1990) – relative to the value expected from transactions or relationships with competing vendors (Zeithaml *et al.*, 1990). Loyalty behaviours, including relationship continuance, increased scale or scope of relationship, and recommendation (word of mouth advertising) result from customers' beliefs that the quantity of value received from one supplier is greater than that available from other suppliers. Loyalty, in one or more of the forms noted above, creates increased profit through enhanced revenues, reduced costs to acquire customers, lower customer-price sensitivity, and decreased costs to serve customers familiar with a firm's service delivery system (see Reicheld and Sasser, 1990).

The second relevant literature is found in the marketing domain. It discusses the impact of customer satisfaction on customer loyalty. Yi's "Critical review of customer satisfaction" (1990) concludes, "Many studies found that customer satisfaction influences purchase intentions as well as post-purchase attitude" (p. 104).

The marketing literature suggests that customer loyalty can be defined in two distinct ways (Jacoby and Kyner, 1973). The first defines loyalty as an attitude. Different feelings create an individual's overall attachment to a product, service, or organization (see Fornier, 1994). These feelings define the individual's (purely cognitive) degree of loyalty.

The second definition of loyalty is behavioural. Examples of loyalty behaviour include continuing to purchase services from the same supplier, increasing the scale and or scope of a relationship, or the act of recommendation (Yi, 1990). The behavioural view of loyalty is similar to loyalty as defined in the service management literature. This study examines behavioural, rather than attitudinal, loyalty (such as intent to repurchase). This approach is intended, first, to include behavioural loyalty in the conceptualization of customer loyalty that has been linked to customer satisfaction, and second, to make the demonstrated satisfaction/loyalty relationship immediately accessible to managers interested in customer behaviours linked to firm performance.

Both the service management and the marketing literatures suggest that there is a strong theoretical underpinning for an empirical exploration of the linkages among customer satisfaction, customer loyalty, and profitability. The relatively small quantity of empirical research performed on these relationships to date (Storbacka *et al.*, 1994) is probably the result of the paucity of organizations' measuring "soft" issues, such as customer satisfaction and customer loyalty, in meaningful ways.

The data set

Customer satisfaction data were collected from 12,000 retail-banking customers at 59 divisions (geographic business units composed of multiple branches). The sample was drawn from divisions representing 73 per cent of all households served by the bank[2]. All divisions examined had been part of the bank for at least one year.

All survey data were aggregated at the division level. The use of divisions as the level of analysis is consistent with the subject bank's philosophy encouraging division leaders to manage their operations independently while sharing best practices. The divisions maintain independent pricing, policies and procedures, tools to aid in the delivery of customer service, reward and recognition systems, and cultures. Within each division, the same variables are relatively standardized. Thus variation in levels of customer satisfaction can be expected at the division level.

The use of divisions as the unit of analysis is also consistent with the nature of a customer's banking relationship at this bank and many other large US banks today. While in the past a customer's relationship was predominantly with the local branch, the introduction of automatic teller machines and centralized telephone customer service centres has resulted in many customers who rarely transact business at a branch. When physical presence at a branch is necessary, it need not be at the particular branch where an account was opened. Service recovery, an important aspect of a customer/service-organization relationship (Heskett *et al.*, 1990), is at least as likely to occur through a centralized telephone customer service centre as through a local branch. Thus many customers' service experience is probably driven by contact with a variety of points beyond the local branch and thus captured at the division level. This hypothesis, combined with the subject bank's organization structure stressing the autonomy of its divisions, supports the use of the division as unit of analysis for this research.

Satisfaction data were collected through a confidential four-page questionnaire developed by the bank and a market research firm. The survey posed questions about each customer's level of satisfaction with aspects of service and price, and solicited demographic information (see Appendix 1). Surveys were mailed to randomly selected customers in January 1994[3].

Customer-satisfaction survey respondent demographics do not identically match the bank's population as estimated by management. Respondents more heavily represent older, less-affluent customers. To ensure that the results of this study's analyses were not influenced by these discrepancies, key analyses were performed for demographic subgroups categorized by respondent age and respondent household income. Relationships supporting hypotheses one and two can be inferred for almost every demographic subgroup, suggesting that the findings based on the data set as a whole are representative.

Customer loyalty data were collected by the divisions on both retention (length of relationship) and cross sell (depth of relationship). Profitability data for each division were provided by the bank's treasury function.

Method

OLS regression is used to examine the hypothesized relationships. To increase the internal validity of the results, multiple measures of satisfaction, loyalty, and profitability were examined whenever possible. Table I illustrates these multiple measures; descriptions follow in the text.

Measures of customer satisfaction	Measures of customer loyalty	Measures of profitability
Total satisfaction	Division-reported retention rates	customer NIE/Rev
Satisfaction with key elements of both service and price	Customer-reported relationship tenure	ROA
	Division-reported account cross-sell rates	
	Division-reported service cross-sell rates	

Table I.
Measures of satisfaction, loyalty, and profitability examined

Measures of customer satisfaction

Customer satisfaction was measured in two ways. The first measure consists of responses to a single question on the customer-satisfaction questionnaire: "Overall, how satisfied are you with … [the bank]?" Responses for all satisfaction questions were made on 1-7 Likert-type scales labelled "very satisfied" (1) and "very dissatisfied" (7) at each extreme. The problems associated with the use of a single response variable were mitigated by: the simplicity of the question; and Yi's (1990) suggestion that a single overall satisfaction measure scored as this one was is "reasonably valid" (p. 71).

The second indicator of customer satisfaction, satisfaction with service and satisfaction with price (measured independently as the "service index" and the "price index") was developed from theories found in the service management literature (Heskett *et al.*, 1994; Schneider and Bowen, 1995). Simplified, these theories state that perceived value is a function of perceived quality and price, and that differing levels of perceived value result in differing levels of customer satisfaction.

Measures of customer loyalty

Measures of customer loyalty were selected because they reflected both length (retention) and depth (cross sell) of the bank-customer relationship. Length of relationship is reported by both division-reported customer retention rates (percentage of customers who remained customers during 1993) and mean customer-reported relationship tenure. Relationship depth is measured by division cross-sell rates, which record the percentage of customer households with multiple accounts (account cross sell) or multiple services (service cross sell).

Measures of profitability

Profitability measures were determined based on their hypothesized relationship to customer satisfaction and loyalty. Both of the measures used, ROA and NIE/Rev (non-interest expense as a percentage of total revenue), reflect profit at the individual division. See Roth (1993) for an analysis of similar performance measures in service firms.

Given the intent of this study, NIE/Rev is preferred to ROA as a more appropriate measure of profitability. Retail bank profit can be separated into, first, the results of operations (revenue-enhancing as well as cost-incurring) which influence expenses and revenues that are not sensitive to interest rates, and second, treasury activities, which influence interest-sensitive costs and revenues. This paper addresses primarily non-interest-sensitive components of profitability, hypothesized to relate to customer loyalty. ROA contains both interest-sensitive and non-interest-sensitive components, while NIE/Rev is generated only from non-interest-sensitive costs (the revenue portion of NIE/Rev may be somewhat related to customer-relevant interest rates). Appendix 1 discusses ROA, NIE/Rev and the other measures used in more detail.

Control variables

Control variables were included in certain analyses. These were either demographic (household income) or experiential (the customer having contacted the bank with a question or problem in the past year, or considering the bank the customer's primary bank). Control variable questions and response formats are included in Appendix 2.

Results

The results encourage the inference of relationships between customer satisfaction and customer retention, and between customer retention and profitability. The consistency of the findings among the multiple measures reinforces this conclusion. Table II presents the satisfaction/loyalty relationship results in the form of OLS regression output, while Figure 1 illustrates the same relationship (simplified) graphically. Table III presents the loyalty/profitability relationship results in an OLS regression format, and Figure 2 graphically represents these findings (also simplified).

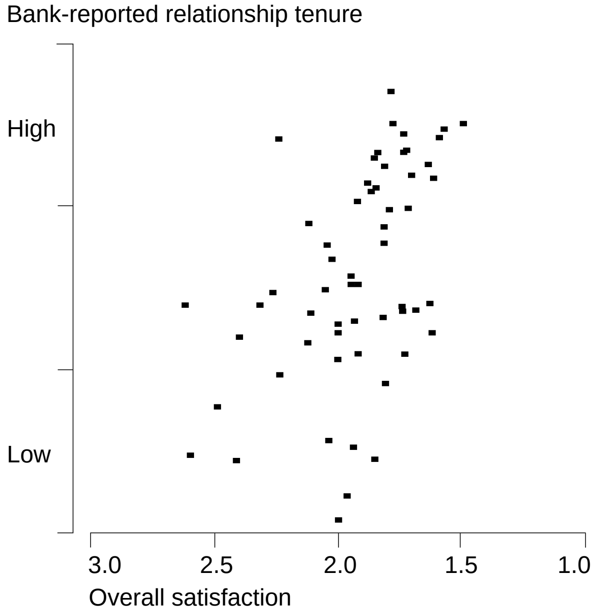

Figure 1.
Bank-reported relationship tenure plotted against overall satisfaction

Customer satisfaction/customer loyalty relationship

The regression results support the inference of a customer satisfaction/ customer loyalty relationship. Further, they illustrate that customer satisfaction may be responsible for as much as 37 per cent of the difference in customer loyalty levels among the divisions examined, holding constant, first, recent contact with the bank about a question or problem, and, second, household income (see R square of regression 1a). Variance explained of 37 per cent is particularly high given potential activities of competitors and non-bank-related factors which may influence both customer satisfaction and loyalty that are not included as variables in the regression.

The hypothesized satisfaction/loyalty relationship is evident for the four measures of customer loyalty and for both measures of customer satisfaction. However, the results are ambiguous regarding the role of price satisfaction in predicting customer loyalty. The price index is not statistically significant for two of the four relationships examined (regressions 1b and 2b). Further, the coefficient estimate for price is positive in three of the four relationships (regressions 2b, 3b, and 4b) when a negative coefficient would be expected

Customer loyalty measured as: dependent variable	*Customer satisfaction measured as:* independent variables	Coefficient estimate	SE	T
1a) Bank-reported customer retention	Constant	54.43***	13.41	3.98
	Overall satisfaction	–7.40***	1.73	–4.26
	Contacted bank w/in year	20.37***	7.19	2.83
	Household income	6.80***	2.08	3.26
	R square, 0.374			
1b) Bank-reported customer retention	Constant	50.16***	13.62	3.68
	Service index	–5.17**	2.26	–2.29
	Price index	–1.00	2.18	–0.46
	Contacted bank w/in year	21.63***	7.36	2.94
	Household income	6.74***	2.16	3.16
	R square, 0.353			
2a) Customer-reported relationship tenure	Constant	2.12**	0.92	2.30
	Overall satisfaction	–0.47***	0.14	–3.46
	Contacted bank w/in year	1.24**	0.54	2.29
	R square, 0.369			
2b) Customer-reported relationship tenure	Constant	3.80***	0.27	14.36
	Service index	–0.78***	0.18	–4.37
	Price index	0.26	0.18	1.43
	R square, 0.373			
3a) Account cross sell	Constant	3.67***	0.45	8.13
	Overall satisfaction	–0.65***	0.23	–2.81
	R square, 0.121			
3b) Account cross sell	Constant	3.23***	0.49	6.67
	Service index	–1.21***	0.33	–3.70
	Price index	0.61*	0.33	1.85
	R square, 0.244			
4a) Service cross sell	Constant	3.13***	0.28	11.37
	Overall satisfaction	–0.45***	0.14	–3.29
	Household income	0.26*	0.15	1.81
	R square, 0.162			
4b) Service cross sell	Constant	3.10***	0.23	13.24
	Service index	–0.64***	0.16	–4.02
	Price index	0.40**	0.16	2.49
	R square, 0.245			

Notes: Negative coefficient estimates reflect scoring rather than inverse relationships (except in the case of the positive coefficient estimates for price in regressions 2b, 3b and 4b).
* $p<0.10$; ** $p<0.05$; *** $p<0.01$

Table II. Eight regressions supporting the inference of a relationship between customer loyalty and customer satisfaction

Profitability measured as: dependent variable	*Customer loyalty measured as:* independent variables	Coefficient estimate	SE	T
1a) NIE/Rev	Constant	61.92***	18.68	3.32
	Customer-reported relationship tenure	–13.07***	2.39	–5.47
	Primary bank	26.01*	13.35	1.95
	R square, 0.398			
1b) NIE/Rev	Constant	100.73***	27.07	3.72
	Bank-reported customer retention	–0.93***	0.22	–4.20
	Primary bank	25.90*	14.48	1.79
	R square, 0.294			
1c) NIE/Rev	Constant	45.57*	23.50	1.94
	Account cross sell	–4.80***	1.62	–2.95
	Primary bank	42.81***	15.28	2.80
	Contacted bank w/in year	–22.48*	11.70	–1.94
	R square, 0.252			
1d) NIE/Rev	Constant	64.17***	22.83	2.81
	Service cross sell	–12.76***	3.28	–3.89
	Primary bank	49.73***	14.81	3.36
	Contacted bank w/in year	–24.08**	11.11	–2.17
	R square, 0.322			
2a) ROA	Constant	3.93*	1.72	2.29
	Customer-reported relationship tenure	0.39**	0.19	2.08
	Primary bank	–2.21**	1.01	–2.18
	Household income	–0.31	0.23	–1.38
	R square, 0.212			
2b) ROA	Constant	3.37	2.09	1.60
	Bank-reported customer retention	0.03*	0.02	1.70
	Primary bank	–2.33**	1.02	–2.28
	Household income	–0.43*	0.22	–2.01
2c) ROA	Constant	5.79***	1.47	3.94
	Account cross sell	0.13	0.11	1.15
	Primary bank	–2.73**	1.04	–2.62
	Household income	–0.47**	0.22	–2.16
	R square, 0.168			
2d) ROA	Constant	5.14***	1.46	3.53
	Service cross sell	0.51**	0.22	2.26
	Primary bank	–3.11***	1.02	–3.03
	Household income	–0.48**	0.21	–2.30
	R square, 0.222			

Notes:
Note that negative coefficient estimates reflect the way questions were scored (see Appendix 2) rather than inverse relationships, except as noted in Table II.
* p<0.10; ** p<0.05; *** p<0.01

Table III.
Seven (of eight) regressions supporting the inference of a relationship between customer loyalty and profitability

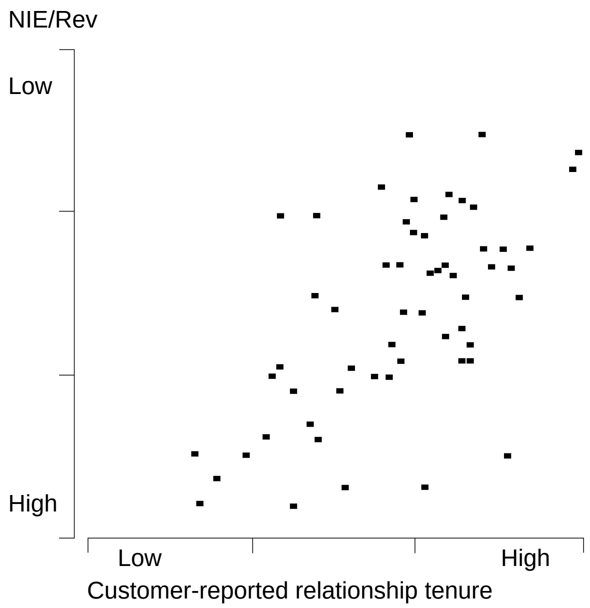

Figure 2.
NIE/Rev plotted against customer-reported relationship tenure

given the scoring methods (see Appendix 2). While plausible, a conclusion of reverse price-sensitivity is rejected because of, first, the lack of statistical significance for one of the three negative price coefficients, and second, the instability of the price-index coefficient, which reverses from negative (in regression 1b) to positive (in regressions 2b, 3b, and 4b).

This lack of statistical significance and coefficient-sign stability may be due to price-insensitivity among the bank's customers. The bank has targeted a less price-sensitive customer base by positioning itself as a service-oriented institution and pricing its products and services at market-average or higher levels. However, given the bank's customers' reported mean household income (between $25,001 and $50,000), it is clearly not attracting a "carriage trade" clientele. Thus it may be more reasonable to suggest that customers are price-insensitive at current pricing levels. If this hypothesis is correct, price remains an important component of value and (theoretically) a driver of satisfaction and associated behaviours.

Customer loyalty/profitability relationship

Seven of the eight regressions in Table III support the inference of a relationship between customer loyalty and profitability. These relationships explain as much as 40 per cent of the variance in division profitability when whether the bank is a customer's primary bank is held constant (see *R* square of regression 1a). A 40 per cent variance can be considered high given the other variables that influence commercial bank profitability that are not accounted for in the regression equation. Note that size of division does not explain profitability, as is evident from an ROA/Total Assets correlation with a Pearson correlation coefficient of –0.04.

Despite the ambivalence of the findings in regression 2c, the relationships between loyalty and profitability inferred from the seven other regressions suggest that customer loyalty is related to profitability at the bank. The findings support the discussions in the service management literature relating customer satisfaction to customer loyalty to profitability, as well as the marketing literature's behavioural arguments relating customer satisfaction to loyalty.

Path analysis performed on measures of customer satisfaction, loyalty, and profitability was inconclusive. The analysis neither confirmed nor denied that the relationship path hypothesized by the service management literature (customer satisfaction --> customer loyalty --> profitability) is stronger than a direct customer satisfaction --> profitability relationship[4]. Further research will be necessary to draw informed conclusions on this topic.

Discussion

To illustrate the potential impact of customer satisfaction on profit at the bank, the effect of improving customer satisfaction has been analysed. This analysis provides an indication of the increase in profit resulting from an improvement in customer satisfaction only if the causality hypothesized in the service management literature exists, and if environmental and technological conditions remain essentially stable.

Figure 3 illustrates the relationship of NIE/Rev to overall customer satisfaction (note that a satisfaction score of 1 represents high satisfaction).

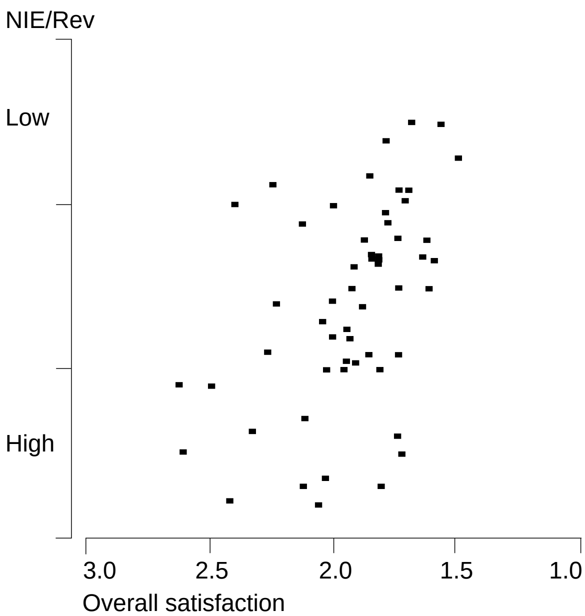

Figure 3.
NIE/Rev plotted against customer satisfaction

An examination of Figure 3 indicates that divisions with the lowest overall satisfaction ratings (grouped nearer to the left) also tend to have higher NIE/Rev, and vice-versa. Table IV presents regression results supporting this trend, using overall satisfaction data to predict both NIE/Rev and ROA.

Using the ROA regression equation from Table IV, it is possible to estimate the effect on ROA of a change of one point in customer satisfaction, as if the divisions with lower satisfaction (overall satisfaction score of approximately 2.5) increased their customers' satisfaction to that of the divisions with higher customer satisfaction (overall satisfaction score of approximately 1.5). In this case, the formerly low-satisfaction divisions would increase their ROA from approximately 1.35 per cent to approximately 1.94 per cent. This increase of 0.59 per cent would have a dramatic effect on the bank's total profitability. Given that many of those divisions with higher ROA also currently generate higher customer satisfaction, there is no reason to assume that higher satisfaction requires net increases in cost over the long term that would reduce the projected increase in profit.

Dependent variable	Independent variables	Coefficient estimate	SE	T
NIE/Rev	Constant	57.17***	0.81	70.70
	Overall satisfaction	–10.77***	2.90	–3.72
	R square, 0.20			
ROA	Constant	1.57***	0.05	28.93
	Overall satisfaction	0.54***	0.19	2.76
	R square, 0.122			

Notes:
The negative coefficient estimate in the NIE/Rev overall satisfaction regression encourages the inference that as satisfaction increases, NIE/Rev decreases.
$***p<0.01$

Table IV. Regression results supporting the inference of a relationship between customer satisfaction and profitability

Conclusion

As suggested by Zahorik and Rust (1992), there is clearly a need for more quantitatively driven empirical research in the area of specific, implementable recommendations for managers. As firms begin to measure both customer satisfaction and customer loyalty more completely, specific actions can be recommended that will optimize managers' investment in improved service.

The relationships among customer satisfaction, customer loyalty, and profitability warrant further research. Researchers may benefit from avoiding three of the difficulties encountered in this paper. First, to the degree possible they should work with an organization to develop exemplary measurement systems before measuring satisfaction, loyalty, and profitability. This should benefit both the organization and the research. Second, they may want to focus on industries other than banking, both for the purpose of extending external validity and to examine whether variance explained will dramatically increase for data sets from industries in which profitability can be expected to be more immediately tied to customer satisfaction (unlike commercial banking, which, as noted, may be subject to variation in profitability due to non-customer-satisfaction-related activities, such as treasury functions). Finally, researchers may want to focus on data collected in relatively stable industries over an extended period. The analysis of such data may enable conclusions to be drawn about both relationships among variables and causality.

An important caveat must be made regarding the findings of this study. A reader might infer from the conclusion that since customer satisfaction is related to profit, a bank should endeavour to satisfy every customer. This could be an error in interpretation. A bank's population of customers undoubtedly contains individuals who either cannot be satisfied, given the service levels and pricing the bank is capable of offering, or will never be profitable, given their banking activity (their use of resources relative to the revenue they supply). Any bank would be wise to target and serve only those customers whose needs it can meet better than its competitors in a profitable manner. These are the customers who are most likely to remain with that bank for long periods, who will purchase multiple products and services, who will recommend the bank to their friends and relations, and who may be the source of superior returns to the bank's shareholders.

Notes

1. While some studies have not found relationships between satisfaction, loyalty, and profitability (see Tornow and Wiley, 1991; Wiley, 1991), these findings can be reconciled with the hypotheses presented here by recognizing that the hypotheses are general in nature and evidence supporting them may be obscured in some business situations.
2. The majority of divisions excluded from the study were unable to collect the necessary data for computer-related reasons.
3. Response rates among the divisions varied from 16 to 22 per cent. Levels of variance in the satisfaction ratings suggest that respondents included individuals with high, low, and middle levels of satisfaction indicating a lack of response bias in favour of the highly satisfied or dissatisfied.
4. The unidirectional arrows reflect hypothesized causality found in the literature only. Results were inconclusive in that one path analysis using overall satisfaction for satisfaction, customer-reported relationship tenure for loyalty, and NIE/Rev for profitability suggested that the satisfaction --> loyalty --> profitability relationship is stronger than the direct satisfaction --> profitability relationship, while a slightly different path analysis using the same satisfaction and profitability measures and bank-reported customer retention for loyalty suggested that the satisfaction --> loyalty --> profitability relationship is weaker than the direct satisfaction --> profitability relationship.

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Appendix 1

Measures of customer satisfaction: the service and price indices

The customer survey gauged price satisfaction by asking, "How satisfied are you with the bank in each of the following areas?" Included among these areas were "Paying competitive interest rates on deposits", "Charging reasonable service fees", and "Charging competitive interest rates on loans". Responses to these three questions were averaged to develop an index representing satisfaction with price (the "price index").

The survey included additional questions on specific aspects of service at the bank. Respondents were asked their level of satisfaction on these aspects (using 1-7 Likert-type scales) and to indicate which they considered "most important in judging the bank's performance". Appendix 2 lists the service- and price-related questions.

Of the service aspects respondents deemed most important, two were used to form an index representing satisfaction with service ("service index"). These aspects were identified by the following questions: "How satisfied are you with...____ [the bank] staff in … providing prompt customer service?"; and "How satisfied are you with the performance of ____ [the bank] in … properly handling any problems that arise?" These measures of satisfaction reflect promptness, an element of retail bank service likely to be important in day-to-day service delivery, as well as an element of service recovery, considered important for businesses, such as banks, that are not error free (Heskett *et al*., 1990; Zeithaml *et al.,* 1990). Both of these measures are important aspects of service satisfaction to this bank's customers and are thus appropriate for use as part of a service satisfaction index. That both are process-related elements of service quality further reinforces their importance to total satisfaction as suggested by Blanchard and Galloway (1994), and by their Pearson correlation coefficients to overall satisfaction of 0.744 and 0.714. The independent use of the service index and "overall satisfaction" (an unambiguous representation of customer satisfaction) suggests that the concept of customer satisfaction is covered both appropriately and completely in this study.

Measures of customer loyalty: bank-reported retention data

Bank-reported retention data suffer from a small degree of reporting error. Customers who changed their physical location, but remained customers of the divisions included in the study, are not considered defectors. However, customers who moved into geographic areas serviced by the bank, but not included in the study, and customers leaving the geographic regions served by the bank completely, are considered defectors, whether or not they would have continued a relationship with the bank in their new environs if possible. As a result, this measure places defectors in a single category, even though some are thought to have defected due to dissatisfaction, while others simply relocated.

Customer-reported relationship tenure

Customer retention is also examined as reported by customers on the customer-satisfaction survey (customer-reported relationship tenure). This second measure may provide a more accurate picture of average customer tenure. Such a measure is subject to error due to potentially faulty customer recall (do respondents remember accurately how long they have been customers?). This problem is somewhat mitigated by the simplicity of the scale used in the questionnaire (see Appendix 2). Clearly, both division-reported and customer-reported measures of customer retention/relationship tenure are subject to measurement error. Fortunately, much of the potential error in each is distinct. By using both measures independently to establish the hypothesized relationships, total risk is reduced.

Measures of relationship depth

The validity of account cross sell and service cross sell are hypothetically subject to demographic concerns. For example, it may be reasonable to expect that wealthier customers will have more accounts and use more services than less-affluent customers. Fortunately, there is relatively small deviation in the average (reported) annual household income measured at the division level. The mean reported household income is 2.24, where a response of "2" equates to annual income of $25,001 to $35,000, and "3" equates to income of $35,001 to $50,000. The standard deviation is 0.24. These statistics suggest that average household income does not vary enough among the divisions to serve as an alternative explanation for the relationship observed between higher cross-sell rates and higher customer satisfaction (or greater profitability).

Measures of profitability

Management reports that division profit is composed 60 per cent from retail activity and 40 per cent from wholesale (or commercial) activity. Management recommended that three divisions (from an original data set of 62) be eliminated from the data set because of knowledge that non-retail activities were responsible for more than 40 per cent of their profit. Management also expressed confidence that the remaining divisions met or approximated the 60 per cent retail, 40 per cent wholesale profit split. Due to a lack of complete data on two divisions, the total number of divisions in the customer loyalty/profitability relationship data set is 57.

While the 60/40 division in the profitability data is real, it may not pose a large threat to the validity of the findings. The flaw increases the likelihood of failure to infer a relationship between retail loyalty and retail profitability due to the inclusion of theoretically unrelated elements in the profitability data. Thus the risk of using these measures of profitability appears to be reasonable, given that: the inclusion of unrelated data (profit from wholesale banking operations) probably has the effect of obscuring the hypothesized relationship; and there is no theoretical support for the other potential explanation of the findings, that high retail-banking loyalty should be related to both low retail-banking profit and very high wholesale-banking profit (and vice-versa).

Appendix 2. Customer satisfaction survey questions

The following eight questions from the customer satisfaction survey are discussed in this paper.

(1) How satisfied are you with _____ [the bank] staff in each of the following areas? (Scored 1 = very satisfied to 7 = very dissatisfied):
- Never being too busy to respond to your requests.
- Following through on their promises.
- Doing things right the first time.
- Properly handling any problems that arise.
- Letting you know when things will get done.
- Knowledge of bank products and services.
- Ability to answer your questions.
- Understanding your specific needs for financial services.

(2) How satisfied are you with ____ [the bank] in each of the following areas? (Scored as above):
- Provided easy access to needed information.
- Providing easy-to-read and understandable bank statements.
- Providing error-free bank statements.
- Maintaining clean and pleasant branch office facilities.
- Paying competitive interest rates on deposits.
- Charging reasonable service fees.
- Charging competitive interest rates on loans.
- Providing you with a good value in banking products and services.
- Offering convenient banking hours.
- Providing convenient branch locations.

(3) How satisfied are you with the manner in which you are treated by ____ [the bank] staff in each of the following areas? (Scored as above):
- Friendliness.
- Willingness to help.
- Having a concerned and caring attitude.
- Providing prompt customer service.
- Being capable and competent.
- Giving you their undivided attention.
- Being consistently courteous.
- Maintaining a professional appearance.
- Keeping your transactions confidential.

(4) Overall, how satisfied are you with ____ [the bank]? (Scored as above.)

(5) Have you contacted ____ [the bank] during the past 12 months with a problem or question? (Scored 1=yes, 2=no.)

(6) Do you consider ____ [the bank] to be your primary bank? (Scored 1=yes, 2=no.)

(7) How long have you been a customer of ____ [the bank]? (Scored 1=less than 1 year; 2=1-4 years; 3=5-10 years; 4=more than 10 years.)

(8) Your annual household income: (respondent checks one of the following) $25,000 or under; $25,001-$35,000; $35,001-$50,000; $50,001 or more.