Paper 1

The sustained impact of higher customer satisfaction on bank revenue

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Abstract

This study examines the link between customer satisfaction and individual-level bank revenue growth, drawing on data from 19,060 Swedish retail banking customers that combine survey responses with objective bank records. Furthermore, we investigate whether the effect of satisfaction on revenue growth involves a sustained effect, meaning that the effect is sustained for one, two, three, and four years after the measurement of satisfaction, and whether this effect differs across customer satisfaction levels. The results show that higher satisfaction is associated with greater sustained revenue growth, with more pronounced effects for customers in the medium-high and highest satisfaction groups. By contrast, no significant sustained revenue growth could be observed for customers at the low and low-medium satisfaction levels. The research does not support the hypothesis of diminishing returns when moving from the medium-high to the highest satisfaction, although weak indications suggest scope for further exploration. Overall, the findings demonstrate the long-term revenue growth of satisfied customers and emphasize the importance of targeting customers with lower to medium-low satisfaction to enhance overall revenue performance.

Keywords: bank customer satisfaction, bank revenue, individual level, sustained effects, nonlinear effects

JEL codes: D14, D22, G21, G44, M31

1. Introduction

A substantial body of research has examined the relationship between customer satisfaction (CS) and financial performance, consistently showing that higher CS leads to improved outcomes *at the firm level* across sectors (Anderson, Fornell and Lehmann, 1994; Banker, Potter and Srinivasan, 2000; Yeung and Ennew, 2000; Anderson, Fornell, and Mazvancheryl, 2004; Guo, Kumar and Jiraporn, 2004; Williams and Naumann, 2011; Terpstra, Kuijlen and Sijtsma, 2012; Sun and Kim, 2013; Golovkova et al., 2019). A recent meta-analysis further confirms the robustness of this relationship over a 25-year period (Otto, Szymanski and Varadarajan, 2020). Anderson et al. (1994) emphasize the importance of demonstrating a financial return on CS, as firms are more likely to allocate resources to CS when their impact is evident in traditional accounting measures. This is particularly relevant in banking, where relationship marketing theories positions CS as a key driver of long-term financial outcomes (Berry, 1983). Empirical studies have linked bank-level CS measures to financial performance (Hallowell, 1996; Ittner and Larcker, 1998; Keisidou et al., 2013; Mbama and Ezepue, 2017; Eklof, Podkorytova and Malova, 2020).

Given the inherently idiosyncratic nature of customer relationships (Grönroos 2023; Chang, Cheng and Wang, 2024), analyzing the association between satisfaction and financial performance necessitates the use of individual-level However, there is a limited body of research examining how CS relates to financial performance at the *individual customer level* within banking (Kamakura et al., 2002; Yu, 2007; Aurier and N'Goala, 2010; Terpstra, Kuijlen and Sijtsma, 2012; Terpstra and Verbeeten, 2014; Eriksson, Hermansson and Jonsson, 2020). Evidence, from other industries reinforces the importance of such analyses, with studies demonstrating customer-level effects of CS on financial outcomes in telecommunications (Ittner and Larcker, 1998), the fishing industry (Helgesen, 1999), insurance (Verhoef, Franses and Hoekstra, 2001), car industry (Mittal and Kamakura, 2001; Strydom, Ewing and Heggen, 2020). A recent meta-analysis also provides strong evidence that higher CS improves individual-level outcomes across sectors, including sales, revenues, ROI, ROA, profit margins, and stock prices (Mittal et al., 2023).

The ideal research design would examine the effect of CS on revenue, costs and overall profitability (see Matsouka, 2020, for a more detailed discussion on profitability). However, at the individual level, accurately attributing costs, such as those for operations and marketing, to

each customer is difficult. Consequently, most studies focus primarily on customer revenue (CR). Within banking, Terpstra et al. (2012) report a sustained, albeit modest, impact of CS on CR over two years, while Yu (2007) and Terpstra et al. (2012) emphasize the need for further research into time-lagged effects. Terpstra and Verbeeten (2014) extend this to a three-year horizon. However, prior studies typically control for demographic characteristics such as age, gender and education, but rarely for financial characteristics such as savings, loans, or income. This leaves a gap in understanding how CS interacts with customer heterogeneity in financial profiles.

Evidence from other industries suggests potential nonlinearity in the CS-performance relationship (Ittner and Larcker, 1998; Helgensen, 1999; Strydom et al., 2020), but empirical support at the individual level in banking remains limited. Notably, Terpstra and Verbeeten (2014) found that the most profitable customers gained the greatest return from CS, suggesting that effects may vary across satisfaction levels. This highlights a need for more granular evidence on the long-term and nonlinear effects of CS on individual-level financial outcomes in banking.

Thus, this paper aims is to investigate the relationship between higher CS levels and the growth in CR at the individual level, exploring whether the effect of CS on bank CR growth exhibits a sustained effect (up to four years), and whether this effect differs among customer groups with varying levels of CS, while controlling for demographic and socio-economic factors. This study finds that at the individual level, higher CS is associated with greater growth in CR, and this effect persists over several years. The results reveal distinctions among customers with different satisfaction levels: the difference between the lowest CS group and the low-medium CS group is not statistically significant, while the medium-high and the highest CS group show a more pronounced increase in CR growth over time. Regarding the question of diminishing returns when moving from “medium- high” to the highest level of CS, the study does not find sufficient statistical significance to support this hypothesis. However, weak indications warrant further investigation.

The uniqueness of the data in this study lies in its combination of survey data with a Swedish bank's internal records, which detail each customer's revenue on an individual level, alongside important demographic and socio-economic controls, and a four-year time period. The study integrates both objective and subjective data from 19,060 customers. The

subjective data consist of CS surveys conducted over one year, while the objective data comprise bank-recorded CR data over a four-year period. The large representative sample allows for exploration of differences between customers with varying levels of satisfaction, capturing the heterogeneity of bank customers. By controlling for factors such as age, gender, income, and the size of savings and loans, the study isolates the effect of satisfaction on revenue from that of correlated background variables. Although numerous studies have examined subjective data related to CS and its relationships with constructs like loyalty and trust, few have analyzed the relationship with CR using both subjective and objective data. Thus, this study contributes valuable insights for both researchers and practitioners.

Overall, this research enhances the understanding of how different levels of CS relate to growth in CR through individual customer-level analysis. The findings provide guidance for companies with a customer-centric focus, highlighting that efforts to achieve higher CS will yield returns with a sustained effect, impacting earnings several years into the future. Moving bank customers from "medium-low" to medium-high" satisfaction may be particularly beneficial, as these customers could significantly contribute to revenue growth. This paper underscores the economic importance of identifying customers with lower to medium-low satisfaction levels and the necessity of implementing strategies to enhance their satisfaction.

2. Literature review

The relationship between CS and a company's financial performance is grounded in relationship marketing theory (Berry, 1983), and more specifically in services marketing (Berry and Parasuraman, 1993). Within this framework, attributes such as customer satisfaction, loyalty, trust, context and relationship duration are understood to drive sales, revenue and profitability (Eriksson and Hermansson, 2014). Customer value is created not through isolated transactions, but across multiple interactions in enduring relationship (Ravald and Grönroos, 1996).

This study focuses on the direct link between CS and CR in retail banking at the individual level, while also examining whether this effect persists over four-year period and whether it is nonlinear. Revenue is selected as outcome variable rather than ROA, ROI or profit margins because operational and marketing costs cannot be reliably attributed to individual customers

(see also Storbacka, 1994; Terpstra et al., 2012; Eriksson, et al., 2020). Accordingly, we develop three hypotheses for empirical testing.

Empirical research within banking supports a positive CS-CR relationship at the individual customer level. Studies find that most satisfied customers generate higher revenues (Yu, 2007; Terpstra et al., 2012; Eriksson, et al., 2020). Related research in financial services shows that CS strengthens other relational outcomes such as relationship duration, service usage and cross-buying (Aurier and N'Goala, 2010), and is linked to higher profits (Kamakura et al, 2002; Terpstra and Verbeeten, 2014). A recent cross-sector meta-analysis also demonstrates that CS increases retention, word of mouth, price tolerance, and spending (Mittal, et al., 2023).

Despite this evidence, existing banking studies rarely control for customers' financial capacity (e.g., wealth, loans and income), which may influence the magnitude of the CS effect. While some studies account for demographics such as age, gender and education (Kamakura et al, 2002; Yu, 2007), the omission of financial variables leaves an important gap. Building on prior research, we therefore propose the following hypotheses.

H1: Higher CS is associated with a greater growth in CR compared to lower CS, even when controlling for the customer's demographic and financial context at the individual level.

Consumption of banking products and services is an ongoing process, with some services used frequently, such as payments, and others used infrequently, such as home loans (Terpstra et al., 2012). This usage pattern may create a time lag before customers can adequately evaluate the services; for instance, pension savings are typically assessed at retirement, and loan effectiveness are partially evaluated when payments are due (Santomero, 1984). Researchers have characterized bank-customer relationships as 'interimistic,' meaning that they are in-between transactional exchange and relational exchange, and contain elements of both (Eriksson and Hermansson, 2012). Yu (2007) found evidence supporting a positive effect of CS on future CR, with a nine-month time lag. Ittner and Larcker (1998) reported a sustained association between CS and CR growth the following year, with customers exhibiting higher levels of CS experiencing greater growth in CR. Terpstra et al. (2012) demonstrated a direct positive effect of CS on future CR with time lags of one and two years, albeit with a small effect size. Terpstra, et al (2014) had a three year horizon. By including CR data up to four years from

the base in 2013, we aim to extend the previous research on lagged or sustained effects. Thus, we hypothesize the following:

H2: Higher CS is associated with a greater growth in CR compared to lower CS, and the effects are sustained up to four years.

Two aspects of the effect of CS on future growth in CR have garnered attention in previous studies: (1) the non-linearity between CS and growth in future CR, and (2) the discontinuous nature of CS, suggesting that different effects may arise depending on whether customers have low, high or intermediate levels of CS. Regarding the first issue, several studies indicate that the non-significant or small effect of CS on future growth in CR may be attributed to a non-linear relationship between CS and CR (Ittner and Larcker, 1998; Yu, 2007; Terpstra et al., 2012). Ittner and Larcker (1998) identified satisfaction "thresholds" that influence customer purchasing behaviors. Their results suggested that growth in revenue increased until CS reached approximately 80 on a scale of 0-100, concluding that there are diminishing returns to improving CS at higher satisfaction levels. Similar findings and conclusions regarding the non-linearity between CS and CR have been reported in other studies (Helgesen, 2006; Terpstra et al., 2012). Therefore, we hypothesize the following based on previous research:

H3: The highest CS level is associated with a lower growth in CR compared to medium-high CS, indicating diminishing returns in improving CS at the highest satisfaction level, and the effects are sustained up to four years.

3. Methodology

3.1 Data sample

The retail bank providing the data (hereinafter referred to as “the Bank”) is one of the four major retail banks in Sweden, with a similar bank structure, collectively serving approximately 80 percent of Swedish bank customers. The Bank conducted a survey involving 124 business units, each responsible for interviewing 200 randomly selected customers.

The Bank performed telephone interviews with private customers aged between 18 and 78 years. To ensure the selection of active customers, the criteria included those who had conducted a minimum of three transactions in the seven months preceding the survey or had at least SEK 10,000 (approximately USD 1,000) in total savings with the Bank. All customers included in the study designated the Bank as their primary banking institution. The survey

collected subjective data on CS and was combined with the Bank's objective register data for the same customers. Objective individual CR data from 2013 to 2017 were retrieved from the Bank's internal databases. Outliers – specifically, 89 customers with negative revenue in 2013 and 10 customers with the highest positive CR – were excluded from the analysis. After removing these outliers, as well as customers who did not answer all questions or left the Bank during the study period, the final sample comprised 19,060 observations.

3.2 Measurement of variables

The CS measure applied in this study follows the framework developed by Fornell (1992) and Anderson and Sullivan (1993), which conceptualizes CS as a "post-purchase evaluation of product quality given repurchase expectations." While this approach has become widely adopted, alternative and more recent measures exist. For example, Oliver (2014) defines CS as "a judgement that a product/service feature or the product or service itself provided a pleasurable level of consumption-related fulfillment, including levels of under- or over-fulfillment. Other approaches operationalize CS through behavioral intentions, such as recommendation likelihood (Kamakura et al., 2002), or through broader constructs of customer experience (Gunawardane, 2023).

In this study, however, the data provided by the Bank are based on the long-established Fornell framework, which remains the most frequently applied approaches in academic and managerial research (Otto et al, 2020). Customer responded to three survey items, each rated on a ten-point scale. The CS score was calculated as the mean of the following three questions:

- **Overall experience:** Think of all your experiences with the Bank. What rating do you give on a scale of 1 to 10 where 1 = Very dissatisfied and 10 = Very satisfied.

- **Expectation Alignment:** To what extent do you consider the Bank to meet your expectations? Please rate on a scale of 1 to 10 where 1 = Does not match at all and 10 = Matches completely.

- **Perfection Comparison:** Imagine a bank that is perfect in all respects. How close do you find the Bank to such a perfect institution? Rate on a scale of 1 to 10, where 1 = Very far and 10 = Cannot get closer.

These three variables were presented to customers using a 10-point Likert-type scale, and the results were weighted to create an index for CS. All questions share the same scale range from 1-10. The CS score is calculated as: (Mean of the three CS questions -1) x (100/9), resulting in scale of 0 to100.

To explore differences between groups with varying satisfaction levels and their future growth in CR, it is essential to classify these groups. Giese and Cote (2000) note that there is no consensus on how to classify satisfied and dissatisfied customer on a scale from 1 to 10, highlighting ongoing debate regarding the breakpoints between satisfaction and dissatisfaction. Rather than classifying customers simply as satisfied or dissatisfied, we categorize CS into four levels. This allows us to test H3 by comparing low-medium, medium-high and high satisfaction groups against to the low satisfaction group:

- **Low:** CS 0-49: Customers typically rate below 5 on a 1-10 scale.
- **Low-Medium**: CS 50-69:
- **Medium-High:** CS 70-84
- **High:** CS 85-100.

In line with Terpstra et al. (2012) and Eriksson et al. (2020), CR is defined as the total of interest and provision fees generated by a customer over a 12-month period. To account for the potential bias that wealthier customers might contribute higher CR than those with moderate means, this study examines the accumulated growth in CR over several years on an individual level (comparing growth in CR from 2013 to 2014, 2015, 2016 and 2017). This approach is supported by Terpstra et al. (2012), who argues that future growth in CR are a relevant construct in the retail-banking context. Additionally, we control for the base level of CR in 2013 to account for differences in customers' starting points.

Growth in CR are calculated using CR from 2013 as the base year. For example, a one-year period of CR growth is calculated as ((CR2014-CR2013) / CR2013*100), while a two-year period uses CR data from 2013 and 2015, and so on. The difference in CR is transformed into an index.

To isolate the effect of our hypotheses-related variables, the sample includes additional variables known to influence a customer's CR. Categorical demographic control variables include the customers' age and gender. The gender distribution is nearly even, 49.6% men and 50.5% women. The age distribution in the base year ranges from 18 to 78 years with the mean age of 49.6 years. Continuous control variables include customers' total savings volumes, total loan volumes, and net monthly salary. A customer's total savings volumes is the sum of all deposits and securities, while total loan volume encompasses all loans and credits. The mean value of customers' total loans at the bank is at base year SEK 247,248, with a standard deviation of SEK 577,684. The mean savings amount is SEK 335,571, with a standard deviation of SEK 1,006,258, and the mean monthly salary deposit at the bank is SEK 11,392, with a standard deviation of SEK 12,777. A summary of descriptive statistics is presented in Table 1.

The variables, and their associated error terms, deviate from normality. Log transformation of CR was not feasible due to the presence of numerous large negative values. Give the large sample size, the effects of non-normality are mitigated, however, caution is warranted when interpreting the results.

[Insert Table 1 here]

4. Analysis and Findings

4.1 Empirical model

Data were analyzed using ordinary least squares (OLS) regression. The growth in CR is determined by using CR in 2013 as the base year, and calculate the growth in CR during the following four years:

$$\Delta CR_{i\,((t+n)/t*100)} = \alpha + \sum_{k=2}^{4} \beta_k D_{ik} + CR_{it} + \Sigma(\beta_j Z_{ji}) + \varepsilon_i \qquad (1)$$

Where $\Delta CR_{i\,((t+n)/t*100)}$ denotes the growth in CR for each individual *i* with t=2013, and n=1…4 representing the time periods between 2013 and 2017, transformed into an index. D represents dummy variables for CS groups as CS is divided into *k* groups (k=1…4). CR_{it} denotes the base level of CR in 2013, included to control for the initial CR level. Z_{ji} is a set of control variables for individual *i,* and ε_i an error term. An illustration of the model is presented in Figure 1.

[Insert Figure 1 here]

4.2 The effect of CS on the growth in CR

The results for equation (1) and its variations are reported in Table 2. First, we analyze the effect of CS on CR without considering the base level of CR or control variables (see column (1)). An increase in CS by four steps from "low" to "high" corresponds to significant rise in CR between 2013 and 2014. This finding aligns with expectations based on existing literature (e.g., Anderson, et al., 2004; Terpstra, et al., 2012).

In column (2), control variables are introduced, and in column (3), we account for the base level of CR as well. Notably, the difference between the "low" CS group (CS 0-49) and the "medium low" group (CS 50-69) is not statistically significant, which is an intriguing result. However, when comparing the "medium high" group (CS 70-84) and the "high" group (CS 85-100) to the base level "low" group, we observe that the highest CS group exhibits the largest increase in CR. These findings support our first hypothesis: higher CS is associated with a higher growth in CR compared to lower CS, even when controlling for customers' demographic and financial contexts at the individual level.

[Insert Table 2 here]

4.3 The effect of CS on the growth in CR with a sustained effect

Next, we analyze the sustained effects up to four years, focusing on columns (6), (9) and (12), where all control variables are included. The "medium high" and "high" CS groups demonstrate a greater increase in CR than the "low" CS group, achieving statistical significance at the 5 percent level for 2015 and 2016, and at the 10 percent level 2017 (with p-values of 0.057 and 0.055 for the two highest CS groups, respectively).

These finding support our second hypothesis, although the significance is weaker in the fourth year. Specifically, higher CS is associated with a larger increase in CR than lower CS, even with sustained effects of one, two, three, and up to four years. The results for the first two years aligns with those of Terpstra et al., 2012, and our results contributes to the existing research by extending the analysis to include two additional years.

4.4 The effect of different CS groups on CR, investigating diminishing returns from increasing CS

Last, we analyze the utility of increasing CS from the "medium high" group to the "high" group. In each of columns (6), (9) and (12), we observe that the effect diminishes, indicating that the growth in CR is lower for "high" group compared to the "medium high" group. In column (3), the return does not diminish, as the coefficient for "high" is greater than that for "medium high".

We compared the scores across the different CS groups, not only relative to the lowest group (0-49) but also between the middle-to-high groups (50-69, 70-84, 85-100). As shown in Table 2, only the 70-84 and 85-100 groups were statistically different from 0-49. In addition, in 2014 and 2017, the 50-69 group was found to differ significantly from the 85-100 group. However, no statistical difference was observed between the 70-84 and 85-100 groups.

Thus, we cannot support hypothesis H3, which posits that high CS is associated with a lower increase in CR compared to medium high CS, indicating a diminishing return from improving CS at the highest levels, even with sustained effects of up to four years. However, future research should further investigate this hypothesis, as there is a tendency in the data that may warrant attention with enhanced datasets.

We also run all models, replacing the CR indices with absolute growth between 2013 and the subsequent four years, while still controlling for the base level of CR. The average growth between 2013 and 2014, as well as between 2013 and 2015, are approximately SEK 200. Increasing the CS group from "low" to "medium high" results in an increase of SEK 200 in 2014 and SEK 280 in 2015. Thus, the effect of higher CS on CR is significant. However, in 2016 and 2017, the increases show weaker significance.

5. Discussion

Our findings suggest that higher levels of CS levels are associated with greater growth in CR at the individual bank customer level, for customers at medium to high satisfaction levels. Importantly, the positive effect of CS on CR growth is sustained for up to four years, demonstrating a long-term impact. Interestingly, the highest levels of CS do not necessarily generate the greatest revenue growth over this period. While our results cannot conclusively

establish whether there is a saturation point beyond which increases in CR no longer translate into higher revenue, this question remains an important avenue for future research. No significant sustained revenue growth could be observed for customers at low and low-medium satisfaction levels. Overall, the findings support to the first and second hypotheses, but evidence for the third hypothesis is insufficient. We also acknowledge that the effect sizes are small, making it difficult to draw definitive conclusions, as further elaborated in the conclusion section on limitations.

By drawing on a unique longitudinal data set, this study contributes to the literature on CS and CR by providing an in-depth analysis at the individual customer level over several years. The results are consistent with earlier banking studies (e.g., Yu, 2007; Terpstra, et al., 2012, Terpstra and Verbeeten, 2014), which report sustained CS effects on revenue. They also align with findings from other industries (e.g., Ittner and Larcker, 1998; Helgesen, 1999), underscoring the broader relevance of the CS-financial performance relationship.

Whereas most prior research has examined the CS-CR relationship at the aggregate firm level, our results highlights the value of analyzing different satisfaction levels at the individual level, while also controlling for individual demographic and socio-economic factors. This reinforces the view of CS as an intangible "asset" that generates value over time. From a theoretical perspective, the findings build on relationship marketing theories (Berry, 1983; Ravald and Grönroos, 1993), emphasizing that value is created through ongoing interactions over the duration of the customer-firm relationship, with CS functioning as a driver of long-term revenue growth. While foundational relationship marketing theories were developed long ago, their core concepts, such as customer satisfaction, remain highly relevant in today's financial services environment. For example, extending the relationship marketing framework, Gebeyehu and Gurudutta (2023) find that bank customer satisfaction serves as a key mediating factor between emerging constructs as bonding, and responsiveness, and customer retention. A promising avenue for further development involves integrating customer satisfaction with the concept of customer experience, defined as the sum of a customer's conscious events in a coordinated series of interactions (Gunawardane, 2023). Gunawardane (2023) recommends using customer satisfaction as a measurement tool, while employing customer experience as a framework for developing services processes in financial institutions. This distinction appears valuable as customers experience represents a more holistic and longitudinal construct, whereas customer satisfaction tends to be more cross-sectional (Verhoef et al., 2009). Our study emphasizes the

longitudinal effects of customer satisfaction, and thereby advancing understanding toward the longitudinal dimension of customer experience. Future research should continue to explore and refine this relationship.

For managers in retail banking and financial services, five implications emerge:

1. **Impact of different satisfaction levels on revenue**: Over a four-year horizon, there is no statistically significant difference between customers with the low and the low-medium CS, while customers in medium-high and high satisfaction groups generate the largest revenue gains. This suggests that less satisfied customers may seek alternatives for their banking needs, and that the greatest revenue potential lies in moving customers upward from low-medium to medium-high or high satisfaction. Analysis of customer insights and personality traits using subjective data in combination with big data analytics can play a key role in this process by providing insights into customer contexts and enabling tailored strategies that foster satisfaction, trust and loyalty (Hansen and Sand, 2008; Eriksson and Hermansson, 2014; Eriksson et al., 2020).
2. **Sustained effect of CS on revenue**: CS tend to influence CR not only in the short term but also across multiple years. This reflects the nature of banking relationships, where daily transactions coexist with infrequent but high-value interactions such as mortgages. Maintaining strong satisfaction levels is therefore critical for securing long-term business across various a range of services.
3. **Balancing satisfaction levels**: Achieving maximum CS may not be necessary for long-term CR growth; instead, maintaining medium-high levels of satisfaction appears sufficient. Sustaining broadly satisfied customers is thus more important than pursuing marginal gains at the very top of the CS scale. This calls for a stronger focus on understanding customers' needs and contexts to ensure satisfaction remains consistently high.
4. **Small effect size, but actionable:** Although the effect size is modest (in line with prior studies), CS is one of few factors that banks can directly influence. Other drivers of CR growth, such as macroeconomic conditions or household saving capacity, are largely exogenous. Even small CS effects can translate into meaningful financial outcomes given the scale of banks' customer bases.
5. **Advancing financial performance measures:** Progress in customer insights using mixed method with subjective data, big data and AI could allow banks to allocate costs

more accurately to the individual level. This would make it possible to evaluate CS effects on broader performance measures such as profit margins, ROA, and ROI (see Matsouka, 2020). Prior research (Yu, 2007) suggests that higher CS may also involve higher costs, potentially offsetting profitability gains. Improved cost tracking could therefore sharpen both managerial decision making and academic understanding of the true financial returns to CS.

6. Conclusions

This study investigates the relationship between CS and growth in CR at the individual level, using data from 19,060 Swedish retail banking customers that combine subjective survey responses with objective bank records. Specifically, we assess whether the effect of CS on CR growth is sustained over time and whether it differs across satisfaction levels. The findings show that higher CS is associated with greater CR growth over a four-year period, with the strongest effects observed among customers in the medium-high and highest satisfaction groups. By contrast, no significant sustained revenue growth could be observed for customers at the low and low-medium satisfaction levels. The results do not provide support for a hypothesis of diminishing returns at highest levels, although weak indications suggest that further exploration is warranted.

The study offers several strengths, including the use of a large sample that integrates subjective and objective data, the ability to control for key demographic, financial and socio-economic factors, and the opportunity to follow individual customers' revenue contribution over an extended period. At the same time, several limitations should be noted which calls for caution when interpreting results. First, the data are from Sweden, raising questions about generalizability to other banking contexts. Second, the dataset does not allow CS to be tracked longitudinally, restricting the analysis to one-time CS measure. Third, the study does not control for exogenous factors that may influence future revenue growth, leaving potential endogeneity concerns unsolved. The low R^2 values also suggest that omitted variable play a substantial role in explaining revenue outcomes. Finally, because individual-level cost data were unavailable, we were unable to examine profitability measures such as profit margins, ROA, or ROI.

These limitations notwithstanding, the results align with earlier research (e.g., Ittner and Larcker, 1998; Yu 2007, Terpstra et al., 2012, Terpstra and Verbeeten, 2014) in showing that

CS is positively and significantly related to revenue, albeit with a small effect size. The findings reinforce that that while many factors drive customer revenue, CS remains a valuable lever that banks can actively influence.

Looking ahead, future research could build on this study in several ways. Incorporating additional control variables would help address endogeneity concerns and sharpen understanding of the causal relationship between CS and CR. Studies could also examine whether CS effects vary across distribution channels or service categories, such as online banking (Kim, 2005), mortgages, wealth management, or payments. In addition, future work could investigate the role of mediators, such as trust and relationship commitment in shaping the CS-CR relationship.

Another promising avenue is to analyze whether sustained effects are attributable to ongoing positive interactions that build momentum over time. Relationship marketing theory suggests that reinforcement mechanisms may amplify the impact of CS on CR. Our findings also raise questions about potential nonlinearities, as different groups or levels of satisfaction exhibit varying revenue patterns. Unpacking these dynamics, whether due to distinct satisfaction and dissatisfaction thresholds or gradations within them, remains an important research challenge.

The scope of this study was confined to existing customers, deliberately excluding the effects of customer satisfaction on the inflow of new customers and the outflow of those departing from the bank. To achieve a more comprehensive understanding of how customer satisfaction influences overall bank revenue, future research could explore the extent to which customer satisfaction affects word-of-mouth recommendations, including customers' willingness to endorse the bank (Mittal et al., 2023), and how this is related to attract new customers which ultimately impact revenue dynamics. Additionally, further inquiry might delve into how customer satisfaction influences attrition rates among existing customers and its subsequent effect on revenue generation.

Overall, this study contributes new evidence on the long-term financial value of customer satisfaction at the individual retail banking. By demonstrating sustained effects over four years, it highlights both the strategic importance of managing satisfaction and the opportunities for future inquiry into the mechanisms linking customer relationships and financial outcomes.

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Table 1

Descriptive summary of means(M), standard deviations(SD), minimum (Min) and maximum (Max) values

	2013				2014				2015				2016				2017			
	M	SD	Min	Max	M	SD	Min	Max	M	SD	Min	Max	M	SD	Min	Max	M	SD	Min	Max
CR_201310 (Base level)	5586	6743	0	83000																
Growth in CR:																				
2013-2014					11.47	110	-1366,67	6150												
2013-2015									24.38	595	-3167	71900								
2013-2016													55,44	834	-1825	80900				
2013-2017																	83,75	1658	-1600	209900
CS 0-49	0.194	0.396	0	1	0.194	0.396	0	1			0	1			0	1			0	1
CS 50-69	0.310	0.463	0	1	0.310	0.463	0	1			0	1			0	1			0	1
CS 70-84	0.313	0.464	0	1	0.313	0.464	0	1			0	1			0	1			0	1
CS 85-100	0.183	0.386	0	1	0.183	0.386	0	1			0	1			0	1			0	1
Gender (male)	1.496	0.50	1	2	1.496	0.50	1	2	1.496	0.50	1	2	1.496	0.50	1	2	1.496	0.50	1	2
Age	49.6	17.6	18	78	50.6	17.6	19	79	51.6	17.6	20	80	52.6	17.6	21	81	53.6	17.6	22	82
Loan Volume	247248	577684	0	1.00e+07	251073	596366	0	1.00e+07	257130	617522	0	1.00e+07	266202	657454	0	1.20e+07	268746	669928	0	1.20e+07
Investment Volume	355571	1006258	0	7.10e+07	380118	1136573	0	9.00e+07	410203	1244910	0	1.07e+08	423480	1305604	0	1.13e+08	466201	1607712	0	1.43e+08
Net Monthly Salary	11392	12777	0	230000	11479	13282	0	310000	11461	13080	0	210000	11341	13449	0	420000	11380	13827	0	420000

Note. In the first column base values of customer revenue (CR) are reported. In following columns the percentage growth in CR is shown for the years 2014, 2015, 2016 and 2017 compared to the base level in 2013. Customer satisfaction (CS) are reported in four groups, 0-49, 50-69, 70-84 and 85-100 on 0-100 scale. Control variables are gender, age, loan volume, investment volume (wealth), net montly salary.

Table 2

Results from OLS regression analyzing the effects of customer satisfaction (CS) on customer revenue (CR)

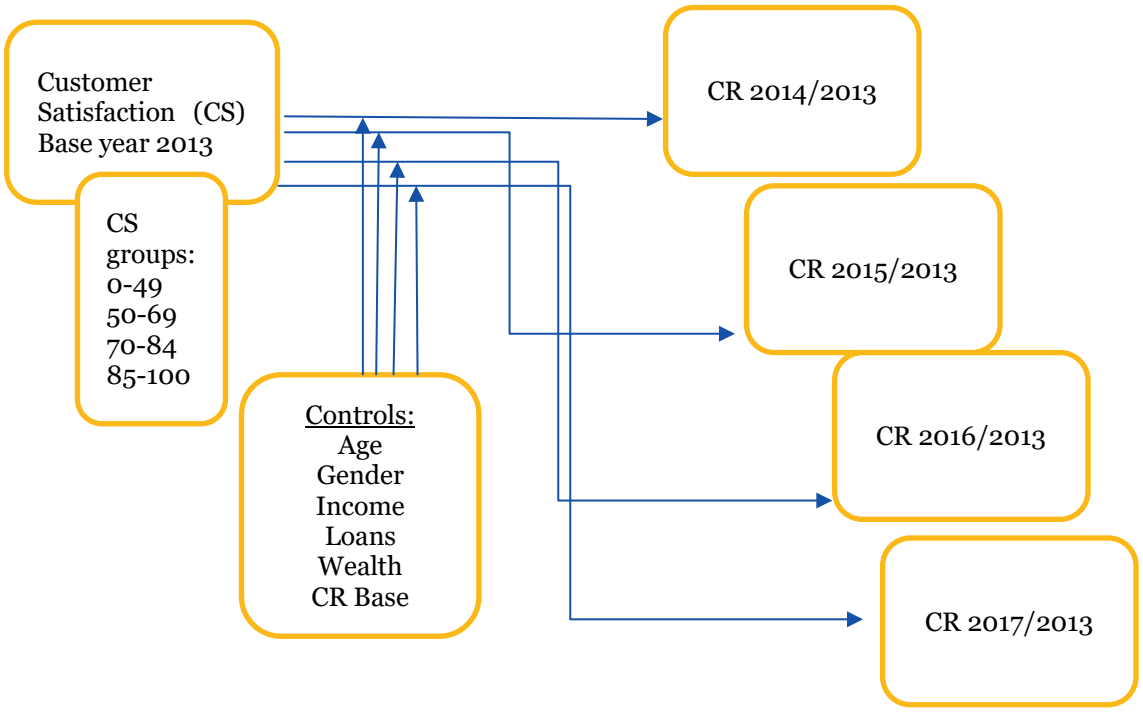
VARIABLES	(1) Diff CR 2014	(2) Diff CR 2014	(3) Diff CR 2014	(4) Diff CR 2015	(5) Diff CR 2015	(6) Diff CR 2015	(7) Diff CR 2016	(8) Diff CR 2016	(9) Diff CR 2016	(10) Diff CR 2017	(11) Diff CR 2017	(12) Diff CR 2017
Ref. CSI_group: 0-49												
2.CSI_groups: 50-69	7.1462***	1.6687	2.9112	14.4395***	-0.2880	3.0483	29.4654***	0.5910	8.2727	25.4626***	-17.9852	-4.2091
	(2.0350)	(2.1131)	(2.0685)	(3.9644)	(4.2708)	(4.1826)	(11.2138)	(9.8522)	(10.0566)	(7.7451)	(11.8764)	(9.4823)
3.CSI_groups: 70-84	10.8244***	4.5331**	5.3146***	42.1169***	23.6987**	25.3576**	59.3938***	24.6028*	28.2011**	104.0837***	49.3040*	54.8278*
	(1.8329)	(1.8471)	(1.7899)	(13.0896)	(10.4050)	(10.4958)	(15.5566)	(13.5898)	(13.5801)	(37.5814)	(27.5718)	(28.7488)
4.CSI_groups: 85-100	13.7679***	9.0871***	8.4451***	33.4167***	17.8672**	16.0110**	52.5323***	26.7349***	22.2472**	68.7893***	30.6789**	24.3950*
	(2.5978)	(2.4248)	(2.3196)	(7.2231)	(8.0961)	(8.0638)	(10.0797)	(9.9813)	(9.7769)	(12.0255)	(12.3635)	(12.7069)
CR_201310 (base level)			-0.0050***			-0.0103***			-0.0198***			-0.0281***
			(0.0005)			(0.0013)			(0.0020)			(0.0072)
Gender		3.9325**	-1.0187		14.9654	3.7080		27.0471*	1.2299		46.7724	7.2743
		(1.7917)	(1.5942)		(10.4884)	(9.6049)		(15.8102)	(13.9016)		(42.2327)	(32.7721)
Age_yr_m10		-0.8465***	-0.5560***		-2.1272***	-1.4594***		-3.8738***	-2.4631***		-5.3774***	-3.2168***
		(0.0938)	(0.0605)		(0.4090)	(0.3613)		(0.4885)	(0.3322)		(0.5880)	(0.4273)
Loan volume_yr_10		0.0000***	0.0000***		0.0001***	0.0001***		0.0001***	0.0002***		0.0002***	0.0004***
		(0.0000)	(0.0000)		(0.0000)	(0.0000)		(0.0000)	(0.0000)		(0.0001)	(0.0001)
Investment volume_yr_10		0.0000**	0.0000***		0.0000***	0.0000***		0.0000	0.0001***		0.0000	0.0000***
		(0.0000)	(0.0000)		(0.0000)	(0.0000)		(0.0000)	(0.0000)		(0.0000)	(0.0000)
Monthly net salary_yr_10		-0.0002**	0.0001		-0.0010*	-0.0006		-0.0007**	0.0002		-0.0001	0.0009
		(0.0001)	(0.0001)		(0.0005)	(0.0005)		(0.0003)	(0.0003)		(0.0013)	(0.0015)
Constant	3.3587***	36.5997***	42.2391***	0.6301	89.8026***	100.9655***	18.0997***	165.3992***	189.6276***	30.7566***	196.3229**	239.9512***
	(1.2956)	(4.8467)	(4.6088)	(2.7290)	(15.3054)	(15.9935)	(3.7756)	(17.5334)	(16.5395)	(4.8242)	(77.2079)	(68.0198)
Observations	19,060	19,060	19,060	19,060	19,059	19,059	19,060	19,055	19,055	19,060	19,060	19,060
R-squared	0.0018	0.0436	0.0877	0.0007	0.0095	0.0166	0.0007	0.0190	0.0339	0.0006	0.0129	0.0210

Note. Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Figure 1

Illustration of regression model with effects of CS groups on CR growth up to four years



Note. CS is customer satisfaction according to the Fornell (1992) framework, and divided into 0-49 (low), 50-69 (medium low), 70-84 (medium-high), 85-100 (high). CR yy/base yy is the growth in customer revenue (CR) between the base year up to four years, 2014-2017. Demographic and financial factors are controlled for in the OLS regression.