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Customer perception measures driving financial performance – theoretical and empirical work for a large decentralized banking group

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Abstract

There are many references in literature to customer satisfaction and related non-financial measures driving the financial performance of a company. Here we report results of analysis in the North-European financial sector, mainly banking. Based on proposed financial and customer perceived KPIs operational measures are devised and measured for the studied corporation on different levels from global-corporate to individual branches. In addition, possible extensions to other industries of this relationship are studied and briefly reported. The analysis is based on panel approach where cross-section and time-series observations are studied for major actors. The Arellano-Bond estimation technique is used throughout.

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Keywords

Decentralized management, customer satisfaction, non-financial performance monitoring, service metrics.

Introduction

The purpose of the study is to assess the usefulness and efficiency of customer perception measures like customer satisfaction (CSI) and experience for budgeting, monitoring and enhancing the financial performance in a large financial corporation. In particular, the paper addresses the issue of having CSI constructs measured in various ways as a forward looking indicator for decentralized control in an international banking group. It is further a purpose of the study to analyze in what ways CSI and perceived Loyalty may be enhanced per se on different levels of the organization.

This study constitutes an integral part of a research program presented in (Adolphson et al, 2012). The program is focused on assessing the importance of intangible performance indicators to elevate the financial performance of an entity (company, organization). In this study the potential value of Customer Satisfaction (CSI) as well as (perceived) Loyalty is viewed as driving the financial performance. More specifically we analyze whether it is possible to base a decentralized planning and monitoring structure on customer related KPIs in order to achieve good overall performance for the company/group. Possible conflicts between different levels in an organization are briefly touched upon.

Satisfied customers are central to good financial performance and financial returns according to conventional theory (Fornell et al, 2007, Ittner, Larcker,Taylor, 2009). Around the world, business organizations have been elevating the role of the customer to that of a key stakeholder over the last decades. Customers are viewed as a group whose satisfaction with the enterprise must be incorporated in strategic planning efforts. Forward-looking companies are finding value in directly measuring and tracking customer satisfaction as an important strategic success factor. Evidence is mounting that placing a high priority on customer satisfaction is critical to improved organizational performance in a global marketplace.

With better understanding of customers' perceptions, companies can determine the actions required to meet the customers' needs. They can identify own strengths and weaknesses, where they stand in comparison to their competitors, as well as chart out future progress and improvement paths. Customer satisfaction measurement helps to promote an increased focus on customer outcomes and stimulate improvements in the work practices and processes used within the company.

The link between customer satisfaction and financial performance has been analyzed by many authors. Most evidence can be found on industry level whereas the research on company level or business unit level is limited (Ittner, Larcker, 1998).

The paper starts with a survey and discussion of prevalent financial and non-financial performance measures used in particular in the North-European financial sector, mainly banking. Based on proposed financial and customer perceived KPIs, operational measures are devised and measured for the studied corporation on different levels from global-corporate to individual branches. The feasibility of using such measures on different aggregation levels is assessed and reported with empirical verifications. The paper concludes with a few proposals for further research in the area as well as setting up and running of regular monitoring performance assessment systems.

Research basis

The assumption is that it is possible to explain the (financial) performance of an organization by means of a (limited) set of driving variables. This is based on an assessment of traditionally used explanatory models (Adolphson et al, 2012) utilizing financial/accounting information combined with non-financial variables. The following general model realization is used as starting point:

$$Y_{t,i} = f(Y_{t-k,\,i};\ C_{t-k,\,i}\ ;\ A_{t-k,\,i}\ ;\ I_{t-k,\,i}) \quad (1)$$

Where: $Y_{t,i}$ is the financial performance of organization i period t
$Y_{t-k,\,i}$ a vector of the financial performance for previous period t-1 to t-k
$C_{t-k,\,i}$ a vector of control variables for current period as well as lagged relating to organization i, or the market/industry in general.
$A_{t-k,\,i}$ a vector of tangible (accounting/financial) variables relating to organization i
$I_{t-k,\,i}$ a vector of intangible variables relating to organization i (basically Relating to stakeholder valuation, customer, associates etc.)

Our approach uses combined cross-section and time-series observations in the form of panels of units for the organizations included in the analysis. The functional form of the models developed and tested varies from study to study, based on contemporary theories. The modeling starts with linear relationships where the variables are expressed in either absolute level terms or (relative) differences.

The research is strongly empirically based. Potential data is sought from a variety of sources and focus is on "operational" measures that are usually highlighted as KPIs (varying from study to study, and between aggregation levels). This is further discussed below.

Financial Performance

The dependent variable (set of variables) is an indicator of financial performance for capturing how well the entity/company/organization performs. This may be measured in different ways depending on what industries and/or entities are studied. In the overall project (Y_{it}) the following alternatives have been used (for detailed explanations see the respective parts of the project):

Market related measures like market capitalization, Tobin´s Q and stock returns are used for publicly traded companies. For other companies, only accounting based measures are used – profit margin, return on assets, return on equity. For the financial sector, we use bank-specific performance measures like total costs as fraction of total revenues (O/I) and costs after financial adjustments (like credit losses and recoveries) as fraction of total revenue (C/I)

Control variables

The performance of an organization depends on company specific factors as well as external variables. Among the external variables, we test for general economic performance (GDP), that indicates business cycle fluctuation, for industry specifics (dummy approach capturing possible specific industry effects) and industry general performance indicator (share index etc.).

Company-specific factors which influence company´s financial performance are past performance of the company (lagged profits), financial leverage and growth of the company.

Non-financial explanatory variables (Intangibles)

The non-financial (Intangible, explanatory) variables which are in focus in our study are taken from the EPSI-initiative (EPSI, 2011, 2012). EPSI Rating (Extended Performance Satisfaction Index) is a system to collect, analyze and disseminate information about image, preferences and perceived quality as well as loyalty of customers, employees and other stakeholders to commercial entities, governmental bodies and other organizations (EPSI 2011, 2012). The

EPSI approach focuses on causal analysis derived from structural model elaboration and thorough empirical studies in order to estimate numerical relationships. A large set of international benchmark databases has been developed since 1999, when the initiative started in a small number of countries.

The (Intangible) domains included are given in Figure 1, while the special model devised for External Customer Satisfaction (considered in the present study) is introduced in Figure 2.

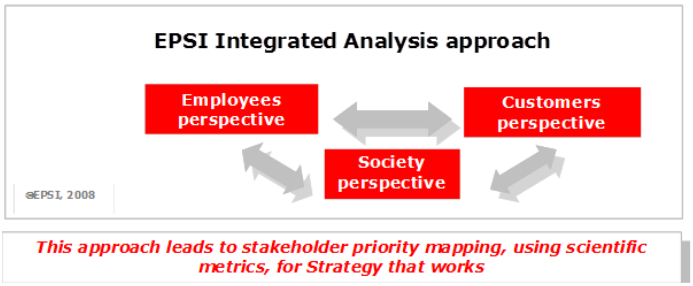

Figure 1: Intangible domains studied with EPSI

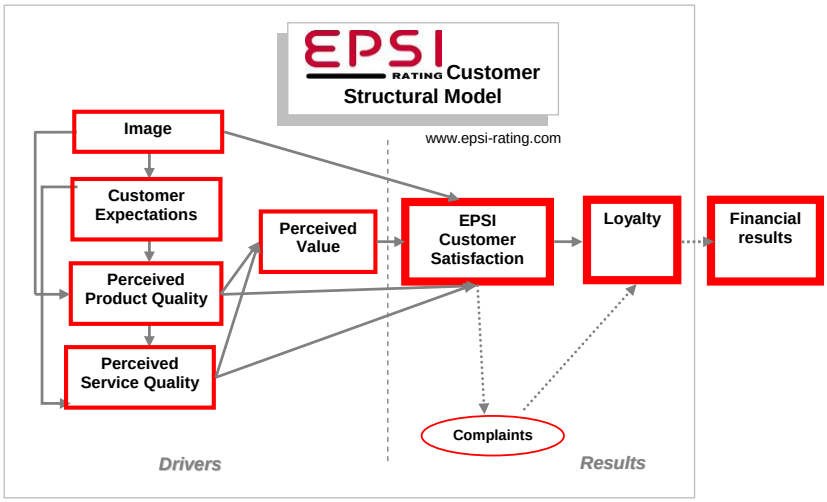

Figure 2: The EPSI Rating Customer Structural Model

The EPSI Rating framework is a structural equation model where each of the latent variables is operationalized by a set of measurement variables. The model is estimated using Partial Least Squares (PLS).

Data on External customer perceptions is available from 1996 on annual basis for about 30 industries in Sweden. The number of additional countries included in EPSI is successively increased and amounts now to about 25. In total about 1 million interviews are conducted per year. The great majority of interviews conducted with final consumers (B2C) and corporate customers (B2B) are gathered through telephone interviews (CATI). The utilized standard questionnaire uses the scale 1 – 10 for measuring the manifests (the higher score, the more satisfied is the respondent).

The latent aspect Customer Satisfaction (EPSI) is estimated through structural equation modeling based on the following three manifest questions (example for a bank):

- *How satisfied are you overall with your bank (Q3)?*
- *How satisfied are with your bank in relation to your expectations (Q6)?*
- *How satisfied are you with your bank in relation to an ideal provider (Q16)?*

The results by Latent aspect (like EPSI) are reported on the scale 0 – 100 when estimated through the Structural Equation Model. For more background information about EPSI and the adopted estimation technique see EPSI (2011).

Hypotheses

The main hypothesis to be tested concerns the relationship between customer satisfaction and financial performance. This is done in order to consider whether the intangible KPIs may be used in a multi-level priority setting process. Hence, the following questions will be addressed;

RQ1: Can we determine a causal link from non-financial KPIs (as discussed above) to the financial performance of an economic activity. In the first instance the financial sector is studied down to separate business units for Sweden, then for the Nordic sub-region. In addition, possible differences between this and other industries are considered.

RQ2: Can possible relationships identified in RQ1 be used for monitoring and policy analysis of different aggregation levels. And if so, who can a feasible structure be devised

From the above two research queries a number of more specific hypotheses are spelled out as follows:

H1A: There is a positive relationship from Customer Satisfaction to Financial Performance on bank-level for major Swedish banks;

H1B: There is a positive relationship from Customer Satisfaction to Financial Performance on group-level for major Nordic banking groups;

H1C: There is a positive relationship from Customer Satisfaction to Financial Performance on regional and branch level within major Swedish banks;

H1D: There is a positive relationship from Customer Satisfaction to Financial Performance on company level for major Swedish industries;

H1E: The magnitude of the relationship from Customer Satisfaction to Financial Performance differs from Industry to Industry in the Swedish business sector;

H2A: It is feasible to monitor Customer Satisfaction on Regional level for a large Nordic bank in order to enhance the corporate financial performance;

H2B: It is feasible to monitor Customer Satisfaction on Branch level for a large Nordic bank in order to enhance the corporate financial performance

Design and data

The hypotheses are tested based on empirical analysis of data for Swedish, Nordic and North European banks as well as other main industries. The data-sets used in the different models are briefly commented upon below.

Based on the focused theoretical assessment, a hierarchy of structural models are devised on a combined time-series and cross–section (panel and multi-level) approach. General financial data for the empirical modelling is compiled from national and international databases (Alla Bolag, IMF/IFS, Bloomberg, Eurostat, etc.), and company specific data from the studied corporation. Customer perception data (like CSI and loyalty) are taken in the first instance from the EPSI-initiative database Annual observations for the period 2001 – 2014 and quarterly for Q12008 – Q42014 are utilized in the estimation phase. A number of different multi-level algorithms in Stata14 are considered and results extensively quality controlled. The finally communicated and implemented results are based on models estimated by Arellano-Bond procedures.

Modelling and results

Results from model for testing hypothesis 1A

1) The study is based on annual data for the main international banks during the period 1999 – 2014. The data on accounting variables are taken from public databases, while CSI data (especially for service relationship dimensions) is taken from the detailed results of the EPSI (Extended Performance Satisfaction Index) program. The estimated model (final realization) is presented below:

$$\underset{}{MarkCap_t} = \underset{}{-249} + \underset{(2.15)}{5{,}48EPSI_{l1}} + \underset{(2.21)}{3.85\ GDP_t} \qquad (2)$$

The obtained results point at very strong (and positive) relationships between (changes in) satisfaction as measured by the EPSI approach (disaggregated), and the Market Capitalization (MarkCap) of the 5 studied banks. On average the results indicate that a change in EPSI-Satisfaction with 1 unit will change MarkCap by 5.5 billion SEK (600 mill Euro) - approx. 5 percent - after one year. GDP growth is not significant to add explanatory power on the 5% level. None of the tested accounting/financial variables has any (significant) explanatory power. One of the 5 included banks may be interpreted as an outlier in terms of MarkCap during the last 3 years due to external factors. After excluding the outlier, the relationship becomes even stronger.

Thus, the hypothesis 1A gets support, and it appears that Customer Satisfaction as measured by EPSI has explanatory value for driving financial performance measured by Market Capitalization.

Modelling for test of hypothesis 1B

The full study is based on annual data (time period 2004-2014) for the main banks in following countries: Denmark, Sweden, Finland, Norway, UK, Spain, Czech Republic, Russia, Kazakhstan (Malova, Podkorytova, Eklöf, 2016). For the banks data that describes financial performance (financial performance of the i_{th} bank is denoted has been collected. 5 different variants of financial performance are considered:

- Profit margin – measuring the company's profitability, this ratio is the comparison of how much of the revenue incurred during the period was retained in income: (Net

Income / Net Revenue *100, source of the data Bloomberg Terminal, access point St-Petersburg State University, data of access December 2015;

- Return on assets – indicator of how profitable a company is relative to its total assets, in percentage. Return on assets gives an idea as to how efficient management is at using its assets to generate earnings. Calculated as: (Trailing 12M Net Income / Average Total Assets) * 100, average Total Assets is the average of the beginning balance and ending balance, source of the data Bloomberg Terminal, access point St-Petersburg State University, data of access December 2015;
- Return on equity - measure of a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested, in percentage. Calculated as: (T12 Net Income Available for Common Shareholders / Average Total Common Equity) * 100, Average Total Common Equity is the average of the beginning balance and ending balance, source of the data Bloomberg Terminal, access point St-Petersburg State University, data of access December 2015;
- Return on stock – calculated as (share price (t1)-share price(t0)+dividends per share (t1))/share price (t0), source of the data Bloomberg Terminal, access point St-Petersburg State University, data of access December 2015;
- Tobin's q – calculated as = (Market Capitalisation+Preferred Equity+ST borrowings+LT Debt)/Total assets, source of the data Bloomberg Terminal, access point St-Petersburg State University, data of access December 2015

When the sample is restricted to Scandinavian countries (2004-2014, 4 countries, 9 banks) the results are significant in terms of supporting a positive relationship from CSI to financial performance as illustrated below.

Table 1: Results for modelling Nordic banking groups

VARIABLES	(1) lnprofmargin	(2) Lnret_equity	(3) Lnret_assets
L.lnprofmargin	0.200		
	(0.126)		
lncsi	**5.540*** **	**5.834*** **	**5.598*** **
	(1.836)	(1.769)	(1.829)
sales3growth	0.0264***	0.0290***	0.0328***
	(0.00983)	(0.00946)	(0.00996)
L.lnretequity		0.117	
		(0.121)	
L.lnret_assets			0.106
			(0.121)
Fin_leverage			-0.0698**
			(0.0299)
Observations	71	71	71
Number of bank	9	9	9
Year dummy	yes	yes	yes
Prob(Sargan)	0.34	0.097	0.32
Prob(AR1)	0.0001	0.002	0.002
Prob(AR2)	0.564	0.0562	0.584

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Bias correction up to order O(1/T)

We can conclude that 1% growth in customer satisfaction index measured with EPSI methodology gives approximately 5.5% growth of bank's profitability measured by different measures. This result is statistically significant and sustainable for Scandinavian countries (Finland, Sweden, Denmark, Norway), for other countries and their banks there were no significant results obtained. The reason for this is that capital structure and client base of the Scandinavian banks are rather homogenous, in comparison with capital structure of UK banks that is very broad world-wide, but customers were surveyed only from UK. This fact doesn't allow us to link customer satisfaction of UK citizens and financial performance of UK banks at the whole.

Thus, hypothesis 1B is supported for Nordic banking groups.

Modelling for test of hypothesis 1C

For testing this hypothesis one of the main Swedish (North European banks), Handelsbanken has been considered. We base our analysis here on a sample consisting of approximately 980,000 private and corporate banking customers. The data is collected on a quarterly basis started in quarter 1 in 2008 and end at quarter 3 in 2014. The financial performance data is collected from the internal bank documents, and covers

- Net profit (Result)
- Total costs divided by total revenues (C/I)
- Operating costs divided by total revenue (O/I).

Two levels of decentralization have been considered (i) Regional level (6 regions together), where branches are divided into groups by geographic location, and (ii) individual branch level with 461 branches in Sweden.

(i) Initial analysis indicates that when regional level based on geographic location is used, no significant link between customer satisfaction and financial performance can be found. This is most likely a result of the fact that clustering of customers based on geographical location does not take into account differences in customer behavior (there is no strong relationship between customer behavioral aspects and the geographic pooling of clients into regions. Hence, strong heterogeneity is present in each of the different regions. Therefore, results on regional level have been excluded at this stage and instead we focus on branch level.

(ii) Branch level study. The following overall regression results (Arellano-Bond estimation) have been obtained:

Table 2: Estimation results: Costs divided by total revenues

	C/I				**O/I**		
	Coef,	Std, Err,	p-value		Coef,	Std, Err,	p-value
C/I,L1	-0,37	0,09	0,44	**O/I,L1**	-0,04	0,01	0,00
EPSI,L1	-0,42	1,00	0,68	**EPSI,L1**	-0,77	0,08	0,00
EPSI,L2	-1,85	0,86	0,03	**EPSI,L2**	-0,69	0,35	0,05
EPSI,L3	-1,85	0,60	0,00	**EPSI,L3**	-1,48	0,37	0,00
EPSI,L4	-2,25	1,03	0,03	**EPSI,L4**	-1,12	0,13	0,00
GDP	-0,16	0,23	0,48	**GDP**	0,42	0,56	0,45
const,	544,38	148,81	0,00	**const,**	351,18	15,70	0,00

The coefficients (Coef.) are negative indicating that an increase in satisfaction will improve/reduce the C/I score. The long-run cumulative effect is as high as 5 percent. Similar results are obtained with Results as dependent variables.

Thus, Hypothesis 1C is supported by the empirical study when it comes to branch level, while no significance is obtained on Regional level.

Modelling for test of hypothesis 1D and 1E

Previous studies testing relationship between customer-related measures and financial performance of the firm are almost exclusively done within one industry. This makes them less comparable as the customer-related measures are constructed in different, usually industry specific ways. We have one customer-related construct for all industries and thus argue that we can get comparable results across the industries. We test the relationship between customer satisfaction and perceived customer loyalty (lagged one year) and firm´s operating profitability (measured as return on operating net assets) for a sample of 77 Swedish companies in 8 different industries between 2002 and 2014. We have totally 415 firm-year observations which have on average 16,6% in return on operating net assets, annual growth of 4,9% and equity ratio of 37%. The average customer satisfaction is 67 and perceived customer loyalty is 70 points (on the same scale).

We find a positive relationship between both lagged customer satisfaction and customer loyalty and return on operating net assets. We also find that the importance of customer related measures is industry specific. Energy companies, information and communication technology companies, personal transport and fitness companies show a significant positive relationship, while for companies in the staffing industry, logistics, retail and real estate agencies the customer-related measures are insignificant. The result is somewhat weaker for information technology and telecommunications than for energy, transport and fitness. Looking at the coefficients slopes, fitness companies have the highest slope coefficient (0,813 respectively 0,610) while the other industries have somewhat lower slope coefficients.

We have further looked into changes over time, that is whether the importance of customer-related measures have changed over time. We divided the sample into three periods and found that the significance of customer related measures is strongest for the period of 2007 – 2010 for staffing industry and energy sector. We interpret the findings as a potential indicator of the importance of these measures during financial crisis (2008-2009). A number of other special divisions of the data-set was also done (Hellström, Eklöf, 2016).

Thus both hypothesis 1D and 1E are supported by the study on 8 different Swedish industries.

Modelling for hypotheses 2A and 2B: Decentralized planning in a bank

The studied bank (Handelsbanken – SHB) have spelled out that their main target is to have a higher average profitability on investments than the mean for the 4 big banks in Sweden. This is aimed at by focusing on the cost/income ratio (C/I) (keeping it as low as possible). They see CSI as a driver for this purpose. The performance in C/I ratio and CSI is monitored quarterly for the entire bank group as well as on Regional and Branch levels.

On the Branch level (461 in Sweden), the bank manager is expected to have a discussion with all personnel quarterly for assessing the performance in CSI and financial performance (especially C/I-score). During these meetings the focus is on how to improve CSI in order to further enhance the C/I-score. Answers on individual questions in the quarterly EPSI-survey

are used in order to understand what drivers may function as KPIs and which driving KPIs that may be possible to improve by the individual branch.

The core finding is that it is effective to regularly monitor CSI (measured by EPSI) as a forward-looking indicator for understanding future financial performance (measured the way the bank does). The lead time from realized CSI to main effect on financial performance is up to one and a half year. Further on, it is illustrated how operational instruments can be used on different aggregation levels to enhance CSI. This is most efficient on Corporate level and for individual Branches (460 branches are considered in total on a quarterly basis for 7 years), while the Regional level (6 Regions considered) appears less effective for policy management purposes in this case. Possible reasons for the weaker relationship between CSI and financial performance on Regional level are currently scrutinized.

The results are sensitive to the choice of customer perception measure. As an example, the often referred to indicator NPS – Net Promoter Score – does hardly show any significant relationship to financial performance.

The statistical properties of the model system are very strong, and fairly stable over time. On average, an improvement of one percent in customer satisfaction will enhance the financial performance (measured as market capitalization) with almost 6 percent (already within one year). On branch level an increase of one percent in CSI leads to about 5 percent of improved cost/income-ratio in a year´s time. It should be noted that the results are symmetric and goes also the other way (reduced CSI will generate deteriorated financial performance).'

Research limitations and implications

The focus is on one specific multinational company in the financial sector. In addition, a number of benchmarks are reported for also other financial corporations (26 in total) nationally and internationally, as well as for 8 other industries. Here, the full circle analysis from group-level through business units and down to branches is not yet entirely fulfilled. The cause-effect relationship from CSI (and related non-financial indicators) to financial performance is statistically significant in basically all studies industries, but varies numerically from one to another, and also over time. More analysis is deemed needed before any solid conclusions for practical applications on company-level may be given for corporations outside the financial sector.

Conclusions and practical implications

The empirical results point at a very strong causal relationship from CSI (measured through the EPSI initiative) to financial performance (measured by the indicators selected by the banking group at focus). The approach has already been used for decentralized planning and follow-up in practice during the last few years. According to the top management of the corporation this is found highly useful and should be enhanced even more according to corporate decisions.

There are many company and industry studies reported where non-financial performance indicators are related to the financial bottom-line. However, according to our survey of contemporary research very little is academically documented for the full-circle from corporate to branch level. Thus, the prevailing study should be of potential value for many companies, both in the financial sector and ultimately also some other areas (like possibly ICT and Retail).

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