Customer Satisfaction and Competencies: An Econometric Study of an Italian Bank

Paola Gritti
Nicolai J. Foss

October 2007

CUSTOMER SATISFACTION AND COMPETENCIES:
AN ECONOMETRIC STUDY OF AN ITALIAN BANK

Paola Gritti
Dipartimento di Economia Aziendale and
Dipartimento di Scienze Economiche H. P. Minsky
Università degli Studi di Bergamo
Via dei Caniana 2; 24127 Bergamo, Italy
paola.gritti@unibg.it

Nicolai Foss
Center for Strategic Management and Globalization
Copenhagen Business School
Porcelainshaven 24; 2000 Frederiksberg, Denmark
Njf.smg@cbs.dk

October 14, 2007

CUSTOMER SATISFACTION AND COMPETENCIES:
AN ECONOMETRIC STUDY OF AN ITALIAN BANK

ABSTRACT

We empirically address how customer satisfaction and loyalty in the banking industry may affect profitability. This helps to identify the strategy and competencies necessary to benefit from customer relationships which are important sources for improved performance in the banking. We do this by analyzing data collected on 2,105 customers of 118 branches of one of the biggest banks of an Italian banking group. We find that customer satisfaction impacts loyalty, which in turn has a direct effect on financial and non-financial customer value/total customer value/complex customer value. Moreover, loyalty is a mediator between financial and not-financial customer value and two sources of customer satisfaction, namely relationships with the front office and the branch, on the one hand, and the products offered, on the other.

INTRODUCTION

Recent literature in management and economics has stressed that firm organization is increasingly structured so as to optimize the absorption and use of valuable knowledge (e.g., Garicano, 2000). This reflects a broader emphasis, mainly in the management literature, that knowledge and learning has become ever more important as foundations of superior performance (Bartel, 2004; Bauer, 2003; Black and Lynch, 2005; Caroli and Van Reenen, 2001; Cohen and Levinthal, 1990; Cristini et al., 2003; Foss et al., 2006; Greenan, 1996; Ichiniowski et al., 1997; Zwick, 2003). This arguably also holds for traditional industries, such as banking, which has been characterized by increasing competition both from within and outside the industry, increased transparency demands, an increased importance of information and communication technology, the growing possibility to standardize routine transactions and the explicit introduction of knowledge management (Camuffo and Costa, 1995; Keltner and Finegold, 1996; Hunter et al., 2001; Canato and Corrocher, 2004; Munari, 2000).

In this paper we consider a specific way in which the new tendencies influence the organization of banking transactions, namely through a more extensive use of close customer relations. Such relationships are often seen in the recent business literature as means to build valuable capabilities (De Jong and Noteboom, 2000; Sako, 2000; Teece, 1992). Relationships can be characterized in terms of their nature (strategic alliances, vertical relationships, lateral and horizontal relationships) and their intensity (e.g., contact frequency and quantity and type of the information exchanged) (De Jong and Noteboom, 2000; Sako, 2000; Teece, 1992). They can be divided into two main groups: Relationships within a firm (Baker, Gibbons, and Murphy, 2001), and relationships with the external environment. In the latter, two types of firm-customer relationships can be found (De Jong and Noteboom, 2000; Sako, 2000; Teece, 1992), namely those that are are based on arms' length contracts and relational contracts, respectively. The latter is characterized by informal arrangements sustained by the value of future relationships (Baker et al., 2002). The focus of this paper is on such relational contracts. Extant literature suggests that firms that adopt this type of contracts are characterized by customer-oriented internal policies and long-term relationships (e.g., Munari, 2000). Banking firms may develop and nurture long-term customer relations for a number of reasons. First, the relevant services may be experience goods and reputation mechanisms may not work perfectly. Close customer contacts can overcome the resulting asymmetric information problem. Second, close relationships imply that customers make relationship specific investments, to a certain extent locking them in to the relation. Third, customers may be sources of valuable ideas concerning how to improve banking products and

services. Finally, attention to customer needs and the quality of the offered services give rise to customer satisfaction and retention. In order to build potentially valuable customer relations, a customer- rather than product-centered approach is often held to be necessary, one on which the focus is on the personalized management of a certain number of accounts and not of a certain number of products (Camuffo and Costa, 1995). In turn, building a customer-centered approach requires certain internal competencies, and arguably also an internal organization that fosters knowledge sharing are necessary. Thus, customer satisfaction and loyalty are both a result and a source of competency creation (idem.).

Although theory thus suggests that long-term relationships may be causes of improved financial performance because they help to reduce costs, increase quality, improve products and services, and create long-term customer loyalty, there is a considerable lack of empirical knowledge, particularly in retail banking. Arguably, an important reason is that customer satisfaction and retention have been difficult to measure (Munari, 2000).

The present paper fills this void by analyzing customer relationships in retail banking, arguing a potential source of improved performance for banks. For a sample of 118 retail branches belonging to one of the biggest bank of an Italian banking Group, we put forward and test hypotheses concerning the relationship among financial and not-financial customer value for the branch, customer satisfaction and customer loyalty. We first explore whether there is any relation among customer satisfaction, loyalty and profitability for the branch to which such customers belong, and then we examine the nature of this relationship (i.e., if it is a direct one or if there are multiple causal relationships; if there are mediator or moderator variables).

EMPIRICAL SETTING AND DATA SOURCES

The Econometric Case Study Method

This research focuses on a single organization, namely, a large Italian bank, in which the unit of analysis is the customer.[1] In other words, we adopt the econometric case study method, a fairly recent empirical approach. In spite of what seems to be an evident problem with external validity that is associated with a single case study, the approach is by no means void of this kind of validity (cf. Jones et al., 2006; Baker et al., 2002). Moreover, unlike firm-level studies, econometric case studies, such as Hamilton et al. (2003), make use of field work to acquire a thorough understanding of a firm, are able to investigate particular issues, because of the lower aggregation level employed, and allow the use of interviews, which may provide important clues as to how to

---

[1] In addition, some relationships between the branch level and the customer level will be considered.

interpret other data. Moreover, in econometric case studies qualitative analysis assumes a supportive, and often important, role (Jones, et al., 2006).

Data Sources

The econometrical analysis presented in this work is based on two information sources: A Customer Satisfaction survey in 2005 on 20.000 retail customers[2] carried out by the marketing department of the bank analyzed here and an external firm (stratified ex-ante sample), and a set of financial and operating branch data from 2005.

Considering the first source of data, two parts of the questionnaire are particularly important for this research, namely questions belonging to the "Satisfaction" section and the "Loyalty" section. You can find all the relevant questions for our analysis in the Appendix B. Our data set includes other general information about the customers: Length of the relationship with the managers in term of number of years; annual number of transactions; number of products that the customers hold; Rating;[3] value of the products that the customer holds; and the AIR/BIR classification.[4] 2995 customers answered the questionnaire.

The second source of data includes, for each branch, the value of its fixed assets and the investments made during 2005; the interest margin and revenues from services; years in operation, number of employees, number of customers, and location.

Sample Identification

Since the CS survey was conducted on a statistically representative sample of the customer population[5], we identified the sub-group of branches for which satisfaction data was in general informative enough.

By considering all[6] relevant questionnaire variables of interest, factor analysis can be used for building a first synthetic satisfaction index for each customer. The customer satisfaction variables are categorical variables on a scale from 1 to 10 (from dissatisfied to very satisfied). For variables about products satisfaction, the average of the "logic" answers were considered, that is the answers of the customers who hold the specific product. Moreover, the loyalty variables were

---

[2] The retail customers of a bank include individuals and small businesses. Besides, 20.000 was the number of customers asked to participate to arrive at a final sample of 2995 customers.

[3] The rating measures the profitability of customers for the branch, not only in terms of total revenue but also in terms of the number and value of the products they hold.

[4] AIR/BIR is a classification of customers on the basis of their income and age.

[5] The Customer Satisfaction survey belongs to a larger project of the Marketing Department of the banking group under study. Since, they were not interested into connecting the results of the survey with the respective branches, they decided to work on a sample just representative of the customer population (and not of the branch population).

[6] In order to build this first synthetic index, we also considered the variables chosen inside the loyalty section of the questionnaire and all the satisfaction variables (except the one about communication). As indicated in the paper, we will use for our models another index with only some customer satisfaction variables about relationships.

binary; the questions to which they are related are the following: 'Do you use other banks?'; 'Is [name of the bank] your main bank?'.

Four types of products were considered: Bank accounts, investments, financing, and insurance. After consulting the marketing department, we excluded the insurance product because it seemed to be the one with the lowest impact on customer satisfaction. We then considered only the second question and totaled the corresponding answers. In this way we obtained a categorical variable on a scale from 0 to 3. Before running the factor analysis, we recoded all these variables on a scale from 1 to 4.

In accordance with established literature, we extracted the factors whose Eigen-values exceeded 1 (Kline, 1994; Hair et al., 1995; Jackson, 1991; Johnson and Wichern, 1992). In doing so, we obtained two factors. The first one included customer satisfaction with the image of the bank and relationships with the managers. The second one included customer satisfaction with first, relationships with the front-office; second, relationships with the branch; and third, the products.[7] The loyalty variable coefficient seemed too low to be taken into consideration in any factor. A confirmation of our choice to keep two factors came from the screen test. We then estimated a synthetic customer satisfaction index by totaling the factors, weighing them with the variance explained. Table 1 shows the resulting factors.

Insert Table 1 here

Starting from these indices, we calculated the average satisfaction with each branch. It should be noted that we did not adopt a weighted mean in order to give each customer adequate importance. This was possible thanks to double stratification, which assigns the right proportion to the different types of customer in the sample. Since some branches show a very low samples number, in order to identify the sub-group of branches with average satisfaction data that were sufficiently informative, the following criterion was adopted: The confidence interval was calculated at the 95% level for the mean μ_i of the synthetic satisfaction index (y), with the hypothesis that this index featured an approximately normal distribution. The confidence interval is defined by two boundaries, $IC_{i,0.95} = \left(\mu_{i.INF}, \mu_{i.SUP} \right)$, so that the probability that the real mean (calculated on all the customers of the branch) lies between the two boundaries is 95%. The two boundaries are determined by the following formula: $\mu_{i.INF} = \overline{y} - 1.96\sqrt{\hat{\sigma}/n_i}$, $\mu_{i.SUP} = \overline{y} + 1.96\sqrt{\hat{\sigma}/n_i}$, where $\hat{\sigma}$ is the standard deviation of the synthetic satisfaction index for

---

[7] The third component has a very low impact compared to the others.

the entire population level: $\hat{\sigma} = (n-1)^{-1} \sum_{i=1}^{n} (y_i - \bar{y})^2$. The variance of the synthetic satisfaction index was assumed to be the same for all the branches.

Since $p_{97.5}(y) - p_{2.5}(y) = 9$ (more precisely, the interval of variation between the 97.5th and the 2.5th percentiles is 9), the mean data for the branches for which $\Delta_i = \mu_{i.SUP} - \mu_{i.INF} \leq 6$ was chosen "heuristically" as significantly informative. The 367 branches in the initial sample were reduced to 118.

MEASURES

The following section provides a description of the construction of the variables used in the model.

Rating

The rating is the dependent variable. It was built by the marketing department of the bank. It is defined as a function of: Cross-selling (the number of products that the customer holds); the value of the products that the customer has; and the Intermediation Margin, or the total revenue[8] generated by each customer for the respective branch. Thus, the rating expresses not only a financial value of the individual customers for their branch, but a complex, total value that includes the number and the value of the products they hold that can have an effect on the branch's performance. Rating varies on a scale from 1 to 8.

Loyalty Index

Loyalty expresses the extent to which the bank under study is the main bank for the customer. The corresponding question in the questionnaire is: 'Is [name of the bank] your main bank?'. This question is repeated for each product. Thus, Loyalty is built as the sum of three binary variables. We recoded it on a scale from 1 to 4.

Customer Satisfaction Indices

The synthetic CS Index expresses total customer satisfaction. It includes the items of the questionnaire on customer satisfaction with relationships and products. Not all the variables are of relevance for our work. In fact, some variables concerning the bank do not show any variance among the branches, because they refer to aspects that are decided at the central level (by the banking Group). After consulting the marketing department, we have excluded these variables.[9]

---

[8] This is a measure of the financial performance of the branch at the customer level.

[9] In doing so, we obtained a total of 47 variables: 2 about customer satisfaction with the image of the bank; 5 about customer satisfaction with relationships with front-office employees; 6 about customer satisfaction with relationships with the managers; 5 about customer satisfaction with relationships with the branch; 1 about customer satisfaction with communications between the branch and the customer; 1 about customer satisfaction with relationships in general; 19 about customer satisfaction with products; 1 about customer satisfaction with the bank in general; and 7 about customer

More precisely, relationships are divided into relationships with: The front office; the managers; and the branch, while products are divided into: bank account; financing; and investments. All the variables were categorical variables on a scale from 1 to 10 (from dissatisfied to very satisfied). The overall index is built as a mean of all the items. This was possible thanks to a Cronbach's alpha value larger than 0.6 (0.95).[10]

In addition, since the items that we consider in our analysis are divided into two main groups -- that is relationships and products -- we defined two more variables, namely CS with relations, which measures customer satisfaction with relations (Cronbach's alpha value = 0.95), and CS with products, which captures customer satisfaction with products (Cronbach's alpha value = 0.87). Specifically, CS with relationships, the focus of this study study, is the average of the responses to the items set out in Table 2.

Insert Table 2 here

However, given the subject analyzed in this paper, it is interesting to investigate the existence of relationship sub-groups and their effect on CS. In order to test the existence of these correlations, we ran a factor analysis on all the items referring to CS with relationships (i.e. the items described in table 3).

Following the above mentioned criteria, we obtained only one factor. Thus, in order to identify relationship sub-groups and their effect on CS, on loyalty as well as financial and not-financial customer value, we forced the Eigen-values criterion, obtaining two factors. The first factor refers to relationships with managers while the second involves relationships with the front-office and the branch. It is worthy of note that the results are similar to those of the factor analysis that we conducted in order to identify the sample. This seems to give power to the factors we found.

Table 3 shows the factor analysis output.

Insert Table 3 here

---

loyalty. Then, we considered the two main groups of variable available: one about CS with relations; and one referring to CS with the products. We did not consider the first variable concerning relationships with front-office employees due to correlation problems.

[10] Thanks to the Cronbach's alpha value we were also able to build an index with the factor analysis. We obtained the same results in our estimation. Here, we are going to describe only the analysis run with the mean due to space problems. The results obtained with the factor analysis indices are shown in the Appendix.

The proportion's coefficients show that most of the variance is in general explained by the relationships with the managers.[11] This is also confirmed by the coefficients of the factors. Comparing the two factors, if time is a key aspect for bank account transactions, for investments or other more important transactions, customers place a much higher value on the competencies of the managers. Although the coefficients of the factors do not vary significantly from one another, it seems that for both consultants and front-office employees, actual competencies are more important that training and expected or required competencies. It should be noted that also the impacts of the variables on the factors seem to be confirmed compared to the factor analysis that we ran to identify the sample.

We then obtained a synthetic customer satisfaction index by totaling the factors, weighting them with the variance explained.

Controls

Some controls have been added to the model at two levels of the analysis: The customer level and the branch level. At the customer level there are the following controls: The duration of the relationship in terms of years; the number of transactions; and the AIR/BIR classification.[12] The length of the relationship and the number of transactions through the bank account are continuous variables. AIR/BIR is a classification of customers on the basis of the possibility to estimate their income. In fact, the marketing department has noted that, if the customer's income can be identified, that is, if the customer credits his/her income on the bank account of the bank under study, then the customer has a high relational intensity with the respective branch (AIR is for 'Alta Intensità di Relazione', that is 'High Relational Intensity'). It was recoded on a scale from 1 to 2: 1 if the customer has a low relational intensity with the respective branch and 2 if he/she has a high relational intensity. At the branch level there are: The number of employees; the years in operation of the branch; and the location. The number of employees is a continuous variable. For the years in operation, we used the natural logarithm. To control for the location of the branch we built two dummy variables: the first controls for the location in a city or in a town; the second controls for the location in the main province in which the Group operates.

This will allow us to observe the impact that some branch level variables have on the customer level dependent variable under study. In fact, an important source of information of these data is the fact that they are at two levels: a micro level, i.e. the customer, and a macro level, i.e. the

---

[11] This is probably a consequence of the forcing in running the factor analysis.

[12] We should not use the number of transactions and the number of products together (their correlation is about 0.5165); and with rating as a dependent variable, we have not used the number of transactions as a control, because rating is built as a function of this last variable.

branch. Moreover, it is possible to depict the effects of the customer level controls on the customer level dependent variable and control for them. Table 4 shows some statistics for the variables.

Insert Table 4 here

ANALYSIS

Models

Due to the type of our dependent variable, rating, which is a categorical variable on a scale from 1 to 8, we use for our estimation the ordered probit model. This model is defined as follows:

$$\Pr(y_{ij} \neq 0 \mid x_{ij}) = \Phi(x_{ij}b)$$

where i is the client, j is the branch, Φ is the inverse of the normal standard cumulative distribution, and $x_{ij}b$ is the ordered probit score or ordered probit index. Moreover, we have controlled for the clusters. This option specifies that the observations are independent across groups (clusters) but not necessarily within groups.[13] Thus, our models are the following:

$$\Pr[Rating] = \alpha + controls + \beta_1 CS + errorterms \qquad [1]$$

$$\Pr[Loyalty] = \alpha + controls + \beta_1 CS + errorterms \qquad [2.1]$$

$$\Pr[Rating] = \alpha + controls + \beta_1 Loyalty + errorterms \qquad [2.2]$$

The first model tests the existence of a direct relationship between customer satisfaction and the value of each customer for the branch he/she belongs to. The second model includes two equations. It is used to test whether there is an indirect relationship between customer satisfaction and the value of the customer for the branch. More precisely, we test the role of customer loyalty; specifically, whether it is a mediator variable (between CS and performance) or whether there is a causal relationship among customer satisfaction, customer loyalty and financial and not-financial customer value.

Loyalty functions as a mediator if it met the following conditions: (i) variations in levels of the independent variable (*CSI*) account significantly for variations in the presumed mediator (*Loy*) (i.e., Path (i)); (ii) variations in the mediator account significantly for variations in the dependent

---

[13] Also the multi-level analysis shows that there are no characteristics at the branch level that have a significant effect on our dependent variables.

variable (*Rating*) (i.e., Path (ii)); (iii) when Paths (i) and (ii) are controlled, a previous significant relation between the independent and dependent variables is no longer significant, with the strongest demonstration of mediation occurring when Path (iii) is zero. When Path (iii) is reduced to zero, we have strong evidence for a single, dominant mediator. If the residual Path (iii) is not zero, this indicates the operation of multiple mediating factors. From a theoretical perspective, a large reduction of the significance of the dependent variable demonstrates that a given mediator is indeed potent, albeit not both a necessary and a sufficient condition for an effect to occur (Baron and Kenny, 1986).

Results and Discussion

We first consider the impact of overall customer satisfaction on the rating (see Model 1, Table 5).[14]

Insert Table 5 here

Note that in this model the number of observations is reduced substantially. In order to test the representativeness of the sub-sample, we ran a t-test on the differences between the means and the standard deviations of the two samples. Table 6 shows the results.

Insert Table 6 here

The sub-sample seems to be representative of the original sample. However, the number of transactions made by the customers seems to bias the sub-sample.

Considering the results in Table 5, the only controls that have significant effects are the ones at the customer level. This seems to suggest that what really matters for the value of the customers for the branch, that is for their 'branch's performance', is the attention to the customer level elements. In particular, the length of the relationship and the number of bank account transactions are statistically significant. This means that the longer the relationship with the branch and the higher the probability that customers perform bank account transactions, the greater the probability that the customer becomes more profitable for the branch. Note that the length of the relationship with the branch may be taken as a proxy for relational competencies, so that the analysis shows that as these types of competency increase, so does the profitability of the customer to the branch.

---

[14] For all of our results we calculated the marginal effects. They confirm the directions of the impacts and give their intensity. They are available on request.

The first model also shows that there is no direct relation between customer satisfaction and the value of the customers for the branch. The customer satisfaction index is, in fact, not significant, so that our first hypothesis is rejected.

However, the literature and the results of the first model seem to suggest that loyalty (or trust) may be another important variable for the subject of our analysis. Since there is no direct effect between CS and performance, as we have already noted, loyalty cannot be a mediator between these two variables. As described above, this is a condition for the existence of a mediation effect. What we are going to test is, thus, the existence of a causal relationship among Customer Satisfaction, Loyalty, and Rating. The test is performed by running models [2.1] and [2.2].

The results are presented in Table 5 (models 2 and 3). Also in this case, what really matters are the elements at the customer level. This is confirmed by the significance of a long-term relationship and the number of transactions for the Rating, while AIR/BIR classification becomes significant for the loyalty, to the detriment of the length of the relationship between the customer and the branch. Thus, if the customer credits his/her income on the bank account (that is, if the customer has a high relational intensity with the respective branch), the probability that such a customer will choose it as his/her own main bank increases.

Note also that the size of the branch negatively impacts the loyalty probability. This may be taken as an indication that the bigger the firm, the more difficult it is to implement those internal arrangements that support the building of close, long-term customer relations, such as lower delegation, motivation, and attention to employees (cf. Foss, Laursen, and Pedersen, 2007). Moreover, we might argue that the experience of the branches and their location do not influence customer loyalty and their value to the branch. However, the general experience of the branch should not be conflated with the development of relational competencies, which seem to have a direct impact on the profitability of the customers, even though they are not of direct relevance to their loyalty.

Concerning the main independent variables and their significance, we can state that the presence of customer satisfaction increases the probability of customer loyalty and therefore the value of the customer for the branch. In addition, it may be noted that, due to the fact that the moderation effects[15] are difficult to interpret in an ordered probit analysis, we have considered the

---

[15] The moderation hypothesis is supported if the interaction, as measured by the product of the variables taken into consideration, is significant. There may be also significant main effects for the predictor (the independent variable) and the moderator but, conceptually, these are not directly relevant to the test of the moderator hypothesis (Baron and Kenny, 1986). The moderation effect may be an indication of what Milgrom and Roberts (1990) and Holmstrom and Milgrom (1994) call complementarity, talking about workplace practices. That is, the customer loyalty increases as different types of customer satisfaction are achieved.

overall customer satisfaction index to approximate these effects, so that these results could suggest the existence of a moderation effect between the different types of customer satisfaction.

As already indicated, there are two main groups of customer satisfaction variables, that is, one that concerns CS with relationships and the other CS with products. Considering the means of these two groups, we are going to test the same preceding models. Table 7 shows the results.

Insert Table 7 here

The control variables confirm the preceding insights: what really matters is the customer level. A difference should be noted: all three customer level controls have a significant impact on loyalty. Thus, the relationship between customer satisfaction and loyalty, on one side, and their value for the branch, on the other, seems to emerge stronger than before. A longer relationship and a higher relational intensity, thus developing relational competencies, increases the number of transactions made through the bank account, due to a deeper feeling of trust by the customer, and profitability for the branch in the process. Another difference with the preceding models is the significant impact of the years in operation of the branch on the loyalty of the customer when we include in the model customer satisfaction with the products. This could be explained as follows: more experience makes the branch offer more interesting products to the customers who, thus, become more loyal. It is also confirmed the negative effect of the size on customer loyalty.

Considering the variables about customer satisfaction, all have a significant impact on loyalty. The causal effect between customer satisfaction and loyalty, on one side, and customer value, on the other, is confirmed. Customer satisfaction increases the probability that the customer chooses the bank as his/her own main bank and, in doing so, increases both his/her financial and non-financial value.

Concerning the customer satisfaction variables built with the factor analysis, we obtain the same results by running the same models,. This also holds for the single factors that compose customer satisfaction with relationships and the products. It is not our intention to show here the results, but what seems to be of interest is that for two types of customer satisfaction variables, the loyalty variable is a mediator. Specifically, there is: a direct relationship between (i) the second factor of customer satisfaction with relationships, that is CS with the relations with the front office and the branch, and (ii) rating. In addition, this type of CS impacts also loyalty. Thus, all the conditions are satisfied for the existence of the mediation effect. The same happens for CS with the bank account and the investment products. This suggests us to test whether loyalty could be a

statistically significant mediator of customer satisfaction with rating. In order to do that we run the following models:

$$Rating = \alpha + controls + \beta factor2 + \gamma Loy + \mu + \varepsilon$$
$$Loy = \alpha + controls + \beta factor2 + \mu + \varepsilon$$

and

$$Rating = \alpha + controls + \beta csproduct + \gamma Loy + \mu + \varepsilon$$
$$Loy = \alpha + controls + \beta csproduct + \mu + \varepsilon$$

and calculate the product of the p-values of β and γ for each pair of equations. It is less than 0.0253, so the null hypothesis that $\beta*\gamma=0$ is rejected and loyalty is a mediator (Kenny, 2006)[16] (see Appendix A for the results).

CONCLUDING DISCUSSION

Much recent literature has argued that long-term relationships have the potential of bringing numerous benefits, such as reduced costs, long-term customer loyalty, useful knowledge that assist product innovation, etc. thus improving the performance of the firm. However, especially in retail banking, there is considerable lack of empirical evidence due to the fact that customer satisfaction and retention are difficult to measure (Munari, 2000). The contribution of this work is to provide an empirical analysis of customer relationships inside retail banking, suggesting that they are potential vehicles of learning and therefore a potential source of improved financial performance.

We have tested this by exploring first whether there is a relationship between customer satisfaction and loyalty, on one side, and profitability of the customers for the branch, on the other, and then we have examined the nature of this relationship. The results show that there is not a direct relationship between customer satisfaction and financial and not-financial customer value for the branch. Considering that, there cannot be a mediation effect between these two variables. Thus, there is a causal relationship. More precisely, customer satisfaction directly impacts customer loyalty, which has a direct effect on the profitability of customers for the branch. However, the loyalty variable becomes a mediator in the case of customer satisfaction with relationships with the front office and the branch and in the case of customer satisfaction with the products. Thus, it is arguable that, on the one hand, loyalty is determined in part by customer satisfaction, which impacts

---

[16] The results can be shown on request.

the profitability of the customers. On the other hand, it is important to distinguish between the different types of customer satisfaction. There are, in fact, different relations between the different types of customer satisfaction and financial and not-financial customer value for the branch. Some of them could be stronger and have a much greater impact on the branch's performance. Thus, managers should care about the loyalty of their customers but also about their satisfaction, in particular certain types of customer satisfaction.

Thanks to the structure of the data, made on two levels of analysis, the branch level, that is the macro level, and the customer level, that is the micro level, we were also able to examine the existence and the nature of micro-macro relationships.

It is not all and not always that the branch level variables affect customer level variables, like rating or loyalty. Still, it can be argued that the larger the branch, the smaller the probability that customers choose it as their own main bank. This suggests that large banking firms may have difficulties structuring their organization to build relationships with customers. Instead, small branches make delegation and employee empowerment more feasible, so that a more customer-oriented strategy can be implemented. Long-term, intensive and trusting relations with customers and, consequently, the development of relational competencies increase the profitability of the customers for the branch. Trust-based relations also increase the loyalty of the customers when we consider separately the two types of customer satisfaction. Consequently, in order to increase the profitability of the customers for the branch, what really matters is the way the employees of the branch relate themselves to customers.

Some limitations of our study could be the source of future in-depth examinations. For example, in this study we used rating as a performance variable, a function not only of the financial value of the customer but also of the number of products and the value of these for the branch.[17] A suggestion for future researchers could be to consider the financial value of the customer *per se* as a dependent variable, that is his/her total revenue creation for the branch. The moderation effects between the different types of customer satisfaction might also be further explored.

---

[17] We could test their relation running the following model: $M\text{int\_}c = \alpha + controls + \beta Rating + \mu + \varepsilon$ where *Mint_c* is the total revenue of each customer for the branch he/she belongs to. It could be difficult for the other variables of the model to be significant, as rating is a function of total revenue. Anyway, this problem does not exist in our case because of the low correlation between the two variables (0.2259). The results showed that there is a positive and significant relation between rating and MINT. We, then, could argue that, considering that the total revenue generated by the branch is the sum of the total revenue of each customer that belongs to that branch, if there is a relation between customers' satisfaction, their loyalty, their rating and their total revenue, then all these variables have an impact on the total revenue generated by the branch. It could also be noted that, here, the only controls that have relevance are the ones at the branch level, but this fact, considered together with the positive correlation between MINT and the number of products and their value for the branch, lead us to think that good relationships with customers make them buy many more products, particularly products of high value for the branch. This has a positive impact on MINT, which is directly and positively influenced by the size and negatively by the years in operation of the branch.

REFERENCES

Andersson U., Mudambi R. and Persson M. (2006), Activity Structure and Centralization: Impacts on performance dimensions of inter-unit knowledge, 2006 The Copenhagen Conference on Strategic management (CCSM) organized by the Centre for Strategic Management and Globalization, CBS, Copenhagen, Denmark

Ansari S. and van Neerijnen P. (2006), Capability generation in hyper-competitive environments: Leveraging strong and weak ties to integrate organizational knowledge, 2006 The Copenhagen Conference on Strategic management (CCSM) organized by the Centre for Strategic Management and Globalization, CBS, Copenhagen, Denmark

Askenazy P. (2000), Innovations and employment: evidence from American manufacturing, in Vivarelli M., Pianta N. (eds), *The employment impact of innovation. Evidence and Policy*, Routledge, London

Baker G., Gibbons, R. And K. Murphy (2002), Relational Contracts and the Theory of the Firm, *Quarterly Journal of Economics*, February, 117:1, pp. 39-84

Baron R. M. and Kenny D. A. (1986), The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations, *Journal of Personality and Social Psychology*, vol. 51, n. 6 pp. 1173-1182

Baron R. M. and Kenny D. A. (1986), The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations, *Journal of Personalityand Social Psychology*, vol. 51, n. 6, pp. 1173-1182

Bartel A. P. (2004), *Human Resource Management and Organizational Performance: evidence from Retail Banking*, Industrial and Labour Review, vol. 57, n. 2

Bartel A. P., Ichniowski C., andShaw K. L. (2005), *How does information technology really affect productivity? plant-level comparisons of product innovation, process improvement and worker skills*, NBER, Working Paper 11773, November

Bauer T. K. (2003), *Flexible Workplace Practices and Labor Productivity*, IZA Discussion paper, n.700, Bonn

Black S. and Lynch L. (2005), *Measuring organizational capital in the new economy*, IZA Dicussion Paper n. 1524

Bolton R. N. et al. (2006), The effect of Service Experiences over Time on a Supllier's Retention of Business Customers, *Management Science*, vol. 52 n. 12 pp. 1811-1823

Cabrera A., Collins W. C. and Salgano J. F. (2006), Determinants of individuals engagement in knowledge sharing, *International Journal of Human Resource Management*, 17:2, February, pp. 245-264

Cabrera E. F. and Cabrera A. (2005), Fostering knowledge sharing through people management practices, *International Journal of Human Resource Management*, 16:5, May, pp. 720-735

Camuffo A. and Costa G. (1995), *Banca & Organizzazione*, Edibank, Milano

Canato A. and Corrocher N. (2004), Information and communication technology: organizational challenges for Italian banks, *Accounting, Business and Financial History*, November, pp. 355-370

Caroli E., Van Reenen J. (2001), Skill-*Biased Organizational Change? Evidence from a Panel of British and French establishments*, The Quarterly Journal of Economics, CXVI, Issue 4, 1449-1492

Cohen W. M. e Levinthal D. A. (1990), Absorptive Capacity: A New Perspective on Learning and Innovation, *Administrative Science Quarterly*, 35, pp. 128-152

Cristini A., Gaj A., Labory S., Leoni R. (2003), *Flat hierarchical strcture, bundles of new work practices and firm performance*, Rivista Italiana degli Economisti, n.2, agosto

Foss N. J. (2005), *Strategy, Economic Organization, and the Knowledge Economy*, Oxford University Press, New York

Foss N. J., Laursen K.and Pedersen T (2006), Organizing to gain from interaction with customers: the role of organizational practices for knowledge absorption and innovation, 2006 The Copenhagen Conference on Strategic management (CCSM) organized by the Centre for Strategic Management and Globalization, CBS, Copenhagen, Denmark

Garbarino E. e Johnson M. S. (1999), The different roles of satisfaction, trust, and commitment in customer relationships, *Journal of marketing*, Vol. 63 (Aprile 1999), 70-87

Garicano L. (2000), Hierarchies and the Organization of Knowledge in Production, *Journal of Political Economics*, Vol. 108(5), pp. 874-904, October

Greenan N. (1996), *Innovation technologique, changements organisationnels et evolution des competences: une étude empirique sur l'industrie manufacturiére*, Economie et Stetistique, vol. 8, n. 298, pp. 15-33

Griffith R. et al. (2006), Why is productivity so dispersed?, *Oxford Review of Economic Policy*, vol. 22 n. 4 pp. 526-538

Hair J.F. et al. (1995), *Multivariate Data Analysis with Readings – fourth edition,* Prentice Hall International Editions, Eglewood Cliffs, New Jersey

Hamilton B. H., et al. (2003), Team Incentives and Worker Heterogeneity: An Empirical Analysis of the Impact of Teams on Productivity and Participation, *Journal of Political Economy*, III(3), pp. 465-497

Hill N., Brierley J., Macdougall R. (2003), *How to measure Customer Satisfaction*, Gower, Hampshire, England

Hox J. (2002), *Multilevel Analysis – Techniques and Applications*, Lawrence Erlbaum Associates, Publishers, Mahwah, New Jersey, USA

Hunter L. W. et al. (2001), It's not just ATMs: Technology, Firm Strategies, Jobs, and Earnings in Retail Banking, *Industrial and Labour Relations Review*, Vol. 54, n. 2A, extra issue, March, pp.402-424

Ichniowski C., Shaw K., Prennushi G. (1997), *The Effects of HRM Systems on Productivity: A Study of Steel Finishing Lines*, American Economic Review, 87, 291-313

Jackson J.E. (1991), *A users' guide to Principal Components*, John Wiley & Sons, New York

Johnson R.A. and Wichern D.W. (1992), *Applied Multivariate Statistical Analysis – third edition*, Prentice Hall International Editions, Eglewood Cliffs, New Jersey

Jones D. C. et al. (2006), Human Resource Management Polices and Productivity: New Evidence from an Econometric Case Study, *Oxford Review of Economic Policy*, vol. 22 n. 4 pp. 526-538

Jong G. de, Nooteboom B.(2000), *The causal structure of long-term supplì relationships*, Kluwer, Dordrecht

Keltner B. and Finegold D. (1996), Adding Value in Banking: Human Resouce Innovations for Service Firms, *Sloan Management Review*, Fall, pp. 57-68

Kline P. (1994), *Guida facile all'analisi fattoriale*, Casa Editrice Astrolabio, Ubaldini editore, Roma

Lundvall B.A. (1988),*Innovation a san interactive process: fron user-producer interaction to the national system of innovation*, in Dosi G. et al. (eds), *Technical Change and Economic Theory*, Pinter Publishers, London

Munari L. (2000), Customer satisfaction e Redditività nelle Banche, *Banche e Banchieri*, n.3, pp. 195-224

Nahapiet J. and Ghoshal S. (1998), Social Capital, Intellectual Capital and the Organizational Advantage, *Academy of Management Review*, Vol. 23, N. 2, pp. 242-266

Nooteboom B. (2002), *Trust – Forms, Foundations, Functions, Failures and Figures*, Edward Elgar, Cheltenham, UK – Northampton, MA, USA

Nooteboom B., Six F. (2003), *The trust Process in Organizations – Empirical Studies of the Determinants and the Process of Trust Development*, Edward Elgar, Cheltenham, UK – Northampton, MA, USA

Raudenbush S. et al. (2004), *HLM6 – Hierarchical Linear & Non-linear Modeling* , SSI Scientific Software international, USA

Raudenbush S. W. E Bryk A. S. (2002), *Hierarchical Linear Models – Applications and Data Analysis Methods – Second Editino*, Sage Publications – International Educational and Professional Publisher, USA

Raudenbush S. W. Et al. (2006), Strategies for Improving Precision in Group-Randomized Experiments, *http://sitemaker.umich.edu/group-based/home*

Sacco, Zamagni (a cura di) (2002), *Complessità relazionale e comportamento economico- materiali per un nuovo paradigma di razionalità*, Il Mulino, Bologna

Sako M. (2000), *Does trust improve business performance?*, in Lane C.-Bachmann R. (eds), *Trust within and between organizations*, Oxford University Press, Oxford

Spybrook J. Et al. (2006), Optimal Design for Longitudinal and Multilevel Research: Documentation for the "Optimal Design" Software, *http://sitemaker.umich.edu/group-based/home*

Teece D.J., (1992), *Competition, Cooperation, and Innovation: Organizational Arrangements for Regimes of Rapid Technological Progress*, J. Econ. Behav. Organ., 18(1), pp. 1-25

Zwick T. 2003. *The productivity impact of lean management*, Discussion paper, Centre for European Economic Research (ZEW), Mannheim

Table 1: *Identification of the sample branches: factor analysis.*

Variable	1	2
cs_imm1	**0.47**	0.24
cs_imm2	**0.42**	0.25
cs_relempl1	0.04	-0.03
cs_relempl2	0.24	**0.52**
cs_relempl3	0.28	**0.45**
cs_relempl4	0.03	**0.67**
cs_relempl5	0.26	**0.43**
cs_relman1	**0.81**	0.02
cs_relman2	**0.91**	-0.04
cs_relman3	**0.91**	-0.04
cs_relman4	**0.78**	0.08
cs_relman5	**0.86**	-0.01
cs_relman6	**0.84**	-0.01
cs_relbranch1	0.06	**0.60**
cs_relbranch2	-0.04	**0.69**
cs_relbranch3	0.03	**0.63**
cs_relbranch4	-0.11	**0.78**
cs_relbranch5	0.14	**0.61**
avcs_prodr	0.38	**0.38**
Loy	0.01	0.05
Eigen value	8.87	1.01
proportion	0.89	0.10
cumulative	0.89	1.00

Factors obtained with factor analysis and varimax rotation.

Table 2: *CS with relationships' components.*

	Front office employees
cs_relemployee2	Qualifications
cs_relemployee3	willingness to give information and explanations
cs_relemployee4	speed in attending to customers' business
cs_relemployee5	recognition
	Managers
cs_relmanager1	capability to make interesting proposals
cs_relmanager2	capability to meet customer's needs
cs_relmanager3	capability to solve customer's problems
cs_relmanager4	capability to make the customer feel special
cs_relmanager5	flexibility in the management of the customer's requests
cs_relmanager6	Credibility
	Branch
cs_relbranch1	simplicity of orientation
cs_relbranch2	waiting areas' look
cs_relbranch3	privacy guaranteed by the dedicated consultant spaces
cs_relbranch4	waiting time at the front office
cs_relbranch5	waiting time to terminate a contract

Table 3: *Deepening Customer Satisfaction with Relationships: Factor Analysis.*

Variable	1	2
cs_relempl2	0.47	**0.65**
cs_relempl3	0.48	**0.65**
cs_relempl4	0.32	**0.76**
cs_relempl5	0.48	**0.57**
cs_relman1	**0.82**	0.33
cs_relman2	**0.87**	0.34
cs_relman3	**0.86**	0.32
cs_relman4	**0.81**	0.37
cs_relman5	**0.84**	0.36
cs_relman6	**0.82**	0.37
cs_relbranch1	0.33	**0.70**
cs_relbranch2	0.22	**0.74**
cs_relbranch3	0.32	**0.67**
cs_relbranch4	0.22	**0.79**
cs_relbranch5	0.41	**0.69**
Eigen value	9.23	1.32
proportion	**0.62**	**0.09**
cumulative	0.62	0.70

Factors obtained with factor analysis and varimax rotation.

Table 4: *Mean, Standard Deviation, Minimum and Maximum Value and Correlations.*

Variables	Mean	St. Dev.	Min.	Max.
- Rating	5.27	2.65	1	8
- Number of employees	17.13	15.07	3	72
- Years in operation (ln)	3.71	0.88	1.79	4.91
- City/town	0.64	0.48	0	1
- Bg	0.45	0.50	0	1
- Years of relationship	10.12	7.75	0	33
- Number of transactions made by the customer	71.87	52.47	0	596
- AIR/BIR	1.61	0.49	1	2
- Total Customer Satisfaction (mean)	7.76	0.94	3.43	9.93
- CS with relations	7.88	1.24	1	10
- CS with products	7.62	0.74	2.67	9.87
- Loyalty	2.75	0.58	0	3

		a	b	c	d	e	f	g	h	i	j	k	l
a	Rating	1											
b	Number of employees	0.00	1										
c	Years in operation (ln)	0.02	0.38	1									
d	City/town	0.02	-0.37	0.18	1								
e	bg	-0.01	-0.06	0.46	0.05	1							
f	Years of relationship	0.20	0.00	0.05	0.02	0.04	1						
g	Number of transactions through the bank account	0.10	0.03	0.05	0.00	0.07	0.11	1					
h	AIR/BIR	0.04	0.02	0.01	0.00	0.00	0.03	0.23	1				
i	Cstot (mean)	0.05	0.01	-0.06	-0.01	-0.07	-0.01	0.02	0.00	1			
j	Csrel (mean)	0.01	0.01	-0.03	0.00	-0.03	-0.01	0.02	0.00	0.96	1		
k	Csprod (mean)	0.00	-0.02	-0.05	0.00	-0.05	-0.03	0.02	-0.01	0.91	0.76	1	
l	Loyalty	0.12	-0.06	-0.02	0.00	0.02	0.09	0.19	0.15	0.21	0.18	0.21	1

Table 5: *Rating, Loyalty and Overall Customer Satisfaction Relationship*

Independent Variables	Model 1[18] Dep. Var.: Rating Coeff. P>z S.		Model 2 Dep. Var.: Loyalty Coeff. P>z S.		Model 3 Dep. Var.: Rating Coeff. P>z S.	
Branch level control variables:						
- Number of employees (size)	-0.005 0.172		-0.012 0.000	***	-0.001 0.741	
- Years in operation (ln)	0.086 0.169		0.135 0.120		0.020 0.633	
- City/town	0.049 0.601		-0.174 0.113		0.031 0.649	
- BG	-0.044 0.625		-0.016 0.899		-0.058 0.384	
Customer level control variables:						
- Years of relationship with the branch	0.032 0.000	***	0.005 0.486		0.027 0.000	***
- Number of operations	0.001 0.063	*	0.004 0.000	***	0.001 0.003	**
- AIR/BIR	-0.017 0.852		0.260 0.024	**	0.015 0.799	
Customer Satisfaction[19]	0.059 0.103		0.322 0.000	***		
Loyalty					0.169 0.001	***
Obs.	874		816		1920	
Wald Chi2	57.10		77.96		120.67	
Prob Wald Chi2	0.000		0.000		0.000	
Pseudo R2	0.0195		0.0778		0.0167	

Ordered probit estimation controlled for clusters.

*** are for p-value< 0.01; ** are for p-value< 0.05; and * is for p-value< 0.1.

---

[18] As explained, the sub-sample in models 1 and 2 seems to be not biased and representative of the 2105 customers belonging to the original sample.

[19] This Customer Satisfaction index is the mean of all the items about customer satisfaction with relations and products.

Table 6: *The t-test*

Variable	Sample 1: 2105		Sample 2: 874		Min	Max	t-test on mean differences
	Mean	Std. Dev.	Mean	Std. Dev.			p-value
Number of employees (size)	17.12732	15.06854	17.27231	15.37814	3	72	0.812
Years in operation (ln)	3.70726	0.8801	3.710258	0.887366	1.791759	4.912655	0.933
City/town	0.634679	0.481634	0.632723	0.482339	0	1	0.920
BG	0.453682	0.497968	0.464531	0.499026	0	1	0.589
Years of relationship with the branch	10.12257	7.753031	9.947368	7.723722	0	33	0.574
Number of transactions	71.86556	52.46878	80.17506	56.96043	0	596	0.000 ***
AIR/BIR	1.609501	0.487978	1.643021	0.479383	1	2	0.086

Table 7: *Rating, Loyalty and Customer Satisfaction with relations and products: relationships.*

Independent Variables	Model 4 Dep. Var.: Rating Coeff. P>z S.	Model 5 Dep. Var.: Loyalty Coeff. P>z S.	Model 6 Dep. Var.: Rating Coeff. P>z S.	Model 7 Dep. Var.: Loyalty Coeff. P>z S.
Branch level control variables:				
- Number of employees (size)	-0.004 0.220	-0.009 0.001 ***	-0.002 0.494	-0.009 0.003 **
- Years in operation (ln)	0.076 0.150	0.012 0.850	0.036 0.495	0.135 0.079 *
- City/town	-0.027 0.737	-0.102 0.321	0.082 0.320	-0.130 0.213
- BG	-0.092 0.192	-0.005 0.954	-0.052 0.510	0.057 0.613
Customer level control variables:				
- Years of relationship with the branch	0.032 0.000 ***	0.012 0.033 **	0.028 0.000 ***	0.011 0.077 *
- Number of operations	0.002 0.001 ***	0.005 0.000 ***	0.001 0.012 ***	0.004 0.000 ***
- AIR/BIR	0.045 0.477	0.296 0.000 ***	-0.060 0.520	0.245 0.021 **
Customer Satisfaction with relations[20]	0.013 0.570	0.188 0.000 ***		
Customer Satisfaction with products[21]			0.011 0.795	0.379 0.000 ***
Obs.	1546	1427	1079	1000
Wald Chi2	108.72	108.18	53.42	79.94
Prob Wald Chi2	0.000	0.000	0.000	0.000
Pseudo R2	0.018	0.069	0.014	0.073

Ordered probit estimation controlled for clusters.
*** are for p-value< 0.01; ** are for p-value< 0.05; and * is for p-value< 0.1.

---

[20] This Customer Satisfaction index is a mean of all the items about CS with relations.

[21] This Customer Satisfaction index is a mean of all the items about CS with products.

APPENDIX A

Table 1A: *Customer satisfaction with products: factor analysis result*

Variable	1	2
cs_ba1	**0.24**	-0.31
cs_ba2	**0.23**	-0.25
cs_ba3	**0.22**	-0.30
cs_inv1	0.05	**-0.75**
cs_inv2	0.19	**-0.79**
cs_inv3	0.17	**-0.84**
cs_inv4	0.10	**-0.83**
cs_inv5	0.15	**-0.82**
cs_fin1	0.33	**0.04**
cs_fin2	0.43	**-0.18**
cs_fin3	**0.80**	-0.10
cs_fin4	**0.87**	-0.15
cs_fin5	**0.81**	-0.18
cs_fin6	**0.83**	-0.18
cs_fin7	**0.72**	-0.08
Eigen value	5.80	2.38
proportion	0.68	0.28
cumulative	0.68	0.96

Rotated factors: varimax rotation.

Table 2A: *Rating, Loyalty and Overall Customer Satisfaction Relationship with CS index build through the factor analysis*

Independent Variables	Model 1[22] Dep. Var.: Rating			Model 2 Dep. Var.: Loyalty		
	Coeff.	P>z	S.	Coeff.	P>z	S.
Branch level control variables:						
- Number of employees (size)	-0.005	0.179		-0.011	0.001	***
- Years in operation (ln)	0.085	0.176		0.127	0.150	
- City/town	0.051	0.590		-0.164	0.137	
- BG	-0.043	0.627		-0.010	0.937	
Customer level control variables:						
- Years of relationship with the branch	0.032	0.000	***	0.005	0.495	
- Number of transactions	0.001	0.063	*	0.004	0.000	***
- AIR/BIR	-0.017	0.852		0.265	0.020	**
Customer Satisfaction[23]	0.006	0.131		0.032	0.000	***
Obs.	874			816		
Wald Chi2	56.92			74.18		
Prob Wald Chi2	0.000			0.000		
Pseudo R2	0.0194			0.0757		

Ordered probit estimation controlled for clusters.
*** are for p-value< 0.01; ** are for p-value< 0.05; and * is for p-value< 0.1.

---

[22] As explained, the sub-sample in models 1 and 2 seems to be not biased and representative of the 2105 customers belonging to the original sample.

[23] This Customer Satisfaction index is built with the factor analysis.

Table 3A: *Rating, Loyalty and Customer Satisfaction with relations built through the factor analysis: relationships*

Independent Variables	Model 3 Dep. Var.: Rating Coeff. P>z S.			Model 4 Dep. Var.: Rating Coeff. P>z S.			Model 5 Dep. Var.: Loyalty Coeff. P>z S.			Model 6 Dep. Var.: Loyalty Coeff. P>z S.		
Branch level control variables:												
- Number of employees (size)	-0.004	0.207		-0.004	0.225		-0.009	0.002	**	-0.009	0.002	**
- Years in operation (ln)	0.076	0.150		0.074	0.161		0.013	0.843		0.012	0.858	
- City/town	-0.039	0.633		-0.028	0.729		-0.097	0.346		-0.087	0.398	
- BG	-0.090	0.198		-0.092	0.190		-0.006	0.948		-0.009	0.927	
Customer level control variables:												
- Years of relationship with the branch	0.031	0.000	***	0.031	0.000	***	0.013	0.024	**	0.013	0.017	**
- Number of transactions	0.002	0.001	***	0.002	0.001	***	0.005	0.000	***	0.005	0.000	***
- AIR/BIR	0.046	0.466		0.044	0.477		0.297	0.000	***	0.299	0.000	***
Customer Satisfaction with relations[24]												
Factor1 (rel. with managers)	-0.043	0.135					0.206	0.000	***			
Factor2 (rel. with front office employees and branch)	0.065	0.019	**				0.123	0.004	**			
Synthetic index				-0.052	0.262					0.347	0.000	***
Obs.	1546			1546			1427			1427		
Wald Chi2	115.87			112.25			144.50			143.48		
Prob Wald Chi2	0.000			0.000			0.000			0.000		
Pseudo R2	0.020			0.019			0.071			0.067		

Ordered probit estimation controlled for clusters.

*** are for p-value< 0.01; ** are for p-value< 0.05; and * is for p-value< 0.1.

---

[24] This Customer Satisfaction index is built with the factor analysis.

Table 4A: *Rating, Loyalty and Customer Satisfaction with products built through the factor analysis: relationships*

Independent Variables	Model 7 Dep. Var.: Rating			Model 8 Dep. Var.: Rating			Model 9 Dep. Var.: Rating			Model 10 Dep. Var.: Loyalty		
	Coeff.	P>z	S.	Coeff.	P>z	S.	Coeff.	P>z	S.	Coeff.	P>z	S.
Branch level control variables:												
- Number of employees (size)	-0.002	0.585		-0.002	0.589		-0.007	0.004	**	-0.007	0.007	**
- Years in operation (ln)	0.053	0.224		0.052	0.237		0.037	0.559		0.030	0.634	
- City/town	0.009	0.896		0.009	0.892		-0.064	0.477		-0.061	0.513	
- BG	-0.073	0.238		-0.074	0.235		-0.000	0.997		-0.006	0.944	
Customer level control variables:												
- Years of relationship with the branch	0.029	0.000	***	0.028	0.000	***	0.017	0.000	***	0.016	0.001	***
- Number of transactions												
- AIR/BIR	0.002	0.000	***	0.002	0.000	***	0.005	0.000	***	0.005	0.000	***
	0.031	0.600		0.030	0.611		0.275	0.000	***	0.277	0.000	***
Customer Satisfaction about products[25]												
Factor1 (fin)	-0.003	0.725					0.044	0.000	***			
Factor2 (cc and inv)	-0.010	0.045	**				-0.025	0.001	***			
Synthetic index				-0.010	0.368					0.045	0.002	**
Obs.	1992			1992			1822			1822		
Wald Chi2	144.31			142.70			148.92			107.04		
Prob Wald Chi2	0.000			0.000			0.000			0.000		
Pseudo R2	0.0153			0.015			0.0618			0.047		

Ordered probit estimation controlled for clusters.
*** are for p-value< 0.01; ** are for p-value< 0.05; and * is for p-value< 0.1.

---

[25] This Customer Satisfaction index is built with the factor analysis.

APPENDIX B

COSTUMER SATISFACTION QUESTIONNAIRE

SATISFACTION:

How much are you satisfied about:
  1. **image**
  - clarity of the bank
  - honesty of the bank
  2. **relations**
  - <u>front office</u>:
  - kindness and education
  - qualification
  - willingness to give information and explanations
  - speed in attending to customers' business
  - recognition
  - <u>managers</u>
  - capability to make interesting proposals
  - capability to answer to the customer's needs
  - capability to solve the customer's problems
  - capability to make the customer feels special
  - flexibility in the management of the customer's requests
  - credibility
  - <u>branch</u>
  - semplicity of orientation
  - waiting areas's look
  - privacy guaranteed by the dedicated consultant spaces
  - waiting time at the front office
  - waiting time to terminate a contract
  - <u>communication</u>
  - contacts frequency
  - <u>total</u>
  3. **bank account**
  - clarity about modifications into the bank account conditions
  - capability to solve the customer's problems about the malfunctioning of the credit card and bancomat
  - bank account conditions about the offered services
  4. **investment products**
  - tempestivity of the communications about investments trend
  - capability to explain with transparency all the characteristics and the contractual conditions of the investment product that is proposed
  - capability to make personalized proposals
  - willingness to periodically re-examine the investments' status
  - competences about legislative and fiscal aspects of the investments
  5. **financing products**
  - time for the approval of a loan
  - time for the concession of a bank credit
  - willingness to give information and explanations about the financing

- capability to explain with transparency all the characteristics and the contractual conditions of the financing product that is proposed
- capability to make personalized proposals
- competences about technical, legislative and fiscal aspects of the investments
- support and consultancy about practices that aren't object of the competences of the bank

6. insurance products
- semplicity and speed in finding adding and deeper information about the policy
- capability to explain with transparency all the characteristics and the contractual conditions of the insurance product that is proposed
- capability to manage a practice after a accident
- simplicity in obtaining information about the necessary documentation to obtain a refund

7. total bank satisfaction

LOYALTY:

1. cc/inv p./fin p./ins p.
- bpb is your main bank

SMG – Working Papers
www.cbs.dk/smg
2003

2003-1: Nicolai J. Foss, Kenneth Husted, Snejina Michailova, and Torben Pedersen: Governing Knowledge Processes: Theoretical Foundations and Research Opportunities.

2003-2: Yves Doz, Nicolai J. Foss, Stefanie Lenway, Marjorie Lyles, Silvia Massini, Thomas P. Murtha and Torben Pedersen: Future Frontiers in International Management Research: Innovation, Knowledge Creation, and Change in Multinational Companies.

2003-3: Snejina Michailova and Kate Hutchings: The Impact of In-Groups and Out-Groups on Knowledge Sharing in Russia and China CKG Working Paper.

2003-4: Nicolai J. Foss and Torben Pedersen : The MNC as a Knowledge Structure: The Roles of Knowledge Sources and Organizational Instruments in MNC Knowledge Management CKG Working Paper.

2003-5: Kirsten Foss, Nicolai J. Foss and Xosé H. Vázquez-Vicente: "Tying the Manager's Hands": How Firms Can Make Credible Commitments That Make Opportunistic Managerial Intervention Less Likely CKG Working Paper.

2003-6: Marjorie Lyles, Torben Pedersen and Bent Petersen: Knowledge Gaps: The Case of Knowledge about Foreign Entry.

2003-7: Kirsten Foss and Nicolai J. Foss: The Limits to Designed Orders: Authority under "Distributed Knowledge" CKG Working Paper.

2003-8: Jens Gammelgaard and Torben Pedersen: Internal versus External Knowledge Sourcing of Subsidiaries - An Organizational Trade-Off.

2003-9: Kate Hutchings and Snejina Michailova: Facilitating Knowledge Sharing in Russian and Chinese Subsidiaries: The Importance of Groups and Personal Networks Accepted for publication in *Journal of Knowledge Management.*

2003-10: Volker Mahnke, Torben Pedersen and Markus Verzin: The Impact of Knowledge Management on MNC Subsidiary Performance: the Role of Absorptive Capacity CKG Working Paper.

2003-11: Tomas Hellström and Kenneth Husted: Mapping Knowledge and Intellectual Capital in Academic Environments: A Focus Group Study Accepted for publication in *Journal of Intellectual Capital* CKG Working Paper.

2003-12: Nicolai J Foss: Cognition and Motivation in the Theory of the Firm: Interaction or "Never the Twain Shall Meet"? Accepted for publication in *Journal des Economistes et des Etudes Humaines* CKG Working Paper.

2003-13: Dana Minbaeva and Snejina Michailova: Knowledge Transfer and Expatriation Practices in MNCs: The Role of Disseminative Capacity.

2003-14: Christian Vintergaard and Kenneth Husted: Enhancing Selective Capacity Through Venture Bases.

2004

2004-1: Nicolai J. Foss: Knowledge and Organization in the Theory of the Multinational Corporation: Some Foundational Issues

2004-2: Dana B. Minbaeva: HRM Practices and MNC Knowledge Transfer

2004-3: Bo Bernhard Nielsen and Snejina Michailova: Toward a Phase-Model of Global Knowledge Management Systems in Multinational Corporations

2004-4: Kirsten Foss & Nicolai J Foss: The Next Step in the Evolution of the RBV: Integration with Transaction Cost Economics

2004-5: Teppo Felin & Nicolai J. Foss: Methodological Individualism and the Organizational Capabilities Approach

2004-6: Jens Gammelgaard, Kenneth Husted, Snejina Michailova: Knowledge-sharing Behavior and Post-acquisition Integration Failure

2004-7: Jens Gammelgaard: Multinational Exploration of Acquired R&D Activities

2004-8: Christoph Dörrenbächer & Jens Gammelgaard: Subsidiary Upgrading? Strategic Inertia in the Development of German-owned Subsidiaries in Hungary

2004-9: Kirsten Foss & Nicolai J. Foss: Resources and Transaction Costs: How the Economics of Property Rights Furthers the Resource-based View

2004-10: Jens Gammelgaard & Thomas Ritter: The Knowledge Retrieval Matrix: Codification and Personification as Separate Strategies

2004-11: Nicolai J. Foss & Peter G. Klein: Entrepreneurship and the Economic Theory of the Firm: Any Gains from Trade?

2004-12: Akshey Gupta & Snejina Michailova: Knowledge Sharing in Knowledge-Intensive Firms: Opportunities and Limitations of Knowledge Codification

2004-13: Snejina Michailova & Kate Hutchings: Knowledge Sharing and National Culture: A Comparison Between China and Russia

2005

2005-1: Keld Laursen & Ammon Salter: My Precious - The Role of Appropriability Strategies in Shaping Innovative Performance

2005-2: Nicolai J. Foss & Peter G. Klein: The Theory of the Firm and Its Critics: A Stocktaking and Assessment

2005-3: Lars Bo Jeppesen & Lars Frederiksen: Why Firm-Established User Communities Work for Innovation: The Personal Attributes of Innovative Users in the Case of Computer-Controlled Music

2005-4: Dana B. Minbaeva: Negative Impact of HRM Complementarity on Knowledge Transfer in MNCs

2005-5: Kirsten Foss, Nicolai J. Foss, Peter G. Klein & Sandra K. Klein: Austrian Capital

Theory and the Link Between Entrepreneurship and the Theory of the Firm

2005-1: Nicolai J. Foss: The Knowledge Governance Approach

2005-2: Torben J. Andersen: Capital Structure, Environmental Dynamism, Innovation Strategy, and Strategic Risk Management

2005-3: Torben J. Andersen: A Strategic Risk Management Framework for Multinational Enterprise

2005-4: Peter Holdt Christensen: Facilitating Knowledge Sharing: A Conceptual Framework

2005-5 Kirsten Foss & Nicolai J. Foss: Hands Off! How Organizational Design Can Make Delegation Credible

2005-6 Marjorie A. Lyles, Torben Pedersen & Bent Petersen: Closing the Knowledge Gap in Foreign Markets - A Learning Perspective

2005-7 Christian Geisler Asmussen, Torben Pedersen & Bent Petersen: How do we Capture "Global Specialization" when Measuring Firms' Degree of internationalization?

2005-8 Kirsten Foss & Nicolai J. Foss: Simon on Problem-Solving: Implications for New Organizational Forms

2005-9 Birgitte Grøgaard, Carmine Gioia & Gabriel R.G. Benito: An Empirical Investigation of the Role of Industry Factors in the Internationalization Patterns of Firms

2005-10 Torben J. Andersen: The Performance and Risk Management Implications of Multinationality: An Industry Perspective

2005-11 Nicolai J. Foss: The Scientific Progress in Strategic Management: The case of the Resource-based view

2005-12 Koen H. Heimeriks: Alliance Capability as a Mediator Between Experience and Alliance Performance: An Empirical Investigation Into the Alliance Capability Development Process

2005-13 Koen H. Heimeriks, Geert Duysters & Wim Vanhaverbeke: Developing Alliance Capabilities: An Empirical Study

2005-14 JC Spender: Management, Rational or Creative? A Knowledge-Based Discussion

2006

2006-1: Nicolai J. Foss & Peter G. Klein: The Emergence of the Modern Theory of the Firm

2006-2: Teppo Felin & Nicolai J. Foss: Individuals and Organizations: Thoughts on a Micro-Foundations Project for Strategic Management and Organizational Analysis

2006-3: Volker Mahnke, Torben Pedersen & Markus Venzin: Does Knowledge Sharing

Pay? An MNC Subsidiary Perspective on Knowledge Outflows

2006-4:   Torben Pedersen: Determining Factors of Subsidiary Development

2006-5   Ibuki Ishikawa: The Source of Competitive Advantage and Entrepreneurial Judgment in the RBV: Insights from the Austrian School Perspective

2006-6   Nicolai J. Foss & Ibuki Ishikawa: Towards a Dynamic Resource-Based View: Insights from Austrian Capital and Entrepreneurship Theory

2006-7   Kirsten Foss & Nicolai J. Foss: Entrepreneurship, Transaction Costs, and Resource Attributes

2006-8   Kirsten Foss, Nicolai J. Foss & Peter G. Klein: Original and Derived Judgement: An Entrepreneurial Theory of Economic Organization

2006-9   Mia Reinholt: No More Polarization, Please! Towards a More Nuanced Perspective on Motivation in Organizations

2006-10   Angelika Lindstrand, Sara Melen & Emilia Rovira: Turning social capital into business? A study of Swedish biotech firms' international expansion

2006-11   Christian Geisler Asmussen, Torben Pedersen & Charles Dhanaraj: Evolution of Subsidiary Competences: Extending the Diamond Network Model

2006-12   John Holt, William R. Purcell, Sidney J. Gray & Torben Pedersen: Decision Factors Influencing MNEs Regional Headquarters Location Selection Strategies

2006-13   Peter Maskell, Torben Pedersen, Bent Petersen & Jens Dick-Nielsen: Learning Paths to Offshore Outsourcing - From Cost Reduction to Knowledge Seeking

2006-14   Christian Geisler Asmussen: Local, Regional or Global? Quantifying MNC Geographic Scope

2006-15   Christian Bjørnskov & Nicolai J. Foss: Economic Freedom and Entrepreneurial Activity: Some Cross-Country Evidence

2006-16   Nicolai J. Foss & Giampaolo Garzarelli: Institutions as Knowledge Capital: Ludwig M. Lachmann's Interpretative Institutionalism

2006-17   Koen H. Heimriks & Jeffrey J. Reuer: How to Build Alliance Capabilities

2006-18   Nicolai J. Foss, Peter G. Klein, Yasemin Y. Kor & Joseph T. Mahoney: Entrepreneurship, Subjectivism, and the Resource – Based View: Towards a New Synthesis

2006-19   Steven Globerman & Bo B. Nielsen: Equity Versus Non-Equity International Strategic Alliances: The Role of Host Country Governance

2007

2007-1   Peter Abell, Teppo Felin & Nicolai J. Foss: Building Micro-Foundations for the Routines, Capabilities, and Performance Links

2007-2   Michael W. Hansen, Torben Pedersen & Bent Petersen: MNC Strategies and Linkage Effects in Developing Countries

2007-3   Niron Hashai, Christian G. Asmussen, Gabriel R.G. Benito & Bent Petersen: Predicting the Diversity of Foreign Entry Modes

2007-4   Peter D. Ørberg Jensen & Torben Pedersen: Whether and What to Offshore?

2007-5   Ram Mudambi & Torben Pedersen: Agency Theory and Resource Dependency Theory: Complementary Explanations for Subsidiary Power in Multinational Corporations

2007-6   Nicolai J. Foss: Strategic Belief Management

2007-7   Nicolai J. Foss: Theory of Science Perspectives on Strategic Management Research: Debates and a Novel View

2007-8   Dana B. Minbaeva: HRM Practices and Knowledge Transfer in MNCs

2007-9   Nicolai J. Foss: Knowledge Governance in a Dynamic Global Context: The Center for Strategic Management and Globalization at the Copenhagen Business School

2007-10 Paola Gritti & Nicolai J. Foss: Customer Satisfaction and Competencies: An Econometric Study of an Italian Bank