Strategic competition in retail banking under expense preference behavior

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Abstract

This paper presents a theoretical analysis of strategic competition in retail banking when some of the firms show expense preference behavior. The literature on expense preference behavior by banking firms is fairly large, but to our knowledge, so far, the strategic interaction between profit maximizing banks and banks with expense preference behavior has not been investigated. The paper has also an empirical interest since it is motivated by the current situation in Spanish retail banking where commercial banks, profit maximizers, compete with savings banks, non profit maximizers. © 2000 Elsevier Science B.V. All rights reserved.

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1. Introduction

The expense preference behavior of banking firms has been considered a consequence of the ownership and governance structure of the financial insti-

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tutions, and in particular of the peculiar assignment of property rights in banking firms such as savings and loans in the USA. The ownership of these firms is unclear and this leaves room for their control by managers and workers with preferences different from shareholders’ value maximization. Several papers have looked at the implications for demand and interest rates of having banking firms maximizing an utility function which depends on profits and labor expenditures. ¹ These papers, however, look at the utility maximizing firm in isolation, i.e., as a market monopolist. The situation where profit maximizers and utility maximizers compete in an oligopolistic market has not yet been explored, and it is the main concern of the present paper.

Our theoretical model fits well in the present situation of the Spanish retail banking market, where commercial banks compete with savings banks (‘Cajas de Ahorros’). Since the mid seventies savings banks have increased their share of bank deposits from 30% to 50%. The erosion of commercial banks’ market share in favor of savings banks has occurred at the same time that the latter outperformed the former in profitability and solvency. ² Part of the growth of the savings banks has taken place through their purchase of regional banks far away from the geographic region where the savings institution was originally established. In other words, some saving banks are competing among themselves and with commercial banks nationwide. Bankers have raised their voice against certain growth practices of savings banks arguing that competition is highly assymmetric since savings banks do not face the restriction of dividends payment and that while they can purchase banks, commercial banks cannot purchase savings institutions since their ownership status does not allow them to do so.³

There may be several reasons why saving banks outperform commercial banks in the deposits market: savings banks have concentrated their activities in market segments (low and middle income groups) who value the social programs carried out by these institutions through their ‘Obra Social’; they have provided customers with higher level of services due to their larger branching network and faster technological innovation in, for example, automatic teller machines; workers of saving banks are more efficient since they feel in part as ‘owners’ of the firm and this increases their motivation and e ort, etc. But the recent debate has focused mainly on the effects of different ownership and governance structures between banks and savings institutions, and the paper will focus on this line of explanation.

³ Coello (1994) investigates the symmetry of competition between banks and savings institutions under a different perspective.
Savings banks are often viewed in Spain as closer to workers’ cooperatives and not for profit organizations. The answer to the question, ‘who owns the savings banks?’ is difficult to find and the final result may be that workers and managers take effective control of the organization. Besides, accounting profits of the savings banks have to be either retained or allocated to social welfare programs. Orthodox theoretical thinking should lead us to conclude that organizations with such loose ownership structure and diffuse allocation of property rights, should clearly be outperformed when competing with efficient, profit maximizing firms. But this has not been the case in Spain and many people view the current situation as a puzzle.

The paper is an attempt to explain the puzzle. Our theoretical analysis shows that an expense preference behavior firm may outperform in market share and profits to a profit maximizing firm when they compete in an oligopolistic market. The basic explanation of this result is that expense preference lowers the effective marginal (labor) costs of the firm, compared with the profit maximizing case, and as a result of this, its reaction function moves in a direction which implies an increase in market share and profits. The final results, however, depends on whether firms compete on quantities with homogeneous products, or the firms compete on prices with differentiated products.4

Although the paper focuses on the issue of expense preference versus profit maximizing behavior highlighted in the literature about the economics of the banking firm, its conceptual framework can be integrated into the broader topic of what is the real objective function of the firm when ownership is separated from control (Berle and Means, 1932). For example, writers from the managerial theory of the firm, Baumol, Marris, Williamson and others, point out to size, growth and discretional expenditures as variables which enter into the objective function of the manager who sets the policy of the firm (see Marris and Woods (1971) for a review). Later on, agency theory has shown that even if shareholders write contracts which attempt to align the interests of their managers with value maximization, information assymmetries imply that only second best contracts are feasible and managerial discretion is still present (Jensen and Meckling, 1976). Therefore, it has been argued, Chamberlain and Gordon (1991), that shareholders-owned firms may also follow non value maximizing strategies. The present paper assumes that the banks’ shareholders are able to enforce first best contracts to their managers and therefore the objective function of banks is profits. The interesting thing is that shareholders

4 The underlying problem and results are similar to those obtained in the literature on the strategic choice of managerial incentives (Vickers, 1985; Fershtman and Judd, 1987; Sklivas, 1987; Salas, 1992). But, at least for saving banks, the objective function of the firm can be justified in terms of its ownership structure and not in terms of the contract between shareholders and managers.
prefer non profit maximizing managers to compete with savings banks since, as the model shows, profits end up being higher. In any case, the full integration of the results of the paper with the literature on the separation between ownership and control of the firm may be a promising line of research.

Section 2 presents a description of the technology and preferences used to build the theoretical model. Section 3 shows the basic results from the strategic competition process. Section 4 focuses on the likely response of banks to the expense preference behavior of savings institutions. The conclusion summarize the main results of the paper.

2. Technology and preference

The basic model considers a bank, represented by subindex 1 and a savings institution, represented by subindex 2. Both firms compete for deposits in a market with supply function, under the assumption of homogeneous product, given by

\[ r_D = a + b \cdot D, \quad a, b > 0, \]  

where \( r_D \) is the interest rate and \( D \) is the total deposits in the market.

Each firm has a production function with a single input, labor, and constant returns to scale,

\[ D_i = k_i \cdot L_i, \quad i = 1, 2, \]  

where \( k_i \) is the average and marginal productivity and \( L_i \) is the number of workers. There is a perfectly elastic supply of labor at a cost of \( \bar{w} \) per worker.

Each dollar of deposits is distributed between \( k \) dollars to cash reserves and \( 1 - k \) dollars which can be placed in the money market at an interest rate of \( r_b \). Therefore, each dollar of deposits generates an income of

\[ R = (1 - k) \cdot r_b + \lambda \cdot r_0, \]

where \( r_0 \) is the interest rate of cash reserves.

The economic profit of firm \( i \) is given by

\[ \Pi_i = (R - r_D) \cdot D_i - \bar{w} \cdot L_i \]

and substituting \( r_D \) and \( L_i \) from (1) and (2) above,

\[ \Pi_i = (R - a - b \cdot D) \cdot D_i - \bar{w} \cdot \frac{D_i}{k_i} = (r - b \cdot D - c_i) \cdot D_i, \]

where \( r = R - a \) and \( c_i = \bar{w} / k_i \) is the marginal cost of one dollar of deposits.

As we remarked in the introduction, banks are assumed to maximize profits, \( \Pi_1 \), but the objective function of savings institutions is unclear. The literature on expense preference behavior assumes that the loose assignment of property
rights in institutions such as savings and loans, allows the managers of such institutions to choose their own preference function in place of profit maximization, subject to the constraint of not having operating losses. For example, it is assumed that the manager’s utility function will depend on profits and labor expenses, \( U_2 = U_2(\Pi_2, E_2) \), where \( E_2 = \bar{\omega} \cdot L_2 \) and \( \partial U_2 / \partial \Pi_2 > 0, \partial U_2 / \partial E_2 > 0 \).

Another way to justify the objective function of the savings institutions is to assume that they behave as cooperatives and consequently, their objective function will be to maximize the total income paid to the workers, equal to \( (R - r_D) \cdot D_2 = \omega \cdot L_2 \), where \( \omega = ((R - r_D) \cdot D_2) / L_2 \).

The two situations can be reconciled as follows. Assume that \( U_2 \) is linear in \( \Pi_2 \) and \( E_2 = \bar{\omega} \cdot L_2 \), i.e.,
\[
U_2 = \Pi_2 + \theta \cdot \bar{\omega} \cdot L_2,
\]
where \( \theta \) is a positive parameter. \(^5\) Substituting \( \Pi_2 = (R - r_D) \cdot D_2 - \bar{\omega} \cdot L_2 \) we have
\[
U_2 = (R - r_D) \cdot D_2 - (1 - \theta) \cdot \bar{\omega} \cdot L_2.
\]

Notice that if \( \theta = 0, U_2 = \Pi_2 \) and if \( \theta = 1, U_2 = \omega \cdot L_2 \). Therefore, the objective function \( U_2 = \Pi_2 + \theta \cdot \bar{\omega} \cdot L_2 \) implies that the savings bank is an institution in between a capitalist firm \((\theta = 0)\) and a worker’s cooperative \((\theta = 1)\). With these considerations in mind we shall assume that \(^6\)
\[
U_2 = (R - r_D - c_2) \cdot D_2 + \theta \cdot c_2 \cdot D_2
\]
after substituting \( L_2 = (1/k_2) \cdot D_2 \) and \( c_2 = \bar{\omega} / k_2 \).

3. Strategic competition

3.1. Quantity competition and homogeneous product

We look for the Nash equilibrium solution to the optimization problems
\[
\begin{align*}
\max_{D_1} (R - r_D - c_1) \cdot D_1, \\
\max_{D_2} (R - r_D - c_2) \cdot D_2 + \theta \cdot c_2 \cdot D_2, \\
s.t \quad r_D = a + b \cdot (D_1 + D_2).
\end{align*}
\]

\(^5\) \( \theta \) has to be positive because utility increases with labor expenses.

\(^6\) The linear function for \( U_2 \) is chosen to simplify the exposition. The results would also hold under more general functions as proposed in the literature.
Assuming that both firms are equally efficient, \( k_1 = k_2 \), the equilibrium solution implies

\[
D_{1\text{EP}} = \frac{1}{3b} (R - a - c(1 + \theta)),
\]

\[
D_{2\text{EP}} = \frac{1}{3b} (R - a - c(1 - 2\theta)),
\]

\[
\Pi_{1\text{EP}} = \frac{1}{9b} (R - a - c(1 + \theta))^2,
\]

\[
\Pi_{2\text{EP}} = \frac{1}{9b} (R - a - c(1 + \theta)) \cdot (R - a - c(1 - 2\theta)),
\]

\[
r_{D\text{EP}} = \frac{2}{3} (R - c) + a + \frac{\theta c}{3}.
\]

It is easy to show that \( D_{1\text{EP}} \leq D_{2\text{EP}} \) and \( \Pi_{1\text{EP}} \leq \Pi_{2\text{EP}} \), where EP stands for ‘expense preference’ solution. In other words, in equilibrium savings banks capture a larger share of the market and earn higher profits than commercial banks. So the theory is consistent with the empirical evidence that savings banks gain market share and obtain more profits than commercial banks.

To explain why a non profit maximizer outperforms a profit maximizer under the assumptions above, notice that the objective function of the savings bank may be written as

\[
U_2 = (R - r_D - c(1 - \theta)) \cdot D_2.
\]

So, as long as \( \theta \leq 1 \), expense preference implies that the saving bank maximizes a ‘pseudo profit’ function with lower marginal costs of the deposits, than the costs considered by the profit maximizing firms. Therefore expense preference acts as a ‘strategic competitive advantage’ in terms of production costs.

To clarify further the results we draw Figs. 1 and 2, with reaction functions and isoprofits under profit maximization, PM, and expense preference, EP. When both firms maximize profits the equilibrium solution is point \( A = (D_{1\text{PM}}, D_{2\text{PM}}) \) and both firms obtain the same level of profits. Under expense preference, the reaction function of the savings banks moves to the right, from \( \phi_{2\text{PM}} \) to \( \phi_{2\text{EP}} \), to the new equilibrium solution \( B = (D_{1\text{EP}}, D_{2\text{EP}}) \).

The isoprofits of the two firms also change under the new situation, and in the new equilibrium the profits of the commercial bank are always lower than in the old one. Profits of the savings bank may be higher or lower compared with profits in equilibrium solution \( A \) depending upon the value of the parameter \( \theta \). In Fig. 1 where \( \theta \) is between \((1/2)\theta_1 \) and \( \theta_1 \), savings banks obtain

\[7\] Where \( \theta_1 = (R - a - c)/c \) is derived from the condition of positive market share for commercial banks, i.e., \( D_{1\text{EP}} > 0 \iff \theta < \theta_1 \).
lower profits in equilibrium solution $B$ than in equilibrium solution $A$, while in Fig. 2 where $\theta < (1/2)\theta_1$, their profits even increase under expense preference compared with the profits in the profit maximizing equilibrium solution.
3.2. Price competition with product differentiation

We now consider the case where depositors differentiate between savings and commercial banks and these choose interest rates as competitive variables. The new demand functions are

\[ D_1 = l + f \cdot r_1 - g \cdot r_2, \]
\[ D_2 = l + f \cdot r_2 - g \cdot r_1, \]

where \( l, f, g \) are positive parameters with \( f > g \). Keeping the same situation as above, the Nash equilibrium solution will be obtained by solving

\[ \max_{r_1} [(R - r_1 - c) \cdot (l + f \cdot r_1 - g \cdot r_2)], \]
\[ \max_{r_2} [(R - r_2 - c) \cdot (l + f \cdot r_2 - g \cdot r_1) + \theta c (l + f \cdot r_2 - g \cdot r_1)]. \]

The reaction functions and the equilibrium solutions are given by

\[ \phi_1^{EP} = r_1 = \frac{(R - c)f - l}{2f} + \frac{g}{2f} \cdot r_2, \]
\[ \phi_2^{EP} = r_2 = \frac{(R - c)f - l}{2f} + \frac{g}{2f} \cdot r_1 + \frac{\theta}{2} c, \]
\[ D_1^{EP} = \frac{((R - c)(f - g) + l)f}{2f - g} - \frac{f^2 g \theta}{4f^2 - g^2} c, \]
\[ D_2^{EP} = \frac{((R - c)(f - g) + l)f}{2f - g} + \frac{f(2f^2 - g^2) \theta}{4f^2 - g^2} c, \]
\[ r_1^{EP} = \frac{1}{2f - g} \left( (R - c)f - l + \frac{g f \theta}{2f + g} c \right), \]
\[ r_2^{EP} = \frac{1}{2f - g} \left( (R - c)f - l + \frac{2f^2 \theta}{2f + g} c \right). \]

Once again, savings banks outperform commercial banks in terms of market share, \( D_2^{EP} > D_1^{EP} \) and they will offer a higher interest rate for the deposits, \( r_2^{EP} > r_1^{EP} \). In terms of profits, savings banks will obtain higher profits than commercial banks if \( \theta \) is sufficiently low. 8

4. The response of commercial banks

We are interested now in the response that commercial banks may give to the situation where the preferences of the saving banks introduce asymmetries

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8 When \( \theta < \theta_2 = ((R - c)(f - g) + l)g)/f^2c. \)
into the market and lower their profit prospects. As above a distinction will be made between the case where firms compete in quantities and the case where firms compete in interest rates.

4.1. Quantity competition

If saving banks were privatized and became profit maximizers, the banks would earn a profit

$$\Pi_1^{PM} = \frac{1}{b} \left( \frac{R - a - c}{3} \right)^2.$$  

However, with savings banks and expense preferences the banks’ profit is

$$\Pi_1^{EP} = \frac{1}{b} \left( \frac{R - a - c}{3} - \frac{\theta c}{3} \right)^2,$$

which is lower than $\Pi_1^{PM}$ when $\theta > 0$. Banks will thus prefer a symmetric market where competition is only among profit maximizers.

This result may help to understand why Spanish commercial banks have requested a ‘privatization’ of the saving banks which would overcome current asymmetries (such as the fact that saving banks can purchase commercial banks, but not the other way round). A new issue is what the commercial bank may do while saving banks are there with the present ownership structure. The answer comes from the literature on the strategic choice of managerial incentives.  

The shareholders of commercial banks delegate the operating decisions to managers whose performance will be evaluated in terms of profits and market share (recall our assumption that first best contracts are feasible). Since managerial salaries will be indexed to this performance measure the manager will consider that the function to be maximized depends on profits and market share. Therefore, the new objective function of the commercial bank will be

$$U_1 = \Pi_1 + \rho \cdot D_1,$$

where $\rho$ is a parameter to be determined by the shareholders.

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9 This literature, see Fershtman and Judd (1987), Sklivas (1987), assumes that shareholders choose the incentive function of their managers taking into account that the choice will affect the competition in the market place. The choice is open to all firms so that the shareholders’ decision corresponds to a new equilibrium solution. In this paper it is assumed that savings banks cannot manipulate the choice of $\theta$ and therefore it is taken as exogenous. Whether $\theta$ may be different among saving banks depending upon the regulation that affects them in each autonomous Region of Spain, would be an empirical question.
The new ‘game’ will be solved by backwards induction. First, for a given \( q \), the Nash equilibrium solution will be obtained. Since this solution will depend on \( q \), then shareholders will choose \( q \) which maximizes profits.

The first problem is formulated as follows:

\[
\max_{D_1} \Pi_1 + \rho D_1,
\]

\[
\max_{D_2} \Pi_2 + \theta c D_2,
\]

and the Nash equilibrium solution is

\[
D_1^N = \frac{R - a - c}{3b} - \frac{\theta c}{3b} + \frac{2}{3b} \cdot \rho,
\]

\[
D_2^N = \frac{R - a - c}{3b} + \frac{2\theta c}{3b} - \frac{1}{3b} \cdot \rho,
\]

\[
r_D^N = \frac{2(R - c) + a - \theta c}{3} + \frac{1}{3} \cdot \rho.
\]

Shareholders will choose \( \rho \) maximizing \( \Pi_1^N(\rho) \), i.e.,

\[
\max_{\rho} \Pi_1^N = \frac{1}{9b} (R - c - a - \theta c - \rho)(R - c - a - \theta c + 2\rho).
\]

The optimal solution is \( \rho^* = (1/4)(R - a - c \cdot (1 + \theta)) > 0 \), since \( R - a - c \cdot (1 + \theta) \) has to be positive in order to have \( D_1^{EP} > 0 \). An optimal \( \rho^* > 0 \) implies that the commercial bank shareholders find it profitable to act strategically in their choice of managerial incentives. In order to interpret this choice notice that the utility function of the bank’s manager is

\[
U_1 = (R - r_D - (c - \rho)) \cdot D_1,
\]

i.e., the objective function \( U_1 \) is a pseudo profit function with lower marginal costs, and symmetry with respect to saving banks is now restored.

Substituting \( \rho^* \) in the Nash equilibrium solution for the first stage of the game, we get the new market shares, interest rate and profits for what is identified as the ‘sales preference’ (SP) solution:

\[
D_1^{SP} = \frac{1}{2b} (R - a - c - \theta c),
\]

\[
D_2^{SP} = \frac{1}{4b} (R - a - c + 30c),
\]

\[
r_D^{SP} = \frac{1}{4} (3(R - c) + a + \theta c),
\]

\[
\Pi_1^{SP} = \frac{1}{8b} (R - a - c - \theta c)^2,
\]

\[
\Pi_2^{SP} = \frac{1}{16b} (R - a - c - \theta c)(R - a - c + 30c).
\]
The commercial bank increases market share and profits with respect to those of the EP solution, $D_1^{SP} > D_1^{EP}$ and $\Pi_1^{SP} > \Pi_1^{EP}$. The relation between $\Pi_1^{SP}$ and the profit in the profit maximizing case, $\Pi_1^{PM}$ depends on the value of $\theta$; for values of $\theta$ sufficiently high, $^{10} \Pi_1^{SP}$ will be lower than $\Pi_1^{PM}$. So banks improve their profits by modifying the incentives of their managers, but if $\theta$ is high this improvement will still keep them below the symmetric profit maximizing solution.

Finally, notice that the strategic choice of incentives by commercial banks benefits depositors since equilibrium interest rates will be higher. In fact we have $r^{SP} > r^{EP} > r^{PM}$.

Fig. 3 show graphically the results of the analytical solution. The reaction function of commercial banks moves to the right from $/EP_1$ to $/SP_1$ and the new Nash equilibrium is $C = (D_1^{SP}, D_2^{SP})$. So banks would recover market share, with respect to equilibrium $B$, at the expense of saving banks.

4.2. Price competition

The situation is identical to the one considered above, but with demand functions (3) and (4). The equilibrium interest rates and deposits for given $\rho$ and $\theta$ are

$$r_1 = \frac{(R - c)f - l}{2f - g} + \frac{2f^2}{4f^2 - g^2}\rho + \frac{fg}{4f^2 - g^2}\theta c,$$

$$r_2 = \frac{(R - c)f - l}{2f - g} + \frac{fg}{4f^2 - g^2}\rho + \frac{2f^2}{4f^2 - g^2}\theta c,$$

$$D_1 = \frac{f[(R - c)(f - g) + l]}{2f - g} + \frac{f(2f^2 - g^2)}{4f^2 - g^2}\rho - \frac{gf^2}{4f^2 - g^2}\theta c,$$

$$D_2 = \frac{f[(R - c)(f - g) + l]}{2f - g} - \frac{gf^2}{4f^2 - g^2}\rho + \frac{f(2f^2 - g^2)}{4f^2 - 3g^2}\theta c.$$

The choice of $\rho$ which maximizes the bank’s profit is obtained by solving the problem

$$\max_\rho f \left( \frac{(R - c)(f - g) + l}{2f - g} - \frac{2f^2 \rho + fg\theta c}{4f^2 - g^2} \right) \left( \frac{(R - c)(f - g) + l}{2f - g} + \frac{(2f^2 - g^2)\rho - fg\theta c}{4f^2 - g^2} \right),$$

which implies

$^{10}$ In particular if $\theta > 1 - (\sqrt{32}/6)\theta_1$, where $\theta_1$ is defined in footnote 7.
\[ \rho^* = \frac{g^3}{8f^3 - 4fg^2} \theta c - \frac{[(R - c)(f - g) + l|2f + g)g^2}{8f^4 - 4f^2g^2}\]

and the final values of interest rates, deposits and profits are

\[
\begin{align*}
    r_1^{SP} &= \frac{(R - c)(2f^2 + fg - g^2) - l(2f + g)}{4f^2 - 2g^2} + \frac{fg}{4f^2 - 2g^2} \theta c, \\
    r_2^{SP} &= \frac{(R - c)(4f^3 + 2f^2g - fg^2 - g^3) - l(4f^2 + 2fg - g^2)}{4f(2f^2 - g^2)} + \frac{4f^2 - g^2}{8f^2 - 4g^2} \theta c, \\
    D_1^{SP} &= \frac{(R - c)(f - g) + l}{4f} (2f + g) - \frac{g}{4} \theta c, \\
    D_2^{SP} &= \frac{(R - c)(f - g) + l}{4(2f^2 - g^2)} (4f^2 + 2fg - g^2) + \frac{(4f^2 - 3g^2)f}{4(2f^2 - g^2)} \theta c, \\
    II_1^{SP} &= \frac{1}{8f(2f^2 - g^2)} \left[ ((R - c)(f - g) + l)(2f + g) - fg \theta c \right]^2, \\
    II_2^{SP} &= \frac{1}{4f(2f^2 - g^2)} \left[ A_1 - A_2 \theta c \right] \left[ A_1 + A_2 \theta c - 2g^2f \theta c \right],
\end{align*}
\]

where \( A_1 = [(R - c)(f - g) + l](4f^2 + 2fg - g^2) \) and \( A_2 = (4f^2 - g^2)f \).

In Appendix A we show that the value of \( \rho^* \) will be negative for feasible values of \( \theta \). Therefore under price competition shareholders choose strategically to increase the marginal costs in the utility function of their managers,
The choice has opposite sign and effects to when the competition is in quantities. To further understand the results we present the graphical solution.

The intersection of reaction functions under the initial expense preference solution, $\phi_1^{EP}$ and $\phi_2^{EP}$, gives the equilibrium $A = (r_1^{EP}, r_2^{EP})$ in Fig. 4. This implies higher interest rates than when both firms are profit maximizers; point $C = (r_1^{PM}, r_2^{PM})$. The decision variables, interest rates, are now strategic complements and therefore a positive value of $\theta$ implies an increase in interest rates, at equilibrium, of savings banks and commercial banks.

When commercial banks strategically choose the incentives for their managers, profit maximization implies moving the reaction function to the left ($\rho^* < 0$), and the interest rates of commercial banks and savings banks are both reduced with respect to the initial EP solution; point $B = (r_1^{SP}, r_2^{SP})$. In this new equilibrium banks increase their profits with respect to $A$, $\Pi_1^{SP} > \Pi_1^{EP}$ (and even with respect to $C$ if $\theta$ is sufficiently low \textsuperscript{11}), but their interest rate and their market share are lower than in the initial solution $A$ and lower than the respective interest and market share of the savings bank.

\textsuperscript{11} In particular if $\theta < [(R - c)(f - g) + f][4f^2 - g^2] - 2f \sqrt{2(2f^2 - g^2)}/(2f - g)/gc$. 

\[ U_1 = (R - (r_1 + c - \rho^*))D_1 \]
5. Conclusion

This paper has an empirical motivation in trying to answer the question of whether the peculiar ownership structure of Spanish savings banks may give them strategic advantages over commercial banks, and in this way explain their gains in market share at the same time that they maintain high levels of profitability. At first glance, the particular ownership structure of savings banks would point towards the opposite direction.

The results of the paper show that in an oligopolistic market with a given number of firms, a firm with expense preference behavior can outperform a profit maximizing firm in terms of market share and profits, even if both have the same costs and identical demand functions. Commercial banks can try to restore symmetry in the competitive process by modifying the incentives of their managers. Our analysis shows that such symmetry is in fact achieved in markets where competition is in quantities and products are homogeneous. In this situation banks choose incentives for their managers which induce more ‘aggressive’ behavior in the market place, so imitating in this way the ‘aggressive’ behavior of saving banks. However, when competition is in price and products are differentiated, the strategic choice of incentives by bank’s shareholders implies higher asymmetry between the two banking firms since the best response to expense preference behavior by bank’s shareholders is now to induce less ‘aggressive’ behavior in their managers than in the profit maximizing case.

The paper may also provide some insights on what may happen as more savings banks expand beyond their original regional areas, to compete nationwide. In this scenario, savings banks are likely to compete among themselves and therefore we would have firms with expense preference behavior competing against each other. Our results show that competition will be more intense both, in homogeneous and in differentiated product markets. So the question is if such behavior may endanger the solvency of savings banks as higher competition implies lower profits. The empirical evidence shows that in recent years interest rate spread has been steadily decreasing for saving and commercial banks, presumably in response to such intense competition. Of course, a validation of the model needs a more profound and elaborated empirical analysis.

In conclusion, the request of Spanish commercial banks for more ‘symmetry’ in the retail market’s competition, is understandable under their particular interest, according to the results of the paper. More difficult is to establish the public policy responses to such request since the present situation is more favourable to higher competition and higher interest rates on deposits, and social welfare increases. But, as saving banks compete more often among themselves, the intensity of competition may be too high to preserve the solvency of financial institutions, especially if we would translate our results to the loans market.
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Appendix A

The value of $\rho^*$ depends on $\theta$, but $\theta$ is implicitly restricted to have interior solutions:

\[
D_1^{SP} > 0 \iff \theta < \theta_1, \quad \text{where} \quad \theta_1 = \frac{[(R - c)(f - g) + l](2f + g)}{fgc} > 0,
\]

\[
D_2^{SP} > 0 \iff \theta_2 < \theta,
\]

where \[\theta_2 = -\frac{[(R - c)(f - g) + l](4f^2 + 2fg - g^2)}{f(4f^2 - 3g^2)c} < 0,\]

\[
r_1^{SP} > 0 \iff \theta_3 < \theta,
\]

where \[\theta_3 = -\frac{(R - c)(2f^2 + fg - g^2) - l(2f + g)}{fgc} < 0,\]

\[
r_2^{SP} > 0 \iff \theta_4 < \theta,
\]

where \[\theta_4 = -\frac{(R - c)(4f^2 + 2fg - g^2) - l(4f^2 + 2fg - g^2)}{f(4f^2 - g^2)c} < 0,\]

\[
\Pi_2^{SP} > 0 \iff \theta < \theta_5, \quad \text{where} \quad \theta_5 = \frac{A_1}{cA_2} \frac{2\sqrt{4f^2(f^2 - g^2) + g^4 - g^2}}{3g^2 - 4f^2} > 0.
\]

It is easy to show that $D_1^{SP} > 0$, $r_1^{SP} > 0$, $r_2^{SP} > 0$ and $\Pi_2^{SP} > 0$ are always satisfied as long as $\theta > 0$. So the only restrictions on $\theta$ come from the conditions $D_1^{SP} > 0$ and $\Pi_2^{SP} > 0$, i.e., $\theta < \theta_1$ and $\theta < \theta_5$. But since $\theta_5 < \theta_1$, the restriction on $\theta$ are $0 < \theta < \theta_5$.

From the equation which determines $\rho^*$ in the main text we have $\rho^* > 0$ iff $\theta > \theta_1$, which contradicts the condition $D_1^{SP} > 0$. Therefore $\rho^*$ has to be negative since $\theta < \theta_5 < \theta_1$.

References


