

ISSN 1988-088X



Department of Foundations of Economic Analysis II  
University of the Basque Country  
Avda. Lehendakari Aguirre 83  
48015 Bilbao (SPAIN)  
<http://www.dfaei.ehu.es>

# *DFAE-II WP Series*

2012-04

José María Barrutia, María Paz Espinosa

*Consumer Expertise or Credit Risk?  
An empirical analysis of mortgage pricing*

# Consumer Expertise or Credit Risk?

## An empirical analysis of mortgage pricing<sup>\*</sup>

José María Barrutia<sup>a</sup>

María Paz Espinosa<sup>b</sup>

October, 2011

### Abstract

Loan mortgage interest rates are usually the result of a bank-customer negotiation process. Credit risk, consumer cross-buying potential, bundling, financial market competition and other features affecting the bargaining power of the parties could affect price. We argue that, since mortgage loan is a complex product, consumer expertise could be a relevant factor for mortgage pricing. Using data on mortgage loan prices for a sample of 1055 households for the year 2005 (Bank of Spain Survey of Household Finances, EFF-2005), and including credit risk, costs, potential capacity of the consumer to generate future business and bank competition variables, the regression results indicate that consumer expertise-related metrics are highly significant as predictors of mortgage loan prices. Other factors such as credit risk and consumer cross-buying potential do not have such a significant impact on mortgage prices. Our empirical results are affected by the credit conditions prior to the financial crisis and could shed some light on this issue.

**Keywords:** *interest rates dispersion, mortgage loan pricing, consumer expertise, knowledge, credit risk*

---

<sup>\*</sup>Financial support from MICINN (ECO2009-09120 and ECO 2010-20792) and Gobierno Vasco (IT-313-07 and IT 473-10) is gratefully acknowledged.

<sup>a</sup>*Corresponding author.* Universidad del País Vasco. Departamento de Economía Financiera II. Facultad de Ciencias Económicas y Empresariales. Avenida Lehendakari Aguirre 83, E-48015 Bilbao, Spain. E-mail: [josemaria.barrutia@ehu.es](mailto:josemaria.barrutia@ehu.es)

<sup>b</sup>Universidad del País Vasco. BRIDGE, Departamento de Fundamentos del Análisis Económico II. Facultad de Ciencias Económicas y Empresariales. Avenida Lehendakari Aguirre 83, E-48015 Bilbao, Spain. E-mail: [mariapaz.espinosa@ehu.es](mailto:mariapaz.espinosa@ehu.es)

## **1. Introduction**

Financial literature has emphasized credit risk considerations to explain the divergences in mortgage rates paid by different borrowers. In this paper, we argue that heterogeneity in consumers' financial sophistication may be a more important factor behind observed price discrepancies.

Credit risk is an important factor in mortgage pricing due to asymmetric information. Different borrowers have different probabilities of repaying the loan and the bank may have limited information on whether the borrower is a good or a bad risk (Stiglitz & Weiss, 1981). Since the bank's expected return from a client depends on the repayment probability, the banks use several screening devices to be able to identify those with a high probability of repayment. Interest rates, together with collateral requirements, may act as one such device. Stiglitz & Weiss also showed that even when the bank can distinguish between borrowers, the optimal pricing involves the same expected return for the loans to different types of borrowers so that those with lower probability of repayment pay higher interest rates. Strahan (1999) found that riskier borrowers pay more for their loans and face tighter non-price terms in their loan contracts, suggesting that banks use both the price and non-price terms of loans as complements when dealing with borrower risk. Edelberg (2006) finds that lenders in the US increased the use of risk-based pricing in the mid-1990s.

Creditworthiness should therefore affect loan pricing. However, empirical research has yielded mixed results. Rajan (1994) supported Strahan's conclusions, but the works of Lummer & McConnell's (1989), Best & Zhang (1993), Lax et al. (2004) & Magri (2011) concluded that specific credit risk does not have an effect on prices. On the other hand, there is empirical work showing that credit risk is not sufficient to explain rate dispersion. For instance, Crawford & Rosenblatt (1999) and Courchane & Nickerson

Financial research has focused on banks' pricing behaviour but since loan mortgage interest rates are usually the result of a negotiation process between the bank and the client, customers' financial sophistication and other variables affecting the bargaining power of the parties should not be neglected (see Allen, Clark & Houde, 2011). More than sixty years ago, Scitovsky (1950) observed that buyers' ignorance and sales techniques catering to buyers' ignorance let companies increase prices, price-cost margins and profits and were perhaps an even more important source of oligopoly power than economies of scale. However, price researchers have paid limited attention to this insight. There are some theoretical models suggesting that the greater the ignorance of the consumer the higher the price-cost margins of the companies. Perloff & Salop (1985) showed that product differentiation increases margins, and this is not dependent on whether the differences between products are real or spurious. Carlin (2009) has developed a model of financial markets in which producers create ignorance by making their pricing complex and only a certain amount of consumers (the experts) are able to assess correctly the various market offerings and select the best one. As a consequence, market prices do not converge to marginal cost even with price competition and when a large number of firms compete in the market. A recent laboratory test carried out by Kalayci & Potters (2011) in a price setting duopoly show that buyer confusion increases market prices.

In this paper, we argue that consumer expertise might affect the mortgage price charged to consumers either as the result of the price bargaining process (expert consumers may be more knowledgeable about their value to the bank) or through better information

processing in a market where the product is complex (Carlin, 2009). Our hypothesis is that financial expertise is a crucial variable to understand the differences in loan prices. Alba & Hutchinson (1987) defined expertise as “the ability to perform product-related tasks successfully” (p. 411). This concept places its emphasis on the capacity of individuals to rationally face the purchase process and it might be particularly relevant in complex buying processes and also in pricing contexts in which the final price is determined through a buyer-seller negotiation mechanism.

Mortgage loans have been usually considered as complex services and of great relevance to the customer (see e.g. Iglesias, 2004, Patrício, Fisk, & Falcão e Cunha, 2008, Vroomen et al, 2005). Complexity may be even higher when banks implement a price bundling strategy (Gultinan, 1987), which implies that the bank is willing to negotiate a special price for the mortgage loan with customers in order to sell other complementary products at its regular price (usually, debit and credit cards, home insurance, life insurance and payroll direct deposit). As a consequence of the special interest of the banks in selling other products, some consumers may have an unusual bargaining power. Whether or not the customer realizes the strategic interest of the bank and his own position in the negotiation process depends on financial expertise. We argue that consumer bargaining power is heterogeneous and depends on consumer expertise.

The marketing literature has considered consumer knowledge as a potential factor affecting consumer behaviour (see e.g. Anderson & Simester, 2008, Ofir, et al., 2008). Our main hypothesis is that in the case of mortgage loans, more knowledgeable consumers will be more successful in the search and negotiation process and that the final mortgage loan price will be strongly correlated with consumer expertise. Consumers with high expertise are able to understand what is at stake in the negotiation

process and are more aware of their bargaining position concerning the value of cross-selling and a long association with the bank. This knowledge should improve their bargaining power and therefore result in a lower price.

Consumer expertise has not been considered a relevant factor for home mortgage loan prices (or spreads) in financial or marketing literature. Related to our research is the work of Grunert & Norden (2009), who have studied small companies bargaining power in their interaction with banks and showed that bargaining power depends on what they call soft facts. Soft facts refer to the assessment of the borrower's strategy, product-market position, and management skills -competence, education, leadership, and credibility.

Our research tests empirically the impact of consumer expertise on the price of a complex product such as a mortgage loan. Although we focus on consumer expertise, in our model we also allow price heterogeneity to be explained by individual differences in creditworthiness and potential to generate future business, as well as factors related to service costs and bank competition.<sup>1</sup>

We conclude that consumer expertise is one of the main forces driving the price dispersion observed in mortgage loans while, surprisingly, credit risk seems to be not as relevant. Our results also indicate that other cost and competition related variables are significant to explain price. Banks seem to have faced a trade-off between the credit risk-price alignment target and the objective of attracting potential customers by giving priority to the second objective. In such a context, customer expertise turns out to be a key explanatory factor of price dispersion. This result could add further insights regarding the credit conditions previous to the financial crisis.

---

<sup>1</sup> Our approach builds on the work of Zeithaml et al. (1985), Hoffman et al. (2002) and Tung et al. (1997) regarding service pricing; Meidan and Chin (1995) for specific marketing research on loan mortgage prices; and Strahan (1999) for credit risk considerations.

From a managerial perspective, our results are consistent with the evidence that bank CEOs observe that different loan prices are negotiated in different regions or branches; this geographical dispersion in prices may be a rational response to heterogeneity in consumer expertise. The observed non-alignment of price and risk in the sample period might be explained by the high value that this financial product had for the banks and the strong competition to attract customers. Our research also seems to suggest that banks management could have been improved by integrating credit risk in the price decisions.

The rest of the paper is structured as follows. Section 2 presents the data set and the empirical model, Section 3 shows the results and Section 4 ends with a discussion of our main conclusions and offers future avenues of research.

## **2. Related literature**

In this section, we review the literature on the factors that may affect price.

### ***Consumer expertise***

Consumer knowledge has been treated in the literature as a one-dimensional construct, referred to as product familiarity or prior product related knowledge (Alba & Hutchinson 1987). This construct has been measured by several indexes which include frequency of purchase (e.g. Newman & Staelin 1973), formal training (e.g. Hutchinson 1983) and price recall (for a review, see Estelami, Lehmann, & Holden 2001). Marketing literature has considered consumer knowledge as a potential factor affecting consumer behaviour. A body of research shows that ‘price cues’ (marketing tactics used to persuade customers that prices offer good value) are less effective with more knowledgeable consumers (Anderson & Simester, 2008). Knowledge increases people’s

ability to interpret and use intrinsic product cues instead of other extrinsic marketing-driven cues (Monroe 2003). It has further been suggested that a ‘price obfuscation’ strategy may be used by firms to increase margins (Ellison & Ellison, 2009, Kalayci & Potters, 2011). Firms can hinder customers’ ability to search for price information by reducing the perceived substitutability of the alternatives and therefore increase prices. A related literature on memory-based price judgments (Ofir, et al., 2008) shows that, when making a judgment, more knowledgeable consumers use a broader information content rather than only the easy-to-retrieve information. In the context of international marketing, there is evidence that customer sophistication varies widely across markets (Morris & Morris, 1990, Myers et al., 2002). There is also experimental evidence showing that optimal decision making is difficult when the choice problem is complex (Kalayci & Potters, 2011). Decision makers often resort to relatively simple choice heuristics in those cases (Besedes et al., 2009). Park, Mac Lachlan, & Love, (2011) propose that less knowledgeable consumers may use the posted price as a signal of the quality of the product and therefore setting high prices could be a suitable choice for new and unfamiliar products. These studies, however, do not provide a quantitative measure of the effect of expertise on market prices, which is the focus of the present paper.

A related view is provided by the search models. A central thesis of these models is that buyers search for information until the marginal cost of search exceeds the marginal benefit (Smith, Venkatraman, & Dholakia, 1999). This literature identifies different types of search costs. Cognitive costs of search are internal to the buyer and reflect the cognitive effort buyers must exert in to process information (e.g. Hauser, Urban & Weinberg, 1993); this effort will depend on consumers' prior knowledge of the product, as well as on personal factors such as intelligence, education or training (Smith et al.



1999). Nevertheless, some studies have shown that experts engage less in search (e. g. Johnson & Russo 1984). According to Alba & Hutchinson (1987), one explanation of this phenomenon is that experts are able to rely on information acquired from previous search activity. So, experts may engage in further searches, but the amount of searching they carry out for any particular decision may be small. Interestingly, Moorthy, Ratchford, & Talukdar (1997) find an inverted-U-shaped relationship between expertise and search. Those whose level of expertise is lowest are unable to make fine distinctions and therefore have little incentive to search. Individuals with a high degree of expertise experience relatively little uncertainty about the product and therefore have little incentive to search. In the middle range, searching is higher. Mattila & Wirtz (2002) have suggested that this relationship depends on the specific source of knowledge (i.e. word-of-mouth, internal memory, neutral independent and mass media).

Consumer expertise might be especially relevant in complex buying contexts (Alba & Hutchinson, 1987). For mortgage loans, consumers often use an extended decision process (Barrutia & Echebarria, 2004; Iglesias, 2004; Vroomen et al., 2004), in which several offers of competing firms are compared and assistance of an expert is usually needed. In the USA, roughly 60 percent of home loans are processed through mortgage brokers who negotiate their fees with borrowers (Woodward, 2003). Interestingly, Woodward found that broker fees are strongly and negatively related to borrower education. For the 2,700 loans analyzed in the period 1996-2001, average broker fees were \$2,425, but borrowers with a bachelor's degree paid their brokers \$1,500 less than those without, controlling for house value and metropolitan area income.

Concerning financial literacy, there is evidence that many of the consumers who purchase retail financial products do not understand what they are buying and how much they are paying for them and do not always make optimal decisions, being

Choi, Laibson, & Madrian 2010). A field experiment by Bertrand et al., (2010), finds that bank clients who responded to offers for a short-term loan, were not just responsive to the interest rate but also to irrelevant marketing features such as the inclusion of a woman's photo on the offer letter and the number of different loan types mentioned. Choi et al. (2010) show that consumers fail to understand mutual fund fees.

The use of bundling strategies by banks adds complexity to financial products (Guiltinan, 1987; Mulhern & Leone, 1991; and Stremersch & Tellis, 2002). Universal banks often sell the mortgage loan as a leader product of a bundle that includes other products. They usually use a mixed-leader bundling strategy (Guiltinan, 1987) in which the mortgage loan price is sold at a reduced (and negotiated) price and the complementary products are usually sold at their regular price. One reason may be that banks expect customers to focus on loan characteristics (mainly loan price or rate spread in the case of a variable rate loan) as a main attribute of value and also to buy the complementary products at their regular price (Adams & Yellen, 1976, Janiszewski & Cunha, 2004).

The negotiation literature refers to the limited capacity of human information processing and assumes that negotiators are not able to process too many different reference points at the same time (Van Poucke & Buelens, 2002). Likewise, the importance of learning in negotiation has been highlighted (Jordan, 2002). Negotiation has been described as a sequential decision-making process in which the decision maker has a chance to update his knowledge after implementing the decision made at a certain stage and receiving feedback so that he can make a more informed decision at the next stage (Zeng &

Sycara, 1998). So, the view of mortgage loan price determination as a negotiation process contributes to support the importance of consumer expertise as a determinant of price, as learning depends on previous knowledge or absorptive capacity.

Although consumers face a complex buying process they might have unusual bargaining power. Consumer (bargaining) power derives from the singular interest of banks in the mortgage loan. Yet it also depends on consumers' ability to access appropriate information and/or to evaluate a product prior to purchase. Access to information is increasingly easier and internet access has reduced information incompleteness and asymmetries (Pitt, et al. 2002, Varadarajan & Yadav, 2002). Hence, 'consumer expertise asymmetries' might be more important than information asymmetries to explain price diversity.

### *Other factors*

Service marketing literature has considered jointly cost- competition- and demand-related factors (Zeithaml et al. 1985) as determinants of price. Hoffman et al. (2002)'s framework included not only demand-, cost- and competitive- factors but also customer, profit, product, and legal considerations. Tung et al., (1997) offered a service pricing approach that included, among other factors, bundling and unbundling service pricing.

Cost-oriented and competitive-oriented approaches are the two traditionally dominant pricing approaches in the service industry (Zeithaml et al., 1985). Hoffman et al. (2002) stated that cost-oriented pricing is more difficult for services. But covering service costs is supposed to be a basic objective. We assume that **mortgage loan service cost** fixed (staff time and building maintenance) and independent of amount and term (Harrison, 2000). As a consequence, the unitary costs of providing the mortgage service (costs per euro borrowed) are inversely related to the loan amount and the loan term. Therefore we should expect that the impact of service cost on unitary price (interest rate) has an

inverse relationship with the loan amount and term. **Market conditions** should also have an impact on negotiated prices. It is expected that the final price a consumer obtains will be affected by the typical/average price for this service in this specific moment of time in the market. In particular, the Spanish bank market dramatically reduced loan spread before 2005 due to strong competition, consumer financial sophistication and the emergence of internet, among other factors (Barrutia & Echebarria, 2004).

**Social capital** is a main mechanism of knowledge transferability. It has been broadly recognized that knowledge is transferable. Individuals learn from their peers, neighbours and friends (Arrow, 1962). In terms of the influential distinction of Polanyi (1967), knowledge may be tacit and codified. Therefore, it is commonly argued that the transfer of tacit knowledge requires face to face contact, which has been referred to as word of mouth (Bristor, 1990, Bansal & Voyer, 2000) and social capital (Bandura, 1977, Putnam, 2000). According to Granovetter (1973)'s view regarding weak ties and strong ties, network size and trust have been considered as key components of social capital (for a recent review see Zheng, 2010). The primary mechanism through which network dimension affects knowledge transference is the availability of a large and probably diverse volume of information. Trust is consistently agreed upon as a contributing factor to knowledge transference (Zheng, 2010).

**Search costs** refer to the amount of time and energy a consumer puts into the process of information gathering before making a decision. Since the mortgage decision is usually important for the consumer, it implies a high search effort and involvement (e.g. Padula & Busacca, 2005). Grewal & Marmorstein (1994) state that consumers' willingness to spend time on comparing prices depends on the expected savings related to the purchase price and Mittal & Myung-Soo (1989) indicate that the level of involvement seems to

be influenced by utilitarian (and also psychosocial) antecedents. Therefore, a high degree of involvement, and, search and cognitive effort when households are faced with the purchase of a mortgage loan are to be expected. Search costs depend on factors external to the consumer and also on internal factors, such as cognitive skills and health status (Smith et al. 1999).

On the other hand, the relationship marketing literature predicts that banks focus on customer satisfaction and expected lifetime value (e.g., Reichheld 1996; Bolton, Lemon, & Verhoef, 2004; Bharath et al., 2007; Dawes, 2009). In a mortgage loan context, price could be a main factor to explain the consumer buying decision and satisfaction. So, when consumer has potential to generate future business for the bank, loan mortgage price could be lower in the hope of obtaining additional future business that increases lifetime value. Therefore, **specific consumer potential to generate future business** for the bank is expected to impact on price.

### **3. Data and Empirical Model**

The data set comes from the Bank of Spain (Spanish Survey of Household Finances, EFF-2005) and contains extensive information at the individual level on the financial situation and demographics for a sample of 5962 households (1055 were paying a mortgage loan). The description of the variables used in the analysis is included in Table 1.

*(Insert Table 1 here)*

The proportion of families who own their homes in Spain is quite high.<sup>2</sup> In the sample, 9.7% of households were renting, 84% were owners and 5.5% had rent-free housing. 1092 of the owners were still paying the loan in 2005, and 1055 of those loans were mortgages; 83.4% of the mortgages had a variable interest rate. The mortgage interest rates range from zero to 8.<sup>3</sup> The average interest rate was 3.71.

Our empirical model includes all the factors that may affect the interest rate paid by customer  $i$  for a mortgage loan to buy a home as explanatory variables. They are grouped in three categories: customer expertise ( $E_i$ ); credit risk ( $R_i$ ) and control variables ( $C_i$ ). Among the control variables we include proxies for social capital; market conditions; potential to generate future business for the bank; cost; and demographic variables. The regression equation is:

$$s_i = \alpha + \beta_1 E_i + \beta_2 R_i + \beta_3 C_i + \varepsilon_i$$

where  $s_i$  is the loan spread (i.e. the difference between the loan mortgage interest rate of consumer  $i$  and the market price –EURIBOR-).<sup>4</sup>

Consumer expertise level ( $E$ ) is proxied by (a) education, (b) occupation and (c) familiarity with banks.

(a) Four levels of education are compared to the reference level, i.e. individuals who did not finish secondary education.

(b) We consider three levels of occupation; the reference level is unskilled workers.

Occupation measures expertise acquired in the job and it may add information independent of the education variable.

---

<sup>2</sup> In 2007 the proportion was 83.9% (Eurostat). For other European countries this proportion is lower (France, 62.2%; Germany, 57.2%; Italy, 72.8%; Greece, 75.6%).

<sup>3</sup> There are 7 observations with mortgage interest rates above 8.5 and as high as 20 (3 with a fixed rate and 4 with a variable rate) and these were eliminated.

<sup>4</sup> For variable rate loans banks and consumers negotiate the spread (price-EURIBOR) instead of the interest rate. Thus, our empirical model uses spreads as the dependent variable.

(c) We use several variables to measure sector knowledge. Working in the financial sector should provide financial expertise. We also consider the use of traditional products (credit cards, transfers, life insurance products and pension plans) as an indicator of familiarity with banks, along with more sophisticated products such as options and swaps and the use of internet banking. Internet banking use is considered as an indicator of financial sophistication, as in the specific case of Spain, less than 15% of all individuals aged 16-74 were using this channel in 2005 according to Eurostat. Previous literature focuses on frequency of use to measure expertise (Estelami, et al. 2001); our measures of expertise focus on knowledge absorption obtained through an accumulative process and include indicators of sophistication.

Consumer expertise level should be related to education, occupation and familiarity with bank products and channels. These proxies of expertise are used as predictors of loan mortgage prices.

We also consider credit risk variables, *R*. Spanish Banks use expert judgement and more recently credit-scoring systems to assess the credit risk of mortgage loans. Credit experts are supposed to use the traditional “three C’s” of credit: capacity, capital, and creditworthiness (see e.g. Altman & Saunders, 1997; Straka, 2000). Capacity refers to how much debt a borrower can comfortably handle with her/his income and it is usually measured by using debt-to-income and loan-to-income ratios and employment status. We use these three variables as measures of capacity-related risk. Employment status is measured by using a dummy variable that considers whether the head of the family (or the spouse) has a permanent labour contract. Capital refers to borrower’s available assets, such as real estate, savings or investments that could be used to repay debt if income were to be unavailable. It is measured by using the debt-to-wealth, the loan-to-wealth and the loan-to-real assets ratios. Creditworthiness refers to how a person has

handled past debt obligations. Banks usually ask for specific credit reports to previous customer's banks; we use the variable loan denials (number of times that the family reports having applied for a loan and not having been approved, in the last two years).

Social capital is measured using an indicator of network size (i.e. any member of the family working for an institution or company with more than 20 employees) and an indicator of trust (i.e. receiving loans from relatives or friends). Market conditions are measured by using the mortgage date.

Specific consumer potential to generate future business for the bank is measured by using three indicators related to affluence: family income, real assets and financial assets. The loan amount and term are considered as cost related variables. A dummy for fixed rate loans is included as a cost related variable since fixed and variable rate mortgage loans are very different products, regarding bank assets and liabilities management, and their prices follow different criteria. Demographic characteristics include whether the head of the family is married and the health status of the members of the family.

The interest rate is observed only for families who have a mortgage and this might introduce a sample selection bias. Therefore, we run a Heckman regression. We consider that the probability of having a mortgage is determined by the following factors:

(1) Risk factors: High levels of risk may imply that some households were unable to get a mortgage. Since a mortgage is a loan with collateral, rationing may be less important, but still it could have an impact.

(2) Demand factors: Age has a non-linear effect, households not having a mortgage at a given date may have had one when younger or will have one when they get older.



Having a pension plan may be an indicator of a paid mortgage. Marital status may be related to the willingness to demand a mortgage. High levels of financial resources may indicate that the household did not need to borrow to buy a house.

The variables which determine the probability of having a mortgage but are not relevant to explain the interest rate level are those measuring financial resources: income, real assets, financial assets, insurance (these variables are not significant in the interest rate equation) and other demand factors: age, marital status and pension plans. These variables were not significant for the interest rate in the OLS regression. Risk characteristics of the family may determine both, the probability of having a mortgage and the interest rate.

#### **4. Results**

Table 2 presents the OLS and the results from the Heckman maximum likelihood sample-selection model. Variables containing information on **consumer expertise** are very relevant to explain mortgage loan spread dispersion. In particular, variables related to general knowledge (education and occupation) and some variables related to specific sector knowledge are important to explain final prices.

Concerning education variables, three of the four education levels have lower interest rates than the reference level (unfinished secondary education). The highest impact on interest rates corresponds to Master and Doctorate studies, with around 0.36 points lower interest rates. CEOs and high executives pay around 0.2 points lower interest rates.

Among the variables related to **specific sector knowledge**, the relevant variables are the use of the internet channel for bank transactions and also the use of complex products

such as futures, options and swaps; however, being an employee of the financial sector is not significant.

Overall, these results support our main research hypothesis: consumer expertise has a significant effect on loan prices.

*(Insert table 2 here)*

Concerning the risk variables, *Debt-to-wealth*, *debt-to-income*, *loan-to-income*, *loan-to-wealth* and *loan-to-real assets* ratios, we cannot include them simultaneously in the same regression as they are highly correlated. We present the results with *loan-to-income* and *loan-to-wealth*. The regression results using *debt-to-income* and *debt-to-wealth* are similar; *loan-to-real assets* are correlated with *loan-to-wealth* so they cannot be included in the same regression. These risk variables have no impact on mortgage interest rates. The only credit risk variable that is significant to explain price is having a permanent labour contract. This is an expected result because in Spain labour market rigidities and high dismissal costs imply that permanent labour contracts are expensive to revoke. As a consequence, this variable is used by banks as a main indicator of credit risk. The irrelevance of risk ratios is contrary to the normative prescriptions of the financial literature and it is an unexpected result.

None of the variables measuring the **consumer potential** to generate future business for the bank is significant (*real assets*, *financial assets* and *income*). The variables *life insurance products*, *credit card expenditure* and *pension plan*, which we have included as measures of familiarity with banks, could also be a measure of the borrower's potential to demand other financial products, but none of these variables is significant.

In Spain, mortgages can be moved to a different bank if the conditions offered are better so that the interest rate paid should reflect the present conditions in the financial market

and not the conditions at the time the mortgage was granted. However, due to switching costs, households may not change banks (or renegotiate with the same bank) if the conditions are only slightly better. Therefore, the **market conditions** at the time the loan was granted may have some influence on the price paid. As was expected, *mortgage date* has a significant negative sign. This result echoes interest rate reduction in the years previous to the financial crisis,<sup>5</sup> as a consequence of changes in the strategic environment.

**Costs** variables are shown to be relevant to explain price. The unitary costs of providing the mortgage service are inversely related to the loan amount and the loan term and this is reflected in price. Variable and fixed interest rate loans are intrinsically different products and, as expected, spreads are significantly lower for variable rates.

**Social capital** should impact on price, but the available data do not allow us to measure it appropriately. **Demographic characteristics** are not significant; in particular, health, which is used as a proxy for **search costs**, is not significant.

Table 2 also presents the results of the Heckman regression. The Wald test does not reject that the two equations are independent so that there is no selection bias and the OLS results are very similar to the interest rate equation in the Heckman regression. In the selection equation, the probability of having a mortgage is related to *age* in a non-linear way (concave) so that it is higher for intermediate ages (young people still do not have a mortgage and old people have already finished paying it). More interestingly, it is highly related to risk variables and with the expected sign (*debt-to-wealth* and *permanent labour contract* for the head and the spouse). Concerning financial resources, *financial assets* has a negative sign indicating that more financial resources

---

<sup>5</sup> This reduction has been reinforced in the mortgage market by changes in the strategic environment; in particular, the higher emphasis of banks on the mortgage market, which had been traditionally in the hands of savings banks.

make it less likely for the household to borrow. *Real assets*, however, is not significant. *Loan denials* is not significant (this could be due to misreporting).<sup>6</sup> *Family income* is not significant, reflecting the fact that it is equally likely for high or low income families to have a mortgage.<sup>7</sup>

## 5. Final discussion and conclusions

Our main purpose is to test the relevance of consumer expertise to explain the final loan mortgage prices negotiated between banks and borrowers. We use a concept and a metric of expertise that is broader than usually considered by previous empirical literature, since it includes not only sector/product knowledge but also general knowledge. Overall, our results support the relevance of both dimensions.

The consumer expertise hypothesis seems to be clearly supported by the impact of the general knowledge variables (education and occupation) on interest rates. Regarding sector knowledge, the variables shown to be relevant are the ones that reflect a relatively high level of financial knowledge (i.e. using internet banking and complex products). Use of traditional products (such as bank transfers or credit cards) seems not to be relevant. Previous literature has usually measured expertise as frequency of use of unsophisticated products (Estelami et al. 2001). Our results indicate that these measures could be inappropriate to proxy expertise in this context.

Our research uses a comprehensive view of price determinants to explain loan mortgage price. Traditional explanatory factors are jointly considered with consumer expertise factors. As expected, costs and market conditions are shown to be relevant to explain

---

<sup>6</sup> 47 families in the whole sample of 5972 households reported a loan denial in the last 2 years, and 13 families among those having a mortgage.

<sup>7</sup> The average income of families having a mortgage (47342€) is very similar to the average income in the sample (48215€).

the final price negotiated. The potential of the consumer to create future business for the bank has a negligible effect on mortgage spreads. Even though the affluence of a customer may be important to a bank, as a measure of the consumer potential to generate banking business, the more important consideration is the share that the bank has in the customer portfolio.

The most surprising results refer to credit risk. Banks seem to have almost neglected risk considerations when negotiating and setting mortgage prices, although risk ratios do affect the probability of having a mortgage. Only a relatively unsophisticated measure of credit risk (permanent labour contract) has a significant effect on price. Therefore, from an overall perspective, financial literature prescriptions seem not be relevant to understand loan mortgage price determination by Spanish banks in the period under study. However, our empirical analysis cannot contribute evidence to conclude that banks have neglected risk in loan approval or disapproval. This result is consistent with the traditional functional separation among the price and credit risk decisions in Spanish banks. In practice, credit risk and price tend to follow a different route; once the decision is made, by the Credit Risk Department, as to whether the risk is accepted or not, the price is decided by the Commercial Department.

The results may seem to suggest lack of financial rationality regarding price determination. However, it is also possible that in practice the traditional concept of financial rationality, focused on a single product (mortgage loan), is being replaced by a concept of financial-commercial rationality with a client perspective (instead of a product perspective). In essence, banks compete in the market by attracting new customers; mortgage loans have a great capacity to create a long and deep relationship and banks may focus on lifetime value instead of adjusting the price to the risk of the borrower. Thus, the interest rate negotiated between the bank and the customer depends

more on the customer's expertise to handle the negotiation process than on specific risk. The preponderance of commercial criteria over risk criteria could be explained by favourable economic conditions. In the years prior to 2005 Spain (as many other developed countries) was experiencing rapid economic growth and large increases in real estate prices.<sup>8</sup> This evolution seems to have hidden the relevance of risk considerations and brought to the forefront the relevance of commercial long-term criteria. Risk and commercial areas maintain a permanent dialectic in banks and the commercial area, took command in the years before the financial crisis, aided by these favourable economic conditions. This could explain the scarce impact of risk considerations on price.

From a managerial perspective, heterogeneity in consumer expertise could explain why account managers in banks get different spreads in different geographical areas, despite offering the same product/brand, bearing similar risks, having similar capabilities and putting the same effort. These differences could be explained by differences in customer expertise in their areas of influence. Nevertheless, customer knowledge has been treated only marginally by marketing/management price literature. Our results suggest that bank managers should consider customer expertise before setting spread goals and set them contingent on the customer base knowledge of the account managers' area. Otherwise, the goals could be too easy or too difficult and, according to the goal setting theory from Locke & Latham (1990), they could imply sellers' lack of motivation.

Our results regarding the importance of consumer expertise for interest rates could probably be extended to other geographical areas as long as mortgage prices are the result of a negotiation process. However, it is not clear that they would extend to different time periods. The tension between the commercial and the risk criteria may

---

<sup>8</sup> Real state prices went up 201% from 1995 to 2007 (Spanish Ministry of Housing).

have reached a different balance in recent times, after the speculative bubble popped. This issue is left for future research.

## References

Adams, W. J., & Yellen, J. L. (1976). Commodity Bundling and the Burden of Monopoly. *Quarterly Journal of Economics*, 90(3), 475–498.

Agnew, J., Szykman, L. (2005). Asset allocation and information overload: the influence of information display asset choice and investor experience. *Journal of Behavioral Finance* 6(2), 57–70.

Alba, J. W., & Hutchinson, J. W. (1987). Dimensions of consumer expertise. *Journal of Consumer Research: an Interdisciplinary Quarterly*, 13(4), 411–454.

Alexander, G., Jones, J., & Nigro, P. (1998). Mutual fund shareholders: characteristics, investor knowledge, and sources of information. *Financial Services Review*, 7(4), 301–316.

Allen, J., Clark, R., & Houde, J. F. (2011). Discounting in mortgage markets. Bank of Canada Working Paper No. 2011-3.

Altman, E. I., & Saunders, A. (1998). Credit Risk Measurement: Developments Over the Last 20 Years. *Journal of Banking & Finance*, 21(11), 1721–1742.

Anderson, E. T., & Simester, D. (2008). Price cues and customer price knowledge. In: V.R. Rao (Ed.), *Handbook of Pricing Research in Marketing* (pp.150–166). Northampton, MA: Edward Elgar.

Arrow, K. J. (1962). The economic implications of learning by doing. *Review of Economic Studies*, 29(3), 155–173.

- Bandura A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychology Review*, 84(2), 191–215.
- Bansal, H.S. & Voyer, P.A. (2000). Word of mouth processes within a services purchase decision context. *Journal of Service Research*, 3(2), 166–177.
- Barber, B., Odean, T. & Zheng, L. (2005). Out of sight, out of mind: the effects of expenses on mutual fund flows. *Journal of Business*, 78(6), 2095–2119.
- Barrutia, J.M. & Echebarria, C. (2004). Collaborative relationship bundling: A new angle on services marketing. *International Journal of Service Industry Management*, 15 (3), 264–283.
- Bertrand, M., Karlan, D., Mullainathan, S., Shafir, E., & Zinman, J. (2010). What’s advertising content worth? Evidence from a consumer credit marketing field experiment. *Quarterly Journal of Economics*, 125(1), 263–305.
- Besedes, T., Deck, C.A., Sarangi, S., & Shor, M. (2009). *Age Effects and Heuristics in Decision Making*, Mimeo.
- Best, R., & Zhang, H. (1993). Alternative Information Sources and the Information Content of Bank Loans. *Journal of Finance*, 48(4), 1507–1522.
- Bester, H. (1985). Screening vs. rationing in credit markets with imperfect information. *The American Economic Review*, 75(4), 850–855.
- Bester, H. (1987). The role of collateral in credit markets with imperfect information. *European Economic Review*, 31(4), 887–899.
- Bharath, S., Dahiya, S., Saunders, A., & Srinivasan, A. (2007). So What Do I Get? The Bank’s View of Lending Relationships. *Journal of Financial Economics*, 85, 368–419.



- Bolton, R. N., Lemon, K. N., & Verhoef, P. C. (2004). The theoretical underpinnings of customer asset management: a framework and propositions for future research. *Journal of the Academy of Marketing Science*, 32(3), 271–292.
- Bristol, J. M. (1990). Enhanced explanations of word of mouth communications: the power of relationships. *Research in Consumer Behavior*, 4, 51–83.
- Capon, N., Fitzsimons G., & Prince, R. (1996). An individual level analysis of the mutual fund investment decision. *Journal of Financial Services Research*, 10, 59–82.
- Carlin, B. I. (2009). Strategic price complexity in retail financial markets. *Journal of Financial Economics*, 91(3), 278–287
- Choi, J., Laibson, D. & Madrian, B. (2010). Why does the law of one price fail? An experiment on index mutual funds. *Review of Financial Studies*, 23(4), 1405–1432.
- Cohen, W., & Levinthal, D. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, 35(1), 128 –152.
- Courchane, M., & Nickerson, D. (1997). Discrimination Resulting from Overage Practices. *Journal of Financial Services Research*, 11(1), 133–151.
- Crawford G. W., & Rosenblatt E. (1999). Differences in the cost of mortgage credit: implications for discrimination. *Journal of Real Estate Finance and Economics*, 19(2), 147–159.
- Dawes, J. (2009). The Effect of Service Price Increases on Customer Retention The Moderating Role of Customer Tenure and Relationship Breadth. *Journal of Service Research*, 11(3), 232–245.
- Edelberg, W. (2006). Risk-based pricing of interest rates for consumer loans. *Journal of Monetary Economics*, 53(8), 2283–2298.

- Ellison, G., & Ellison, S. F. (2009). Search, Obfuscation, and Price Elasticities on the Internet. *Econometrica*, 77(2), 427–452.
- Estelami, H., Lehmann, D. R., & Holden, A. C. (2001). Macro-economic determinants of consumer price knowledge: A meta-analysis of four decades of research, *International Journal of Research in Marketing*, 18(4), 341–355.
- Grewal, D., & Marmorstein, H. (1994). Market Price Variation, Perceived Price Variations, and Consumers' Price Search Decisions for Durable Goods. *Journal of Consumer Research*, 21(December), 453–460.
- Grunert, J., & Norden, L. (2009). Bargaining Power and Information in SME Lending. Electronic copy available at: <http://ssrn.com/abstract=1342990>, accessed 21 Oct. 2009.
- Guiltinan, J.P. (1987). The price bundling of services: a normative framework. *Journal of Marketing*, 51(2), 74–85.
- Harrison, T. (2000). *Financial Services Marketing*. Edinburgh: Pearson Education.
- Hauser, J. R., Urban, G. L., & Weinberg, B. (1993). How Consumers Allocate their Time When Searching for Information. *Journal of Marketing Research*, 30(4), 452–466.
- Hoffman, K. D., Turley, L. W., & Scott, W. K. (2002). Pricing retail services. *Journal of Business Research*, 55, 1015–1023.
- Hutchinson, J. W. (1983). Expertise and the structure of free recall. In Bagozzi, R. P. and Tybout, A. M. (Eds.), *Advances in Consumer Research* (pp. 585–589). Ann Arbor, MI: Association for Consumer Research.
- Iglesias, V. (2004). Preconceptions about Service: How Much Do They Influence Quality Evaluations? *Journal of Service Research*, 7(1), 90–103.

- Janiszewski, C., & Cunha, Jr. M. (2004). The Influence of Price Discount Framing on the Evaluation of a Product Bundle. *Journal of Consumer Research*, 30(4), 534–546.
- Johnson, E. J., & Russo, J. E. (1984). Product Familiarity and Learning New Information. *Journal of Consumer Research*, 11(2), 542–550.
- Jordan, J. S. (1992). The exponential convergence of Bayesian learning in normal form games. *Games and Economic Behavior*, 4, 202–217.
- Kalayci, K., & Potters, J. (2011). Buyer confusion and market prices. *International Journal of Industrial Organization*, 29(1), 14–22
- Kim, J., Natter, M. & Spann, M. (2009). Pay what you want: A new participative pricing mechanism. *Journal of Marketing*, 73(1), 44–58.
- Lax, H., Manti, M., Raca, P., & Zorn, P. (2004). Subprime Lending: An Investigation of Economic Efficiency. *Housing Policy Debate*, 15(3), 533–571.
- Locke, E.A., & Latham, G.P. (1990). *A Theory of Goal Setting and Task Performance*. Englewood Cliffs, NJ: Prentice-Hall.
- Lummer, S. L., & McConnell, J. J. (1989). Further evidence on the bank lending process and the capital-market response to loan bank agreements. *Journal of Financial Economics*, 25(1), 99–122.
- Magri, S. (2011). Are Lenders Using Risk-Based Pricing? Evidence from the Italian Consumer Loan Market. Paper presented to the Midwest Finance Association 2011 Conference, Chicago, Illinois, March 2–5.
- Mattila, A. S., & Wirtz, J. (2002). The impact of knowledge types on the consumer search process: An investigation in the context of credence services. *International Journal of Service Industry Management*, 13(3), 214–230.

- Meidan A., & Chin A. C. (1995). Mortgage-pricing determinants: A comparative investigation of national, regional and local building societies. *The International Journal of Bank Marketing*, 13(3), 3–12.
- Mittal, B., & Myung-Soo, L. (1989). A causal model of consumer involvement. *Journal of Economic Psychology*, 10(3), 363–390.
- Monroe, K. B. (2003). *Pricing: Making Profitable Decisions*. (3<sup>rd</sup> ed.). Irwin New York: McGraw Hill.
- Moorthy, S., Ratchford, B., & Talukdar, D. (1997). Consumer Information Search Revisited: Theory and Empirical Analysis. *Journal of Consumer Research*, 23(4), 263–277.
- Morris, M. H., & Morris, G. (1990). *Market-oriented pricing*. New York: Quorum.
- Mulhern, F. J., & Leone, R. P. (1991). Implicit price bundling of retail products: A multiproduct approach to maximizing store profitability. *Journal of Marketing*, 55(October), 63–76.
- Myers, M.B., Cavusgil, S.T., & Diamantopoulos, A. (2002). Antecedents and actions of export pricing strategy: A conceptual framework and research positions. *European Journal of Marketing*, 36(1/2), 159–188.
- Newman, J. W., & Staelin, R. (1973). Information sources of durable goods. *Journal of Advertising Research*, 13(April), 19–29.
- Ofir, C., Raghurir, P., Brosh, G., Monroe K. B., & Heiman, A. (2008). Memory-Based Store Price Judgments: The Role of Knowledge and Shopping Experience, *Journal of Retailing*, 84(4), 414-423.

- Padula, G., & Busacca, B. (2005). The asymmetric impact of price-attribute performance on overall price evaluation. *International Journal of Service Industry Management, 16*(1), 28–54.
- Park, J. H., Mac Lachlan, D. L., & Love, E. (2011), New product pricing strategy under customer asymmetric anchoring. *International Journal of Research in Marketing*, doi: 10.1016/j.ijresmar.2011.04.003.
- Patrício, L., Fisk, R. P., & Falcão e Cunha, J. (2008). Designing Multi-Interface Service Experiences. The Service Experience Blueprint. *Journal of Service Research, 10*(4), 318–334.
- Perloff, J. M., & Salop, S. C. (1985). Equilibrium with product differentiation. *Review of Economic Studies, 52*, 107–120.
- Pitt, L. F., Berthon, P. R., Watson, R. T., & Zinkhan, G. M. (2002). The Internet and the birth of real consumer power, *Business Horizons, 45*(4), 7–14.
- Polanyi, M. (1967). *The tacit dimension*. London, England: Routledge
- Putnam, R. D. (2000). *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon and Schuster.
- Rajan, R. (1994). Why Bank Credit Policies Fluctuate: A Theory and Some Evidence. *Quarterly Journal of Economics, 109*(2), 399–441.
- Reichheld, F. F. (1996), *The Loyalty Effect*. Boston, MA: Harvard Business School Press.
- Schafer, R., & Ladd, H. (1981). *Discrimination in Mortgage Lending*. Cambridge MA: MIT Press.

- Scitovsky, T. (1950). Ignorance as a source of oligopoly power. *American Economic Review*, 40, 48–53.
- Smith, G. E., Venkatraman, M. P., & Dholakia, R. R. (1999). Diagnosing the search cost effect: Waiting time and the moderating impact of prior category knowledge. *Journal of Economic Psychology*, 20(3), 285–314
- Stiglitz, J., & Weiss, A. (1981). Credit Rationing in Markets with Imperfect Information. *American Economic Review*, 71(3), 393–410.
- Strahan, P. E. (1999). Borrower Risk & the Price and Non price Terms of Bank Loans. FRB of New York, Staff Report No. 90.
- Straka, J. W. (2000). A Shift in the Mortgage Landscape: The 1990s Move to Automated Credit Evaluations. *Journal of Housing Research*, 11(2), 207–232.
- Stremersch, S., & Tellis, G. J. (2002). Strategic Bundling of Products and Prices: A New Synthesis for Marketing, *Journal of Marketing*, 66(1), 55–72.
- Tung, W., Capella, L. M., & Tat, P. K. (1997). Service pricing: a multi-step synthetic approach. *Journal of Services Marketing*, 11(1), 53–65.
- Van Poucke, D., & Buelens, M (2002). Predicting the outcome of a two-party price negotiation: Contribution of reservation price, aspiration price and opening offer. *Journal of Economic Psychology*, 23(1), 67–76.
- Varadarajan, R. P., & Yadav, M. S. (2002). Marketing strategy and the Internet: An organizing framework, *Journal of the Academy of Marketing Science*, 30(4), 296–312.
- Vroomen, B., Donkers, B., Verhoef, P. C., & Franses, P. H. (2005). Selecting Profitable Customers for Complex Services on the Internet. *Journal of Service Research*, 8(1), 37–47.

Woodward, S. E. (2003). Consumer Confusion in the Mortgage Market. Sand Hill Econometrics Working Paper.

Zeithaml, V. A., Parasuraman, A., & Berry, L. L. (1985). Problems and strategies in services marketing. *Journal of Marketing*, 49(2), 33–46.

Zeng, D., & Sycara, K. (1998). Bayesian learning in negotiation. *International Journal of Human-Computer Studies*, 48(1), 125–141.

Zheng, W. (2010). A social capital perspective of innovation from individuals to nations: Where is empirical literature directing us? *International Journal of Management Reviews*, 12(2), 151–183.

**Table 1**

## Variables description.

<b>Variables</b>	<b>Description</b>
<b>Dependent variable: price spread</b>	Mortgage interest rate minus EURIBOR.
<b>Consumer expertise/ General knowledge / Education</b> (1) Secondary; (2) Upper Secondary/High school; (3) Vocational school/College/university; (4) Master/Doctorate	Highest level of education attained by the head and spouse. Four dummy variables were created; the reference level is the set of the individuals who did not obtain the degree of secondary education.
<b>Consumer expertise/ General knowledge / Occupation</b> (1) Skilled service employees (sellers,...), Administrative and Support technicians; (2) Technicians and scientists; (3) CEOs and high executives	Highest level of occupation attained by the head and spouse. Three dummy variables were created; the reference level is the group of unskilled workers.
<b>Consumer expertise / Sector Knowledge</b> Financial services employee	Dummy variable that takes value 1 if the head or spouse is working for the financial sector and 0 otherwise.
Internet user	Dummy variable that takes value 1 if the family uses internet banking services and 0 otherwise.
Bank transfers user	Dummy variable that takes value 1 if the family orders bank transfers (others than direct debits) and 0 otherwise.
Buyer of complex products (options, swaps, etc)	Dummy variable that takes value 1 if the family has bought complex financial products such as options and swaps, and 0 otherwise.
Life insurance products	Value of Life Insurance financial products (10 <sup>6</sup> euros).
Credit card expenditure	Average monthly amount of credit card payments (thousand euros).
Pension plan	Dummy variable that takes value 1 if the family has a pension plan and 0 otherwise.
<b>Social Capital</b>	
Network size	Variable that takes the values 0, 1 and 2 if none, one or two of the two main members of the family, work for an institution or company with more than 20 employees.
Trust	Dummy variable that takes value 1 if the family received a loan from relatives or friends and 0 otherwise.
<b>Risk variables</b>	
Debt-to-wealth	Ratio of total household debt and wealth.
Debt-to-income	Ratio of total household debt and income.
Loan-to-income	Ratio of loan amount and income.
Loan-to-wealth	Ratio of loan amount and wealth.
Loan-to-real assets	Ratio of loan amount and real assets.
Loan reject	Number of times that the family has applied for a loan and has not been approved in the last two years (self-reported)
(1) Permanent labour contract (head); and (2) Permanent labour contract (other)	Dummy variable that takes value 1 if the head of the family (spouse) has a permanent labour contract and 0 otherwise.
<b>Market conditions / Mortgage date</b>	Year of mortgage.
<b>Potential cross-buying</b>	
Income	Annual income (10 <sup>6</sup> euros).
Real assets	Market value of family real assets (10 <sup>6</sup> euros).
Financial assets	Market value of family financial assets (10 <sup>6</sup> euros).
<b>Cost-related variables</b>	
Mortgage loan amount	(10 <sup>6</sup> euros).
Mortgage loan term	Maximum number of years to repay the loan.
Variable/fixed rate	Dummy variable that takes value 0 if the rate of interest is fixed and 1 if it is variable.
<b>Demographic characteristics</b>	
Age	Age of the head of the family.
Married	Dummy variable that takes value 1 if the head of the family is married and 0 otherwise.
Health	Dummy variable that takes value 0 if a member of the family has a bad or very bad health and 1 otherwise.

Survey of Household Finances 2005. Bank of Spain



**Table 2. Determinants of mortgage loan prices.**

	OLS	Heckman <i>Selection equation</i>	Heckman <i>Interest rate</i>
<b>Consumer expertise</b>			
<b>General Knowledge</b>			
<i>Education (achieved level)</i>			
Secondary	-0.19 (0.11)		-0.18 (0.12)
High school	-0.246 (.03)**		-0.236 (.04)**
College, university	-0.247 (.03)**		-0.238 (.03)**
Master, doctorate	-0.38 (.00)***		-0.37 (.00)***
<i>Occupation</i>			
Skilled workers	-0.13 (.11)		-0.13 (.10)
Technicians or scientists	-0.17 (.14)		-0.18 (.12)
CEOs and high executives	-0.20 (.06)*		-0.20 (.06)*
<b>Sector Knowledge</b>			
Financial services employee	-0.14 (.26)		-0.14 (.24)
Internet user	-0.12 (.06)*		-0.12 (.06)*
Buyer of complex products (options, swaps, etc)	-0.25 (.09)*		-0.26 (.08)*
Bank transfers user	-0.07 (.29)		-0.06 (.30)
Life insurance products	.51 (.17)	2.5 (.01)**	.64 (.15)
Credit card expenditure	-0.01 (.70)		-0.01 (.73)
Pension plan	-0.02 (.74)	-0.05 (.22)	-0.02 (.70)
<b>Social Capital</b>			
Network size	.07 (.14)		.07 (.12)
Trust	-0.56 (.36)		-0.55 (.36)
<b>Risk variables</b>			
Debt-to-wealth		-0.03 (.00)***	
Debt-to-income			
Loan-to-income	-0.001 (.18)		-0.001 (.18)
Loan-to-wealth	-0.004 (.98)		.007 (.96)
Loan reject	-0.05 (.46)	.0005 (.99)	-0.05 (.47)
Permanent labour contract (head)	-0.15 (.02)**	.29 (.00)***	-0.13 (.06)*
Permanent labour contract (spouse)	-0.11 (.10)	.23 (.00)***	-0.10 (.17)
<b>Market conditions</b>			
Mortgage date	-0.02 (.00)***		-0.02 (.00)***
<b>Potential cross-buying</b>			
Income	-0.10 (.83)	-0.48 (.20)	-0.24 (.61)
Real assets	-0.005 (.16)	.02 (.07)*	-0.004 (.34)
Financial assets	-0.005 (.82)	-0.14 (.09)*	-0.01 (.65)
<b>Cost-related variables</b>			
Mortgage loan amount	-0.88(.03)**		-0.90 (.02)**
Mortgage loan term	-0.01 (.01)**		-0.01 (.01)**
Variable/fixed rate	-0.86 (.00)***		-0.86 (.00)***
<b>Demographic characteristics</b>			
Married	.03 (.67)	.50 (.00)***	.06 (.54)
Health	-0.02 (.86)		.04 (.76)
Age		.01 (.28)	
Age squared		-0.0004 (.00)***	
<b>Constant</b>	48.29 (.00)***	-0.65 (.01)**	47.57 (.00)***
N	1037	5851	1037
R <sup>2</sup>	.2207		
Wald test independent equations			0.30

\*\*\* significant at the 1% level; \*\* at 5%; \* at 10%; p values are reported in parentheses.