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# THE DETERMINANTS OF HOUSEHOLD'S BANK SWITCHING

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# The Determinants of Household's Bank Switching\*

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## Abstract

We investigate the determinants of households' bank switching in 2006-2012 period exploiting a unique representative dataset from Bank of Italy Survey on Household Income and Wealth that follows the households and their bank(s) over time. Focusing on the features of the household-bank relationship, we find that exclusivity (using a single bank), intensity (number of services used), and scope (bank services used) of the relationship with the bank play a role in shaping the households' decision to switch. Moreover, we find that this decision is strongly and positively correlated with both taking out and paying off a mortgage. We also find that the risk preferences, mobility and economic condition of the household are not associated with its propensity to switch, whereas education and financial literacy do matter for this decision, albeit with opposite effects. Cooperative and unlisted banks are significantly less likely to be discarded. As expected, competition plays a role increasing switching.

**Keywords:** household-bank relationship, switching cost, bank services

**JEL Classification:** G21; D14

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## 1. Introduction

The bank clients are increasingly taking control of their banking relationships. At the world level, the proportion of clients planning to change banks was 12% in 2012, with sensitivity to fees and charges leading the change (Ernst and Young, 2012). In response, the banks need to embrace this trend and give greater flexibility, choice and control to their customers. As Ernst and Young (2012) puts it: “*Giving more power to customers may feel uncomfortable, but in the long run banks that do so will position themselves for success in the future*”. Basel III also draws attention to the bank relationship with its retail clients. The Bank for International Settlements (BIS) liquidity requirements discriminate between “stable” and “unstable” deposits, whereby the set criteria for being stable is that: “*the depositors have other established relationships with the bank that make deposit withdrawal highly unlikely*” (paragraphs 74 and 75, BIS, 2013). From both banks’ and regulator’s perspective it is important to understand what characteristics are associated with the ‘stability’ of a deposit. The banks can affect the relative stability of their deposits through their relationship with the clients and by attracting more stable clients.

Despite these trends in retail banking and policy relevance, there is little research on the dynamics of household-bank relationship over time. To the best of our knowledge, this paper represents the first attempt in the literature to investigate household’s decision to switch bank, focusing in particular on the features of their relationship, such as the number and type of bank services a household uses with the bank and whether it uses other banks.

To this end, we exploit a unique panel dataset mainly drawn from the 2006-2012 Bank of Italy Survey on Household Income and Wealth, a biannual population-representative survey. Italy lends itself particularly well to this analysis since on average as much as one out of four households in the sample change their main bank between two consecutive waves. Furthermore, the switching of households is especially important in countries such as Italy, in which the bulk of bank financing comes from the deposits, with less reliance on the wholesale funding (De Bonis et al., 2012).

Our dataset identifies at each point in time the bank(s) chosen by each household and the bank services used with the main bank. In other words, we are able to observe a household that in 2006 uses bank A to manage its payment of utilities and in 2008 uses bank B – i.e., has switched from bank A to bank B – to take out a mortgage in addition to (or instead of) its payment of utilities. Complementing this household-level information with bank-level information from BankScope enables us to relate the households’ decision to switch their bank to the features of the household-bank relationship, controlling for household, bank and background characteristics.

We find robust evidence that the household’s bank switching is strongly associated with the household-bank relationship features in terms of exclusivity (using a single bank), intensity (number of services used), and scope (bank services used). By looking at the dynamics of bank services a household uses over time, we find that both taking out and paying off a mortgage strongly increase the likelihood that a household switches a bank. Besides, several household characteristics which are traditionally identified as being associated with personal financial decisions – household size, marital status, education and financial literacy – matter for propensity to switch, whereas no role for the overall economic condition of the household is found. Finally, switching is found to be associated with specialization and market listing status of the bank, being less frequent among the households that are clients of the unlisted banks and cooperative banks. Background also matters, as the households living in provinces with more competitive bank markets are on average more likely to switch.

The rest of the paper is organized as follows. Next Section reviews the literature. Section 3 formalizes the hypotheses under analysis and the estimation strategy for their empirical test. Section 4 describes the datasets, the variables used, and provides the descriptive statistics. Section 5 presents the empirical findings and Section 6 discusses their robustness. Finally, Section 7 concludes.

## 2. Literature Review

Our study lies at the intersection of two main streams of literature, namely banking and household finance.

Well-established literature on bank-firm relationships covers, among other topics, the importance of deposit relationships in traditional lending (Hodgman, 1961; Kane and Malkiel, 1965; and Santikian, 2014), relationship duration (Ongena and Smith, 1998 and 2001), number of bank relationships (Ongena and Smith, 2000; Farinha and Santos, 2002; Detragiache et al., 2000), the uniqueness of bank-firm relationship (Fama, 1985; James, 1987; Lummer and McConnell, 1989), the dynamics of consumer relationship in bank loan market (Sharpe, 1990), the importance of competition in credit markets (Petersen and Rajan, 1995), and firm's decision to switch bank (Gopalan et al. 2011; Degryse et al., 2011). Our investigation draws from this bank-firm relationship literature and adapts the framework to a household-bank relationship.

Besides, there is an increasing body of (positive) household finance literature (see Campbell, 2006 for an excellent review) that analyses how the households actually take financial decisions. Bulk of this literature focuses on the asset side of household's portfolio <sup>1</sup> and relates it to the households' demographic and socio-economic characteristics. The decisions investigated cover consumption and saving (see e. g. Browning and Lusardi, 1996 and references therein), payment and borrowing, (see Cox and Jappelli, 1990 and 1993; Crook, 2001; Guiso et al., 2014), various types of insurance (Lin and Grace, 2007; Goldman and Maestas, 2013), and especially portfolio choices, concerning both financial (Guiso et al., 2002; Guiso and Sodini, 2012) and real assets (Flavin and Yamashita, 2002; Cocco, 2004; Battu et al., 2008; Brunetti and Torricelli, 2015). Remarkably, very few contributions in this literature have to date investigated the household-bank relationship and in particular the households' decision to change their bank. The exception is the literature on market discipline and bank runs, which focuses on clients' concern over bank's (potential) distress as a determinant of deposit

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<sup>1</sup> As Zinman (2014) puts it: "...*household debt is a neglected topic within the relatively neglected sub-field of household finance*".

interest rates, proportion of uninsured deposits, and deposit withdrawals (see e. g. Diamond and Dybvig, 1983; Iyer and Puri, 2012; Iyer et al., 2013; Demirguc-Kunt and Huizinga, 2004; Goldberg and Hudgins, 2002). Yet, in the literature on market discipline and bank runs the main motivation for the household to leave the bank is the belief that the bank might fail, and thus is the same across all households. By contrast, in this analysis we investigate the households' decision to leave their bank focusing on motives such as the household's needs and preferences rather than their concern over the bank's potential distress.

The contributions more close in spirit to our study are Kiser (2002), Brown and Hoffmann (2013) and Brown et al. (2013). Kiser (2002) empirically investigates the covariates of switching costs and decision to switch banks using a sample of 1,500 US households drawn from the 1999 Michigan Surveys of Consumers. She looks at the household socio-economic observables and self-reported reasons for remaining with the first-ever bank, finding a positive and significant role for income, age and especially homeownership, which may thus induce a "lock-in" effect and guarantee a long-term bank relationship. Brown and Hoffmann (2013) and Brown et al. (2013) rely on a telephone-based survey conducted in 2011 by GfK that samples around 1,500 Swiss households. In the former paper, the authors focus on 470 mortgage holders with multiple bank relationships to compare the mortgage and non-mortgage relations for the same household. They find that the mortgage relations are used within a broader scope of services, are held with the banks geographically closer to the household, and are more recently established compared to the non-mortgage relations. They also document a role of financial literacy, as more literate borrowers are less likely to hold a mortgage with a local bank. Brown et al. (2013) focus on the role of the switching costs and deposit insurance coverage in mitigating the risk of deposit withdrawals from a large, distressed commercial bank in the financial crisis period (2008-2009). They find that the household-level switching costs lower the propensity to withdraw the deposits from a distressed bank, whereas no effect is found for the deposit insurance coverage.

### 3. Hypotheses and Estimation Strategy

In this section we present our testable hypotheses and the estimation strategy used in the empirical analysis.

Based on the switching cost theory, the households are expected to be less likely to switch if they face higher switching costs and/or have stronger ties to their main bank. Hence, to the extent that the multiplicity of bank relationships indicates weaker bank ties, we propose our first hypothesis to be tested:

**Hypothesis 1:** The households having an exclusive relationship with their main bank, i.e., using only one bank, are less likely to switch.

Next, in the existing literature, a well-recognized proxy for the costs of switching is the number of bank services used (see e.g. Brown et al., 2013), also capturing the intensity of the relationship. As a matter of fact, each bank service adds up to the total switching costs, and the higher the number of services, the more difficult is for the household to precisely assess the total cost of switching. Furthermore, multiple bank services used give rise to the economies of scope, thus further discouraging switching. Based on these arguments, we formalize our next hypothesis:

**Hypothesis 2:** Household's propensity to switch is decreasing in the number of services it uses with the bank.

Finally, we argue that the household-bank relationship evolves over time due to the change in the household's needs for the bank services. Since different banks may have a comparative advantage in different bank services, switching should be a function of the change in the bank services the household uses. Hence, our third hypothesis is:

**Hypothesis 3:** The change in bank services a household uses is an important driver of switching.

In order to test our hypotheses and investigate the determinants of bank switching, we estimate the following probit model specification:

$$\Pr(S_{it} = 1) = \Phi(\alpha + \mathbf{R}_{it-1}\beta + \mathbf{H}_{it-1}\gamma + \mathbf{B}_{it-1}\delta + \mathbf{X}_{it-1}\theta) \quad (1)$$

where  $S_{it}$  (*Switch*) is a binary variable taking value 1 if the household  $i$  changes its (main) bank between  $t-1$  and  $t$ , and 0 otherwise. Matrix  $\mathbf{R}$  contains the main variables of interest, namely household-bank relationship characteristics in terms of exclusivity, intensity, and scope, as described in detail in Section 4.2. Matrices  $\mathbf{H}$  and  $\mathbf{B}$  include the households' demographic and socio-economic characteristics, and bank's characteristics, respectively. Finally, matrix  $\mathbf{X}$  includes background controls. This specification allows us to disentangle the effects of household-bank relationship characteristics from the potentially confounding factors, such as household and bank features, as well as characteristics of the environment, which may all be associated with the household's propensity to switch a bank.

Importantly, all regressors are lagged one period. This choice is driven by a twofold advantage. First, it assures the model predetermination. Using the regressors from  $t$  would be correct if and only if we knew that the switch from one bank to another occurred exactly in  $t$ . Yet, the exact timing of switching is unknown, where our dependent variable *Switch* captures whether a bank switching occurred at some point in time between  $t-1$  and  $t$ . Thus, the regressors from  $t$  would introduce the risk of modelling the decision as a function of observables from a future point in time with respect to the decision itself. Second, this specification enables us to pinpoint the characteristics of the discarded bank that are positively associated with switching, thereby providing more ready-to-use suggestions for the banks aiming to strengthen their ties to the households.

Since the probit model is nonlinear, we report the average marginal effects.<sup>2</sup> The model is estimated by maximum likelihood, using robust standard errors clustered at the household level.<sup>3</sup>

## 4. Data

### 4.1. Dataset

The Bank of Italy Survey on Household Income and Wealth (SHIW) is a biannual survey which interviews in each wave a population-representative sample of around 8,000 Italian households. Half of the interviewed households are panel households.<sup>4</sup> The survey encompasses plenty of information ranging from the basic demographic to various economic variables, including detailed information on household-bank relationship(s). Using the bank identifier enables us the following. First, we can observe which bank(s) each household uses in each wave, and, if multiple, which among those is the “main bank”.<sup>5</sup> Second, following the households over time, we are able to timely trace which households change their main bank, and, thus, to construct our dependent variable, *Switch*. Finally, we are able to match the household-level information to detailed bank-level information for the household’s main bank. This additional information is obtained from BankScope (BS), which provides extensive information from bank balance sheets and income statements on a yearly basis, as well as the information on bank history, specialization and market listing status.

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<sup>2</sup> The marginal effects are computed as the (sample weighted) average of the marginal change in each household's probability to switch when each of the explanatory variables changes from 0 to 1, if dichotomous, or by a marginal amount, if continuous. Our results are almost identical when we use a linear probability model (results available upon request).

<sup>3</sup> Following Petersen (2009), we check the robustness of our results to alternative clustering of the standard errors. Our main findings are largely unchanged with either clustering by time only or by household and time jointly.

<sup>4</sup> The statistical unit in the SHIW is the household, defined as a group of cohabiting people who, regardless of their relationships, satisfy their needs by pooling all or part of their incomes. For more information on the SHIW sampling and interviewing methodologies, see Bank of Italy (2012).

<sup>5</sup> See next subsection for the exact wording of the SHIW questionnaire.

Our final dataset, spanning the 2006-2012 period, provides a rich set of information on the characteristics of the household and its relationship with the bank, complemented with the information on the bank features. Finally, we add data from Bank of Italy to define bank market concentration at the province level, so as to carry out one of the first attempts in the literature to provide a comprehensive picture of the household-bank relationship.

## 4.2. Variable definitions

This section describes the variables included in the empirical estimation of model (1).

The core information on household-bank relationship relies on the following three questions from the SHIW. The first concerns which bank(s) the household uses (*Which among these [listed] banks do you use?*), and the second which among those is its main bank (*Which of these [circled] banks do you use most often?*). The third question relevant for our research focuses on the bank services used with the main bank: *“Apart from your account, what other financial [listed] products/services of your main bank do you use?”*. The households may indicate one or more among the following: (i) payments of utilities, rent or other expenses; (ii) mortgage; (iii) consumer credit and personal loans; (iv) securities custody, administration and management; (v) insurance; and (vi) other (as reference category).

By means of this information, we construct our dependent variable, *Switch*, which is defined in  $t$  as a binary variable taking value 1 if household  $i$  changes its main bank between wave  $t-1$  and  $t$ , and 0 otherwise.<sup>6</sup>

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<sup>6</sup> In doing so, due to the data limitation we could not control for local branch closures, but we fully took into account the restructuring and associated name changes at the national level. This seems particularly important given that during our sample period the Italian banking market underwent a strong consolidation process. If not properly taken into account these developments might undermine the correct construction of our dependent variable, since the banks that have changed names between two consecutive SHIW waves would have all households counted as “switchers” between wave  $t-1$  and  $t$ . To correct for this, we did not consider as switching if a household uses a bank involved in a merger or an acquisition with the household’s previous bank.

Since a household may use multiple banks, switching the main bank may capture what we refer to as “bank shuffling”. This is the case when the previous main bank becomes a secondary bank, or the previous secondary bank starts to be used as the main bank – i.e., the bank is used in both periods, but what changes is its reported relative frequency of use. Thus, we construct two alternative dependent variables to be used as a robustness check: *Switch Drop* is equal to 1 if a household changes its main bank dropping its previous bank (i.e., it does not become its secondary bank), and 0 otherwise, whereas *Switch New* is equal to 1 if a household switches to a bank with which it did not have any previous relationship (i.e., it does not switch to its secondary bank), and 0 otherwise.

Based on the same questions we also build the main variables of interest included in Matrix **R**, namely: (i) *Exclusivity*, a dummy taking value 1 if the household has relationship with one bank only, and 0 otherwise; (ii) Intensity (*Nr. Total services*), a categorical variable counting the number of bank services used by the household; and (iii) Scope of the relationship, capturing the actual nature of the household-bank relationship, via the bank services used distinguished by type.<sup>7</sup> Namely, we include dummies for using *Payments* (payment of utilities, rent or other expenses); *Insurance*; *Mortgage*; *Consumer credit*; *Portfolio management* and *Other services* (besides the ones listed above). Exploiting the panel dimension of our dataset, we also observe the change in the bank services used with the main bank over time, thus capturing the change in the scope of a household-bank relationship. Specifically, for each bank service, we construct two dummy variables. The first dummy (*Add [Specific service]*) takes value of 1 when the household does not use that service in  $t-1$  but uses it in  $t$ , whereas the second dummy (*Drop [Specific service]*) takes value of 1 when the household uses that service in  $t-1$  but no longer uses it in  $t$ . This specification enables us to relate the household’s decision to switch its main bank to a change in the bank services that the household requires.

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<sup>7</sup> We refer to the services used with the main bank, as we do not have information on the services used with the secondary bank(s), if any.

In line with the literature on household finance, matrix  $\mathbf{H}$  includes standard demographic and socio-economic controls. Namely, we control for household size, as well as age, gender, marital status, education, financial literacy and risk aversion of the household head.<sup>8</sup> *Age* is controlled for both in linear and quadratic terms, and gender and marital status by means of two dummies for being *Male* and *Married*, respectively. Education is controlled for with two dummies for the highest education level achieved, being secondary school or college (*Medium education*) and graduate or post-graduate level (*High education*), respectively. The questions included in the SHIW financial literacy test vary slightly from wave to wave, thus we focus on the two questions common to all the waves in our sample: one tests the comprehension of the different types of mortgage, whereas the other one of the real interest rates. On mortgages, the respondent is asked to indicate the type of mortgage (fixed rate, adjustable rate, or adjustable rate with fixed instalments) involving a fixed (in advance) number and amount of instalments to repay the debt. On real interest rates, the respondent is asked to indicate the amount of goods he/she can buy (the same, less, or more) at the end of the year if he/she leaves 1,000 euro in a bank account, for a year, at an annual interest rate of 1% in nominal terms, when annual inflation is 2%. Accordingly, to control for household head's financial sophistication, we generate two dummies: one for providing the correct answer to only one question out of two (*Intermediate financial literacy*), and one for answering both questions correctly (*Good financial literacy*). The survey also provides a self-reported measure of *Risk aversion*, as the household head is asked to indicate the preferred investment profile among four types, ranging from 1 (high risk, high returns) to 4 (no risk, low returns). Our model specification includes a dummy taking value 1 if the preferred investment profile is the fourth (*Risk-averse*). The mobility of the household is controlled for by means of two dummies: one for having changed municipality of residence between  $t-1$  and  $t$  (*Moved*), and one for owning the residential house (*Homeowner*). Finally, the overall economic condition of the household is captured by *Disposable income* and *Net wealth*, both in quintiles. We also control for the household head's main professional occupation, including dummies for being

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<sup>8</sup> The head of the household in the SHIW is defined as the person in charge of taking the economic and financial choices of the household.

*Employee* or *Self-employed*, thereby setting *Not Employed* (looking for a job, retired, students, housewives, etc.) as the reference category.

We also include a rich set of bank-level controls, gathered in matrix **B**. Specifically, we control for bank specialization, size, performance, market listing status, and recent involvement in a merger or an acquisition. Bank specialization is controlled for by means of two dummies for the bank being *Cooperative* or *Saving*, with *Commercial* banks being the reference category. Bank size is captured by the bank total assets (*Size*), whereas we also control for the bank profitability (*Return on Assets – ROA*) and leverage (*Equity over Total asset*). We also include a dummy for bank being *Listed* on the stock market and a dummy for *M&A* involvement that takes value of 1 if the bank was involved in *M&A* process between  $t-1$  and  $t$ , and 0 otherwise.

Finally, in matrix **X** we include various background controls: macro-region (North-East, Centre, and South, with North-West as reference category) and time dummies, as well as a proxy for *Bank market concentration*, measured by the Herfindal index of the ATM points in the province of residence, ranging between 0 (perfect competition) and 1 (monopoly).<sup>9</sup>

A detailed definition of all the variables used in the analysis is reported in the Appendix.

### 4.3. Descriptive statistics

The estimation sample covers the 2006-2012 period and consists of an unbalanced panel of 3,121 unique households, for a total of 5,057 household-level observations.<sup>10</sup>

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<sup>9</sup> We also consider alternative measures of bank market concentration, namely: the Herfindal index for the number of branches (as opposed to ATM) in the province of residence, and the market share of the Top 3 banks by both ATM points and the number of branches (justified by the structure of the Italian bank market, in which almost 50% of the households are clients of one of these 3 banks). The results (available upon request) obtained using these measures are largely unchanged.

<sup>10</sup> We exclude the households with the household head aged over 91 or below 19, as well as the households which possess neither financial nor real assets, or that report negative total consumption. We also drop the households who use a post office (around 15% of the initial sample) or who report using a bank for which we do not have information in Bankscope.

Table 1 reports descriptive statistics on the estimation sample. More than one out of five households in our sample changes its main bank (*Switch*). This ratio is multi-fold higher than a natural run-off rate of stable deposits which is 5% in BIS guidelines (BIS, 2013). These descriptive statistics are almost identical to *Switch New* and *Switch Drop*, which indicates that “bank shuffling” is not prevalent, i.e., the households who change their main bank close their accounts and switch to a bank that they haven’t used before. This is a striking result if we think of a well-documented phenomenon of inertia that characterizes household choices (see, e. g., Haliassos and Bertaut, 1995).

As for the household-bank relationship, almost 80% of the households have only one bank (*Exclusivity*) and the median household uses only one service in addition to their bank account (*Nr. Total services*). Changes in the services used are the most frequent for payments (5.5% of the households in the sample add this service and 11.5% drop it), mortgages (5.9% add it, and 5.6% drop it), and portfolio management (7.2% add, and 7.5% leave it).

The median household counts 2 household members, and the median household head is male, married, 54 years old and has completed a secondary school or college (*Medium Education*). As for the financial literacy, 32.5% of respondents answered correctly one of the questions testing financial sophistication (*Intermediate Financial Literacy*), whereas 57.6% answered both questions correctly (*Good Financial Literacy*). 42.4% of the households in our sample are *Risk-averse*. 41.2% of the household heads are *Employee*, 17% are *Self-employed*, while the rest are not employed.

The household’s median annual disposable income is slightly more than 36,000€ and net wealth of around 229,000€. When it comes to the homeownership, around 75.8% of the households in our estimation sample own their residential home, whereas only 2% of the households moved from one municipality to another between two waves, suggesting that the mobility of the households in our sample is extremely low. Majority of the households (83.6%) use a commercial bank as their main bank, 7% of the households use a saving bank, whereas 9.4% use a cooperative bank. The *Bank market*

*concentration* proxied by the Herfindal index has an average of 0.136 on a scale from 0 (perfect competition) to 1 (monopoly).

[Table 1 about here]

Our sample includes 85 unique banks, 53 of which are commercial, 17 saving, and 15 cooperative banks. These banks are quite representative of the Italian banking industry, since as an example the commercial banks in our sample account for 97% of the total assets in the market (these shares are 52%, and 43% for cooperative and saving banks, respectively).

The descriptive statistics for the bank-year observations are reported in Table 2. Around 26% of the banks are listed. In terms of total assets, which we use as a proxy for size, the median bank has 11.84 billion euros. Notably, the median size of the cooperative banks is quite similar to those of the commercial ones and very much aligned to the overall average bank size, indicating that bank size is not necessarily associated to the bank specialization. We also report measures of the bank profitability and its funding structure, *Equity/Total assets* and *Return on Assets (ROA)* respectively, in order to disentangle the role of the bank's specialization for household's decision to switch its bank.

[Table 2 about here]

## 5. Results

Table 3 reports the estimation output of the first empirical counterpart of equation (1), in which the scope of the household-bank relationship is captured by the types of the bank services used by the household.

Consistently with the Hypothesis 1, having a relationship exclusively with one bank (*Exclusivity*) reduces the probability of switching. The effect is remarkable, as it almost reaches 9 percentage points. The effect of the number of services (*Nr. Total services*) goes in the same direction, thus supporting our Hypothesis 2: for each

additional service used at the main bank, the household is almost 4% less likely to switch (see Column (1), Table 3). This result is consistent with the existing literature on switching costs (Brown et al., 2013).

In order to further investigate the latter finding, Column (2) in Table 3 provides a service-type break-down. The results show that the effect is mainly driven by *Payments*, *Consumer credit*, and portfolio management (*Portfolio mgmt.*), suggesting that these are the services which make the households more likely to stick to their bank. On the other hand, *Mortgage* and *Insurance* seem to form a weaker tie of the households to their banks. This heterogeneity of “stickiness” across various banks services is related to the variation in the switching costs that each service entails. Changing the bank used for payments purposes requires to inform all third parties associated with the service of the changed account number, whereas changing the portfolio management provider often implies untimely liquidation of the assets. The consumer credit is of lower debt burden and usually shorter maturity than a mortgage, thus the potential benefits of migrating a consumer credit to another bank are typically smaller, whereas the opposite is true for a mortgage loan. Changing insurance provider rarely entails costs for a household.

As for the bank's characteristics, Table 3 shows that neither having undergone a merger & acquisition (*M&A*) process nor bank's performance (measured by *ROA* and *Equity/Total assets*) play a role in the households' decision to leave the bank. On the other hand, the bank specialization is important. The estimates in Table 3 show that the cooperative banks are considerably less likely (around 10%) to be discarded with respect to the commercial banks, whereas this is not true for the saving banks. Since we are controlling for bank's size and performance (the “hard” characteristics of a bank), the cooperative dummy captures a “soft” differentiation with respect to the commercial banks, which is primarily the difference in the value a bank attaches to its clients. Finally, the households are more prone to leave a listed bank, which may be ascribed to a more profit-oriented management of these banks.

For the household controls, Table 3 shows that the probability of changing a bank slightly increases with *Household size*, whereas it is not associated with *Age*. The estimated association of the marital status goes in the expected direction: the households with a *Married* household head are less prone to change bank, which may result from the intra-household bargaining process, since for a couple to switch the two partners need to converge on the decision.<sup>11</sup> An interesting result is that whereas the education has a positive gradient, a higher level of financial literacy is strongly and negatively associated with the bank switching. This finding suggests that the households with better financial comprehension are more able to choose the bank that better fits their needs in the first place, thus being less likely to change the bank in the future.<sup>12</sup> Based on our evidence, gender, working status and *Risk averse* do not play a determinant role for switching, and, interestingly not even income and wealth are associated with this decision. Additionally, both proxies for mobility – namely, being homeowner and having moved – seem to be irrelevant. This might well stem from the peculiarity of the Italian market, where the homeownership is quite high and changing the municipality of residence is very rare. To sum up, the household characteristics that shape the bank-switching decision are household size, marital status, education and financial literacy, rather than the mobility or the overall economic condition of the household.

Finally, the *Bank market concentration* has a negative sign, indicating that the households living in the provinces with a more competitive bank market have on average a higher probability to switch their banks. The time dummies, not shown for reasons of space, capture a decreasing trend in the probability to change a bank.

[Table 3 about here]

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<sup>11</sup> This interpretation stems from our starting point being the collective household model, in which the final decision of the household is the result of bargaining among all household members, as opposed to the unitary model, in which the breadwinner only takes all decisions. More on this issue e. g. in Bertocchi et al. (2014) and references therein.

<sup>12</sup> As a robustness check, we also estimate a specification in which financial literacy is modelled by three dummies: one for having answered correctly to the question on interest rates, one for having answered correctly to the question on mortgages and the third one for having answered correctly both questions. Our main results remain unchanged even under this specification, available upon request.

In order to empirically test Hypothesis 3, we take into account the dynamics of the household-bank relationship via a set of dummies (*Add* and *Drop*) capturing the changes in a specific service used by the household. The results are reported in Table 4.

The evidence referring to the *Exclusivity* and to the *Intensity* are confirmed. Yet, new insights can be obtained on the service-driven switching. We find that the households opening a mortgage are 14.2% (*Add mortgage*) more likely to switch a bank. Similarly, closing a mortgage (*Drop mortgage*) also increases the probability of switching by 14%. We find evidence supporting our Hypothesis 3 only with reference to long-term credit services. According to this evidence, in our sample the households' choice of a bank is strongly driven by the offered mortgage terms, but the chosen bank faces a challenge to retain the household after the mortgage has been paid off. This is not surprising considering that among all bank services, the mortgages are those for which the households are more able to assess the total cost, given by the interest rate, and, thus, the advantages of switching a bank. One might argue that the same holds for the consumer credit. Yet, the mortgages are associated with the purchase of a house, which is typically one of the most important investment decisions in the households' life-cycle, therefore entailing a higher level of due diligence that the households exercise.

[Table 4 about here]

To sum up, consistently with our testable hypotheses, the household decision to change its main bank seems to be strongly discouraged by the strength of the tie to the bank, as captured by the household using no other banks, by the costs of switching and to be mainly driven by bank services such as payments, consumer credit and portfolio management. Furthermore, taking out and paying off long-term credit are both found to be the strong determinants of the household's decision to switch its bank.

## 6. Robustness

The results presented in the previous section are robust to alternative specifications of both the dependent variable and of several controls.

## 6.1. Dependent variable

Our dependent variable captures household’s decision to change its main bank. We thus define our baseline dependent variable *Switch* as being 1 if the household changes its main bank between waves  $t-1$  and  $t$ . While definition of switching is straightforward for the households using only one bank and switching to another single bank relationship, for the households using multiple banks our measure of switching may capture what we refer to as “bank shuffling”. These concerns are mitigated by the peculiarity of our sample, in which the majority of households use one bank only. However, to address this issue explicitly, we test the robustness of our results to more restrictive measures of switching, namely *Switch New* and *Switch Drop*, as defined in Section 4.2. The results are reported in Tables 5 to 8 and are qualitatively similar to those reported in Tables 3 and 4.

[Table 5 to Table 8 about here]

## 6.2. Control variables

In the specifications reported in Table 9 and Table 10 we use two alternative measures of *Exclusivity* to capture household’s loyalty to its main bank, namely the number of banks used by the household (*Nr. Banks*), and a dummy taking value 1 if the household has been using its main bank for 10 years or more (*Long-lasting relationship*). In both tables, the former shows a positive marginal effect suggesting that for each additional bank used, a household is 6% more likely to change its main bank. Similarly in Table 10, the households who have been using their main bank since a long ago are 11% less likely to replace it with another bank.

[Table 9 and Table 10 about here]

## 7. Conclusion

This paper empirically investigates the household's decision to change its main bank, a timely issue considering the increasing attention devoted to it by both the practitioners and the policy makers.

To this end, we rely on a dataset which is unique on several grounds. First, it observes the households and their bank(s) over time, providing ample information about the bank services used. This not only means that the households' decision to switch or stay is timely observed, rather than inferred based on the retrospective questions or the questions on intention to switch, but also that it can be related to the bank services used. Second, the dataset relies on a survey which is representative of the entire population. Third, it refers to the 2006-2012 period and to the Italian market, which particularly lends itself to this analysis since more than one out of five households do change their main bank. Finally, it is highly representative of the Italian bank market, thus enabling us to gauge the differences in switching vulnerability of different types of banks.

We find that the households are more reluctant to switch if they have an exclusive, long-lasting relationship with their bank, and/or use the bank more intensively, consistently with our first testable hypothesis. Specifically, the households having an exclusive relationship with the bank (or having been using the bank for longer than 10 years) are 11% less likely to switch. In line with our second hypothesis, for each additional service used, the probability of switching a bank reduces by around 4%, thereby confirming the role of switching costs as discussed in the literature.

Finally, the scope of the relationship also matters since we document the heterogeneity of "stickiness" across various bank services, with *Payments*, *Consumer credit*, and portfolio management (*Portfolio mgmt.*) creating a stronger tie of the household to its bank. The mortgages are found to be a strong motivation for the household's decision to switch its bank, both when taking it out and having paid it off. Thus, we find evidence supporting our Hypothesis 3 only with respect to long term credit. These results suggest that the households' choice of a bank is strongly driven by

the offered mortgage terms, but also that a chosen bank faces a challenge in retaining the households after the mortgage has been paid off.

We also find that the household size, marital status, education and financial literacy are associated with the decision to change bank, whereas mobility and the overall economic condition of the household are not.

Some of the characteristics of the discarded bank also matter, with the cooperative banks being significantly less likely to be abandoned. This result frames into the recently increasing attention devoted to the cooperative banks from academics, politicians and the public, who have wondered whether their specific characteristics have provided them with a safer shelter against the propagation of the global financial crisis (Hesse and Cihák, 2007).

The evidence that the cooperative banks are significantly less likely to be discarded may also serve as a recommendation to the policy makers. So far, Basel III liquidity requirements strongly discriminate between "stable" and "unstable" customer deposits. More specifically, the regulators assume that the customer deposits which are embedded in a well-established relationship are less subject to the withdrawal risk, thereby shaping the liquidity requirements based on the intensity of the relationship. According to our evidence, we can add that the liquidity requirements should evaluate the stability of the relationship not only based on its intensity but also based on the bank's specialization.

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## Tables

**Table 1: Descriptive statistics on the estimation sample**

Dependent variables	Obs	Mean	Median	Min	Max	St.Dev.
Switch	5,057	0.230	0	0	1	0.421
Switch New	5,057	0.219	0	0	1	0.414
Switch Drop	5,057	0.216	0	0	1	0.411
<b>Control variables</b>						
<i>R: Household-bank relationship characteristics</i>						
Exclusivity	5,057	0.795	1	0	1	0.404
Nr. Banks	5,057	1.238	1	1	5	0.506
Long-lasting relationship	4,152	0.655	1	0	1	0.475
Nr. Total services	5,057	1.371	1	0	5	0.757
Payments	5,057	0.900	1	0	1	0.301
Insurance	5,057	0.038	0	0	1	0.192
Mortgage	5,057	0.151	0	0	1	0.358
Consumer credit	5,057	0.041	0	0	1	0.199
Portfolio mgmt.	5,057	0.196	0	0	1	0.397
Other services	5,057	0.045	0	0	1	0.208
Add payments	5,057	0.055	0	0	1	0.228
Add insurance	5,057	0.022	0	0	1	0.145
Add mortgage	5,057	0.059	0	0	1	0.235
Add consumer credit	5,057	0.045	0	0	1	0.207
Add portfolio mgmt.	5,057	0.072	0	0	1	0.258
Add other services	5,057	0.048	0	0	1	0.213
Drop payments	5,057	0.115	0	0	1	0.319
Drop insurance	5,057	0.023	0	0	1	0.149
Drop mortgage	5,057	0.056	0	0	1	0.229
Drop consumer credit	5,057	0.025	0	0	1	0.157
Drop portfolio mgmt.	5,057	0.075	0	0	1	0.264
Drop other services	5,057	0.032	0	0	1	0.175

Table 1: Descriptive statistics on the estimation sample (ctd.)

	Obs	Mean	Median	Min	Max	St.Dev.
<i>H: Household characteristics</i>						
Household size	5,057	2.632	2	1	8	1.241
Age	5,057	54.326	54	20	90	14.326
Male	5,057	0.666	1	0	1	0.472
Married	5,057	0.691	1	0	1	0.462
Medium education	5,057	0.685	1	0	1	0.465
High education	5,057	0.143	0	0	1	0.350
Intermediate financial literacy	5,057	0.325	0	0	1	0.468
Good financial literacy	5,057	0.576	1	0	1	0.494
Risk-averse	5,057	0.424	0	0	1	0.494
Moved	5,057	0.020	0	0	1	0.138
Homeowner	5,057	0.758	1	0	1	0.428
Employee	5,057	0.412	0	0	1	0.492
Self-employed	5,057	0.170	0	0	1	0.376
Income (€1,000)	5,057	43.041	36.25254	0	427.948	28.409
Net wealth (€1,000)	5,057	357.223	229.6137	-875.424	30,933.84	747.310
<i>B: Bank characteristics</i>						
Commercial	5,057	0.836	1	0	1	0.370
Saving	5,057	0.070	0	0	1	0.255
Cooperative	5,057	0.094	0	0	1	0.292
Size (in logs)	5,057	11.046	11.09189	7.923757	13.94831	1.416
ROA	5,057	0.666	0.78	-1.4	2.36	0.464
Equity/Total assets	5,057	7.067	6.88	2.35	25.21	2.845
Listed	5,057	0.411	0	0	1	0.492
M&A	5,057	0.126	0	0	1	0.331
<i>X: Background controls</i>						
North-Est	5,057	0.115	0	0	1	0.319
North-West	5,057	0.318	0	0	1	0.466
Centre	5,057	0.322	0	0	1	0.467
South	5,057	0.245	0	0	1	0.430
Bank market concentration (Herfindal index)	5,057	0.136	0.120	0.053	0.427	0.059

**Note:** all statistics are computed using sample weights.

**Table 2: Descriptive statistics at the bank level**

<b>Variable</b>	<b>N</b>	<b>Mean</b>	<b>Median</b>	<b>Min</b>	<b>Max</b>	<b>St.Dev.</b>
Commercial	238	0.61	1	0	1	0.49
Saving	238	0.21	0	0	1	0.41
Coop	238	0.18	0	0	1	0.39
Listed	238	0.26	0	0	1	0.44
Total assets (billions of euro)	238	50.76	11.84	2.39	1,142.03	153.19
-Commercial	146	71.2	14.92	2.76	1,142.03	192.15
-Saving	49	11.29	5.67	2.39	50.8	11.75
-Cooperative	43	26.32	11.89	2.81	135.79	30.18
Return on Assets (ROA)	238	0.41	0.47	-6.7	2.36	0.77
-Commercial	146	0.42	0.52	-6.7	2.36	0.91
-Saving	49	0.34	0.40	-1	1.43	0.55
-Cooperative	43	0.45	0.46	-1.17	1.07	0.40
Equity/Total assets	238	7.85	7.48	1.44	25.21	3.09
-Commercial	146	7.63	7.00	1.44	25.21	3.54
-Saving	49	7.47	7.20	3.76	11.93	1.61
-Cooperative	43	9.05	8.62	5.18	17.32	2.40

**Table 3: Marginal effects on the probability to switch, main specification.**

	(1)	(2)		(1) ctd	(2) ctd
<b><i>R: Household-bank relationship characteristics</i></b>			<b><i>H: Household controls (ctd)</i></b>		
Exclusivity	-0.088*** (0.022)	-0.087*** (0.022)	Married	-0.077*** (0.025)	-0.081*** (0.025)
Nr. Total services	-0.037*** (0.011)		Medium education	0.088*** (0.021)	0.089*** (0.021)
Payments		-0.056** (0.028)	High education	0.116*** (0.037)	0.118*** (0.036)
Insurance		-0.043 (0.037)	Intermediate fin.lit.	-0.063** (0.027)	-0.060** (0.027)
Mortgage		-0.005 (0.023)	Good fin.lit.	-0.097*** (0.028)	-0.093*** (0.028)
Consumer credit		-0.093*** (0.028)	Risk averse	-0.016 (0.016)	-0.017 (0.016)
Portfolio mgmt.		-0.050** (0.021)	Moved	-0.060 (0.048)	-0.064 (0.046)
Other services		0.048 (0.041)	Homeowner	-0.003 (0.027)	-0.012 (0.028)
<b><i>B: Bank controls</i></b>			Employee	-0.011 (0.022)	-0.011 (0.022)
Cooperative	-0.100*** (0.024)	-0.102*** (0.024)	Self-employed	-0.019 (0.027)	-0.025 (0.027)
Saving	-0.006 (0.033)	-0.010 (0.033)	Income – Q2	0.005 (0.035)	0.008 (0.035)
Size (in logs)	0.011 (0.007)	0.010 (0.007)	Income – Q3	0.001 (0.035)	0.002 (0.035)
Listed	0.091*** (0.022)	0.093*** (0.023)	Income – Q4	0.011 (0.037)	0.015 (0.037)
ROA	-0.004 (0.023)	-0.003 (0.023)	Income – Q5	0.037 (0.042)	0.041 (0.042)
Equity/Total assets	0.003 (0.003)	0.003 (0.003)	Net Wealth – Q2	0.019 (0.034)	0.018 (0.034)
M&A	0.016 (0.027)	0.016 (0.027)	Net Wealth – Q3	0.038 (0.041)	0.040 (0.041)
<b><i>H: Household controls</i></b>			Net Wealth – Q4	0.017 (0.040)	0.026 (0.041)
Household size	0.018** (0.009)	0.019** (0.009)	Net Wealth – Q5	-0.045 (0.040)	-0.037 (0.041)
Age	0.003 (0.004)	0.003 (0.004)	<b><i>X: Background controls</i></b>		
Age <sup>2</sup>	-0.002 (0.004)	-0.002 (0.004)	Bank market concentration	-0.384*** (0.142)	-0.388*** (0.141)
Male	-0.013 (0.019)	-0.012 (0.019)	Observations	5,057	5,057
			Pseudo-R <sup>2</sup>	0.0642	0.0674

**Notes:** all regressions include dummies for time and macro-region of residence.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

**Table 4: Marginal effects on the probability to switch, change services specification**

	(1)		(1) ctd
<b><i>B: Household-bank</i></b>		<b><i>H: Household controls</i></b>	
Exclusivity	-0.083*** (0.022)	Household size	0.018** (0.009)
Nr. Total services	-0.049*** (0.016)	Age	0.002 (0.004)
Add payments	0.054 (0.038)	Age <sup>2</sup>	-0.001 (0.004)
Drop payments	-0.001 (0.026)	Male	-0.016 (0.019)
Add insurance	-0.031 (0.049)	Married	-0.081*** (0.025)
Drop insurance	0.023 (0.055)	Medium education	0.089*** (0.021)
Add mortgage	0.142*** (0.040)	High education	0.116*** (0.036)
Drop mortgage	0.140*** (0.042)	Intermediate fin.lit.	-0.054** (0.026)
Add consumer credit	-0.021 (0.035)	Good fin.lit.	-0.088*** (0.028)
Drop consumer credit	-0.047 (0.045)	Risk averse	-0.017 (0.016)
Add portfolio mgmt.	-0.002 (0.029)	Moved	-0.066 (0.047)
Drop portfolio mgmt.	0.041 (0.032)	Homeowner	-0.013 (0.028)
Add other	-0.039 (0.031)	Employee	-0.016 (0.022)
Drop other	0.093* (0.053)	Self-employed	-0.032 (0.027)
<b><i>B: Bank controls</i></b>		<b><i>X: Background controls</i></b>	
Cooperative	-0.106*** (0.024)	Income – Q2	0.014 (0.036)
Saving	-0.006 (0.033)	Income – Q3	0.009 (0.036)
Size (in logs)	0.010 (0.007)	Income – Q4	0.018 (0.038)
ROA	0.095*** (0.023)	Income – Q5	0.046 (0.042)
Equity/Total assets	-0.003 (0.023)	Net Wealth – Q2	0.017 (0.034)
Listed	0.003 (0.003)	Net Wealth – Q3	0.036 (0.040)
M&A	0.011 (0.026)	Net Wealth – Q4	0.022 (0.040)
		Net Wealth – Q5	-0.042 (0.040)
		Bank market concentration.	-0.354** (0.139)
		Observations	5,057
		Pseudo-R <sup>2</sup>	0.0773

**Notes:** all regressions include dummies for time and macro-region of residence.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

**Table 5: Robustness: Switch New as dependent, main specification.**

	(1)	(2)		(1) ctd	(2) ctd
<b><i>R: Household-bank relationship characteristics</i></b>			<b><i>H: Household controls (ctd)</i></b>		
Exclusivity	-0.030 (0.021)	-0.030 (0.021)	Married	-0.080*** (0.025)	-0.083*** (0.025)
Nr. Total services	-0.035*** (0.011)		Medium education	0.082*** (0.021)	0.082*** (0.020)
Payments		-0.058** (0.028)	High education	0.118*** (0.037)	0.117*** (0.036)
Insurance		-0.033 (0.038)	Intermediate fin.lit.	-0.050* (0.026)	-0.046* (0.026)
Mortgage		-0.012 (0.023)	Good fin.lit.	-0.085*** (0.028)	-0.081*** (0.028)
Consumer credit		-0.091*** (0.028)	Risk averse	-0.015 (0.016)	-0.015 (0.016)
Portfolio mgmt.		-0.037* (0.021)	Moved	-0.058 (0.047)	-0.062 (0.046)
Other services		0.029 (0.039)	Homeowner	-0.008 (0.027)	-0.014 (0.028)
<b><i>B: Bank controls</i></b>			Employee	-0.020 (0.022)	-0.019 (0.022)
Cooperative	-0.092*** (0.024)	-0.094*** (0.024)	Self-employed	-0.015 (0.027)	-0.018 (0.027)
Saving	-0.001 (0.033)	-0.003 (0.033)	Income – Q2	0.003 (0.034)	0.006 (0.034)
Size (in logs)	0.012* (0.007)	0.012 (0.007)	Income – Q3	0.001 (0.034)	0.003 (0.034)
Listed	0.085*** (0.022)	0.086*** (0.022)	Income – Q4	0.012 (0.036)	0.015 (0.037)
ROA	-0.004 (0.023)	-0.004 (0.023)	Income – Q5	0.032 (0.041)	0.036 (0.041)
Equity/Total assets	0.003 (0.003)	0.003 (0.003)	Net Wealth – Q2	0.018 (0.033)	0.017 (0.033)
M&A	0.017 (0.026)	0.017 (0.026)	Net Wealth – Q3	0.042 (0.040)	0.043 (0.040)
<b><i>H: Household controls</i></b>			Net Wealth – Q4	0.019 (0.040)	0.023 (0.040)
Household size	0.020** (0.009)	0.020** (0.009)	Net Wealth – Q5	-0.043 (0.039)	-0.039 (0.040)
Age	0.002 (0.004)	0.003 (0.004)	<b><i>X: Background controls</i></b>		
Age <sup>2</sup>	-0.002 (0.004)	-0.002 (0.004)	Bank market concentration	-0.358** (0.141)	-0.360** (0.141)
Male	-0.018 (0.019)	-0.017 (0.019)	Observations	5,057	5,057
			Pseudo-R <sup>2</sup>	0.0611	0.0633

**Notes:** *Switch New* used as dependent variable in alternative to *Switch*. All regressions include dummies for time and macro-region of residence.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

**Table 6: Robustness: Switch New as dependent, change services specification.**

	(1)		(1) ctd
<b><i>R: Household-bank</i></b>		<b><i>H: Household controls</i></b>	
Exclusivity	-0.027 (0.021)	Household size	0.019** (0.008)
Nr. Total services	-0.043*** (0.016)	Age	0.002 (0.004)
Add payments	0.061 (0.038)	Age <sup>2</sup>	-0.002 (0.004)
Drop payments	-0.011 (0.026)	Male	-0.020 (0.019)
Add insurance	-0.030 (0.049)	Married	-0.083*** (0.025)
Drop insurance	0.029 (0.056)	Medium education	0.082*** (0.020)
Add mortgage	0.131*** (0.040)	High education	0.115*** (0.036)
Drop mortgage	0.119*** (0.041)	Intermediate fin.lit.	-0.041 (0.026)
Add consumer credit	-0.024 (0.034)	Good fin.lit.	-0.077*** (0.027)
Drop consumer credit	-0.042 (0.045)	Risk averse	-0.015 (0.016)
Add portfolio mgmt.	0.005 (0.030)	Moved	-0.063 (0.046)
Drop portfolio mgmt.	0.042 (0.032)	Homeowner	-0.017 (0.027)
Add other	-0.036 (0.031)	Employee	-0.024 (0.022)
Drop other	0.061 (0.050)	Self-employed	-0.025 (0.026)
<b><i>B: Bank controls</i></b>		<b><i>X: Background controls</i></b>	
Cooperative	-0.097*** (0.024)	Income – Q2	0.011 (0.035)
Saving	0.001 (0.033)	Income – Q3	0.007 (0.034)
Size (in logs)	0.011 (0.007)	Income – Q4	0.017 (0.037)
ROA	0.089*** (0.022)	Income – Q5	0.039 (0.041)
Equity/Total assets	-0.004 (0.023)	Net Wealth – Q2	0.016 (0.033)
Listed	0.003 (0.003)	Net Wealth – Q3	0.039 (0.040)
M&A	0.012 (0.026)	Net Wealth – Q4	0.021 (0.040)
		Net Wealth – Q5	-0.042 (0.039)
		Observations	5,057
		Pseudo-R <sup>2</sup>	0.0722

**Notes:** *Switch New* used as dependent variable in alternative to *Switch*. All regressions include dummies for time and macro-region of residence.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

**Table 7: Robustness: Switch Drop as dependent, main specification.**

	(1)	(2)		(1) ctd	(2) ctd
<b><i>R: Household-bank relationship characteristics</i></b>			<b><i>H: Household controls (ctd)</i></b>		
Exclusivity	-0.033 (0.021)	-0.033 (0.021)	Married	-0.069*** (0.025)	-0.073*** (0.025)
Nr. Total services	-0.035*** (0.011)		Medium education	0.080*** (0.021)	0.080*** (0.020)
Payments		-0.056** (0.028)	High education	0.105*** (0.036)	0.106*** (0.036)
Insurance		-0.029 (0.039)	Intermediate fin.lit.	-0.054** (0.026)	-0.050* (0.026)
Mortgage		-0.009 (0.023)	Good fin.lit.	-0.091*** (0.028)	-0.087*** (0.027)
Consumer credit		-0.092*** (0.027)	Risk averse	-0.013 (0.016)	-0.014 (0.016)
Portfolio mgmt.		-0.044** (0.020)	Moved	-0.054 (0.047)	-0.059 (0.046)
Other services		0.053 (0.041)	Homeowner	-0.005 (0.027)	-0.012 (0.027)
<b><i>B: Bank controls</i></b>			Employee	0.007 (0.022)	0.007 (0.022)
Cooperative	-0.098*** (0.023)	-0.100*** (0.023)	Self-employed	-0.003 (0.028)	-0.009 (0.027)
Saving	0.002 (0.033)	-0.002 (0.033)	Income – Q2	-0.001 (0.034)	0.002 (0.034)
Size (in logs)	0.014* (0.007)	0.013* (0.007)	Income – Q3	-0.002 (0.034)	0.000 (0.034)
Listed	0.074*** (0.022)	0.074*** (0.022)	Income – Q4	0.003 (0.036)	0.007 (0.036)
ROA	-0.008 (0.023)	-0.008 (0.023)	Income – Q5	0.027 (0.041)	0.031 (0.041)
Equity/Total assets	0.004 (0.003)	0.004 (0.003)	Net Wealth – Q2	0.023 (0.034)	0.022 (0.033)
M&A	0.014 (0.026)	0.014 (0.026)	Net Wealth – Q3	0.038 (0.040)	0.039 (0.040)
<b><i>H: Household controls</i></b>			Net Wealth – Q4	0.027 (0.040)	0.034 (0.040)
Household size	0.016* (0.009)	0.016* (0.009)	Net Wealth – Q5	-0.040 (0.039)	-0.034 (0.040)
Age	0.002 (0.004)	0.002 (0.004)	<b><i>X: Background controls</i></b>		
Age <sup>2</sup>	-0.001 (0.004)	-0.001 (0.004)	Bank market concentration	-0.402*** (0.140)	-0.406*** (0.140)
Male	-0.021 (0.019)	-0.020 (0.019)	Observations	5,057	5,057
			Pseudo-R <sup>2</sup>	0.0613	0.0646

**Notes:** Switch Drop used as dependent variable in alternative to Switch. All regressions include dummies for time and macro-region of residence.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

**Table 8: Robustness: Switch Drop as dependent, change services specification.**

	(1)		(1) ctd
<b><i>R: Household-bank</i></b>		<b><i>H: Household controls</i></b>	
Exclusivity	-0.029 (0.021)	Household size	0.015* (0.008)
Nr. Total services	-0.050*** (0.016)	Age	0.002 (0.004)
Add payments	0.048 (0.037)	Age <sup>2</sup>	-0.001 (0.004)
Drop payments	-0.007 (0.026)	Male	-0.024 (0.018)
Add insurance	-0.022 (0.049)	Married	-0.072*** (0.024)
Drop insurance	0.046 (0.058)	Medium education	0.080*** (0.020)
Add mortgage	0.131*** (0.040)	High education	0.104*** (0.036)
Drop mortgage	0.139*** (0.042)	Intermediate fin.lit.	-0.045* (0.026)
Add consumer credit	-0.016 (0.034)	Good fin.lit.	-0.082*** (0.027)
Drop consumer credit	-0.036 (0.045)	Risk averse	-0.014 (0.016)
Add portfolio mgmt.	-0.002 (0.029)	Moved	-0.061 (0.046)
Drop portfolio mgmt.	0.046 (0.032)	Homeowner	-0.015 (0.027)
Add other	-0.048 (0.030)	Employee	0.002 (0.022)
Drop other	0.101* (0.054)	Self-employed	-0.016 (0.027)
<b><i>B: Bank controls</i></b>		<b><i>X: Background controls</i></b>	
Cooperative	-0.103*** (0.023)	Income – Q2	0.007 (0.034)
Saving	0.002 (0.033)	Income – Q3	0.006 (0.034)
Size (in logs)	0.013* (0.007)	Income – Q4	0.010 (0.036)
ROA	0.078*** (0.022)	Income – Q5	0.036 (0.041)
Equity/Total assets	-0.008 (0.023)	Net Wealth – Q2	0.021 (0.033)
Listed	0.004 (0.003)	Net Wealth – Q3	0.035 (0.039)
M&A	0.009 (0.026)	Net Wealth – Q4	0.031 (0.040)
		Net Wealth – Q5	-0.038 (0.039)
		Observations	5,057
		Pseudo-R <sup>2</sup>	0.0744

**Notes:** *Switch Drop used as dependent variable in alternative to Switch. All regressions include dummies for time and macro-region of residence.*

*\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.*

**Table 9: Robustness: alternative measures for household loyalty, main specification**

	(1)	(2)	(3)	(4)
<i>R: Household-bank relationship characteristics</i>				
Nr. Banks	0.060*** (0.015)	0.060*** (0.015)		
Long-lasting relationship			-0.110*** (0.021)	-0.108*** (0.021)
Nr. Total services	-0.036*** (0.011)		-0.030** (0.012)	
Payments		-0.054* (0.028)		-0.028 (0.030)
Insurance		-0.042 (0.037)		-0.059 (0.037)
Mortgage		-0.003 (0.023)		-0.013 (0.025)
Consumer credit		-0.093*** (0.029)		-0.078** (0.035)
Portfolio mgmt.		-0.051** (0.021)		-0.035 (0.023)
Other services		0.049 (0.041)		0.044 (0.047)
Observations	5,057	5,057	4,152	4,152
Pseudo-R <sup>2</sup>	0.0633	0.0666	0.0756	0.0776

**Note:** *Exclusivity is substituted with Nr. Banks in Columns (1) to (2), and with Long-lasting relationship in Columns (3) to (4). All regressions also include matrices **B**, **H** and **X**.*

*\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.*

**Table 10: Robustness: alternative measures for household loyalty, change services specification.**

	(1)	(2)
<i>R: Household-bank relationship characteristics</i>		
Nr. Banks	0.057*** (0.015)	
Long-lasting relationship		-0.105*** (0.021)
Nr. Total services	-0.048*** (0.016)	-0.044** (0.017)
Add payments	0.052 (0.038)	0.052 (0.042)
Drop payments	0.000 (0.026)	0.008 (0.028)
Add insurance	-0.033 (0.048)	-0.051 (0.049)
Drop insurance	0.025 (0.055)	0.006 (0.053)
Add mortgage	0.142*** (0.040)	0.170*** (0.046)
Drop mortgage	0.141*** (0.042)	0.156*** (0.045)
Add consumer credit	-0.021 (0.035)	-0.010 (0.038)
Drop consumer credit	-0.046 (0.045)	-0.019 (0.052)
Add portfolio mgmt.	-0.002 (0.030)	0.018 (0.035)
Drop portfolio mgmt.	0.041 (0.032)	0.065* (0.035)
Add other services	-0.042 (0.031)	-0.030 (0.034)
Drop other services	0.095* (0.053)	0.071 (0.061)
Observations	5,057	4,152
Pseudo-R <sup>2</sup>	0.0765	0.0920

**Note:** *Exclusivity is substituted with Nr. Banks in Column (1) and with Long-lasting relationship in Column (2). All regressions include matrices **B**, **H** and **X**.*

*\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.*

## Appendix – Description of variables

Variable	Description	Source
<i>Dependent variables</i>		
Switch	Binary variable taking value 1 if the household changes its main bank between $t-1$ and $t$ , and 0 otherwise.	SHIW
Switch New	Binary variable taking value 1 if the household changes its main bank switching to a new one with which it did not have any previous relationship, and 0 otherwise.	SHIW
Switch Drop	Binary variable taking value 1 if the household changes its main bank without keeping it as a secondary bank, and 0 otherwise.	SHIW
<i>Controls variables</i>		
<i>R: Household-bank relationship characteristics</i>		
Exclusivity	Binary variable taking value 1 if the household has only one bank, and 0 otherwise.	SHIW
Nr. Total services	Categorical variable counting the total number of bank services used by the household.	SHIW
Payments	Binary variable taking value 1 if the household uses its main bank for the payment of utilities, rent and other expenses, and 0 otherwise.	SHIW
Insurance	Binary variable taking value 1 if the household uses its main bank for insurance services, and 0 otherwise.	SHIW
Mortgage	Binary variable taking value 1 if the household uses its main bank for mortgage, and 0 otherwise.	SHIW
Consumer Credit	Binary variable taking value 1 if the household uses its main bank for consumer credit or personal loans, and 0 otherwise.	SHIW
Portfolio mgmt.	Binary variable taking value 1 if the household uses its main bank for securities custody, administration and management, and 0 otherwise.	SHIW
Other services	Binary variable taking value 1 if the household uses its main bank for other services besides those described above, and 0 otherwise.	SHIW
Add [Specific service]	Binary variable taking value 1 if the household does not use the specific service in $t-1$ , but uses it in $t$ , and 0 otherwise.	SHIW
Drop [Specific service]	Binary variable taking value 1 if a household uses a specific service in $t-1$ , but does not use it in $t$ , and 0 otherwise.	SHIW
Nr. Banks	Variable counting the number of banks the household has relationship with (used as an alternative measure of household's loyalty to its main bank).	SHIW

Variable	Description	Source
Long-lasting relationship	Binary variable taking value 1 if a household has been using its main bank for more than 10 years, and 0 otherwise (used as an alternative measure of household's loyalty to its main bank).	SHIW
<i>H: Household characteristics</i>		
Household size	Categorical variable counting the number of household members.	SHIW
Male	Binary variable taking value 1 for male household head, 0 for female.	SHIW
Age, Age <sup>2</sup>	Integer variables representing the age of household head and its quadratic form.	SHIW
Married	Binary variable taking value 1 if the household head is married, and 0 otherwise.	SHIW
Medium Education, High Education	Binary variables taking value 1 for the corresponding level of education: Medium education corresponds to having completed secondary school and/or college; High education corresponds to having obtained a graduated and/or post-graduate degree. Reference category is Low education, i.e., having completed only primary education or having no education at all.	SHIW
Intermediate Financial Literacy, Good Financial Literacy	Binary variables taking value 1 for the corresponding level of financial literacy: Intermediate financial literacy corresponds to having answered correctly only one question out of two; Good financial literacy corresponds to having answered correctly to both questions. Reference category is Low Financial Literacy, meaning having given no correct answer.	SHIW
Risk averse	Binary variable taking value 1 if risk aversion level is 4, 0 otherwise. Risk-aversion is measured by a categorical variable representing the preferred risk profile of financial investments: 1 = High risk, high returns 2 = Reasonable risk, good returns 3 = Low risk, reasonable returns 4 = No risk, low returns	SHIW
Moved	Binary variable taking value 1 if the household changed its residence from one municipality to another between $t-1$ and $t$ , and 0 otherwise.	SHIW
Homeowner	Binary variable taking value 1 if the household owns his its primary residence, and 0 otherwise.	SHIW

Variable	Description	Source
Employee, Self-employed	Binary variables taking value 1 for household heads being in the corresponding occupational status, 0 otherwise. Reference category is non-employed.	SHIW
Income (Net Wealth) quintiles	Binary variables taking value 1 if household's yearly disposable income (net wealth, defined as the sum of real and financial assets net of liabilities) is within the relevant distribution quintile, and 0 otherwise.	SHIW
<i>B: Bank characteristics</i>		
Size (in logs)	Bank's total assets.	BS
Commercial, Cooperative, Saving	Binary variables taking value 1 for the corresponding bank's specialization. The reference category is Commercial bank.	BS
Listed	Binary variable taking value 1 if the bank is listed, and 0 otherwise.	BS
M&A	Binary variable taking value 1 if the bank underwent a process of Merge & Acquisition between $t - 1$ and $t$ , and 0 otherwise.	BS
Equity/Total assets	Variable representing the ratio between bank's equity and total assets, in percentage points.	BS
ROA	Variable representing the return on asset, namely the ratio between the bank's pre-tax profits and assets, in percentage points.	BS
<i>X: Background characteristics</i>		
Time dummies (2008, 2010)	Dummy variables taking value 1 in the relevant year, and 0 otherwise. The reference category is 2006.	SHIW
Macro-region dummies	Dummy variables taking value 1 for the relevant macro-region (North-West, Centre, South) of residence, and 0 otherwise. The reference category is North-East.	SHIW
Bank market concentration	Normalized Herfindal index of banks' ATM points in the province of household's residence, ranging between 0 (perfect competition) and 1 (monopoly).	BI

**Note:** *SHIW* is Survey on Household Income and Wealth; *BS* is BankScope; *BI* is Bank of Italy.