

What's risk got to do with it?

An analysis of interest rates in the Italian consumer credit market *

Abstract

In this paper, we investigate the determinants of interest rates on consumer credit in the Italian market. The analysis is stimulated by the high level of Italian rates in a comparison with the euro-area and by the fact that this differential is not fading away with the strong growth of the Italian market, contrary to what one could expect. Although a full-fledged analysis of cross-country differentials cannot be carried out due to limited data availability and we have to focus on the determinants of Italian rates alone, our results suggest that Italian rates are strongly influenced by concentration levels. Risk is less significant as a determinant of interest rate, especially for those banks situated in the upper half of the distribution of interest rates.

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1. Introduction

The consumer credit market in Italy experienced spectacular growth during the last few years, almost trebling in volume between 2000 and 2006 and significantly enlarging the range of products available to consumers (Mercer-Oliver-Wyman, 2005)¹. The cost of this credit, however, came under scrutiny from several quarters. The media, consumers' associations and policymakers, repeatedly pointed out that costs are high and hinted that price conditions might not be justified by the characteristics of the borrowers. Asked in an interview about government's plans on economic liberalizations, a deputy Economy Minister was quoted as saying "*I started an inquiry over consumer credit, a sector that is rapidly growing but where costs are very high. As a first step, I'm collecting evidence to understand the costs of each type of consumer credit.*" (Roberto Pinza, "Il Mattino", 2/2/2007).

There may be something in these complaints: according to data collected in compliance with the usury law, the average effective rate on instalment and revolving loans up to 5,000 euros in the third quarter of 2006 was above 16 per cent; the rate on personal loans, instalment and revolving loans over 5,000 euros was above 10 per cent. Rates applied by non banking intermediaries were even higher. In the same period, the main policy rate of the European System of Central Banks was 2.75 per cent (3 per cent since mid-October 2006) and the non-performing loans ratio for consumer credit was only 1.7 per cent in December 2006 for banks². Comparisons with the euro area convey a similar message; as we illustrate in more detail in paragraph 2, Italian rates are remarkably higher than those prevailing in most member states.

In this paper, we address this issue, trying to shed some lights on the determinants of interest rates on consumer credit in Italy. As far as we know, there have been almost no attempts to investigate this topic, perhaps due to the small size of this market until a few years ago and to the fact that data on the pricing of consumer loans were (and, partly, still are) scarcely available. Bertola et al. (2005), which is the most comprehensive study of the pricing of consumer credit in Italy to our knowledge, draw on a proprietary database of a leading intermediary (relative to the years 1995-1999) to carry out their analysis. They report that interest rate variability is mostly accounted for by time, region and type of item purchased, plus a limited number of contract characteristics³.

¹ This international consultancy classified Italy in a report on consumer credit among the countries with "high level of innovation, competition and liberal regulation supporting high growth".

² Values for the other financial intermediaries are higher, around 3 per cent (Cau-Salvio, 2007).

³ They also found that "variables that relate to the individual loan applicant are much less relevant" (Bertola et al, 2005).

For most of these breakdowns, however, there are still no publicly available statistics on interest rates, significantly hampering the scope of the analysis. The first example of a missing breakdown that springs to mind is the distinction between targeted loans (i.e. loans intended to finance the purchase of a specific good or service)⁴ and personal loans, a distinction on which we will further elaborate below. While this work fully suffers these limitations, we will try to take these aspects into account as much as possible.

The structure of the paper is as follows: in section 2, we compare Italian interest rates with those prevailing in the euro area, as this provides a natural benchmark against which to evaluate their level. This comparison shows that domestic rates on consumer credit do not seem to be converging to the euro area level. This suggests that it may be worthwhile to look in more detail into their national determinants: in section 3, we selectively review the literature on the Italian consumer credit market and we then provide an analysis of some characteristics that may matter for interest rates determination. In section 4, we illustrate our dataset, our empirical strategy and the results of our econometric analysis. Section 5 concludes.

2. A European benchmark

Comparing interest rates across Europe has become easier since the introduction of harmonised interest rates statistics in January 2003⁵. According to these data, Italian interest rates on consumer credit have consistently been above the euro area average (figure 1), a difference hovering around two percentage points during the four years 2003 - 2006. Interest rates differentials for other categories of loans are much smaller: in the second half of 2006, average differentials between Italy and the euro area in interest rates applied to new loans to non financial corporations and for house purchases were as low as 7 and 22 basis points, respectively. In the same period, the differential on consumer credit interest rates applied to new business was still 174 basis points⁶. According to Gobbi (2006), a possible explanation is that banks willing to enter the consumer credit market face fixed costs that are difficult to sustain in a small-sized market like Italy (table 1). This creates substantial barriers to entry, hampering potential competition and driving up prices. Consistent with

⁴ Targeted loans are also known as purpose or point-of-sale loans. A description of the different types of consumer credit products in Italy is in Cau-Salvio (2007).

⁵ Harmonised statistics on interest rates (MIR statistics) concern interest rates applied by monetary financial institutions (MFIs) to euro-denominated deposits and loans vis-à-vis households and non-financial corporations. For a comprehensive description of these data, one may see the ECB Regulation 2001/18 and the MIR Manual available on the ECB website.

⁶ According to the mentioned report by Oliver-Mercer-Wyman (2005) “spreads in less mature, fast growing countries like Turkey and Italy are at least twice the level of those in more mature markets like France and Germany”.

this explanation, he reports a negative correlation between interest rates and per-capita business volumes across euro area countries. Cross-country differences in market size may also affect the relative level of the interest rates if intermediaries in countries with larger consumer credit markets may take better advantage of economies of scale and had more opportunities of adopting new technologies, reducing their costs and risks.

In this perspective, one would expect that the remarkable expansion of the Italian consumer credit market – which led the country to double its share of the euro area market, between 1999 and 2006, from 4 per cent to 8 per cent (table 2) - would start denting interest rate differentials. Likewise, as intermediaries have been upgrading their instruments and adopting better practices in the last few years (Mercer-Oliver-Wyman, 2005), one would expect a beneficial effect on costs and risk and, on turn, on prices.

Figure 2, however, reports the Annual Percentage Rate of Charge (APRC)⁷ for consumer credit for all countries members of the euro area for two sub-periods (Jan 2003- Jun 2005; Jul 2005- Nov 2006). Figures 1 and 2 together show that Italian rates are well above the European average (only Greece and Portugal have higher interest rates than Italy) and that relative positions among European countries remained basically unchanged in the two sub-periods⁸. The three Southern European countries, featuring the highest rates in the euro area in January 2003, had their spreads with the rest of the area slightly reduced over time but their rates remained remarkably higher also in the second sub period⁹. As also Greece had much higher rates of growth in the period than the rest of the area (table 2), this may cast some doubts over the idea that the development of the market would quickly translate in a lower level of interest rates. Mercer-Oliver-Wyman (2005) argue that “the cost of consumer credit has declined even further [than other categories ...] as a result of increased competitive pressures. This has happened more quickly in fast-growing, competitive markets: in Italy, for example, prices (APRC) have dropped by 10% per year”. We found, however, no evidence of such a drop in interest rates in harmonised statistics. The Italian APRC has fallen 120 basis points *in the four years* since January 2003, starting from a level around 10.7 per cent per annum and the picture does not change radically if one takes into account movements of official rates.

⁷ The annual percentage rate of charge (APRC) is “an effective lending rate that covers the total costs of the credit to the consumer, i.e. the interest payments as well as all other related charges.” (ECB, 2003).

⁸ Only The Netherlands and Belgium changed their relative positions, in the middle of the ranking.

⁹ Loans for house purchases and to non financial corporations actually worsened their differentials: in the second half of 2003 Italian rates were actually lower, in these categories, than euro area averages (by about 30 basis points).

A more formal analysis suggests similar conclusions. In a recent paper, Affinito-Farabullini (2006) investigate convergence in interest rates across the euro-area as a way to evaluate integration in retail banking markets, and report some results that are of interest for this paper. The authors assess the homogeneity of interest rates across euro area countries by means of two approaches. The first is based on a test applied to the bilateral differential δ_{tij} between the interest rates of each pair of countries: $\delta_{tij} = r_{t,i} - r_{t,j}$. The authors argue that two countries have homogeneous interest rates when the interest differential δ_{tij} between them is a zero-mean stationary process. They preliminarily verify the stationarity of the differential using the Augmented Dickey-Fuller test and, then, the KPSS (Kwiatkowski-Phillips-Schmidt-Shin) test to control for the zero-mean stationarity of δ_{tij} .

The second approach is based on testing the equality of estimated country coefficients in each interest rate category and verifying the statistical significance of bilateral differentials. A first specification only includes time (T) and binary country dummies (D). Then, the authors use $r_{it} = \alpha'_t T_{it} + \beta'_i D_{it} + \gamma' X_{it} + \delta' Z_{it} + \varepsilon_{it}$ where the equality of country coefficients is tested, first, employing only the “demand side” covariates ($X_{i,t}$)¹⁰ and then testing the equality of the country coefficients resulting from the general specification with both “demand” (X) and “supply” (Z) covariates.

We report in the box below the results of their exercise (spanning the period January 2003 – August 2005) which are of interest for this paper¹¹. We select the eleven bilateral differentials for the Italian interest rates on consumer lending (i.e. we omit bilateral differentials related to countries other than Italy or interest rates categories different from consumer credit). The first column reports the results for the KPSS exercise: the fact that no differentials are found to be insignificantly different from zero suggests that, at least as far as unconditional outcomes are considered, differences in interest rates are for real. In the following columns, covariates are added to take into account country-specific characteristics. This makes Italian rates slightly more in line with those of other countries. However, it is noteworthy that the closest country is, apparently, Portugal, i.e. a country with a higher average interest rate.

¹⁰ “Demand” side covariates are factors influencing interest rate setting behaviour related to the characteristics of bank depositors and borrowers (households’ disposable income; an indicator of alternative financial saving; an indicator of alternative sources of financing and the average firm size). “Supply side” covariates are determinants of rates that depend on banking system characteristics (both market-wide and individual characteristics: bank international presence, banking market concentration, bank average size and bank mergers and acquisitions, bank operating costs, bank non-interest income, bank liquidity, bank capitalization, bank liability structure, and bank asset structure).

¹¹ We thank the authors for kindly providing us with their results.

	KPSS	Time and country dummies	Demand	Demand and supply
Number of bilateral differentials not significantly different from zero (out of 11 bilateral differentials)	0	2 (IE, PT)	1 (PT)	5 (BE,GR,IE, LU,PT)

Even taking into account national characteristics, therefore, no convergence of Italian consumer credit rates to the euro area average seems to be underway¹². But if differentials are not going to fade away quickly, it may be worthwhile to look at them in some more details.

A tentative estimate of the determinants of the APRC spread between Italy and the rest of the area in 2005 was put forward in the Annual Report of the Bank of Italy (Bank of Italy, 2006). According to it, “ *.. the APRC on consumer credit from banks in Italy fell by 0.5 percentage points to 9.1 per cent, but there was still a large differential by comparison with the euro area average of 7.4 per cent. Part of the disparity (0.6 percentage points) was due to intermediaries specializing in lending through retailers with which they have agreements, which usually charge additional fees; these intermediaries hold about one third of the banking market. The remainder of the differential can probably be ascribed to structural factors: the relatively small size of the market, which prevents economies of scale from being fully exploited; agreements with large distribution firms, which may restrict the entry of new competitors to the market in targeted credit; the smaller proportion of personal loans, which are cheaper than targeted credit as they involve a more direct relationship between the intermediary and the customer.”* ”

While this quotation well summarizes the likely determinants of the existing differentials, the underlying exercise comes up against some difficulties. In fact, it attributes 60 basis points of the differential vis-à-vis the euro area to specialized intermediaries, by excluding them from the computation of the Italian rate, but a similar correction cannot be done on the other European countries, because of data availability, and it is not clear *prima facie* what would be its effect on the spread.

¹² The analysis by Affinito-Farabullini does not evaluate whether the spreads in the cost of credit have been reducing over time. We provided some descriptive evidence that this does not seem to be the case for Italy but we are not aware of any paper specifically focused on this issue. The only analysis of in-process convergence type that make use of harmonised data finds a negative statistically significant trend in the dispersion of the consumer credit interest rates (Vajanne, 2006). The exercise deals with convergence in-process for the euro area as a whole (for each product, *b*-convergence coefficients are constrained to be equal among countries) and does not provide any clues about individual countries.

These difficulties are far from being specific to that exercise, however, and illustrate the obstacles in carrying out a cross-country analysis. We tried to find out what is the relative share of targeted and non targeted loans in each country, as this share may affect cross-country spreads if interest rates are substantially different between these two types of consumer credit¹³. The sign of this difference, however, it is not clear, however, as Bertola et al. (2005) provide some evidences that targeted loans are cheaper while Banca d'Italia, 2006, suggests the opposite, as made clear by the quotation above. Unfortunately, systematic cross-country data on the proportion between targeted and non targeted loans are not available, as we found out surveying the members of the *Working Group on Monetary, Financial Institutions and Markets Statistics* of the European System of Central Banks. From the sparse evidence we were able to gather, however, targeted loans may range from 6 per cent of the total for French banks to 20 per cent in Greece to over half in Italy¹⁴.

Before moving to the next paragraph, we carried out a further decomposition, by maturity, of the existing APRC differential with the euro area. In fact, *if* (i) the term structure of interest rates is positively sloped in every country, and (ii) the preferences for maturity classes are different among countries regardless of the interest rates prevailing in each class, this combination could be enough to generate differentials in the APRC, as this interest rate aggregates data across three different maturity classes.

As harmonised statistics include a breakdown by three interest rate fixation (IRF) periods for the annualised agreed rates (AAR¹⁵), we investigate this hypothesis. Data broken down by IRF periods (figure 3) do not lend it too much of a support, as the ranking of interest rates is quite heterogeneous across countries. For 5 out of 11 countries examined¹⁶, the most expensive class is “over 5 years”, for three is “up to 1 year” and for three “over 1 and up to 5 years”.

¹³ One may wonder why this should be the case if both types of loan satisfy the desire for consumption smoothing that should be at the root of credit demand. The quotation in the following footnote suggests that cultural attitudes toward debt could play a role.

¹⁴ Oliver - Mercer – Wyman (2005) suggest that “auto loans and point-of-sale credit [what we call here targeted credit] tend to be the first to be supplied, as they are easy to fund and easy for consumers to understand. Later, generic personal lending grows in importance as the supply-side responds to incentives to use their customer databases to cross-sell personal lending products and consumers become willing to accept them”

¹⁵ The annualised agreed rate is defined in paragraph 1 of Annex II to the Regulation as ‘the interest rate that is individually agreed between the reporting agent and the household or non-financial corporation for a deposit or loan, converted to an annual basis and quoted in percentages per annum. The annualised agreed rate shall cover all interest payments on deposits and loans, but no other charges that may apply. The initial period of fixation is defined as a predetermined period of time at the start of a contract during which the value of the interest rate cannot change. The initial period of fixation may be smaller or equal to the original maturity of the loan.

¹⁶ Data for the Netherlands are missing.

Figure 4 breaks down the spread of Italian new business rates vis-à-vis the euro area average by IRF categories. Italian interest rates are similar for long – term loans (over 5 years) and significantly higher for short term loans (up to 1 year). Due to the small volumes in the latter category, however, the overall spread mirrors, almost perfectly, the spread on the medium term loans (over 1 and up to 5 years).

To wrap up, in this paragraph we found no indications either that Italian interest rates on consumer credit are converging to the euro area average or that the existing differential simply reflect composition effects, although we cannot entirely rule them out, in particular as far as the role of targeted and non targeted loans is concerned. To carry out a full-fledged analysis of the determinants of interest rates differentials among countries, however, we should be able to control for all the factors¹⁷ that affect interest rates levels. Lacking cross-country data on several relevant variables, we focused our empirical analysis on the determinants of the level of Italian interest rates, leaving aside the issue of whether they are also driving differentials vis-à-vis other countries.

3. The Italian consumer credit market

3.1. A review of some recent literature on the Italian consumer credit market

Several recent papers provide a comprehensive description of the main characteristics of the market (Barone et al., 2006; Casolari, 2006; Cau-Salvio, 2007; Gobbi, 2006). While the focus of those contributions is on volumes rather than on prices, they nonetheless provide a useful overview of the market and it is worthwhile to briefly recall their main findings.

A first element underlined by most papers is the small size of the Italian market in comparison with other developed economies. This is true both as a share of the Gross Domestic Product, as a share of the total lending to households and, if we restrict the comparison to the euro area, as a share of the EU-12 market (Barone et al., 2006). Some tentative explanations for this underdevelopment are put forward by Gobbi (2006) and Barone et al. (2006). The former author does not focus specifically on this issue but mentions the low debt propensity of Italian households, fuelled by historical factors as the high level of interest rates for most of the past decades, the high saving rate and the backwardness of significant part of the banking system, as a main driver of this underdevelopment. Additional factors explaining the thinness of the market were the significant

¹⁷ The most obvious example is the level of risk associated to households in different countries. If Italian households were much more delinquent on their payments than their European counterparts, higher interest rates would be a natural consequence of this situation.

intergenerational transfers taking place within families - which were an effective substitute for consumer credit - and the cultural stigma that was still associated with debt in an economy that was predominantly agricultural until sixty years ago. Adding to this list, Barone et al. (2006) put some emphasis on public debt that tended to crowd out private debt until a few years ago.

The diminishing importance of some of these factors gave impulse to the growth of household debt, a phenomenon widely shared in advanced countries in recent years and basically due to falling real interest rates and to the related rise in housing wealth. According to Gobbi (2006), the spectacular growth of consumer credit in Italy in the last few years (table 2) has to be traced back more to medium term trends on household wealth, costs and credit availability rather than to short term fluctuations on income and consumption that would have forced households to run into debt. This growth has not been enough, however, for Italy to catch up with most industrialized countries where household debt remains significantly higher.

While the initial underdevelopment and the recent growth are stylized facts that apply, more or less, across all the Italian economy, there are nonetheless significant differences among regions and this variability is the focus of both Barone et al. (2006) and Casolaro (2006). The former paper analyzes the regional distribution of consumer credit, comparing it with the distribution of the overall household debt. It turns out that densities across regions are different between the two distributions and that demand side variables are much more important for consumer debt than for the overall household debt. For the latter, supply-side variables such as the efficiency of the judiciary are much more important (possibly explained by the higher average amount of each loan).

Consumer credit (as a ratio over GDP) is higher in the Centre and the South of the country, the opposite of the pattern for the overall household debt, and the ratio takes on a wide range of values, going from 2 per cent in Trentino to 8.7 per cent in Sardinia. Also, unlike total household debts, consumer lending has similar per capita values in the Centre-North of the country (1,249 euro) and in the South (1,274 euro). The authors also find that consumer credit is more widespread in provinces (i) with lower income; (ii) where income distribution is more unequal and (iii) where retail sales by large establishments are more significant. This last finding is also the theme of a paper by Casolaro (2006), who starts from the observation that there are significant differences in consumer credit diffusion even among provinces with a similar level of economic and financial development. He shows that large-scale retail trade determines, *ceteris paribus*, a higher level of consumer lending. Consistently with Barone et al. (2006), he finds that the level of provincial wealth is negatively correlated with consumer lending and that judicial efficiency is not correlated with

consumer credit. He also finds, however, that social capital contributes to the development of the market, by raising credit supply.

Gobbi (2006) analyzes individual data from the Survey on Household Income and Wealth 2004, showing that the use of consumer credit increases in household income, a result different from that reported by Barone et al. (on the basis of data aggregated at provincial level). He also shows that consumer debt depends on the age of the head of the households and it is concentrated in the age class between 25 and 50 years. Finally, as already mentioned, he suggests tentatively that cost differentials with other European countries could be due to the small size of the Italian market. In this perspective, market growth (caused, for example, by financial innovation or from the diffusion of large-scale retail shops) could have a positive impact, by triggering economies of scale and enhancing incentives to entry.

Bertola et al. (2005) offer some interesting evidences about the pricing of consumer credit but the focus of their study is what lies behind the fact that dealers of durable consumer goods typically pay (part of) the interest to the intermediaries and why these arrangements may dominate situations in which consumers directly borrow from banks or simply pay cash. They argue that prices can differ between cash and credit because of price discrimination opportunities arising from financial market imperfections. A dealer can generate additional demand for his product when distinct groups of consumers are inclined to purchase on cash and on credit terms. Bertola et al. show that this sort of market segmentation can explain not only the existence of dealer-subsidized consumer credit, but also its heterogeneous incidence as observed in the proprietary database they analyze. They recognize, however, that agreements between dealers and intermediaries do not necessarily imply dealers' subsidization but may also generate finders' fee for the dealers, depending on market situations¹⁸.

Finally, a paper by Bičáková (2007) analyzes different types of consumer credit from the point of view of their risk. Using the same proprietary database analyzed by Bertola et al., she finds that default rates on instalment loans vary with the type of good purchased and inquires whether variations in default rates across different types of goods, controlling for individual characteristics and selection bias, are due to unobserved individual heterogeneity or to the effect of the specific characteristics of the good. She finds that most of the variation is explained by the former effect: individuals who buy motorcycles on credit are more likely to default on any loans, while those

¹⁸ "In some segments of the Italian data set we analyze, banks may pay fees to dealers, but information on incidence of that phenomenon is not available to us" (Bertola et al., 2005).

buying kitchen appliances, furniture and computers are more likely to repay. In her dataset, default rates vary from 2.2 for cars to 3.7 for white goods and furniture to 6.9 for motorbikes to 10 per cent for telecommunication.

3.2. Some additional statistics on the Italian consumer credit market

The contributions just summarized provide an overview of several important features of the market but do not provide any discussion (with the partial exceptions of Bertola et al. and Gobbi) of factors that could affect interest rates. In this paragraph, therefore, we briefly summarize some statistics that could be relevant in this regard.

Some 651 banks and 56 financial intermediaries operate in the consumer credit market¹⁹ as of December 2006 but for most banks consumer credit is a relatively marginal activity (for 97 per cent of the population, it is less than 10 per cent of the loan portfolio; for 92 per cent, less than 5 per cent)²⁰. Complementing this evidence and suggesting that consumer credit is an area where specialized banks play a major role, the four banks with a ratio between consumer credit and total loans above 0.75, controlled 36 per cent of the market as of December 2006.

Concentration is higher than for total assets. The *Report on EU Banking Structure* (ECB, 2006) shows a Herfindahl index for total assets in Italy equal to 230, among the lowest in Europe, and a CR5 index (the market share of the first five banks) equal to 26.7 per cent. The same indexes for Italian consumer credit are respectively 670 and 49 per cent.

Risk is traditionally considered a main driver of interest rates on loans but bad loans on Italian consumer credit are under 2 per cent for banks and 3 per cent for the other financial intermediaries, according to the prudential statistical returns with reference to end-2006. This level seems apparently too low to explain significantly the level reached by interest rates on consumer credit, even considering that prices are based on *ex-ante* risk and we are summarizing an *ex-post* measure.

Costs seem equally unlikely to be a main factor behind interest rate variability. Overall costs should also affect other types of loans and we already mentioned as, at least in a European comparison, Italian rates on loans different from consumer credit are not significantly higher than abroad. Similarly, costs related uniquely to consumer lending are unlikely to be the culprits: table 3

¹⁹ The consumer credit market includes such items as personal loans, instalment loans, revolving credit card, etc. An item that is not considered in the definition of consumer credit are overdrafts by consumer households.

²⁰ The ratio between consumer credit and total loans (excluding interbank loans) is below 4 per cent as of end-2006.

shows that higher prices are associated with greater volumes and this is scarcely consistent with the idea that interest rates are mainly driven up by fixed costs.

In fact, we examined the Italian APRC distribution and we associated to each quintile the average volume of operations made by banks in that quintile. If high interest rates are a reflection of a widespread immaturity of the market (in terms of practices and products), this should equally affect large and small banks and we should not find any specific pattern linking volume and interest rate quintiles²¹. If high interest rates were motivated by a problem of size and, accordingly, by economies of scale restricted to few large players, we should find that higher interest rates are associated with smaller volumes, on average. Our finding is, instead, that the largest volumes are associated with banks in the upper quintiles of the interest rate distribution (table 3), suggesting that market power may be playing an important role. As euro-area harmonised interest rates are volume-weighted averages, this finding also indicates that there may be some interest in focusing on the determinants of interest rates by quintiles (as we will do in the next paragraph) if one is interested in analyzing these harmonised rates. Finally, the analysis of the interest rate distribution also shows that, for the APRC and the AAR on new business with initial rate fixation up to 1 year, the weighted average had usually been higher than the third quartile²². This confirms that the largest banks in this market tend to charge higher rates than banks located in the middle of the distribution.

So far, we considered consumer credit as a single market but we already know that types of loan and geographical location for a significant part of interest rate variability, according to Bertola et al. (2005). Households may finance their current consumption by choosing among a wide range of financial products: personal loans, revolving cards, or loans targeted to the purchase of goods. Even if classified as loans for consumption, those products are different under several dimensions: for instance, the degree of “collateralization” or the number of agents involved in the contract. They are also supplied by different agents: commercial banks, specialised banks, financial intermediaries, and this heterogeneity has to be taken into account.

We, therefore, consider separately the four types of consumer credit for which volume data are available: 1) targeted credit (t. c.) for durable goods; 2) t. c. for cars; 3) t. c. for other items; 4) non targeted credit (that include instruments such as personal loans and revolving credit cards). Table 4 provides a breakdown of consumer credit by type (reporting their share of the overall market and the number of banks offering each type). Table 5 shows a standard measure of concentration (CR4) for

²¹ It remains true, however, that the whole distribution could be shifted upward in a less developed market.

²² We have this comparison for December 2003, 2004 and 2005.

the four types of consumer credit. The first three categories had CR4 between 65 and 85 per cent (and the market leader, which is the same in all the three markets, has market shares well above its immediate follower) while the non targeted segment has a CR4 below 40 per cent and the market leader is slightly above 10 per cent.

The key issue here is whether interest rates are significantly different among these types or not. Harmonised interest rate statistics do not distinguish between targeted and non targeted consumer loans but, to get an idea of existing differences, we can take advantage of the fact that there are several banks specialized in either one of the two segments. Accordingly, we identified banks that operate almost exclusively (meaning for more than nine tenths of their total consumer lending) in a market. Considering the three categories of targeted loans together, we identified fifty banks (that we call, for brevity, *targeting banks*) satisfying the ninety per cent threshold. They hold a share of the total targeted loans slightly above 60 per cent (of which 53, 57 and 76 respectively for the three categories) as of June 2006. Banks satisfying the non targeted loans threshold (*personal banks*) are more than four hundred, accounting for over two thirds of the market. Interestingly, for these banks consumer credit is not a “core” activity: the correlation between the weight of non targeted loans in the total consumer portfolio and the weight of consumer lending in the total loan portfolio is equal to - 0.45 (statistically significant at the 1 per cent level)²³.

Weighted averages are consistent with this picture: interest rates applied by banks specialized in targeted credit were 11.18 per cent per annum and rates applied by banks specialized in non targeted loans were around 8.76 per cent. Interest rates applied by banks²⁴ that do not satisfy the ninety per cent “specialization” threshold in either segment were equal to 9.31 per cent. Although harmonised interest rates are collected from a representative sample of the entire population, the coverage of the sample also remains quite good with respect to the sub-categories analyzed. The market shares of the banks included in the sample (those for which interest rate data are available) are reasonably close to those of the population for each category (57 per cent instead of 66 per cent for banks specialized in non targeted loans, 43 per cent instead of 60 per cent for banks specialized in targeted loans, 33 per cent instead of 35 per cent for the residual category).

²³ This correlation is computed on the intermediaries that belong to the MIR sample (that account for more than 80 per cent of the total assets of the banking system).

²⁴ Among them, there are four banks that account together for considerable market shares in all the four categories (30, 40, 17 and 25 respectively) and, accordingly, in the whole market (35 per cent). Three of these four banks are significantly specialized in consumer credit (they have a ratio between consumer lending and total loans above 0.75).

Through this identification procedure²⁵, we corroborate, for a sample highly representative of the population, the result, found by Bertola et al. for the portfolio of a single intermediary, that there is some significant variability among different types of consumer loans. What may lie behind these differences (risk, market power, economies of scale) will be the object of the econometric exercise presented in the next paragraph. As for descriptive statistics on risk, data on bad consumer loans broken down by type of consumer credit are not collected by the Bank of Italy. Some information on this breakdown are collected by Assofin, the Italian Association for Consumer Credit and Mortgages, that represent over 50 intermediaries with a share of over the 65 per cent of the overall market and almost 100 per cent of the targeted loans market. According to their data²⁶, as of June 2006 targeted loans had a bad loans ratio equal to 3 per cent while personal loans had a ratio equal to 3.9 (Assofin, 2006).

4. An empirical analysis on the determinants of the Italian interest rates on consumer credit

To carry out our empirical analysis, we resort to the database of the Monetary Financial Institutions Interest Rates (MIR). Started in January 2003, it collects monthly, according to harmonised definitions and methodologies defined in the Regulation ECB/2001/18, 45 interest rates relative to outstanding loans and new business on loans and deposits in euro to non financial corporations and households resident in the euro area.

Data collection in Italy is based, as in almost all the other countries of the area, on a sample of credit institutions, selected on the basis of stratification criteria such as size and regional location. The current sample (121 banks) accounts for 82 per cent of total loans and for 84 per cent of total consumer lending.

Three different types of data on interest rates on consumer credit are available: Annual percentage rate of charge on new business (APRC, see note 7), AAR on new business (NB) and AAR on outstanding amounts (OA). They may convey different information: rates on outstanding amounts reflect average prices applied to outstanding loans but are slower in reacting to changes in

²⁵ We tried a similar exercise, identifying regional banks on the basis of the predominant localization of their consumer lending. However, banks that were identified in this way, were mainly small mutual banks that, in light of their size, were not included in the sample reporting harmonized interest rates. Accordingly, we are not in the position to repeat the previous exercise, this time identifying “regional” interest rates instead of interest rates “by type”.

²⁶ More precisely, the data are drawn from a private credit bureau database (CRIF) that cooperates with Assofin in redacting a biannual Report on consumer credit. Figures for bad loans are around a percentage point higher than data related to entire universe of the intermediaries.

the monetary policy stance or in the competitive conditions of the market. Rates on new business have the opposite pros and cons; they may lack some robustness (this is true, however, more for single banks than for the market as a whole) but are a better indicator of recent developments. Finally, the APRC consider charges not included in AAR and it is therefore a more comprehensive measure of the effective costs borne by households. Our exercises will investigate the determinants of the APRC by exploiting monthly data covering the period Jan 2003 - Oct 2006. We take into account differences both in maturity and sector (consumer households, sole proprietorships and non profit institutions serving households). Overall, our dataset is made up of more than 9,000 observations (each relative to a specific combination bank/period/sector).

4.1. Panel analysis

Our empirical analysis is mostly based on the following general specification:

$$r_{ijt} = \beta' X_{it} + \eta_i + \psi_j + \phi' d_t \quad (1)$$

where r_{ijt} is the interest rate on consumer loans charged by bank i to sector j in month t ; X_{it} is a vector of bank specific time-varying covariates; η_i is a bank-specific fixed effect; ψ_j is a sector-specific fixed effect; d_t is a vector of time-varying covariates.

In more detail, X_{it} includes variables²⁷ such as the log of total assets (*lnassets*), the ratio of total consumer lending to total assets (*cons_weight*), the rate paid by each bank on its main source of funds (*cost_funds*²⁸), and two terms capturing asset composition by maturity²⁹. Asset composition in terms of type of consumer loans is approximated by a dummy variable (*personal*) taking a value of

²⁷ Differences in efficiency are accounted for by individual fixed-effect as cost variables are available only quarterly.

²⁸ When banks do not collect deposits from the general public (for example because they do not have a network of branches, we use the cost of their borrowing on the interbank market. In a few cases, there are banks belonging to banking groups that do not report either data. In this event, we use as a proxy the cost of funds for the bank holding, assuming that intra-group markets of capital are at work.

²⁹ We included the ratios of loans with maturity less than 1 year and, respectively, from 1 to 5 years, over total loans for consumption granted by the bank (the ratio for loans with maturity more than 5 years was dropped due to collinearity).

one when the ratio (computed in each period) between non-targeted and total consumer loans is above 0.9³⁰.

Risk is approximated by two measures: first, we use a standard *ex-post* index, the non performing loans (NPL) ratio on consumer loans (*nplcons*), which summarizes the existing risk in the outstanding consumer loan portfolio of a bank and is, under the hypothesis that risk has been correctly priced, a natural variable to include. Pricing of consumer loans might, however, rely much less on individual characteristics than pricing of other types of loans (as hinted by the findings of Bertola et al., mentioned in footnote 3), because the terms of the contract are already defined and therefore pricing must be based on the overall characteristics of the population that could apply. For this reason, we added to the NPL ratio an additional measure, summarizing the risk of the pool of potential loan applicants in the areas where the bank operates. We defined this additional variable by weighing the regional NPL ratio on loans to households³¹ with the regional composition of the individual loan portfolio (*nplreghh*). As the correlation between the two measures is quite low (around 0.04), we do not expect significant problems of collinearity.

Among the X_{it} variables, we also consider bank-specific measures of market power: we use the market share of each bank (*mktshare*) but we verified that results do not change by using a measure of the competition faced by each bank, obtained by weighting its outstanding consumer loans in a region with the Herfindahl index for that region (*Herf_i_reg*).

Finally, as time-varying covariates in d_t , we use, on most specifications, time fixed-effects. In the quantile regressions, where fixed-effects are not used (see below par. 4.2), we include, in our regressions, the log of trade sales (*Intradesales*), the log of sales of commercial vehicles (*Incarsales*) and the main policy rate of the European System of Central Banks (*ECB_mro*).

Results are reported in table 6. We show four specifications, two that differ just for the covariates included and two that report the results of, respectively, robust³² and weighted regressions³³. Signs and significance of the coefficients are broadly consistent across specifications

³⁰ We also included in some specification a similar dummy for targeted loans but its effect is usually non significant, probably owing to the relatively limited number of observations in this class (specialized banks in targeted loans are 50 but several of them are not included in the sample of reporting agents).

³¹ As the regional breakdown is not available for bad loans relative to consumer credit only.

³² The robust regression is a way to deal with potential outliers that computes the Cook's D values and drops observations for which the value is greater than 1. Then, it compute iteratively weights to be attributed to observations, based on idea that the larger the residual, the smaller the weight.

³³ The weighted regression utilizes the amounts associated to each observation of the interest rate to weigh its importance. As we already recalled, harmonised interest rates are weighted averages and, therefore, this regression has a clear interest for this exercise.

and rates (although some discrepancies will be noted and commented later on) and largely confirm standard priors about their effects, with an important exception.

Asset size is negative and significant in both the robust and the weighted regressions while it is not significant in the remaining regressions. Overall, this may indicate that some economies of scale and scope may be at work, at least for the biggest players of the market. The cost of funds is not included as costs associated to fund-raising are taken into account both by the individual fixed-effects and by either the official interest rates or the time dummies. Moreover, it is likely to be affected by some measurement errors (see footnote 28)³⁴.

The market share of the banks is significant with positive signs across specifications, suggesting that competitive conditions exert a clear influence on pricing³⁵. To understand the implications of the estimated coefficient, one may consider that moving from the 10th to the 90th percentile of market share implies a rise in the APRC ranging between 65 and 90 basis points (using the coefficients of the basic and of the robust specification, respectively), i.e. between a third and a half of the current differential with the euro area average.

What comes as a surprise is the role of risk. The NPL ratio for consumer loans is never significant across all the specifications and results are quite blurred also for the other measure of risk (the regional NPL ratio on loans to households weighted with the regional composition of the loan portfolio). The interaction terms of risk variables with the asset composition dummy provide some useful qualifications of these results: the interaction term between *nplregh* and *personal* (*pers_nplreg*) is negative and significant in most specification, suggesting that this risk variable is most significant for targeted loans. This can be rationalized thinking that, for this category of consumer loans, pricing conditions are defined before the loan applications by customers (and the bank is left only with the option of rejecting an application altogether)³⁶. This could explain the positive influence of a variable that should catch the *ex-ante risk* of the population in each region.

The interaction of *personal* with *nplcons* is positive and significant only in the robust regression, consistent with the expectation that personal loans are more akin to traditional loans. The fact that this interaction term turns out to be positive is consistent with the evidence mentioned in paragraph

³⁴ We include it in some unreported specification but it rarely turned out significant.

³⁵ The finding that concentration significantly affects interest rate on loans is consistent with the evidence found in De Bonis-Ferrando (1997); they had a provincial breakdown in their analysis but they do not have any separate evidence for consumer credit. For the U.S. market, Kahn et al. (2005) found that personal loan rates are higher in concentrated markets.

³⁶ The specific risk of the borrower may be important in determining whether or not a household has a targeted loans, but not its price.

3.2 about the relative risk of targeted and non targeted loans. It is also in line with the hypothesis, suggested by Bertola et. al (2002), that moral hazard and adverse selection may be more a problem for personal loans than for targeted loans. The underlying logic is that a non targeted loans could be gambled away, instead of being used for the declared purpose and that the purchase of, say, kitchen appliances could be positively correlated with one's inclination to repay.

4.2. A quantile regression approach

We included among our covariates *observable* characteristic of banks such as size, costs and specialization in non targeted loans as a part of the consumer lending. *Unobservable* or unmeasured heterogeneity among agents has been taken into account by means of a standard panel framework where this heterogeneity is accounted for by bank-specific fixed effects. and a common slope among the agents defines the causal effects on the dependent variable. If the true structure of the heterogeneity corresponds to that assumed when using the panel techniques, the estimates are not affected by any bias.

A different structure of the heterogeneity is proposed by “quantile regression” techniques (Koenker e Bisset, 1978); with this approach, causal effects are estimated for the entire conditional distribution of a dependent variable, given a set of covariates. These methods relax the hypothesis of a common slope and allow us to specify an interest rate equation as follows:

$$r_i = \beta_\theta' X_i + u_{\theta i} \quad (2)$$

where $i=1, \dots, N$ is the number of the observations, θ is the quantile analysed, X_i is the vector of covariates. The distribution of the error terms is unspecified. It is only assumed that they satisfy the following restriction (Buchinsky, 1998): $Q^\theta(u_{\theta i} | X_i) = 0$ i.e. $Q^\theta(r_i | X_i) = X_i \beta'_\theta$

Using equation (2) we estimated a interest rate equation at different quintiles, $\theta = .10, 25, 50, 75, 90$, with the same set of independent variables for each regression³⁷. In this setting, the derivative of the conditional quantile θ with respect to the independent covariate (say, risk) is given by

³⁷ The θ th regression quantile of y is the solution to the minimization problem of the sum of absolute deviations residuals

$$\min_{\beta} \left\{ \sum_{i: r_i \geq \beta' x_i} \theta |r_i - \beta' x_i| + \sum_{i: r_i < \beta' x_i} (1-\theta) |r_i - \beta' x_i| \right\}$$

By varying the value of θ , the entire distribution of β at any given percentile may be traced. Each quantile is estimated by differently weighting the residuals. For the median regression all residuals have a equal weight. When the 75th percentile is estimated, positive residuals are weighted by 0.75 while negative residuals are weighted by 0.25. The criterion is minimized, and the appropriately beta identified, when the 75 per cent of the residuals are negative.

$$\frac{\partial Q_\theta(r_i | x_i)}{\partial \text{risk}_i} = \beta_\theta^{\text{risk}} \quad (3)$$

and may be interpreted as the response of the dependent variable to changes in the covariates at a specific point in the conditional distribution of the dependent variable³⁸.

Results from the quantile regressions are reported in table 7. First, we compare the results from the median quintile regression and those from the standard OLS regressions, showing that the central tendency results are consistent (in terms of both coefficients and significance).

Then, we look at the results for the remaining quintiles to verify whether heterogeneity among banks is playing any significant role.

The coefficients of the risk measures *nplreghh* tend to decline monotonically as one moves toward the right tail of the interest rate distribution and, in the 90th percentile, turn out to be negative and significant. Such a decrease, might be driven by the fact that interest rates lying in the right tail of the distribution are charged by large banks (as shown in section 3.2), which have higher market power and might be less sensitive to risk.

Interactions between *nplreghh* and *personal* are negative confirming the results shown in the previous section, i.e. that such a risk indicator is mainly significant for targeted loans.

Summing up, the fact that findings from our quantile regressions are broadly in line with those found in the previous section is reassuring. A note of caution is, however, due, as bank-specific fixed effects cannot be included in these specifications, owing to the fact that it is still not clear in the literature how these fixed-effects should be handled in the quantile regression framework.

4.3. The determinants of the additional charges

A final empirical exercise focuses on a specific part of the costs of consumer credit, i.e. charges additional to interest rates, typically expenses linked to a (successful) loan application. Tables 6 shows that the dummy for consumer households changes its sign, suggesting that charges might be particularly sizeable for this category of customers. To verify this (and other) aspects, we run a regression based on a specification analogous to equation 1 but for the dependent variable (obtained by subtracting the weighted average of AAR to the APRC).

$$c_{ijt} = \beta' X_{it} + \eta_i + \psi_j + \phi' d_t \quad (3)$$

³⁸ In equation (2), the parameter measures the interest rate variation required for remaining at the θ th quantile of the conditional distribution after the variation in the dependent variable had occurred.

These charges can be very substantive (the difference between the 10th and the 90th percentile is more than 110 basis points) and their determinants partly overlap with those already found for the interest rates. Results are summarized in table 8 and show that consumer households (that constitute slightly more than half of our sample) pay more charges than the other subgroups. Large banks apply relatively higher charges, showing that economies of scale, if any, are slow to translate in benefits for customers.

5. Conclusions and directions for future research

While there seems to be a wide agreement on the fact that the Italian consumer credit market is growing, deepening and getting more sophisticated, it is less clear whether this would be enough to affect current interest rates or not. A major factor that could steer the future evolution is competition. Analyzing the determinants of interest rates on consumer credit in Italy in the last few years, our results seem to suggest that market power exerts a significant influence on pricing. While our results certainly need some further robustness analysis, they firmly suggest that banks with market power generally charge higher rates.

The missing element in the price equation is risk. Measures of (ex-post) risk such as the non-performing loans ratio show that the consumer loan segment is not particularly risky. According to results from a quantile regression approach, a standard relationship between risk and prices exists only for the lowest quintiles of the interest rate distribution. For banks applying interest rates above the median, prices are less sensitive to risk.

Our conclusions are necessarily preliminary. As we emphasized throughout the paper, several dimensions contribute to defining a consumer loan and for several of them we are still lacking even basic information. This does not mean that firmer conclusions cannot be reached on this topic. We are confident that micro-data from the survey on household income and wealth and from the survey of service firms could shed some more light on the mechanisms underlying consumer credit pricing, especially when a third party (typically, a dealer) is involved.

Another avenue that could be usefully pursued is to take advantage of data collected in compliance of anti-usury laws. While they are not comparable across countries, they have a finer breakdown by types than harmonised data and include data collected from financial intermediaries other than banks.

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Table 1 ⁽¹⁾
(millions of euros)

	Austria	Belgium	Germany	Spain	Finland	France	Greece	Ireland	Italy	Luxembourg	Netherlands	Portugal
2002	22,886	8,651	225,187	53,800	6,705	121,118	9,757	14,485	28,386	1,114	18,647	8,161
2003	21,525	8,648	174,919	55,603	7,324	128,415	12,386	12,310	33,012	1,185	20,442	8,720
2004	24,769	8,013	174,448	62,367	8,047	134,093	17,025	14,725	38,117	1,269	23,480	9,089
2005	27,878	8,533	171,048	77,235	9,401	141,976	20,821	17,509	44,335	1,289	24,625	9,427
2006	26,697	8,861	167,605	92,130	10,423	149,034	25,544	19,996	49,878	1,290	25,351	11,416

(1) IV quarter of each year

Table 2
(percentages)

	Austria	Belgium	Germany	Spain	Finland	France	Greece	Ireland	Italy	Luxembourg	Netherlands	Portugal
Cumulated rate of growth 2000-2006	57.4	3.5	-22.7	112.4	240.1	43.0	541.2	127.4	187.8	35.6	97.3	65.1
Share of the euro-area market 2006	4.5	1.5	28.5	15.7	1.8	25.3	4.3	3.4	8.5	0.2	4.3	1.9
Share of the euro area market 1999	3.8	1.9	48.8	9.8	0.7	23.5	0.9	2.0	3.9	0.2	2.9	1.6

Table 3 Quintiles of the interest rates distribution and average volumes of business
(millions of euros)

Total	APRC on new business	AAR on Outstanding amounts
quintile = 1	3.52	60.11
quintile = 2	9.94	93.38
quintile = 3	8.37	80.10
quintile = 4	30.19	250.92
quintile = 5	33.78	330.56

Table 4
(June 2006)

	Targeted						Non targeted	
	durables		cars		others			
	share	number of banks	share	number of banks	share	number of banks	share	number of banks
Total	0.065	312	0.284	322	0.095	327	0.555	630
<i>of which:</i>								
Share over individual portfolio > 0.75		9		14		17		481

Table 5
(June 2006)

	Targeted (share)			Non targeted (share)
	durables	cars	others	
CR4	75.42	65.64	86.68	39.14

Table 6**Panel analysis**

(Individual and fixed effects are included but not reported in all the regressions)

Variable	A	B	Robust	Weighted
lnassets	-0,346	-0,329	-1,046 ***	-2,075 ***
consH	0,290 ***	0,291 ***	0,277 ***	0,611 ***
NPISHH	-0,622 ***	-0,617 ***	-0,805 ***	-3,509 ***
short	1,624 *	1,611 *	6,713 ***	1,466
medium	0,836 ***	0,850 ***	0,881 ***	-1,272 ***
nplcons	0,947	0,442	-0,068	-1,395
nplreghh	4,930 *	6,263 **	0,065	23,623 ***
mktshare	41,270 ***	39,875 ***	55,550 ***	54,189 ***
personal	0,102	0,223 *	-0,041	1,168 ***
pers_mktsha		8,534 *	8,080 **	0,704
pers_nplcons		2,007	3,255 ***	-0,363
pers_nplreghh		-3,913 *	-2,746	-23,548 ***
_cons	9,692 ***	9,160 ***	16,803 ***	29,862 ***
n. obs	9209	9209	9209	9209
R ²	0,63	0,63	n.a.	0,81

Table 7**Quintile regression**

Variable	q10	q25	q50	q75	q90	<i>memo:</i> <i>OLS</i>
lnassets	-0,2 ***	-0,3 ***	-0,3 ***	-0,4 ***	-0,4 ***	-0,3 ***
nplcons	-1,7	-0,9	-2,2	-1,5	-1,7	-1,6 *
nplreghh	11,0 ***	9,1 ***	5,5 ***	-1,0 ***	-7,8 ***	5,4 ***
mktshare	12,8 ***	13,0 ***	14,8 ***	16,6 ***	15,5 ***	15,8 ***
personal	0,7 ***	1,0 ***	0,8 ***	0,5 ***	0,9 ***	0,9 ***
pers_mktsha	26,8 ***	25,0 ***	11,2 ***	9,5 ***	-10,6 *	20,9 ***
pers_nplcons	2,1	1,6	-0,8	0,7	2,9	2,2
pers_nplreghh	-8,6 ***	-10,8 ***	-8,8 ***	-7,0 ***	-7,7 **	-10,1

legend: * p<0.05; ** p<0.01; *** p<0.001

Table8
Additional Charges (APRC minus weighted AAR)
 (Individual and time fixed- effects are included but not reported in all the regressions)

Variable	A	B	Robust	Weighted
Inassets	.01637516	.01485038	.09610101 **	.11888488
consH	.17604266 ***	.17570695 ***	.08748666 ***	.16653949 ***
NPISHH	-.17929869 ***	-.18036909 ***	-.10072161 ***	-.30380468 **
short	-.14777172 ***	-.14792529 ***	-.47422856 ***	-.8276572 ***
medium	-.98817169 ***	-.99252714 ***	.04981115 *	-.30473743 **
nplcons	-.6245218	-.54671378	.00718877	-.4.0736874 **
nplreghh	-.1.298881	-.88555707	5.1698392 ***	2.5012902
mktshare	-.6388902 ***	.72396231 ***	.45374929 ***	.67459544
personal	.01056856	.03640671	.04761282 *	-.46599156 ***
pers_mktsha				
pers_nplcons				
pers_nplreghh				
_cons	1.6729458	1.7588131 *	-.70684864	-.05646555
n. obs	9209	9209	9209	9209
R ²	0,50	0,50	n.a.	0,91

Figure 1

APRC Consumer Credit

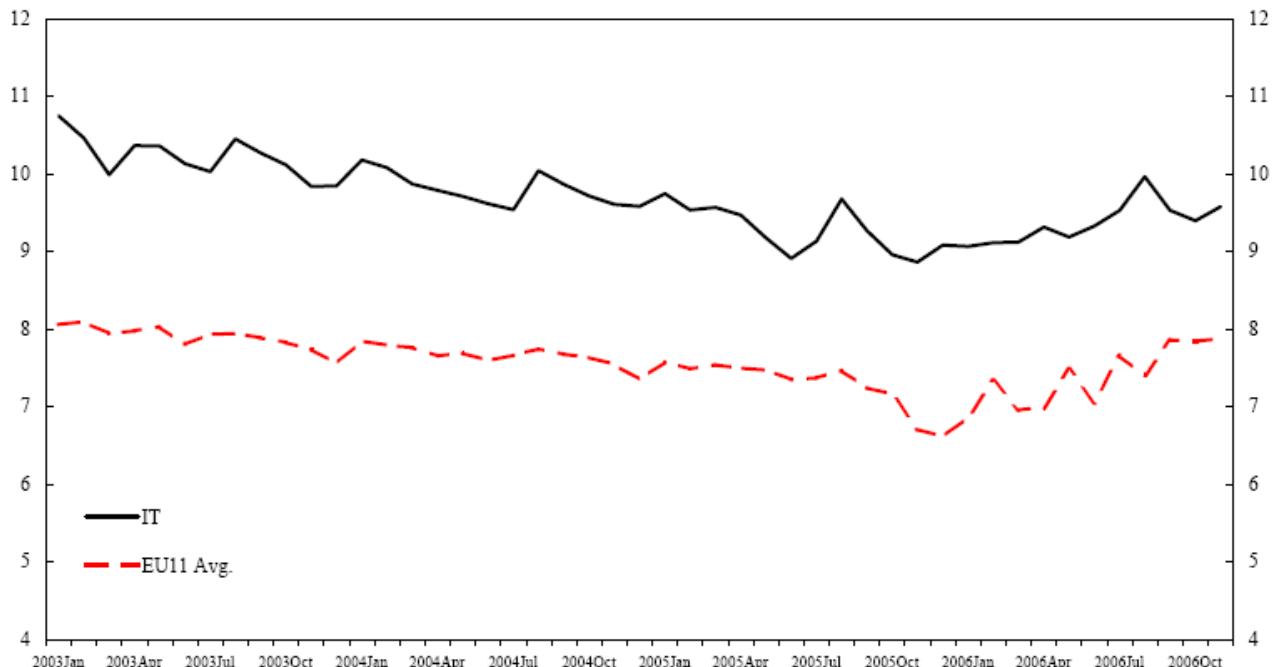


Figure 2

APRC - Consumer Credit

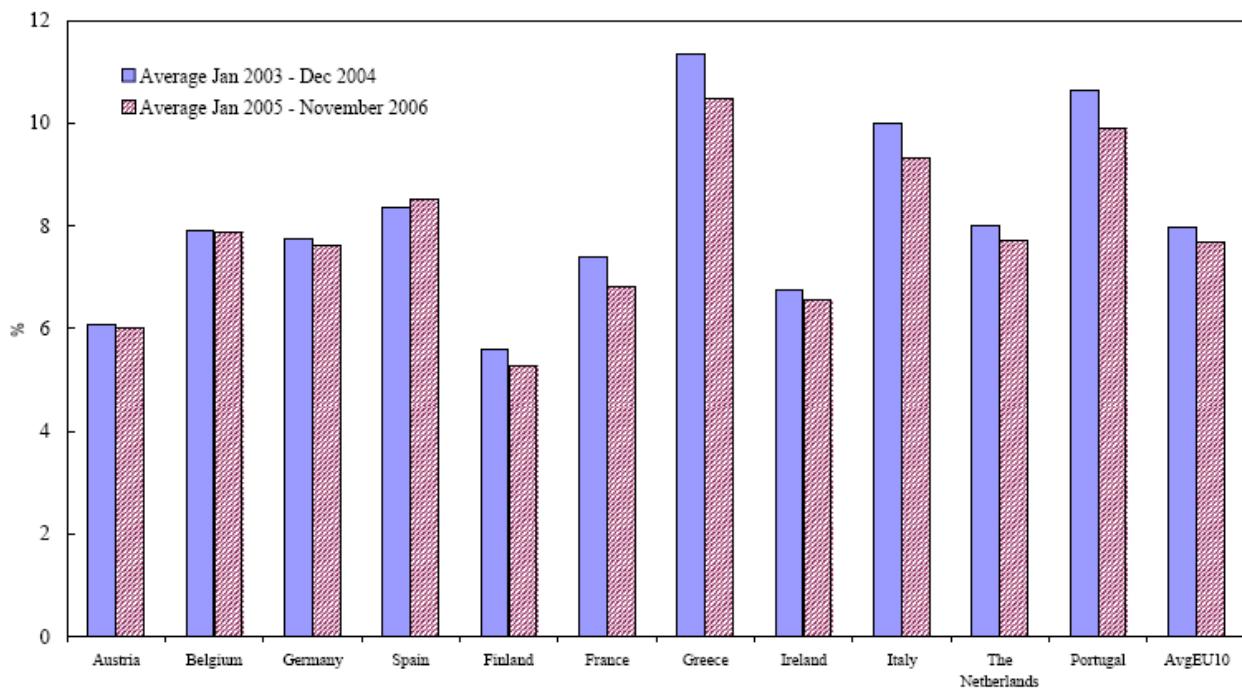


Figure 3

AAR - Average Jan 2003 Nov 2006

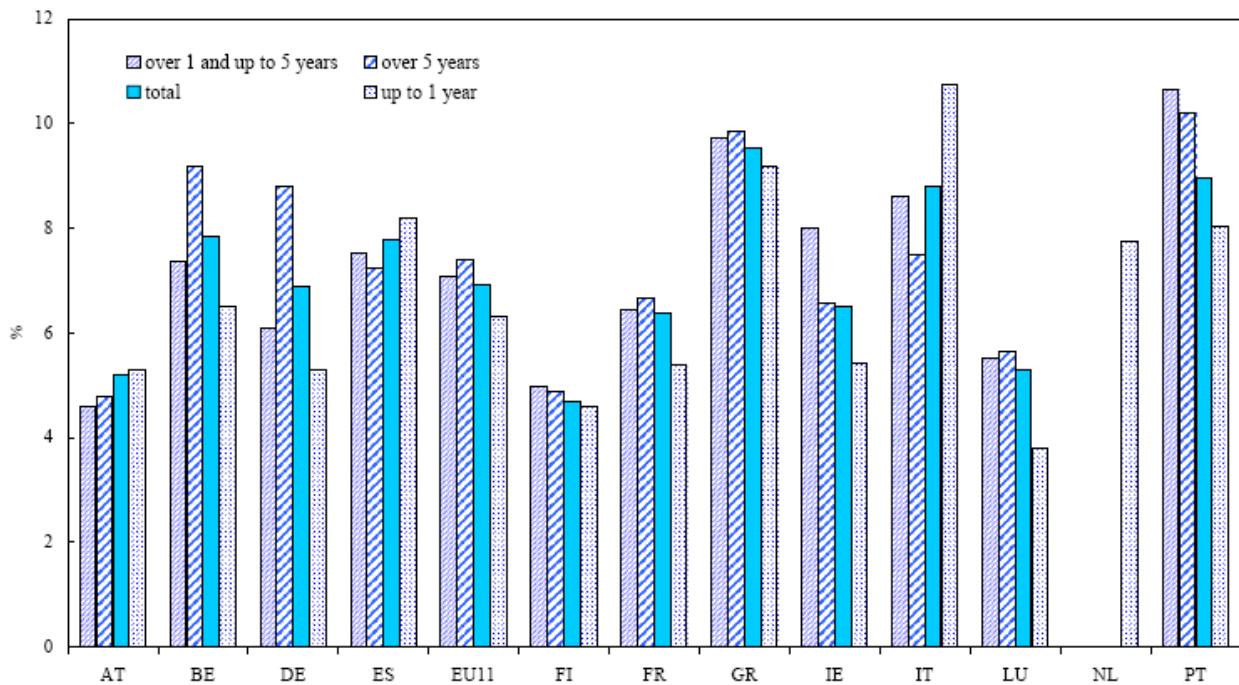


Figure 4

AAR - New business

