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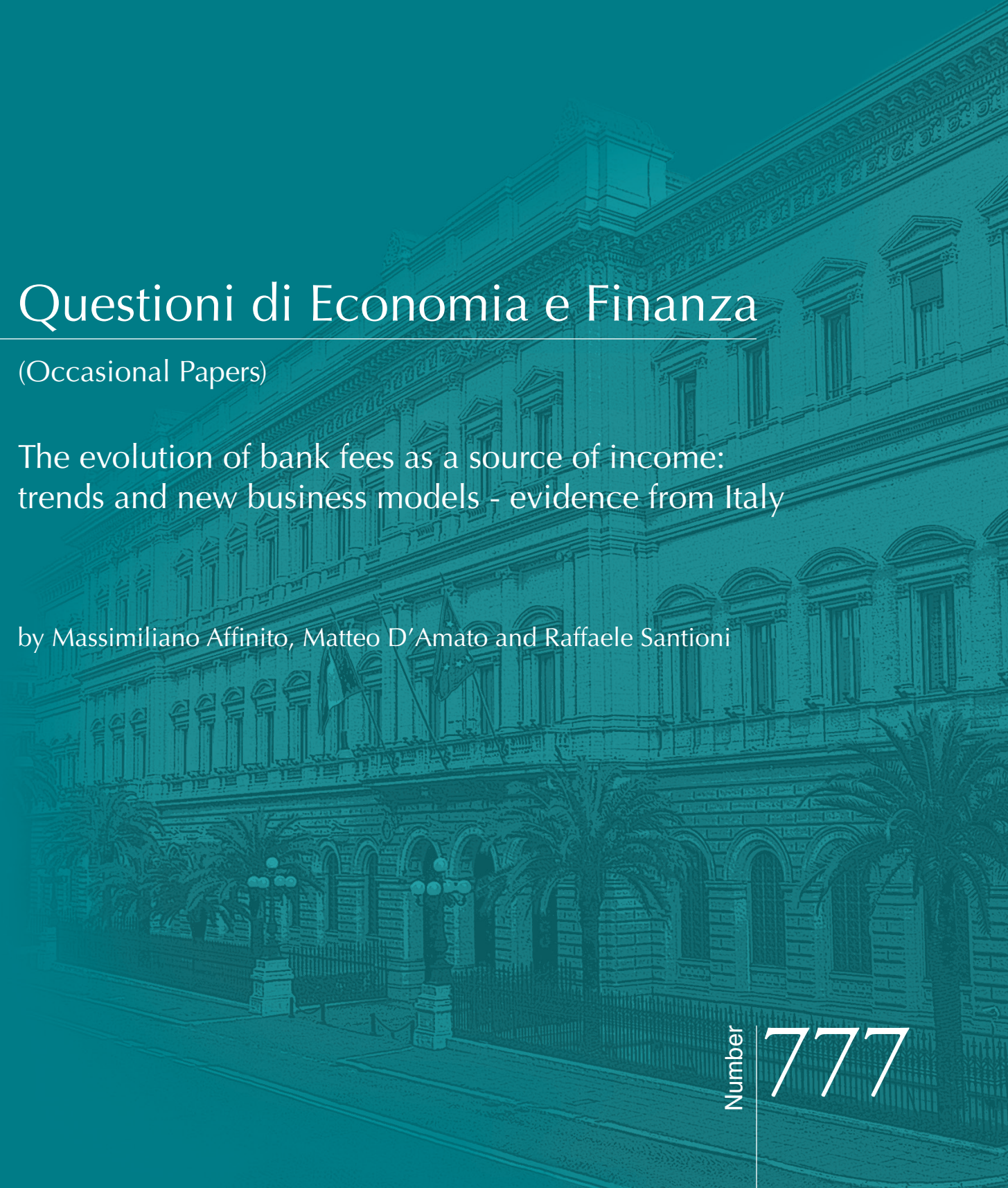

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THE EVOLUTION OF BANK FEES AS A SOURCE OF INCOME: TRENDS AND NEW BUSINESS MODELS – EVIDENCE FROM ITALY

by Massimiliano Affinito*, Matteo D'Amato* and Raffaele Santioni*

Abstract

The analysis of bank fees combines three research areas: the soundness of individual financial institutions, overall system stability, and customer protection. In fact, high fees could entail both risks to the sustainability of business models and frictions in the fairness of customer relationships. This paper describes the evolution of bank fees in Italy between 2008 and 2021, distinguishing between fee types, bank categories, and time spans, and it presents an analysis of the bank characteristics most strongly associated with the relevance of fees. The paper shows that the growth in fee income observed since the global financial crisis involved all categories of banks, but the share of gross income generated by fees varies broadly across banks. At the bank level, higher fees are associated with higher operating expenses and lower capital levels. Our estimates suggest that there is no systematic relationship between greater recourse to fees as a source of income and bank business models that are more focused on household lending.

JEL Classification: D18, G21.
Keywords: fee income, customer protection, bank business model.
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Contents

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1. Introduction[1]

Since the global financial crisis the relevance of fee income for the Italian banking system has increased almost every year, both in terms of outstanding amount and as a share of gross income and total assets. At the same time, the profitability of traditional lending has declined (Bank of Italy 2021; Alessandri et al., 2021). Banks' business models have changed significantly since the financial crisis, for at least two reasons. First, the long period of low interest rates has led to a decline in the profitability of liquidity management and lending activities. Second, technological developments and the digitization of services have increased competition from new players and led to a decline in banks' competitive advantages. However, these changes affected all systems, while (according to the consolidated banking statistics published by the ECB) the ratio of fee income to total assets in Italy is consistently higher than in the euro area average, and twice as high as in Germany.

The analysis of bank fees combines three research areas: the soundness of individual financial institutions, the overall stability of the system, and the customer protection. Indeed, if the level of fees is high and critical to the profitability of a bank, this could entail both risks to the sustainability of the business model and frictions in the fairness of customer relationships. In fact, on the one hand, a high fee income could be associated with a greater diversification of revenue sources, and thus with more stable profits and less risks for the soundness of the financial institution; but, on the other hand, higher fees could also increase rather than decrease the volatility of profits, for three reasons. First, because fee-generating services require less capital and thus accentuate the appetite to increase leverage and as a result the overall volatility of intermediation assets (DeYoung and Roland, 2001; Stiroh, 2004; Stiroh and Rumble, 2006; Mercieca et al., 2007; Baele et al., 2007; ECB, 2007). Second, because non-interest income increases organizational and multi-divisional costs (Stulz, 1990; Shleifer and Vishny, 1989; Rotemberg et al., 1994; Rajan et al., 2000; Laeven and Levine, 2007). Third, because high fees are more likely to induce customers to switch bank than the imposition of higher rates on loans, because for the latter the link between bank and customers tends to be more persistent and subject to *customer relationship lending* effects (DeYoung and Roland, 2001; Busch and Kick, 2009).

The level of fees charged by banks is not a regulated variable; the imposition of fees, even when substantial, does not imply a violation of rules or codified good practices. However, their increase is followed with great attention by customers and often triggers media, political and institutional debates. The EBA has identified (since 2013, the year in which the first edition of the "Consumer Trends Report" was published) "*fees and charges*" as one of the most important issues for the EU bank customers. In particular, the EBA (2021) points out that consumer concerns mainly relate to fees for payment accounts, payment services and loans (both mortgages and consumer credit), and regard issues of transparency, tariffs' levels and mismatches with the quality of services. While on transparency the EBA underlines to have powers of intervention, on the level of fees the EBA acknowledges that it has no functions to regulate prices and that the scope for action in this area is therefore

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very limited.[2] However, the EBA also underlines that the European legislator expects the EBA to collect information and data on the development of bank costs and fees to customers, and to carry out in-depth analyses to identify potential signs of early warnings.

This paper provides an overview of the information on bank fees available at the Bank of Italy; describes their evolution between 2008 and 2021; distinguishes between different types of fees (for example, fees on payment services, on portfolio management, and so on), bank categories and macroeconomic phases; and presents an analysis of the main bank characteristics associated with the relevance of fees. The most of the literature on bank fees focuses on the relationship between banks' non-interest income and macroeconomic developments. A minor part of the literature also examines the relationships between the level of fees and bank characteristics. This paper joins this second stream. Compared to the literature, our analysis is not limited to the total amount of fees, but distinguishes between different types of fees, as the relationship between non-interest income and business models can differ exactly depending on the underlying nature of the services provided by the bank. Although our aim is not to detect causal effects but rather conditional correlations, our estimates are based on panel regressions, which allow us to obtain more robust results by including both time and bank fixed effects.

The paper shows, on the one hand, that the increase in fee income involved all categories of banks, and, on the other, that the share of income generated by fees is very heterogeneous among banks. The ratio of net-fees to gross income ranges from almost zero to over 50 per cent, and the ratio to total assets ranges from negative values to 1.33 per cent. There is also wide heterogeneity in the use of fee types. For example, banks belonging to *significant* cooperative banking groups present, on average, the lowest ratios of fees to gross income or to total assets, but are characterized by the highest ratios for fees on payment orders, payment cards and bank account management. Interestingly, at the bank level, the different types of fees are not all mutually correlated, and with the same sign. For example, fees on bank account management have a high positive correlation with fees on payment orders, but a negative correlation with fees on insurance product sales.

Our estimates also show that at the bank level higher fees are associated with higher operating expenses and lower capital levels. These relationships tend to be stable over time, across bank categories and fee types. The results suggest that higher fees either need higher operating expenses or are applied when banks are characterized by higher costs; and that banks with lower capital levels tend to diversify their profitability through revenue sources related to capital-conserving activities. Instead, our results show that there is no stable relationship between fees and net interest income, which suggests that the increase of fees after the global financial crisis is not (only) linked to the decline of interest rates and lending profits. On the other hand, we find no systematic, positive relationship between greater use of fees as a source of income and bank business models more focused on lending to households; indeed, banks lending more to households turn out to use on average fewer levels of fees, and do not use lending to charge more fees.

The rest of the paper is organized as follows. Section 2 briefly reviews the main literature on bank fees. Section 3 describes the data sources. Section 4 presents descriptive

[2] However, the EBA indicates that exceptions are still possible, and cites for the example the EU Regulation 2015/751 on interchange fees on card-based payment transactions, which imposed a cap on fees on such transactions.

evidences on fee revenue trends by fee type and bank category. Section 5 presents the results of our econometric exercises on the relationships between the ratio of fee income to total assets and key bank characteristics. Section 6 extends the analysis by exploring the heterogeneity in the level of fees by type, bank category, and time period. Section 7 summarizes the main conclusions.

2. Literature

The literature on bank fees is not vast. There are three main lines of research. The first strand, the most extensive, examines the links between banks' non-interest income and macroeconomic trends (e.g., Pain, 2003; Lehmann and Manz, 2006; Albertazzi and Gambacorta, 2009; Hirtle et al., 2015, Kok, et al., 2019; Alessandri et al., 2021). According to the prevailing evidence, banks' non-interest income is significantly and negatively correlated with long-term interest rates and positively correlated with GDP growth, inflation rate, and stock market returns.

The second strand analyses the relationship between non-interest income and the soundness and riskiness of financial institutions. The results are mixed. On the one hand, several studies point out that non-interest income may increase bank leverage (because fees require less regulatory capital), or agency costs (e.g., between different divisions of the same financial institution), or information asymmetry problems (e.g., due to the proliferation and dispersion of screening and monitoring efforts), or customer discontent; all effects that are likely to increase the volatility of bank profits and thus the fragility of financial institutions and, in extreme cases, of the overall financial system (Shleifer and Vishny, 1989; Stulz, 1990; Rotemberg et al., 1994; Rajan et al., 2000; DeYoung and Roland, 2001; Stiroh, 2004; Stiroh and Rumble, 2006; Esho et al., 2005; Mercieca et al., 2007; Baele et al., 2007; Laeven and Levine, 2007; ECB, 2007; Busch and Kick, 2009; Peterson, 2017; Vozkova, 2019). In particular, ECB (2000) emphasizes that the increase in diversification of income sources needs to be accompanied by an intensification in the quantity and complexity of internal controls. On the other hand, other studies reach opposite conclusions, suggesting that fee income strengthens banks because it is more stable over time than lending profits (Saunders and Walter, 1994; Kwan and Laderman, 1999; Smith et al., 2003; Chiorazzo et al., 2008; Sanya and Wolfe, 2010; Klein and Saidenberg, 2010; Elyasiani and Wang, 2012; Zouaoui and Zoghalami, 2022).

The third strand, which is closer to our work, attempts to explain the share of non-interest income in terms of microeconomic attributes of banks. DeYoung and Rice (2004) analyse a large sample of U.S. commercial banks between 1989 and 2001 and show that large banks rely more heavily on non-interest income, while well-managed banks, i.e., those with a high return on equity, rely less. Coffinet et al. (2009) analyse a large sample of French banks between 1993 and 2007 and show that fees are positively correlated with the ratio of costs to total assets, while negatively with loan loss provisions and total loans. Busch and Kick (2009) study the determinants of non-interest income and the impact of this source of income on the performance of German banks between 1995 and 2007, and find that fees are more relevant for banks that depend more on traditional banking. They also find that banks with higher fees tend to take higher risks and charge lower interest rates for the same level of risk. Lepetit et al. (2008) argue that the negative correlation between fees and net interest income, and the positive correlation with loan losses, can be explained by banks' attempt to use loans as a *loss leader* to expand non-interest income through *cross-selling*.

3. The data

The analysis spans from December 2008 to December 2021, and uses several data sources. To allow international comparisons, we start using the consolidated banking statistics published country-by-country by the ECB (the so-called *CBD: consolidated banking data*). However, most of the analysis refers to the Italian banking system and uses bank-by-bank data. Table 1 summarizes the Italian data sources.

The data on the overall amount of fee income are retrieved bank-by-bank from the Italian sections of FINREP, the European harmonized supervisory reports, which contain information on both asset-side fees (fees received) and liability-side fees (fee expenses or fees paid) and thus allow the calculation of net-fees, which are the metric typically used in the analyses. In addition, we draw from FINREP also data on the other main items of the income statement: interest income, net interest income (interest margin), other (than interest and fee) net income, gross income (intermediation margin), operating expenses, net profits, etc. (Table A in the Appendix provides further details). The data are used on a solo-basis (rather than on a consolidated-basis) to reflect the typical approach undertaken by consumer protection supervision and to measure the fee income earned by banks on transactions with domestic customers (in fact consolidated data also include profits and losses realized abroad). In any case, the trends of income statement items, measured with individual and consolidated data, are very similar (see Figure A in the Appendix).

In addition to the data on the total amount of net-fees from FINREP, we use also more detailed information from the statistical supervisory reports of the ECB Single Supervisory Mechanism (SSM), which contain some breakdowns on the composition of asset-side fees, based on the underlying fee-generating products or services. Specifically, we disaggregate the total asset-side fees into four fee types: (i) fees from "portfolio management, placement of securities, guarantees and distribution of other third-party services", (ii) fees from "distribution of insurance products", (iii) fees from "bank accounts and payment services" and (iv) fees from "other services".[3]

In turn, thanks to information from payments statistics reports, we can further disaggregate fees from "bank accounts and payment services" into three additional types: fees from "payment orders" (i.e., transfers ordered by customers, collection orders, and money transfers); fees from "payment cards" (i.e., credit cards, debit cards, and e-money instruments); and fees from "management of bank accounts."

[3] Fees from "portfolio management, placement of securities, guarantees and distribution of other third-party services" include fees for: guarantees issued; proprietary trading; trading in financial instruments; execution of orders on behalf of clients; foreign exchange trading; management of individual portfolios; management of collective portfolios; custody and administration of securities; reception and transmission of orders for one or more financial instruments; investment advisory services; placement of securities with underwriting and/or on the basis of an irrevocable commitment; placement of securities without an irrevocable commitment; management of organized trading systems; management of multilateral trading systems; distribution of third party services (management of individual and collective portfolios and other products). Fees from "bank accounts and payment services" include fees for maintaining and managing bank accounts, collection and payment services, tax collectors and betting offices. Fees for "other services" represent a residual item. As of June 2021, fees for "bank accounts and payment services" have also been included in such a residual item and are therefore no longer distinguishable. This information is still available in other sections of the supervisory reports (referring to payment services and bank accounts), however the aggregates follow partially different compilation rules.

Finally, we collected from the supervisory reports other data measuring bank characteristics and business models, such as: amounts of loans and deposits in the balance sheet broken down by counterparty sector (household, non-financial corporations); capital and reserves; bad loans; bonds issued; and total assets. Moreover, we used the European harmonized COREP reports to compute banks' capital adequacy (measured as the ratio between quality capital - Common Equity Tier 1, CET1 [4]– and risk-weighted assets – RWAs); and we drew from the supervisory reports also bank-by-bank data on two APRCs on loans to households, respectively, for house purchase and consumer credit. APRCs are Annual Percentage Rates of Charge, that is, measures of bank lending interest rates that include also the fees and charges linked to the loan.

In some parts of the analysis, to deepen the understanding of the relationships between fees and business models, we split banks into different categories. We use two bank classifications. The first classification is based on the supervisory categories utilized by the euro-area SSM, and includes the following four categories: banks belonging to Italian *significant* (other than cooperative) banking groups; banks belonging to Italian *significant* cooperative banking groups; branches and subsidiaries in Italy of foreign *significant* banks; and the rest of the system (basically, the *less significant* banks).[5] The second classification is based on the business specialization of banks, and include two categories: banks with traditional (lending) activities, and banks specialized in investment activities.[6]

The data are used with a semi-annual frequency (that is, the frequency of data on income statement items until 2016; only after these data became quarterly). To account for mergers and acquisitions, all data are adjusted through the so-called *pro-forma* method (that is, a bank A that is acquired by a bank B during our sample period is considered part of bank B from the beginning of the series).

4. Fee developments by fee type and bank category

According to the consolidated banking statistics published by the ECB, since 2008 banks in Italy have had a structurally higher ratio of net-fees to total assets than in other large European countries and in the euro area average. In particular, in Italy this ratio has been more than twice as high as in Germany (Figure 1).

[4] Data available as of December 2014.

[5] The criteria for determining whether banks are considered *significant* - and therefore under the ECB direct supervision – or *less significant* are set out in the SSM Regulation and the SSM Framework Regulation. To qualify as *significant*, banks must fulfil at least one of these criteria: (i) the total value of its assets exceeds €30 billion; (ii) it is economically important for the specific country or the EU economy as a whole; (iii) the total value of its assets exceeds € 5 billion and the ratio of its cross-border assets/liabilities in more than one other participating Member State to its total assets/liabilities is above 20%, (iv) it has requested or received funding from the European Stability Mechanism or the European Financial Stability Facility.

[6] This classification is based on a classification used by the Bank of Italy for institutional analysis. Bank of Italy classifies banks into four categories according to their main activity: (i) traditional lending activity; (ii) main lending (leasing, factoring, consumer loans, salary-backed loans); (iii) investment activity (trading on own account, execution of orders on behalf of clients, portfolio management, advisory services); (iv) other specific activities (placement of financial instruments, management of anomalous positions, issue of guarantees). For our purposes, in order to have a set of meaningful information, we grouped banks into only two categories: banks with traditional activities (consisting of categories *i* and *ii*) and banks with investment activities (categories *iii* and *iv*).

Between 2008 and 2021, in Italy net-fees increased by 34 per cent in nominal terms, corresponding to an average annual increase of 2.3 per cent (Figure 2, light blue bars); increased from 26 to 38 per cent as a share of gross income (Figure 2, red line); and from 0.6 to 0.8 per cent as a share of total assets (Figure 2, blue line). After declining in 2019-2020, net-fees increased particularly sharply in 2021 by more than 11 per cent year-on-year reaching the highest level in the time series as a share of both gross income and total assets.

Comparison with the development of the other gross income components shows a partial restructuring of bank profits between 2008 and 2021, with a marked rise in the relative contribution of net-fees and a concomitant decline in the role played by net interest income in a period of low interest rates (Figure 3). Net interest income as a share of gross income declined from 57 to about 42 per cent. "Other income" (other than interest income and fees) increased but less than fees, from about 17 to 21 per cent of gross income. The over time development of these shares does not appear to be correlated with the evolution of the gross income itself: the incidence of net-fees has grown both in years when the gross income has increased and in years when it has decreased (Figure 3, red bars).

Figure 4 uses *a box plot* to show the distribution of net-fees across banks as a share of both gross income and total assets. The interquartile range (between the first and third quartiles, the extremes of the blue area) provides a synthetic measure of the variability of the indicator. Between 2008 and 2021 the degree of heterogeneity across banks remained unchanged in terms of total assets (the gap between the first and third quartiles remained at 0.37 percentage points) and rose in terms of gross income (the gap moved from 10 to 13 percentage points). Outside the interquartile range, some financial institutions had very different extreme values: in 2021 the banks with the highest values had net-fees equal to 52 per cent of gross income and 1.33 per cent of total assets, while the banks with the lowest values had shares of almost zero and below zero per cent, respectively.

The increase of the relevance of net-fees in both gross income and total assets involved all categories of banks (Figure 5). The use of fees appears structurally lower among banks belonging to *significant* cooperative banks, while it is more homogeneous among the other banks, that is, *significant* non-cooperative banks, branches and subsidiaries of foreign banks, and the rest of the system (Figure 5, panel *a*). The classification by business specialization shows that the use of fees is significantly higher for banks specialized in investment activities than banks specialized in traditional (lending) activities (Figure 5, panel *b*).

A breakdown of total asset-side fees into the main components (Figure 6) shows that, for the Italian banking system as a whole, about 40 per cent of fees are from "portfolio management services, placement of securities, guarantees, and distribution of other third-party services" (blue part of the histograms); about 30 per cent are fees from "account management and payment services" (red part); about 15 per cent are fees from the "distribution of insurance products" (green part); and the remaining 15 per cent are fees from "other services" (red and white parts).

Banks belonging to *significant* (other than cooperative) banking groups utilize all types of fees; while banks belonging to *significant* cooperative banks mainly collect fees from account management and payment services; branches and subsidiaries, and to a greater extent the "rest of the system", mainly use fees due to "portfolio management services, placement of securities and guarantees, and the distribution of other third-party services". When we add together (since the distinction is no longer available after 2020) fees from

"account management and payment services" (red part of the histograms) and fees for "other services" (red and white part), their increase in the last year is particularly pronounced for foreign banks, *significant* banks and, to a lesser extent, cooperative banks.

The relevance of fees from the distribution of insurance products varies considerably across bank categories, both when measured respect to gross income and total assets (Figure 7). The ratio is below the average for *significant* cooperative banks, and above the average for foreign banks and the rest of the system. It has grown strongly for all banks.

More detailed information is available for fees for payment services and bank account management (Figure 8). The *significant* cooperative banks, which have the lowest ratios of net-fees to gross income (Figure 5), have the highest ratios for fees from payment orders (Figure 8, panel *a*), payment cards (Figure 8, panel *b*), and account management (Figure 8, panel *c*).

Table 2 shows that at bank level there are some statistically significant correlations, both positive and negative, among the different types of fees. For example, fess for portfolio management and securities placement have a high and statistically significant positive correlation with fees for insurance product distribution. Likewise, fees for account management show a high positive correlation with fees for payment orders. On the other hand, fees for the distribution of insurance products are negatively correlated with those for payment services and account management. Portfolio management fees are negatively correlated with payment card and account fees.

5. Relationships with bank characteristics and business models

To explore whether and to what extent the level of fee income is associated at bank level with individual bank characteristics and business models, we followed two complementary approaches.

First, we developed a series of scatter plots reporting bank-by-bank bivariate correlations between net-fees, expressed as a ratio to total assets, and several variables (used alternately) that capture individual aspects of bank businesses. Figures 9-11 show some of these scatter plots, which depict the relationships between (on the ordinate axis) net-fees and (on the abscissa axis), alternatively, net interest income (interest margin), operating expenses and the degree of capitalization (capital and reserves). All variables are used as ratios to total assets and are measured using year-end data over the 2018–2021 span. The relationship between net-fees and net interest income is slightly negative (Figure 9); the relationship with operating expenses is significantly positive (Figure 10); and the relationship with capital and reserves is significantly negative (Figure 11).

Second, we ran a multivariate regression model estimating the relationship between net-fees and a set of bank characteristics in a joint estimation with bank-by-time panel data. In formal terms, we estimated the following equation (1):

$$fees_{i,t} = \alpha_0 + \beta_1 intin_{i,t-1} + \beta_2 opexp_{i,t-1} + \beta_3 nfclo_{i,t-1} + \beta_4 hhlo_{i,t-1} + \beta_5 hhnfc\_de_{i,t-1} + \beta_6 bonds_{i,t-1} + \beta_7 capris_{i,t-1} + \beta_8 badlo_{i,t-1} + \beta_9 \log(toass)_{i,t-1} + \varphi_i + \pi_t + \varepsilon_{i,t} \quad (1)$$

where the dependent variable $fees_{i,t}$ is the ratio of net-fees to total assets of bank *i* at time *t*. The full set of regressors includes nine variables, defined for bank *i* at time *t*, which are variously combined in the different specifications. Table 3 reports the description and key statistics for the full list of covariates. Specifically: $intin_{i,t-1}$ is the ratio of net interest income (interest margin) to total assets, and captures the profitability of lending activity and liquidity management*;* $opexp_{i,t-1}$is the ratio of operating expenses (i.e., employment costs plus other operating expenses) to total assets, and is an indicator of cost efficiency of each bank*;* $capris_{i,t-1}$is the ratio of "capital and reserves" to total assets (alternatively measured by the *CET1 ratio*; see below); $badlo_{i,t-1}$ is the ratio between the amount of bad loans and bank's total assets; $capris_{i,t-1}$and $badlo_{i,t-1}$ are standard indicators of bank soundness and health; $hhlo_{i,t-1}$and $nfclo_{i,t-1}$ are loans to households and to non-financial corporations in each bank's balance sheet (measured as ratios to total assets)*;* $hhnfc_de_{i,t-1}$is the amount of deposits from households and non-financial corporations relative to bank's total assets*;* $bonds_{i,t-1}$is the ratio of total bonds to total assets; $log(toass)_{i,t-1}$ is the natural logarithm of total assets and is commonly used as a proxy of bank size. These variables can shed light on whether there are relationships between some bank model aspects, linked for example to the kind of funding and lending, and the use of fees. In the baseline estimates, all variables are defined at the *individual* bank level. In some estimates, to verify whether the results change for banking groups, the variables are recalculated by aggregating the values referring to all banks belonging to the same banking group, while leaving as individual data the values of stand-alone banks.

From a methodological point of view, it is worthwhile highlighting that the estimation of equation (1) does not aim to identify causal nexuses, but to estimate conditional correlations. Although the perspective is therefore less ambitious, our regressions nevertheless employ some features that not only improve the estimates but are also widely used in the literature to address, if not solve, endogeneity problems (e.g., Jiménez et al., 2012; Bonaccorsi di Patti and Sette, 2012; Distinguin et al., 2013; Affinito et al., 2022). First, the explanatory variables are always lagged at time *t-1*. Second, the equation includes both bank-level φ_i and time-level π_t fixed effects, which avoid the presence of correlations between the unobservable variables and the regressors and allow us to control for a number of factors that may affect the results, both observable and unobservable, both microeconomic (i.e., related to the time-invariant attributes of banks) and macroeconomic (i.e., related to economic trends or policy measures). In particular, it is to stress that, since economic trends and policy measures affect all banks of a country at the same time (being invariant for all banks in a single system), their effects are taken into account by time fixed effects (e.g.,

Affinito and Farabullini, 2009; Affinito and Piazza, 2021).[7] Third, the standard errors are clustered at the bank level.

Specifications 1–3 of Table 4 report the results of different estimates of equation (1) for the whole period and all banks. The variables $intin_{i,t-1}$and $opexp_{i,t-1}$ are included alternatively (specifications 1 and 2) and together (specification 3). In fact, the coefficient of net interest income is not statistically significant when estimated together with operating expenses. As in the bivariate tests of Figure 9, this confirms that the relationship between net-fees and net interest income is not stable. Similar tests were performed for all other variables, obtaining in the other cases stable results. The unstable relationship between fees and net interest income suggests that the increase of fees in the period is not explained (only) by the decline of the interest margin and lending profits during the long phase of low interest rates. On the other hand, it also suggests that banks did not use cheaper lending policies to expand non-interest income (as argued by Lepetit at al., 2008).

The relationship between net-fees and operating expenses is positive and statistically significant, confirming that higher fee income is associated with higher operating expenses. The result could indicate that either higher fees increase and cover cost inefficiency (as in Rajan et al., 2000; and Coffinet et al., 2009), or that fee-generating services require higher operating expenses. Also for bank soundness variables, the multivariate results confirm the bivariate scatter plots: the coefficient of the variable $badlo_{i,t-1}$is not statistically significant, while the coefficient of $capris_{i,t-1}$ is negative and statistically significant. Unlike other works (e.g., Busch and Kick, 2009), the statistical insignificance of bad loans seems to suggest that higher fees are not associated with particular risk-taking attitudes of banks. Instead, the negative relationship with capital suggests that banks with a lower degree of capitalization tend to diversify their income sources through capital-preserving activities.

The role of the variables $opexp_{i,t-1}$and $capris_{i,t-1}$ is significant also when measured in economic terms. Based on the results of specification 3, moving from the 25th to the 75th percentile of the two covariates, all else being equal, the ratio of fee income to total assets, respectively, increases by 0.16 and decreases by 0.21, which are substantial quantities corresponding to more than one-third and more than one-half of the mean of the dependent variable.

Bank size, as measured by the logarithm of total assets, is also negatively and significantly related to fees, implying that the level of fees tends to decrease as bank size increases (a result that contrasts with DeYoung and Rice, 2004).

We carried out some robustness tests (specifications 3*b*–3*d* of Table 4) on specification 3, since it includes all control variables and is our baseline specification. In specification 3*b,* we verified the stability of the results by replacing the aggregate "capital and reserves" with the CET1 ratio, which is a standard measure of regulatory capital adequacy and therefore is best suited to capture the relationships between bank capital and bank conduct. On the other hand, using this measure reduces the number of our observations

[7] As reviewed in Section 2, a strand of the literature on bank fees analyses exactly the impact of macroeconomic trends on fee income. However, here the focus is different: we do not explore the effects of macroeconomic dynamics but the links with bank characteristics.

because the time series of the CET1 ratio is shorter and available for fewer banks.[8] Nevertheless, the relationship between fees and capital remains negative and significant even using the CET1. The relationship remains significantly negative even when we return to the variable "capital and reserves" while restricting the estimate to the same sample for which CET1 ratio data are available (specification 3*c*). Finally, column 3*d* repeats the same estimation of the baseline specification but aggregating all data referring to banks belonging to the same groups. Again, the signs and significance of the coefficients remain substantially unchanged.

Table 5 shows the results of an estimation of equation (1) run to verify whether the ratio of $fees_{i,t}$ to total assets is correlated with the average APRCs charged by the same bank to households. The APRC includes, in addition to the interest rate, fees and charges related to the loan; therefore, its inclusion among the explanatory variables may help to test whether banks that rely more heavily on fees as a relevant component of their profitability also tend to charge higher fees when lending to households.[9] To this end, we introduced as explanatory variables in the estimation of equation (1) two APRCs (the first on new consumer loans and the second on new mortgages for house purchase), separately and jointly. The APRC data are only available for a limited number of banks (about 50), which (even if these banks represent more than 80 per cent of loans to households in Italy in our sample period) leads to a sharp drop in the number of observations (from more than 10,000 observations in Table 4 to less than 1,000 in Table 5). In any case, the coefficients of the two APRCs are not statistically significant suggesting that there is no systematic relationship between the use of high APRCs and the use of fees as a source of income. This finding tallies with the result of the variable $hhlo_{i,t-1}$, which provides evidence (albeit weak) of a negative correlation between fees and the amount of loans to households, and suggests therefore that banks with a more household lending-oriented business do not make a large use of fees. The result also provides further indirect evidence against the hypothesis that loans are used to expand fees.

6. Heterogeneity by bank category, period of time and type of fees

To gain a better understanding of the relationships between bank characteristics and fee income we estimated our baseline specification (specification 3 of Table 4) allowing the coefficients to vary, on the one hand, depending on the category of bank and, on the other hand, depending on the period of time. The bank categories are those of the descriptive analysis: the four categories of the SSM supervisory classification (banks belonging to *significant* non-cooperative banking groups; banks of *significant* cooperative groups; branches and subsidiaries of foreign banks; and the rest of the system); and the two categories of prevalent business specialization (banks with traditional lending activities and

[8] In particular, the CET1 ratio is not available for all foreign banks, for which instead (as described in the previous Section) the use of fees is relevant.

[9] For our purposes it is not relevant that the fees included in the APRC are reported in the income statement under net interest income rather than under fees. In fact, our exercise does not aim to verify the existence of an accounting link, but to determine whether there is a correspondence between banks charging higher fees on loans to households and banks charging higher commissions on average.

banks with investment activities). The time intervals are two: before and after the outbreak of the Covid-19 pandemic. From a methodological point of view, the new estimates are obtained not by simply splitting the sample, but by interacting each variable of equation (1) with as many dummies as the number of bank categories and time intervals, so as to obtain more efficient estimates and allow for comparison of the estimated coefficients (see e.g., Morck et al., 1988).[10]

In Table 6, specification (1) reports the estimates obtained by interacting all explanatory variables with the four dummies of the SSM bank categories; and specification 2 reports the estimates obtained by interacting the same regressors for the dummies of the two sub-periods. The operating cost ratio remains positive and significant, and that associated with capital negative and significant, for all bank categories. Bank size is also confirmed to be negatively associated with the level of fees, except for foreign banks, where the relationship is not significant. Estimates by period reveal that the relationship between fees and operating expenses remains positive, but becomes statistically insignificant in the pandemic period. The capital ratio, on the other hand, is negatively and statistically significant in both periods. When interacting simultaneously by bank category and time interval (Table 7), the operating expenses remain positive and statistically significant even during the Covid period for banks belonging to *significant* groups.

The correlations are also confirmed when banks are grouped according to their business specialization (Table 8). In both traditional and investment banks, fees are positively related to costs and negatively related to size. It is interesting to notice that these relationships, as measured by the magnitude of the coefficients, are more pronounced for banks engaged in investment business, exactly the banks where fees are higher. It is also interesting that the negative relationship between fees and capital only concerns banks with traditional activities.

A further exercise is to break down fees by type (based on the underlying fee-generating product or service) and re-estimate equation (1) separately for each fee type. As explained, since the breakdown of fees is not possible for net-fees, but only for asset-side fees (fees received), we first estimated by comparison the baseline specification (column 3 of Table 4) using total asset-side fees as the dependent variable instead of the net-fees (used so far and generally analysed by the literature). The results of total asset-side fees (reported in column 1 of Table 9) are analogous to those of net-fees. The other columns of Table 9 refer to the four components of total asset-side fees: “portfolio management services, securities placement, guarantees and distribution of other third party services” (column 2); “bank account management and payment services” (column 3); “distribution of insurance products” (column 4); and “other services” (column 5). A positive and significant association with operating expenses is confirmed for all fee types except for “bank account and payment services”. However, when the estimate for fees from “bank accounts and payment services” is repeated allowing the coefficients to vary also according to bank category (Table 10 - column 2), the positive and significant association between operating

[10]For each bank category the dummy assumes value 1 for the specific category, and 0 otherwise. For the time intervals, since we use half-yearly data, we set the Covid dummy equal to 1 starting from June 2020 and until the end of the period under analysis (December 2021).

expenses and fees is significant for *significant* cooperative groups, which are precisely those for which this type of fees is more sizeable, as well as for branches and subsidiaries of foreign banks. The negative and significant relationship between fees and capital is confirmed for "portfolio management services" and "other services" (Table 9), and for some bank categories also for "bank accounts and payment services" and "insurance products" (Table 10). These results confirm the existence and relevance of the relationship at many banks.

7. Conclusions

Since the global financial crisis, banks have experienced a partial recomposition of the scope of income statement items as a result of both the macroeconomic outlook, in particular the long phase of low interest rates, and the changes in business models, especially due to the competition from new players. In the Italian banking system, the ratio of fee income to total assets is the highest among the larger euro area countries, and has grown almost steadily since 2008. The level of fees charged by banks to their customers is not a variable subject to regulation, but its weight and evolution over time can signal both risks to the sustainability of banks' business models and frictions in the fairness of customer relationships. This paper describes the evolution of bank fees between 2008 and 2021, distinguishes fee types, bank categories and macroeconomic phases, and analyses which of the key attributes of banks are most strongly associated with the evolution of fee income.

We show that the increase in fee income involved all bank categories, but the shares of income generated by fees and the use of fee types are very heterogeneous across banks. For example, *significant* cooperative banks have on average lower ratios of total fees to total assets, but higher ratios of fees for payment orders, payment cards, and account management.

We explored these heterogeneities by examining the conditional correlations between the level of fees and some relevant bank characteristics, such as bank profits, net interest income and costs, bank capital and bad loans, bank size and level of loans to households. The results show that higher fees are associated with higher operating expenses and lower capital levels. These results are generally stable across time, bank categories, and fee types. Our estimates do not imply a causal nexus between the variables; however, they do suggest that higher fee income requires or is obtained when the cost structure is more cumbersome and that the reliance on fee income is more pronounced for banks with lower capital levels. Instead, our results show that there is no stable relationship between fees and net interest income at the bank level, which suggests that the increase of fees after the global financial crisis is not simply and entirely due to the decline of lending profits caused by the prolonged period of low interest rates. Our results also show that there is no systematic banks' attitudes toward using fee income as a source of profits and the application of higher APRCs to households. More generally, banks more specialized in traditional lending activities result to make less use of fees as a source of income than banks specialized in investment activities. Indeed, our analysis suggests that banks whose business models are more focused on lending to households are less likely to rely on fees, and do not appear to exploit loans to expand the scope of fees.

Our results could form the basis for future research on banks' service pricing policies, the impact of competition on the levels of fees, the relationship between fees and the quality of services, and the relationship between fee types and the structure of costs in specific business areas.

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Tables and figures

Table 1

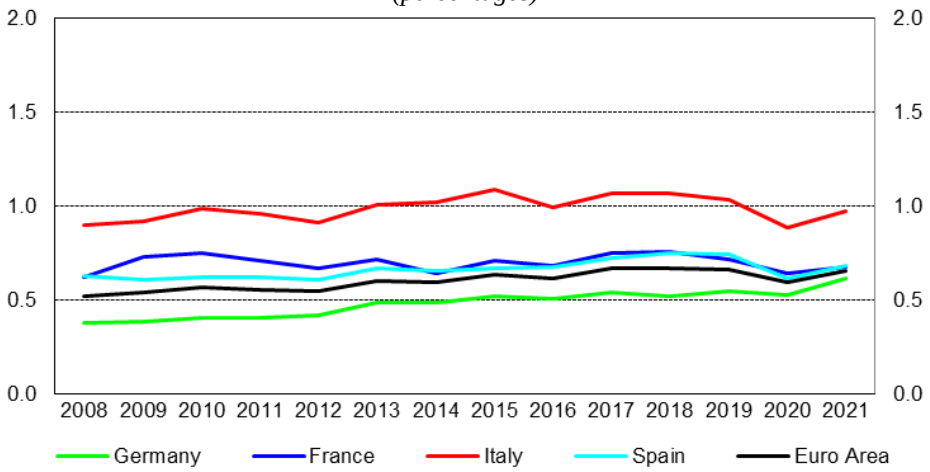
Data sources

Variables	Sources
Net-fees	FINREP
Asset-side fees (**a=b+c+d+e)**	
Portfolio management, distribution of services, placement of securities/guarantees (b)	Supervisory reports
Distribution of insurance products (c)	
Bank accounts and payment services (d)	
Other services (e)	
of which fee income on payment services:	
Payment orders	Payment reports
Payment cards (credit cards, debit cards, and e-money)	
Bank account management	

Figure 1

Ratio of net-fees to total assets in the larger euro area banking systems

(percentages)

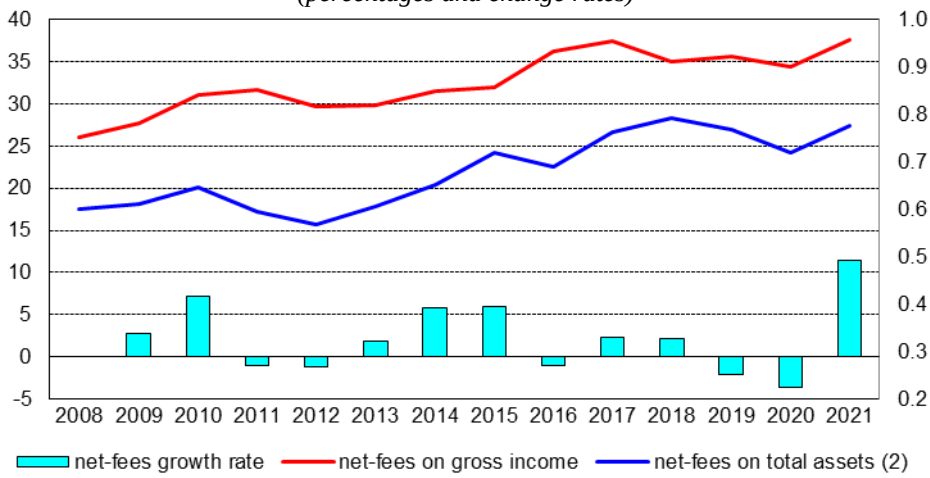


Source: European Central Bank Consolidated Banking Data (CBD).

Figure 2

Net-fees as a share of total assets and gross income (1)

(percentages and change rates)

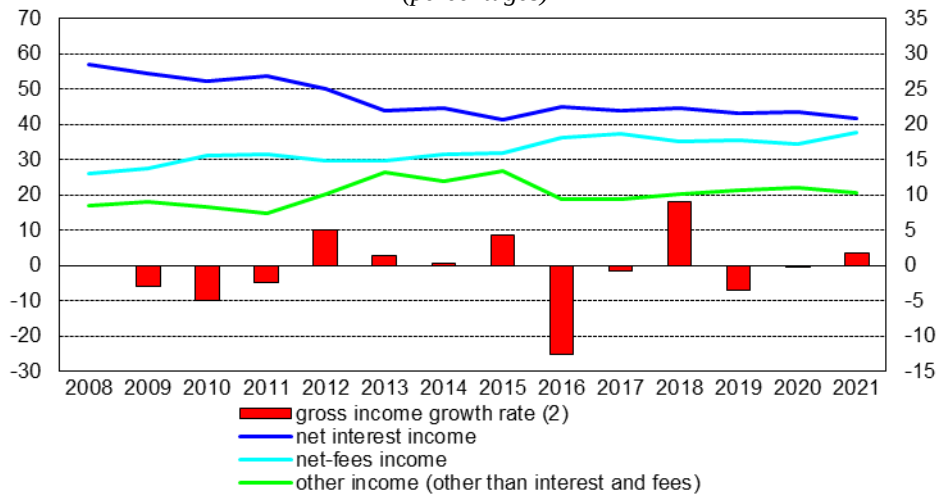


Source: Supervisory reports, on a solo basis.
(1) Data are adjusted to take into account the effects of mergers and acquisitions occurred during the period. – (2) Right-hand scale.

Figure 3

Percentage composition of gross income (intermediation margin) (1)

(percentages)



Source: Supervisory reports, on a solo basis.

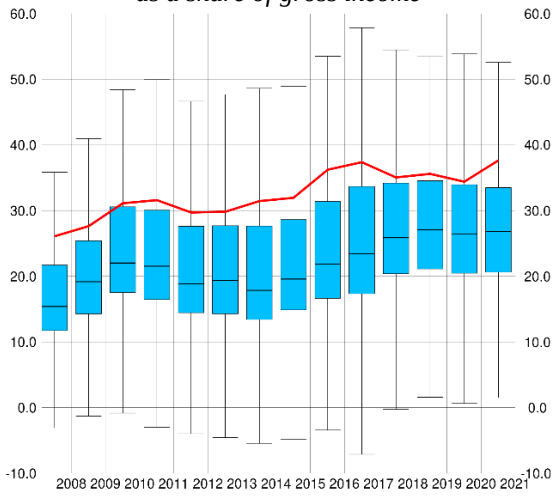
(1) Data are adjusted to take into account the effects of mergers and acquisitions occurred during the period. – (2) Right-hand scale.

Figure 4

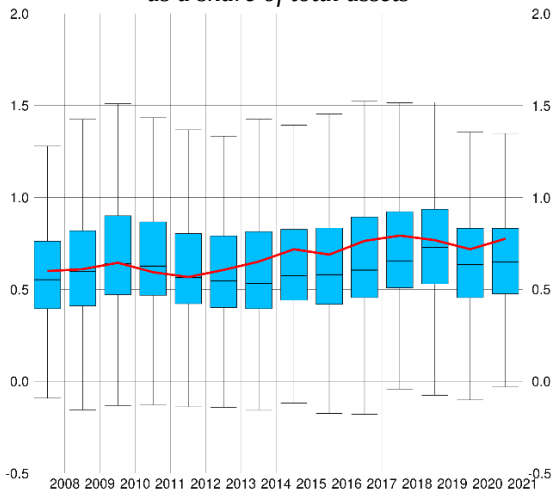
Dispersion of net-fees as a share of gross income and total assets (1) (2)

(percentages)

as a share of gross income



as a share of total assets



Source: Supervisory reports, on a solo basis.

(1) Data are adjusted to take into account the effects of mergers and acquisitions occurred during the period. – (2). The width of the box plot (blue area) represents the values between the 1st and 3rd quartile of the distribution; the lower and upper bounds include all values satisfying the Tukey's rule (i.e., outliers are excluded; lower bound = 1st quartile - 1.5 × interquartile range; upper bound = 3rd quartile + 1.5 × interquartile range); the horizontal dash the median. The red lines represent the average ratios.

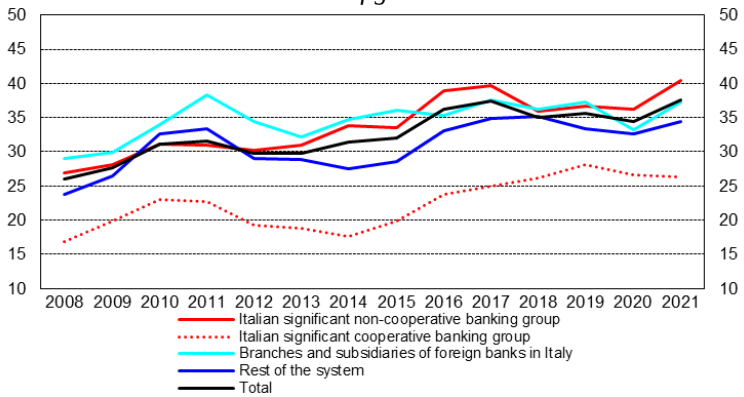
Figure 5

Net-fees as a share of gross income and total assets by bank category (1)

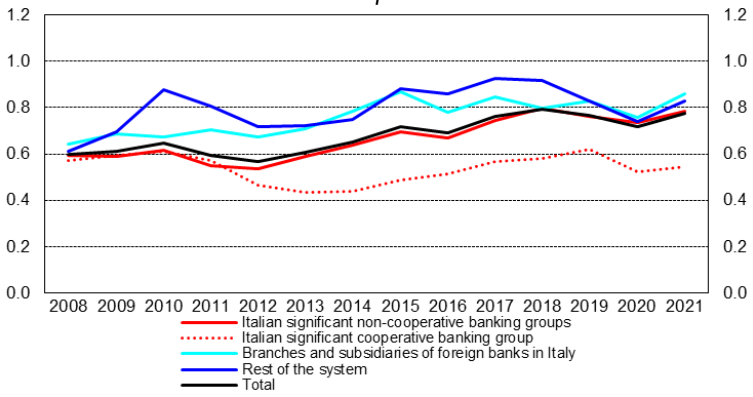
(percentages)

(a) Bank categories based on the SSM classification

as a share of gross income

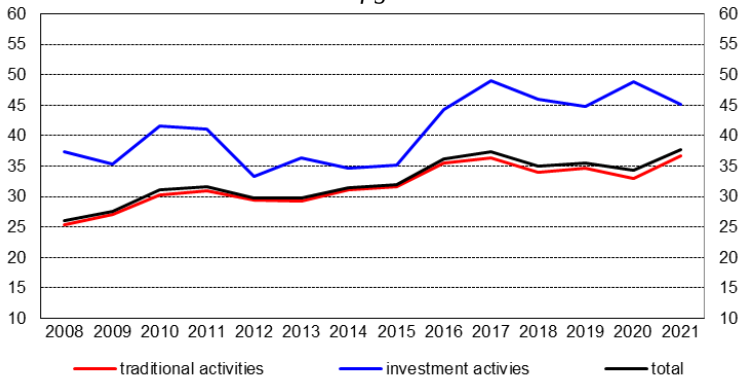


as a share of total assets

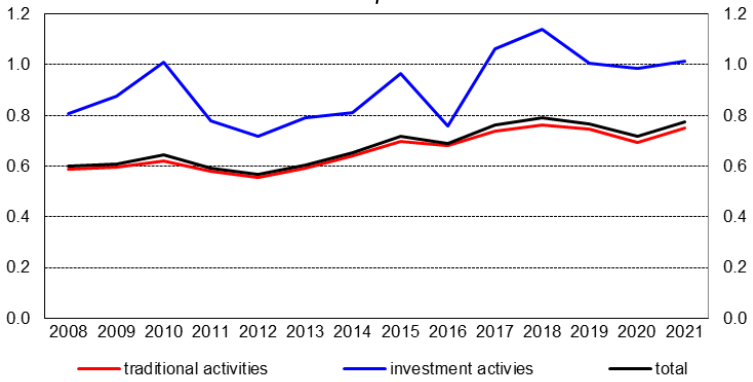


(b) Bank categories based on the business specialization

as a share of gross income



as a share of total assets



Source: Supervisory reports, on a solo basis.

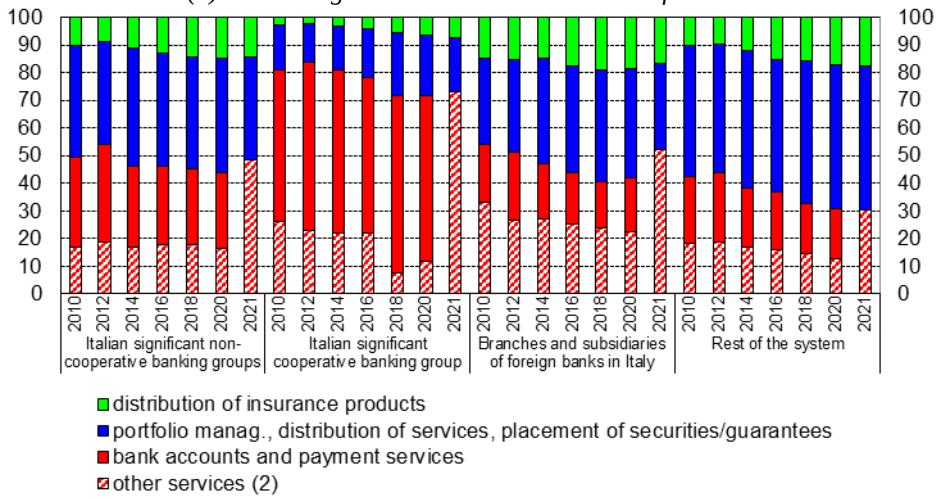
(1) Data are adjusted to take into account the effects of mergers and acquisitions occurred during the period.

Figure 6

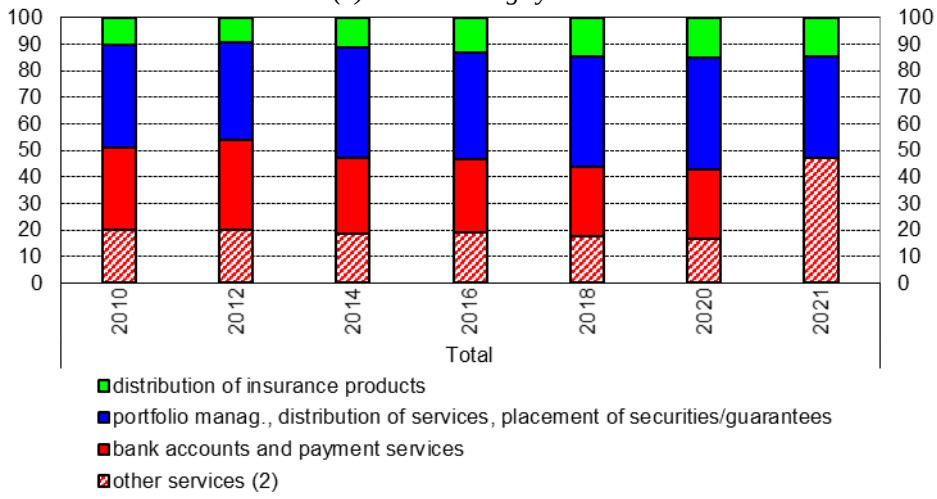
Asset-side fee types as shares of total asset-side fees (1)

(percentages)

(a) Bank categories based on the SSM classification



(b) Total banking system



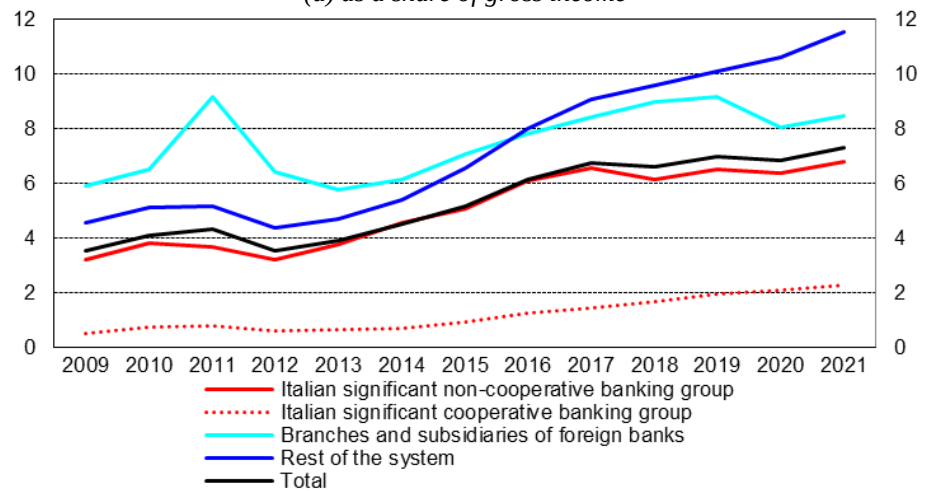
Source: Supervisory reports, established for the Single Supervisory Mechanism.
(1) Data are adjusted to take into account the effects of mergers and acquisitions occurred during the period. – (2) The item "other services" includes, until May 2021, fee income from credit derivatives, for servicing services, for securitization transactions, for factoring transactions and a residual item. Starting from June 2021, the item includes, following a change in the reporting schemes, the data relating to fee income on the maintenance and management of bank accounts and on payment services, which were previously included in the aggregate "bank account and payments".

Figure 7

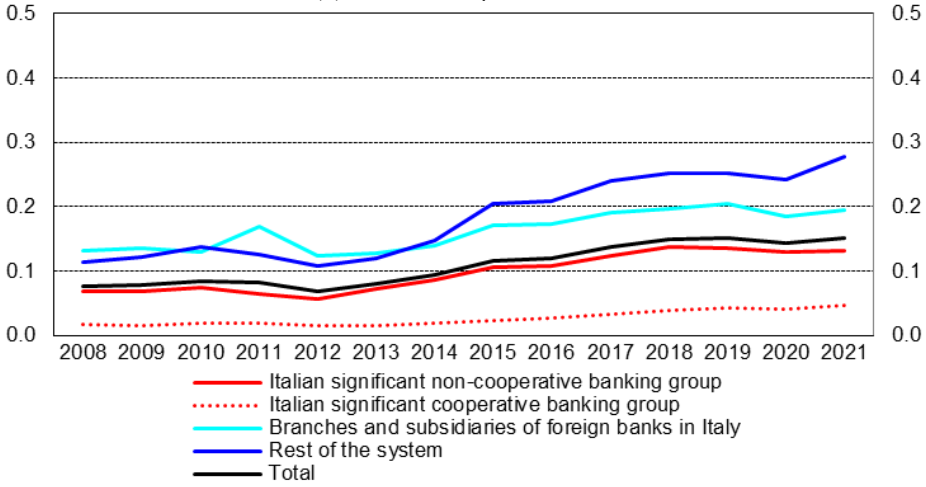
Asset-side fees for the distribution of insurance products as a share of gross income and total assets (1)

(percentages)

(a) as a share of gross income



(a) as a share of total assets



Source: Supervisory reports, on a solo basis and supervisory reports established for the Single Supervisory Mechanism.

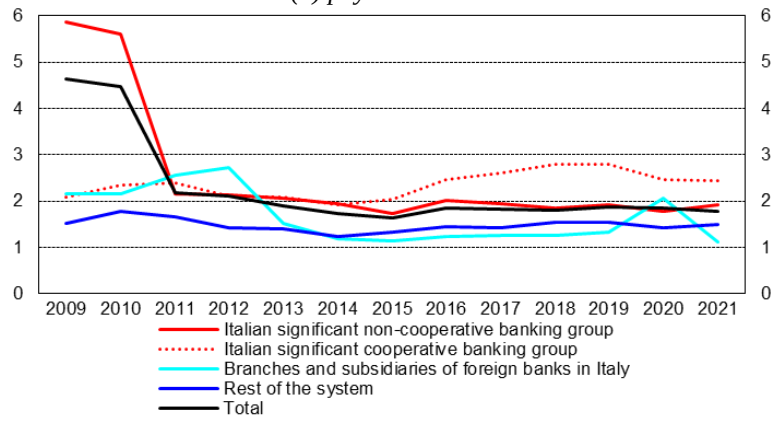
(1) Data are adjusted to take into account the effects of mergers and acquisitions occurred during the period.

Figure 8

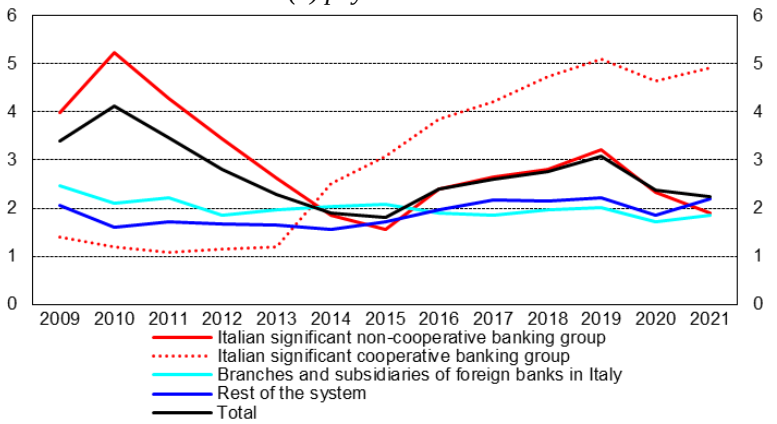
Asset-side fees as a share of gross income (1) (2)

(percentages)

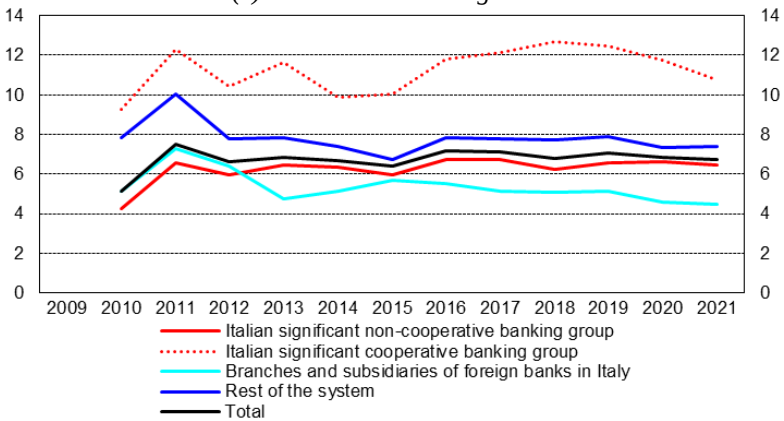
(a) payment orders



(b) payment cards



(c) bank account management



Source: Supervisory reports, on a solo basis and supervisory reports established for the Single Supervisory Mechanism.
(1) Data are adjusted to take into account the effects of mergers and acquisitions occurred during the period. – (2) Fee income is divided into "bank transfers, collection orders and money transfers", "credit cards, debit cards and e-money" and "income from bank account management", available from June 2010 and the values reported for 2010 are related to period from March to December.

Table 2

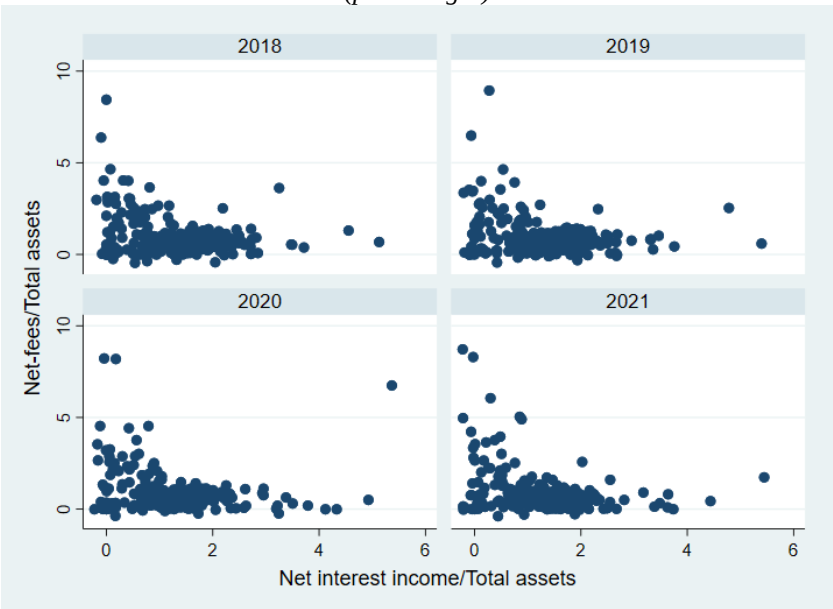
Correlation matrix between fee types
(as a share of total assets)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
(1) Portfolio manag. distribution of services, etc.	1.000					
(2) Other services	0.085*	1.000				
(3) Distribution of insurance products	0.535*	0.016	1.000			
(4) Payment orders	-0.015	0.003	-0.160*	1.000		
(5) Payment cards	-0.061*	0.071*	-0.035*	-0.001	1.000	
(6) Bank account	-0.070*	-0.046*	-0.068*	0.695*	-0.005	1.000

* reports statistical significance at 1 per cent.

Figure 9

Correlation between net-fees and net interest income at bank level
(percentages)

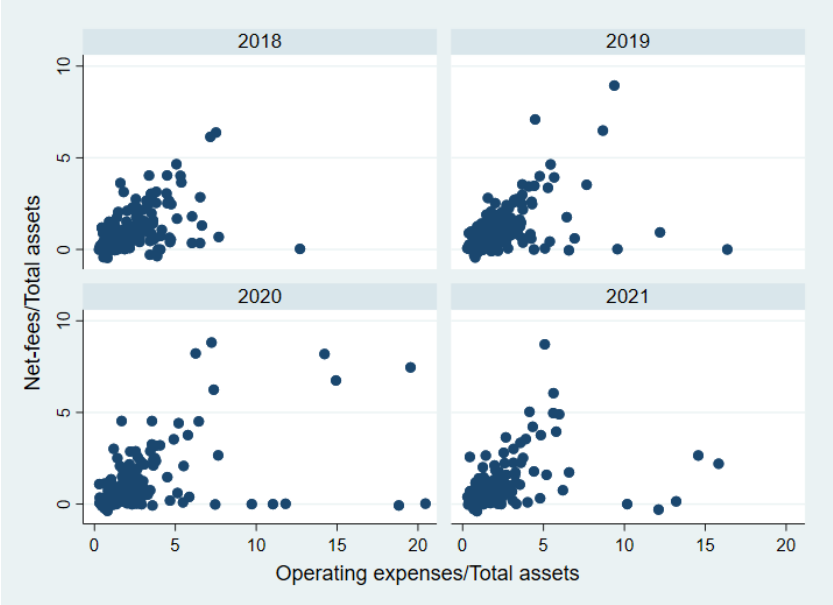


Source: Supervisory reports, on a solo basis.

Figure 10

Correlation between net-fees and operating expenses at bank level

(percentages)

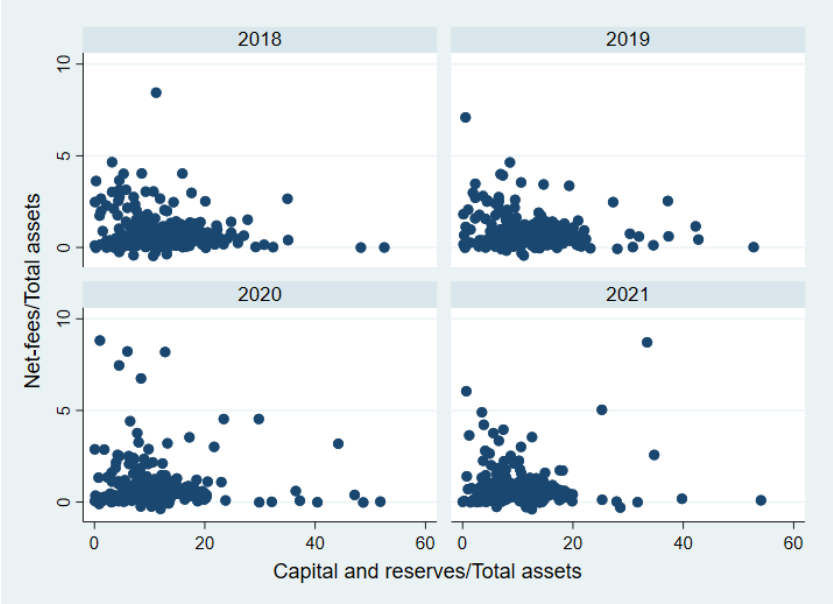


Source: Supervisory reports, on a solo basis.

Figure 11

Correlation between net-fees and capital and reserves at bank level

(percentages)



Source: Supervisory reports, on a solo basis.

Table 3

Descriptive statistics

The table reports summary statistics of the explanatory variables.

VARIABLES	Description	p5	p25	p50	p75	p95	mean	std. dev.	Obs.
intin	net interest income / total asset	0.2378	0.6427	0.8276	1.0338	1.3952	0.8440	0.4857	10,058
opexp	operating expenses / total asset	0.4724	0.8140	1.0013	1.2361	2.1112	1.1544	1.0031	10,058
capris	capital and reserves / total asset	5.7573	9.3805	11.8684	14.8653	21.2632	12.9416	7.3801	10,058
CET1 ratio	*common equity tier 1* / RWA	11.0936	14.5043	17.7661	23.6388	39.5323	21.1882	15.6824	5,706
badlo	bad loans / total asset	0.0000	0.0000	0.0000	1.0285	7.5734	1.7321	6.2423	10,058
hhlo	loans to households / total asset	2.3639	18.9921	25.3546	31.0783	40.7079	24.6014	11.6126	10,058
nfclo	loans to non-financial corporations / total asset	0.8262	17.7159	25.6189	33.6574	46.5802	25.5207	13.3976	10,058
hhnfc_de	total deposits / total asset	3.5972	40.8559	53.0598	63.4228	73.7558	49.8748	18.6851	10,058
bonds	debt securities issued / total asset	0.0000	0.3573	7.2095	18.4388	35.7709	11.0906	12.0177	10,058
log(toass)	size	4.4453	5.5993	6.6115	7.6612	9.8683	6.7747	1.6690	10,058

Table 4

Bank-level estimates of the relationship between net-fees (as a share of total assets) and bank characteristics

All models are estimated by ordinary least squares and include a constant term, which coefficient is not reported. Standard errors are White-corrected for heteroskedasticity and clustered at the bank level. Time and bank fixed effects are always included. Standard deviations are in parentheses. * indicates significance at 1% (***), 5% (**), 10% (*).

VARIABLES	(1)	(2)	(3)	(3*b*)	(3*c*)	(3*d*)
$intin_{i,t-1}$	0.2762**		0.0683	-0.2408	-0.2023	0.1230*
	(0.1122)		(0.0660)	(0.1548)	(0.1458)	(0.0716)
$opexp_{,t-1}$		0.3542***	0.3427***	0.6425***	0.6530***	0.2689***
		(0.1130)	(0.1138)	(0.1555)	(0.1624)	(0.0948)
$capris_{i,t-1}$	-0.0226**	-0.0370***	-0.0385***		-0.0536***	-0.0342***
	(0.0105)	(0.0113)	(0.0113)		(0.0155)	(0.0085)
CET1 ratio $_{i,t-1}$				-0.0181***		
				(0.0072)		
$badlo_{i,t-1}$	-0.0509	-0.0319	-0.0321	-0.0216	-0.0183	-0.0620*
	(0.0336)	(0.0218)	(0.0218)	(0.0141)	(0.0134)	(0.0325)
$hhlo_{i,t-1}$	-0.0145*	-0.0088	-0.0096*	-0.0176*	-0.0074	-0.0187**
	(0.0083)	(0.0055)	(0.0057)	(0.0091)	(0.0056)	(0.0083)
$nfclo_{i,t-1}$	-0.0087	-0.0015	-0.0020	-0.0078	0.0043	0.0003
	(0.0059)	(0.0033)	(0.0035)	(0.0053)	(0.0046)	(0.0042)
$hhnfc\_de_{i,t-1}$	0.0016	0.0009	0.0006	0.0047	0.0013	-0.0015
	(0.0031)	(0.0026)	(0.0025)	(0.0033)	(0.0026)	(0.0036)
$bonds_{i,t-1}$	0.0079	0.0046	0.0045	0.0068	0.0051	0.0063
	(0.0066)	(0.0049)	(0.0049)	(0.0048)	(0.0042)	(0.0060)
$log(toass)_{i,t-1}$	-0.7525**	-0.3432**	-0.3663**	-0.0389	-0.1922	-0.4926**
	(0.3227)	(0.1581)	(0.1610)	(0.1286)	(0.1499)	(0.2105)
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,058	10,058	10,058	5,743	5,743	4,097
R^2	0.706	0.753	0.753	0.825	0.829	0.745

Table 5

Bank-level estimates of the relationship between net-fees (as a share of total assets) and bank characteristics

All models are estimated by ordinary least squares and include a constant term, which coefficient is not reported. Standard errors are White-corrected for heteroskedasticity and clustered at the bank level. Time and bank fixed effects are always included. Standard deviations are in parentheses. * indicates significance at 1% (***), 5% (**), 10% (*).

VARIABLES	(1)	(2)	(3)
$intin_{i,t-1}$	-0.1017***	-0.0363	-0.0727
	(0.0157)	(0.0749)	(0.0724)
$opexp_{,t-1}$	0.2412***	0.2525***	0.2380***
	(0.0403)	(0.0842)	(0.0763)
$capris_{i,t-1}$	0.0055	0.0085	0.0095
	(0.0045)	(0.0061)	(0.0064)
$badlo_{i,t-1}$	-0.0038***	-0.0049***	-0.0053***
	(0.0012)	(0.0012)	(0.0012)
$hhlo_{i,t-1}$	-0.0019	-0.0003	-0.0036
	(0.0017)	(0.0034)	(0.0034)
$nfclo_{i,t-1}$	0.0001	-0.0005	-0.0018
	(0.0028)	(0.0022)	(0.0024)
$hhnfc\_de_{i,t-1}$	0.0061***	0.0015	0.0048
	(0.0021)	(0.0025)	(0.0029)
$bonds_{i,t-1}$	0.0010	0.0007	0.0020
	(0.0027)	(0.0025)	(0.0026)
$log(toass)_{i,t-1}$	-0.0667*	-0.0858*	-0.1021**
	(0.0380)	(0.0477)	(0.0408)
APRC CONSUMER $CREDIT_{i,t-1}$	-0.0026		0.0014
	(0.0039)		(0.0042)
APRC $MORTGAGE_{i,t-1}$		-0.0169*	-0.0114
		(0.0084)	(0.0104)
Bank fixed effects	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes
Observations	904	884	807
R^2	0.879	0.874	0.869

Table 6

Bank-level estimates of the relationship between net-fees (as a share of total assets) and bank characteristics, interacted with dummies of bank categories and sample periods

All models are estimated by ordinary least squares and include a constant term, which coefficient is not reported. Standard errors are White-corrected for heteroskedasticity and clustered at the bank level. Time and bank fixed effects are always included. Standard deviations are in parentheses. * indicates significance at 1% (***), 5% (**), 10% (*).

	(1)				(2)	
VARIABLES	Italian *significant* non-cooperative banking groups	Italian *significant* cooperative banking groups	Branches and subsidiaries of foreign banks in Italy	Rest of the system	Pre-Covid 19	Post-Covid 19
$intin_{i,t-1}$	-0.1911***	0.0702	0.1148	0.1938**	0.0746	-0.0089
	(0.0521)	(0.0802)	(0.1555)	(0.0753)	(0.0583)	(0.0642)
$opexp_{,t-1}$	0.5198***	0.2477**	0.2969***	0.1125***	0.3307***	0.0889
	(0.0685)	(0.1021)	(0.0708)	(0.0398)	(0.1114)	(0.0929)
$capris_{i,t-1}$	-0.0691**	-0.0428***	-0.0314***	-0.0210***	-0.0376***	-0.0447***
	(0.0294)	(0.0123)	(0.0090)	(0.0080)	(0.0110)	(0.0164)
$badlo_{i,t-1}$	0.0181	-0.0438	-0.0140**	-0.0003	-0.0353	-0.0136
	(0.0246)	(0.0269)	(0.0055)	(0.0018)	(0.0229)	(0.0134)
$hhlo_{i,t-1}$	-0.0106	-0.0219**	0.0103*	-0.0013	-0.0097*	-0.0049
	(0.0131)	(0.0102)	(0.0061)	(0.0014)	(0.0057)	(0.0053)
$nfclo_{i,t-1}$	-0.0074	-0.0072	0.0141	0.0019**	-0.0028	-0.0014
	(0.0153)	(0.0055)	(0.0128)	(0.0009)	(0.0037)	(0.0042)
$hhnfc\_de_{i,t-1}$	0.0000	0.0002	-0.0196***	0.0025**	0.0013	0.0036
	(0.0047)	(0.0024)	(0.0064)	(0.0012)	(0.0026)	(0.0025)
$bonds_{i,t-1}$	0.0049	0.0065	-0.0017	0.0054	0.0068	0.0082
	(0.0054)	(0.0048)	(0.0063)	(0.0039)	(0.0050)	(0.0051)
$log(toass)_{i,t-1}$	-0.4534*	-0.5501**	-0.3166	-0.2282**	-0.3771**	-0.4299***
	(0.2459)	(0.2174)	(0.2138)	(0.1135)	(0.1579)	(0.1645)
Bank fixed	Yes				Yes	
Time fixed	Yes				Yes	
Observations	10,058				10,058	
R^2	0.772				0.759	

Table 7

Bank-level estimates of the relationship between net-fees (as a share of total assets) and bank characteristics, interacted with dummies of bank categories and sample periods

All models are estimated by ordinary least squares and include a constant term, which coefficient is not reported. Standard errors are White-corrected for heteroskedasticity and clustered at the bank level. Time and bank fixed effects are always included. Standard deviations are in parentheses. * indicates significance at 1% (***), 5% (**), 10% (*).

	(1)							
VARIABLES	Italian *significant* non-cooperative banking groups		Italian *significant* cooperative banking groups		Branches and subsidiaries of foreign banks in Italy		Rest of the system	
	Pre Covid 19	Post Covid 19	Pre Covid 19	Post Covid 19	Pre Covid 19	Post Covid 19	Pre Covid 19	Post Covid 19
$intin_{i,t-1}$	-0.0150	-0.1019*	0.0516	-0.1164	0.1530	0.1052	0.1936***	0.1564**
	(0.1219)	(0.0573)	(0.0573)	(0.0986)	(0.1611)	(0.1703)	(0.0722)	(0.0616)
$opexp_{,t-1}$	0.2844**	0.2991*	0.2526**	0.0187	0.2847***	0.0987	0.1041***	-0.0311
	(0.1204)	(0.1686)	(0.1024)	(0.0856)	(0.0736)	(0.2478)	(0.0366)	(0.0953)
$capris_{i,t-1}$	-0.0540**	-0.1050***	-0.0419***	-0.0333**	-0.0320***	-0.0303**	-0.0184**	-0.0223**
	(0.0231)	(0.0274)	(0.0117)	(0.0146)	(0.0090)	(0.0137)	(0.0076)	(0.0089)
$badlo_{i,t-1}$	0.0060	-0.0532	-0.0471	-0.0111	-0.0122	-0.0136	-0.0013	-0.0048
	(0.0229)	(0.0524)	(0.0295)	(0.0130)	(0.0083)	(0.0221)	(0.0018)	(0.0041)
$hhlo_{i,t-1}$	-0.0076	0.0032	-0.0216**	-0.0201*	0.0077	0.0121*	-0.0012	0.0000
	(0.0116)	(0.0101)	(0.0097)	(0.0112)	(0.0065)	(0.0064)	(0.0013)	(0.0020)
$nfclo_{i,t-1}$	-0.0131	-0.0106	-0.0079	-0.0108	0.0163	0.0133	0.0020**	0.0035**
	(0.0172)	(0.0200)	(0.0060)	(0.0080)	(0.0120)	(0.0186)	(0.0009)	(0.0016)
$hhnfc\_de_{i,t-1}$	0.0077	0.0034	0.0008	0.0014	-0.0237***	-0.0110	0.0018*	0.0027*
	(0.0062)	(0.0057)	(0.0024)	(0.0029)	(0.0087)	(0.0100)	(0.0010)	(0.0015)
$bonds_{i,t-1}$	0.0067	0.0092	0.0074	-0.0087	-0.0001	-0.0080	0.0059	0.0064*
	(0.0054)	(0.0126)	(0.0047)	(0.0119)	(0.0039)	(0.0204)	(0.0042)	(0.0034)
$log(toass)_{i,t-1}$	-0.4360***	-0.4364***	-0.5275**	-0.5463**	-0.2957	-0.3363	-0.2536**	-0.2775**
	(0.1622)	(0.1678)	(0.2201)	(0.2246)	(0.2100)	(0.2259)	(0.1172)	(0.1291)
Bank fixed effects	Yes							
Time fixed effects	Yes							
Observations	10,058							
R^2	0.779							

Table 8

Bank-level estimates of the relationship between net-fees (as a share of total assets) and bank characteristics, interacted with dummies of bank categories

All models are estimated by ordinary least squares and include a constant term, which coefficient is not reported. Standard errors are White-corrected for heteroskedasticity and clustered at the bank level. Time and bank fixed effects are always included. Standard deviations are in parentheses. * indicates significance at 1% (***), 5% (**), 10% (*).

	(1)	
VARIABLES	Banks with traditional lending activities	Banks with investment activities
$intin_{i,t-1}$	0.0966**	-0.0919
	(0.046)	(0.209)
$opexp_{,t-1}$	0.1715**	0.4614***
	(0.080)	(0.105)
$capris_{i,t-1}$	-0.0211**	-0.0070
	(0.008)	(0.013)
$badlo_{i,t-1}$	-0.0003	-0.0862***
	(0.002)	(0.032)
$hhlo_{i,t-1}$	-0.0009	-0.0386
	(0.002)	(0.030)
$nfclo_{i,t-1}$	0.0028	0.0022
	(0.002)	(0.017)
$hhnfc\_de_{i,t-1}$	0.0012	-0.0004
	(0.003)	(0.006)
$bonds_{i,t-1}$	0.0034	-0.0108
	(0.004)	(0.008)
$log(toass)_{i,t-1}$	-0.1347**	-0.5220***
	(0.062)	(0.174)
Bank fixed effects	Yes	
Time fixed effects	Yes	
Observations	10,058	
R^2	0.814	

Table 9

Bank-level estimates of the relationship between asset-side fees (as a share of total assets) and bank characteristics, interacted with dummies of fee types

All models are estimated by ordinary least squares and include a constant term, which coefficient is not reported. Standard errors are White-corrected for heteroskedasticity and clustered at the bank level. Time and bank fixed effects are always included. Standard deviations are in parentheses. * indicates significance at 1% (***), 5% (**), 10% (*). Time span from December 2008 to December 2020.

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Total asset-side fees	Portfolio management, distribution of services, placement of securities/guarantees	Bank account and payment services	Distribution of insurance products	Other services
$intin_{i,t-1}$	0.1579	-0.0179	0.1446	-0.0259**	0.0679
	(0.1405)	(0.0221)	(0.1470)	(0.0131)	(0.0713)
$opexp_{,t-1}$	0.4557***	0.0993***	0.1523	0.0352***	0.2932**
	(0.1529)	(0.0335)	(0.1458)	(0.0115)	(0.1404)
$capris_{i,t-1}$	-0.0565***	-0.0063*	-0.0233	-0.0012	-0.0340**
	(0.0195)	(0.0034)	(0.0220)	(0.0012)	(0.0139)
$badlo_{i,t-1}$	-0.0368	-0.0007	0.0169	-0.0006*	-0.0508
	(0.0261)	(0.0019)	(0.0164)	(0.0003)	(0.0312)
$hhlo_{i,t-1}$	-0.0050	-0.0009	0.0027	0.0000	-0.0087*
	(0.0047)	(0.0018)	(0.0019)	(0.0005)	(0.0053)
$nfclo_{i,t-1}$	-0.0097	-0.0021	0.0044	0.0013	-0.0118
	(0.0067)	(0.0024)	(0.0042)	(0.0011)	(0.0078)
$hhnfc\_de_{i,t-1}$	0.0015	0.0002	0.0014	0.0012*	-0.0025
	(0.0038)	(0.0021)	(0.0017)	(0.0006)	(0.0030)
$bonds_{i,t-1}$	0.0055	-0.0039	-0.0001	0.0008	0.0085
	(0.0062)	(0.0029)	(0.0013)	(0.0008)	(0.0067)
$log(toass)_{i,t-1}$	-0.5144**	-0.1592***	0.1192	-0.0279	-0.4643*
	(0.2234)	(0.0596)	(0.1382)	(0.0186)	(0.2452)
Bank fixed effects	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	9,282	9,101	9,023	7,629	9,221
R^2	0.817	0.876	0.822	0.902	0.687

Table 10

Bank-level estimates of the relationship between asset-side fees (as a share of total assets) and bank characteristics, interacted with dummies of bank categories and fee types

All models are estimated by ordinary least squares and include a constant term, which coefficient is not reported. Standard errors are White-corrected for heteroskedasticity and clustered at the bank level. Time and bank fixed effects are always included. Standard deviations are in parentheses. * indicates significance at 1% (***), 5% (**), 10% (*). Time span from December 2008 to December 2020. Column (a): Italian *significant* non-cooperative banking groups; (b) Italian *significant* cooperative banking groups; (c) Branches and subsidiaries of foreign banks in Italy; (d) Rest of the system.

VARIABLES	(1) Portfolio management, distribution of services, placement of securities/guarantees				(2) Bank accounts and payment services				(3) Other services				(4) Distribution of insurance products			
	(a)	(b)	(c)	(d)	(a)	(b)	(c)	(d)	(a)	(b)	(c)	(d)	(a)	(b)	(c)	(d)
$intin_{i,t-1}$	-0.0303	0.0371**	0.0413	-0.0133	-0.1159	0.0162	0.0368	0.0612*	0.1104	0.2164**	0.2002	0.0128	-0.0843***	0.0172**	-0.1081**	-0.0146
	(0.080)	(0.017)	(0.077)	(0.025)	(0.271)	(0.031)	(0.056)	(0.032)	(0.097)	(0.086)	(0.164)	(0.095)	(0.027)	(0.008)	(0.051)	(0.020)
$opexp_{t-1}$	0.1518	0.0483***	-0.0871	0.1048***	0.2455	0.0377*	0.0867*	-0.0062	0.0175	0.0300	0.2923**	0.2109	0.1250**	-0.0002	0.1119**	0.0350**
	(0.109)	(0.018)	(0.150)	(0.034)	(0.376)	(0.020)	(0.052)	(0.006)	(0.036)	(0.040)	(0.119)	(0.132)	(0.054)	(0.005)	(0.055)	(0.014)
$capris_{i,t-1}$	0.0158**	0.0036	0.0471	-0.0115***	-0.3738***	-0.0144***	-0.0100***	-0.0032***	-0.0099	-0.0195**	-0.0338***	-0.0454***	-0.0037*	-0.0010	-0.0040	0.0010
	(0.008)	(0.002)	(0.035)	(0.004)	(0.123)	(0.005)	(0.004)	(0.001)	(0.007)	(0.010)	(0.013)	(0.014)	(0.002)	(0.001)	(0.004)	(0.002)
$badlo_{i,t-1}$	-0.0035	0.0043***	-0.0350	0.0003	0.2233***	-0.0002	-0.0081*	-0.0005	-0.0362**	-0.0018	-0.0014	-0.0629*	-0.0030	-0.0003***	-0.0016	-0.0003
	(0.010)	(0.001)	(0.029)	(0.003)	(0.085)	(0.001)	(0.005)	(0.002)	(0.018)	(0.003)	(0.010)	(0.036)	(0.002)	(0.000)	(0.004)	(0.001)
$hhlo_{i,t-1}$	0.0122	-0.0014	-0.0193	-0.0042	0.0307	0.0015	-0.0003	-0.0019	-0.0112**	-0.0029	0.0050	-0.0225*	0.0036	0.0003	0.0013	0.0010
	(0.010)	(0.001)	(0.012)	(0.003)	(0.025)	(0.001)	(0.002)	(0.001)	(0.004)	(0.002)	(0.008)	(0.013)	(0.003)	(0.000)	(0.002)	(0.002)
$nfclo_{i,t-1}$	0.0000	-0.0007	-0.0163	-0.0006	-0.0965**	0.0043***	-0.0032	0.0032***	0.0132**	-0.0009	0.0247	-0.0180**	0.0038*	-0.0000	0.0028	-0.0007
	(0.008)	(0.001)	(0.011)	(0.002)	(0.046)	(0.001)	(0.003)	(0.001)	(0.006)	(0.001)	(0.017)	(0.008)	(0.002)	(0.000)	(0.003)	(0.001)
$hhnfc\_de_{i,t-1}$	0.0042*	0.0014**	0.0027	-0.0020	0.0040	0.0024	-0.0042	0.0006	-0.0068*	-0.0003	-0.0273***	-0.0019	0.0002	0.0005**	-0.0025	0.0027**
	(0.002)	(0.001)	(0.004)	(0.004)	(0.013)	(0.002)	(0.003)	(0.001)	(0.004)	(0.001)	(0.005)	(0.003)	(0.001)	(0.000)	(0.002)	(0.001)
$bonds_{i,t-1}$	-0.0023	-0.0023	0.0018	-0.0070*	0.0157	0.0028	0.0078*	0.0062**	0.0039	0.0091*	-0.0031	0.0079	-0.0006	0.0004	-0.0033	0.0026**
	(0.004)	(0.002)	(0.006)	(0.004)	(0.019)	(0.003)	(0.004)	(0.003)	(0.003)	(0.005)	(0.006)	(0.006)	(0.001)	(0.000)	(0.003)	(0.001)
$log(toass)_{i,t-1}$	-0.3851**	0.0707	-0.3471	-0.1738**	-0.9481	-0.1791***	-0.1992***	-0.0861**	-0.2818**	-0.3199**	-0.0027	-0.7515**	-0.0047	-0.0196**	-0.2060**	-0.0028
	(0.161)	(0.047)	(0.352)	(0.082)	(0.828)	(0.060)	(0.075)	(0.038)	(0.141)	(0.160)	(0.386)	(0.320)	(0.073)	(0.010)	(0.087)	(0.034)
Bank fixed effects	Yes				Yes				Yes				Yes			
Time fixed effects	Yes				Yes				Yes				Yes			
Observations	9,101				9,023				9,221				7,629			
R^2	0.883				0.917				0.716				0.908			

Appendix

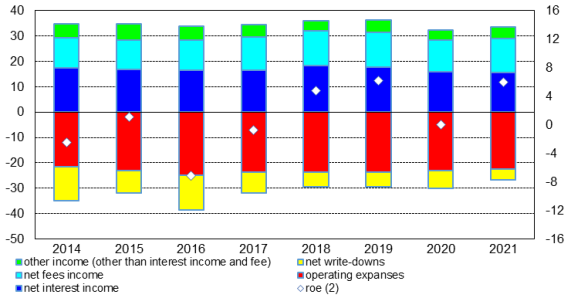
In addition to information on fees, FINREP reports data on the other items of income statement: interest income, net interest income (interest margin), other income (other than interest income and fees), gross income (intermediation margin), operating expenses, earnings, and other information (Table A).

This work uses data on a solo basis (rather than consolidated) to reflect the typical approach of consumer protection supervision, and to measure fees obtained by banks with only domestic customers. For comparison, Figure A reports the same items computed on consolidated and individual data (panels *a* and *b*, respectively) and show that the developments are very similar.

Figure A

Income statement main items of banks and banking groups in Italy

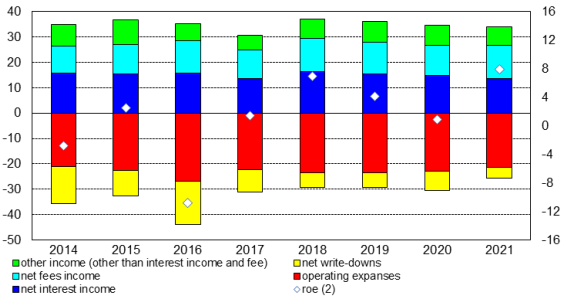
(a) Consolidated (1)



Source: Consolidated supervisory reports for banking groups and individual supervisory reports for stand-alone banks. (cfr. Annual Report on 2021, Banca d'Italia, 31 May 2022).

(1) As a ratio to average equity in the year. For more details, see "Annual Report on 2021", in the Annex, the "Methodological" section. Data on 2021 are provisional. – (2) Evaluated at net of extraordinary component. Right-hand scale.

(b) Solo basis (1)



Source: Supervisory reports, on a solo basis.

(1) Data are adjusted to take into account the effects of mergers and acquisitions occurred during the period. Only banks with information both on capital adequacy and income statement are evaluated. – (2) Right-hand scale.

Table A

Banks and banking groups: income statement (solo basis) by category of bank (1)

(millions of euro)

ITEM	Italian *significant* non-cooperative banking groups			Italian *significant* cooperative banking groups			Branches and subsidiaries of foreign banks in Italy			Rest of the system			Total		
	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021	2019	2020	2021
Interest income (a1)	27,613	24,915	24,312	4,439	4,577	5,154	7,853	7,811	7,439	6,440	6,409	6,220	46,345	43,712	43,126
Interest expenses (a2)	10,319	8,479	8,249	989	951	942	1,752	1,514	1,293	1,645	1,548	1,460	14,705	12,493	11,944
Net interest income (a = a1 – a2)	**16,990**	**16,438**	**15,683**	**3,397**	**3,588**	**3,983**	**6,198**	**6,529**	**6,230**	**4,454**	**4,547**	**4,466**	**31,039**	**31,102**	**30,362**
Other non-fee income (b)	11,551	11,385	10,099	1,127	1,313	1,458	570	1,133	1,008	1,928	2,037	2,518	15,176	15,868	15,083
Asset-side fees (fees received) (c1)	20,000	19,071	20,869	2,125	2,132	2,348	5,224	4,958	5,552	5,954	6,121	6,907	33,303	32,282	35,676
Liability-side fees (fees expenses) (c2)	3,460	3,231	3,359	350	351	411	1,201	1,144	1,238	2,750	2,925	3,231	7,761	7,651	8,240
Net fee income (c = c1 - c2)	**16,539**	**15,840**	**17,510**	**1,775**	**1,781**	**1,937**	**4,023**	**3,814**	**4,314**	**3,204**	**3,196**	**3,676**	**25,542**	**24,631**	**27,436**
Gross income (d = a + b + c)	**45,080**	**43,663**	**43,292**	**6,299**	**6,682**	**7,378**	**10,791**	**11,476**	**11,551**	**9,586**	**9,781**	**10,660**	**71,756**	**71,601**	**72,881**
Operating expenses (e)	28,361	29,030	26,877	4,678	4,482	4,638	6,955	6,506	6,860	6,845	6,765	6,891	46,839	46,783	45,265
-of which: *staff costs*	14,666	16,785	15,040	2,400	2,382	2,431	3,311	3,167	3,464	3,153	3,191	3,195	23,530	25,526	24,130
Operating profits (f = d – e)	**16,719**	**14,632**	**16,415**	**1,621**	**2,200**	**2,740**	**3,836**	**4,971**	**4,691**	**2,741**	**3,015**	**3,770**	**24,917**	**24,818**	**27,616**
Allocation to provision and net value adjustment (g)	8,268	16,580	5,003	1,024	1,535	1,784	1,723	2,043	1,933	1,663	2,362	1,043	12,678	22,520	9,763
Ordinary profit (h = d – g)	**8,451**	**-1,947**	**11,412**	**597**	**665**	**956**	**2,112**	**2,928**	**2,759**	**1,078**	**653**	**2,727**	**12,239**	**2,298**	**17,854**
Non-recurring profit	-871	-3,988	7,065	-71	-69	-57	28	123	-49	712	554	842	-202	-3,379	7,801
Gross profit	**7,580**	**-5,935**	**18,477**	**527**	**596**	**899**	**2,140**	**3,051**	**2,709**	**1,790**	**1,207**	**3,569**	**12,037**	**-1,081**	**25,654**
Taxes	2,805	-1,287	-222	99	-2	8	762	643	425	518	402	551	4,185	-245	763
Net profit	**4,775**	**-4,647**	**18,699**	**428**	**598**	**891**	**1,378**	**2,407**	**2,284**	**1,272**	**805**	**3,018**	**7,852**	**-837**	**24,892**
Parent company profit	**4,775**	**-6,216**	**16,920**	**428**	**469**	**751**	**1,876**	**2,310**	**2,040**	**1,277**	**602**	**2,684**	**8,356**	**-2,835**	**22,395**

Source: Supervisory reports, on a solo basis.

(1) Data are adjusted to take into account the effects of mergers and acquisitions occurred during the period.