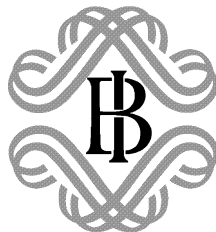# BANCA D'ITALIA

Temi di discussione
del Servizio Studi

**The multimarket contacts theory:
an application to Italian banks**

by R. De Bonis and A. Ferrando

Number 387 - December 2000

The purpose of the "Temi di discussione" series is to promote the circulation of working papers prepared within the Bank of Italy or presented in Bank seminars by outside economists with the aim of stimulating comments and suggestions.

The views expressed in the articles are those of the authors and do not involve the responsibility of the Bank.

THE MULTIMARKET CONTACTS THEORY:
AN APPLICATION TO ITALIAN BANKS

by Riccardo De Bonis * and Annalisa Ferrando **

Abstract

The multimarket contact hypothesis holds that more contacts between firms competing in the same markets may induce more collusion. This paper tests the hypothesis for the Italian banking market, analysing the behaviour of the largest Italian banks from 1990 to 1996. Market rivalry is gauged by changes in loan market shares and interest rates in each Italian province. Different measures of multimarket contacts are built. We estimate the effects of increasing multimarket contacts, concentration indicators, banks' costs and loan growth on variations in market shares and interest rates. No support is found for the multimarket contact hypothesis. Geographical overlap in banking is positively correlated with changes in market shares, confirming the thesis of an overall increase in competition within the Italian banking system. Greater multimarket links also seem to correspond to lower lending rates.

Contents

---

*   Banca d'Italia, Research Department.
** Banca d'Italia and European Commission.

1. Introduction[1]

An important subject for the literature on industrial organisation is the determinants of market competition. In this framework the analysis of multimarket competition considers potential collusion between different firms that sell products in the same markets. Many studies have tested the hypothesis that multimarket linkages between companies could lead to stronger collusion. Firms that are present in many markets at once might co-operate instead of competing aggressively.

The application of the multimarket contact hypothesis to the banking industry is straightforward. Banks are firms offering relatively homogeneous goods in several geographic markets. In the past the highly regulated nature of the banking industry could be a limit to industrial organisation applications; this constraint has diminished since deregulation and market developments began changing banking in many countries. For instance, in the USA the current merger movement has made the banking industry a laboratory for analysing competition, strategic behaviour, the survival of economic barriers to entry, and the effects of concentration on efficiency and prices[2].

In Italy, the liberalisation of branching since 1990 has led to a great increase in the number of branches, more extensive contacts between banks and lesser concentration of local markets, despite the unprecedented increase in mergers. The present paper tests the hypothesis that more contacts between banks may have led to a sort of mutual forbearance against the counter-thesis that increased contacts may have worked to promote competition and to the advantage of banks' customers. The subject has both theoretical and practical relevance for assessing the policy implications of the evolution of the banking industry. A pro-competitive relationship between

[2] See Rhoades (1997) for a synthesis.

multimarket contacts and performance is the natural assumption of banking practitioners and regulators.

The paper is divided into six sections. After this introductory section, the second one surveys past studies on the multimarket contact hypothesis, with a particular focus on banking. The third section summarises the main changes in the Italian banking industry in the nineties. Section 4 describes measures of multimarket links and other variables that have been selected with reference to a sample of dominant Italian banks; for each of these intermediaries we present measures of multimarket contacts both inside and outside the relevant market for loans, which has been identified with the province. The fifth section presents some econometric results on the effect of banking linkages on loan market shares and lending rates. The sixth and final section briefly sets out our conclusions.

2. A survey of the literature on the multimarket contact hypothesis

Edwards (1955) was the first author to claim that stronger multimarket links may induce greater collusion between firms acting in non-competitive markets. In his view:

When one large conglomerate enterprise competes with another, the two are likely to encounter each other in a considerable number of markets. The multiplicity of their contacts may blunt the edge of their competition. A prospect of advantage from vigorous competition in one market may be weighted against the danger of retaliatory forays by the competitor in other markets. Each conglomerate may develop a live-and-let-live policy designed to stabilise the whole structure of the competitive relationship.

Bernheim and Whinston (1990) provided the first formal theoretical analysis of multimarket contact and tacit collusion, emphasising the effects of the degree of external contact and internal market characteristics on firms' prices. The existence of contacts may imply that firms not only increase their power to collude but may also find it profitable to design strategic policies and redistribute market power among markets where they are operating. Essential to Bernheim and Whinston's result that multimarket meetings can facilitate collusion are the complete-information and the infinite horizon hypotheses: collusion is sustained by the threat of causing a punishment strategy

infinitely in the future. Mester (1992) presents a model in which firms compete in multiple periods. The model may also be interpreted by viewing firms as making sequential decisions in various markets. Assuming imperfect information, the article shows that multiple contacts may have a pro-competitive effect if quantity is the strategic variable, even if firms have a finite horizon. Tirole (1988) presents an example of how collusion changes according to multimarket or single-market contacts between firms. Following Bernheim and Whinston, Spagnolo (1999) shows that multimarket contact always facilitates collusion.

With regard to the empirical literature, Feinberg (1985), looking at company and industry data, obtained results which cast some doubt on the multimarket contact hypothesis. Scott (1982) showed that firms' profits are higher when both concentration and contacts, not just multimarket links, are greater. Scott (1991) integrated the multimarket contact hypothesis in the structure-conduct-performance paradigm, showing that multimarket linkages are essential to prove the nexus between barriers to entry, concentration and profits. Witteloostuijn and Wegberg (1992) presented the multimarket perspective as a way to integrate the literature on industrial organisation and strategic management.

Looking at a database for UK manufacturing industry in 1979, Hughes and Oughton (1992) find that multimarket contacts have a positive effect on profitability as measured by the price-cost margin or the rate of return. Evans and Kessides (1994) claimed that previous studies on multimarket links produced twofold results because they did not control for market-specific factors. They try to capture the heterogeneity of firms using a panel approach and conclude that in the U.S. airline industry competitors refrain from aggressive pricing actions for fear of retaliation from other firms. Kim and Singal (1993) study price changes associated with airline mergers in the second half of the eighties in the USA. One of their findings is that airlines may compete less vigorously in one market due to the fear of retaliation in another. Therefore "*market power derived from multimarket contact deserves attention from the regulators*". Analysing the US cellular telephone industry, Parker and Roller (1997) find that multimarket contacts are an important factor in explaining non-competitive prices. Using data from the Spanish hotel industry, Fernandez and Marin (1998) support the prediction of Bernheim and Whinston that multimarket contact

contributes to a reduction in rivalry among firms; the authors also find that the omission of variables measuring multimarket contact creates a downward bias on the effect of concentration on prices.

As far as banking is concerned, Heggestad and Rhoades (1978) presented a first paper on multimarket interdependence in US banking. Using changes in deposit market shares as proxy for rivalry between firms and alternative measures of multimarket linkages, the authors conclude that more contacts between banks yield less competitive behaviour. Heggestad and Rhoades (1985) modified their earlier study using profits and prices as measures of banking market rivalry: only partial support was found for the mutual forbearance hypothesis. Mester (1987), with reference to the saving and loan institutions operating in California, reached the conclusion that banking contacts have a pro-competitive effect; this is in line with the theoretical model of Mester (1992). It is the cross product between market concentration and contact that is important rather than the individual effects: high concentration coupled with high contact is found to be beneficial to consumers. Examining the banking deposit markets in the USA, Whalem (1996) found weak evidence for the multimarket contact hypothesis. Using profitability as measure of competition, Piloff (1999) finds that contact is positively and meaningfully related to profitability for a small group of American banks most heavily exposed to outside contact. Building a model which separates two different sources of market power – collusion in the industry versus location in markets - Barros (1999) rejects market collusion in an application to Portuguese commercial banking; collusion within the same economic group of banks, however, cannot be completely ruled out.

Given the ambiguous evidence reached, especially in the banking field, by the previous studies inspired by the multimarket contact hypothesis, there is room for further analysis. Past research has been mainly focused on American firms, while applications to European markets have been rarer.

3. The evolution of the Italian banking industry in the nineties

This section summarises the main structural trends of the Italian banking industry, paying particular attention to measures of banking overlapping and competition.

The evolution of the Italian banking system is similar to the recent experience of the American banks, although restructuring is far from complete. In the USA a wave of banking mergers started in the eighties and accelerated in the nineties, accompanied by the abolition of geographic constraints on branching implied by the Riegel-Neal Interstate Banking and Branching Efficiency Act of 1994[3]. In Italy banking mergers and acquisitions peaked in the nineties, contributing to a strong drop in the number of banks (Fig. 1); moreover, the intense growth of new branches after the liberalisation in the nineties interrupted more than fifty years of severe barriers to entry in banking markets.

During the nineties the Italian banking system was characterised by a higher degree of geographic overlap than in the past. In 1980, the average number of banks in each province was 21 (Table 1). At the end of 1996 the number had increased to 29, in spite of the decrease in the number of banks at the macro-level and the increase in the number of provinces. Provinces in the North have more banks than other areas, although the number of banks per province has increased everywhere. The growth has been slower in Sicily and Sardinia.

The Italian banking system has historically been characterised by the prevalence of local banks. Few credit institutions are active throughout the country. However, the number of banks per province has considerably increased since 1980 (Table 2). In 1996, nine banks had branches in more than 40 provinces, while 32 banks were present in less than 40 and more than 10 provinces. The remaining credit institutions, around 900 intermediaries, had branches in less than 10 provinces (the last two classes of Table 2).

Out of 8,000 Italian municipalities, 5,071 had at least one bank in 1996 (4,088 in 1980; Table 3). The number of banks was greater in 1996 than in the eighties in all municipalities[4]; this was especially true for those that already had the largest number of banks (more than 11) in 1980.

The distribution of municipalities by number of branches had also seen an increase in all the classes, chiefly in the number of cities with the largest number of branches (Table 4). Table 5 shows

---

[3] On American bank mergers and geographic liberalisation see Amel and Rhoades (1989), Moore (1995), Antitrust Bullettin (1996).

[4] This is also true for municipalities with one bank: Table 3 does not consider branches of small cooperative banks.

that provinces with a small number of branches (up to 100) have decreased, while provinces with a large number of branches (more than 100) have increased.

Branch increases in municipalities (Table 4) and provinces (Table 5) might be an ambiguous indicator of stronger competition: because of the great number of mergers in the nineties, a few larger banks might be responsible for the intense growth of branches both in municipalities and provinces. Up to the end of the eighties, the annual number of mergers was around 12. This rose to an average of 43 per year in the nineties (Table 6). Notwithstanding the considerable increase in mergers, local market concentration has fallen because of branch openings. Concentration of local markets of loans decreases from 1990 to 1994, increases in 1995 due to the consolidation of the special credit institutions by the public-sector parent banks[5], and falls again in 1996 and 1997. The Herfindahl index of local deposit markets decreases monotonically between 1990 and 1997. Overall, mergers have not influenced the trend towards lower banking concentration. Mergers have resulted in greater geographic overlap of Italian banks, reinforcing intermediaries' multiple contacts in geographic markets caused by the liberalisation of branching.

We now turn to the analysis of how multimarket presence influences measures of banking competition.

4. Sample characteristics and measures of multimarket links

In multimarket contact studies, the analysis must regard large banks only, as they encounter each other in several markets and have sufficient market power to influence competitors' behaviour. For instance, for the USA Whalem (1996) focuses on banks that are dominant at the state level (top three banks in terms of state deposits).

The analysis of this paper focuses on the top 55 Italian banks. All the variables are measured at the provincial level. For each province the first 15 banks of the macro-area to which the province belongs are considered. The leading 15 cover more than 70 per cent of the loan market in each

---

[5] This effect mainly reflects a statistical discontinuity that took place in 1995: consolidation of the special credit institutions occurred between 1990 and 1992 but new statistical returns were produced starting in January 1995.

macro-area. We choose to study the market for loans because it is characterised by potentially larger mobility than the deposit market.

In economic theory collusive behaviour between firms may be evaluated by looking, *inter alia,* at market shares and prices (on the latter point see section 5.2). With regard to market shares Heggestad and Rhoades (1978) claim that "*stability of dominant firms' market shares may be taken as an indirect measure of the degree of rivalry in a market. The greater is their stability over time, the less likely is the market to be competitive*". A possible critique of this approach is that a football game may finish with neither side winning (a draw) but this does not imply that the two teams colluded. We maintain however the idea that stability of market shares – in football terms, the persistence of draws over time – is a signal of low competition.

Other studies of multimarket interdependence have used profits or profit variations as measures of competition among firms (see, e.g., Pilloff, 1999). We do not follow this road because profits may be a spurious measure of competition in banking. Changes in profits may derive from interest rate volatility, the conduct of monetary policy, balance sheet policy (e.g. for write-downs and write-offs of loans); these factors influence profits but may be unrelated to the competitive struggle. In the nineties, banking profitability decreased in Italy, but the diminution derived not only from the increase in competition, as reflected by the narrowing of banking margins, but also by the increase in loan riskiness and the persistence of high internal costs. Moreover, data on profits are not available on a local basis but only for the entire bank, whereas the use of information on local markets can provide useful insights on strategic interactions among intermediaries.

Rivalry between banks, measured through positive or negative changes in market shares (DQM), may depend, among other factors, on market concentration, loan growth, contacts between dominant banks and banking costs:

(1) $$DQM_{ipt} = f(HER_{pt}, DLOAN_{pt}, L_{ipt}, COF_{it})$$

where i= bank, p= province, t= time.

DQM_{ipt} is given by the absolute value of the percentage change in each bank's provincial market share. The degree of market concentration is measured by the Herfindahl index (HER_{pt}),

which is equal to the sum of the squared market shares and varies between zero and one. Our goal is to estimate the impact of concentration on changes in market shares. Previous studies have sometimes found a negative impact of concentration on variations in market shares. $DLOAN_{pt}$ shows the growth rate of loans in each province: a more dynamic loan tendency might increase intermediaries' competitive attitude. COF_{it} indicates the ratio between banks' costs and total assets: we look at the impact of banks' efficiency on their aggressive behaviour, as measured by modifications in market shares. Table 7a reports descriptive statistics for the dependent variables and the regressors.

The question of what the relevant market is in the banking industry is far from being settled[6]. In this paper we use the province as an approximation. From 1990 to 1996 in Italian antitrust cases on bank mergers the province has been the market most often investigated. A large set of bank data are also available at the provincial level. Therefore, our first measure of multimarket overlap counts contacts in each province.

L_{ipt} is an index measuring the extent of provincial multimarket contacts among the 15 most important banks in each macro-area[7]. We built a "contact matrix" that measures how many times a bank meets another bank in a province by looking at common locations in each municipality[8]. Consider the case of 3 banks (A, B, C) that are active in a province. Bank A meets bank B two times and bank C four times, while bank B meets bank C one time (in other words banks A and B both have branches in two towns and so on). The "contact matrix" is then:

---

[6] See Kwast, Starr-Mccluer and Wolken (1997) and Radecki (1998).

[7] Heggestad and Rhoades (1978) built a similar variable with regard to 187 American metropolitan areas.

[8] The index L considers the contemporaneous presence of banks in each municipality, without measuring the intensity of banks' contacts. In other words there is one contact both if two banks have one branch in a town or if the first bank has two branches and the second bank ten branches.

BANKS	A	B	C
A	-	2	4
B	2	-	1
C	4	1	-

In this example L_{ipt} is 3 (6/2) for bank A: on average bank A has three contacts in the province (six contacts with two banks). We normalise a bank's value of contacts in a province with the number of the other intermediaries among the 15 dominant banks of the macro-area which are present in the province. The province's average number of contacts (L_{pt}) is 2.3 (7/3): there are seven contacts between three banks in the area. The "contact matrix" and the indexes L_{ipt} and L_{pt} are described in detail in Appendix I.

The annual level of contacts (L_{ipt}) and their change (DL_{ipt}) are used as regressors. The expected signs for the variables L_{ipt} and DL_{ipt} are negative if the hypothesis of mutual forbearance is valid: higher linkages among banks cause less competitive behaviour. Conversely, a positive sign for the coefficient implies that more frequent contacts result in more intense competition.

Table 7b shows the trend of the average number of contacts between banks (L_{pt}) and the total number of branches (of all existing Italian banks) in each province, which is another measure of the growing overlap of Italian banks; the latter variable has also been used as an indicator of banking contacts (see par. 5.1). On average, one of the 15 dominant banks met another large intermediary more than 2.4 times in each province in 1996 (1.7 in 1990). At the macro-area level the highest linkages among the dominant banks are found in the North-West, the lowest in the Centre. In all the areas, contacts between banks increased in the nineties, notwithstanding the fact that mergers may have caused a decrease in banking meetings. The degree of this reduction depends on the geographic overlap between the merged banks[9].

Looking at banks with a multimarket presence, the five Italian macro-regions have different banking markets. In the North-West the chief banks are former local intermediaries which are

---

[9] If this is high, the number of linkages will be strongly affected. At the limit, when there is no overlap, the merger does not change the "contact matrix" because the resulting bank will substitute the old banks in every town.

today among the leading Italian banks (Table 8; the most important merged banks are also reported). In the North-East, the market is ruled by regional banks which do not have a strong presence throughout Italy. The Centre resembles the North-West, with a prevalence of large national banks. In the South, the top banks in the ranking are mainly intermediaries from other regions. The Islands have a situation similar to that in North-East, with a prevalence of regional banks.

We also built a different measure of contact by counting, for each bank and each province, the number of contacts between the approximately 15 multimarket banks outside the given province (COItaly; contacts are measured on a municipal basis). The intuition for this variable is that each bank's behavior in the relevant market (i.e. the province) might be influenced by the threat of rivals' retaliation in other markets all over Italy[10]. The variable COItaly has been weighted with the number of multimarket banks which meet inside the given province. Table 9 reports descriptive statistics for COItaly and its variants.

5. Econometric results

5.1 Effects of multimarket links on changes in market shares

The estimated equation - see expression (1) - is as follows:

(2) $$DQM_{ipt} = X_{ipt}\,\beta + Z_{pt}\,\gamma + \mu_i + \lambda_t + \varepsilon_{ipt}$$

where X_{ipt} are individual regressors (like multimarket links with other banks or the ratio of costs to total assets); Z_{pt} refers to independent variables measured on a provincial base (like the Herfindahl index or loan growth); μ_i measures individual effects; λ_t shows time dummies; ε_{ipt} are the residuals.

---

[10] See Pilloff (1999) for a discussion of the different classes of linkages which have been used in the banking literature on multimarket contacts.

The dependent variable is the absolute value of the annual percentage change in market share. Both positive and negative changes are indicators of market rivalry. Therefore, we take such variations in absolute value.

Table 10 shows the regression that was conducted with reference to Italy as a whole. The panel regression refers to 6,935 observations for the years 1990-96 (see Appendix II for further details on the data). The choice between the fixed effects or the random effects model is determined on the basis of the Hausman test[11].

The increase in the geographic overlap of banks (DL_i) has a positive and significant effect on the change in market shares: the larger the increase in multimarket linkages, the greater the change in individual market shares (Table 10, column (i)). We also find a positive influence of banks' overlapping on market shares' changes using the level of contacts L_i as regressor (column (ii)).

The Herfindahl index (HER) has a positive effect on the changes in market shares (Table 10, column (iii)). The result is not in line with previous multimarket studies, in which concentration indexes are more frequently negatively correlated with modifications of market shares. In Italy, competition also seems to be strong in provinces where oligopolists are prevalent; the positive effect of HER on market share changes may also depend on the new entry of large banks in provinces where local intermediaries have considerable market power. Finally, the Herfindahl index may also be considered as a control variable that accounts for the effect of mergers on variations in market shares[12].

Loan growth (DLOAN) has a significant influence on market share variations (column (iv)). We may infer that a larger credit variation impacts positively on competition.

In Table 11 we perform some robustness checks of the validity of our indicator of multimarket links (DL_i) and the other regressors. First, the significance of the overlapping indicator (DLI) has been tested adding another proxy for provincial contacts between intermediaries: the

---

[11] The fixed effects model assumes that the individual effects are correlated with the independent variables. The random effects model assumes that such correlation is absent. The Hausman test is distributed as a χ^2 and tests the null hypothesis of no correlation between the individual effects and the regressors. See Greene (1993), chapter 16.

[12] A measure of banks' wealth (the ratio between own funds and total assets) does not influence individual market shares (therefore the variable is not reported in Table 10).

number of branches in each province of the top 230 banks. An increase (DBRANCHES) in the number of branches in each province negatively influences changes in leading banks' market shares (Table 11; however the value of the coefficient is small). The significance of the variable measuring multimarket linkages (DL$_i$) is confirmed. The negative sign of DBRANCHES might imply that large banks' market shares are more stable where minor banks open more branches.

Second, the weight of operating costs on assets (COSTS/ASSETS) has a negative and significant effect on the change in market shares (Table 11, first four columns). This result corresponds to the idea that the less efficient firms are not able to gain market shares but, also, do not apparently loose market power.

Third, we look at the interaction between the number of contacts and market concentration, building a new variable, HECO, given by their product (Table 11, column v). According to some authors in the multimarket literature, it is the product between market concentration and contacts that is important rather than the individual effects of the two variables (on this interaction see Scott (1982) and Mester (1987)). We also find that the product between contacts and the Herfinahl index on a provincial basis, the variable HECO, positively influences market share changes (column (v)).

As explained in section 4, banks' attitude in the relevant market (i.e. the province) might be influenced by the threat of retaliation in other markets. In Table 12, we look at the effect on market shares of the other indicators of multimarket links (COItaly and its variants). Table 12 reports a regression (columns (i)) in which the dependent variable is always the annual percentage change in the market share of each bank in each province, but the independent variable is the number of contacts between banks outside the relevant markets. Contacts between multimarket banks all over Italy have a positive but not significant effect on market share changes. The same non-significant results are obtained using a normalised measure of contacts (column (ii)) or the annual change in contacts as regressors (column (iii)). The fit of the regressions is also poor[13]. The non-significance of coefficients may depend on the fact that among the multimarket banks there is still a prevalence of regional or provincial intermediaries, whose activity is concentrated only in restricted areas of

---

[13] Results obtained with the fixed effects model are similar.

Italy (see Table 8). In other words, "outside the province" contacts do not influence "inside the province" competitive behavior.

Overall, the previous results do not support the idea that multimarket competition implies more stability in market shares.

5.2 Effects of multimarket links on lending rates

Multimarket contacts between banks may also influence lending rates. De Bonis and Ferrando (1997a and 1997b) found that interest rates are positively influenced by credit market concentration, loan riskiness, and banks' costs. In this section we concentrate on the possible effect of multimarket contacts on lending rates. Table 13 reports an econometric exercise in which banks' average lending rates in each province (IL_{ipt}) are regressed on multimarket links between intermediaries (L_i), loan growth ($DLOAN_p$) and riskiness of banks' loan portfolio (BAD/TOTAL $LOANS_{ip}$). The estimated equation is as follows:

(3) $(IL_{ipt})= f (L_i, DLOAN_p, BAD/TOTAL\ LOANS_{ip})$.

The estimates refer to the period 1990-94. Multimarket linkages have a negative and significant effect on lending rates. Increased contacts between banks cause lower lending rates. This is consistent with the effect that multimarket meetings have on loan quantities. The growth rate of loans in each province is negatively correlated with interest rates. This might imply that a larger supply of credit corresponds to lower rates. Finally, as expected the ratio between bad and total loans has a positive and significant effect on interest rates. Regressions on the different macro-regions confirm the negative effect of multimarket links on lending rates in the North-West and the South (the results are not reported). The effect is also negative but not significant for the other regions.

6. Conclusions

The multimarket contact hypothesis holds that more contacts between firms competing in the same markets may induce more collusion. This paper tests the hypothesis for the Italian banking market, analysing the behaviour of the 55 largest Italian banks from 1990 to 1996; these intermediaries have an extensive presence in all five macro-regions. Market rivalry is gauged by changes in loan market shares and interest rates in each Italian province. There has been a considerable increase in branches and multimarket contacts in recent years. Different measures of multimarket linkages are presented, trying to capture the extent of contacts between banks inside the provinces and throughout Italy. We estimate the effects of increasing multimarket links, concentration indicators, banks' costs and loan growth on variations in market shares and interest rates. No support is found for the multimarket contact hypothesis. Geographical overlap in banking is positively correlated with changes in market shares, confirming the thesis of an overall increase in competition within the Italian banking system. Greater multimarket links also seem to correspond to lower lending rates. Our interpretation is that forms of collusion between banks are less likely when barriers to entry are lowered, as was the case with Italian branch liberalization in the nineties.

These results will have to be confirmed by looking at other measures of banking rivalry and geographic overlap. The bank deposit market is the natural candidate for a new test of the multimarket contact hypothesis. The analysis of the deposit market might consider not only the effect on competition of traditional branch expansion but also the influence of alternative networks such as ATMs. Competition between local managers in each territory might also be captured by market shares and number of banks/branches in each municipal market, without aggregating the figures on a provincial basis. Multimarket meetings could be studied with reference to the different institutional categories of Italian banks: cooperative banks, former savings banks, and other commercial banks established as joint stock companies. As far as the definition of multimarket banks is concerned, only the small group of large national Italian intermediaries that are present in all the provinces (around ten banks) might be selected. Instead of devoting attention to the single bank as a monad, the analysis might consider how cross-holdings between banks and banking groups influence aggressive behaviour and interest rates.

Finally, it is worthwhile to wonder, as a caveat to our analysis, if greater competition might lead to a more extensive widespread presence and therefore to increased contacts. We also leave this subject, which states a nexus opposite to that implicit in the multimarket contact hypothesis, for further research.

Appendix I

The variables L_i and L_p

The multimarket variable L_{ipt} summarises the number of contacts between a dominant bank i and the other largest firms in market p (province) at time t. The variable is constructed as follows. For each year and each province p, let D_{ij} be a variable that equals one if the bank i operates in the market j (where j=1,..P is a municipality, i.e. a market smaller than the province), zero otherwise. First we construct a matrix

$$A=(a_{il})$$

where

$$a_i = \sum_{j=1}^{P} D_i D_l \qquad j = 1,..P \text{ municipalities; } \quad i, l = 1......,B \text{ banks and } i \mathbf{^1} l.$$

The matrix A (BxB) is symmetric and a_{il} measures the number of times that the largest bank i^{th} meets the largest bank l^{th} in the province p, while the diagonal element a_{ii} is the number of local markets in which the bank i is present.

The measure of contacts L_i is then the sum of the off-diagonal terms of row i, divided by the total number of banks (B) minus 1

$$L_i = \sum_{j \neq i}^{B} a_i \ / (B-1)$$

The variable L_i is calculated for each province and each year and is called L_{ipt}. It measures the average number of contacts that the bank i has with all the other banks in province p at time t.

A variable L_p has then been calculated with reference to the province. It measures the average number of contacts between dominant banks in each province:

$$L_p = \sum_{l=1}^{B} \sum_{i=l+1}^{B} a_{li} / B(B-1)/2$$

L_p is the sum of the off-diagonal terms in the upper part of the matrix A divided by the number of terms.

Appendix II

The data and definitions of the variables

The analysis refers to the period 1990-96. The sample of 55 banks has been chosen by selecting the top 15 short-term banks in terms of loans in the five Italian macro-regions: North-West, North-East, Centre, South, Islands. Looking at the city of originary location, 14 intermediaries come from the North-West, 12 from the North-East, 12 from the Centre, 6 from the South, 9 from the Islands. The panel data are unbalanced; some banks disappear from the sample because they merged with other intermediaries. All the information is taken from the statistical returns which banks provide to the Bank of Italy. Data are annual and refer to the end of December.

The monthly sample of Italian banks included 265 banks (232 short-term banks, 33 long-term banks) at the end of 1996, out of a total population of 937 banks. The sample covered 93 per cent of deposits and 95 per cent of loans in the banking system.

The lending rates are taken from the Central Credit Register (CCR). The CCR was established to safeguard banks against the risk of customers' obtaining multiple loans from different institutions. The survey of lending rates covers, for the years 1990-94, about 80 large banks accounting for about 70 per cent of total lending by the banking system (Banca d'Italia, 1994).

List of the variables

1. DQM. The change in the market share of each bank in the sample in every province refers to the loan market. The denominator considers the loans of the leading short term banks located in each province (with the exemption of cooperative banks).

2. HER. The Herfindahl index is equal to the sum of the squared market shares in each province. The first 230 Italian short-term banks are considered.

3. DLOAN. Credit variation is measured by the growth rate of loans in each province. The first 230 Italian short-term banks are considered.

4. L_i and L_p. The variables show the number of municipality-level linkages between banks in each province. The variables have been measured with reference to: a) the average number of contacts in each province between pairs within the first 15 banks in each macro-region (L_i); b) the average number of contacts (of each bank with the others) in each province (L_p).

5. COItaly. The variable measures municipal contacts across Italy – for each intermediary - among the 15 most important banks in each province, with the exception of the contacts in the province whose market share is considered. We weight COItaly by the number of multimarket banks which have branches in the province (COBP). Finally, annual changes in the weighted variables (DCOBP) are computed.

6. BANKS. The variable considers the number of banks in each Italian province. The sample refers to the first 230 Italian banks.

7. BRANCHES. The variable considers the number of branches in each Italian province. The sample refers to the first 230 Italian banks.

8. COSTS/ASSETS. The ratio between banks' operating costs and total assets is calculated for each bank in the sample.

9. BAD LOANS. The variable considers the ratio between banks' bad loans and total loans in each province for each intermediary.

10. IL_{ipt} The data on interest rates comprise the interest calculation figures paid by borrowers subject to Central Credit Register reporting. Credit reported reflects the most common forms of customer finance such as discounting of bills, direct lending, and current account overdrafts.

Table 1

NUMBER OF BANKS PER PROVINCE

Macro-region	1980	1989	1996
North-West	23	31	32
North-East	28	37	39
Center	19	24	28
South	16	23	23
Sicily and Sardinia	17	19	20
Italy	21	27	29

Note: Simple averages of provincial data. All banks operating in Italy.

Table 2

EXTENT OF BANKS' BRANCH NETWORKS BY NUMBER OF PROVINCES

Number of provinces	1980	1989	1996
> 40	5	7	9
11 – 40	13	24	32
4 – 10	28	67	73
< 4	1104	987	823
	1150	1085	937

Note: All banks operating in Italy.

Table 3

DISTRIBUTION OF MUNICIPALITIES BY NUMBER OF BANKS

Municipalities

Banks	1980	1989	1996
1	2407	2506	2328
2 – 5	1543	1625	2251
6 – 10	112	181	327
11 – 15	16	39	99
16 – 20	7	17	37
21 – 30	1	12	20
> 30	2	4	9
Total municipalities with banks	4088	4384	5071

Note: Monthly sample of Italian banks.

Table 4

DISTRIBUTION OF MUNICIPALITIES BY NUMBER OF BRANCHES

Municipalities

Branches	1980	1989	1996
1	2340	2437	2256
2 – 5	1522	1594	2190
6 – 10	136	209	347
11 – 50	78	126	238
51 – 100	5	9	25
101 – 150	3	3	6
> 150	4	6	9

Note: Monthly sample of Italian banks.

Table 5

DISTRIBUTION OF PROVINCES BY NUMBER OF BRANCHES

	Provinces		
Branches	1980	1989	1996
15-50	13	5	5
50-100	32	34	15
100-200	32	30	45
200-300	11	15	15
300-400	3	6	8
400-500	2	2	9
>500	2	3	6
Total provinces	95	95	103

Note: Monthly sample of Italian banks.

Table 6

NUMBER OF BANK MERGERS, 1980-1997

1980	7
1981	8
1982	8
1983	11
1984	6
1985	9
1986	12
1987	12
1988	21
1989	22
1990	23
1991	48
1992	48
1993	42
1994	52
1995	56
1996	44
1997	34

Note: All banks operating in Italy.

**DESCRIPTIVE STATISTICS: CHANGES IN MARKET SHARES, MULTIMARKET
CONTACTS INSIDE PROVINCES (LI) and other regressors (*)**

	Mean	*Minimum*	*Maximum*
Annual % change in market share	0.0025	-0.25	0.51
Herfindahl index (HER)	0.16	0.03	0.56
Individual bank contacts(Li)	2.13	0.09	21.4
Yearly variation in bank contacts (Vli)	0.19	-1.75	13.8
Number of contacts at provincial level (Lp)	2.12	0.61	9.68
Annual rate of growth of loans in each province (DLOAN)	0.094	-0.46	1.69
Number branches per province	224.8	11	1835
Annual change in branches per province (DBRANCHES)	14	-3	128
Annual change in banks per province (DBANKS)	0.36	-6	7
Costs/total assets	0.028	0.01	0.052

(*) See Appendix II for definition of variables.

**MULTIMARKET LINKS (VARIABLE LPT) AND AVERAGE NUMBER
OF TOTAL BRANCHES IN THE PROVINCES OF EACH MACRO-AREA**

	1990		1996	
	L_{pt}	Branches	L_{pt}	Branches
NORTH-WEST	1.86	231	2.77	336
NORTH-EAST	1.49	161	2.11	242
CENTRE	1.54	156	1.84	212
SOUTH	1.35	97	2.17	149
SICILY AND SARDINIA	2.09	100	2.40	136
ITALY	1.65	161	2.37	233

Note: Simple averages of provincial data for branches.

Table 8

BANKS WITH A MULTIMARKET PRESENCE

North-West	North-East	Centre	South	Sicily and Sardinia
S. Paolo To.	Rolo banca 1473 S.p.a.	Banca di Roma	B. Napoli	B. Sicilia
Cariplo	Popolare Verona	BNL	BNL	B. Sardegna
Comit	C.R. Bologna	MPS	S. Paolo To.	Sicilcassa
BNL	BNL	S. Paolo To.	Banca di Roma	BNL
Pop. Ber.-Cre. Var.	B. Antoniana	B. Napoli	MPS	Comit
Credito Italiano	Ambrosiano Ve.	Cariplo	Comit	S. Paolo To.
Banca di Roma	Cariverona	B. Toscana	Credito Italiano	MPS
Ambrosiano Vene.	Comit	Comit	Carical	Credito Italiano
Pop. Milano	C.R. Padova-Rovigo	C. R. Firenze	Caripuglia	Cariplo
C.R. Torino	Pop. Emilia-Romag.	Credito Italiano	Cariplo	Banca di Roma
MPS	C.R. Parma-Piacen.	B. Sicilia	BNA	B. Napoli
Pop. Novara	S. Paolo To.	B. delle Marche	Banca Mediterranea	
Carige	Credito Italiano	BNA	Ambrosiano Ve.	
CAB	Banca di Roma	Pop. Novara	Pop. Novara	
Cred. Bergamasco	Cariplo	Pop. Etruria-La.	Pop. Irpinia	

Merged banks

North-West	North-East	Centre	South	Sicily and Sardinia
Banco di Roma	S.Geminiano	C. Risp. Roma	B. del Salento	Banco di Roma
Prov. Lombarda	Banco di Roma	B. S. Spirito	B. S. Spirito	
Lariano	Pop. Veneta	Banco di Roma	Banco di Roma	
BNA	C.R. Venezia	C.R. Lucca		
	Carimonte	Credito Romagnolo		

Table 9

DESCRIPTIVE STATISTICS: MULTIMARKET CONTACTS OUTSIDE A GIVEN PROVINCE ("COITALY")

	Mean	Minimum	Maximum
Contacts in municipalities between multimarket banks across Italy (COItaly)	736.7	18	1213
Contacts(COItaly/multimarket banks in each province (COBP)	68.9	1.0	543.5
Annual change in COBP	2.4	-169.8	350.3

Table 10

ECONOMETRIC RESULTS: EFFECTS OF PROVINCIAL MULTIMARKET CONTACTS ON THE ABSOLUTE VALUE OF CHANGE IN MARKET SHARES

	(i) Fixed effects		(ii) Random effects		(iii) Fixed ffects		(iv) Fixed effects	
DLI	1.34	*			1.38	*	1.37	*
	(27.4)				(28.3)		(28.2)	
LI			0.16	*				
			(10.5)					
HER					0.02	*	0.02	*
					(8.3)		(7.8)	
DLOAN							0.01	*
							(6.1)	
CONSTANT	0.68	*	0.6	*	0.2	*	0.1	
	(26.7)		(3.1)		(3.3)		(1.5)	
N. observations	6,935		6,935		6,935		6,935	
R^2	0.20		0.02		0.21		0.21	
Lagrange Mult. Test	5804		3997		5366		1216	
Hausman test χ^2 test:	7.3		1.9		8.1		11.1	
Time, individual Dummies	928		808		872		737	

Dependent variable: annual *absolute value* percentage change in market shares.
Independent variables: change in links between banks (DLI); links between banks (LI); Herfindahl index (HER); growth rate of loans (DLOAN).

Notes
t - statistics are in brackets.
* 	Coefficient significant at 1 per cent.
** 	Coefficient significant at 5 per cent.
The LM test is distributed as a χ^2 with 2 degrees of freedom.
The Hausman test is distributed as a χ^2.
The χ^2 test for time and individual dummies is distributed with 101 degrees of freedom.

Table 11

ECONOMETRIC RESULTS: EFFECTS OF PROVINCIAL MULTIMARKET CONTACTS ON THE ABSOLUTE VALUE OF CHANGE IN MARKET SHARES

	(i) Fixed effects		(ii) Random effects		(iii) Fixed effects		(iv) Random effects		(v) Fixed effects	
HER	0.02	*	0.02	*	0.02	*	0.02	*		
	(6.1)		(6.3)		(5.5)		(5.7)			
DLI	1.44	*			1.43	*				
	(28.9)				(28.9)					
LI			0.23	*			0.23	*		
			(13.1)				(13.3)			
DBRANCHES	-0.008	*	-0.008	*	-0.009	*	-0.009	*		
	(-5.7)		(-5.1)		(-6.0)		(-5.5)			
COSTS/ASSETS	-0.21	*	-0.17	*	-0.20	*	-0.16	*		
	(-3.2)		(-2.7)		(-3.1)		(-2.5)			
DLOAN					0.015	*	0.016	*	0.01	*
					(6.4)		(6.3)		(5.4)	
HECO									1.94	*
									(17.3)	
	1.04	*	0.75	**	0.91	*	0.61	**	0.19	*
	(5.1)		(2.1)		(4.4)		(2.0)		(3.9)	
N. observations	6,935		6,935		6935		6935		6935	
R^2	0.21		0.04		0.22		0.06		0.15	
Lagrange Mult. Test	4669.2		3684		951		705		702	
Hausman test	8.6		3.7		9.4		4.5		6.3	
χ^2 test: Time, individual Dummies	858		756		717		621		702	

Dependent variable: annual *absolute value* percentage change in market shares.
Independent variables: Herfindahl index (HER); change in links between banks (DL_i); links between banks (LI); growth rate of loans (DLOAN); costs/assets ratio (COSTS/ASSETS); annual change in branches (DBRANCHES); product between the Herfindahl index and the number of contacts (HECO).
Notes
t - statistics are in brackets.
* Coefficient significant at 1 per cent.
** Coefficient significant at 5 per cent.
The LM test is distributed as a χ^2 with 2 degrees of freedom.
The Hausman test is distributed as a χ^2.

Table 12

EFFECTS OF MULTIMARKET CONTACTS OUTSIDE THE PROVINCE ON PROVINCIAL MARKET SHARES

	(i) Random Effects		(ii) Random Effects		(iii) random effects	
HER	0.02 (5.5)	*	0.02 (5.5)	*	0.02 (5.5)	*
COItaly	0.00003 (0.2)					
COBP			-0.0004 (-0.6)			
DCOBP					-0.0003 (-0.12)	
CONSTANT	0.64 (2.6)	*	0.69 (3.0)	*	0.66 (3.0)	*
N. observations	6,935		6,935		6,935	
R^2	0.007		0.007		0.007	
Lagrange Mult. Test	4000		4005		3982	
Hausman test	4.6		2.6		3.1	

Dependent variable: annual *absolute value* percentage changes in banks' market shares. Independent variables: Herfindahl index (HER); contacts between multimarket banks in municipalities (COItaly); contacts normalized by the number of multimarket banks in each given province (COBP); annual changes of normalised contacts between banks (DCOBP).

Notes

t - statistics are in brackets.
* Coefficient significant at 1 per cent.
** Coefficient significant at 5 per cent.
The LM test is distributed as a χ^2 with 2 degrees of freedom.
The Hausman test is distributed as a χ^2.

Table 13

EFFECTS OF MULTIMARKET CONTACTS ON LOAN INTEREST RATES

	Fixed effects	
LI	-0.05	*
	(-5.2)	
DLOAN	-0.01	*
	(-3.6)	
BAD LOANS	0.06	*
	(24.6)	
CONSTANT	14.25	*
	(364)	
N. observations	4,343	
R^2	0.75	
Hausman test	23.7	
χ^2 test:		
Time, individual	5,700	
Dummies		

Dependent variable: loan interest rates.
Independent variables: links between banks (LI), growth rate of loans (DLOAN), banks' bad loans to total loans (BAD LOANS).
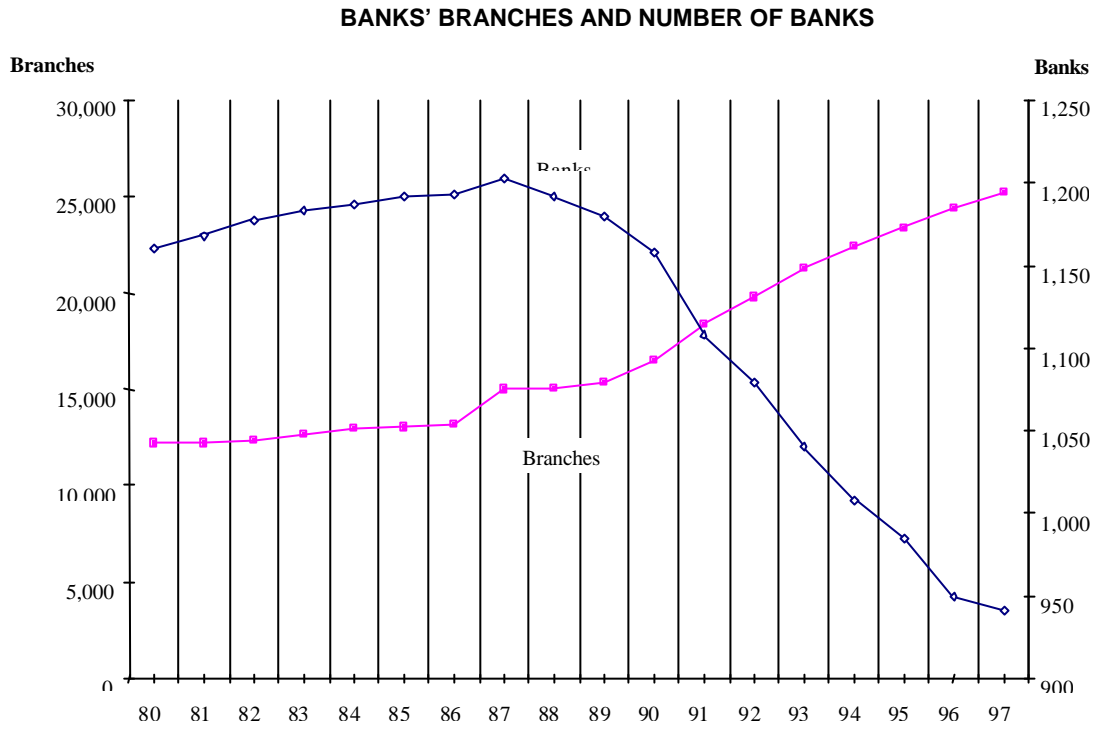
Notes

t - statistics are in brackets.
*   Coefficient significant at 1 per cent.
The Hausman test is distributed as a χ^2 with 3 degrees of freedom.
The χ^2 test for time dummies is distributed with 41 degrees of freedom.

Fig. 1

BANKS' BRANCHES AND NUMBER OF BANKS

Branches

Banks

Banks

Branches

30,000
25,000
20,000
10,000
5,000
0

1,250
1,200
1,150
1,100
1,050
1,000
950
900

80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97

References

Amel, D. F. and S. A. Rhoades (1989), "Empirical Evidence on the Motives for Bank Mergers", *Eastern Economic Journal*, Vol. XV, No. 1, 17-27, January –March.

Banca d'Italia (1994), "The Monetary and Financial Statistics of the Bank of Italy", March.

Barros, P. P. (1997), "Multimarket Competition in Banking, with an Example from the Portuguese Market", International Journal of Industrial Organization, No. 17, 335-52.

Bernheim, B. D. and M. D. Whinston (1990), "Multimarket Contact and Collusive Behaviour", *Rand Journal of Economics,* Vol. 21, No. 1, 1-26, Spring.

De Bonis, R. and A. Ferrando (1997a), *Da che cosa dipendono i tassi di interesse sui prestiti nelle province ?*, Banca d'Italia, Temi di discussione, No. 319, September.

De Bonis, R. and A. Ferrando (1997b), *"Lending Interest Rates in Italy: an Analysis of the Last Ten Years"*, Banca d'Italia, manuscript.

Edwards, C. (1955), "Conglomerate Bigness as a Source of Power", in George Stigler (ed.), *Business Concentration and Price Policy*, Princeton, Princeton University Press, 331-59.

Evans, W. N. and I. N. Kessides (1994), "Living by the Golden Rule: Multimarket Contact in the U.S. Airline Industry", *The Quarterly Journal of Economics*, Vol. 109, No. 2, 341-66, May.

Feinberg, R. M. (1985), "Sales-at-Risk: A Test of the Mutual Forbearance Theory of Conglomerate Behaviour", *Journal of Business*, Vol. 58, No. 2, 225-41.

Fernandez, N. and P. L. Marin (1998), "Market Power and Multimarket Contact: Some Evidence from the Spanish Hotel Industry", *Journal of Industrial Economics*, Vol. XLVI, No. 3, 301-16.

Greene, W. H. (1993), *Econometric Analysis*, second edition, MacMillan Publishing Company, New York.

Heggestad, A. A. and S. Rhoades (1978), "Multimarket Interdependence and Local Market Competition in Banking", *The Review of Economics and Statistics*, No. 4, 523-32, November.

Heggestad, A. A. and S. Rhoades (1985), "Multimarket Interdependence and Performance in Banking: Two Tests", *The Antitrust Bulletin*, 975-95, Winter.

Hughes, K. and C. Oughton (1993), "Diversification, Multi-market Contact and Profitability", Economica, No. 60, 203-04.

Kwast, M.L., M. Starr-Mccluer and J. Wolken (1997), "Market Definition and the Analysis of Antitrust in Banking", *The Antitrust Bullettin,* Winter.

Kim, E. H. and V. Singal (1993), "Mergers and Market Power: Evidence from the Airline Industry", *American Economic Review*, Vol. 83, No. 3, 549-69.

Mester, L. J. (1987), "Multiple Market Contact between Savings and Loans", *Journal of Money, Credit and Banking*, No. 19, 538-49.

Mester, L. J. (1992), "Perpetual Signalling with Imperfectly Correlated Costs", *The Rand Journal of Economics*, Vol. 23, No. 4, 548-63, Winter.

Parker, P. M. and L. H Röller (1997), "Collusive Conduct in Duopolies: Multimarket Contact and Cross-Ownership in the Mobile Telephone Industry", *Rand Journal of Economics*, Vol. 28, 304-22.

Pilloff, S. J. (1999), "Multimarket Contact in Banking", *Review of Industrial Organisation*, Vol. 14, No. 2, 163-82, March.

Radecki, L. J. (1998), "The Expanding Geographic Reach of Retail Banking Markets", *Federal Reserve Bank of New York*, 15-34, June.

Rhoades, S. A. (1997), "Research on Industrial Organization Topics in Banking: An Introduction and Overview", *Review of Industrial Organization*, Vol. 12, No. 1, 1-8, February.

Scott, J. T. (1982), "Multimarket Contact and Economic Performance", *Review of Economics and Statistics*, Vol. LXIV, No. 3, 368-75.

Scott, J. T. (1991), "Multimarket Contact Among Diversified Oligopolists", *International Journal of Industrial Organization*, Vol. 9, 225-38.

Spagnolo, G. (1999), "Multimarket Contact, Concavity and Collusion", Fondazione Eni Enrico Mattei, Nota di lavoro, No. 61.

Tirole, J. (1988), *The Theory of Industrial Organization*, The MIT Press, Cambridge, Massachusetts.

Van Witteloostuijn, A. and M. Van Wegberg (1992), "Multimarket Competition. Theory and Evidence", *Journal of Economic Behaviour and Organization*, No. 18, 273-82.

Whalem, G. W. (1996), "Nonlocal Concentration, Multimarket Linkages, and Interstate Banking", The Antitrust Bulletin, Vol. XLI, No. 2365-97, Summer.

RECENTLY PUBLISHED "TEMI" (*)

No. 363 — *The Transmission of Monetary Policy Shocks in Italy, 1967-1997,* by E. GAIOTTI (December 1999).

No. 364 — *Rigidità nel mercato del lavoro, disoccupazione e crescita,* by F. SCHIVARDI (December 1999).

No. 365 — *Labor Markets and Monetary Union: A Strategic Analysis,* by A. CUKIERMAN and F. LIPPI (February 2000).

No. 366 — *On the Mechanics of Migration Decisions: Skill Complementarities and Endogenous Price Differentials,* by M. GIANNETTI (February 2000).

No. 367 — *An Investment-Function-Based Measure of Capacity Utilisation. Potential Output and Utilised Capacity in the Bank of Italy's Quarterly Model,* by G. PARIGI and S. SIVIERO (February 2000).

No. 368 — *Information Spillovers and Factor Adjustment,* by L. GUISO and F. SCHIVARDI (February 2000).

No. 369 — *Banking System, International Investors and Central Bank Policy in Emerging Markets,* by M. GIANNETTI (March 2000).

No. 370 — *Forecasting Industrial Production in the Euro Area,* by G. BODO, R. GOLINELLI and G. PARIGI (March 2000).

No. 371 — *The Seasonal Adjustment of the Harmonised Index of Consumer Prices for the Euro Area: a Comparison of Direct and Indirect Methods,* by R. CRISTADORO and R. SABBATINI (March 2000).

No. 372 — *Investment and Growth in Europe and in the United States in the Nineties,* by P. CASELLI, P. PAGANO and F. SCHIVARDI (March 2000).

No. 373 — *Tassazione e costo del lavoro nei paesi industriali,* by M. R. MARINO and R. RINALDI (June 2000).

No. 374 — *Strategic Monetary Policy with Non-Atomistic Wage-Setters,* by F. LIPPI (June 2000).

No. 375 — *Emu Fiscal Rules: is There a Gap?,* by F. BALASSONE and D. MONACELLI (June 2000).

No. 376 — *Do Better Institutions Mitigate Agency Problems? Evidence from Corporate Finance Choices,* by M. GIANNETTI (June 2000).

No. 377 — *The Italian Business Cycle: Coincident and Leading Indicators and Some Stylized Facts,* by F. ALTISSIMO, D. J. MARCHETTI and G. P. ONETO (October 2000).

No. 378 — *Stock Values and Fundamentals: Link or Irrationality?,* by F. FORNARI and M. PERICOLI (October 2000).

No. 379 — *Promise and Pitfalls in the Use of "Secondary" Data-Sets: Income Inequality in OECD Countries,* by A. B. ATKINSON and A. BRANDOLINI (October 2000).

No. 380 — *Bank Competition and Regulatory Reform: The Case of the Italian Banking Industry,* by P. ANGELINI and N. CETORELLI (October 2000).

No. 381 — *The Determinants of Cross-Border Bank Shareholdings: an Analysis with Bank-Level Data from OECD Countries*, by D. FOCARELLI and A. F. POZZOLO (October 2000).

No. 382 — *Endogenous Growth with Intertemporally Dependent Preferences*, by G. FERRAGUTO and P. PAGANO (October 2000).

No. 383 — *(Fractional) Beta Convergence*, by C. MICHELACCI and P. ZAFFARONI (October 2000).

No. 384 — *Will a Common European Monetary Policy Have Asymmetric Effects?*, by L. GUISO, A. K. KASHYAP, F. PANETTA and D. TERLIZZESE (October 2000).

No. 385 — *Testing for Stochastic Trends in Series with Structural Breaks*, by F. BUSETTI (October 2000).

No. 386 — *Revisiting the Case for a Populist Central Banker*, by F. LIPPI (October 2000).