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EFFICIENCY VS. AGENCY MOTIVATIONS FOR BANK TAKEOVERS: SOME EMPIRICAL EVIDENCE

by Alessio De Vincenzo [(*)], Claudio Doria [(**)] and Carmelo Salleo [(***)]

Abstract

Bank takeovers result on average in little improvements in performance. This may be due to conflicting driving forces behind them; however these have seldom been studied. We study directly the motivations for bank acquisitions by analyzing the prices paid for them, under the assumption that bankers are willing to pay for what they want. We find that there is no evidence that bankers are ready to pay for possible economies of scale and scope; on the other hand buyers expect to transfer their superior managerial skills to targets. Market power seems to hold little value while entry (or diversification) commands a premium. Agency issues at the buyer are also an important motivation for takeovers: other things being equal acquirers with more free capital are willing to pay more.

JEL classification: G21; G34; L21

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1. Introduction[1]

In the nineties a wave of mergers and acquisitions transformed the financial sector; this world-wide trend is described in detail in a report by the Group of Ten (2001). Bank mergers and acquisitions in particular have been studied extensively across many countries and time periods; the results have been mixed at best. An international survey by Amel et al (2004) concludes that "The empirical evidence suggests that commercial bank M&As […], on average, do not generate significant shareholder value".

A possible reason for the lack of consistent results is that bank takeovers can be driven by many different motivations, which do not necessarily result in higher profits. For example, economies of scale, which are widely quoted as one of the main reasons for an acquisition, are significant only for small banks, while economies of scope, which are another broadly cited reason to merge, are elusive to generate (and to measure). Strategies aimed at increasing market power might just result in more complacency - the "quiet life hypothesis" first mentioned by Hicks - while strategies aimed at diversifying the banks' portfolios might only result in lower volatility, which is hard to measure with accounting data and probably has second-order effects on stock prices. Finally, many M&As might be motivated quite simply by empire building by entrenched CEOs and thus are not likely to result in improved performance.

While many studies have looked at the performance of acquired banks very few have dealt directly with what motivates bank takeovers. The Group of Ten report (2001) includes a survey of practitioners, otherwise most papers infer indirectly the possible motivations from the characteristics of the banks involved or identify them ex post from the results of the deal.

In this paper, instead of studying the effects of M&As, we analyze directly the motivations for takeovers in the banking industry by relating the price paid for the target to

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variables that identify the main strategies considered by the literature to drive M&As. We assume that what affects positively (negatively) the price is likely to create (destroy) value (or utility for the CEO; more on this later). Another key difference with the extant literature is that most papers identify indirectly one or two motivations at a time but, since for any given sample the driving forces at work are many and not always leading towards the same direction, the noise they introduce can make the results inconclusive. By contrast, we look directly and at the same time at the many different motivations offered by the literature, so that we can compare them to each other and verify which ones are more likely to affect the deal.

Our use of prices is a novel use of the information contained in the valuation of banks at the moment of an acquisition: the typical research on the subject has been mainly concerned with issues of regulation, testing whether restrictions on branching and on interstate transactions have had any effect on competition. We study the bank acquisitions recorded in Italy between 1995 and 1999; to our knowledge, this is the first paper that uses non-U.S. data on bank prices. Our data set is unique in the detail and depth on banks' operations and markets, as it draws on privileged information collected by the banking supervision authority. It allows us to measure very precisely structural variables such as the average concentration of the target's markets, the extent of the overlap with the bidder and the bidder's entry in new markets thanks to the acquisition; we also have detailed information on banks' activity, such as their EDP investments or their trading activity. Finally, as all their European counterparts, Italian banks have been allowed to operate as universal banks for most of the last decade; this allows us to take into account their forays into markets that have been precluded to most U.S. banks until the end of the nineties and to which they have been turning now.

We find that the possibility of reaping economies of scale and scope has no significant positive impact on the price paid for the acquired bank. On the other hand, a high gap in operating efficiency in favor of the acquiring bank leads to a higher price; this is consistent with the hypothesis that some mergers are linked to the possibility of transferring higher managerial skills from the bidder to the target. Out-of-market deals are correlated with higher prices while in-market deals are not: this is consistent with the hypothesis that diversification (or entry) is more important than market power (at least within the boundaries

of antitrust regulation). Finally, other things being equal, acquiring banks with higher free cash are willing to pay more; this is consistent with the hypothesis that agency issues at the acquiring bank also play a significant role in takeovers.

The rest of the paper is organized as follows: Section 2 reviews briefly the empirical literature on bank takeovers; Section 3 describes the sample; Section 4 outlines the determinants of prices and illustrates the specification chosen to test them; in Section 5 we present the results and in Section 6 we draw some conclusions.

2. Review of the Literature

In general, the pricing of bank takeovers has been analyzed in relation to regulatory issues, such as the impact of branching restrictions and the possibility of interstate acquisitions (although a few consider also other points, such as the degree of competition in the target's market). To our knowledge, all empirical studies of the determinants of bank premiums are performed on samples of U.S. banks; for ease of exposition their main results are summarized in Table 1.[2] In this paper however we are not concerned with the pricing of banks per se; we are interested in relating the price to the motivations for the transaction, so we will review more in detail the literature on bank M&As. The only paper that analyzes the premium paid for bank takeovers in a spirit close to ours is Palia (1993); its main result of interest with respect to our framework is that there is evidence that the price is influenced by agency issues proxied by managers' shareholdings; another result is that larger banks (with respect to targets) pay more – this is interpreted as evidence of a premium for technical change but could also be seen as evidence against economies of scale (see paragraph 4).

There have been a number of papers that analyze the possible benefits of bank mergers (cost reductions, revenue improvements, efficiency gains, increases in market value, etc.); they cover many periods, countries and sub-samples of banks. They are too many to review

[2] The effect of regulatory restrictions (or lifting thereof) is unambiguous: interstate deals and deals where the target operates in a state with branching restrictions command higher premiums. However, these results correspond to different motivations: the first one is due to the fact that allowing interstate transactions increases the number of potential bidders and therefore the price for given conditions of the target, the second one is due to the fact that banks operating in states with branching restrictions face limited competition and therefore enjoy some form of rent.

here; Berger, Demsetz and Strahan (1999) cover mostly studies based on US data, while Amel et al. (2004) have an international outlook. The general conclusion is that while there might be some economies of scale to be exploited among small banks, there are no clear-cut gains from M&As among all other banks.

Many papers that analyze the effects of bank takeovers try to identify the successful ones by relating them to some characteristics of the banks involved. In the following paragraphs we summarize the results for the main theories, divided in profit maximizing and non-maximizing ones: economies of scale and scope, increases in efficiency, market power, diversification on one hand and on the other hand managerial hubris.

Perhaps the most cited motivation for M&As in the banking industry is the exploitation of scale and scope economies. For Europe, Altunbas, Gardener, Molyneux and Moore (2001) find evidence of scale economies both for very small and for medium-sized banks (respectively with assets below 200 million dollars and between one and five billion dollars); the same result is generally found for the American banking system (although with slightly different thresholds).[3] This suggests that the positive effect of economies of scale disappears at a relatively low threshold and that above it the complexity of managing a large institution with a broad geographical reach might actually induce diseconomies of scale. It seems therefore that scale economies could be a good motivation for takeovers among small banks, while they shouldn't matter much if the acquirer is already large enough. As for scope economies, they seem to exist mainly for small institutions (Lang and Welzel (1996)); in general, it looks like universal banks are more efficient than specialized institutions (Vander Vennet (1996) and Lang and Welzel (1998)).

Transfers of better management skills from the buyer to the target are also often quoted as a motivation for bank takeovers. However the evidence is mixed: for American banks non-interest expenses and operating income don't seem to improve after the deal (Srinivasan (1992), Linder and Crane (1993)). For Italian banks Focarelli, Panetta and Salleo (2002) find

[3] Hughes, Mester and Moon (2001) give a slightly different perspective; they contend that when one considers differences in banks' capital structure and risk taking then scale economies hold even for larger banks.

an improvement in the quality of the loan portfolio of the target, which they explain with better credit management practices imposed by the acquirer.

Increases in market power are another possible motivation for M&As; this applies also to banks. Houston and Ryngaert (1994) find that the combined gains are more important when there is significant overlap between merging institutions; also DeLong (2001) finds that mergers that increase the focus of banks either geographically or in terms of their portfolio of products generate positive returns.

Finally, diversification and entry in new markets, achieved via M&As, might increase profits for the banks involved. Also in this case the evidence is inconclusive: Cornett, et al. (2003) find negative returns for diversifying acquisitions, while Zhang (1995) finds positive returns for out-of-market transactions. More in general, Altunbas and Ibañez (2004) find that, for a sample of transactions among European banks, dissimilarities in strategies have negative results, while mergers among similar banks enhance performance.

A possible alternative motivation for M&As, given the lack of conclusive evidence on their benefits, relies on managerial hubris (see Pilloff and Santomero (1998) and also Gorton and Rosen (1995), on empire-building in the banking industry). For instance there is some evidence that CEOs with lower levels of stock-based relative to cash-based compensation are more likely to lead their institutions in making acquisitions (see Bliss and Rosen, 2001), thus suggesting that they are aware that takeovers are not particularly beneficial.

All these papers recognize the importance of the motivations for a takeover in order to explain its results, but most of them tackle the issue by positing that certain characteristics of the banks involved point towards certain motivations (for example, a significant overlap of market shares is an indication that the merger is driven by the goal of increasing market power). However, no paper takes into account together the many possible motivations, sometimes divergent in their results (e.g. a merger driven mostly by an empire building strategy might result in an increase in market power but not necessarily in improved performance).

In this paper we analyze directly the main motivations for a bank takeover, considering them all at once in order to compare them; we assume that the price paid for the target reflects what matters most for the parties involved. In other words, in order to study the

motivations for a takeover we look at the subjective perspective of the parties involved, which is incorporated in the price. The price itself is not necessarily strongly correlated with the ex post performance of the target, since it is determined by value-maximizing strategies but also in many cases by empire-building concerns and by the bargaining power of the parties involved, but it reflects all these factors and thus its determinants help shed some light on what motivates M&As.

3. The Data

The Italian banking system represents a significant share of the European industry and shares many common features with its main neighboring countries: a bank-oriented financial system within a universal banking institutional framework, the coexistence of small and large banks and of state-owned and cooperative banks alongside their private sector counterparts. This richness of institutional detail and diversity among credit institutions allows us to compare the role of the intermediation function with other activities (this would be more difficult with U.S. data, given that some restrictive regulation on the activities of commercial banks was lifted only very recently), the impact of different governance mechanisms and the effect of market structure on the intrinsic valuation of banks and on the prospective gains of takeovers.

In this paper we analyze all transactions in the 1995-1999 period that involved the acquisition of the majority of equity (more than 50 per cent of voting shares): our sample contains 81 transactions. We obtained the data on the transactions from the supervisory records on shareholdings of banks. The definition of the event “transfer of control” that we use is rather strict, in order to avoid contaminating a dataset that is rather small with spurious effects. All data are recorded at year-end of the year before the deal is consummated. Now, two caveats on the deals that we have not considered in our sample.

First, we consider only deals in which the bidder had no prior stake in the target: this way, we avoid issues of differential information between bidders that are also insiders and outside acquirers. In principle, insiders have better information and therefore their valuation of the target should be less noisy than the valuation of outsiders, which would be a good thing. But in fact insiders might also have more bargaining power than outsiders, and this

would distort the valuation in ways that we are not able to predict. Furthermore, the premium paid for control would be spread on a much smaller stake for insiders than for outsiders, e.g. buying 40 per cent on top of a stake of 20 per cent as opposed to buying directly 60 per cent: if the premium is 10 per cent of the total value of the target, it would represent a fourth of the price for the insider and a sixth for the outsider, while it represents the same "good". In any event, the acquisitions by insiders are few (7 deals during the years considered), so that the complications that they would introduce probably outstrip the benefits in terms of more observations. We also keep only direct shareholdings of banks in banks, as we are interested in transactions with (potentially) real effects.

Second, we do not consider mergers, as the vast majority of these deals consists of a (very) large bank buying a (very) small one (46 deals during the years considered, but on average target banks in mergers are around a fourth of target banks for acquisitions in terms of total assets). The means of payment is a stock swap that is strictly proportional to the ratio of the net worth of the target to the bidder, therefore the value of the target's equity contains no further information than the relative size of the equity holdings, which are calculated at book value, with no premium for control or for the merger; in fact, whenever the valuation of equity is different from its book value, the difference is due mainly to the addition (subtraction) of capital gains (losses) in the two banks' portfolios of securities and real estate. In other words, the price of the target as we calculate it would reflect nothing more than the ratios of equity (plus/minus capital gains/losses) to total assets of the target and the bidder – examining its determinants would only explain the book value of equity as a fraction of total assets and not the value of the merger.

The deals are more or less evenly spread over the sampling period, with a low of 11 in 1999 and a high of 21 in 1997 (see Table 2). The 81 acquired banks represent about one third of all banks (we exclude mutual banks and long term credit institutions from the industry statistics) and 22 per cent of total assets; some banks make more than one acquisition in any given year, therefore there are only 59 bidders. The geographic distribution of target banks reflects closely that of the industry: 46.9 per cent are located in the North, 21.0 in the Center and 32.1 in the South (respectively 51.3, 21 and 27.7 for the industry). Acquiring banks, however, are concentrated in the North (76.3 per cent), the richest part of the country.

The Bank of Italy, acting as supervisory authority, attributes a score to banks, based on their capitalization, profitability, liquidity, risk and management; we classified the banks in three categories: in good standing, under scrutiny (a category that covers banks in fair conditions and banks in need of some remedial action) and problem banks. Again, the distribution of acquired banks matches closely that of the industry: 29.6 per cent are in good standing, 65.4 per cent are under scrutiny and 4.9 per cent are in trouble (for the industry the shares are respectively 32.1, 63.4 and 4.5 per cent). Acquiring banks are for the majority in good standing (59.3 per cent) and, somewhat expectedly, none is a problem bank.

In Table 3 we compare the main financials of targets, bidders and of the financial industry; the results are consistent with Focarelli, Panetta and Salleo (2002), who analyze the determinants of acquisitions for a sample that covers the 1985-1996 period. The median target bank is local or regional in scope just as the typical bank; it is smaller than the industry median (647 versus 840 million euro), but has almost the same ratio of equity, of net loans and of deposits to total assets (respectively around 8, 36 and 54 per cent). It has more bad loans as a fraction of total loans (8.2 versus 6.9 per cent) and a higher net interbank balance (7.1 per cent of total assets, versus 4.8 per cent for the median bank of the industry). Gross income is again very similar for both (around 4.6 per cent of total assets), but the median target bank has higher operating costs (73.2 versus 67.3 per cent of gross income) and is slightly less profitable: its return on assets (ROA) and ROE are respectively equal to 0.6 and 7 per cent, while for the median bank of the industry the same variables are respectively worth 0.8 and 10.1 per cent. Target banks are thus fairly representative of the banking industry, and their valuation in the occasion of an acquisition can shed a more general light on which activities and opportunities are thought to generate value.

Acquiring banks, on the other hand, are different from the standard of the industry: they are larger (10 billion euro for the median), make a more efficient use of their capital (only 6.9 per cent of total assets), have fewer bad loans (6.0 per cent of total loans), fund themselves less through deposits (41.3 per cent of total assets) and more via the interbank market (a negative balance of 2.6 per cent of total assets). Their gross income is slightly lower than that of the industry median (4.2 versus 4.7 per cent of total assets), but they have lower operating costs (61 per cent of gross income) and end up being more profitable, with a ROA and ROE respectively equal to 0.9 and 12.0 per cent.

4. The Pricing of Bank Acquisitions

4.1 The Price and Explanatory Variables

The dependent variable is the ratio of the price paid for the acquired stake to the total assets of the target bank, scaled by the fraction of equity acquired. Why do we relate the price to total assets instead of equity, as is frequently (but not always) the case in the literature? First, because the notion of a bank's equity is becoming more controversial by the day; in their efforts to meet capital requirements without diluting equity too much, banks are resorting to increasingly complex financial instruments that are part debt, part equity on a contingent basis; at the end of 1994, they represented on average less than 5 per cent of total supervisory capital. By the end of 1999, these hybrid claims represented in the aggregate 26 per cent of capital and reserves for the Italian banking system, with wide individual variations (from 12 per cent for small banks to 30 per cent for the larger ones); state-contingent liabilities, issued by many banks in varying amounts to comply with regulatory demands, have blurred the definition of equity and its measurement has become increasingly controversial. On the other hand, total assets are more clearly defined and are definitely correlated with future cash flows, which is in fact what the acquirer is buying, making it an appropriate scaling variable. Second, the poorly performing banks of our sample have been running down their equity before the acquisition because of recent losses. Relating the price paid to their depleted equity would only introduce noise: we would not be able to distinguish the banks with good prospects from the weaker ones, since both categories would have a high price-to-equity ratio; total assets provide in this case a more stable nominal anchor.

4.1.1 Control Variables: Characteristics of the Acquired Bank

First of all, the basic characteristics of the target bank should play a role in the determination of its price, in particular its profitability and risk; they are introduced in our regressions as control variables.

Other things being equal, the price paid should be positively correlated with profitability (measured by gross ROA). In general, the profitability of the target is found to affect positively the price (see e.g. Palia (1993) and Brewer et al. (2000)), although for

example Cheng, Gup and Wall (1989) and Rogowski and Simonson (1989) do not find any significant impact of the return on equity (ROE) on prices.

The price should be negatively correlated with the risk of the loan portfolio (measured by the ratio of non-performing loans to total loans); the impact of bad loans should already be captured at least in part by profitability, which is measured net of charge-offs. By controlling for profitability, the risk variable in effect measures the impact of unexpected losses: other things being equal (i.e. profits net of current loan losses and provisioning for expected future losses), a higher ratio of non-performing to total loans could signal more losses, which have not been already taken into account.

Equity should also be relevant in determining the value of a bank; most authors find that equity has a negative impact on prices (e.g. Brewer et al. (2000), who argue that more highly leveraged banks are more valuable because they use capital more efficiently). From a theoretical perspective, Diamond and Rajan (2000) show that it is possible for banks to be under- as well as over-capitalized and provide an interior solution for the optimal capital structure. We provide an indirect test of this theory by using a concave (quadratic) function of equity as a fraction of total assets (even though we recognize that this variable could be subject to measurement error as explained above) among the independent variables.

Second, the price could be influenced by characteristics of the target bank that signal growth and profit opportunities: its liquidity, intermediation abilities, potential for selling services, degree of financial sophistication. For example, according to practitioners prices should depend positively on deposits, which represent a source of liquidity at a low marginal cost and the opportunity to contact new customers (both families and firms) that might be interested in new products; we therefore use the ratio of deposits to total assets. More specifically, the price should be influenced positively by variables such as the ratios of the net interbank position and of securities to total assets (measures of liquidity, correlated with an excess of deposits with respect to loans) and by the ratio of loans and of deposits to total assets (this would be consistent with the production theory of the bank, which posits that deposits are an output). Securities held in custody are an indicator of opportunities for non-interest income, namely asset management fees: their importance grows with the shift of Italian families towards actively managing their savings; their securities, for the custody of which banks earn a small fee, can be exchanged for mutual funds managed by banks for

higher commissions. In the same vein, assets already under management are an indicator of how much the bank is already active in this business; we use both variables (scaled by total assets). Finally, a crude measure of financial sophistication is the trading portfolio of a bank (as a share of own securities): a high ratio should be an indicator of financial sophistication.

Third, to the extent that past values are correlated with future prospects, the growth rates of the main variables should have a positive effect on the price: we consider the growth rates of net loans, deposits (see e.g. Rhoades (1987)), and total assets. This also allows us to differentiate between banks that might have high levels of loans and deposits but with a static outlook from banks that might have lower levels but that are growing fast.

4.1.2 Economies of Scale and Scope

The first motivation usually given for M&AS is the search for economies of scale and scope. To see whether the prospect of scale economies affects the price paid for the target we therefore include the ratio of the sum of deposits and loans (which measure the core activity of a bank) of the target to the sum of the bidder - and the square of this ratio, in order to take into account possible non-linearities. This ratio basically measures how large the target is with respect to the bidder: the closer their sizes, the more likely that there might be economies of scale to be exploited, therefore we expect a positive sign (if the target is very small with respect to the bidder then the increase in total size will be small and scale economies will be almost non-existent or very hard to measure).

Scope economies result from the combination of different lines of products; since the retail banks of our sample provide very little services of corporate finance (which are produced mainly by investment banks), we focus on products aimed at households. The first variable we use is the product of the shares of non-interest income (over gross income) of the target and the bidder: the more either bank offers products different from traditional financial intermediation, the more there should be room for scope economies – we therefore expect a positive sign.

Given that the main non-traditional activity (i.e. not lending or deposit-taking) of Italian banks is asset management, economies of scope can also be measured by the product between securities held in custody by the target (scaled by total assets), which measure the

size of assets potentially actively managed, and the share of non-interest income of the acquirer, which measures how active the acquirer is in the field of asset management. A positive sign would mean that economies of scope are judged to be relevant for the acquisition. The same reasoning applies to the product between the target's share of deposits (over total assets) and the bidder's share of non-interest income.

Finally, the ratio of net interbank balances (scaled each by the respective total assets) indicates whether it is valuable to match different liquidity patterns.

4.1.3 Transfer of Superior Managerial Skills

A second motivation widely quoted for bank M&As is the transfer of superior management skills from the bidder to the target. To measure it we use the ratio of their cost-income ratios (operating costs over gross income) as a measure of the gap in managerial ability: the lower the ratio, the higher the potential for improvement with the new ownership and the higher should be the price, since we already control for the level of profitability of the target bank. In the same spirit, we include the ratio of EDP expenditures (scaled by operating costs net of labor costs), as a measure of the technological gap between the two institutions (since we already control for differences in operating efficiency with the ratio of cost-income ratios): the higher the ratio, the higher the gap in favor of the bidder, the higher the possible improvements for the target and therefore the higher the price.

4.1.4 Market Power vs. Diversification

Market power and/or diversification are another often mentioned set of profit-maximizing strategies cited for M&As.

Existing research finds little role for market power in determining the value of a deal. According to Fraser and Kolari (1988), for small banks the target's financials are more important than market conditions, while the opposite is true for large targets. Variables that proxy for market power are generally found to have no effect (e.g. Beatty, Santomero and Smirlock (1987)). However, the variables used don't take into account how the acquisition affects the market structure: for example, if the bidder has only a little market share in the target's market, the deal doesn't change much the market power of the new entity and

therefore for given profitability the market share of the target should be irrelevant for the determination of the price.

In terms of market power, there are two possible (non mutually exclusive) strategies that could have an impact on prices. The first one consists of increasing market share in areas where the bidder is already strong, in order to extract rents due to market power, shut out rivals or save costs by cutting duplications; we measure this with the market share of the acquired bank in provinces where the acquiring bank already has a market share of more than 10 per cent (in-market index, which takes into account how the takeover would change the market structure). A variation of the market power strategy consists in buying a bank that operates in a concentrated market; we measure this with the concentration index of the loan market of the target. Since the size of the target per se could be an indication of its market power, we also insert the (log of) the sum of its loans and deposits, which approximates its size on retail markets.

Alternatively, a bank might want to enter new markets via an acquisition, diversifying its portfolio while preserving a structure and a brand that are already locally known and using them to offer new products and expand starting from a solid base; this strategy is particularly likely if barriers to entry are high. We measure this with the market share of the acquired bank in provinces where the acquiring bank already has a market share of less than 5 per cent (out-of-market index).

4.1.5 Agency Issues at the Acquiring Bank

All the motivations previously listed should in theory lead to better results for the banks involved; however takeovers can also have non-profit-maximizing motivations. In particular, agency issues at the acquiring bank could lead its managers to non-value-maximizing, empire-building strategies.

A first way that agency issues can influence takeovers is because of excess resources (see Jensen (1986) on excess free cash): acquisitions are an attractive way for managers to employ them even if this would not be their best possible use. We measure this with the acquiring bank's free capital (equity minus bad loans) as a share of total assets (we don't subtract real estate and securities held outside the trading portfolio, as supervisory authorities

would do, because these assets can be sold with relatively short notice at a transparent market price, therefore we feel that they shouldn't be treated any differently from loans):[4] the higher the free capital, the more should the bidder be willing to pay for the same bank. Given that free capital could be simply a proxy for high profitability we include the bidder's net ROE.[5] Free cash can also be seen as a proxy for managerial entrenchment: bank CEOs that are under pressure from competition should be allocating efficiently their resources, rather than hoarding them in order to finance their empire-building ambitions.

A second way that agency issues influence takeovers is if the acquiring bank's CEO is highly entrenched: in this case, he/she might indulge in empire building even though this doesn't generate value. Our proxy for an entrenched CEO is the length of his/her tenure: the longer the tenure, the higher the degree of entrenchment and the more is the CEO willing to pay for the target, other things being equal.

Finally, if size per se matters to CEOs, then banks that grow slowly may be willing to pay more, other things being equal, in order to increase rapidly their size. We therefore use the growth rate of the bidder's total assets and expect it to have a negative effect on the price paid.

4.1.6 Corporate Governance

Prices, in particular the premium for control, can be influenced by the ownership and governance structure of the parties involved; we therefore control for different institutional arrangements.

State-owned targets might be worth more because of the non-monetary benefits associated with them (especially if the buyer is also state-owned) or because they have more bargaining power, while state-owned bidders could be willing to pay more, other things being equal, because of some form of soft budget constraint.

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[4] We use free capital (a variable monitored by supervisors as an indicator of how much a bank can still grow without increasing its leverage) instead of cash because banks use cash and securities as a component of their core business activities, contrary to non-financial firms who use them mainly as liquidity buffers or collateral.

[5] As an alternative hypothesis, banks that are profitable and have extra cash might have less bargaining power when deciding how to split the benefits from the acquisition with the shareholders of the target.

Cooperative banks could command a premium if the employees, that usually have a majority of the voting rights and are also their most important stakeholders, are to relinquish control. Cooperative banks that are bidders might be willing to pay more if this means a larger, safer bank for its employees, who are not well diversified in terms of human and financial capital.

Finally, targets that are listed on the stock exchange could charge a higher premium because there is less uncertainty on their conditions (more disclosure, information sampled from stock prices, etc. – this would reduce any "lemon problem" that could arise for banks with less extensive information) and acquirers that are listed are more likely to pay less because their managers might have less leeway given the (presumably) tougher scrutiny to which they are subjected by institutional investors.[6] Since there was only one hostile takeover in our sample, there is no variable for this case.

4.1.7 Bargaining Power

A last factor that is likely to influence the price of the acquisition is the relative bargaining power of the two parties: the expected value of the gains from the deal will be split more in favor of the target if its CEO has a stronger hand and vice-versa. To capture this we include the probability that the CEO of the target bank is fired in the following year as a proxy for the target's bargaining power (the probability is estimated on the basis of the ex ante characteristics of the target bank: we run a logit regression where the dependent variable takes the value of 1 if the CEO is fired within a year of the deal and 0 otherwise, and with the following independent variables: the target's gross return on equity, equity over total assets, log of total assets and the rate of growth of its loans portfolio). It should be noted that conditional on his/her bank being acquired a CEO has a much higher probability of being fired: more than 40 per cent of the CEOs in our sample are asked to leave in the year following the acquisition, against an unconditional probability of around 20 per cent

[6] A last issue that might affect the price is the means of payment of the deal (cash vs. stock); in this paper we will not deal with this last issue, because in Italy the mix of cash and stock is highly correlated with the size of the target (the smaller the bank, the higher the proportion of cash), which we always use as a control variable.

(see Generale and Gobbi (1999)); we therefore expect the sign to be negative: other things being equal, CEOs that have a high probability of being fired extract less surplus and therefore obtain a lower price. We recognize that this measure is at best a proxy for bargaining power, since we have to assume that it is the CEO that negotiates the deal in the name of all of the target's shareholders; another measure could be the degree of dispersion of the target's shareholders (a controlling agreement with many parts is more fragile and thus has less bargaining power than a single controlling shareholder), but data for this variable are not readily available. In any event, we know that for cooperative banks ownership is diffused (and this should be picked up by the appropriate dummy) while for state-owned banks it is highly concentrated (and again this should be picked up by a dummy), so we would be left only with listed and privately owned banks for which we have no way of controlling for the dispersion of ownership, but they represent little more than a fourth of the sample.

4.2 The Econometric Setup

Given the large number of factors that could affect the price paid for a bank acquisition and the relatively small size of our sample, we organize our empirical analysis in the following way: we first check which variables are relevant for the pricing of the intrinsic value of the bank: its core characteristics, their growth rates, its prospects in non-deposit taking and loan making activities. We then keep the variables that describe the core characteristics of the target and add in turn the variables that capture the possible motivations for an acquisition outlined in Section 4.1. Finally, we estimate a pricing equation with the variables for the core characteristics and all the variables that are related to the motivations for the deal that turn out to be significant.

The following is our basic regression:

$$(0) \qquad PRICE_i = a_0 + a_1 ROA_p + a_2 DEPOSITS_p + a_3 NETLOANS_p + \\ + a_4 NONPERF.LOANS_p + a_5 EQUITYp + a_6 EQUITYSQp + e_i$$

The dependent variable PRICE is given by the ratio of the price paid to the corresponding share of total assets; the subscript *i* stands for variables related to the deal, *p* stands for the passive (target) bank. The regression is a simple cross-section, estimated with

OLS. The explanatory variables are (all relevant information on the variables is contained in the Appendix; they are all calculated at *t-1*):

- a measure of profitability: gross ROA;
- two measures of the intermediation activity of the target bank: its ratio of DEPOSITS and of LOANS (net of bad loans) over total assets;
- one for risk: non-performing loans (the sum of bad loans and problem loans, which gives a more accurate picture of the quality of the loan portfolio than just bad loans) over total loans (NONPERF.LOANS);
- a measure of leverage: EQUITY over total assets; EQUITYSQ (the square of equity) allows for non-linearity.

We then add to the baseline variables (profitability, deposits, loans, risk and equity) a set of variables that describe the past growth of the bank: the three-years growth rate before the deal of total assets, net loans and deposits (regression 1).

The second set of variables that describes the intrinsic characteristics of the target refers to the other business lines that banks might develop (regression 2): liquidity management (net interbank balance and total securities over total assets), asset management (assets already actively managed over total securities held in custody and securities held in custody over total assets), risk management (trading portfolio over own securities).

We then keep the variables that describe the core characteristics of the target (profitability, deposits, loans, risk and equity) and add in turn five different sets of variables, each meant to capture a different aspect of the motivations for an acquisition.

The first set of variables (regression 3) is meant to capture economies of scale (the target's sum of deposits and loans to the bidder's) and economies of scope: the products of the bidder's and target's shares of non-interest income, securities held in custody by the target (scaled by total assets) and non-interest income of the acquirer (scaled by gross income), the target's deposits (scaled by total asset) and non-interest income of the acquirer (scaled by gross income) and the ratio of net interbank balances (scaled each by the respective total assets).

The second set of variables (regression 4) covers the possibility of a transfer of superior management skills from the bidder to the target: a measure of the gap in managerial ability (the ratio of the two banks' cost-income ratios) and a measure of the technological gap between the two institutions (the ratio of the shares of EDP expenditures over operating costs net of labor costs).

With the third set of variables (regression 5) we measure the impact of market power versus diversification (entry) strategies: the concentration index of the loan market of the target, the (log of the) sum of the target's loans and deposits, the overlap and the entry indexes (see 4.1.4).

The fourth set of variables (regression 6) measures agency problems at the bidder: its free capital over total assets; the growth rate of its assets and net ROE, as a control variable for good management, and the tenure of the target's CEO.

The fifth set of variables refers to the corporate governance mechanisms of the banks involved in the deal: a dummy variable for government ownership of the target (bidder), one for the target (bidder) as a cooperative bank and one for the target (bidder) being listed; we also add in this group of variables the estimated probability that the target's CEO will be fired (regression 7).

In the eighth and last regression we keep the variables that describe the core characteristics of the target bank and all the variables from the previous groupings that have a significant effect on the price paid for the acquisition (final regression).

In order to take into account possible problems of endogeneity, all independent variables are lagged one year with respect to the year of the deal. This way, to the extent that banks don't engage in window-dressing before the deal (which would be difficult in any case, since any changes in accounting principles would have to be first cleared with the supervisory authority), the variables we calculate describe the situation of both banks prior to the deal and independently of it. As for multicollinearity between the independent variables, the correlation between pairs of variables used in the different regressions is generally low or very low (a table is available from the authors upon request).

5. The Results

The results are illustrated in Table 4, in which we report also the mean and standard deviation of all the variables used in the regressions; standard errors are heteroskedasticity robust (White procedure). We omit to report the coefficient of the intercept for each regression, as it is never significantly different from zero. The adjusted R squared is above 70 per cent for all seven regressions; in the following section we will consider as significant all the coefficients that are significant at the 10 per cent level or better. We also perform a series of robustness checks, the results of which are reported at the end of the section.

In regressions 2 to 7, when we add the other groups of variables to the baseline specification that includes the variables that should capture the basic activity of the target bank, the coefficients of the baseline variables stay mostly the same: they keep the same sign, the same order of magnitude and with few exceptions they remain significant if they were so in regression 1 (albeit sometimes at different levels) and do not become significant if they were not in regression 1; therefore after discussing the first specification, for regressions 2 to 7 we will only discuss the results of the new variables added to the baseline specification. The final regression contains all the variables that have been shown to be significant in regressions 1 to 7; its results, which confirm most of the results of the other regressions, are discussed in the paragraph on the robustness of our estimates.

5.1 Intrinsic Value of the Target

In regression 1 we have only the main financials of the acquired bank. Its profitability affects positively the price; deposits, in accordance with practitioners' views, also affect it significantly, and the sign of the coefficient is always positive. Also net loans have a positive effect; our results are consistent with Focarelli, Panetta and Salleo (2002), who find that acquisitions are motivated by the opportunity for the acquirer to improve the quality of the loan portfolio of the target. The coefficient of non-performing loans is negative but not significant; this would be consistent with the fact that current charge-offs are good predictors for future charge-offs, meaning that the effect of risk is already captured by our measure of profitability.

No growth rate (calculated as a three-years average) has a significant influence on the price: this would mean that what matters (in particular for deposits and loans) is the level of the variables, not their dynamics.

The relationship between price and equity is concave; this is consistent with a theory of optimal capital structure; at the average level of equity over assets, a 10 per cent increase in equity would increase the price by 23 per cent. Our results provide an indirect confirmation of the contention by Diamond and Rajan (2000) that there is an optimal capital structure for banks. The positive relationship, that holds for most of our sample, could be due to the fact that the acquirer is relatively less capitalized: the acquisition would allow it to expand its loan portfolio without having to issue new equity. In studies performed on U.S. banks, the bidder seems to discount capital (negative correlation with the price); this could be due to the fact that the relationship studied is usually linear and that U.S. targets' capitalization might be closer to the optimal ratio.

In regression 2 we add the variables that should capture the relevance of the lines of business not directly related to deposits and loans. The net interbank balance and the ratio of securities to total assets are not significant: liquidity doesn't seem to add value. The same goes for asset management, both its actual development (assets managed) and its potential for growth (securities held in custody); finally, banks that are more financially sophisticated (size of the trading portfolio) are not worth more than their plain counterparts. The price seems to depend mostly on variables related to the intermediation function of the bank; the other activities do not seem to generate net value per se.

5.2 Economies of Scale and Scope

In regression 3 the coefficient for the ratio of the sum of loans and deposits of the target to the bidder logarithm is not significant, nor is its square; this is consistent with the hypothesis that for our sample the costs of restructuring the acquired bank are considered to grow with its size more or less at the same rate of the benefits that could be derived from the exploitation of economies of scale.

The opportunity to increase revenues from asset management and to compensate liquidity mismatches (or to enhance liquidity creation) has no significant effect on the

valuation of the deal (this holds for all variables considered): this is consistent with the fact that economies of scope have hardly been found in many studies of the banking industry. It is slightly puzzling that there is no evidence of economies of scale or scope; this result could be due to measurement problems (we recognize that it is difficult to construct variables that capture their potential effects) or to the fact that since technology is rapidly reshaping the industry we might be observing years of transition towards new models of production, during which it would be hard to detect anything.

5.3 Transfer of Superior Managerial Skills

In regression 4 we verify the possibility that takeovers are motivated by the possibility to transfer superior managerial skills from the bidder to the target. The ratio between the operating costs (relative to gross income) of the target and the bidder is significant and its coefficient is negative: the higher the gap, the smaller the ratio, the higher the price because the greater the potential benefits of the acquisition. The ratio of EDP expenditures is positive and significant: the higher the acquirer's expenditures with respect to the target, the higher the price. The technological gap could signal an opportunity to apply modern techniques to the target's activities, or it could simply mean that it is less costly to scrap an old IT system and replace it than to integrate two up-to-date ones. Our results are consistent with Houston, James and Ryngaert (2001), that find that financial markets expect gains from cost reductions, and with Huizinga, Nelissen and Vander Vennet (2001) that find that for a sample of European banks (and for a similar time frame) the potential gains from mergers stem from greater cost efficiency and not from increased market power.

5.4 Market Power vs. Diversification

In regression 5 we introduce variables meant to measure the effects of market power and entry into new markets. Target banks operating in more concentrated loan markets do not command a higher price; neither do in-market deals. This is consistent with all the literature that shows that M&As are not followed on average by cost reductions (see e.g. Berger, Demsetz and Strahan (1999)): it is precisely in-market deals that require the most cost cutting through the elimination of duplicate branches, etc; the extra costs might compensate for the increase of market power that follows an in-market takeover.

Furthermore, while in theory market power could be a motivation, in practice deals that would increase it most could be vetoed ex ante by the antitrust authority, which should authorize precisely only the deals less likely to be detrimental to consumers.

Another (indirect) measure of market power is the (log of the) sum of loans and deposits, that has a positive effect on price: other things being equal, a larger bank is worth more.

On the other hand, acquisitions where the target bank operates in markets that are new to the acquirer command a higher price: this could be an indication that there are barriers to entry in local markets, that are best overcome by the acquisition of a bank that already operates in them. This is consistent with Zhang (1995), that finds that out-of-market deals increase shareholder value, while in-market deals don't. [7]

5.5 Agency Issues at the Acquiring Bank

In regression 6 we find that the coefficient of the duration of the CEO's tenure (a proxy for managerial entrenchment) is positive as expected and significant: other things being equal, CEOs that have been around for more are willing to pay more. There is also a positive (and significant) correlation between the bidder's free capital and the price paid for the acquisition; this is consistent with Jensen's free cash hypothesis, but also with the possibility that a greater availability of funds weakens the bargaining position of the acquirer. There is no relationship between the acquirer's net ROE and the price; this reinforces indirectly the free cash argument, because in the case of the bargaining power hypothesis a more profitable bank (without higher free capital) should also pay a higher price.

The growth rate of the bidder's total assets is not significantly related to the price paid: it doesn't look like acquisitions are a way to obviate slow internal growth.

[7] However the fact that there is an indication of barriers to entry but that our measures of market power are not correlated with the price could be due to market power not being directly linked to our measures of concentration.

5.6 Corporate Governance and Bargaining Power

The set of corporate governance variables allows us to analyze a variety of institutional settings that might affect the value of a bank and of its control, as they might be related also to the non-monetary benefits of owning a bank.

In regression 7 we find that state ownership of either the acquiring or the acquired bank does not seem to affect the price. Apparently state-owned banks do not command a premium, nor are they willing to pay above the intrinsic value of the target: in this respect, there doesn't seem to be evidence of a soft budget constraint on the side of the buyer or of private benefits of control of a political nature. We also split the state-owned dummies in government-owned and owned by the so-called banking foundations (that are influenced by local politics) but this makes no difference, neither variable is significant.

On the other hand, being a cooperative bank as a target seems to be significantly correlated with a higher price: the employees of the acquired bank, that co-run it with management, demand a premium if they are to relinquish control.

Finally, if the target is listed on the Milan Stock Exchange, the price paid is higher, presumably because this means that there is less uncertainty in its determination and therefore less of a "lemon problem".

In regression 7 we also use the probability that the CEO of the target bank is fired in the following year (estimated on the basis of the characteristics of the deal) as a proxy for the target's bargaining power; the sign is negative as expected and significant (the standard error is corrected to take into account that the variable is estimated): other things being equal CEOs that have a high probability of being fired extract less surplus.[8] As a note, bargaining power could also be viewed as a control variable that affects all results; as a robustness check we run again all regressions always including this variable: the results are by and large the same as without it so we keep the simpler specification.

[8] An alternative explanation could be that in order to retain their job CEOs from target banks "bribe" the acquirer by settling on a lower price – this would be consistent with Becher and Campbell (2003), that find that the retention of target's directors after a merger is inversely related to the premium..

5.7 Robustness of the Estimates

A first, inherent robustness check comes from the structure of our regressions: by keeping a set of variables constant and adding different groups of other variables, we verify that the coefficients of the baseline variables are stable; this tells us that the different sets of explanatory variables are fairly independent from each other and is consistent with the notion being tested that bank acquisitions depend on many different, non-exclusive motivations.

A second robustness check comes from the results of a final regression (reported in the last column of Table 4), in which we use as explanatory variables only the variables that are statistically significant in regressions 1 to 7. The coefficients of this final regression and their significance are consistent with the earlier results. In particular, for the variables related to the motivations for an acquisition, the ratio between bidder's and target's operating costs and the bidder's free capital continue to be significant and maintain the earlier sign.

We perform a few more checks. First, we use as the dependent variable the price paid divided by equity – as expected, the results remain qualitatively the same, but with lower significance levels. Second, we eliminate extreme observations for each regression, by running them without the banks rated as "in trouble" by the supervisory authority (5 per cent of our sample). We also add year dummies and regional dummies (their coefficients are never significant) and substitute each variable with its 3-years average recorded the year before the deal: again the signs and significance levels of the coefficients change very little; the same thing happens when we add a dummy variable that captures the fact that some acquiring banks are involved in multiple transactions. Finally, we scale our variables by different measures of size or income flows and substitute some variables with others that should capture the same effects: net ROE and ROA instead of gross ROA, charge-offs over total loans instead of non-performing loans, the (log of the) number of employees or of branches instead of total assets, deposits concentration measures instead of loans: our results remain qualitatively the same; the coefficients of the variables of the baseline section remain stable, those of the new variables are not significant and those of the variations on the variables that we present have the same sign, if not always the same statistical significance.

6. Conclusions

In this paper we use the prices of bank acquisitions as a proxy for bankers' motivations for entering into a deal.

There is no evidence that bankers believe in economies of scale and scope; however the pricing of acquisitions is consistent with the hypothesis that buyers expect to transfer their superior managerial skills to targets. Our results on the comparison of bidder and target characteristics complement the finding by Houston, James and Ryngaert (2001), that financial markets expect most gains to come from cost reductions rather than revenue enhancements. Market power seems to hold little value while entry (or diversification) commands a premium. Agency issues at the buyer seem to play a role: other things being equal acquirers with more free capital or an entrenched CEO are willing to pay more.

Corporate governance also matters when pricing a deal. State-owned banks do not appear to be any different than their private sector counterparts: probably the privatization process, almost completed by the end of our sampling period, has contributed to aligning managers' interests to those of their shareholders. On the other hand, cooperative banks command a higher premium, other things being equal: this can be rationalized given the incentives created by their governance structure, which emphasize the role of their employees. Listed banks are worth more, probably because they are easier to value.

The main driving forces behind bank takeovers seem to be the transfer of superior managerial skills on one hand, and empire-building (or other agency-related issues) by entrenched buyers on the other. The coexistence of these two different motivations in any sample of M&As helps explain why on average takeovers yield little results.

Tables

Table 1

A SYNOPTICAL REVIEW OF THE LITERATURE ON THE PRICING OF BANK ACQUISITIONS

Authors	Target Financials				Other variables		
	Profitability	Growth	Risk	Other	Bidder Financials	Regulation	Market Power
Brewer, Jackson, Jagtiani and Nguyen 2000	ROE +, ROA +		Loans/Tot. Ass. no, Chargeoff/Loans no	Size +, Equity/Depo-sits -, Thrift -		Southeast +, Post Riegle-Neal Act +	Herf. No
Shawky, Kilb and Staas 1996	ROE +		Leverage +	Size -		Out-of-State +	
Palia 1993	ROA +	Assets no	Chargeoff/Tot. Ass. no, Bad Loans/Tot. Ass. -, Provisions/Tot. Ass. no	Equity/Total Assets no, Bidder Ass./Target Ass. +		Interstate +, Target State Branch Restr. +	C4 +
Frieder and Petty 1990	ROE +		Chargeoff/Tot. Ass. no	Equity/Tot. Ass. no			
Gup, Cheng, Wall and Liano 1989	ROA -, ROE +	Income no, Tot. Ass. no, Earning Ass. no, Core Dep. +, Equity no	Chargeoff/Tot. Loans no	Retail Loans/Tot. Loans no, Bidder Ass./Target Ass. +	Core Deposits Growth +	Interstate +	
Cheng, Gup and Wall 1989	ROE no	Core Deposits +	Chargeoff/Tot. Loans +		ROE -, Assets Growth -		
Rogowski and Simonson 1989	ROE no		Loans/Earning Assets +, Chargeoff/Earning Ass. no	Equity/Total Assets -, Bidder Ass./Target Ass. +		Interstate +	Herf. No, Mkt. Share of Target Core Dep. No
Fraser and Kolari 1988	ROA +			Demand Dep./Time Dep. +, Comm. Loans/Tot. Loans -			
Beatty, Santomero and Smirlock 1987	ROE +		Net Loans/Tot. Ass. -, Provisioning/Net Loans no, Chargeoff/Net Loans no	Treasury Sec./Tot. Ass. -, Equity/Tot. Ass. -		Unit Branching +	Herf. No, Mkt. Share of Target Dep. -
Rhoades 1987	No	Earnings +, Deposits +		Growth of Target Market +, Equity/Tot. Ass. -	ROE -, Assets Growth -		

Note: +: the coefficient is positive and significant; -: the coefficient is negative and significant; no: the coefficient is not significant.

Table 2

DISTRIBUTION OF ACQUISITIONS
(sampling period: 1995 - 1999)

	Acquired Banks	Acquiring Banks	Banking Industry[1]
Total	**81**	**59**	**267**
By Year:			
1995	17	15	267
1996	15	10	270
1997	21	17	262
1998	17	8	264
1999[2]	11	9	273
By Location:[3]			
North	46.9	76.3	51.3
Center	21.0	16.9	21.0
South	32.1	6.8	27.7
By Supervisory Score:[3]			
In Good Standing	29.6	59.3	32.1
Under Scrutiny	65.4	40.7	63.4
Problem Banks	4.9	0.0	4.5

(1) Mutual banks, foreign banks and long term credit institutions are excluded.
(2) Includes 3 deals completed in the first quarter of 2000. (3) Percentage values.

Table 3

SUMMARY STATISTICS [1]

(sampling period: 1995 - 1999)

	Acquired Banks				Acquiring Banks				Banking Industry			
	N. Obs.	Mean	Median	Std. Dev.	N. Obs.	Mean	Median	Std. Dev.	N. Obs.	Mean	Median	Std. Dev.
Total Assets	79	3,301	647	9,389	59	18,528	9,982	21,155	1,315	4,397	840	11,799
Equity	79	10.7	8.3	8.6	59	8.0	6.9	4.7	1,311	10.9	8.4	9.6
Loans	79	36.5	36.0	8.6	59	38.4	38.5	6.4	1,309	36.9	37.4	12
Bad Loans	78	14.2	8.2	12.1	58	6.5	6.0	3.1	1,253	10.3	6.9	10.8
Deposits	78	53.4	53.7	15.5	59	42.7	41.3	9.5	1,295	50.6	51.3	16
Net Interb. Balance	79	8.1	7.1	13.6	59	-2.5	-2.6	6.6	1,315	7.1	4.8	19.2
Gross Income	78	4.8	4.6	1.2	59	4.1	4.2	0.6	1,288	4.9	4.7	2.3
Non-Interest Income	78	24.3	23.4	11.2	59	28.4	27.6	7.1	1,289	25.0	24.2	13.3
Operating Costs	78	75.9	73.2	19.4	59	61.2	61.1	9.2	1,290	69.7	67.3	27.7
Gross ROA	78	0.0	0.6	2.0	59	0.9	0.9	0.5	1,286	0.4	0.8	1.6
Gross ROE	78	0.9	7.4	21.1	59	12.2	12.0	6.2	1,284	6.8	10.1	150.6

(1) Total assets are in millions of euro; equity, loans (net of bad loans), deposits, the net interbank balance and gross income are expressed as a percentage of total assets; revenues from services and operating costs are expressed as a percentage of gross income; bad loans are expressed as a fraction of total loans. The data for the banking industry does not take into account mutual banks, foreign banks and long term credit institutions. All ratios are expressed in percentage values.

Table 4

REGRESSION RESULTS

Variables	Mean	Std. Dev.	Regr. 1	Regr. 2	Regr. 3	Regr. 4
Adjusted R square			71.7	70.0	71.2	73.4
N. Obs.			78	76	72	72
Dependent Variable: Price/Total Assets	0.22	0.40				
Target Baseline Variables (Intrinsic Value 1)						
Gross ROA	0.00	0.02	0.90*	0.78	0.78	1.22**
			(0.52)	(0.58)	(0.54)	(0.57)
Deposits/Total Assets	0.53	0.15	0.22***	0.18	0.19	0.20***
			(0.08)	(0.11)	(0.12)	(0.07)
Net Loans/Total Assets	0.37	0.09	0.18*	0.23	0.18*	0.17*
			(0.10)	(0.17)	(0.10)	(0.09)
Non-Performing Loans/Total Assets	0.19	0.16	-0.09	-0.14	-0.19**	-0.12
			(0.09)	(0.10)	(0.09)	(0.08)
Equity/Total Assets	0.11	0.09	2.27***	2.21***	2.33***	2.10***
			(0.41)	(0.40)	(0.40)	(0.37)
(Equity/Total Assets) Squared	0.02	0.04	-2.51**	-1.95**	-2.14**	-1.97**
			(1.02)	(0.94)	(0.91)	(0.85)
Growth Rate of Total Assets	0.10	0.18	0.15			
			(0.13)			
Growth Rate of Net Loans	0.17	0.53	0.08			
			(0.06)			
Growth Rate of Deposits	0.09	0.35	-0.13			
			(0.10)			
Target Liquidity, Asset Management, and Finance (Intrinsic Value 2)						
Net Interbank Balance/Total Assets	0.08	0.13		0.09		
				(0.13)		
Securities/Total Assets	0.20	0.10		0.11		
				(0.14)		
Securities Held in Custody/Total Assets	0.92	1.64		-0.00		
				(0.01)		
Assets Managed/(Assets Man. + Sec. Held in Custody)	0.15	0.34		0.09		
				(0.08)		
Trading Portfolio/Securities	0.95	0.82		-0.03		
				(0.04)		
Economies of Scale and Scope						
Target Loans&Deposits/Bidder Loans&Deposits	0.64	3.88			-0.00	
					(0.01)	
(Target Loans&Deposits/Bidder Loans&Deposits) Squared	15.30	130.08			0.00	
					(0.00)	
Bidder Non-Interest Income*Target Non-Interest Income	0.07	0.04			0.25	
					(0.33)	
Bidder Non-Interest Income*Target Securities Held in Custody	1.04	0.69			-0.02	
					(0.02)	
Bidder Non-Interest Income*Target Deposits	0.15	0.06			0.16	
					(0.29)	
Bidder Net Interbank Balance/Target Net Interbank Balance	0.29	3.37			-0.00	
					(0.00)	
Transfer of Managerial Skills						
Bidder Operating Costs/Target Operating Costs	0.82	0.20				-0.10**
						(0.04)
Bidder EDP Expenditures/Target EDP Expenditures	1.28	0.92				0.02*
						(0.01)

Standard errors are in parentheses. EDP expenditures are scaled by their respective operating costs net of labor costs; non-interest income and operating costs are scaled by gross income; securities held in custody and net interbank balances are scaled by their respective total assets. ***: the coefficient is significant at the 1 percent level; **: the coefficient is significant at the 5 percent level; *: the coefficient is significant at the 10 percent level. The coefficient of the intercept is never significantly different from zero; it is omitted for simplicity.

Table 4 (continued)

Variables	Mean	Std. Dev.	Regr. 5	Regr. 6	Regr. 7	Regr. Fin
Adjusted R square			74.9	74.1	77.6	84.5
N. Obs.			78	72	78	73
Dependent Variable: Price/Total Assets	0.22	0.40				
Target Baseline Variables (Intrinsic Value 1)						
Gross ROA	0.00	0.02	1.01**	0.79	1.07*	2.65***
			(0.50)	(0.53)	(0.54)	(0.89)
Deposits/Total Assets	0.53	0.15	0.09	0.20***	0.01	
			(0.08)	(0.08)	(0.08)	
Net Loans/Total Assets	0.37	0.09	0.21**	0.15	0.16*	0.13
			(0.10)	(0.10)	(0.09)	(0.08)
Non-Performing Loans/Total Assets	0.19	0.16	-0.12	-0.14	-0.08	
			(0.08)	(0.09)	(0.08)	
Equity/Total Assets	0.11	0.09	1.75***	2.26***	2.03***	2.47**
			(0.40)	(0.39)	(0.39)	(0.93)
(Equity/Total Assets) Squared	0.02	0.04	-1.95**	-1.88**	-1.62*	-1.45*
			(0.84)	(0.92)	(0.86)	(0.75)
Market Power vs Diversification						
Loan Market Concentration	0.13	0.05	0.03			
			(0.17)			
In-Market Deal	0.02	0.01	2.22			
			(8.68)			
Out-of-Market Deal	0.02	0.01	3.77*			5.97
			(2.15)			(4.19)
Log (Target Loans&Deposits)	13.84	1.83	-0.03***			0.01
			(0.01)			(0.03)
Agency Problems at the Acquiring Bank						
Net ROE	0.06	0.03		0.24		
				(0.30)		
Growth Rate of Total Assets	0.15	0.10		0.11		
				(0.09)		
Free Capital	0.05	0.03		0.62*		0.44*
				(0.34)		(0.26)
Tenure	3.42	3.59		0.004*		0.003
				(0.002)		(0.002)
Corporate Governance and Bargaining Power						
State-Owned Bidder	0.25	0.44			0.00	
					(0.02)	
State-Owned Target	0.23	0.42			0.02	
					(0.02)	
Cooperative Bank Bidder	0.49	0.50			0.04	
					(0.02)	
Cooperative Bank Target	0.43	0.50			0.04*	0.05***
					(0.02)	(0.02)
Listed Bidder	0.46	0.50			0.01	
					(0.02)	
Listed Target	0.07	0.25			0.06*	0.06*
					(0.03)	(0.03)
Prob. Change of Management	0.43	0.14			-0.29***	-0.46
					(0.07)	(0.37)
Other						
Target Growth Rate of Net Loans	0.17	0.53				-0.05
						(0.07)
Bidder Operating Costs/Target Operating Costs	0.82	0.20				-0.12***
						(0.05)

Appendix

1. The Sources

The prices for acquisitions are collected from the Archive on Shareholdings of Banks, held at the Bank of Italy. All balance sheet information comes from the Bank's own databases.

2. The Variables

The bank variables are calculated at the end of the year preceding the acquisition. The variables illustrated in the tables and used in the regression are the following:

1. Bad loans: at face value;
2. Loans: if not specified, they include bad loans;
3. Total assets: net of floating items;
4. Free capital: core and supplementary capital minus subordinated debt and bad loans;
5. Securities held in custody: securities and other assets held in custody on behalf of third parties;
6. Deposits: deposits, bonds and assets managed on behalf of third parties;
7. Net interbank balance: interbank credit minus interbank debt;
8. Net ROA: net income after taxes divided by total assets;
9. Price: price paid for the acquisition of the majority of voting rights (divided by the fraction of equity acquired) divided by total assets;
10. Index of in-market transaction:

$$INMARKET = \sum_{i=1}^{n} QMKTp_i$$

for each $QMKTa_i \geq 10\%$.

11. Index of out-of-market transaction:

$$OUTOFMARKET = \sum_{i=1}^{n} QMKTp_i$$

for each $QMKTa_i < 5\%$

where: i = province indicator

$QMKTa_i$ = loan (deposit) market share of the bidder bank in the i-th province

$QMKTp_i$ = loan (deposit) market share of the target bank in the i-th province.

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