Should Banking Supervision and Monetary Policy Tasks Be Given to Different Agencies?

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Abstract

This paper adds some new arguments to the thesis that the responsibility for banking supervision should be assigned to an agency formally separated by the Central bank. We also provide some additional evidence on the macro and microeconomic performance of OECD countries whose banking systems are classified according to the regulatory regime in place. We find that the inflation rate is considerably higher and more volatile in countries where the Central bank acts as a monopolist in banking supervision. Besides, although banks seem to be more profitable when Central banks supervise them, they incur into higher costs and rely more on deposits with respect to more sophisticated liabilities as a funding source.

The data are not definitively in favor of functional separation. However, we argue that the evolution of financial intermediaries, moral hazard problems and especially cost accountability seem to suggest that separation would be a better solution for industrialized countries.

We also critically discuss the current arrangement of financial regulation and supervision in the EMU: our proposal is to establish an independent European System of Financial Supervisors (ESFS) structured similarly to the ESCB.

Keywords: Banking Supervision, Financial Stability, Regulatory Arrangements.

JEL: E6, G2

1 Introduction

In the last decades, the evolution of financial markets, instruments and intermediaries has been enormous. This has been a common feature all over the world, from industrialized to developing countries. At the same time, the evolution of regulation and supervision of financial markets has been quite different across countries and it is difficult to identify which features characterize optimal solutions in terms of the adopted supervisory and regulatory arrangements.

In most countries, an important role in the governance of the financial system has traditionally been performed by the Central bank. However, since nowadays it is widely accepted that "the fundamental task of the Central bank is to preserve the value of the currency" (Fischer, 1997), the assignment to Central banks of other "optional" tasks as the responsibility on banking supervision and regulation is currently at the centre of a relevant policy debate. This feature constitutes a striking difference among modern financial systems: in a few countries monetary policy and banking supervision are still assigned to a unique agency, the Central bank; while in many other countries, these two functions are formally separated and the banking supervision is assigned to another agency or to more than one agency, eventually in combination with the Central bank.

A system of banking supervision, in order to be effective, must "have clear responsibilities and objectives for each agency involved in the supervision of banks. Each such agency should possess operational independence and adequate resources"[1]. Can the combination of different responsibilities and objectives in one agency result in weak banking supervision and negatively affect monetary policy?

In spite of its importance, this topic has not yet received an exhaustive treatment in the economic literature, with only a few recent papers starting to investigate the issue.[2] Given that a sound theoretical analysis is still on the research agenda, most of the empirical studies have been devoted to check whether any relation between the combination of monetary policy and supervisory powers and the pattern of some macroeconomic variables (like the inflation rate or GDP growth) could be obtained. [3] Even though no

[1]Principle no. 1 of the core principles for banking supervision, Basle Committee, 1997.

[2]See Goodhart and Schoenmaker (1992,1995), Heller (1991), Haubrich (1996), Peek, Rosengren and Tootell (1997) and Tuya and Zamalloa (1994).

[3]Goodhart and Schoenmaker (1995) analyze the microeconomic evidence between cen-

path toward one or the other solution was proved to be clearly superior, some recent events seem to indicate that a definitive separation of the two functions is becoming more popular.

- In May 1997, the United Kingdom decided to attribute banking supervision, until then in charge of the Bank of England, to the former Securities and Investment Board, renamed Financial Services Authority. The FSA now supervises all financial markets and intermediaries. [4]

- In the United States, where banking supervision is not an exclusive attribution of the Central bank, many proposals have been presented in the last years to simplify the structure of regulation and supervision on financial markets, merging some of the agencies (like the FDIC and the Comptroller of the Currency) in one entity, eventually different from the FED (Shull, 1993; Coffee, 1995; Federal Reserve Bank of Philadelphia, 1997).

- In the European Monetary Union (EMU), the principle of separating monetary policy and banking supervision responsibilities has been formally established in the statute of the European Central Bank (ECB). The latter empowers the ECB to set out and conduct monetary policy in the Euro area, but leaves the responsibility for banking supervision with the national authorities[5].

- The evolution of financial intermediaries, markets and instruments blurs the borders among banking, securities and insurance activities; as the specificity of banks becomes less relevant, the solution of establishing

tral banks separation or combination of powers and the number and characteristics of bank failures.

[4] At the same time, the degree of independence of the Bank of England was considerably strengthened by giving the Bank a full operational responsibility for setting interest rates.

[5] According to Green (1995) the Treaty on European Union leaves some space to prudential supervision responsibility of the European Central Bank (ECB): "Article 105 (5) of the Treaty states that the European System of Central Banks 'shall contribute to ... prudential supervision of credit institutions and the stability of the financial system'. In 105 (6) there is reference to the possibility that the ECB may be asked to undertake specific tasks in relation to 'prudential supervision of credit institutions and other financial institutions with the exception of insurance undertakings'.

a common regulator for the prudential regulation of all intermediaries gains ground. This is coherent with both the new theories of financial intermediation (Merton, 1993; Allen and Santomero, 1997; Allen and Gale, 1997) and some recent discussions of regulatory arrangements (Dewatripont and Tirole, 1994, Di Giorgio and Di Noia, 1999).

This paper aims at extending some of the theoretical arguments made in favour of separation of monetary policy and banking supervision functions, in particular by discussing the problem of who should pay for banking supervision. We also review the empirical evidence on the relationship between macroeconomic variables and supervisory regimes and we provide some additional evidence based on the pricing structure of banks in different countries and their aggregate balance sheets. Our arguments and findings are somehow (though not definitively) supporting the view that banking supervision should be separated and assigned to a different agency in the few countries where it is still combined with the Central bank. Finally, we criticize the current assignment of financial regulation and supervisory powers in the EMU and suggest to establish an independent European System of Financial Supervisors (ESFS) as a device to attain a sounder scenario.

The paper is organized as follows. In section 2, we describe our classification of the supervisory regimes in place in different countries. In section 3 we provide some empirical findings that emerge when comparing the macroeconomic and microeconomic performances of countries where the central bank acts as a monopolist in banking supervision with those of countries where it does not. In section 4, we discuss the pros and cons of the combination and separation of powers, by presenting first a quick review of the traditional arguments developed in the literature (4.1 and 4.2), and by adding some new theoretical considerations in favour of the separation solution (4.3). Section 5 deals with the problem of financial stability in Europe. We summarize our arguments in section 6.

2 Supervisory arrangements

A neat comparison and classification of different structures of banking supervision and, in general, financial supervision in countries all over the world is a difficult target to reach, given the peculiar institutional arrangements that characterize each single economic system. In some countries, an agency

in charge of these functions may be formally separated by the Central bank but acting so closely to it that it could effectively be more dependent on the Central bank with respect to, say, the banking supervision department of another country's Central bank.

A recent study conducted by the IMF (Tuya and Zamalloa, 1994) provides one of the most complete pictures of the situation.[6] It shows that in the 167 then Member Countries, "bank supervision is conducted by the Central bank in over 60 per cent and that the Western Hemisphere[7] was the only region where the percentage declined to 50 percent. Nevertheless, in over 80 per cent of Asian, African and Middle Eastern countries, banking supervision is a function of the Central bank" (Tuya and Zamalloa, 1994); moreover, in 75 per cent of European countries (different from the former U.S.S.R. countries), banking supervision was a function assigned to Central banks. The problem with these numbers is that they take into account many very small States (like Sao Tome, Myanmar, Vanuatu, etc.) and that the classification method includes all countries in which some supervisory powers are given to Central banks and not whether Central banks have monopoly power in banking supervision or cooperate with other entities. [8]

In our paper, in order to be as precise as possible, we classify the countries in two categories: those where the Central bank acts as a monopolist in banking supervision, on one side; all the others (where Central bank is not in charge of it or, in any case, is not the only agency in charge), on the other side. Moreover, we focus only on OECD countries (table 1)[9], where the situation looks quite different with respect to the one depicted in the previously quoted

[6]Other studies are Heller (1991), Goodhart and Schoenmaker (1995), Haubrich (1996).

[7]In that paper, countries had been divided following Fund area department allocations: Africa, Asia, Europe I, Europe II, middle East and Western Hemishere.

[8] Hence, for example, France is classified among the countries where banking supervision is operated by the Central bank, while the Banque de France is not really a monopolist in banking supervision given that the Commission Bancaire (a composite body chaired by the Governor of the Banque the France, with representatives from the Treasury) supervises compliance with the prudential regulation and send inspections and on-site examinations which are carried out by employees of the Banque the France.

[9]We consider only the countries that joined the OECD by 1994, Mexico being the last one. Other four countries were admitted later on: the Czech Republic, Hungary, Korea and Poland.

IMF review: in fact, a complete monopoly of Central banks in banking supervision seems more likely in countries with an underdeveloped financial system, and a few internationally active banks.[10] .

(table 1, insert here)

Table 1 shows that in many financially developed countries, banking supervision is now not (or not any more) a monopoly of the Central bank. Among the G-5, only UK could be considered as a country where monetary policy and banking supervision were combined. As already stressed, this is no longer true after the 1997 reform.

Given that classification in one or another category is inherently subjective, we take as a first proxy for the institutional framework of banking supervision the composition of the Basle Committee on Banking Supervision, at least for member countries. In fact, in the Committee, "countries are represented by their central banks and also *by the authority with formal responsibility for the prudential supervision of banking business where this in not the Central bank*" (Basle Committee, 1997, emphasis added). This means that if a Central bank is a monopolist in supervision only its representatives are admitted to the Committee; if some countries are represented by members beyond central banks, it means that other institutions are responsible. It turns out that in the Basle Committee only 4 countries (Italy, Luxembourg, Netherlands and United Kingdom) were represented only by Central bank officers; while the other 8 countries were represented not only by the Central bank but also by another agency (in the case of USA by other 3 agencies[11]). This means that in 66% of the Basle Committee countries (without taking

[10]Two relevant exceptions are the United Kingdom, until the 1997 reform, and Italy. Measuring the degree of financial development of different economies is a difficult task. As a very preliminar evidence of the fact that "monopolist" central banks tend to operate in countries whose financial systems are less developed, we have used the synthetic index of financial development derived by Di Giorgio and Reichlin (1996) for EU countries. This index combines pieces of information based on two of the financial indicators used by King and Levine (1993) - financial depth and the ratio of credit to the non financial private sector to total domestic credit - plus other three sources (weight of the financial sector in total employment, the lending-borrowing spread, and the efficiency of the payment system). This index is considerably lower in the first half of the 90s (2.6 against 3.1) in countries where the central bank is a monopolist in banking supervision. The difference is more striking (2.2 to 3.1) if we exclude UK (whose financial index is the highest in the sample) from the analysis.

[11]FDIC, OCC and the Federal Reserve of New York.

into account the recent institutional change in the UK) Central banks did not have monopoly in banking supervision.

When we look at all OECD countries (25 until 1994), we follow previous work by Goodhart and Schoenmaker (1992), Masciandaro (1993) and Haubrich (1996) and classify only in 11 cases (44%) Central banks as monopolists in banking supervision.

3 Empirical evidence

3.1 Macroeconomic Analysis

3.1.1 The Inflation Rate

Empirical evidence on the best choice of banking supervisory agencies can only be provided by looking at ex-post micro and macro data in different countries.

Most of the early papers (Heller, 1991; Goodhart and Shoenmaker, 1992 and 1995; Masciandaro, 1993) compared the track record of central banks with supervisory responsibilities with that of central banks without regulatory tasks in achieving the central goal of monetary policy, a low inflation rate. All these studies support the thesis that Central banks without supervisory responsibilities have a better inflation track record. Instead, no clear correlation can be established between different supervisory arrangements and real growth rates.

We start by re-examining this evidence for industrialized countries according to our previous classification of the banking supervisory regime in place. We consider the consumer price index from the IMF Financial Statistics and compare the average inflation rate from 1960 to 1996 in 24 OECD countries (excluding Mexico).

It is evident that even among quite homogeneous economies, average inflation is more than double (11.21 versus 5.09) in countries where the Central bank is a monopolist in banking supervision.[12] Even if we exclude Iceland and Turkey the situation does not change much: inflation is 50% higher in "monopolist" countries (7.64 versus 5,09) (table 2 and graphs 1 and 2).

[12]We include Luxembourg among the "monopolist" countries even if the Luxembourg Monetary Institute was established in 1983: if we exclude it inflation would be even higher in "monopolist" countries.

(table 2 and graphs 1 and 2, insert here)

Heller (1991) connected the problem of the institutional separation of the two functions with the one of the independency of the Central bank[13]: "it may well be that independent central banks are better in attaining the goal of price stability and that these independent banks also do not tend to have supervisory responsibilities". [14]

In any case, simple correlations between variables can not be interpreted as suggesting any causal relationship.

Hence, we turn to a simple regression in order to check the robustness of this result. We estimate an equation in which average inflation in the sample is the dependent variable and we include among the regressors a dummy variable for countries where banking supervision is assigned to Central banks in monopoly. We also include the index of Central bank independence derived by Grilli, Masciandaro and Tabellini (1991), in order to control for the possibility that any effect of the banking supervisory regime on inflation would just reflect a poorer degree of independence of the Central banks to which this task is assigned.[15]

The estimated equation is

$$\underset{}{INFL_{60-96}} = \underset{(1.2)}{9.29} \; \underset{(0.7)}{-0.47\,GMT} \; + \; \underset{(0.1)}{1.48\,MON} \qquad R^2 = 0.64$$

[13]Also Masciandaro (1993) links the problem of Central bank independence with the assignment of supervisory responsibilities. After dividing Central banks in four classes (monopolist in supervision and independent; monopolist in supervision and dependent; not monopolist in supervision and independent; not monopolist in supervision and dependent.), he finds that all Central banks with monopoly in banks supervision have a worse inflation record, a higher money rate of growth and a higher ratio deficit/GNP. Moreover, among OECD countries, dependent Central banks are associated with a lower real rate of GDP growth.

[14]"In a way this argument, if found to be true, would support the basic hypothesis: namely that bank supervisory responsibility is a governmental function that is unlikely to be given to a truly independent Central bank. In other words, the supervisory role for a Central bank does tend to be associated with significant strings in terms of greater dependence on the government" (Heller, 1991).

[15]Bini Smaghi (1998b) conducted the same analysis in a smaller sample (1974-90) and obtained similar results. He finds that the dummy variable related to the assignment of supervisory powers to central banks remains a significant determinant of inflation performance even when different indicators of central bank independence, as the ones constructed by Alesina and Summers (1993) or Cuckierman (1992) are included in the regression.

where standard errors are reported in parenthesis, GMT is the independence index and MON our dummy.[16]

Central bank independence is significantly (and negatively) affecting inflation performance. The hypothesis that banking supervision conducted monopolistically by Central banks does not affect inflation is instead rejected.

If a Central bank were less able to control prices given the eventual tradeoff with financial stability, we would also expect higher variance in price movements. In order to control for the fact that different levels of inflation might induce different variances for equal percentage variations, we calculate for the same countries the coefficient of variation (the ratio of standard deviation over average). We find that the value is higher (13%) where Central bank supervise banks (69% versus 61%), thereby suggesting that these Central banks meet more difficulties in smoothing inflation over time (table 2). Again, excluding Iceland and Turkey the result is basically the same: 66% versus 61% (10% higher in monopolist countries).

3.1.2 Interest rates

We now turn to investigate whether the pricing behavior of banks, which in a way reflects their efficiency in performing their most typical activity, is affected by the supervisory regime in place. A first indicator to consider is the spread between the rate of return on bank assets and liabilities: in particular we look at the spread between the average deposit and lending rates in different countries.

We also divide this spread into its basic components, i.e. a mark-up on loans and a mark-down on deposits. This exercise is interesting as it allows to identify what the real sources of profits for banks (in net interest income) are. [17]

We restrict the analysis to a subset of the OECD countries due to availability of data. In particular we analyze only countries for which the same series on deposit rates, lending rates and short term government bond rates[18] are available for the period 1981-95. We have two groups of European countries: the "monopolist" countries are Ireland, Italy, Netherlands, Spain and

[16]Iceland, Turkey and Luxembourg are excluded.

[17]Notice that these figures are only percentage values, and are not weighed with the absolute amount of deposit and loans.

[18]They are, respectively, series 60l, 60p and 60c of IMF International Financial Statistics.

United Kingdom; the "not-monopolist" countries are Belgium, Germany, Sweden and Switzerland[19].

Although the spread does not show significant differences among the two groups of countries, what is interesting to notice is its composition: the mark-down on depositors is three times higher in countries where Central banks are monopolist in supervision, and conversely mark-up is three times higher in "not-monopolist" countries (table 3 and graph 3).

(table 3 and graph 3, insert here)

This would seem to suggest that banks not supervised by Central Banks are better in doing the lending activity or, at least, have more bargaining power with respect to borrowers. Notice that this feature does not depend on the fact that these banks operate in somehow underdeveloped financial systems. Instead, in "monopolist" countries, banks seem to benefit more by exploiting depositors who keep money in bank deposits at a rate considerably lower than the risk free rate. Of course, it is difficult to believe that this kind of "rent" will last long in a more and more integrated financial framework, meaning that "high mark-down" banks will have to quickly increase non-interest income if they want to avoid to encounter severe troubles in the future.

The "low mark-up" observed in "monopolist" countries may be a sign of strong competition in the lending activity. On the other side, banks might have lowered too much their lending rates in order to capture in any case the borrowers[20] or, may be, for political pressures, etc.

3.2 Microeconomic Analysis

3.2.1 Bank Profitability and Costs

Goodhart and Shoemaker (1992 and 1995) use microeconomic data from a dataset of 104 banks failures in 24 countries and show that countries where Central banks are involved in banking supervision experience statistically significant fewer failures [21].

[19]The financial structure of some important countries, like Japan or USA is too different to make meaningful comparisons.

[20]This could also indicate a higher bargaining power of firms with respect to banks, for example due to relevant size asimmetries.

[21]As Goodhart and Schoenmaker (1995) make clear this conclusion does not entail any welfare judgement. It is not obviuos at all whether the cost of a bank failure is more or

In this section we try to analyze if there is any evidence of an impact of the institutional arrangements of banking supervision over the structure and behavior of banks, comparing countries where Central banks are "monopolist" with those where they are "not-monopolist".

Comparisons among banks of different countries are inevitably flawed due to legal and accounting procedures; besides, it is the structure itself of different financial systems that makes differences inevitable, as institutions "called" banks operate such different activities in different countries. In order to minimize these errors we take OECD data from Bank Profitability and we compare the "all banks" series and the "commercial banks[22]" series, for "monopolist" and "not-monopolist" countries, during the period 1985-94[23].

We then consider four groups of data normalized by with the balance sheet dimension and (gross and net) bank income. For the "monopolist" countries we calculate an average of results with and without Turkey given the deep differences in both the real and financial sectors of this country.[24]

Table 4 insert here

We do not really find clear patterns in favor of one or another institutional arrangement, even though some interesting facts arise. For example, gross income of "all banks", normalized by the average balance sheet total, is 40% higher where the Central bank supervises banks and net income is 85% higher, too. A similar result is valid for data on "commercial banks". Even with higher provisions as a percentage of the total balance[25], banks in

less compensated by the loss of efficiency in resource allocation and other costs linked to its bail out.

[22]For Denmark and Iceland we use the "commercial banks and savings banks" series.

[23]There are some exception due to availability of OECD data. The starting data for some countries are different: Australia (1986), Austria (1987), France (1988), Greece (1989), Italy (1989).

[24]OECD data do not include Ireland. We only report the table with the average numbers. Data for individual countries are contained in OECD, Bank Profitability, 1997.

[25]Even though OECD data report higher total provisions with respect to the average balance sheet total in monopolist countries, Jappelli and Pagano (1998) have estimated both non performing loans and loan loss provisions for loans as a percentage of total loans in a larger set of countries and obtained strikingly different results. When we look at their estimates we notice that on average, loss provisions on loans are 3 times higher (0.75 aginst 0.25) in not-monopolist countries (Table X). With the caveat associated to the different content of aggregated data in heterogeneous countries, this conclusion could be suggestive of the presence of a moral hazard problem in the banking sectors supervised by Central

"monopolist" countries show higher profits in average, both before and after tax.

These results could suggest that banking supervision assigned to Central banks can be associated with more profitable banking sectors. On the other side, the data obviously regard only surviving banks. There could be accounting rules and supervisory regulations in place that may allow "insider" banks to resist entrance from outsiders and thus show profits that in the long run should not last.

With this caveat, better comparable "efficiency" indicators can be derived by looking at the cost side. Here, "monopolist" countries have banks whose staff costs are 50% higher than those in not-monopolist countries (as a percentage of total balance). In particular staff costs represent more than half of operating expenses in monopolist countries.

3.2.2 Balance sheet structure

When we analyze the strucutre of both the asset and liability sides of the average balance sheets for the four groups of series, some other features have to be underlined. For example, in the asset side, loans are relatively lower in monopolist countries (more evidently for commercial banks). Another difference is that where Central banks supervise, then they maintain a closer relationship with the supervised banks in the sense that the cash and balance with the Central bank aggregate is 300% higher in monopolist countries: this is probably due to different compulsory reserve requirements, with this instrument used both as a monetary policy tool and a guarantee for deposit protection where a single agency is responsible for both monetary policy and the stability of the banking system.

On the liability side, it is to enlight the different use of financial instrumets, with monopolist countries characterized by a higher percentage of non bank deposits, and not-monopolist countries issuing about 50% of bonds more.

3.2.3 Market Structure in EU countries.

A recent study conducted by the ECB (1999) allows to compare different capacity indicators and features of the banking systems in the EU countries. In

banks: in monopolist countries loss provisions on loans are lower as banks internalize that the regulator-supervisor will more easily bail them out in case of trouble.

table 5 we report 1996 data on the number of branches, ATMs and employees (per 1,000 inhabitants), plus figures relative to average wages in banking as a percentage of total wages and a market concentration index based on the percentage of total assets in banking held by the 5 top institutions in each country.

When we divide EU countries in "monopolist" and "not monopolist" types according to the previous classification, we observe the following:

a) Monopolist countries are characterized on average by lower market concentration. Again this could be interpreted in two opposite ways: on one side, this feature suggests less market power and a more competitive banking system; on the other side, it could as well be that the central bank - regulator raised excessive barriers to merges and acquisitions in the sector thereby limiting the role of the market and profit-seeking behaviour.

b) Figures relative to capacity indicators are roughly similar, indicating only a somehow smaller presence of both ATMs and employees and a higher density of branches in monopolist countries.[26]

4 Theoretical arguments

In spite of the huge literature on central banking and monetary policy[27], an aspect that has not been deeply analyzed yet is whether the regulatory and supervisory functions should be attributed to central banks or to a different agency. An additional interesting question to ask is which agency should be responsible for antitrust regulation in the banking system.

The problem of institutional separation between banking supervision and monetary policy has been started to be investigated only recently, even though the traditional literature on central banking (from Bagehot, 1873, on) somehow tackled the problem. Some contributions are Heller (1991), Goodhart and Shoenmaker (1992 and 1995), Masciandaro (1993), Tuya and

[26]Wages in banking as a percentage of total wages are similar across the two groups. If a difference is to be underlined, this refers to higher wages in central-southern European countries with respect to the Anglo-Saxon and Northern Europe world.

[27]See Goodhart (1995), Fischer (1996,1997) and Blinder (1998). Cuckierman (1992), Alesina and Summers (1993) and Persson and Tabellini (1996) deal with the problems of political and economic independence, credibility and coordination of monetary with fiscal policy.

Zamalloa (1994), Haubrich (1996) and Davies (1997). All these papers underline both the advantages and disadvantages of separating versus combining the two functions.

As Tuya and Zamalloa (1994) make clear, there is a cross effect of banking supervision over monetary policy and viceversa. In fact, monetary policy decision-makers are concerned about the safety and soundness of the banking system for the effect it may have on the integrity of the payment system, the transmission of monetary policy signals, resource allocations and the cost of monetary policy in case of crises. Banks supervisors, on the other hand, are interested in monetary stability, since this is associated with lower volatility in nominal and real interest rates and, possibly, in exchange rates.

4.1 The advantages of banking supervision in the Central bank

The advantages of having banking supervision combined with monetary policy in the Central bank are important as this solution entails relevant information on both macro and microeconomic variables.

- The Central bank will be able to acquire valuable insights into the overall state of the economy by being involved in the supervision and regulation of financial institutions. A recent study on the US economy (Peek, Rosengren and Tootell, 1997) shows that confidential supervisory information on bank ratings allows the Federal Reserve to improve significantly the forecast of macroeconomic variables as the rates of inflation and unemployment, thus allowing monetary policy to react in a better way to the eventual deviation of these forecasts from the target. Besides, "being able to influence bank policy through regulatory pressure might give additional force and impetus to monetary policy measures" (Heller, 1991). According to this view, the coordination of monetary policy and banking supervision is necessary given that they are interrelated. In particular, monetary policy must use proper instruments such that its transmission through financial intermediaries to the real sector is efficient.

- Another fundamental macro argument supporting a unified agency is the protection of the payment system, a key channel for the potential spread of contagion risk. "The Central banks' growing awareness

of the liquidity and the credit risks in net and gross (with uncollateralized overdrafts) settlements systems and their implicit or explicit assumption of these risks, have initiated several risk reduction policies: the most direct measure used to be, and still is, to control access and monitor the participants" (Goodhart and Shoenmaker, 1992).

- The main argument for combining the functions of monetary and supervisory management within the Central bank is however linked to the Central bank's concern for the systemic stability of the financial system (Goodhart and Shoenmaker, 1995). Hence, the micro-information advantage suggest that "combination is particularly needed in times of financial crises when only direct supervision can deliver the essential information on time" (Haubrich, 1996). In fact, a Central bank supervising the banking system might know more precisely if a bank asking for credit from the lender of last resort is insolvent or just illiquid (thereby deserving it); but Goodhart and Shoemaker (1995) show empirically that this argument does not hold in the sense that "the revealed preference of monetary authorities has been to rescue banks running into difficulties, so long as there appeared to be any risk of a systemic knock-on effect". It could also be that this traditional motivation to have the two functions in charge of a unique institutions is today obsolete: runs seem to occur only in textbooks because "the probability that a modern bank is solvent but illiquid and at the same time lacks collateral to obtain regular central bank funding, is quite small" (Padoa Schioppa 1999).

4.2 The disadvantages of banking supervision in the Central bank

The major disadvantage of assigning to Central banks the joint responsibility for the two functions is the "conflict of interest" argument.

We classify the conflicts that can possibly emerge in the following categories:

- First, a general problem of inconsistent policy assignment can emerge, given that with just one policy instrument there are two objectives to control: a trade-off among monetary stability and microstability of financial intermediaries (in particular, banking intermediaries) may exist

and be difficult to tackle. In fact, it could well be that monetary authorities might wish for higher interest rates (e.g. to maintain an exchange rate peg, to bear down on inflation, or to reduce the pace of monetary growth) while the regulatory authorities "are frightened about the adverse effect such higher rates may have upon the bad debts, profitability, capital adequacy and solvency of the banking system. It is in this guise that the conflict has, indeed, from time to time occurred" (Goodhart and Shoenmaker, 1992)[28]. The alternative situation, monetary policy being conducted with excessive regard for supervisory concerns about the health of one or more financial institutions, is potentially even more dangerous as it might lead to inappropriate monetary policies that might, in the long run, even worsen the problems at stake (Heller, 1991).

- The combination of functions might also lead to *expectations* on the part of the private sector that "the Central bank might be influenced by financial system stability considerations when determining monetary policy" (Goodhart and Shoemaker, 1995). This "influence" may be caused by a regulatory capture and rent seeking behavior by intermediaries and by reputation costs that are perceived to be very high for Central banks in case of a bank failure. Being involved in the crisis of a bank under its control may as well hurt the Central bank global credibility, with negative effects on its ability of controlling inflation. In fact, a reduced credibility could induce worse inflation expectations that are relevant determinant of inflation itself.

- Other conflicts of interest may arise as "the Central bank may employ access to the discount window and monetary reserves as banking

[28]Di Giorgio (1999) argues that it is also possible that a conflict of interest emerges as a consequence, in given periods, of a preference for lower interest rates by the monetary authority. In a context of price stability and low growth, it might be desirable for the monetary authority to reduce interest rates; however, if the banking sector is characterized by low profitability and by a pronounced exposure of the asset side of the balance sheet to market interest rates with respect to the liability side, it is possible that a reduction in interest rates contributes to further deteriorate bank profitability, at least in the short run, and is thereby opposed by the regulatory agency. This argument is applied to explain the prudent behavior of the Bank of Italy in terms of the chosen path for the official rates of interest (the discount rate and the one on fixed-term advances) in 1997 and in 1998 prior to the start of EMU.

supervision sanctioning tools to encourage banks to implement supervisory recommendation" (Tuya and Zamalloa, 1991). In this case banks would rarely appeal supervisory sanctions for the fear of raising reserve requirements, or receiving inspections.[29]

- "A more general point is that the cyclical effects of micro (regulatory) and macro (monetary) policy tend to conflict. Macro-monetary policy is supposed to be counter-cyclical, while the effect of regulation, e.g. capital adequacy requirements, tend to be procyclical" (Goodhart and Shoenmaker, 1992). An example of procyclical effect of regulation on credit growth is that "during a period of economic slowdown, a banks volume of non performing assets is likely to be increasing and the bank supervisor will be requiring higher provisions for possible loan losses and applying pressure on the banks to improve the quality of their portfolios. The banks' implementation of the bank supervisor recommendations (and prudent banking principles) would result in tighter credit during an economic recession" (Tuya and Zamalloa, 1994). Monetary policy expansionary reasons may push to lower the minimum capital asset ratios to free resources for the economy but undermining the intermediaries' stability. A tight monetary policy, on the other side, may have an impact on bank solvency as high interest rates increase the risk of loan defaults in the banking system.

4.3 New institutional considerations

The pros and cons of the separation between the monetary policy and the bank supervision agency do not seem overwhelming to describe a first best solution.

In particular, the conflict of interest argument does not seem strongly convincing given that, for example, raising interest rates do not necessarily damage banks: it depends on the structure of the balance sheet and on the possibility that the banks can or can not pass along to customers the new rates[30]. The conflict between counter-cyclical policies and the procyclicality

[29] "This conflict may also appear when the Central bank applies bank supervisory sanctions to effect monetary policy - for example denying approval of branch license to a sound bank in an attempt to coerce the bank into more active participation in the Central bank's open market operations" (Tuya and Zamalloa, 1994).

[30] See Di Giorgio (1999).

of capital requirements seems to be more compelling. This is especially evident when Central banks act according with the "too big to fail" principle: in fact the action of the supervisor should be independent of the size of supervised banks. However, "it is not easy for the regulator, in case of big banks' crisis, not to be influenced by administrative and political pressures and by microeconomic and macroeconomic worries" [31].

In this section we provide some new arguments in favour of the thesis of separating monetary policy and banking supervision responsibilities. These are based on other factors affecting institutional arrangements.

A first consideration emerges with respect to an apparently unrelated problem, that of deposit protection. As Goodhart and Shoemaker (1992 and 1995) show, it is useless to have a deposit insurance agency without any supervisory powers given that, in this case, it would just act like a cash department executing orders of other agencies. A deposit insurance agency should have, like in the US (FDIC), supervisory powers[32]: it could in principle be merged into the Central bank, but this solution could easily generate moral hazard problems with both the bank managers and the depositors. Hence, the optimal solution seems to give to an agency separated by the Central bank both banking supervision and deposit insurance management: otherwise two agencies would have the same supervisory powers and the costs for the banking system woulg be doubled.

The second fact to consider is that the evolution of financial market, intermediaries and instruments make them less different one from the others: banks, securities firms and life insurance, investment and pension funds engage in activities which are day by day more similar and linked[33]. Banks remain special only for the fact that part of their liabilites (sight deposits) are money and have a certain nominal value independent from market fluctuations. However, the percentage of sight deposits in bank liabilities (and with respect to GDP) is falling in most advanced countries. It is hard to believe that this remains a strong justification for different supervisory arrangements, in particular given the existence of an explicit deposit insurance. A common regulatory agency is thus needed, and many countries do in fact have it (UK, Finland, Norway,etc.). If this agency were the Central bank, expectations of the kind of "too central-bank-supervised to fail" institutions

[31] De Bonis and Luberti (1997).

[32] See Di Noia, (1994).

[33] See Dewatripont and Tirole (1994), Allen and Santomero (1997), Di Giorgio and Di Noia (1999).

could arise. As a matter of fact, Central banks did already intervene in the past to bail out non banking financial intermediaries (see for example some recent case in Japan): moral hazard problems could emerge again, negatively affecting market discipline.

In any case Central banks should not have antitrust powers in the banking industry. Actually, this is a problem which is relevant only in a few countries, Italy being the most relevant example. The inevitable trade off that exists in the short term between micro-stability and competition would lead Central banks to obstacle the exit from the banking industry of inefficient firms, claiming that the negative impact on the real economy and investors might be high[34]. This kind of behavior is clearly inefficient given that the only investors to protect differently from others are the small depositors, who already have deposit insurance: why bank bondholders should instead be protected differently than bondholders of industrial firms?

Another point is linked to the fact that in some institutional arrangements, Central banks are also characterized by another, and much stronger, conflict of interest: they are allowed to hold shares in the banks that they supervise. This happens again in Italy, where the Bank of Italy is one of the greatest shareholders of Italian stocks[35] . In this case there is such a high

[34]In Italy where antitrust in banking is in charge of the Central bank, it often happened that the consultative opinions of the antitrust agency as regards cases of banking mergers and acquisitions were opposite to the compelling decisions of the Bank of Italy (See Cafagna and Sciolli, 1996).

[35]The Bank of Italy has equity investment for two reasons: "just over half are held for the benefit of the staff pension fund; the Bank of Italy also parks part of its statutory reserves in equities (this part of the portfolio was worth 860 billion lire at the end of 1996)" (The Economist, 1997). Few public informations are available on its trading activities but public data (Consob, 1999) are available for shareholdings exceeding 2% of capital in companies listed in the Italian Stock Exchange. As of December 31st 1998, the Bank of Italy possessed stakes higher than 2% of the capital in 12 listed companies (while stakes under this threshold remain private information of the holder). It owned 7,89% of Italfondiario, a middle term bank, plus many participations in important insurance companies (Generali, 4.74%; INA, 2.54%; La Fondiaria, 2.32%; etc.). In turn, these insurance companies own relevant share in some of the biggest domestic banks (for example, Generali is the largest shareholder of Banca Commerciale Italiana. And Generali's most important shareholder is an investment bank, Mediobanca, whose capital is shared by the same Banca Commerciale Italiana, Unicredito Italiano and Cassa di Risparmio di Roma, three former public-owned banks. INA is instead a former public-owned insurance company that recently entered in the rescue plan of a disastred public-owned bank, Banco di Napoli, in a joint venture with another domestic bank that was at the time totally owned by the Italian Treasury, Banca Nazionale del Lavoro). Finally, Bank of Italy is the second shareholder of Telecom Italia.

correlation between the Central bank's decisions in terms of interest rates, and the rate of return of its equity investments that the Government should either impose a prohibition of investment in shares or at least an external independent management of the pension fund as well as a full disclosure of its investment portfolio. More importantly, a supervision agency should never possess shares of supervised entities nor of other institutions possessing shares in the same supervised entities.

However, our main argument in favor of separation is the one of the appropriate financing of monetary policy and banking supervision activity.

4.3.1 Central bank financing

The problem of cost-accountability should lead to separating the two functions of monetary policy and banking supervision. Usually Central banks are mainly funded in two ways: seignorage and compulsory reserves.

On one side, they are legal monopolist in issuing liabilities at no cost (cash) and investing them in financial instruments and foreign currencies to operate monetary policy. This funding independence is fundamental to correctly operate monetary policy even if, in many countries, the lack of political and economic independence imposes the Central bank to issue liabilities in excess, thereby increasing inflation in the medium-long run. In any case, there is no doubt that if Central banks were financed by a transfer from the Treasury, their independence could be seriously undermined. Moreover, many Central banks at the end of each year return, depending on different regulatory arrangements, to the Treasury part of their profits (like in UK or in Italy), even if formally the Treasury is often not even a "shareholder" of the Central Bank. Naturally, the presence of profits does not allow Central banks to behave inefficiently neither in monetary policy nor in any other activity they could be performing. The reason is that these profits are gained as a result of a legal monopoly, which is implicitly financed by all taxpayers.

Another source of financing can be due to the compulsory reserve regime. In many countries banks are obliged to keep a fraction of the deposits they collect in zero or low-interest deposits at the Central bank. Hopefully, the rate of return of these sums is higher and contributes to finance part or all of the Central bank activity[36], including monetary policy. However it may

[36]Bank of England is an interesting case. Since 1844 (and until 1997), the Bank has, for accounting purposes, been divided into "Issue" and "Banking". The Issue Department is solely concerned with the note issue, the assets backing the issue, the income generated by

happen that the rate of interest paid on compulsory reserves, which is established by the Central bank itself, is temporarily higher than the risk-free market rate[37]: in this case, the Central bank (and eventually all taxpayers given that some seignorage is always in place) is subsidizing the domestic banking system (given that only domestic banks are subject to reserve requirements) and at the same time creating obstacles to competition among national and foreign banks.

As a consequence of these considerations, we see two problems in having banking supervision assigned to the Central bank.

First, the cost of supervision is merged with the one of monetary policy: in this way, efficiency in supervisory activity could be weakened given that there is no separate cost accountability, or it would at least be difficult to assess.

Across countries, Central banks have different costs which are of course difficult to compare given that the activities they actually perform are quite different. Davies (1997) documents the difference in (1992) cost of various Central banks, controlling for both size and population: a striking result is that, for example, the Bank of Italy seems to cost 5 times more than the Bank of England, even if both were at the time in charge of banking supervision[38]. One could argue that the solution is not necessarily that Central banks quit supervisory responsibilities: they could just have a separate budget assigned in their balance sheet for this function. However, in this way there will be some inevitable "transfer pricing" among the different departments and the figures would not be precise, given the presence of economies of scope in the different activities.[39]

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those assets and the costs incurred by the Bank in printing, issuing, sorting and destroying notes: the entire profits of the note issue are paid over to HM Treasury. The Banking Department (all the rest of the Bank) is funded by Cash Ratio Deposits which banks in the UK place interest-free with the Bank, on the basis of the size of its eligible liabilities (0.35%): the Banking Department's income derives principally from investment in British Goverment securities, Treasury and commercial bills and advances to customers (Bank of England, 1997a).

[37]This situation happened in Italy during 1997. See Di Giorgio (1997).

[38]A major cost component for the Bank of Italy is however linked to the functions that it performs acting as the Cash department of the Ministry of the Treasury.

[39]The Bank of England Annual Report shows cost allocation for the different operations: bank supervision cost 19% of all Bank's operating costs. More correctly a fraction of the cost of other departments (like Finance and Resources (3% of the total) and Personnel (7%) should be added).

Second, it is not necessarily true that the supervisory cost of an industry must be paid by all taxpayers, who may not be consumers of the good: it could be possible that these costs can be paid directly by the supervised entities and the consumers of these products. This is what happens for many other regulatory agencies. The objection that banking stability could be viewed as a public good seems too strong to us, and in any case it is not clear that the cost of banking supervision and regulation coincide with that of the stability of the banking system. Moreover, from the point of view of macroeconomic stability there is no doubt that also the well functioning of the industrial system is important; however, there is no agency in charge of the stability of this system which is financed by all taxpayers.

On the other side, it is not necessarily efficient that the costs of monetary policy and of other Central banks' activities (including eventually banking supervision) must be paid by banks: in fact Central banks' revenues would be cyclical and thus lower in period of crisis of banks when exactly supervision must be strengthened.

Again this does not necessarily mean that a separate entity is needed but certainly a separate entity would be more accountable for the use of this money: it would be clearer who is paying and for what.

In this case, the problem of being financed by the industry rather than by a public transfer would be also another one. The public transfer, in a sense, limits the activities of the agency and so an industry-financing enhances the independence of the agency. But in this way there is the classic problem of taxation without representation as the supervisory agency could expand its revenues without limit (Sarcinelli, 1996). This could be avoided having independent representatives appointed by the industry as commissioners of the agency.

The solution we view as the most acceptable is that the Central bank is only financed by seignorage in order to operate monetary policy, and not at all by compulsory reserves. Should reserve requirments be considered as an integral part of a strategy of monetary control, mandatory reserves should be remunerated at a market rate or, better, invested in a money-market fund so that the effective rate of return produced could be redistributed to the industry. The separated banking supervision agency should instead be financed in a mixed way: partly with a public transfer and partly by the industry.

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5 Financial regulation in the EMU: a proposal.

In the European Monetary Union (EMU), the principle of separating monetary policy and banking supervision responsibilities has been clearly established in the statute of the European Central Bank (ECB). The latter empowers the ECB to set out and conduct monetary policy in the Euro area, but seems to assign the responsibility for banking supervision to the national authorities.

In a way, it could then be argued that a problem of institutional separation between monetary policy and banking supervision agencies does not exist any longer in the Euro area.[40]

Actually, in this area, as in most industrialised countries, the term banking supervision should be replaced by that of financial supervision. Banks are no longer so special: they perform many tasks and offer different financial services (universal banks), including investment and insurance services; they are often part of industrial companies (and/or they control them). The stability of the financial system is not so much at risk because of the loan/deposit activities performed by banks. Instead, financial instability could be induced by activities linked to portfolio management, which are typical of investment banks and securities firms. [41] Hence, the real problem to tackle should be the separation between the tasks of monetary policy and financial supervision.

The current institutional arrangement in the EMU, however, is far from satisfactory for a series of reasons.

1) In some countries, like Italy and the Netherlands, where the national central bank (NCB) is a monopolist in banking supervision, the separation is not complete as the NCB Governor does also participate to the definition of the general strategies of European monetary policy which are set out in

[40] In fact, "even in countries where the competent authority for banking supervision is the central bank, by definition this authority is, functionally speaking, no longer a central bank, as it lacks the key central banking task of autonomously controlling money creation" (Padoa Schioppa, 1999). For this reason, the argument of the eventual separation between the agencies responsible for monetary policy and banking supervision has necessarily to be discussed at a European level.

[41] A well known recent example of a serious threat to financial stability is the LTCM case. Here, a non bank institution was rescued thanks to the moral suasion of the FED, that is not responsible for the supervision of hedge funds.

the ECB Governing Council.

2) Does it make any sense to have a common monetary policy and aim at an always more integrated financial system in the Euro area while keeping different financial regulations and supervising rules in each member country? As a matter of fact, these institutional differences are an important barrier to further financial integration. In this field, the principle of minimum harmonization and mutual recognition, that was originally thought to be able to naturally induce over time a convergence of regulatory behaviour and more uniform rules, clearly did not work. Moreover, there is a concrete risk that competition in this area will not even generate the more efficient outcome: on one side there exists an obvious incentive to promote less demanding domestic financial regulations and supervision in order to let the own country become more attractive for running financial business; while on the other side it is not clear who will pay the costs of potential insolvency following excessive risk taking behavior and financial misconduct in a member country (see 3) below). Finally, with increasing international banking activities and a European real time gross settlement system in place (Target), the argument that domestic regulators and supervisors have better knowledge and can exercise more efficient control becomes day by day less effective.[42]

3) No clear tool nor any reponsibility to counter and/or manage the risk of financial instability and crisis has been established in Europe. The Treaty is silent on this topic. It is not even evident that the role of lender of last resort will be performed by the ECB, as it would be desirable being an essential function of a Central bank. In fact, this solution will probably occurr only in the case of a widely spread liquidity crisis affecting the whole Euro area. But what will follow a liquidity crisis located in a single country? And what a solvency crisis? Who takes care of financial stability in Europe?[43]

Suppose we face a situation in which a single financial institution located in a member country is in trouble. What kind of intervention, if any, is currently allowed? One of the typical forms of public intervention seems lost, and probably the most natural, that of Central bank last resort loans. The ECB will not intervene in favour of a single institution, expecially if its financial links are mostly domestic. Also because it could always assign some of the responsibility for the crisis to the domestic financial regulator-

[42]See also Prati and Schinasi (1999) and Lannoo (1998).

[43]See Bini Smaghi (1998,a) for a broader discussion, and De Cecco (1998) on the relevance of the role of lender of last resort.

supervisor. The domestic Central bank can not intervene by providing funds without an explicit authorization by the ECB. In this case, it will have to convince the latter that the institution is facing a liquidity and not a solvency crisis, according to the Bagehot's doctrine (1873), and / or that the risk of potential spread and contagion of the crisis is high. This requires time and resources.

The other two traditional instruments, bail out through a safety net provided by the banking system or through the government budget will ultimately shift the burden on the shoulders of domestic taxpayers, expecially in the framework established in the Stability and Growth Pact. Given the current level of taxes in Europe, this is hardly an optimal solution.

We think that a much higher degree of coordination in the field of financial regulation and prudential supervision is both desirable and needed in the EMU. Moreover, our view is not limited to the banking system but embraces all financial intermediaries. Hence, we see three possible paths of institutional changes that can reintroduce the function of lending of last resort in the Euro area and at the same time allow for a sounder scenario in case of a financial crisis. We list them in increasing order according to our preferences, but we view all of them as better solutions with respect to the current situation.

1) The first possibility is to assign supervisory powers and responsibilites in the banking sector to the ECB. However, as it would be desirable to have a common supervisor for all financial intermediaries, an amendement of the Maastricht Treaty would be necessary, as the latter explicitely forbids that supervisory powers regarding insurance firms be assigned to the ECB.

2) A new European System of Financial Supervisors (ESFS), structured similarly to the ESCB, could be established. A European Financial Regulation Authority (EFRA) should be at the centre of the system. This would harmonize and coordinate financial regulation in member countries, design common principles and guidelines for prudential supervision and set out appropriate disclosure instruments and requirements. It should be in charge of banks, securities firms, mutual, pension and hedge funds, life insurance and all financial intermediaries and securities markets.

The EFRA should be formally separated by the ECB, both in order to avoid excessive concentration of powers as well as for the arguments made

above.[44]

In each country, a (new) agency similar in structure to the Financial Service Authority recently established in the UK will participate to the definition of the general strategies and principles of financial regulation in the area, becoming a member of the ESFS. This agency will be responsible for the implementation in the domestic country of both the rules and the supervisory duties agreed upon at the Euro level.[45] In each single country, this agency will be the sole responsible for financial stability and correct disclosure of all financial intermediaries.

3) Establish two new different European Agencies, one responsible for the "stability" and one for "transparency and disclosure requirements" of all financial intermediaries. The two central agencies should coordinate the different domestic agencies in each member country. In this solution, we will then have two different ESFS according to the principles that suggest to replace "institutional" regulation by "functional regulation" (or by objective).

Under both 2) and 3), no antitrust power will be given to any member of the ESFS, so as to avoid the trade-off between competition on one side and stability and transparncy on the other. Moreover, agencies responsible for supervising market competition do exist at both Euro and domestic levels.

A special Committee (and desk) for the lending of last resort function will be established at the ECB, with the participation (only for information and communication purposes) of members of the (one or two) ESFS. The ESFS (or the one responsible for "stability") will promote the participation of intermediaries, in each country, to a limited insurance fund that could provide good quality collateral to institutions facing liquidity problems in order to be able to qualify for central bank financing. The national agency will manage the fund and assess whether an institution is just illiquid or insolvent. In the latter case, provision of collateral should be denied. The domestic government could still decide whether to bail out the institution or

[44] A relevant issue is "who pays for financial supervision and how much it costs". An attribution to the ECB of these functions could be less transparent given that they may be confused in the monetary policy ones (thus inducing lower accountability).

[45] Both the national and the central European levels of financial supervisors should exist, given the current level of harmonization in the financial market legislation, which is far from complete, in particular with respect to taxation, accounting rules and banking crises management.

not, being responsible and (politically) accountable for the decision.

6 Conclusions

The institutional separation of the agencies in charge of monetary policy and banking supervision is an important issue. In most developed countries, Central banks are not any longer "monopolist" in banking supervision. Empirical comparisons among different financial systems are difficult to evaluate: banks seem to be more profitable if Central bank supervise them but show higher staff costs and issue less bonds, which could be interpreted as an indicator of lower efficiency.

On the macroeconomic side, the inflation rate is confirmed to be higher and more volatile if Central bank is "distracted" by supervision. New, though still preliminar, evidence shown in this paper seems to suggest that banks supervised by Central banks are relatively more profitable on the deposit side than on the lending side: as this trend could eventually stop because of further financial markets integration, their competitive position may be more at risk unless they expand profitability on the lending side and on some other activities (risk management, services, etc.). Weether Central banks acting as supervisors may have played a role in this situation remains a question for further investigations.

In any case, we conclude that a clear motivation for the separation between monetary policy and bank supervisory agencies can not be found in data. Rather, the evolution of financial intermediaries, moral hazard problem and especially cost accountability seem to suggest that a separation could be a better solution, also in order to clarify who is really paying for the costs of monetary policy and banking supervision.

We also criticize the current assignment of financial regulatory and supervisory powers in the EU to domestic agencies. We are in favour of the establishment of two new European financial regulation agencies, each formally separated by the ECB. These agencies should be responsible for the comprehensive coordination of both legislation and execution of regulation in financial markets: the first European agency should be responsible for the stability of all intermediaries, while the second for transparency and disclosure requirements. Our proposal is to to place these two agencies at the centre of two European Systems of Financial Supervisors, each structured similarly to the ESCB and thereby requiring active participation of national

agencies in member countries.

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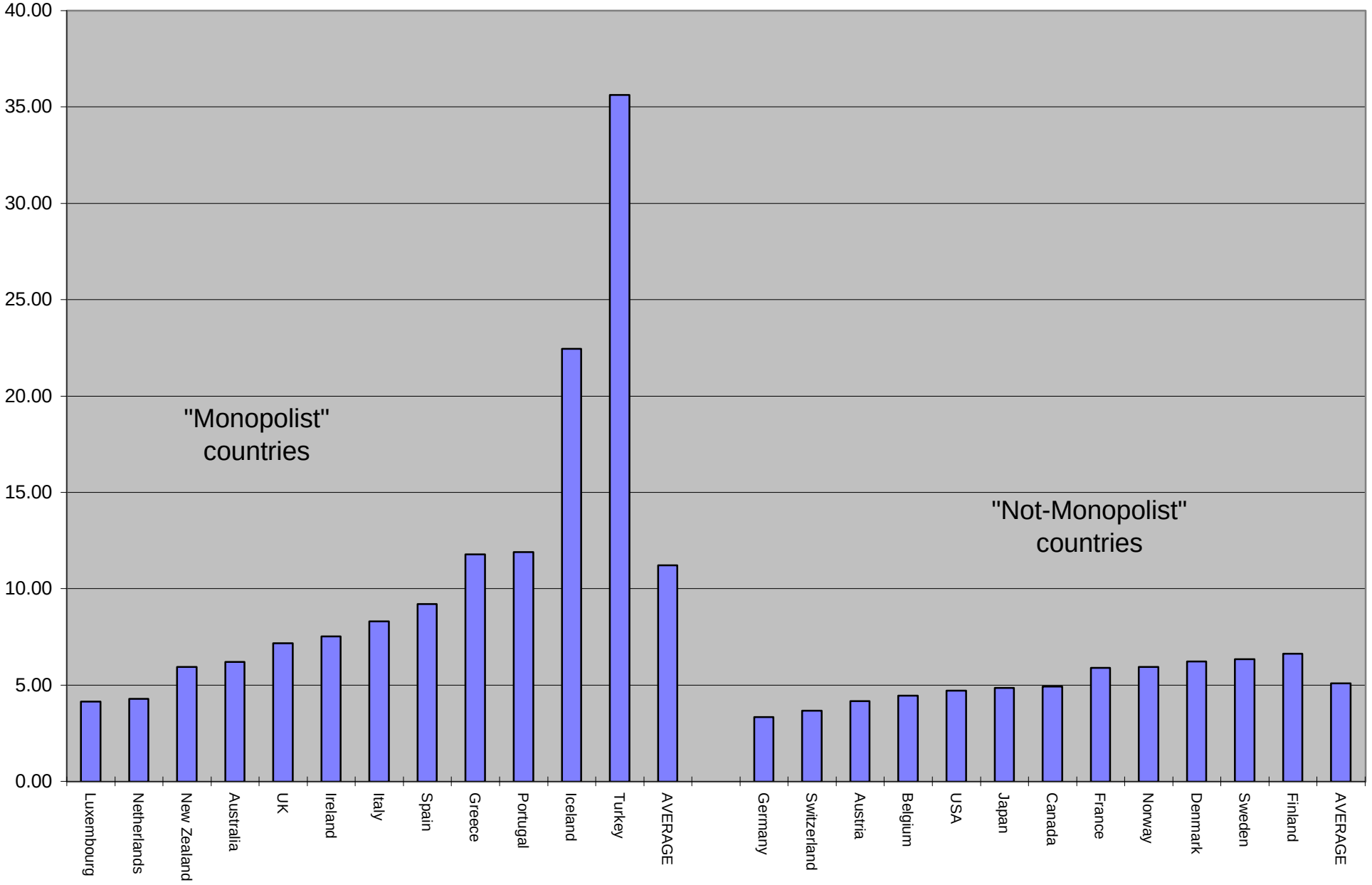
Table 1: Monetary policy and bank supervisory agencies in industrialized countries (1.1.1998)
(adapted from Haubrich, 1996, and Tuya and Zamalloa, 1994)

COUNTRY	MONETARY POLICY AGENCY	BANK SUPERVISORY AGENCY
Central bank		
monopolist		
Australia	Reserve Bank of Australia	Reserve Bank of Australia
Greece	Bank of Greece	Bank of Greece
Iceland	Central Bank of Iceland	Central Bank of Iceland
Ireland	Central Bank of Ireland	Central Bank of Ireland
Italy	Banca d'Italia	Banca d'Italia
Luxembourg	Luxembourg Monetary Institute	Luxembourg Monetary Institute
Netherlands	De Nederlandsche Bank	De Nederlandsche Bank
New Zealand	Reserve Bank of New Zealand	Reserve Bank of New Zealand
Portugal	Banco de Portugal	Banco de Portugal
Spain	Banco de España	Banco de España
Turkey	Central Bank of the Republic of Turkey	Central Bank of the Republic of Turkey
Central bank		
not-monopolist		
Austria	National Bank of Austria	Ministry of Finance
Belgium	National Bank of Belgium	Banking and Finance Commission
Canada	Bank of Canada	Office of the Superintendent of Financial Institutions
Denmark	Danmarks Nationalbank	Finance Inspectorate
Finland	Bank of Finland	Financial Supervision Authority
France	Banque de France	Commission Bancaire, Banque de France
Germany	Deutsche Bundesbank	Federal Banking Supervisory Office
Japan	Bank of Japan	Ministry of Finance, Bank of Japan
Mexico	Banco de Mexico	National Banking and Securities Commission
Norway	Norges Bank	Banking, Insurance and Securities Commission
Sweden	Sveriges Riksbank	Swedish Financial Supervisory Authority
Switzerland	Swiss National Bank	Federal Banking Commission
United Kingdom	Bank of England	Financial Services Authority (from 1998)
United States	Federal Reserve System	OCC, FDIC, FED, State Governments

Table 2: Average inflation rate and coefficient of variation (standard deviation/average) (1960-96) in "monopolist" and "not-monopolist" OECD countries
(Source: International Financial Statistics, IMF)

	Inflation rate	Stand.Dev./Avg.
		(%)
"MONOPOLIST" COUNTRIES		
Australia	6.20	65.65
Greece	11.78	68.68
Iceland	22.46	85.57
Ireland	7.53	77.69
Italy	8.30	67.83
Luxembourg	4.13	68.77
Netherlands	4.29	63.17
New Zealand	5.93	55.48
Portugal	11.91	69.94
Spain	9.19	58.65
United Kingdom	7.16	64.47
Turkey	35.62	87.25
AVERAGE	**11.21**	**69.43**
AVG. w/o Turkey and Iceland	**7.64**	**66.03**
"NOT-MONOPOLIST" COUNTRIES		
Austria	4.16	47.12
Belgium	4.45	67.19
Canada	4.92	66.26
Denmark	6.22	55.63
Finland	6.63	64.86
France	5.89	62.65
Germany	3.34	52.40
Japan	4.86	88.48
Norway	5.93	55.48
Sweden	6.34	51.26
Switzerland	3.67	59.67
USA	4.70	64.47
AVERAGE	**5.09**	**61.29**

Graph 1: Inflation rate in "monopolist" and "not-monopolist" OECD countries (average consumer price index 1960-96)



Graph 2: Inflation rate in "monopolist" and "not-monopolist" OECD countries, excluding Iceland and Turkey
(average consumer price index 1960-96)

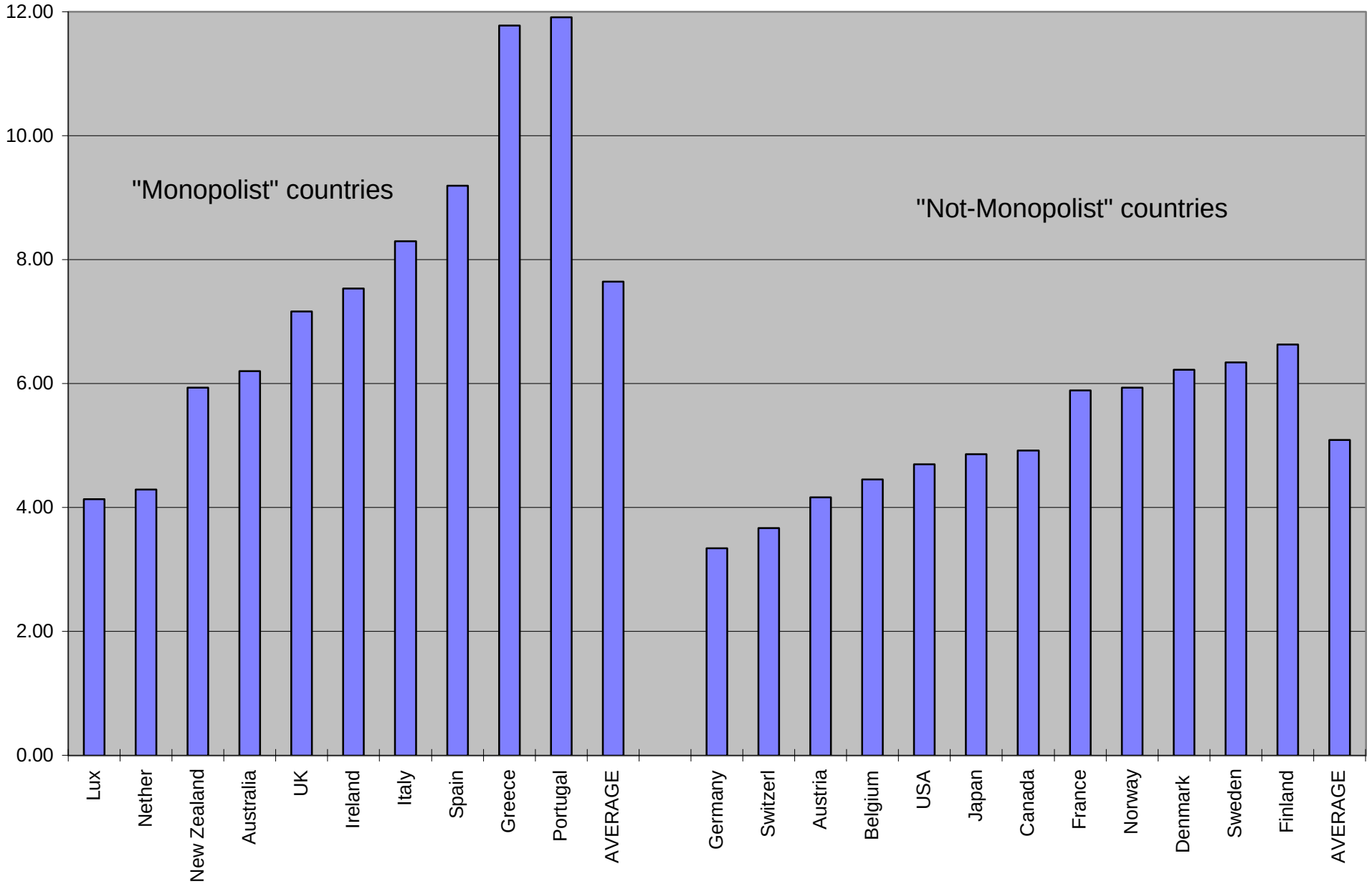


Table 3: Pricing behavior of banks in some European countries (1981-95)
(Source: International Financial Statistics, IMF)

	Mark-down	*Mark-up*	*Spread*	*Mark-down/Spread*	*Mark-up/Spread*
"Monopolist" countries					
Ireland	4.88	0.41	5.29	0.92	0.08
Italy	4.40	2.32	6.73	0.74	0.26
Netherlands	2.72	3.25	5.97	0.40	0.60
Spain	2.43	1.40	3.84	0.69	0.31
United Kingdom	0.96	0.49	1.44	0.74	0.26
AVERAGE	**3.08**	**1.57**	**4.65**	**0.70**	**0.30**
"Not-Monopolist" countries					
Belgium	3.13	2.98	6.11	0.48	0.52
Germany	0.56	4.90	5.45	0.11	0.89
Sweden	2.26	3.19	5.45	0.39	0.61
Switzerland	0.04	1.06	1.09	0.01	0.99
AVERAGE	**1.50**	**3.03**	**4.53**	**0.25**	**0.75**
Mark-down is the difference between Treasury Bill rate (60c) and deposit rate (60l)					
Mark-up is the difference between Lending rate (60p) and Treasury Bill rate (60c)					
Spread is the difference between Lending rate (60p) and Deposit rate (60l)					
The numbers in brackets are the codes of the series in International Financial Statistics, IMF					

Graph 3: Pricing behavior of banks in some European countries (1981-95)

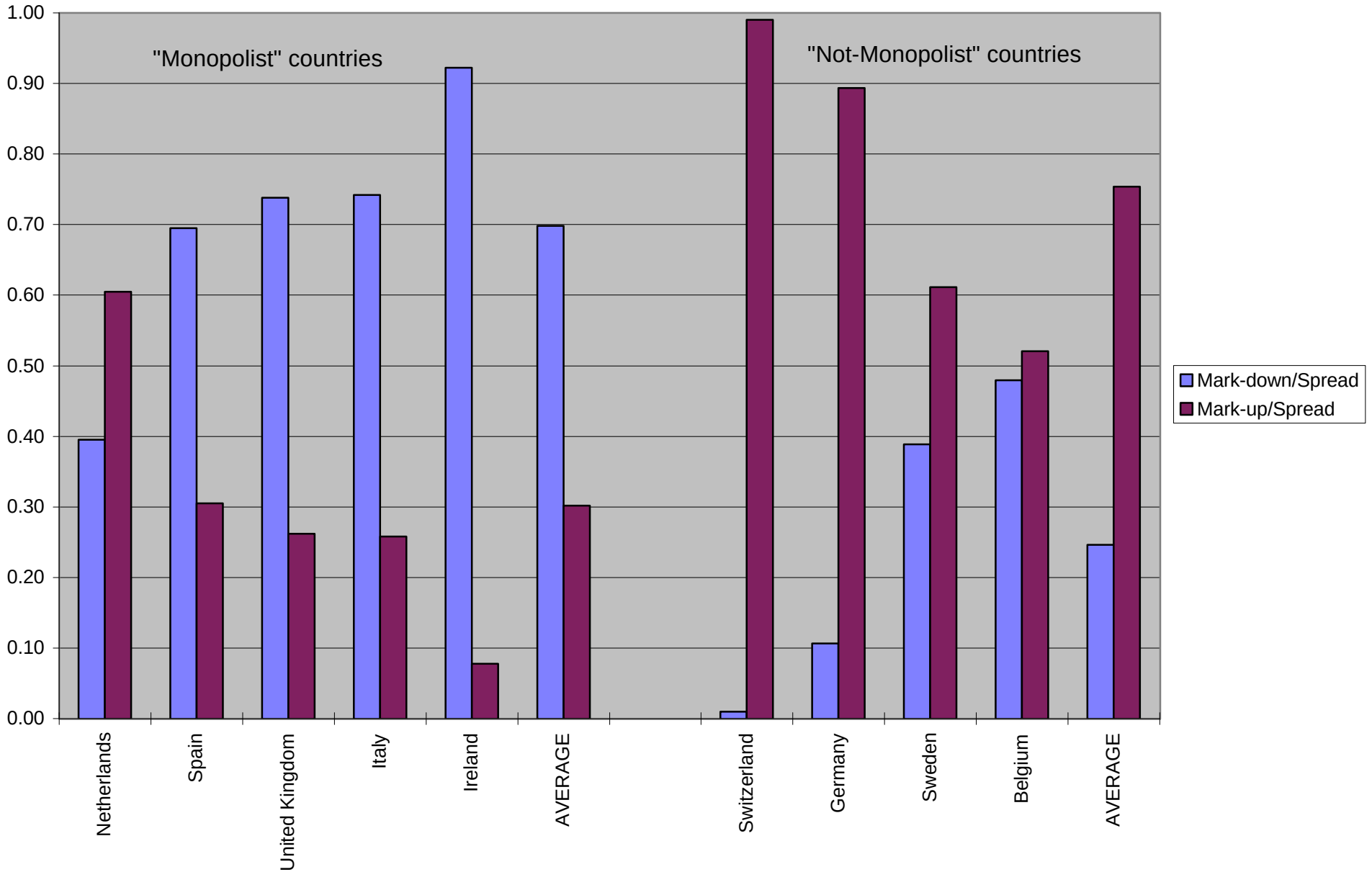


Table 4: Bank balance sheet comparisons between the "all banks" series and the "commercial banks" series in "monopolist" and "not-monopolist" countries (Average 1985-94. Source: OECD, 1996)

	All banks in monopolist countries	All banks in not-monopolist countries	Commercial banks in monopolist countries w/o Turkey	Commercial banks in not-monopolist countries
% of average balance sheet total				
Interest income	9.86	8.36	11.86	8.42
Interest expenses	6.88	6.38	9.16	6.08
Net interest income	3.03	1.98	2.69	2.34
Non-interest income (net)	1.10	0.96	1.62	1.11
Gross income	4.12	2.95	4.31	3.45
Operating expenses	2.55	2.09	2.88	2.44
Net income	1.57	0.85	1.43	1.01
Provisions (net)	0.70	0.59	0.77	0.60
Profit before tax	0.87	0.28	0.66	0.41
Income tax	0.32	0.13	0.24	0.21
Profit after tax	0.55	0.14	0.42	0.19
Distributed profit	0.31	0.12	0.24	0.18
Retained profit	0.24	-0.06	0.24	-0.05
Staff costs	1.54	1.05	1.68	1.15
Provisions on loans	0.76	0.53	0.93	0.68
Provisions on securities	0.14	0.03	0.00	0.05
% of gross income				
Net interest income	73.35	68.18	61.82	69.62
Non-interest income (net)	26.65	31.82	38.18	30.38
Operating expenses	62.31	70.39	60.14	72.60
Net income	37.69	29.61	39.86	27.40
Provisions (net)	16.71	19.44	20.55	16.95
Profit before tax	20.97	10.88	19.31	10.45
Income tax	7.45	4.91	6.69	6.29
Profit after tax	12.56	5.96	12.62	4.16
Staff costs	38.68	36.16	35.69	34.64
% of net income				
Provisions (net)	43.61	53.71	52.78	55.34
Profit before tax	56.39	48.28	47.22	43.55
Income tax	20.18	13.98	16.88	17.43
Profit after tax	33.49	34.30	30.33	26.12
% of year-end balance sheet total				
Assets				
Cash&balance with C.B.	4.94	1.52	7.06	2.21
Interbank deposits	14.03	22.13	21.45	14.58
Loans	48.93	53.83	46.47	57.61
Securities	14.99	15.71	15.47	16.73
Other assets	17.11	6.81	9.55	9.12
Liabilities				
Capital & reserves	7.88	4.65	4.93	5.22
Borrowing from C.B.	1.36	1.99	0.84	2.57
Interbank deposits	12.51	24.58	18.59	20.84
Non-bank deposits	54.70	45.71	64.16	54.30
Bonds	5.94	13.80	3.77	6.56
Other liabilities	24.00	9.27	12.35	13.11
Memoranda				
Short-term securities	4.01	3.39	6.11	3.40
Bonds	9.12	9.85	9.04	9.55
Shares and participations	1.81	1.99	1.82	2.50
Claims on non-residents	13.81	21.85	44.83	23.08
Liability to non-residents	14.49	24.39	50.48	29.97

Table 5: Market Structure in Banking in EU countries according to the regulatory regime								
Countries	branches	ATMs	employees	wages in b	Concentra-			
Monop	(per 1,000	(per 1,000	(per 1,000	(as a % of	tion index			
Greece	0.24	0.14	5.21	106				
Ireland	0.3	0.28	6.5	118	42.2			
Italy	0.43	0.42	6.14	219.5	26.1			
Netherland	0.44	0.37	7.2	136.1	75.4			
Portugal	0.38	0.45	6	160	80			
Spain	0.95	0.76	6.28	153.2	44.35			
UK	0.32	0.31	7.91	133	28			
Luxembou	0.85	0.53	*45.02*	182	21.81			
Avg.	0.545	0.335	6.56	144	32.005			
Not Monop								
Austria	0.58	0.48	9.64		38.96			
Belgium	0.74	0.41	7.5	172.78	55			
Denmark	0.42	0.24	8.3	117	78			
France	0.44	0.42	6.9	168	41.2			
Germany	0.58	0.46	9.17		16.67			
Sweden	0.28	0.27	4.9	133	86.21			
Finland	0.34	0.45	5.56	116.6	73.56			
Avg.	0.46	0.465	7.6	141.476	56.26			
1996 Data.	Source: ECB							