CENTRAL BANKS OR SINGLE FINANCIAL AUTHORITIES? A POLITICAL DELEGATION APPROACH

1.Introduction

This paper presents an analysis of recent trends and determinants in the architectures of financial supervision. We wish to explore theoretically and empirically the unification process in the financial sector supervision, testing our hypotheses with sample of 69 countries.

The financial supervision regimes vary significantly from country to country. A review of the financial supervision architectures[1] indicates a trend toward a gradual concentration of supervisory powers. In Europe this trend toward the unification of supervisory powers has been rather strong in recent years: in addition to the Norway - the first country to establish a single supervisor in 1986 - and the Iceland (1988), five other countries, members of the European Union - Austria, Denmark (1988), Germany (2002), Sweden (1991) and United Kingdom(1997) - have assigned the task of supervising the entire financial system to a single authority different and independent from the central bank. Also four countries involved in the EU enlargement process - Estonia (1999), Latvia (1998), Malta (2002) and Hungary (2000) - have reformed their structures, concentrating all the powers in a single authority[2], while out of Europe the unified agency was established in Korea (1997) and Japan (2001).

The aim of the theoretical, institutional and empirical analyses is therefore to discover the dynamics in financial supervisory regimes, and their determinants – if any - in a worldwide cross-border perspective.

From the methodological standpoint, we develop in a delegation approach the classic intuitions of the new political economy[3], applied in the financial supervision area[4]. We base our work on two main hypotheses: the definition of the supervisory regime is endogenous; the choice of policymakers to maintain or reform a given supervisory regime is constrained and influenced by the structural economic and institutional features of their own countries, rather than by a generic, ill-defined social welfare function. Furthermore, it will be quite natural to acknowledge the suggestions of the recent new comparative economics[5].

In other words the thesis that it will be tested is the following: in a given country, the optimal financial supervisory design is dependent on structural economic and institutional features. Each financial supervisory architecture is confirmed or reformed by the policymakers, who in turn are influenced by the economic and institutional structure of their countries. Therefore, the financial supervisory architecture can be considered an endogenous variable, which depends on a set of medium/long-term features.

The paper is organized as follows. Focusing on the key issue in the debate on financial supervisory structure – single supervisor versus multi-authorities model – Section two claims that the optimal

[1] The review is performed in Section four.

[2] De Luna Martinez and Rose (2001) claim there are at least other seven countries considering to adopt a form of integrated supervision: Bulgaria, Indonesia, Kazakhstan, Poland, Slovakia, Slovenia and Ukraine. European Central Bank (2003) claims that a single supervisory authority will likely be established in Belgium.

[3] For the new political economy approach see Drazen (2000) and Persson and Tabellini (2000).

[4] For the theory of financial regulation see Llwellyn (1999), (2001), and Estrella (2001).

[5] For the law, endowment and finance literature see Beck, Demirguc – Kunt and Levine (2002). See also La Porta et al. (1998), (1999).

degree of unification in the financial supervisory regime cannot be defined *a priori*; rather it is an expected variable, calculated by the policymakers that maintains or reform the financial architectures. Therefore in Section three the adopted approach is to consider the supervisory structure with one or more authorities as an *endogenous* variable, determined in turn by the dynamics of other structural variables, economic and institutional, that can summarize and explain the political delegation process. In order to construct an endogenous variable, in Section four it is introduced a Financial Authorities' Concentration Index (FAC Index), to have an indicator of the degree of unification of powers. Then in Section five it is considered the nature of the institutions involved in the control responsibilities. In particular, we must ask what role the central bank plays in the various national institutional settings. It is introduced an index of the central bank's involvement in financial supervision, the Central Bank as Financial Authority Index (CBFA Index). Using both the FAC Index and the CBFA Index we shed light on the current trends in the financial supervision architecture. In Section six, to empirically gauge the possible determinants of the degree of concentration of powers, it is performed an econometric analysis of the Probit and Logit types. Section eight put forward some conclusions.

2. Financial Supervision Architectures: The Traditional Approach

From the conceptual point of view, our starting point is obviously the *blurring effect*[6] that current developments in the banking and financial industry are having on supervisory issues[7]. Increasing integration has taken place between the banking, securities and insurance markets, as well as among the corresponding products and instruments. The blurring effect produces in particular two intertwined phenomena: the emergence of *financial conglomerates*[8], that is likely to produce important changes in nature and dimensions of the single intermediaries, as well as in the degree of consolidation of the banking and financial industry; the growth of the *securitisation* of traditional forms of banking activities and the proliferation of sophisticated ways of bundling, repackaging and trading risks, that weakened the classic distinction between equity, debt and loans[9], leading changes in nature and dimensions of the financial markets.

The financial blurring process poses at least three questions in the debate on financial supervision structure[10]: sectoral (institutional) approach versus functional approach; single supervisor model versus multi-authorities model; and, particularly in the European Union, centralized setting versus decentralized setting[11].

It is a fact that, in the perspective of increasing financial integration, the relevance of the first question has been rapidly declining. Theoretically, the sectoral approach is based on the possibility of separating the banking, securities and insurance markets. The progressive erosion of market separation is likely to cause the "default" of the institutional approach[12]. Institutionally, the above

[6] See the "classic" Corrigan (1987).
[7] See Dale (1997) and White (1997).
[8] See European Commission (2002) and de Luna Martinez and Rose (2003).
[9] de Luna Martinez and Rose (2003).
[10] See Di Giorgio and Di Noia (2002).
[11] The range of possible models for the structure of financial supervision at a national and a European level is identified by Kremers, Schoenmaker and Wierts (2001).
[12] For a deeper analysis see Masciandaro and Porta (2004). See also Di Giorgio and Di Noia (2002) and Schoenmaker (2003).

hypothesis that the financial blurring trend favours the alternative functional supervisory approach is confirmed by the fact that various models ("pure" or "mixed") of such a supervisory approach have been adopted recently or is currently under discussion in several countries[13].

From the other standpoint, particularly in the European context[14], the centralized versus decentralized question seems to be 1) a second-stage problem, given that alternative solutions are likely to be strictly dependent on the various European national answers or positions on the optimal design of the financial supervisory framework, notwithstanding it has been rightly noted that the choice at the European level does not necessarily have to co-incide with the choices at the national level[15], 2) closely linked to the answer to the single supervisor approach versus multi-authorities approach dilemma, 3) less urgent respect to the national dilemmas, given that while the blurring effect urges countries to choose their supervisory model, at the European level it can possible to wait for comparative data[16] and experiences.

Today, therefore, given the dominance of the functional approach and the "deferred" nature of the centralized-decentralized questions, the alternative between the financial single authority (integrated or unified) model and the financial multi - authorities model seem to be the more relevant one.

Identifying the optimal supervisory regime between the two models is a truly interesting problem. *Prima facie*, from the theoretical point of view, the single supervisor model seems to be the "natural" and best answer to the challenges posed by the market-blurring and financial conglomerates phenomena[17]. If, in the long run, the expected financial structure is a perfect integrated and unique market, the best design for the supervisory architecture would seem to be the single authority[18]. Furthermore, also considering the institutional point of view, the success of the single supervisor model seems to be growing, particularly in the European area: the UK[19], Austria, Denmark, Germany, Norway and Sweden[20] have chosen to delegate financial supervision to a single authority[21], as well as Estonia, Latvia, Malta and Hungary. But the answer is not so simple.

A strand of recent literature[22] pointed out that, given different institutional settings, it is possible to highlight the corresponding gains and losses[23], and then to perform a rational cost-benefit analysis to choose between alternative models[24].

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[13] See Section four.

[14] On the European financial regulation architecture debate see Schoenmaker (2003), Schuler (2003); see also Prati and Schinasi (1999), Padoa Schioppa (1999), Vives (1999), European Commission (2000), Favero et al.(2000), European Central Bank (2001), Wise Men (2001), OECD (2001) and (2002), Di Giorgio and Di Noia (2002). In particular, for the European Financial Services Authority solution see Eijffinger (2001) and Vives (2001).

[15] Schoenmaker (2003).

[16] Schoenmaker (2003).

[17] See De Luna Martinez and Rose (2001). The importance of financial conglomerates in explaining the current regulators architecture reforms is claimed in Abrams and Taylor (2001), Whalen (2001), Grunbichler and Darlap (2003), Schoenmaker (2003).

[18] See Lanoo (2000) and Briault (1999).

[19] See Briault and Gelter (1995), Norgren (1998), Briault (1999)

[20] See Taylor and Fleming (1999).

[21] See Lannoo (2000).

[22] See explicitly Hawkesby (2000), but most of the quoted studies seem to be consistent with the cost-benefit approach.

[23] For a complete analysis on the arguments in favor of and against integrated supervision see De Luna Martinez and Rose (2001).

[24] In the specific banking regulation area, Kahn and Santos (2001), provide a theoretical analysis of several alternative institutional allocations of regulations.

We agree with the initial intuition—the importance of the cost-benefit analysis[25]—but the relative conclusion on the possibility to find an optimal supervisory regime seem to be rather unsatisfactory and inconclusive. First, one can say that, given a single authority, it is possible to increase the efficiency in the relationship between supervisor and regulated firms, because the cost of supervision and the possibility of supervisory arbitrage decrease[26]. But one can also say that, given the single supervisor model, efficiency in the supervisor-regulated firm relationships decreases because, with a single authority, the capture risks could increase[27] as well as the innovations incentive in the regulated industry could decrease[28] (Table 1). Therefore, the sign and the magnitude of the single supervisor model effects, with respect to the regulated firm relationship issues, seem rather vague and ambiguous.

One can reach the same kind of conclusion by analyzing the relationship between the single authority and the political system (independence and accountability[29], discretionality [30] or capture[31]?), the effects in terms of supervisory organization and resource allocation (economies[32] or diseconomies of scale[33], benefits or costs of goal conflicts' internalization[34]?), and the consequences on the financial services costumers behaviour (confidence[35] or over-confidence[36]?).

Therefore it has been correctly claimed that there no exist a "superior" model of supervision[37]. In reality, the gains and losses of a supervisory model are *expected* variables, calculated by the agents (i.e. the policymakers) that maintains or reform the supervisory regime. But the expectations of policymakers, given their own specific goals, are likely to be influenced by structural economic and institutional variables, which may vary from country to country. Therefore the supervisory regime is *not* a given. On the contrary, given the national economic and institutional endowment, these variables can determine, *ceteris paribus*, the policymakers' expected gains or losses of a specific supervisory regime. The supervisory regime becomes the endogenous variable. In other words, the optimal supervisory regime is a sort of path-dependent variable.

[25] The prons and cons of the integrated model are analysed in Barth, Nolle, Phumiwasana and Yago (2002), Kremers, Schoenmaker and Wierts (2003),
[26] Briault (1999), Llewellyn (1999b), Goodhart (2002).
[27] Taylor (1995).
[28] Barth, Nolle, Phumiwasana and Yago (2002).
[29] Briault (1999), Llewellyn (1999b), Lannoo (2000), Abrams and Taylor (2001). On the meaning of regulatory and supervisory independence see Quintyn and Taylor (2002). Beck, Demirguc-Kunt and Levine (2003) examine the impact of bank supervision independence on the corporate financing obstacles.
[30] Goodhart et al. (1998). See also Laslett and Taylor (1998), Quintyn and Taylor (2002). On the risks of excessive power of a single regulator see also Taylor (1995), Briault (1999), Llewellyn (1999b).
[31] Fender and Von Hagen (1998).
[32] Briault (1999) and (2002), Llewellyn (1999b), Lannoo (2000). Abrams and Taylor (2001) and Goodhart (2002) claim that the economies of scale argument is most applicable in small countries or those with small financial systems. Abrams and Taylor (2001) argue that the shortage of supervisory resources is a serious problem particularly in emerging market economies.
[33] Goodhart et al. (1998).
[34] Briault (1999), Llewellyn (1999b), Lannoo (2000), Wall and Eisenbeis (2000).
[35] Llewellyn (1999b).
[36] Lannoo (2000).
[37] Briault (2002), Lumpkin (2002), Schoenmaker (2003).

TAB. 1 SINGLE AUTHORITY: TRADITIONAL COST BENEFIT ANALYSIS

	EXPECTED BENEFITS	EXPECTED COSTS
AUTHORITY-REGULATED FIRMS RELATIONSHIPS	⇩ SUPERVISION COSTS + SUPERVISION ARBITRAGE	⇧ CAPTURE RISKS + INNOVATIONS DISINCENTIVES
AUTHORITY-POLITICAL SYSTEM RELATIONSHIPS	⇧ INDEPENDENCE GAINS	⇧ CAPTURE RISKS
AUTHORITY INTERNAL ORGANIZATION	⇧ ECONOMIES OF SCALE	⇧ DISECONOMIES OF SCALE
	⇧ GOAL CONFLICTS INTERNALIZATION BENEFITS	⇧ GOAL CONFLICTS INTERNALIZATION COSTS
FINANCIAL SERVICES COSTUMERS	⇧ CONFIDENCE BENEFITS	⇧ OVERCONFIDENCE COSTS

Having defined the theoretical framework of the endogenous supervisory regime, the following question is empirical: are there common cross-border economic and/or institutional structural variables that explain why a country chooses or rejects a given supervisory model?

It is evident that, if a given supervisory regime is characterized by common economic and institutional endowments, the probability that this model will be adopted in a specific country, or in a specific area, will depend on the presence of these endowments.

3. Financial Supervision Architecture as Endogenous Variable: a Political Delegation Approach

The preceding Section made it manifestly evident that the quest for optimal financial supervision architecture cannot be pursued through a simple analysis of the costs and benefits expected from the possible alternative structures. If, in fact, one proposes to compare two counterpoised models—a Single Authority versus a system with Multiple Authorities—one realizes that each of them offers expected benefits but also expected risks. So a theoretical analysis of the *potential effects* of alternative supervisory structures does not take us very far.

The first natural response to this problem would therefore be to estimate the *real* effects the two alternative supervisory models have on key economic variables. But this immediately fosters at least three orders of difficulty.

Firstly, as we will show in the following Sections, the emergence of a Single Authority is only the most striking aspect of a more general and gradual phenomenon: diversification, from country to country, in the degree of unification of financial supervisory power. What has occurred is that, compared to the traditional model of control by sectors, some countries have confirmed that model, other have radically changed it by adopting a Single Financial Authority, while others have taken or confirm intermediate choices. This raises the problem of measuring the degree of concentration of powers, country by country, in order to attempt the quantitative description of a qualitative phenomenon.

Hence the first objective of the research agenda is to propose an indicator of this phenomenon to improve the *descriptive* analysis.

Secondly, the issue of the optimal degree of concentration of financial supervisory powers has emerged only recently, with the reforms adopted in various countries, so considering the type of supervisory regime as an explicative or *exogenous* (though not unique) variable of any other economic phenomenon means undertaking an analysis of extremely short historical series, with all the related problems of interpretation.

Thirdly, completely and satisfactorily identifying what the key economic variables are, and the most possible object of an estimate, on which a supervisory structure makes it effect felt, is not a simple problem. Alternative supervisory structures may, for example, affect the level of efficiency of the public resources invested in monitoring the financial markets. Indicators can be found for the efficiency phenomenon, and empirical analysis can therefore proceed.

The point is that alternative structures may also (perhaps especially) affect other variables that are important but less easily expressed in concise indicators. Examples are stability[38], reputation risk, or confident benefits, or the risk the authority will be captured by the policymakers or by the controlled intermediaries.

Thus a quantitative search for the effects of alternative supervisory structures is probably premature[39]. It might be interesting, rather, to ask: are there any common determinants in the

[38] On the elusive and ambiguous nature of the concept of financial stability from an empirical point of view see among others Garcia Herrero and del Rio (2003), Schoenmaker 2003, Grunbichler and Darlap (2003).

[39] Barth, Caprio and Levine (2001) empirically analyze the relationship between specific regulatory measures (capital ratios, deposit insurance, inspection rules, etc..), some bank performance indicators (asset growth, intermediation

decision each country makes to maintain or reform its control structure? Finding a response would help us not only to interpret what has happened in the past but also to project scenarios of change for the future.

Thus the second empirical objective of the research agenda is to attempt to concentrate on an analysis of the *causes* that have helped bring about a given supervisory structure, in one or more countries, so as to provided an econometric analysis.

The approach we intend to follow here—extending the indication that the new political economy[40] has formulated in analyzing the definition of public policies—is to consider the supervisory structure with one or more authorities as an *endogenous* variable, determined in turn by the dynamics of other structural variables, economic and institutional, that can summarize and explain the *political* process that leads a country to maintain or reform its supervisory structure.

A country confirms or reforms its supervisory structure when its policymakers decide it is advisable to do so. While we do not believe that policymakers are always and ever benevolent dictators, nor do we wish to exclude this *a priori*, we can assume that these decisions are generally determined, in turn, by structural factors of a financial, economic and institutional nature. The search for these factors is a task for economic analysis.

From the methodological standpoint[41], the analogy with the abundant, consolidated literature on the independence of central banks may be of some interest, since, if we look closely, this issue is nothing more than the quest for an optimal structure for the monetary agency.

In this literature, the theoretical models produced no general, univocal result regarding the desirability of a structure with an independent central bank versus one with a dependant monetary authority. In fact, considering the industrialized countries, while the relationship between independence and control over inflation seemed sufficiently robust and convincing[42], the relationship between independence, on the one hand, and fiscal and real variables[43], on the other, was far from certain. Thus the theoretical cost-benefit analysis of alternative monetary regimes could not be considered conclusive.

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margin, costs, loan losses) and institutional indicators (corruption). The difference from the analysis described here is evident: the object of analysis is the general design of the controls, not the individual rules of supervision. Above all, however, this work does not resolve the difficulties pointed out here: even individual supervisory measures have changed in various countries in recent years, so saying that all the data already fully reflect the effects of reforms is a rather bold statement; secondly, a complete judgment on the effects produced is not possible, since the set of performance indicators used is obviously partial. Barth, Nolle, Phumiwasana and Yago (2002) examine the relationship between the structure, scope and independence of bank supervision and bank profitability; the results indicate a weak relationship, and – more importantly for our methodological remarks – the authors estimates using an alternative source of data failed to duplicate this result. Demirguc-Kunt, Laeven and Levine (2003) examine the impact of bank regulations on bank interest margins and overhead costs; bank regulation however become insignificant when controlling for national indicators of economic freedom or property rights protection, that represent structural institutional variables in our terminology. Beck, Demirguc-Kunt and Levine (2002) examine the impact of bank supervision on the financial obstacles faced by corporation across 49 countries; the data are based on survey questions. Again our above remarks can be applied: here we have the perceptions by specific economic agents of the effects of supervision on specific set on indicators.

[40] For the new political economy approach see Persson and Tabellini (2000).

[41] For a recent and complete survey see Berger, de Haan and Eijffinger (2000).

[42] See Cukierman (1994) Berger, de Haan and Ejffinger (2000). See also Alesina and Gatti (1995)

[43] See Cukierman (1992).

We then went on to verify the theoretical conjectures with comparative, institutional and empirical analysis. After constructing indices of independence of the central banks[44], and having historical alternative models of independent and dependent monetary authorities[45], we attempted to determine whether the degree of legal independence could be considered an independent variable in explaining important macroeconomic phenomena: inflation, deficits and public debt, income and growth[46].

But above all, still on the methodological plane, the next step forward in the research was to *endogenize* the degree of central bank independence[47], in order to identify what economic and/or institutional structures could explain the decision of one or more countries to maintain or reform their monetary regimes, i.e. the degree of independence of their central banks.

The studies on endogenization of the degree of central bank independence were both theoretical and empirical and helped explain under what conditions a given country might decide to reform the institutional structure of its central bank, to modify its degree of independence.

Various interpretative hypotheses were advanced to explain the genesis of the political process that leads a monetary regime to assume given characteristics. Development in endogenizing central bank independence – or its effectiveness - has been the subject of analysis in both economics and political science. Some[48] revealed the possibility that the degree of central bank independence depends on the degree to which constituencies strongly averse to inflation are present, especially within the financial community, as political interest group, which drives policymakers to bolster the status of the central bank (*financial interest group*); others[49] have stressed that the features of the legislative and/or political system can influence policymakers to decide whether to have a structure of monetary powers with an independent central bank (*political interest group*) [50]; others have pointed out that the policymakers may have a specific interest in establishing an independent central bank in their country, for reasons linked to political stability[51] or international credibility[52]

[44] After the seminal central bank independence indices published by Grilli, Masciandaro and Tabellini (1991), followed by Cukierman indicators (1992), different indicators were proposed; for a discussion see Berger, de Haan and Eijffinger, (2000).

[45] See Toniolo (1988).

[46] See Alesina and Summer (1993), Cukierman (1994) and Berger, de Haan and Eijffinger (2000).

[47] See Masciandaro (1995) and Berger, de Haan and Eijffinger (2000); note the difference between institutional setting endogeneity and inflationary bias endogeneity.

[48] Maxfield (1994). Posen (1995), noting that there are distributive consequences in the choices of monetary regimes, stated that there is no reason to assume that the adoption of central bank independence is self-enforcing; that choice requires political support, and the financial sector is positioned to provide that support. De Haan and Van't Hag (1995) raised doubts about Posen's theory. On the relationships between financial sector preferences, low inflation and central bank independence see also van Lelyveld (2000).

[49] Moser (1999)

[50] Cukierman (1994); however his predictions are tested and rejected by Cukiermann and Webb (1995) and by De Haan and Van't Hag (1995). Vaubel (1997) suggests that central banks, even if formally independent, can be captured; Sieg (1997) proposes a formal model of a captured independent central bank. Bernhard (1998) claims that information asymmetries of the monetary policy process can create conflicts between government ministers, their backbench legislators and, in multiparty government, their coalition partners; an independent central bank can help overcome these conflicts. Goodman (1991) argues that conservative government with expected short tenure will adopt an independent central bank to limits the ability of future government; see also Milesi- Ferretti (1995). On the relationship between government partisanship and central bank structure see Alesina (1989), Alesina and Sachs (1988). Moser (1999) analyses the relationship between the central bank independence and the features (checks and balances) of the legislative systems; Keefer and Stasavage (2001) introduce a theoretical model and empirical evidence on this issue.

[51] Bagheri and Habibi (1998). De Haan and Van't Hag (1995) test the hyphotesis that government planning to incur higher deficits may wish to increase credibility granting more central bank independence; no supporting evidence is found. The importance of central bank law design for the central bankers is clearly claimed in Poole (2003).

(*specific public interest*); others[53] have stressed the role of the culture and of the tradition of monetary stability in a country or the importance of the citizen preferences[54] (*general public interest*).

It is evident that studies of this type acquire great importance, especially in periods when there is a tendency to reform or at least to question the design of the rules. And while in the past this was the case with analyses of central bank independence, it now applies for the first time to the debate on authorities in the financial field. In fact to the best of our knowledge no studies examine the relationships between politics and financial supervisory architecture[55].

In conclusion, regarding the issue of financial supervisory models, there are obvious analogies of approach with the debate on central bank independence, as well as one principal difference: in our case, we are "forced" to skip the first phase - exogeneity - and attempt the endogeneity approach directly.

Finally, the endogenization of the policymaker's choice of the optimal level of concentration in the supervisory architecture will be more effective, however, if analyzed as a problem of delegation, through a principal–agent approach. Principal-agent models have found interesting applications in the area of monetary policy studies[56]: it is in the interest of the policymaker (the principal) to delegate the conduct of anti-inflationary monetary policy to an independent central bank (the agent), because this makes that policy more effective.

The principal–agent approach can also be applied to the problem being examined here, even though the degree of complexity is rather greater.

The first step is to explain which objective (What?) the policymaker intends to pursue in delegating the supervisory policy over the banking, financial and insurance system. The second step is to analyze the policymaker wishes (Why?) to delegate this policy rather than implement it directly, and whether his choices are motivated by general interests or are captive to specific interests[57]. The third step is to ask how many institutions the policymaker delegates this policy to (How many?) and, step four, which institution(s) he utilizes (Who?). What we are proposing here is a political delegation approach[58] in dealing with the financial supervisory architecture issues.

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[52] Maxfield (1997).

[53] Berger (1997), Berger and de Haan (1997). Hayo (1998) claim that people's preferences with respect to price stability matter in explaining low inflation rate, and that the central bank independence is just one aspect of a stability regime, with two competing interpretation on the role of the institutional design: preference – instrument interpretation versus historical-feedback interpretation. Franzese (1999) claims that the effectiveness of central bank independence depends on every variable in the broader political – economic environment.

[54] Eggertsson and Le Borgne (2003).

[55] In general, there are few recent examples of studies on politics and banking ;for a survey see Pagano and Volpin (2001).

[56] For a survey see Masciandaro (1995), Berger, de Haan and Eijffinger (2000).

[57] See Stigler (1971), Laffont and Tirole (1991). For a Stiglerian view of bank regulation see Heinemann and Schuler (2003).

[58] A recent paper – Alesina and Tabellini (2003) – proposed a general model in order to investigate the criteria that should lead a society to allocate policy tasks to elected policymakers (politicians) or non elected bureaucrats. The delegation approach to the monetary policy analysis has been proposed by Persson and Tabellini (1993), Walsh (1995), Svensson (1997), Fratianni, Von Hagen and Waller (1998), in order to solve the inflation bias stemming from a dynamic inconsistent problem. Eggertsson and Le Borgne (2003) proposed a model to explain why, and under what circumstances, a politician gives up rent and delegate policy tasks to an independent agency, applying this theory to the monetary policy.

4. The Degree of Consolidation in Financial Supervision: the FAC Index

If, therefore, we wish to consider the financial supervision regime as an endogenous variable, the first problem is to construct this variable. The question is: How to "measure" the degree of concentration of financial powers[59]?

To this end we attempted to construct a Financial Authorities Concentration Index (FAC Index)[60]. The creation of the index is based on an analysis of which and how many authorities in 69 countries are empowered to supervise the three traditional sectors of financial activity: banking, securities markets, insurance[61].

In Table 2, the initials have the following meaning: B = authority specialized in the banking sector; I = authority specialized in the insurance sector; S = authority specialized in the securities markets; U = single authority for all sectors ; BS = authority specialized in the banking sector and securities markets; BI = authority specialized in the banking sector and insurance sector; CB = central bank SI = authority specialized in the insurance sector and securities markets;

TABLE 2: SUPERVISION AUTHORITIES IN 69 COUNTRIES (year 2003)

	Countries	Banking Sector (b)	Securities Sector (s)	Insurance Sector (i)	Rating	Weight	FAC INDEX
1	Albania	CB	S	I	1	0	1
2	Argentina	CB	S	S	1	0	1
3	Australia	BI	BI,S	BI	7	-1	6
4	Austria	U	U	U	7	0	7
5	Belarus	CB	S	I	1	0	1
6	Belgium	BS	BS	I	5	0	5
7	Bosnia	CB,B1,B2	S	I	1	-1	0

[59] The consolidation process of the financial supervision powers cannot be described using a discrete variable (Single Authority or not). De Luna Martinez and Rose (2001) correctly claim that also in the group of integrated supervisory agencies is not homogeneous as it seems.
[60] See Masciandaro (2003).
[61] Sources: see Masciandaro (2003). The information are updated to the 2003.

8	Brazil	CB	S	CB,I	1	1	2
9	Bulgaria	CB	S	I	1	0	1
10	Canada	BI	Ss(**)	BI	3	0	3
11	Chile	B	SI	SI	3	0	3
12	Colombia	BI	S	BI	3	0	3
13	Croatia	CB	S	I	1	0	1
14	Cyprus	CB	S	I	1	0	1
15	Czech Republic	CB	S	I	1	0	1
16	Denmark	U	U	U	7	0	7
17	Ecuador	BI	S	BI	3	0	3
18	Egypt	BC	S	I	1	0	1
19	Estonia	U	U	U	7	0	7
20	Finland	BS	BS	I	5	0	5
21	France	BC,B1,B2,B3	BC,S	I	1	-1+1	1
22	Georgia	CB	S	I	1	0	1
23	Germany	U	U	U	7	0	7
24	Greece	CB	S	I	1	0	1
25	Hong Kong	CB	S	I	1	0	1
26	Hungary	U	U	U	7	0	7
27	Iceland	U	U	U	7	0	7
28	India	CB,B	S	I	1	-1	0
29	Ireland	CB	CB	CB	7	0	7
30	Israel	CB	S,I	I	1	1	2
31	Italy	CB	CB,S	I	1	1	2
32	Jamaica	CB	SI	SI	3	0	3
33	Japan	U	U	U	7	0	7
34	Jordan	CB	S	I	1	0	1
35	Latvia	U	U	U	7	0	7
36	Lithuania	CB	S	I	1	0	1
37	Luxembourg	BS	BS	I	5	0	5
38	Macedonia	CB	S	-	1	0	1
39	Malaysia	CB	S	CB	3	0	3
40	Malta	U	U	U	7	0	7
41	Mauritius	CB	SI	SI	3	0	3
42	Mexico	BS	BS	I	5	0	5
43	Moldova	CB	S	-	1	0	1
44	Netherlands	CB	CB,S	I	1	1	2
45	New Zealand	CB	S	I	1	0	1
46	Norway	U	U	U	7	0	7
47	Pakistan	CB	CB,SI	SI	3	1	4
48	Peru	BI	S	BI	3	0	3
49	Philippines	CB	CB,S	I	1	1	2
50	Poland	B	B,S	I1,I2	1	1-1	1
51	Portugal	CB	CB,S	I	1	1	2
52	Romania	CB	S	I	1	0	1
53	Russia	CB	S	I	1	0	1
54	Singapore	CB	CB	CB	7	0	7
55	Slovak Republic	CB	SI	SI	3	-1	2
56	Slovenia	CB	S	I	1	0	1
57	South Africa	CB	SI	SI	3	0	3
58	South Korea	U	U	U	7	0	7
59	Spain	CB.Bs(**)	CB,S	I	1	1-1	1
60	Sri Lanka	CB	S	I	1	0	1
61	Sweden	U	U	U	7	0	7
62	Switzerland	BS	BS	I	5	0	5
63	Thailand	CB	S	I	1	0	1

64	Trinidad and Tobago	CB	S	I	1	0	1
65	Tunisia	CB	S	I	1	0	1
66	Turkey	B	G	I	1	0	1
67	UK	U	U	U	7	0	7
69	Ukraine	CB	S	-	1	0	1
69	USA	CB,B	S,Ss**	I,Is(**)	1	-1	0

(*) (b)= banking or central banking law; (s)= security markets law; (i)= insurance law
(**) = state or regional agencies

Then, to transform the qualitative information into quantitative indications, to gauge the degree of consolidation of each specific model of national supervision, we assigned a numerical value to each type of authority, according to the following scale:

7 = Single authority for all three sectors (total number of supervisors=1)
5 = Single authority for the banking sector and securities markets (total number of supervisors=2)
3 = Single authority for the insurance sector and the securities markets, or for the insurance sector and the banking sector (total number of supervisors=2)
1 = Independent specialized authority for each sector (total number of supervisors=3)

The rationale with which we assigned the values considers the concept of concentration of supervisory powers: the greater the concentration, the higher the index value.

We elected to assign a value of 5 to the single supervisor for the banking sector and securities markets because of the predominant importance of banking intermediation and securities markets over insurance in every national financial industry. It also interesting to note that, in the group of integrated supervisory agencies countries, it seems to be a higher degree of integration between banking and securities supervision than between banking and insurance supervision[62]; therefore, the degree of concentration of powers is, ceteris paribus, greater[63].

These observations do not, however, weigh another qualitative characteristic that emerges from Table 1: there are countries in which one sector is supervised by more than one authority.

It is likely that, other conditions being equal, when two control authorities exist in a given sector, and one of which has other powers in a second sector, the degree of concentration of power is greater. When, on the other hand, there are two control authorities in a given sector, neither of which has other powers in a second sector, the degree of concentration is diminished, because the total number of supervisors increases.

It would therefore seem advisable to include these aspects in evaluating the various national supervisory structures by modifying the index as follows:

- adding 1 if in the country there is at least one sector with two authorities assigned to supervision, and one of these authorities is also responsible for at least one other sector;

[62] De Luna Martinez and Rose (2001).
[63] Alternatively, we propose an index (FAC Two) according to the following scale: 5 = Single authority for all three sectors (total number of supervisors=1); 3 = Single authority for two sectors (total number of supervisors=2); 1 = Independent specialized authority for each sector (total number of supervisors=3). As we will shown in Section 7, the econometric performances of the two indices (FAC and FAC Two) are quite similar.

- subtracting 1 if in the country there is at least one sector with two authorities assigned to supervision, but none of these authorities has responsibility for another sector;
- 0 elsewhere

Lastly, there are three qualitative characteristics of supervision models that we decided not to consider in constructing this index.

Firstly, we do not consider the nature of the authorities involved in the financial supervision setting. In particular, in several countries it is the central bank - i.e. the authority responsible for monetary policy - that is responsible for at least one of the three sectors considered, typically the supervision and control of the banking industry. The attribution of supervisory power to the central bank has been at the centre of an intense theoretical and institutional debate over the past decade[64], which in analogy with the problem discussed here has come to no general conclusions, perhaps for the same methodological reasons illustrated earlier.

Furthermore, we do not consider the legal nature – public or private – of the supervisory agencies, nor their relationships with the political system (degree of independence, level of accountability, and so on).

We therefore decided to construct an index that captures the degree of concentration of financial supervisory power regardless of the nature of the institutions involved in this process, i.e. stressing the importance of the pure number of supervisors involved. We will consider the role of the nature of the authorities later on, when we shall deal with the role of the central bank in the overall architecture of financial controls[65].

Secondly, at least in each industrial country, there is an authority to protect competition and the market, with duties that impinge on the financial sectors. But, since it is a factor common to all the structures, we decided not to take the antitrust powers into account in constructing the index[66].

Finally, the financial authorities can perform different functions in the regulatory as well as in the supervisory area[67]. However, at this first stage of the institutional analysis, we prefer to consider just the number of the agencies involved in the supervisory activities. The FAC Index for the 69 countries is shown in Table 2.

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[64] See Goodhart and Schoenmaker (1992), Masciandaro (1993) and (1995), Tuya and Zamalloa (1994), Di Giorgio and Di Noia (1999), Bruni (2001). More recently, Garcia Herrero and del Rio (2003) analyzed the relationship between financial stability and monetary policy design, finding that focusing the central bank objectives on price stability reduce the likelihood of instability, and that the same is true locating regulatory and supervisory responsibilities at the central bank.

[65] Barth, Nolle, Phumiwasana and Yago (2002) claim that the key issues for banking supervision are 1) whether there should be one or multiple supervisory authorities and 2) whether the central bank should be involved in bank supervision. Here we use the same intuition to build up the two indices of financial authorities consolidation.

[66] The relationship between competition policies and stability are examined in Carletti and Hartmann (2002).

[67] Llewellyn (2001) noted that the basic functions performed by regulatory and supervisory agencies cover ten main areas. For our purposes , in order to separate supervision – i.e. monitoring rules compliance – from regulation – i.e. rules setting with managerial discretion - it is possible to distinguish five supervision functions (prudential supervision of financial institutions; conduct of business supervision; administration of deposit insurance; market integrity; financial institutions crisis procedures) from four regulation functions: management of the payment system; prudential regulation, conduct of business regulation, liquidity management. Obviously, however, in different cases it's non easy to do a clear cut between supervision and regulation; on this point of view it is paradigmatic the overlapping between liquidity management and crisis procedures.

5. The Degree of Central Bank Involvement in Financial Supervision: The BCFA Index

At this point, we should also consider the nature of the institutions involved in the supervision responsibilities. Any supervisory regime have to provide a link between the supervision and the central bank, given the potential relationships between monetary stability and financial stability[68]. It has been correctly pointed out[69] that, irrespective of what role, if any, assigned to the central bank with respect to the prudential supervision, it is universally the case that the central bank must be the authority for the stability of the payment system, liquidity assistance to markets and solvent institutions, and systemic stability[70]. The debate of the optimal characteristics of this link is particular important in the European Union, where monetary policy is separated from financial supervision[71]. Therefore we must ask what role the central bank plays in the various national institutional structures[72]. Focusing on the degree of involvement the central bank has in financial supervision as a whole can be immediately explained with the specific nature of that institution with respect to the others, since in every country it is the authority responsible for monetary policy and for the stability of the payment system.

So, to highlight that role, we introduced an index of the central bank's involvement in financial supervision: the Central Bank as Financial Authority Index (CBFA Index)[73]. For each country, and given the three main possible financial sectors (banking, securities and insurance) the index is[74]:

1 = the central bank has responsibility in no sector[75];
2 = the central bank has responsibility in one sector;
3 = the central bank has responsibility in two sectors;
4 = the central bank has responsibility in all three sectors.

Therefore, each national supervisory regime can be identified with at least two characteristics: the degree of concentration of powers (FAC Index) and the degree di involvement of the central bank in that distribution of powers (CBFA Index) (Table 3).

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[68] See Garcia Herrero and Del Rio (2003). On the role of central bank in banking supervision see Goodhart and Schoenmaker (1995), Haubrich (1996), Peek, Rosengren and Tootle (1999), Abrams and Taylor (2001)

[69] Llewellyn (2001).

[70] On note 66, we have defined these functions as payment system management and liquidity management.

[71] See Schoenmaker (2003), Padoa Schioppa (2003), Goodhart and Schoenmaker (1995), Eijffinger (2001), Vives (2001), Goodhart, Schoenmaker and Dsgupta (2003).

[72] See Oosterloo and de Haan (2003).

[73] See Masciandaro (2003).

[74] Alternatively, the different levels of central bank involvement can be measured using the identical scale of the FAC Index (labelled CBFA Two Index): 1 = the central bank has responsibility in no sector; 3 = the central bank has responsibility in one sector; 5 = the central bank has responsibility in two sectors; 7 = the central bank has responsibility in all three sectors. Obviously – Annex II, Table 17 - the econometric performances of the two indices (CBFA and CBFA Two) are equal.

[75] Following the classification introduced in note 66 and used in note 73, we consider without supervision responsibility each central involved only in the payment system management and the liquidity management (and consequently in the crisis procedures).

TABLE 3: CBFA INDEX & FAC INDEX IN 69 COUNTRIES (year 2002)

	Countries	CBFA INDEX	FAC INDEX
1	Albania	2	1
2	Argentina	2	1
3	Australia	1	6
4	Austria	1	7
5	Belarus	2	1
6	Belgium	1	5
7	Bosnia	2	0
8	Brazil	3	2
9	Bulgaria	2	1
10	Canada	1	3
11	Chile	1	3
12	Colombia	1	3
13	Croatia	2	1
14	Cyprus	2	1
15	Czech Republic	2	1
16	Denmark	1	7
17	Ecuador	1	3
18	Egypt	2	1
19	Estonia	1	7
20	Finland	1	5
21	France	3	1
22	Georgia	2	1
23	Germany	1	7
24	Greece	2	1
25	Hong Kong	2	1
26	Hungary	1	7
27	Iceland	1	7
28	India	2	0
29	Ireland	4	7
30	Israel	2	2
31	Italy	3	2
32	Jamaica	2	3
33	Japan	1	7
34	Jordan	2	1
35	Latvia	1	7
36	Lithuania	2	1

37	Luxembourg	1	5
38	Macedonia	2	1
39	Malaysia	3	3
40	Malta	1	7
41	Mauritius	2	3
42	Mexico	1	5
43	Moldova	2	1
44	Netherlands	3	2
45	New Zealand	2	1
46	Norway	1	7
47	Pakistan	3	4
48	Peru	1	3
49	Philippines	3	2
50	Poland	1	1
51	Portugal	3	2
52	Romania	2	1
53	Russia	2	1
54	Singapore	4	7
55	Slovak Republic	2	2
56	Slovenia	2	1
57	South Africa	2	3
58	South Korea	1	7
59	Spain	3	1
60	Sri Lanka	2	1
61	Sweden	1	7
62	Switzerland	1	5
63	Thailand	2	1
64	Trinidad e Tobago	2	1
65	Tunisia	2	1
66	Turkey	1	1
67	UK	1	7
69	Ukraine	2	1
69	USA	2	0

The analyses on the degree of financial supervision consolidation and on the level of central bank involvement let us to have a general picture on the supervisory regimes around the world. Figure 3 shows the levels of both indices for the 69 countries. Dividing the chart into four areas by drawing a line corresponding to half the maximum possible value (3.5 for the FAC Index and 1.5 for the CBFA Index), we delineate four possible supervisory models based on the possible combinations of a high or low level of concentration of powers with a high or low level of central bank involvement.

FIGURE 3: FAC INDEX and CBFA INDEX IN 69 COUNTRIES (year 2002)

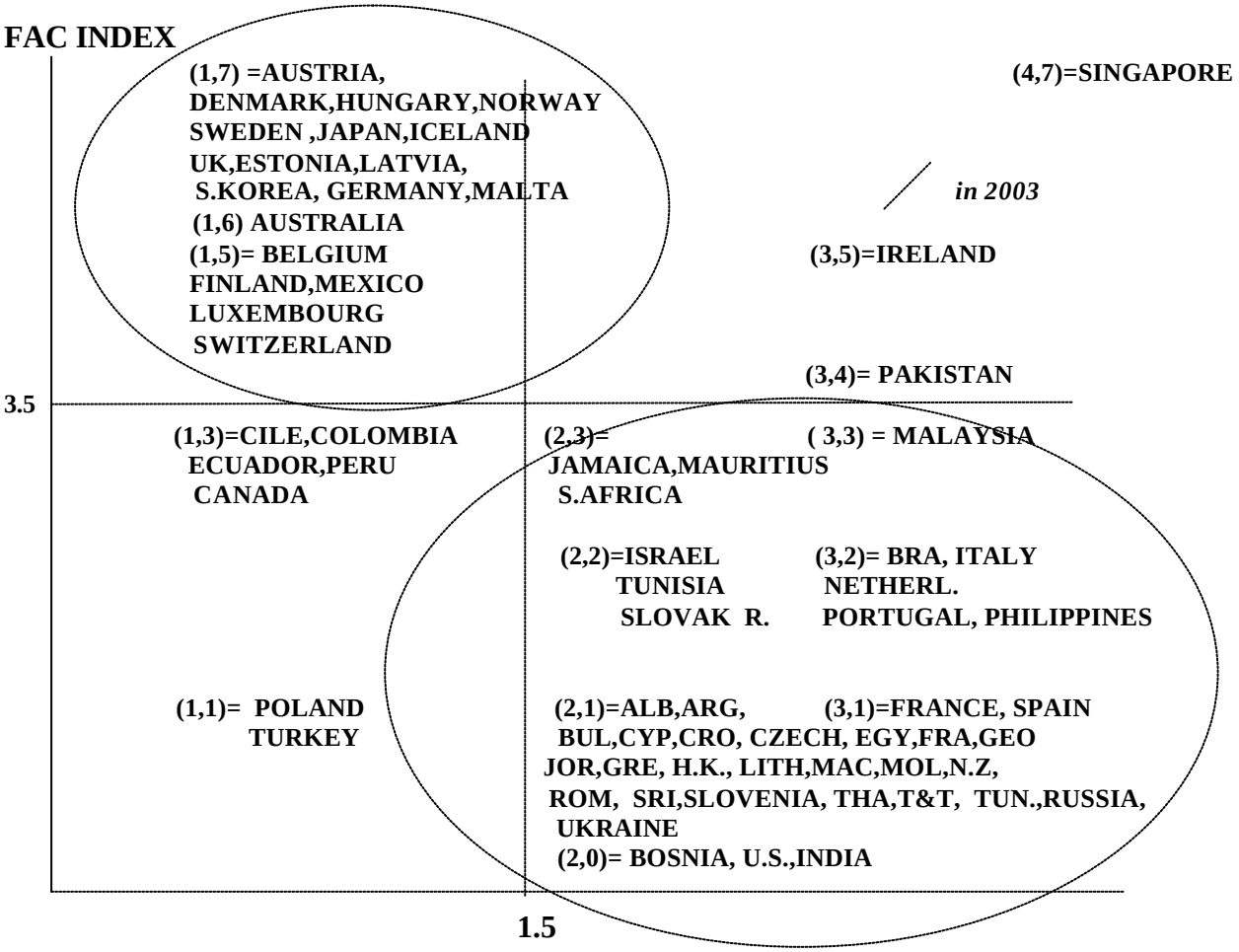

Figure 3 shows that the two most frequent models are polarized: on the one hand, countries with a high concentration of powers with low central bank involvement (*Single Financial Authority Regime*), with 19 countries; on the other, countries with a low concentration of powers with high central bank involvement (*Central Bank Dominated Multiple Supervisors Regime*), with 41 Countries.

The polarization phenomena is more evident in the European Union case. For the actual EU State members, we have on the one hand, countries with a high concentration of powers with low central bank involvement (Single Financial Authority Regime), with 8 countries; on the other, countries with a low concentration of powers with high central bank involvement (Central Bank Dominated Multiple Supervisors Regime), with 6 countries. The Ireland is the exception, with a regime characterized by both a high degree of consolidation and a high level of central bank involvement. Furthermore, if we consider the hypothetical European Union of 27 member states, again we see a huge polarization of the supervisory models: on the one hand the Single Financial Authorities Regime (12 countries), on the other the Central Bank Dominated Multiple Supervisors Regime (11 countries); excluding Ireland, the three remaining countries are characterized by both a low degree of consolidation and a low level of central bank involvement

The descriptive evidence of these two alternative model helps to improve - and to correct too- the idea that actually, given the blurring process in the financial landscape, there are two kinds of prevalent supervisory approach: the integration of financial stability supervision and banking supervision under the roof of the central bank; the integration of the supervision of all financial market intermediaries in an integrated supervisory body[76]. In reality, the consolidation of supervision seems to be more evident in the case of Single Financial Authorities Regime, while in the case of Central Bank Dominated Multiple Supervisors Regime the approach seems to be more consistent to a "leader-followers" framework.

In other words, using the political delegation approach, the descriptive analysis signals at least two results. First, in the financial supervision arena, the policy makers around the world choose to delegate this policy, rather than implement it directly. Second, the political choice on how many agencies have to be involve in supervision is strictly intertwined with the role of central bank: the degree of supervision consolidation seems to be inversely correlated with the central bank involvement. How to explain – before to test it econometrically – these stylised facts? It has been argued[77] that the reason of the trade off between the supervision consolidation and the central bank involvement is because of a fear that the safety net – central bank function of lender of last resort – might be spread to a wider set of institutions than just banks if the central bank is also involved in supervising insurance and securities trading firms (*blurring hazard effect*). Furthermore, a political economy explanation could be add to this economic interpretation: in the country in which the central bank is deeply involved in supervision, the policy makers could fear the creation of a too much powerful bureaucratic agency, and therefore they prefer to have more supervision agencies, and consequently a less consolidated supervisory regime (*monopolistic bureau effect*).

[76] Grunbichler and Darlap (2003).
[77] Llewellyn (2001).

6. The Trade Off between Supervision Consolidation and Central Bank Involvement: the Econometric Analysis

The descriptive analysis conducted in the preceding Section claims that each country has its index of concentration of powers of financial supervision, which reaches its maximum level in cases where there is a single authority and the minimum when there are more than three supervisors.

We are spontaneously prompted to ask: can common determinants be found in the decisions the policymakers in each country have made in recent years to maintain or reform their control structure, and then to choose the features of the delegation scheme?

Our response is precisely to regard the supervisory structure with a single or multiple authorities as an *endogenous* variable, determined in turn by the dynamics of other structural, economic and institutional variables, which can summarize and explain the *political* process that leads the policymakers in one country to decide to maintain or reform its supervisory structure, and then their own delegation scheme.

What are the structural variables that can explain the decisions of national policymakers? Policymakers can decide the architecture of controls on the basis of *institutional* characteristics and the *economic* and *financial* characteristics of their country. In particular, we can assume that the physiognomy of the institutional system, and that of the banking and financial system, are relevant in each country. And having identified in the above Section a possible relevance of the role the central bank plays in the supervisory regime, it may be interesting to consider this aspect as well.

To assess the relationship between the policymakers decisions to determine the financial architecture and given country economic and institutional characteristics we can estimate a model of the probability of different regime decisions as a function of these structural variables.

In fact the IFAC regimes can be viewed as resulting from a continuous, unobserved variable: the *optimal degree of financial supervisors concentration*. Each IFAC regime corresponds to a specific range of the optimal financial supervisors concentration, with higher discrete IFAC values corresponding to a higher range of financial concentration values. Since the IFAC is a qualitative ordinal variable, the estimation of a model for such a dependent variable necessitates the use of a specific technique.

Our qualitative dependent variable can be classified into more than two categories, given that the FAC Index is a polychotomous variable. But the FAC Index is also an ordinal variable, given that it reflects a ranking. Then the ordered multinomial model can be use for estimation in a context of an ordinal polychotomous variable[78].

Let assume the unobserved continuous variable, the optimal degree of financial supervisors concentration, y^*, is a linear function of a set of explanatory variables x, with parameter vector β, and an error term ε:

$$y^* = b' x + e$$

[78] For further details on the ordinal polychotomous variable estimation see Wooldrige (2002).

As usual, y^* is unobserved. What is observed are the choice of every policymaker to maintain or to reform the financial supervisory architecture: this choice is summarize in the value of the FAC Index. Given that the FAC Index range from zero to seven:

$y = 0$ if $y^* \leq m1$

$y = 1$ if $m1 \leq y^* \leq m2$

$y = 7$ if $m7 \leq y^*$

The ms are unknown partition boundaries (or cut points) that define the ranges of the FAC Index; these parameters must be estimated in conjunction with the β vector. Estimation proceeds by maximum likelihood, assuming that ε is normally distributed across countries observations, and the mean and variance of ε are normalized to zero and one. This model can be estimated with an ordered probit model or with a ordered logit model[79].

We have first produced an econometric analysis of the Probit type: the dependant variable is the FAC Index, while the independent regressors proved are a broad set of economic, financial and political variables, based both on our own assessment of variables that could play a significant role in explaining the financial regime, and on data availability. The selected sample is the broader one, represented by 68 countries[80].

As it has claimed above, no theory exists on the relationships between politics and financial supervisory architecture. Therefore we try to test the more general hypotheses.

First, the policy maker choices in order to maintain or to reform the financial supervisory architecture could be depended on the structure of the financial systems itself. In the modern debate on financial structure, it's usual to confront the equity dominance model (or *market based regime*) with the bank dominance model (or *bank based regime*). Furthermore, recent literature pointed out the close relationship, in every country, between the financial structure model and corporate governance model, with a particular attention to the relative political determinants.[81] Therefore, the first relevant question is: does the financial structure model (i.e. the private governance model) (*private governance factor*) matter in defining the policy maker choices on the level of concentration in the supervisory structure?

The expected sign of the relationship between the degree of supervision consolidation and the private governance factor is undermined. In Section Two we stressed the importance of blurring process for the banking and the financial market worldwide. The blurring process means potential

[79] The maximum likelihood estimations were carried out by a packaged ordered probit and ordered logit commands in STATA.

[80] Initially we drop the peculiar case of the Monetary Authority of Singapore (MAS), that only on 1 October 2002, after the merger with the Board of the Commissioners of the Currency, became a central bank. The nature of exception of Singapore is stressed in De Luna Martinez and Rose (2001). We have to note also that in Ireland in May 2003 the Department of Enterprise, Trade and Employment (DETE) responsibilities on insurance sector were attributed to the Irish Central Bank. In any case we perform the econometric analyses considering also these cases (see above).

[81] Pagano and Volpin (2000), Perotti and Von Thadden (2003).

changes in the nature and in the dimensions of intermediaries (the financial conglomerates effect). In a bank based regime, if we think that the policy makers choices depend on the features of their own regime, we can suppose a positive relationships between the kind of regime and the degree of financial supervision consolidation, in face of the financial conglomerates effect. At the same time, however, the blurring effects means potential changes in the nature and in the dimensions of the financial markets (the securitisation effects). Therefore, also in a market based regime, we can expect a positive relationships between the kind of regime nature and the degree of financial supervision consolidation, in face of the securitisation effect.

Second, , the institutional environment (i.e. the public governance climate) determines the ability of the policy makers to implement their choices. Then the second relevant question is: does the quality of the public governance (*public governance factor*) matter in defining the policy maker choices on the level of concentration in the supervisory structure?

Also the expected sign of the relationship between the degree of supervision consolidation and the public governance factor is undermined. In Section II we note that a policy maker, whatever is the financial regime of his country, can choose a higher degree of supervision in order to improve the capacity to face the challenges proposed by the blurring process. Then we can suppose a positive relationships between good governance indicators and financial supervision consolidation. But, at the same time, a policy maker can prefer a single financial agency in order to increase his probability to capture the financial supervisory structure. Therefore we could also expect a positive relationships between bad governance indicators and the financial supervision consolidation.

Finally, given the above descriptive analyses, we conclude our search for the explanatory variables by using the CBFA Index. The political choice of the optimal level of financial supervisors concentration could be depended on the role of central bank in the financial architecture. The third relevant question is: does the degree of central bank presence (*central bank factor*) in the financial supervision matter in defining the level of concentration in the supervisory structure? Given the descriptive analysis developed in the above Section and the two possible explanations – the blurring hazard effect and the monopolistic bureau effect - the expected sign of the relationship between central bank involvement and financial supervision consolidation is negative.

In Masciandaro and Porta (2003) we obtained as best specification the Equation (1):

$$(FAC)_i = b_1 + b_2 (CBFA)_i + b_3 (MvBdum)_i + \\ + b_5 (mcap)_i + b_6 (goodgov)_i + e_t$$

with country $i = 1 \ldots 68$ (1)

Where the independent variables are the following:

1. **CBFA Index** is the indicator of involvement of the bank in supervision, defined in the above Section;

2. MvBdum Index (Market vs Bank Index): is a structural indicator (dummy) that expresses the financial system model of a given country, market-based versus bank-based, constructed on the basis of the indices created by Demigüç-Kunt and Levine. [82]

4. mcap = Market capitalization/GDP [83], it shows a measure of the securities market size, relative to the GDP.

5. goodgov = Good Governance, it shows the structural capacity of the government to formulate and implement sound policies. The index is build using all the indicators proposed by Kaufmann et al.(2003)[84]. They define (public) governance as the exercise of authority through formal and informal traditions and institutions for the common good, thus encompassing: 1) the process of selecting, monitoring and replacing governments; 2) the capacity to formulate and implement sound policies and deliver public services; 3) the respect of citizens and the state for the institutions that govern economic and social interactions among them. Furthermore, for measurement and analysis purposes, these three dimensions of governance can be further unbundled to comprise two measurable concepts per each of the dimensions above for a total of six components: 1) voice and external accountability; 2) political stability and lack of violence; 3) government effectiveness; 4) lack of regulatory burden; 5) rule of law; 6) control of corruption. The authors present a set of estimates of these six dimensions of governance for four time periods: 1996,1998,2000,2002. For every country, therefore, first we calculate the mean of the four time values for each dimension of governance; then we build up an index of global good governance in the period 1996-2002, calculating the mean of the six different dimensions.

The estimation results of Equation (1) are reported in the first column, Table 4. Second column of Table 4 reports the estimation results of the same Equation (1) using an ordered Logit model. Note that the impact of a change in an explanatory variables on the estimated probabilities of the highest and lowest of the order classifications – in our case the Single Authority model and the "pure" Multi Supervisory model – is unequivocal: if bj is positive, for example, an increase in the value of xj increases the probability of having the Single Authority model, while decreases the probability of having the "pure" Multi Supervisory model.

[82] Demigüç-Kunt and Levine (1999).
[83] World Bank, 2001, *World Development Indicators*, Stock Markets 5.3.
[84] Kaufmann, Kaan and Mastruzzi (2003).

TABLE 4: ORDERED PROBIT AND LOGIT ESTIMATES

VARIABLES	probit	logit
DEPENDENT VARIABLE	**FAC**	**FAC**
CBFA		
Coefficient β2	- 0.94	-1.61
Std. Error	(0.23)	(0.43)
P >z	0.00***	0.00***
MvBdum		
Coefficient β3	0.70	1.39
Std. Error	(0.37)	(0.66)
P >z	0.05*	0.03*
mcap		
Coefficient β5	- 0.62	-1.15
Std. Error	(0.26)	(0.46)
P >z	0.02**	0.01***
goodgov		
Coefficient β6	0.88	1.56
Std. Error	(0.22)	(0.40)
P >z	0.00***	0.00***
No of observations	**68**	**68**
LR chi2(5)	39.53	40.46
Prob>chi2	0.00	0.00
Pseudo R2	0.17	0.17
Log Likelihood	-93.07	-92.60

Note:* indicates statistical significance at one percent; :** indicates statistical significance at three percent; :* indicates statistical significance at five percent**

These first econometric results seem interesting. The probability that a country will move toward a Single Authority model , is higher: 1)The lower the involvement of the central bank in these powers; 2) The smaller the financial system[85]; 3) the more equity dominated the private governance model; 4) the more the public governance is good.

[85] If we think to the sample of the countries (14) with a Single Supervisor only, the UK seems to be the exception in the inverse relationship between the degree of financial supervision consolidation and the financial market dimension. In fact if the same regressions are performed without the UK – Annex II, Table 8 – all the results are confirmed, with a bit improvement. If we include Singapore, using the post 2003 Reform indexes of FAC and CBFA, the results – Annex II, Table 9 – on the role of central bank involvement and of the governance are confirmed, while the other relationships became weaker. The same if we consider – Annex II, Table 10 - Ireland using the post 2003 Reform indexes of FAC and CBFA.

Now, how should the empirical results be interpreted in terms of political delegation approach?

The empirical analysis, firstly, seems to suggest that the choices of the policymaker in terms of "whom" to delegate the supervisory policy to are closely linked to those regarding " how many" institutions to delegate, according to an inverse relationship. In particular, the more the central bank is involved in financial supervisory powers, the lower the degree of unification of those powers is likely to be[86]. The first econometric analysis confirms the descriptive trade off between supervision consolidation and central bank involvement., that can be explain by the existence of a blurring hazard effect, and/or a monopolistic bureau effect.

Secondly, the choice of the degree of unification of supervisory powers seems to be influenced especially by the characteristics of the financial markets: more specifically, the smaller these markets, the more likely it seems that the probability of unification will increase, perhaps confirming the hypothesis of policymakers conditioned by the "small country" situation illustrated earlier.

Furthermore, a positive relationship between the market based regime and the degree of supervision consolidation seems to hold[87]. This fact could be explained by the focus of policymakers on the role of financial conglomerates, if there were evidence of a positive relationship between the degree of financial deepening and development of cross- sector intermediaries. The policymakers, in face of the possible effects of the growing presence of the financial conglomerates, prefer to increase the degree of consolidation in the supervision structure- Alternatively, the policymakers might be sensitive to the preferences of a highly concentrated banking and financial industry that appreciates a single supervisor (*captive hypothesis*).

Thirdly, the choice of policymakers to establish an unification of supervisory powers seems to be facilitated by an institutional environment characterized by good governance[88]. The relationship between good governance and supervision unification process can be explain if we suppose that a policymaker which care about the soundness and the efficiency can prefer the single financial authority as the optimal one in face of the blurring challenges.

Another hypothesis is that , in reality, good governance could be just a proxy of more deeper institutional factors, and so we do a further step: How robust are the results obtained thus far? To answer this question, we have attempted to insert control variables into the estimates.

Firstly, based on the descriptive analyses, we asked ourselves whether the choices of policymakers to increase the degree of concentration of supervisory powers might depend on the level of development in their respective countries. The geographical factor might also be important, in terms of membership, actual or potential, in the European Union.

Secondly, the relationship between the degree of concentration and the characteristics of the banking and financial markets might "obscure" the importance of other institutional variables,

[86] At the same time, the variables that could explain the degree of central bank involvement in the financial supervision does not coincide with those that we use to analyze the degree of consolidation; in fact if you perform Probit and Logit regressions – Annex II, Table 11A and 11B – using CBFA as dependent variable and the same vector of financial and institutional variables, the result are not significant at all.

[87] Note that the correlation index between the financial regime variable (MvBdum) and the market capitalization variable (mcap) is high (…), but they influence the dependent variable with opposite sign.

[88] All the three main results are confirmed if the FAC Two Index is used instead of FAC Index, as indicator of supervision consolidation. See Annex II, Table 12.

themselves determinants in explaining the characteristics of the banking and financial markets[89]. Recently, the structure of the financial markets was explained with three different approaches[90]: the law and finance view, in the static and dynamic versions; the politics and finance view; and the endowment view. In this paper, we have inserted control variables related to the law and finance view and the endowment view, while the politics and finance view was already represented by the indicator of governance. Furthermore, the same institutional variables can explained the significant role of the good governance variable in Equation (1).

Tables 6 and 7 report the probit and logit estimates with the inclusion of control variables. The results of the estimates, with the control variables inserted, show an improvement in their fitness and the robustness of at least two results. First the probability of a single financial authority is still inversely and significantly related to the involvement of the central bank. Second, the concentration of powers also seems to be linked to the institutional framework, especially to the Germanic and Scandinavian roots of the legal institutions. These results are confirmed with different samples too[91], as Tables from A to D shown.

[89] For example, in Demirguc-Kunt, Laeven and Levine (2003) regulation become insignificant in explain banking performances when controlling for institutional indicators.

[90] Different approaches have been proposed to explain the country choice between bank based model and market based model: the "legal approach", (La Porta, Lopez –de-Silanes, Shleifer and Vishny 1997, 1998); the "economic approach"(Rajan and Zingales, 2000); the "political economy approach" (Pagano and Volpin 2000, Verdier 2001, Rosenbluth and Schaap, 2001, Carney 2002, Perotti and von Thadden ,2003).

[91] If the same regressions are performed without the UK – Annex II, Table 13 – all the results are confirmed. If we include Singapore, using the post 2003 Reform indexes of FAC and CBFA, the results – Annex II, Table 9 – on the role of the rules of law are confirmed, while the other relationships became weaker. The same if we consider – Annex II, Table 10 - Ireland using the post 2003 Reform indexes of FAC and CBFA. Finally all the results are completely confirmed if the FAC Two Index is used instead of FAC Index, as indicator of supervision consolidation. See Annex II, Table 16.

TABLE 6: ORDERED PROBIT ESTIMATES WITH CONTROL VARIABLES

VARIABLES	probit	I	II	III	IV
DEPENDENT VARIABLE	**FAC**	**FAC**	**FAC**	**FAC**	**FAC**
CBFA					
Coefficient β2	- 0.94	-0.95	-0.96	-0.91	-0.88
Std. Error	(0.23)	(0.23)	(0.23)	(0.26)	(0.26)
P >z	0.00***	0.00***	0.00***	0.00***	0.00***
MvBdum					
Coefficient β3	0.70	0.71	0.70	0.38	0.43
Std. Error	(0.37)	(0.37)	(0.37)	(0.41)	(0.42)
P >z	0.05*	0.05*	0.06	0.35	0.30
mcap					
Coefficient β5	- 0.62	- 0.61	- 0.60	- 0.52	- 0.53
Std. Error	(0.27)	(0.27)	(0.28)	(0.30)	(0.30)
P >z	0.02**	0.02**	0.03**	0.08	0.07
goodgov					
Coefficient β6	0.88	0.92	0.89	0.66	0.61
Std. Error	(0.22)	(0.32)	(0.35)	(0.39)	(0.40)
P >z	0.00***	0.00***	0.01***	0.09	0.12
Gnpcapita					
Coefficient β		-.000000431	-0.00000372	-0.0000346	-0.0000301
Std. Error		(0.0000230)	(0.0000232)	(0.0000259)	(0.0000270)
P >z		0.85	0.87	0.18	0.26
EU membership					
Coefficient β			0.07	0.79	0.82
Std. Error			(0.32)	(0.43)	(0.44)
P >z			0.81	0.07	0.06*
Anglo Saxon Law					
Coefficient β				1.05	0.99
Std. Error				(0.55)	(0.55)
P >z				0.05*	0.07
French Law					
Coefficient β				0.96	0.87
Std. Error				(0.46)	(0.48)
P >z				0.04*	0.07
German Law					
Coefficient β				3.44	3.41
Std. Error				(1.08)	(1.07)

P >z				0.00***	0.00***
Scandinavian Law Coefficient β Std. Error P >z				2.61 (0.87) 0.00***	2.60 (0.87) 0.00***
Latitude Coefficient β Std. Error P >z					-0.26 (0.45) 0.55
No of observations	**68**	**68**	**68**	**68**	**68**
LR chi2(5)	39.53	39.57	39.62	54.93	55.28
Prob>chi2	0.00	0.00	0.00	0.00	0.00
Pseudo R2	0.17	0.17	0.17	0.25	0.24
Log Likelihood	-93.07	-93.05	-93.02	-85.73	-85.19

Note:* indicates statistical significance at one percent; :** indicates statistical significance at three percent; :* indicates statistical significance at five percent**

TABLE 7: ORDERED LOGIT ESTIMATES WITH CONTROL VARIABLES

VARIABLES	logit	I	II	III	IV
DEPENDENT VARIABLE	**FAC**	**FAC**	**FAC**	**FAC**	**FAC**
CBFA					
Coefficient β2	-1.61	-1.61	-1.60	-1.57	-1.50
Std. Error	(0.43)	(0.43)	(0.44)	(0.46)	(0.48)
P >z	(0.00)***	(0.00)***	(0.00)***	(0.00)***	(0.00)***
MvBdum					
Coefficient β3	1.39	1.39	1.40	0.91	1.01
Std. Error	(0.66)	(0.66)	(0.68)	(0.74)	(0.77)
P >z	0.03**	0.03**	0.04*	0.33	0.18
mcap					
Coefficient β5	-1.15	-1.15	-1.16	-1.11	-1.12
Std. Error	(0.46)	(0.47)	(0.48)	(0.55)	(0.54)
P >z	0.01***	0.01***	0.01***	0.04*	0.04*
goodgov					
Coefficient β6	1.56	1.54	1.56	1.08	0.99
Std. Error	(0.40)	(0.58)	(0.63)	(0.66)	(0.67)
P >z	0.00***	0.00***	0.01***	0.10	0.14
Gnpcapita					
Coefficient β		0.000000127	0.000000953	-0.0000500	-0.0000421
Std. Error		(0.0000445)	(0.0000400)	(0.0000468)	(0.0000486)
P >z		0.97	0.98	0.28	0.38
EU membership					
Coefficient β			0.04	1.32	1.34
Std. Error			(0.57)	(0.78)	(0.79)
P >z			0.94	0.09	0.08
Anglo Saxon Law					
Coefficient β				2.05	1.93
Std. Error				(1.01)	(1.03)
P >z				0.04*	0.06
French Law					
Coefficient β				1.85	1.69
Std. Error				(0.93)	(0.87)
P >z				0.02**	0.05*
German Law					
Coefficient β				5.76	5.69
Std. Error				(1.91)	(1.91)
P >z				0.00***	0.00***
Scandinavian Law					

Coefficient β Std. Error P >z				4.45 (1.55) 0.00***	4.44 (1.56) 0.00***
Latitude Coefficient β Std. Error P >z					-0.44 (0.74) 0.55
No of observations	**68**	**68**	**68**	**68**	**68**
LR chi2(5)	40.46	40.46	40.47	54.84	55.19
Prob>chi2	0.00	0.00	0.00	0.00	0.00
Pseudo R2	0.17	0.17	0.17	0.24	0.24
Log Likelihood	-92.60	-92.60	-92.60	-85.41	-85.24

Note:* indicates statistical significance at one percent; :** indicates statistical significance at three percent; :* indicates statistical significance at five percent**

TABLE A: ORDERED PROBIT ESTIMATES : SUMMARY

VARIABLES	68 countries	Without UK	With Singapore 2003	With Sing. & Ire. 2003	68 countries
DEPENDENT VARIABLE	FAC	FAC	FAC	FAC	FAC TWO
CBFA					
Coefficient β2	- 0.94	- 0.93	- 0.60	- 0.44	- 0.92
Std. Error	(0.23)	(0.23)	(0.20)	(0.18)	(0.23)
P >z	0.00***	0.00***	0.00***	0.01***	0.00***
MvBdum					
Coefficient β3	0.70	0.71	0.64	0.58	0.59
Std. Error	(0.37)	(0.37)	(0.36)	(0.36)	(0.37)
P >z	0.05*	0.05*	0.07	0.11	0.10
mcap					
Coefficient β5	- 0.62	- 0.66	- 0.45	- 0.47	- 0.59
Std. Error	(0.26)	(0.27)	(0.26)	(0.26)	(0.27)
P >z	0.02**	0.01****	0.07	0.06	0.02**
goodgov					
Coefficient β6	0.88	0.88	0.86	0.47	0.74
Std. Error	(0.22)	(0.22)	(0.21)	(0.21)	(0.21)
P >z	0.00***	0.00***	0.00***	0.00***	0.00***
No of observations	**68**	**67**	**69**	**69**	**68**
LR chi2(5)	39.53	37.90	32.47	29.13	32.74
Prob>chi2	0.00	0.00	0.00	0.00	0.00
Pseudo R2	0.17	0.17	0.14	0.12	0.17
Log Likelihood	-93.07	-92.16	-98.22	-98.92	-78.10

Note:* indicates statistical significance at one percent; :** indicates statistical significance at three percent; :* indicates statistical significance at five percent**

TABLE B: ORDERED LOGIT ESTIMATES: SUMMARY

VARIABLES	68 countries	Without UK	With Singapore 2003	With Sing. & Ire. 2003	68 countries
DEPENDENT VARIABLE	FAC	FAC	FAC	FAC	FAC
CBFA					
Coefficient β2	-1.61	-1.59	-1.14	-0.88	-1.55
Std. Error	(0.43)	(0.43)	(0.39)	(0.38)	(0.42)
P >z	0.00***	0.00***	0.00***	0.02**	0.00***
MvBdum					
Coefficient β3	1.39	1.39	1.31	1.21	1.18
Std. Error	(0.66)	(0.65)	(0.64)	(0.63)	(0.66)
P >z	0.03*	0.03*	0.04*	0.05*	0.07
mcap					
Coefficient β5	-1.15	-1.21	-0.91	-0.86	-1.13
Std. Error	(0.46)	(0.47)	(0.45)	(0.44)	(0.47)
P >z	0.01***	0.01***	0.04*	0.05*	0.01***
goodgov					
Coefficient β6	1.56	1.56	1.49	1.47	1.38
Std. Error	(0.40)	(0.40)	(0.38)	(0.38)	(0.40)
P >z	0.00***	0.00***	0.00***	0.00***	0.00***
No of observations	**68**	**67**	**69**	**69**	**68**
LR chi2(5)	40.46	38.86	34.59	30.99	33.46
Prob>chi2	0.00	0.00	0.00	0.00	0.00
Pseudo R2	0.17	0.17	0.15	0.13	0.17
Log Likelihood	-92.60	-91.72	-97.16	-99.99	-77.74

Note:* indicates statistical significance at one percent; :** indicates statistical significance at three percent; :* indicates statistical significance at five percent**

TABLE C: ORDERED PROBIT ESTIMATES WITH CONTROL VARIABLES: SUMMARY

VARIABLES	68 countries	Without UK	With Singapore 2003	With Sing. & Ire. 2003	68 countries
DEPENDENT VARIABLE	FAC	FAC	FAC	FAC	FAC TWO
CBFA					
Coefficient β2	-0.91	- 0.85	- 0.44	- 0.30	- 0.98
Std. Error	(0.26)	(0.26)	(0.21)	(0.20)	(0.26)
P >z	0.00***	0.00***	0.04*	0.14	0.00***
MvBdum					
Coefficient β3	0.38	0.43	0.48	0.38	0.19
Std. Error	(0.41)	(0.41)	(0.41)	(0.41)	(0.42)
P >z	0.35	0.30	0.24	0.34	0.63
mcap					
Coefficient β5	- 0.52	- 0.59	- 0.37	- 0.39	- 0.40
Std. Error	(0.30)	(0.30)	(0.29)	(0.29)	(0.29)
P >z	0.08	0.05*	0.19	0.17	0.18
goodgov					
Coefficient β6	0.66	0.71	0.82	0.78	0.43
Std. Error	(0.39)	(0.39)	(0.38)	(0.38)	(0.38)
P >z	0.09	0.07	0.03*	0.03*	0.26
Gnpcapita					
Coefficient β	-0.0000346	- 0.0000364	- 0.0000335	- 0.0000293	- 0.0000304
Std. Error	(0.0000259)	(0.0000260)	(0.0000254)	(0.0000254)	(0.0000252)
P >z	0.18	0.16	0.43	0.24	0.22
EU membership					
Coefficient β	0.79	0.67	0.31	0.37	1.02
Std. Error	(0.43)	(0.44)	(0.40)	(0.41)	(0.43)
P >z	0.07	0.16	0.43	0.36	0.01***
Anglo Saxon Law					
Coefficient β	1.05	0.91	0.59	0.68	1.15
Std. Error	(0.55)	(0.55)	(0.52)	(0.53)	(0.55)
P >z	0.05*	0.10	0.25	0.19	0.03**
French Law					
Coefficient β	0.96	0.93	.56	0.60	0.79
Std. Error	(0.46)	(0.46)	(0.44)	(0.44)	(0.46)
P >z	0.04*	0.04*	0.20	0.17	0.09
German Law					
Coefficient β	3.44	3.51	2.64	2.72	2.66
Std. Error	(1.08)	(1.09)	(0.99)	(1.00)	(0.90)
P >z	0.00***	0.00***	0.00***	0.00***	0.00***

Scandinavian Law Coefficient β Std. Error P >z	2.61 (0.87) 0.00***	2.75 (0.88) 0.00***	2.18 (0.84) 0.01***	2.21 (0.84) 0.00***	1.97 (0.80) 0.01**
No of observations	**68**	**67**	**69**	**69**	**68**
LR chi2(5)	54.93	54.65	44.06	40.83	44.31
Prob>chi2	0.00	0.00	0.00	0.00	0.00
Pseudo R2	0.25	0.24	0.19	0.17	0.23
Log Likelihood	-85.73	-83.82	-92.43	-93.07	- 72.31

Note:* indicates statistical significance at one percent; :** indicates statistical significance at three percent; :* indicates statistical significance at five percent**

TABLE D: ORDERED LOGIT ESTIMATES WITH CONTROL VARIABLES: SUMMARY

VARIABLES	68 countries	Without UK	With Singapore 2003	With Sing. & Ire. 2003	68 countries
DEPENDENT VARIABLE	FAC	FAC	FAC	FAC	FAC
CBFA					
Coefficient β2	-0.91	-1.48	-0.99	- 0.73	- 1.69
Std. Error	(0.26)	(0.47)	(0.42)	(0.43)	(0.49)
P >z	0.00***	0.00***	0.02**	0.07	0.00***
MvBdum					
Coefficient β3	0.38	1.00	1.01	0.92	0.49
Std. Error	(0.41)	(0.75)	(0.72)	(0.77)	(0.75)
P >z	0.35	0.18	0.16	0.20	0.51
mcap					
Coefficient β5	- 0.52	- 1.25	- 0.89	- 0.87	- 0.89
Std. Error	(0.30)	(0.56)	(0.52)	(0.51)	(0.53)
P >z	0.08	0.02**	0.08	0.09	0.09
goodgov					
Coefficient β6	0.66	1.16	1.21	1.19	0.73
Std. Error	(0.39)	(0.66)	(0.65)	(0.65)	(0.67)
P >z	0.09	0.08	0.06	0.07	0.27
Gnpcapita					
Coefficient β	-0.0000346	-0.0000521	- 0.0000469	- 0.0000422	- 0.0000476
Std. Error	(0.0000259)	(0.0000480)	(0.0000452)	(0.0000451)	(0.0000451)
P >z	0.18	0.27	0.29	0.34	0.29
EU membership					
Coefficient β	0.79	1.11	0.69	0.62	1.79
Std. Error	(0.43)	(0.79)	(0.75)	(0.75)	(0.80)
P >z	0.07	0.15	0.35	0.40	0.02**
Anglo Saxon Law					
Coefficient β	1.05	1.82	1.57	1.55	2.23
Std. Error	(0.55)	(1.01)	(0.96)	(0.96)	(1.03)
P >z	0.05*	0.07	0.10	0.10	0.03**
French Law					
Coefficient β	0.96	1.83	1.34	1.30	1.51
Std. Error	(0.46)	(0.83)	(0.79)	(0.79)	(0.82)
P >z	0.04*	0.02**	0.09	0.10	0.06
German Law					
Coefficient β	3.44	5.92	4.70	4.58	4.74
Std. Error	(1.08)	(1.94)	(1.79)	(1.79)	(1.63)
P >z	0.00***	0.00***	0.00***	0.00***	0.00***

Scandinavian Law Coefficient β Std. Error P >z	2.61 (0.87) 0.00***	4.71 (1.57) 0.00***	3.92 (1.51) 0.01**	3.83 (1.50) 0.01***	3.52 (1.45) 0.01***
No of observations	**68**	**67**	**69**	**69**	**68**
LR chi2(5)	54.93	54.64	46.10	42.30	44.86
Prob>chi2	0.00	0.00	0.00	0.00	0.00
Pseudo R2	0.25	0.24	0.20	0.18	0.23
Log Likelihood	-85.73	-83.82	-91.41	- 92.34	- 72.04

Note:* indicates statistical significance at one percent; :** indicates statistical significance at three percent; :* indicates statistical significance at five percent**

7. Conclusions

The objective of this work was to determine whether there is a tendency toward the consolidation of powers of financial supervision into a single authority, so as to analyze its possible causes and effects.

The phenomenon does exist, especially if we consider the developed countries, and particularly those in Europe. Regarding the effects, this paper indicates that an increase in the degree of concentration may produce expected benefits but also expected costs, and the empirical estimate of those effects is arduous at this point, whether because the phenomenon has emerged only recently or because of the difficulty of identifying a satisfactory, exhaustive set of indicators of the possible consequences.

Furthermore, in methodological terms, precisely because any reform of the supervisory regime could produce expected benefits and costs, and the evaluation of these consequences is made by the policymakers who decide whether to maintain or reform their supervisory structure, we have adopted a political economy approach to the problem, so as to discern any common determinants of the decision to increase the degree of concentration of powers.

To do this, we first introduced a Financial Authorities' Concentration Index (FAC Index), to have an indicator of the degree of concentration of powers country by country. The comparative analysis of 69 countries, based on the FAC Index, confirmed the qualitative impression that an increase in the degree of concentration of powers was evident in the developed countries, particularly in the European Union, considering both the current 15 member states and the prospective enlargement to 25 members. Then, in order to consider the nature of the institutions involved in the control responsibilities – i.e. what role the central bank plays - it is introduced an index of the central bank's involvement in financial supervision, the Central Bank as Financial Authority Index (CBFA Index).

Each national regime can be identified with the two above characteristics. Two the most frequent models: countries with a high concentration of powers with low central bank involvement (Single Financial Authorities Regime); countries with a low concentration of powers with high central bank involvement (Central Bank Dominated Multiple Supervisors Regime). The descriptive analysis signals at least two results. First, in the financial supervision arena, the policy makers around the world choose to delegate this policy, rather than implement it directly. Second, the political choice on how many agencies have to be involve in supervision is strictly intertwined with the role of central bank: the degree of supervision consolidation seems to be inversely correlated with the central bank involvement.

Finally, to empirically gauge the possible structural determinants of the degree of concentration of powers, it is performed an econometric analysis of the Probit and Logit types. The econometric results seem interesting.

First, the probability that the degree of concentration increases is inversely proportional to the central bank involvement in the supervisory regime. The political choice on how many agencies have to be involve in supervision seems to be strictly intertwined with the role of central bank: the degree of supervision consolidation seems to be inversely correlated with the central bank

involvement. How to explain – before to test it econometrically – these stylized facts? It has been argued that the reason of the trade off between the supervision consolidation and the central bank involvement is because of a fear that the safety net – central bank function of lender of last resort – might be spread to a wider set of institution than just banks if the central bank is also involved in supervising insurance and securities trading firm (blurring hazard effect). Furthermore, a political economy explanation could be add to this economic interpretation: in the country in which the central bank is deeply involved in supervision, the policy makers could fear the creation of a too much powerful bureaucratic agency, and therefore they prefer to have more supervision agency, and consequently a less consolidated supervisory regime (monopolistic bureau effect).

Second, the consolidation of financial supervision seems to be a more markedly European phenomenon, linked especially to the Germanic and Scandinavian roots of the legal institutions. The historical and institutional reasons that could explain the positive relationship between German and Scandinavian rules of law, on one side, and degree of supervision consolidation have to be further investigated.

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9. ANNEX I: THE DETERMINANTS OF FINANCIAL SUPERVISION CONSOLIDATION WITH DIFFERENT SAMPLES AND INDEXES

TABLE 8: ORDERED PROBIT AND LOGIT ESTIMATES WITHOUT UK

VARIABLES	probit	Logit
DEPENDENT VARIABLE	**FAC**	**FAC**
CBFA		
Coefficient β2	- 0.93	-1.59
Std. Error	(0.23)	(0.43)
P >z	0.00***	0.00***
MvBdum		
Coefficient β3	0.71	1.39
Std. Error	(0.37)	(0.65)
P >z	0.05*	0.03*
mcap		
Coefficient β5	- 0.66	-1.21
Std. Error	(0.27)	(0.47)
P >z	0.01****	0.01***
goodgov		
Coefficient β6	0.88	1.56
Std. Error	(0.22)	(0.40)
P >z	0.00***	0.00***
No of observations	**67**	**67**
LR chi2(5)	37.90	38.86
Prob>chi2	0.00	0.00
Pseudo R2	0.17	0.17
Log Likelihood	-92.16	-91.72

Note:* indicates statistical significance at one percent; :** indicates statistical significance at three percent; :* indicates statistical significance at five percent**

TABLE 9: ORDERED PROBIT AND LOGIT ESTIMATES WITH SINGAPORE 2003

VARIABLES	Probit	Logit
DEPENDENT VARIABLE	**FAC**	**FAC**
CBFA		
Coefficient β2	- 0.60	-1.14
Std. Error	(0.20)	(0.39)
P >z	0.00***	0.00***
MvBdum		
Coefficient β3	0.64	1.31
Std. Error	(0.36)	(0.64)
P >z	0.07	0.04*
mcap		
Coefficient β5	- 0.45	-0.91
Std. Error	(0.26)	(0.45)
P >z	0.07	0.04*
goodgov		
Coefficient β6	0.86	1.49
Std. Error	(0.21)	(0.38)
P >z	0.00***	0.00***
No of observations	**69**	**69**
LR chi2(5)	32.47	34.59
Prob>chi2	0.00	0.00
Pseudo R2	0.14	0.15
Log Likelihood	-98.22	-97.16

Note:* indicates statistical significance at one percent; :** indicates statistical significance at three percent; :* indicates statistical significance at five percent**

TABLE 10: ORDERED PROBIT AND LOGIT ESTIMATES WITH SINGAPORE 2003 AND IRELAND 2003

VARIABLES	Probit	Logit
DEPENDENT VARIABLE	**FAC**	**FAC**
CBFA		
Coefficient β2	- 0.44	-0.88
Std. Error	(0.18)	(0.38)
P >z	0.01***	0.02**
MvBdum		
Coefficient β3	0.58	1.21
Std. Error	(0.36)	(0.63)
P >z	0.11	0.05*
mcap		
Coefficient β5	- 0.47	-0.86
Std. Error	(0.26)	(0.44)
P >z	0.06	0.05*
goodgov		
Coefficient β6	0.47	1.47
Std. Error	(0.21)	(0.38)
P >z	0.00***	0.00***
No of observations	**69**	**69**
LR chi2(5)	29.13	30.99
Prob>chi2	0.00	0.00
Pseudo R2	0.12	0.13
Log Likelihood	-98.92	-99.99

Note:* indicates statistical significance at one percent; :** indicates statistical significance at three percent; :* indicates statistical significance at five percent**

TABLE 11A : CBFA INDEX: ORDERED PROBIT AND LOGIT ESTIMATES

VARIABLES	Logit	Probit
DEPENDENT VARIABLE	**CBFA**	**CBFA**
MvBdum		
Coefficient β3	-0.28	-0.54
Std. Error	(0.39)	(0.43)
P >z	0.46	0.42
mcap		
Coefficient β5	0.06	0.10
Std. Error	(0.28)	(0.48)
P >z	0.83	0.82
goodgov		
Coefficient β6	-0.29	-0.64
Std. Error	(0.21)	(0.37)
P >z	0.16	0.08
No of observations	**68**	**68**
LR chi2(5)	4.17	6.44
Prob>chi2	0.24	0.09
Pseudo R2	0.03	0.05
Log Likelihood	-59.24	-58.10

Note:* indicates statistical significance at one percent; :** indicates statistical significance at three percent; :* indicates statistical significance at five percent**

TABLE 11B : CBFA INDEX: ORDERED PROBIT AND LOGIT ESTIMATES WITH FAC

VARIABLES	Probit	Logit
DEPENDENT VARIABLE	**CBFA**	**CBFA**
FAC		
Coefficient β2	- 0.44	- 0.80
Std. Error	(0.09)	(0.18)
P >z	0.00***	0.00***
MvBdum		
Coefficient β3	0.30	0.67
Std. Error	(0.44)	(0.83)
P >z	0.50	0.41
mcap		
Coefficient β5	- 0.35	- 0.73
Std. Error	(0.31)	(0.58)
P >z	0.27	0.20
goodgov		
Coefficient β6	0.34	0.52
Std. Error	(0.26)	(0.49)
P >z	0.19	0.29
No of observations	**68**	**68**
LR chi2(5)	30.62	33.75
Prob>chi2	0.00	0.00
Pseudo R2	0.24	0.27
Log Likelihood	- 46.02	- 44.45

Note:* indicates statistical significance at one percent; :** indicates statistical significance at three percent; :* indicates statistical significance at five percent**

TABLE 12: FAC TWO INDEX: ORDERED PROBIT AND LOGIT ESTIMATES

VARIABLES	probit	logit
DEPENDENT VARIABLE	**FAC**	**FAC**
CBFA		
Coefficient β2	- 0.92	-1.55
Std. Error	(0.23)	(0.42)
P >z	0.00***	0.00***
MvBdum		
Coefficient β3	0.59	1.18
Std. Error	(0.37)	(0.66)
P >z	0.10	0.07
mcap		
Coefficient β5	- 0.59	-1.13
Std. Error	(0.27)	(0.47)
P >z	0.02**	0.01***
goodgov		
Coefficient β6	0.74	1.38
Std. Error	(0.21)	(0.40)
P >z	0.00***	0.00***
No of observations	**68**	**68**
LR chi2(5)	32.74	33.46
Prob>chi2	0.00	0.00
Pseudo R2	0.17	0.17
Log Likelihood	-78.10	-77.74

Note:* indicates statistical significance at one percent; :** indicates statistical significance at three percent; :* indicates statistical significance at five percent**

TABLE 13 : ORDERED PROBIT AND LOGIT ESTIMATES WITH CONTROL VARIABLES: SAMPLE WITHOUT UK

VARIABLES	probit	logit
DEPENDENT VARIABLE	**FAC**	**FAC**
CBFA		
Coefficient β2	- 0.85	-1.48
Std. Error	(0.26)	(0.47)
P >z	0.00***	0.00***
MvBdum		
Coefficient β3	0.43	1.00
Std. Error	(0.41)	(0.75)
P >z	0.30	0.18
mcap		
Coefficient β5	- 0.59	- 1.25
Std. Error	(0.30)	(0.56)
P >z	0.05*	0.02**
goodgov		
Coefficient β6	0.71	1.16
Std. Error	(0.39)	(0.66)
P >z	0.07	0.08
Gnpcapita		
Coefficient β	- 0.0000364	-0.0000521
Std. Error	(0.0000260)	(0.0000480)
P >z	0.16	0.27
EU membership		
Coefficient β	0.67	1.11
Std. Error	(0.44)	(0.79)
P >z	0.16	0.15
Anglo Saxon Law		
Coefficient β	0.91	1.82
Std. Error	(0.55)	(1.01)
P >z	0.10	0.07
French Law		
Coefficient β	0.93	1.83
Std. Error	(0.46)	(0.83)
P >z	0.04*	0.02**
German Law		
Coefficient β	3.51	5.92
Std. Error	(1.09)	(1.94)
P >z	0.00***	0.00***

Scandinavian Law Coefficient β Std. Error P >z	 2.75 (0.88) 0.00***	 4.71 (1.57) 0.00***
No of observations	**67**	**67**
LR chi2(5)	54.65	54.64
Prob>chi2	0.00	0.00
Pseudo R2	0.24	0.24
Log Likelihood	-83.82	-83.82

Note:* indicates statistical significance at one percent; :** indicates statistical significance at three percent; :* indicates statistical significance at five percent**

TABLE 14 : ORDERED PROBIT AND LOGIT ESTIMATES WITH CONTROL VARIABLES: SAMPLE WITH SINGAPORE 2003

VARIABLES	probit	logit
DEPENDENT VARIABLE	**FAC**	**FAC**
CBFA		
Coefficient β2	- 0.44	-0.99
Std. Error	(0.21)	(0.42)
P >z	0.04*	0.02**
MvBdum		
Coefficient β3	0.48	1.01
Std. Error	(0.41)	(0.72)
P >z	0.24	0.16
mcap		
Coefficient β5	- 0.37	- 0.89
Std. Error	(0.29)	(0.52)
P >z	0.19	0.08
goodgov		
Coefficient β6	0.82	1.21
Std. Error	(0.38)	(0.65)
P >z	0.03*	0.06
Gnpcapita		
Coefficient β	- 0.0000335	- 0.0000469
Std. Error	(0.0000254)	(0.0000452)
P >z	0.43	0.29
EU membership		
Coefficient β	0.31	0.69
Std. Error	(0.40)	(0.75)
P >z	0.43	0.35
Anglo Saxon Law		
Coefficient β	0.59	1.57
Std. Error	(0.52)	(0.96)
P >z	0.25	0.10
French Law		
Coefficient β	.56	1.34
Std. Error	(0.44)	(0.79)
P >z	0.20	0.09
German Law		
Coefficient β	2.64	4.70
Std. Error	(0.99)	(1.79)
P >z	0.00***	0.00***

Scandinavian Law Coefficient β Std. Error P >z	 2.18 (0.84) 0.01***	 3.92 (1.51) 0.01**
No of observations	**69**	**69**
LR chi2(5)	44.06	46.10
Prob>chi2	0.00	0.00
Pseudo R2	0.19	0.20
Log Likelihood	-92.43	-91.41

Note:* indicates statistical significance at one percent; :** indicates statistical significance at three percent; :* indicates statistical significance at five percent**

TABLE 15 : ORDERED PROBIT AND LOGIT ESTIMATES WITH CONTROL VARIABLES ; SAMPLE WITH SINGAPORE AND IRELAND 2003

VARIABLES	probit	logit
DEPENDENT VARIABLE	**FAC**	**FAC**
CBFA		
Coefficient β2	- 0.30	- 0.73
Std. Error	(0.20)	(0.43)
P >z	0.14	0.07
MvBdum		
Coefficient β3	0.38	0.92
Std. Error	(0.41)	(0.77)
P >z	0.34	0.20
mcap		
Coefficient β5	- 0.39	- 0.87
Std. Error	(0.29)	(0.51)
P >z	0.17	0.09
goodgov		
Coefficient β6	0.78	1.19
Std. Error	(0.38)	(0.65)
P >z	0.03*	0.07
Gnpcapita		
Coefficient β	- 0.0000293	- 0.0000422
Std. Error	(0.0000254)	(0.0000451)
P >z	0.24	0.34
EU membership		
Coefficient β	0.37	0.62
Std. Error	(0.41)	(0.75)
P >z	0.36	0.40
Anglo Saxon Law		
Coefficient β	0.68	1.55
Std. Error	(0.53)	(0.96)
P >z	0.19	0.10
French Law		
Coefficient β	0.60	1.30
Std. Error	(0.44)	(0.79)
P >z	0.17	0.10
German Law		
Coefficient β	2.72	4.58
Std. Error	(1.00)	(1.79)

P >z	0.00***	0.00***
Scandinavian Law		
Coefficient β	2.21	3.83
Std. Error	(0.84)	(1.50)
P >z	0.00***	0.01***
No of observations	**69**	**69**
LR chi2(5)	40.83	42.30
Prob>chi2	0.00	0.00
Pseudo R2	0.17	0.18
Log Likelihood	-93.07	- 92.34

Note:* indicates statistical significance at one percent; :** indicates statistical significance at three percent; :* indicates statistical significance at five percent**

TABLE 16 : FAC TWO INDEX: ORDERED PROBIT AND LOGIT ESTIMATES WITH CONTROL VARIABLES

VARIABLES	probit	logit
DEPENDENT VARIABLE	**FAC**	**FAC**
CBFA		
Coefficient β2	- 0.98	- 1.69
Std. Error	(0.26)	(0.49)
P >z	0.00***	0.00***
MvBdum		
Coefficient β3	0.19	0.49
Std. Error	(0.42)	(0.75)
P >z	0.63	0.51
mcap		
Coefficient β5	- 0.40	- 0.89
Std. Error	(0.29)	(0.53)
P >z	0.18	0.09
goodgov		
Coefficient β6	0.43	0.73
Std. Error	(0.38)	(0.67)
P >z	0.26	0.27
Gnpcapita		
Coefficient β	- 0.0000304	- 0.0000476
Std. Error	(0.0000252)	(0.0000451)
P >z	0.22	0.29
EU membership		
Coefficient β	1.02	1.79
Std. Error	(0.43)	(0.80)
P >z	0.01***	0.02**
Anglo Saxon Law		
Coefficient β	1.15	2.23
Std. Error	(0.55)	(1.03)
P >z	0.03**	0.03**
French Law		
Coefficient β	0.79	1.51
Std. Error	(0.46)	(0.82)
P >z	0.09	0.06
German Law		
Coefficient β	2.66	4.74

Std. Error	(0.90)	(1.63)
P >z	0.00***	0.00***
Scandinavian Law		
Coefficient β	1.97	3.52
Std. Error	(0.80)	(1.45)
P >z	0.01**	0.01***
No of observations	**68**	**68**
LR chi2(5)	44.31	44.86
Prob>chi2	0.00	0.00
Pseudo R2	0.23	0.23
Log Likelihood	- 72.31	- 72.04

Note:* indicates statistical significance at one percent; :** indicates statistical significance at three percent; :* indicates statistical significance at five percent**

TABLE 17: CBFA TWO INDEX: ORDERED PROBIT AND LOGIT ESTIMATES

VARIABLES	probit	logit
DEPENDENT VARIABLE	**FAC**	**FAC**
CBFA TWO		
Coefficient β2	- 0.47	-0.80
Std. Error	(0.11)	(0.21)
P >z	0.00***	0.00***
MvBdum		
Coefficient β3	0.70	1.39
Std. Error	(0.37)	(0.66)
P >z	0.05*	0.03**
mcap		
Coefficient β5	- 0.62	-1.15
Std. Error	(0.26)	(0.46)
P >z	0.02**	0.01***
goodgov		
Coefficient β6	0.88	1.56
Std. Error	(0.22)	(0.40)
P >z	0.00***	0.00***
No of observations	**68**	**68**
LR chi2(5)	39.53	40.46
Prob>chi2	0.00	0.00
Pseudo R2	0.17	0.17
Log Likelihood	-93.07	-92.60

Note:* indicates statistical significance at one percent; :** indicates statistical significance at three percent; :* indicates statistical significance at five percent**

TABLE 18 : CBFA TWO INDEX: ORDERED PROBIT AND LOGIT ESTIMATES WITH CONTROL VARIABLES

VARIABLES	probit	logit
DEPENDENT VARIABLE	**FAC**	**FAC**
CBFA		
Coefficient β2	- 0.45	- 0.78
Std. Error	(0.13)	(0.23)
P >z	0.00***	0.00***
MvBdum		
Coefficient β3	0.38	0.91
Std. Error	(0.41)	(0.74)
P >z	0.35	0.22
mcap		
Coefficient β5	- 0.52	- 1.11
Std. Error	(0.30)	(0.55)
P >z	0.08	0.04*
goodgov		
Coefficient β6	0.66	1.08
Std. Error	(0.39)	(0.66)
P >z	0.09	0.10
Gnpcapita		
Coefficient β	- 0.0000346	- 0.0000500
Std. Error	(0.0000259)	(0.0000468)
P >z	0.18	0.28
EU membership		
Coefficient β	0.79	1.32
Std. Error	(0.43)	(0.78)
P >z	0.07	0.09
Anglo Saxon Law		
Coefficient β	1.05	2.05
Std. Error	(0.55)	(1.01)
P >z	0.05*	0.04*
French Law		
Coefficient β	0.96	1.85
Std. Error	(0.46)	(0.83)
P >z	0.04*	0.02**

German Law		
Coefficient β	3.44	5.76
Std. Error	(1.08)	(1.91)
P >z	0.00***	0.00***
Scandinavian Law		
Coefficient β	2.61	4.45
Std. Error	(0.87)	(1.55)
P >z	0.00**	0.00***
No of observations	**68**	**68**
LR chi2(5)	54.93	54.84
Prob>chi2	0.00	0.00
Pseudo R2	0.24	0.24
Log Likelihood	- 85.37	- 85.41

Note:* indicates statistical significance at one percent; :** indicates statistical significance at three percent; :* indicates statistical significance at five percent**