

Governing the Governors:

A Clinical Study of Central Banks¹

Lars Frisell², Kasper Roszbach³ and Giancarlo Spagnolo⁴

THIS VERSION: 18 August 2006

PRELIMINARY AND INCOMPLETE, COMMENTS VERY WELCOME⁵

ABSTRACT: In light of the recent debate about the effectiveness, efficiency and remuneration of central banks, we study the specific corporate governance problems of central banks in their complex role of inflation guardians, bankers' banks, financial industry regulators/supervisors and, in some cases, competition authorities and deposit insurance agencies. We review the current institutional arrangements of a number of central banks (e.g. formal objectives, ownership, board and governor appointment rules, term limits and compensation), using both existing surveys and newly collected information. We contrast the current practice with the governance structures suggested in the literature. Our analysis makes clear that a number of specific issues, such as the incentive structure, the balance between central banks' multiple objectives and their accountability appear unsatisfactorily addressed by existing research.

¹ We are grateful to participants at the 2004 Tor Vergata Conference and at the 2006 FIRS Conference in Bocconi for comments and discussions. The views expressed in this paper are solely the responsibility of the authors and should not be interpreted as reflecting the views of the Executive Board of Sveriges Riksbank or of Consip..

² Financial Stability Department, Sveriges Riksbank, SE 103 37 Stockholm; lars.frisell@riksbank.se.

³ Research Division, Sveriges Riksbank, SE 103 37 Stockholm. Email: kasper.roszbach@riksbank.se.

⁴ Stockholm School of Economics, Consip Research Unit, and CEPR, Email: giancarlo.spagnolo@tesoro.it.

⁵ We are still trying to complete our database. Two different country lists can be found in the appendix; All graphs and tables with N=47 include countries in Appendix I, All graphs and tables with N=96 or greater include countries in Appendix II.

1. Introduction

Several European central banks have recently been the subject of media attention and public debate because of alleged corporate governance problems. These issues typically entail the effectiveness of bank supervision and the risk of regulatory capture (cf. the “Parmalat scandal” in Italy, and the “Weltecke crisis” in Germany), the remuneration of bank officials, the financial independence of central banks (cf. the debate over the Dutch central bank’s pensions) and nationalism or plain favoritism in regulatory decisions (cf. the “Fazio problem” in relation to the ABN AMRO’s bid for Banca Antonveneta)⁶

The objective of this paper is to raise the broad question of whether the current institutional setup and governance structure are optimally configured to make central banks execute the tasks assigned to them by the public in the most efficient way, in the light of recent research findings in corporate finance, banking, political economy and other fields of economics.

The issue of central bank governance and regulation is not of purely academic interest. Recent empirical work by Beck, Demirgüç-Kunt and Levine (2004), Demirgüç-Kunt, Laeven and Levine (2003), and particularly Guiso, Sapienza and Zingales (2003) suggest that through its effect on the allocation of financial resources, the quality of bank regulation and supervision may have had *dramatic* effects on nations’ economic growth.

Principles of Governance

Generically, good corporate governance for an organization can be defined as the establishment of institutional arrangements that ensure that the organization pursues its statutory goals (rather the organization members’ private goals). Shleifer and Vishny (1997), Becht, Bolton and Roell (2002), and Denis and McConnell (2003) survey the literature on corporate governance. Tirole (2005) offers an up-to-date integrated treatment of the topic. Much of this literature focuses on the way governance structures limit insiders’ (management or controlling shareholders) expropriation of outsiders (especially financiers) through the enjoyment of private benefits, slack, or diversion of resources.

The mechanisms ensuring good corporate governance identified by the literature are sometimes classified as internal or external. Examples of external governance mechanisms include, (i) product market competition (Allen and Gale, 2000), (ii) the market for corporate control (Manne, 1965;

⁶ Of course, these are rather mild governance problems when compared to those of some central banks in less developed countries, which have been alleged of outright corruption and fraud (see e.g. <http://www.ex.ac.uk/~RDavies/arian/scandals/centralbanks.html>).

Bertrand and Mullainathan, 2003), (iii) contractual enforcement through the legal system (La Porta, Lopez-de-Silanes, Shleifer and Vishny, 1998) and (iv) the market for managers (Fama, 1980, Holmström, 1999). Examples of internal mechanisms are (i) monitoring by large block holders and other large stakeholders with strong enough individual incentives to collect information and evaluate managers' decisions (Shleifer and Vishny, 1997), (ii) delegated monitoring by the board of directors (Hermalin and Weisbach, 1998), and (iii) incentive contracts for managers aimed at increasing congruence of managers' and shareholders' objectives (Murphy, 1999).

To get an understanding for why the governance problem of central banks may be more complex than that of other corporations, it is useful to consider the various tasks that central banks perform. First, in its role as a bank-of-the-banks and insurer (lender of last resort), a central bank is subject to (additional) governance problems linked to the intrinsic opaqueness of the banking business, which reduces the effectiveness of the "standard" (internal and external) governance mechanisms (see e.g. Caprio and Levine, 2004; Adams and Mehran, 2003). Second, as a publicly owned or publicly controlled corporation, it is exposed to the governance problems that are typical for public organizations: diluted monitoring incentives due to multiple layers of delegation, weak incentives to reduce costs and to innovate, and political distortions.⁷ Third, as a monopoly provider of public goods (a stable currency and a well-functioning payment system), a central bank is insulated from what probably constitutes the most powerful mechanism disciplining private corporations: product market competition and the market for corporate control.⁸ Finally, as a regulator that produces and enforces secondary legislation and guidelines relating to bank solvency, entry and competition, a central bank is susceptible to risk of capture by the banks they regulate as well as outright corruption.⁹

The interaction of the problems associated with each role a central bank performs raises new questions about adequate governance structures. In our view, the existing literature on publicly owned firms, regulation, and corporate governance does not offer satisfactory answers to the many of the problems inherent to central banks. In the end, the optimal governance structure may be unique to central banks, but may also be relevant for other multitask agencies, such as regulated utilities, regulatory agencies, and other complex authorities.

⁷ These problems led to the recent massive privatization wave of public utilities around the world; Shleifer (1998) offers an excellent survey of these problems, while Sapienza (2003) provides fresh evidence of political distortions in the operations of publicly owned banks.

⁸ Yardstick competition could in principle provide a form of competitive pressure (Schleifer, 1985). But the absence of a principal to implement the scheme, the enormous cross-country institutional variation, and the susceptibility of yardstick competition to collusion (Potters et al. 2003) makes a successful implementation rather implausible.

⁹ Central-bank corruption appears an issue for many developing and transition countries (see e.g. Graf Lambsdorff and Shinkel, 2002). Stigler (1971) first underlined this risk for regulators.

For central banks, all external governance mechanisms save the reputational one are absent, and the only internal mechanisms likely to be effective are board supervision and incentive contracts. For this reason, we shall focus on these three tools.

Our objective in the next section is to:

- Create a benchmark of the current governance standards at - and the institutional organization of central banks;
- Compare this benchmark with the existing literature;
- Make up an inventory list of the governance/incentive problems that do not yet appear satisfactorily addressed by economic research.

2. Governance Mechanisms for Central Banks: Practice vs. Theory

A large number of authors, starting with Kydland and Prescott (1977), Barro and Gordon (1983) and Rogoff (1985), has investigated how central bank objectives ought to be shaped for the purpose of monetary policy. Persson and Tabellini (1993) and Walsh (1995) have extended this work and studied the optimal contract for central bankers.¹⁰ The focus, however, remains limited to the relevance of independent institutions for optimal monetary policy. Surprisingly, the design of the optimal contract for the supervisory tasks - historically the prime activity of many central banks - the possible trade-offs between achieving monetary policy, financial stability and banking sector efficiency, as well as the link between central bank independence, accountability and supervision performance, have received relatively little attention.

One recent exception is Quintyn and Taylor (2002), who argue that “regulatory and supervisory independence (RSI) is important for financial stability for the same reasons that central bank independence (CBI) is important for monetary stability”. They list a number of dimensions of RSI, among which budgetary freedom, and contend that a supervisor’s independence, in order for the agency to be fully effective, needs to go hand in hand with accountability. The authors conclude that improper supervisory arrangements have contributed significantly to the deepening of several recent systemic banking crises.¹¹ They do not take into account research on corporate governance or look into the theory of the optimal contract for an independent financial regulator and supervisor, but do consider some “essential” components of accountability arrangements among those discussed in this paper.

¹⁰ A rich literature has developed out of these seminal contribution, including recent work like Keefer and Stasavage (2001), looking into the importance of checks and balances; Eijffinger and Hoeberichts (2002), discussing the need of more transparency in the decisionmaking process; and Moser (1999), studying the factors that empirically determine independence.

¹¹ See also Caprio and Levine (2004) and Guiso et al. (2003) for econometric evidence on the possible long-term effects of poor banking supervision.

In this section we study in detail the various features of reputational and internal governance mechanisms that may apply to central banks. We will look at the current practices in a group of (mostly European) central banks and contrast them with what economic research suggests on the subject. The data we present come partly from a number of BIS surveys, part of them have been collected directly, and the remainder comes from World Bank databases. It should be noted that the sample of countries in our survey varies item wise: it has not always been possible to acquire comparable data for the same year, which should be kept in mind when interpreting the data.

This section contains seven subsections. Section 2.1 discusses the multiplicity of tasks and objectives of Central Banks. Section 2.2 deals with supervision, the separation of powers and ownership. Section 2.3 discusses boards and their dual role as advisor and supervisor. Section 2.4 looks at Governor appointment and dismissal procedures. Section 2.5 studies term limits and term lengths of governors. Section 2.6 discusses the role of financial independence in the governance of central banks. Finally, Section 2.7 addresses the remuneration of the governors and senior staff of central banks.

2.1 The Multiple Tasks and Objectives of Central Banks

As mentioned in the introduction, Central Banks typically have multiple roles: they are a bank-of-the-banks and insurer, a monopoly provider of public goods, a regulator, and sometimes a competition authority at the same time.

Figure 1a. What are the primary objectives of Central Banks?

The pie chart shows what percentages of banks in the survey indicate a specific task as a primary responsibility.

[Source: FRS-20060728]

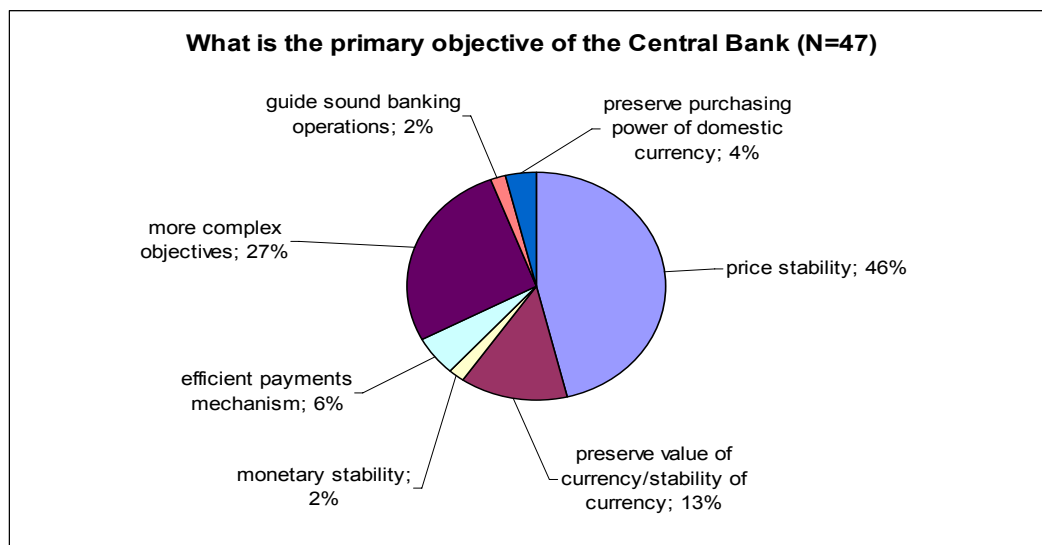


Figure 1b. What are the major responsibilities of Central Banks?

The bars show what percentage of all banks includes a specific task among its responsibilities. Multiple tasks are frequent.

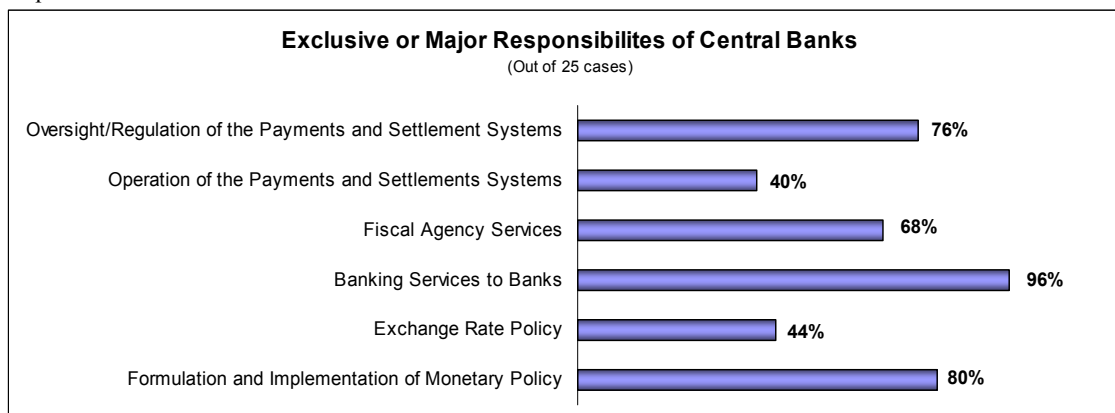
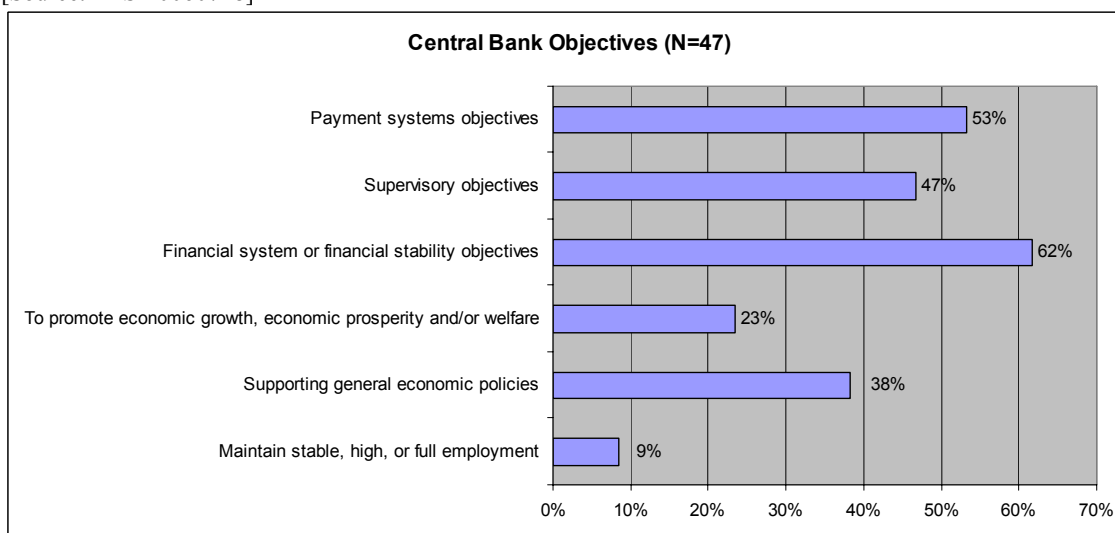


Figure 1a, 1b and 2 summarize the information on tasks and objectives for central banks in a number of countries, most of which are OECD members.¹² Central banks are typically given several other tasks besides monetary policy, including guaranteeing payment system stability, individual bank supervision and, more rarely, consumer protection; and they are often given other (generic) objectives than price stability.

Figure 2. What other objectives do Central Banks have?

The bars show which objectives the statutes of Central banks mention besides those related to monetary policy. Values are expressed as percentage of all banks in the sample and multiple additional objectives are frequent. [Source: FRS-20060728]



Despite this, an almost lexicographic priority is typically assigned to the price stability objective and corresponding monetary policy tasks. This is a relatively new development in the history of central

¹² **Countries or Currency Regions studied in Figure 1b:** Argentina, Australia, Bulgaria, Canada, China, ECB, France, Germany, Hong Kong, Hungary, India, Italy, Japan, Mexico, New Zealand, Norway, Poland, Russia, Singapore, South Africa, Sweden, Switzerland, Taiwan, Great Britain, and the US.

banking, arguably caused by the high inflation decades. Originally, the key responsibilities of central banks were government financing, liquidity assistance to commercial banks, and later on, bank supervision (see, e.g., Goodhart 1988). From the late 1970s however, central bank theory has focused on the stabilization of inflation and output variability. Reflecting advances in principal-agent theory and in research on optimal CEO compensation in corporate finance, an extensive economic literature on incentive contracts for CBs has developed by and large suggesting that the budget of the CB and/or the remuneration of the Governor should be linked to the achievement of an inflation target (see, e.g., Rogoff 1985, Persson and Tabellini 1993, Walsh 1995, and Persson and Tabellini 2000). However, this literature tends to ignore the other important objectives of CBs.¹³

After so many years of successful inflation control, and in the light of recent events, it is time to ask:

- Is the strong priority given to price stability still justified? Does reaching inflation targets justify any sacrifice in term of, say, stability or cost increases?
- If not, which are the right weights to give to other objectives?
- If conflicts appear between objectives, how should they be traded off?

Naturally, all objectives of relevance should (optimally) enter a CB's 'incentive package'. However, it is hard to think of a good performance indicator to use for, say, bank supervision (the absence of failed banks?), or financial stability (the absence of banking crises?). One could argue that, lacking good performance indicators for other important objectives besides monetary policy, politicians should refrain from giving full-fledged incentive contracts on that account, as attempted in New Zealand. As shown by Milgrom and Holmström (1991), when managers face multiple tasks, using high-powered incentives to motivate them may be detrimental, since managers will distort their efforts towards measurable tasks and away from less measurable (but not necessarily less important) ones.

Even if reliable performance measures could be found for all objectives, the multiplicity of objectives itself may prove problematic. Dewatripont, Jewitt and Tirole (1999) show that the lack of focus in an agency's mission greatly limits the effectiveness of career concerns as a motivating device, as it renders inferences of the quality of management much more difficult.

¹³ See Eisenbeis (2004) for a notable exception

2.2. Supervision, separation of powers and ownership

The multiplicity of objectives has recently sparked a debate on what constitutes the optimal allocation of tasks between a central bank and a range of other financial supervisory authorities, for example a financial supervisory authority, a deposit insurance agency, an insurance industry supervisor, a stock market supervisor, and a supervisor for consumer financial services. Combining different responsibilities, such as lender-of-last-resort function, monetary policy, and bank supervision, may give rise to conflicts of interest for several reasons. Splitting up tasks that are related, can, however, imply foregoing scale effects or ignoring externalities, particularly informational ones. Recognizing that the government or job market explicitly or implicitly reward “good performance” by regulators, means that regulators will, on the margin, trade off tasks so as to obtain the highest reward or smallest penalty. In general, this makes the allocation of powers important.

More or less parallel to the separation issue runs the ownership issue. In designing the optimal institutional structure for achieving its objectives, governments can – and do - also consider different ownership structures for Central Banks.

Separation of Powers

One of the earliest studies that recognize the trade-off a central bank faces when attempting to attain a multiplicity of goals is Schoemaker (1992). He acknowledges that a central bank with supervision responsibility may choose to hold down interest rates because of concern with the banking system, although purely monetary considerations suggest higher rates. Hence, simultaneously striving for price stability and financial stability involves a time-dependent trade-off. In line with this, Haubrich (1996) and Di Noia and Di Giorgio (2000) present evidence that the inflation rate is higher and more volatile in OECD countries where the Central Bank also has sole responsibility for banking supervision.¹⁴

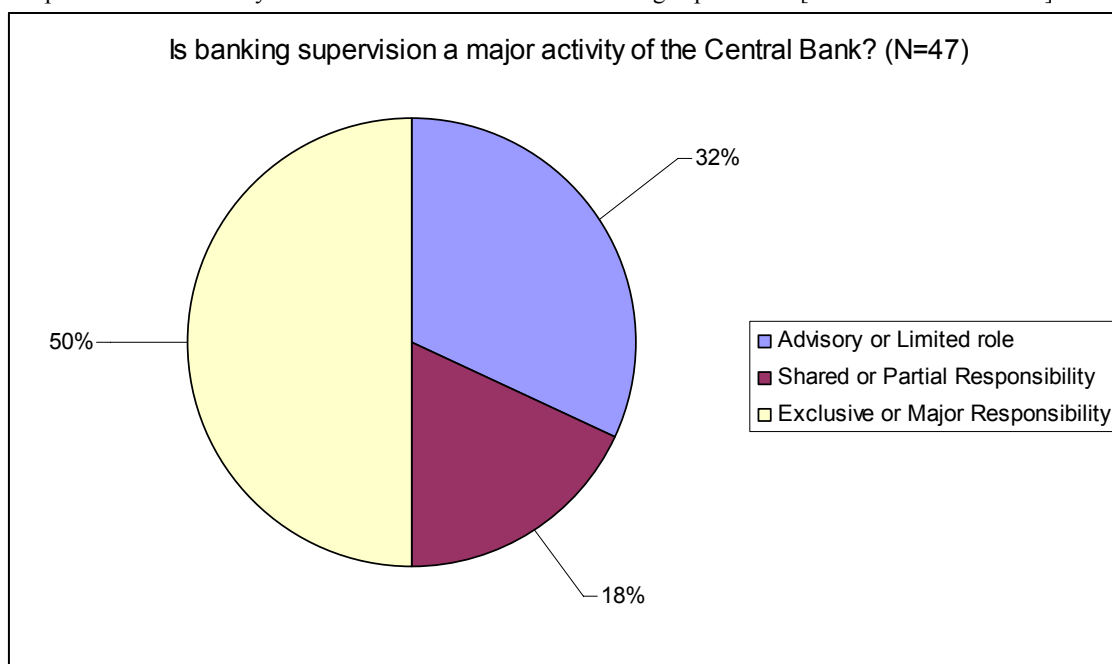
Boot and Thakor (1993) provide another reason why supervisory tasks should be separated, partially or completely, from the Central Bank. They show that in the presence of uncertainty about the supervisor’s ability (e.g., in evaluating the quality of banks’ assets), foreclosing a bank may signal poor monitoring ability. Hence, the supervisor will tend to delay such decisions. Boot and Thakor suggest that the responsibility for bank closures should therefore be separated from that for asset-quality monitoring. Of course, efficient separation still requires a mechanism to induce the monitor to truthfully share its information with the regulator.

¹⁴ Whether such a higher rate of inflation is suboptimal will depend, of course, on the exact weight that the government attached to the bank supervision (financial stability) objective.

Kahn and Santos (2004) study the allocation of the lender-of-last-resort-function, closure authority (supervision), and deposit insurance. They find that, in the multi-regulator arrangement, it is beneficial to give supervision to the deposit insurer. The choice between the unified-regulator arrangement and the multi-regulator arrangement involves a trade-off: The multi-regulator arrangement reduces the forbearance problem at high levels of liquidity shortage but may exacerbate it at low levels. To our knowledge there is no empirical research yet that assesses the costs of supervision in different countries and relates these to the various outputs of the supervisory system (e.g., official warnings, interventions, bank closures). Figure 3 shows how the frequencies with which different institutional arrangements for organizing bank supervision occur.

Figure 3. Is Banking Supervision a Major Activity of the Central Bank?

The pie chart illustrates by the role of the Central Bank in banking supervision. [Source: FRS-20060728]



As the pie shows, the most common setup in our sample is to have one agency assume the sole responsibility for bank supervision. Eight out of ten countries have this arrangement. Among those, however, the odds are in favor of assigning the supervisory task to the central bank (50%) rather than to another independent supervisory agency. To verify whether differences in institutional setups could be ascribed to the level of development - possibly reflecting the fact that new insights about optimal organizational arrangements spread slowly - we split up the sample into OECD and non-OECD member states. As it turned out, no significant differences exist between the two subgroups.

The predominance of single supervisors in our sample, and the fact that countries assign bank supervision to either a central bank or a different (more or less) independent government agency, raise a number of questions. What are the advantages and disadvantages of having a unified regulator? What circumstances make concentration of all tasks in a central bank optimal and which

circumstances justify the creation of a separate authority? Can theory at all explain different institutional solutions in similar countries? Despite the recent theoretical contributions, these questions remain more or less unanswered.

Ownership

With respect to the ownership, research gives us few guidelines as to what would constitute an efficient form to govern a central bank. The part of the economic literature that deals with differences between private and public organizations has shown that public ownership may generally allow for a better control of non-contractible qualitative aspects, but leads to weak incentives to innovate, both in terms of improving quality and reducing costs (see Shleifer, 1998; Hart, Shleifer and Vishny, 1997). According to a shared view, going back to Alfred Marshall, public ownership is likely to be efficient only when 1) opportunities for cost reductions that lead to non-contractible deterioration of quality are significant; 2) innovation is relatively unimportant; 3) competition is weak and consumer choice ineffective; and 4) reputational mechanisms are also weak. In all other cases, the cost of potential political use of the firm's assets and of weakened incentives to innovate and to cut costs will dominate, making contracting of production to private firms more efficient.¹⁵

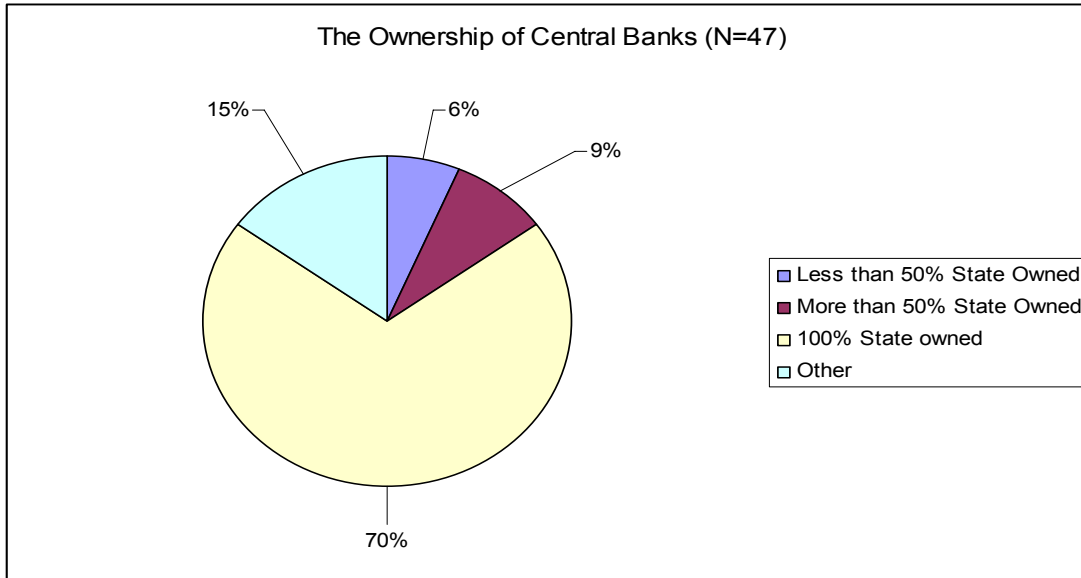
If we apply these criteria to central banks, requirement (3) is clearly satisfied, and most likely also requirement (1). To what extent the second and fourth condition hold is less clear. However, the importance of the regulatory function that most central banks exercise reinforces the case for public ownership. Indeed, private ownership may directly conflict with the role of the bank as a regulator. This is particularly obvious in the case of a central bank that has to enforce competition among banks, which in turn jointly own the central bank. This was the case for a long time in Italy before the system was reformed in 2005. A comparable situation exists in the U.S., where the regional Federal Reserve Banks are owned by the financial institutions in their respective districts.¹⁶ A similar conflict may arise in more subtle ways for other central banks.

¹⁵ Sapienza (2003), for example, shows that Italian publicly owned banks distort their lending behavior in response to political pressures.

¹⁶ The Federal Reserve does not have sole authority in competition policy, however.

Figure 4. The Ownership of Central Banks

The pie chart illustrates to what extent the shares of Central Banks are owned the government, by the private sector, by a combination of these or if some other ownership form applies. [Source: FRS-20060728]



The potential advantage of private ownership stems from linking incentives to residual claims on profits. In the case of central banks, however, even when they are privately held, the allocation of profits is typically stipulated in advance (e.g., fixed dividends on shares or upper bounds on retained profits). The incentives for the owners to monitor management and for management to promote innovation and cost efficiency are thus greatly reduced. The case for state-ownership, therefore, appears well founded.

Figure 4 provides an overview of the most common types of ownership and the frequency of their occurrence. Clearly, complete ownership by the national government is most common. Nevertheless, nearly three out of ten central banks are either only partially owned by the government, private property or have some other ownership structure. Among the latter, about a third concerns cases where the government holds a 50 % or majority stake. Note, however, that the right to appoint Governors or members of the Board of Directors can be more or less tied to the ownership proportions. For example, in the U.S., directors of regional or Federal Reserve Banks are appointed by financial institutions. Appointment of their presidents is however subject to approval by the president of the Board of Governors.

2.3 The Board as a Supervisor and Advisor

Generally, the existence of a board of directors can be seen as a partial solution to the agency problem between shareholders (or a political principal) and managers. In a recent survey of the literature on the role of boards, Hermalin and Weisbach (2003) conclude that “formal theory on boards has been quite limited to this point”. Empirical studies have attempted to answer questions about the impact of board characteristics on board actions, firm profitability and about the factors that determine the evolution of board composition over time, but many questions remain unresolved, both theoretically and empirically. We focus here on three highly debated issues: boards’ independence from management; dual versus sole boards; and board size.

Board independence from management

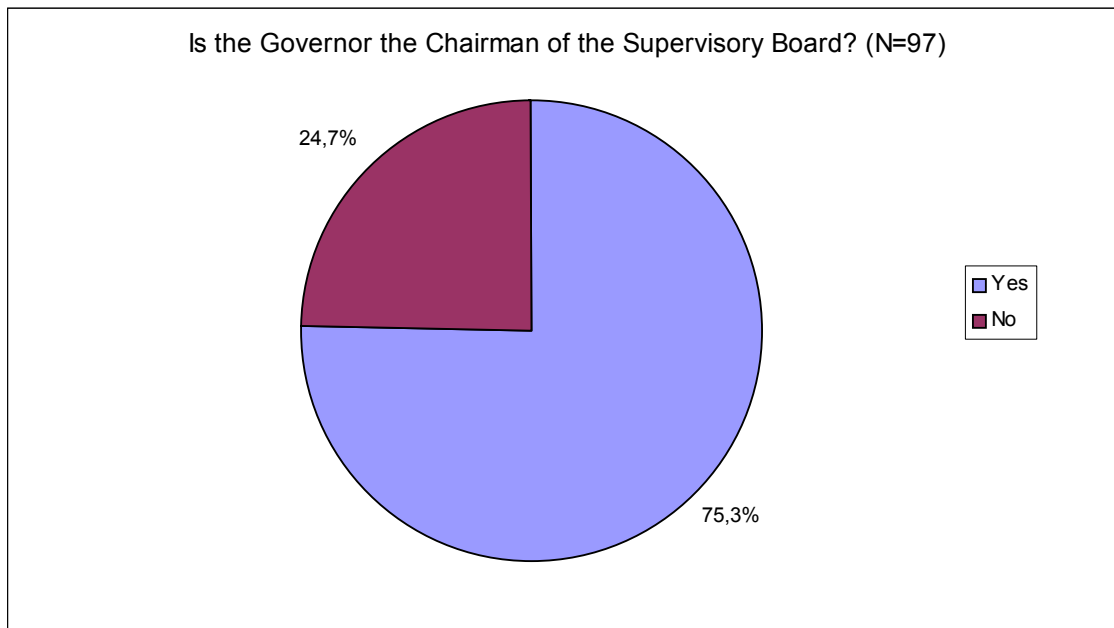
The recent debate fuelled by a wave of corporate scandals has focused on the importance of boards’ independence from management. In particular, boards have been criticized for having been too “friendly” to the management and thereby having contributed to the emergence of the scandals through poor monitoring. However, empirical research has generally found negligible effects of independent directors on firm performance (see Sect. 3.1 in Hermalin and Weisbach 2003).

A recent theoretical contribution by Adams and Ferreira (2004) analyzes the consequences of the board’s dual role as advisor and monitor of the executive management. They note that independent directors are bound to rely on information provided by the management. When deciding on how much information to disclose, managers must trade off the benefits of getting better advice against the increased ability of the board to determine the quality of the managers and potentially intervene in their dealings. Among other things, the authors conclude that “friendly boards” may in fact be optimal, and that a more independent board (and the resulting increase in monitoring intensity) is likely to be welfare-improving when it only acts as a supervisor, while it may be reducing welfare when a board also acts as an advisor – a task that requires the management’s trust and information (see also Harris and Raviv 2006, who reach a similar conclusion in a rather different model).

Figure 5-7 show information on supervisory and dual function boards. (Naturally, for a purely executive/advising board the question of independence is not very relevant.) In our sample of countries, no member of the supervisory board is proposed or appointed by the governor. In this sense, at least, members of the supervisory board are independent of the governor. However, as can be seen in Figure 5a, in most cases the governor does chair the supervisory board, which puts this independence into question.

Figure 5a. Is the Governor the Chairman of the Supervisory Board?

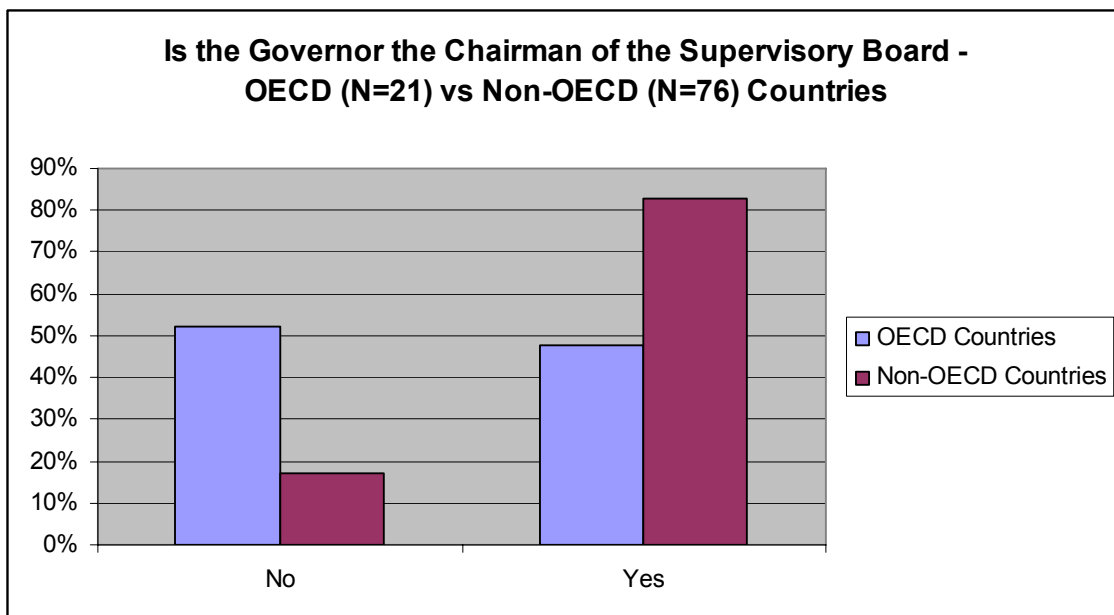
The pie chart illustrates the number of cases where the governor is the chairman of the Supervisory Board. Note that this figure includes boards with dual functions. [Source: Lybek 2006]



Distinguishing between OECD and non-OECD countries in Figure 5b reveals that in the latter it is much more common than in the former for the Governor to chair the board.

Figure 5b. Is the Governor the Chairman of the Supervisory Board? OECD vs. non-OECD.

The pie chart illustrates the number of cases where the governor is the chairman of the Supervisory Board distinguishing OECD from non-OECD countries. Note that this figure includes boards with dual functions. [Source: Lybek 2006]



This suggests that in non-OECD countries the board is less independent from the Governor. Though, as we will see in the next section, the finding above is driven in large part by non-OECD countries having mostly a single, dual function board, for which it is more natural to have the Governor as a chairman than for specialized supervisory boards.

As for the appointment and replacement of Board members, Figure 6 shows that at least in the nomination, in most cases the Head of state or the Legislature is involved, which tend to be less partisan institutions. Figure 7 shows that there is enormous variance in the number of ex.officio (typically politically appointed) members even in our smaller sample of mostly OECD countries.

Figure 6. Nomination and appointment of non-ex officio Supervisory Board members
[Source: Lybek 2006]

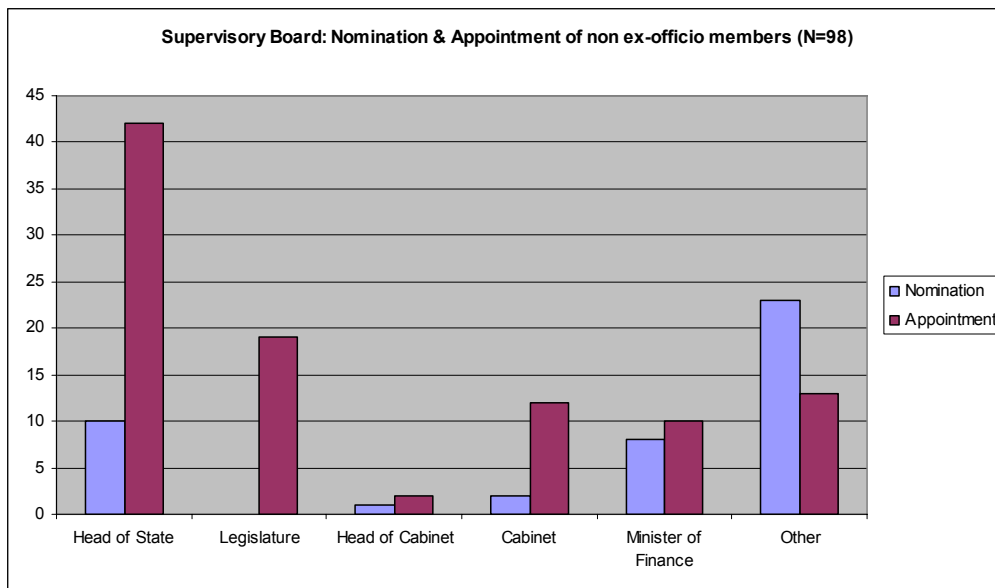
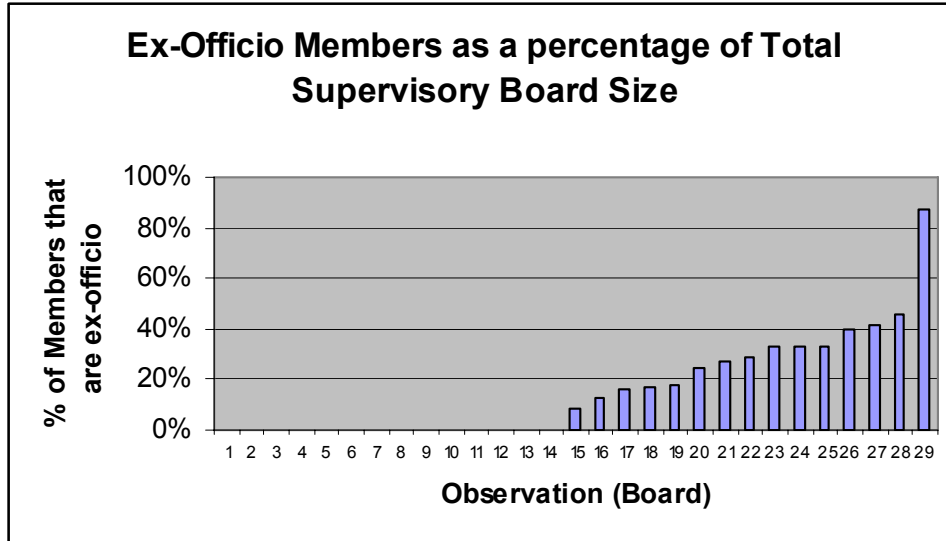


Figure 7. Ex-Officio Members as a percentage of total Supervisory Board size

[This is a temporary graph. Source: FRS 20060728]

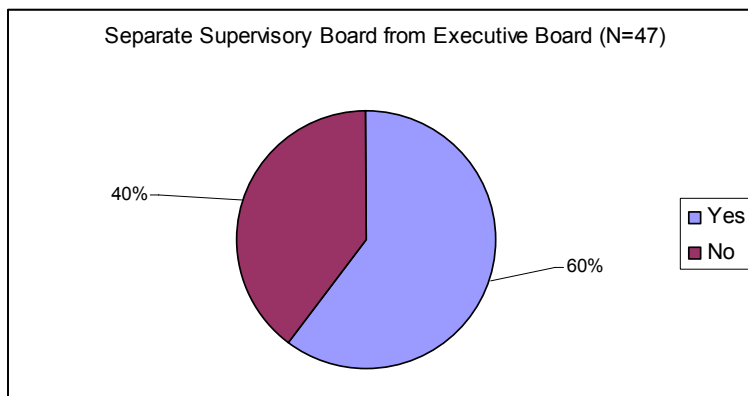


Separate supervisory boards

Adams and Ferreira (2004) also explore the optimal choice between “sole” or “unitary” boards, and the “dual board system” - common in northern European countries - where two separate boards exist specialized in monitoring and advising respectively. They show that a sole board tends to be optimal as it elicits more information and effort from the management when this has preferences sufficiently aligned to those of shareholders. They also find, however, that if management’s incentives are weak (e.g. because of low stock ownership), so that the moral hazard problem is more acute, then it may become optimal (as a second best) to have a dual Board system where a supervisory Board plays in full the “unfriendly” monitoring role. Figure 8 shows that more than half of the banks on which we collected information has a separate supervisory boards.

Figure 8. Separate Supervisory Board

The pie shows what share of all Central Banks has a separate Supervisory Board - this comes from our own sample with most observations taken from OECD countries. [Source: FRS-20060728: PRELIMINARY!!]



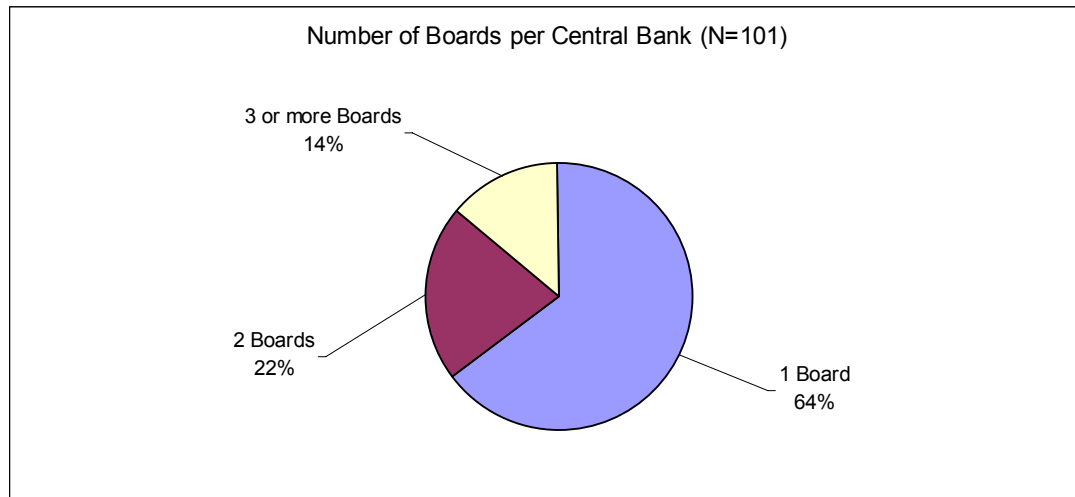
What could explain the differences, and geographical variations, in board setups? If the board structure is a response to organizational needs, then - according to Adams and Ferreira - Central Banks with separate boards should be those where accountability problems were more relevant in the past. This unlikely the case, as separate supervisory boards are more common in northern Europe. However, it is quite possible that dual boards were devised in these countries precisely to minimize moral hazard problems. It is also interesting to note that there are countries, like Japan and Norway, that have dual boards for the Central Bank even though they have sole boards for corporations (see Table 1 in Adams and Ferreira 2003). This could signal that in these countries moral hazard problems are felt to be more relevant for Central Banks. On the other hand, there are also countries, like Germany, Poland and the Czech Republic, that have a dual board system for corporations but a sole board for the Central Bank.¹⁷

Figure 9 shows that if we expand the sample to include a lot of developing countries, the predominance of a separate supervisory board disappears, and a single board emerges as the dominant institutional arrangement.

Figure 9. Number of Boards at Central Banks

The pie chart illustrates how many different boards Central Banks have.

[Source: Lybek 2006]



If one believes that moral hazard problems tend to be less severe in more developed countries, should find this in puzzling contrast with what one should have expected according to the Adams and Ferreira (2004) theory: separate supervisory boards would be optimal where there is less congruence of objectives between principal and agent.

¹⁷ Some Central Banks, like the German one, changed institutional setting in recent years, going from a dual board system to a unitary board system (hence increasing independence).

Further theoretical and empirical work appears therefore badly needed to shed more light on the relative efficiency of these different governance arrangements in different institutional and political environments.

Board size

Empirical work on the effects of board size in non-financial firms has identified a robust negative relation between Board size and firm performance (see e.g. Sect. 3.1 in Hermalin and Weisbach 2003). The most intuitive interpretation of this finding is that above a certain size, agency problems, free riding, and coordination problems dominate on the possible value added of additional directors (see e.g. Jensen 1993). Surprisingly, a recent inquiry by Adams and Mehran (2003) finds that the negative empirical relation between board size and performance does not extend to banks. For a large sample of banking firms on a forty years period, they find that banking firms with larger boards perform better, suggesting that constraints on board size in the banking industry may be counter-productive. The study above covered US Banks with unitary or sole boards only. In our “sample” we have Central Banks with both sole and dual board systems, so Figure 10 and 11 report board size for both. It strikes that the supervisory board size varies a lot across countries.

Figure 10. Size of Supervisory Boards at Central Banks

The histogram shows how many members Supervisory Boards of Central Banks have. Note that it includes dual function boards. [Source: Lybek 2006]

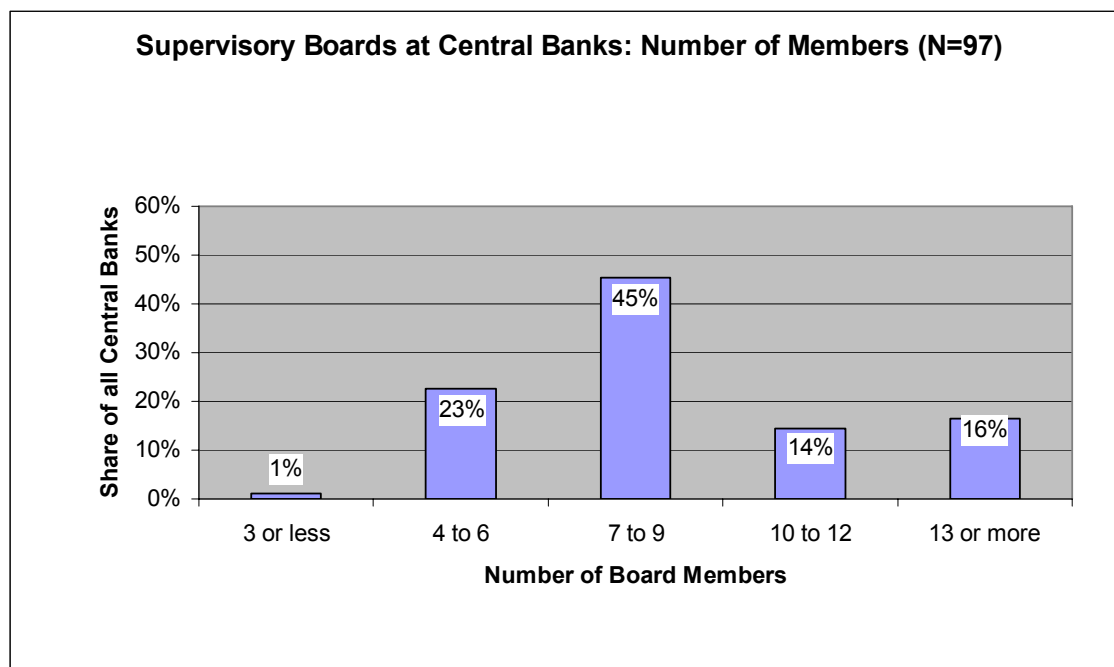
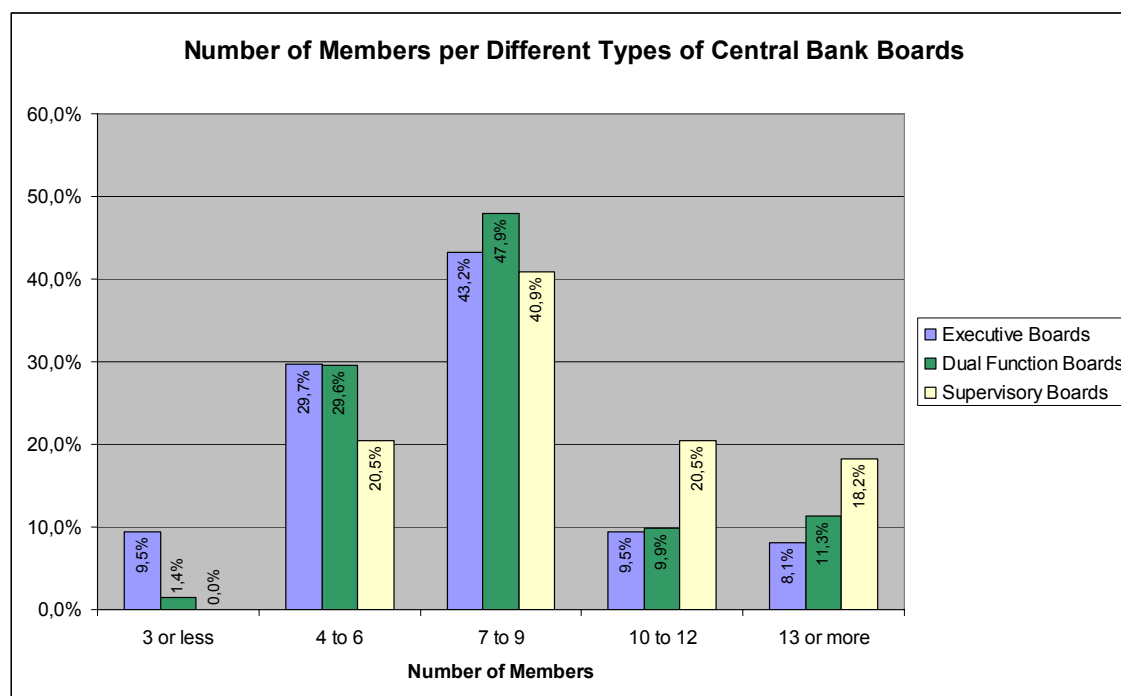


Figure 11. Number of members per Different Types of Central Bank Boards

This Histogram separates dual function boards from boards with only supervisory tasks. It also contrasts them with executive boards such as Policy, Implementation and Management boards. [Source: Lybek 2006]



2.4 Governor Appointment and Dismissal

The delegation of decision making by political actors to independent agencies has long been a subject of debate and research, the main reason being that delegation to an independent agency can act as an antidote for political inefficiencies. The extent to which such delegation is made irreversible will generally depend on the specific details of the political institutions. The procedure by which the governors of central banks are appointed and the conditions under which they can be fired can thus be expected to depend on the institutional structure of a country.

With respect to central banks, a typical claim made in the literature is that de-politicization, by means of delegation to independent bureaucrats, is economically beneficial for several reasons. Firstly, the making of monetary policy requires specific technical skills. Secondly, a tension often exists between the long-term workings of monetary policy and politicians' short-term objectives. However, as mentioned in the preceding sections, the first steps to integrate the literatures on accountability and independence of central banks were set only recently. Until now, attention remains primarily restricted to the role of accountability for the purpose of attaining monetary policy targets.

Keefer and Stasavage (2001), for example, look into the importance of checks and balances. They conclude that political interference with the central bank is more beneficial when few checks and balances exist. (One would expect, however, that when political decision makers are more polarized, the effects of checks and balances are greater.) Eijffinger and Hoeberichts (2002) investigate what effect transparency has on macroeconomic outcomes when monetary policy is delegated to a central bank. Castellani (2004) explicitly introduces accountability by allowing a political principal to do an ex-post evaluation of a central bank's monetary policy choices in a standard Barro-Gordon model. Walsh (2002) explicitly links accountability to the dismissal of governors and shows that a government can improve economic outcomes by formulating an (optimal) dismissal rule for central bankers and making the inflation target state-contingent. More recently, a more general trade-off between political accountability and independence of public managers has become the subject of political-economic research. Besley and Coate (2000), for example, uncover a new cost of delegation by evaluating the potential effect of directly electing regulators rather than having politicians appoint them.¹⁸

In Figures 12 to 14 we provide some stylized facts about the procedures that are followed in the appointment and dismissal of central banks governors.

Figure 12 shows which branch of the government or other institution nominates and appoints the governor(s). The most common situation is that a governor is appointed by a country's head of state. Depending on the political structure of countries this could be a non-partisan actor or a directly elected official. Appointment by the government as a collective ranks second, with about one out of seven cases. Other constructions involve Parliament, the Minister of Finance and the central bank's own supervisory board. As the Figure shows, the process of installing a new governor typically involves more than one institution.

¹⁸ They show that elected regulators would tend to be more pro-consumer than appointed ones. The reason is that the issue of regulator selection is bundled with other issues and not very salient in general political elections – leaving space for the influence of regulated firms' stakeholders on politicians - while it would be the only relevant issue in a direct election of a regulator.

Figure 12. Who nominates and appoints the governor?

The bars show who nominates and appoints the governor. (figures expressed as a percentage of all banks in the sample). Only one alternative is possible. [Source: Lybek 2006]

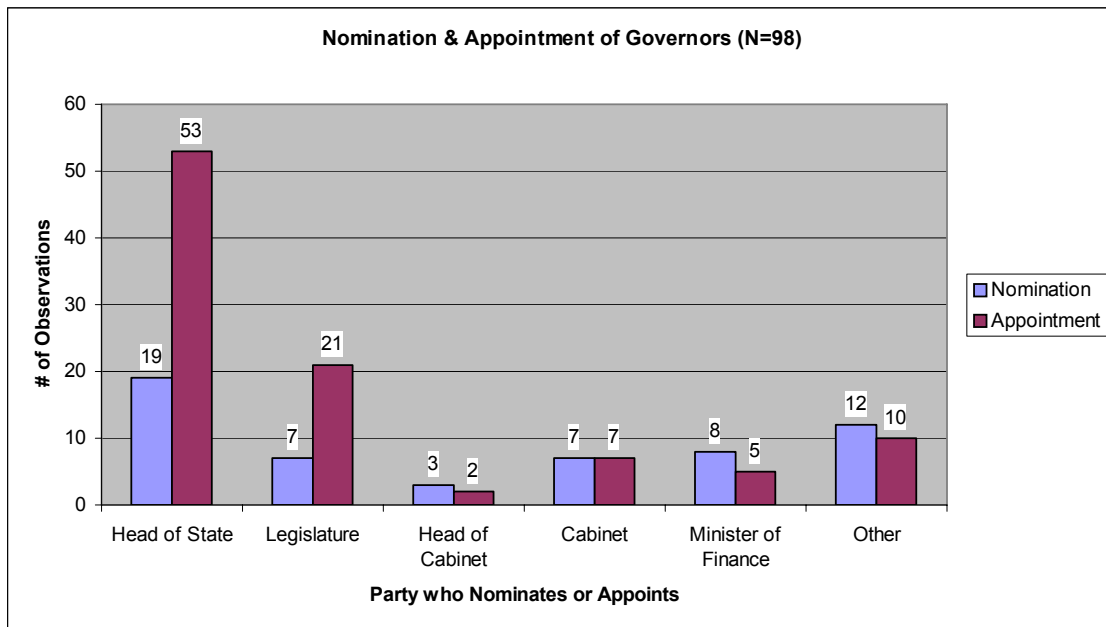
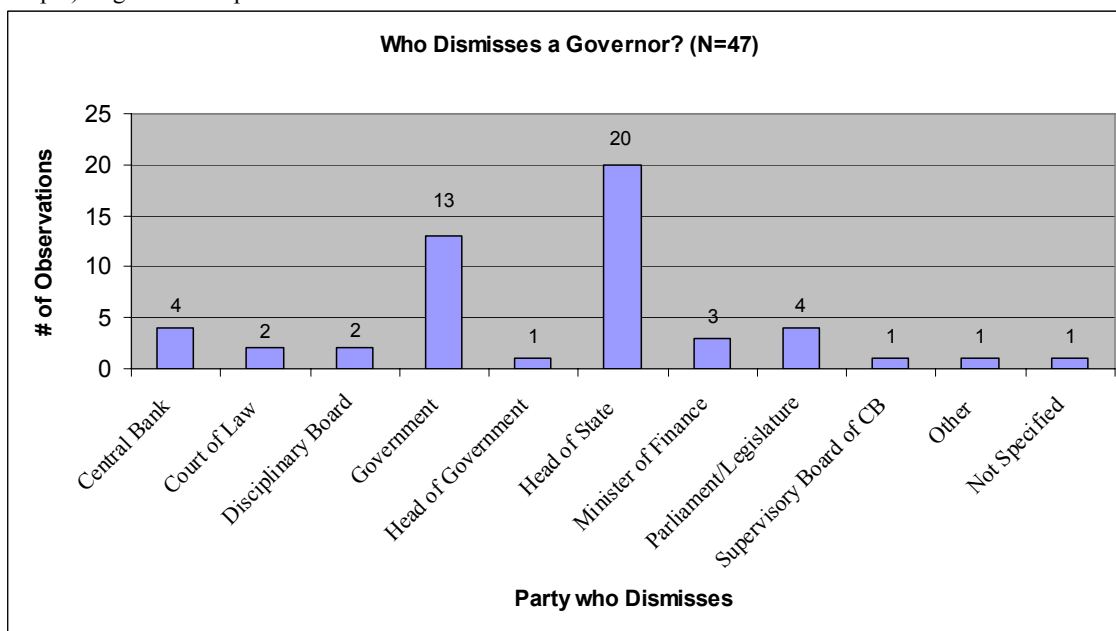


Figure 13 shows a large variance regarding which institution has the right to dismiss the governor, the most common being the Head of State, followed by the Government.

Figure 13. Dismissal of governors

The bars show by whom Central Bank governors can be fired (expressed as percentage of all banks in the sample). Figures sum up to more than 100%. Source: FRS 20060728



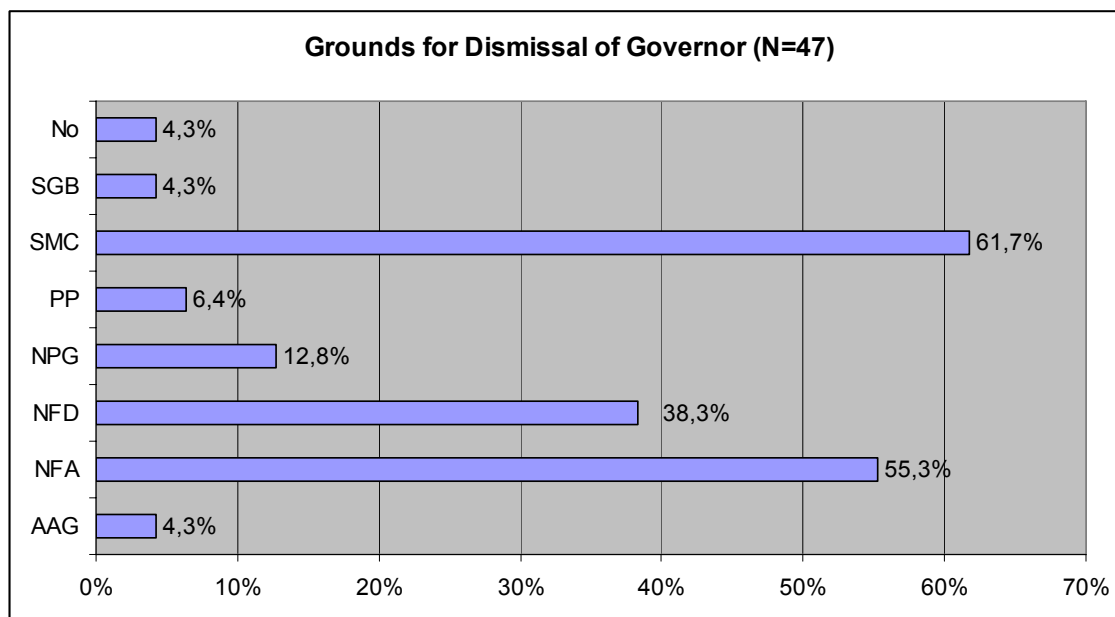
More interestingly, Figure 14 describes the grounds for governor dismissal. The figure makes it pretty clear that in most cases the governor can only be dismissed if he or she really misbehaves in terms of violating the law. Most governors can be fired for “Serious misconduct or conviction for a serious criminal offence;” for not “fulfilling his or her duties” or for “non-fulfillment of requirements for appointment”.

Figure 14 also shows that less than one out of ten governors can be fired for performing poorly, a criterion commonly applied in corporations.

In theory, the governor with the least job security appears to be the Chairman of the Board of Governors of the Federal Reserve System: he can be dismissed by the President of the United States for any “cause”. At the other extreme are those governors whose dismissal requires a decision of Court of Law, like the president of the ECB.

Figure 14. Grounds for dismissal

The bars show what events are explicitly mentioned in the statutes of Central Banks as possible reasons for dismissal.(expressed as percentage of all banks in the sample). Multiple grounds are possible. Key: · No: No Precise Definition/ Reports no reason for dismissal; SGB: Governor holds office subject to good behaviour; SMC: Serious misconduct or conviction for a serious criminal offence; PP: Poor performance; NPG: Dismissal possible but no precise definition of grounds; NFD: Non- fulfillment of duties; NFA: Non-fulfillment of requirements for appointment or for the performance of duties; AAG: Acting against government policy; [Source: FRS 20060728]



Overall, the stylized facts presented in Figures 12 to 14 clearly illustrate that central bankers tend to be appointed by non-partisan or multi-partisan institutions. And although governors can be dismissed in theory, they appear very difficult to fire, in practice. These findings appear in line with the conclusions of Maskin and Tirole (2004) and Alesina and Tabellini (2003): if citizens largely agree upon the objectives of the central bank, and these preferences (e.g. for low and stable inflation) are unlikely to change, then it is efficient to insulate the governor from political influences. Does this mean however that we should also view generous private benefits and tolerance for slack or mistakes as an intrinsic feature of the optimal institutional arrangement for Central Banks? We find “yes” an implausible answer and regard this as an important open issue for future research.

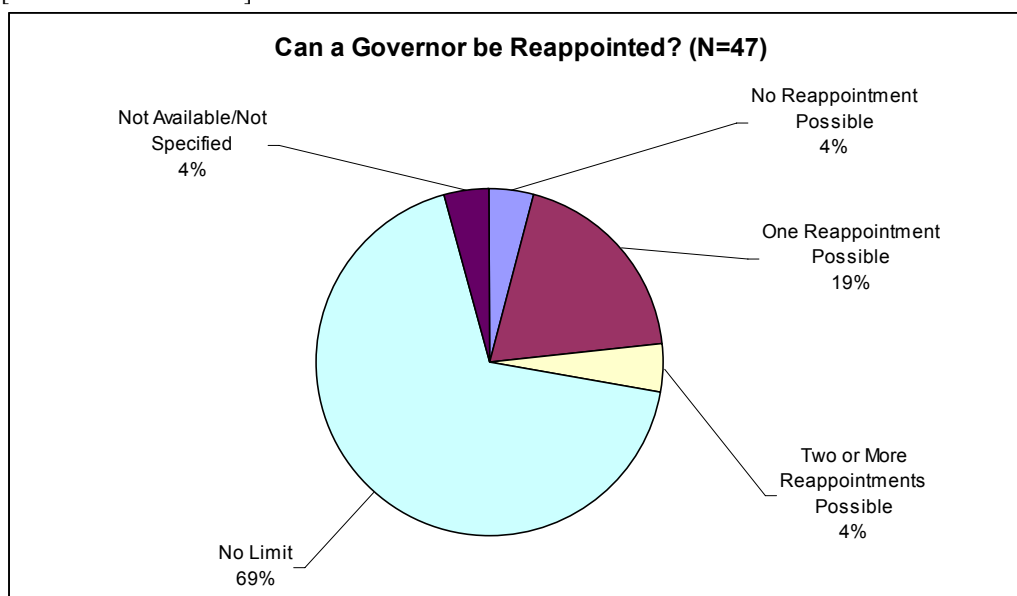
2.5 Term limits, revolving doors and term length

Term Limits

In the U.S., term limits for public officials trace back a long time, and the idea regained popularity during the 1990s when several states imposed it on various public offices. (For a recent survey, see Lopez 2003.) The most common argument in favor of term limits is that, in its absence, incumbents may become too powerful relative to outsiders, so that competition for public offices is distorted with tenure. In turn, this advantage allows incumbents to engage in unproductive or wasteful activities.¹⁹ In addition, Glazer and Wattenberg (1996) make the argument that without term limits, the value of holding office may be “too large”, which means that incumbents will spend too many resources on ensuring re-election, and divert time from productive work.

Figure 15. Reappointment of Governors

[Source: FRS 20060728]



¹⁹ In particular, political incumbents may be able to divert funds to their own constituencies, thereby increasing their re-election chances (Dick and Lott 1993, Buchanan and Congleton 1994, Chari 1997).

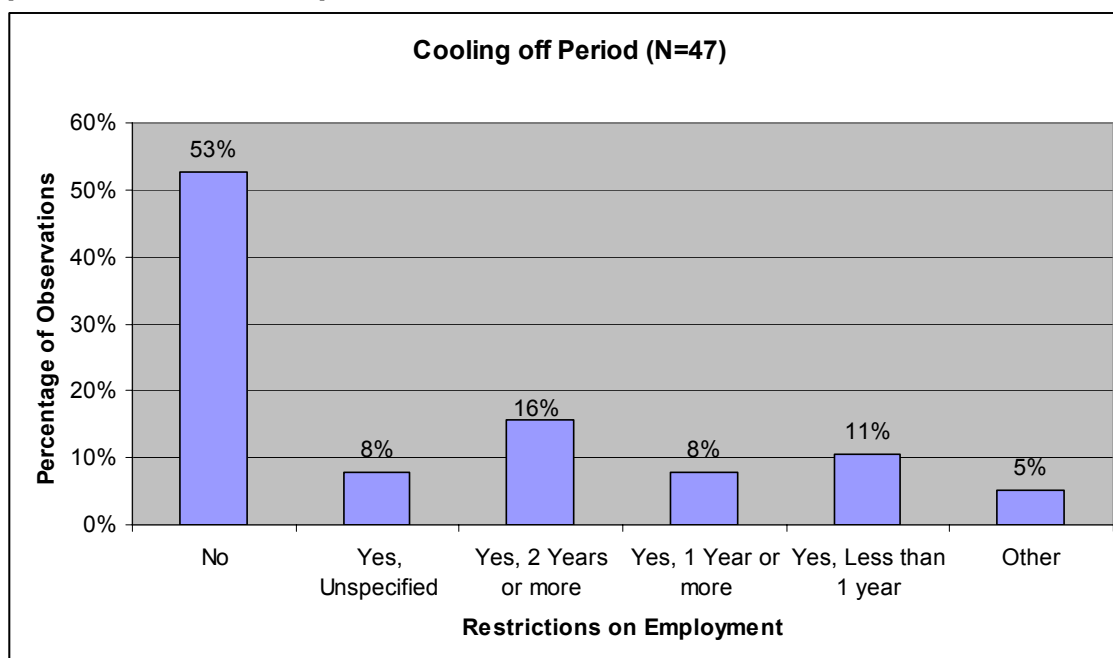
The literature recognizes at least three potential costs from term limits. First, high-quality policymakers will sometimes be forced out of office, which is obviously wasteful. Second, by introducing term limits, the (maximum) value of winning office is reduced, which -- similar to the effect of reducing a governor's compensation -- may lead to a lower quality in the pool of aspirants for the job. Third, the term limit may give rise to a "lame duck" effect. In general, when an official's term limit is binding she may be prone to shirk, spend more resources, or engage in "short-termism", i.e., give priority to projects with high returns in the short-term (Palley 1998).²⁰ Figure 15 shows that in practice disagreement is as strong as in theory.

Revolving door

The possibility of regulators to start working for the firms they were formerly regulating is known as a "revolving door". In the case of central bank governors, an obvious danger is that, as they approach the end of their final term, they will pursue, say, lax monetary or supervisory policy to please commercial banks, in exchange for a "fat job".²¹ In order to reduce the risk of regulatory capture, staff of regulatory agencies is often prevented, for a certain time period, from taking on employment in the sector of relevance, a so-called "cooling off" period. However, Figure 16 shows that among the Central Banks about which we could collect information, less than a half has some kind of cooling off period.

Figure 15. Employment Restrictions after End of Mandate

[Source: FRS 20060728]



²⁰ See Besley and Case 1995 for some evidence on last-term spending increases by U.S. governors.

²¹ On the empirical side, Horiuchi and Shimizu (2001) found that Japanese banks associated with higher risk-taking and more bad loans are more commonly involved in *amakudari*, i.e. the practice of offering directorships to retired financial regulators from the Bank of Japan and the Ministry of Finance. However, the causality of this relationship is unclear.

On the other hand, if career concerns are the main force inducing central bankers to perform – as argued by Alesina and Tabellini (2004) - governors must be able to go on with their careers, once they leave the central bank. Also, Che (1995) shows that while bad from an ex-post point of view, revolving doors may have the positive ex-ante effect of inducing regulators to invest in acquiring non-contractible industry-specific skills, which also benefits regulatory activity. These arguments would speak against the use of cooling off periods.

These remarks highlight how complex is the interaction between career concerns, term limits, and optimal regulation. Whether there should be a “cooling off” period to limit the influence of “revolving doors” on central bankers’ behavior appears to be another open issue in need of both theoretical and empirical research.

Term length

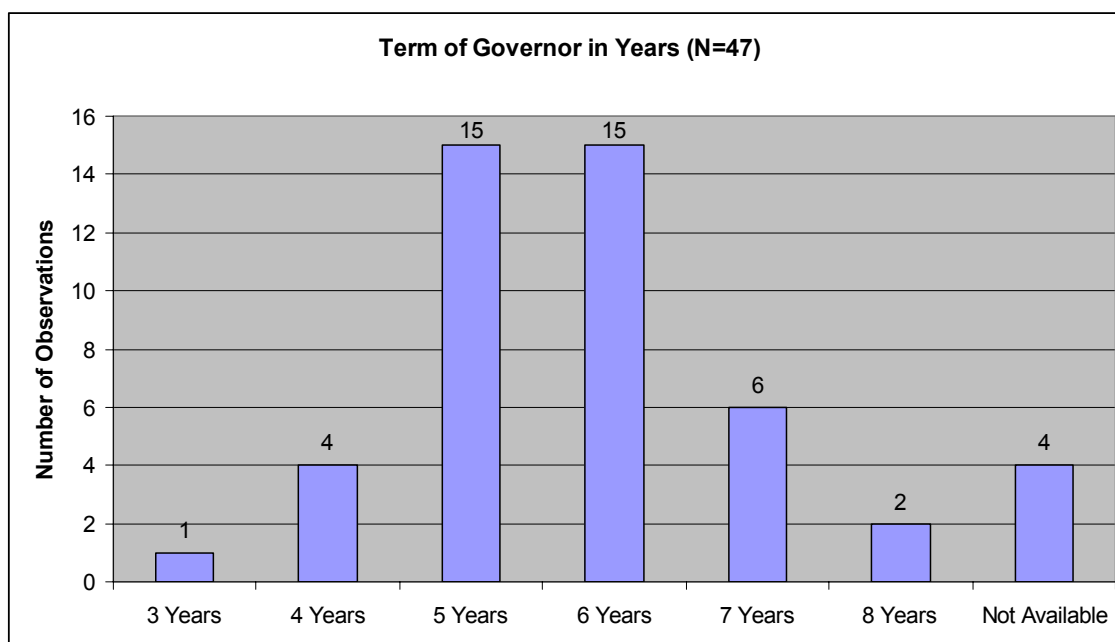
Closely related to the issue of term limits is the probably less controversial issue of term length. It is widely recognized that by lengthening and staggering terms of central bank governors, the central bank becomes insulated from political pressure during election years, which promotes policy stability (see, e.g., Waller 1992). This should imply that, at a minimum, the governor’s term should be longer than one election cycle, which holds for almost all countries in our sample. On the other hand, long tenure reduces accountability, and decreases the public’s ability to change the course of monetary policy if it so desires (O’Flaherty 1990, Tirole 1994, Waller and Walsh 1996).

Figure 17 displays term lengths for Central Bank governors for 47 countries, showing that most term lengths are longer than the typical electoral cycle, but not much longer, much like one would have expected..

An interesting practical question is whether term lengths (and limits) depend on the tasks and responsibilities afforded to the central bank. In particular, since national central banks in the EMU-area have handed over responsibility for monetary policy to the ECB, their focus might shift to other tasks (such as financial stability and financial infrastructure). This should reduce the central banks’ need for insulation and should result in shorter terms.

Figure 17. Governor Term Length

[Source: FRS 20060728]



2.5 Financial independence

According to Quintyn and Taylor (2002), budgetary freedom is one component of a central bank's independence, both vis-à-vis the government, but also with respect to the banks it supervises. They contend that in order for the Bank's supervisory function to be effective, this freedom must be definite, and that only independent CBs can be made truly accountable.

Von Ungern-Sternberg (2003), in an essay on the governance and independence of the Swiss National Bank (SNB), argues against the idea that independence and accountability complement each other. To the contrary, he believes there is a natural trade-off between the independence and the accountability of a central bank and that "the emphasis on the independence aspect has contributed to creating situations, where the central banks' accountability is largely deficient". As an example, he describes how the SNB, due to vague legal definitions of the profit concept, has managed to maintain substantial leeway in determining how much profit to retain and how much to pay out to the Swiss Kantons.

Other recent episodes involving European central banks appear to support Von Ungern-Sternberg's criticism. As mentioned in the introduction, these episodes include the granting generous remuneration and pension packages to its own management, setting up subsidiaries, and accepting favors from banks under its regulation. Are these events coincidental or part of a general trend?

Figure 18 and 19 summarize the information available to us on banks' financial independence. In nearly eight out of ten countries the legislator has imposed laws on the bank that regulate the allocation of profits to reserves and government, by specifying a decision-making process and/or fixed shares or amounts. However, profits are largely an endogenous variable, since only one out of ten banks require a preliminary government approval of their expenditure budget, and three out of four do not need any budget approval. Considering the fact that the government's control is likely to be smaller when it only has an ex-post veto right, as opposed to a right of initiative -- as is generally the rule as regards government agencies -- Central Banks do appear to have a large degree of financial freedom.

Figure 18. Laws set upon the Central Bank regarding allocation of profits

[Source: FRS 20060728]

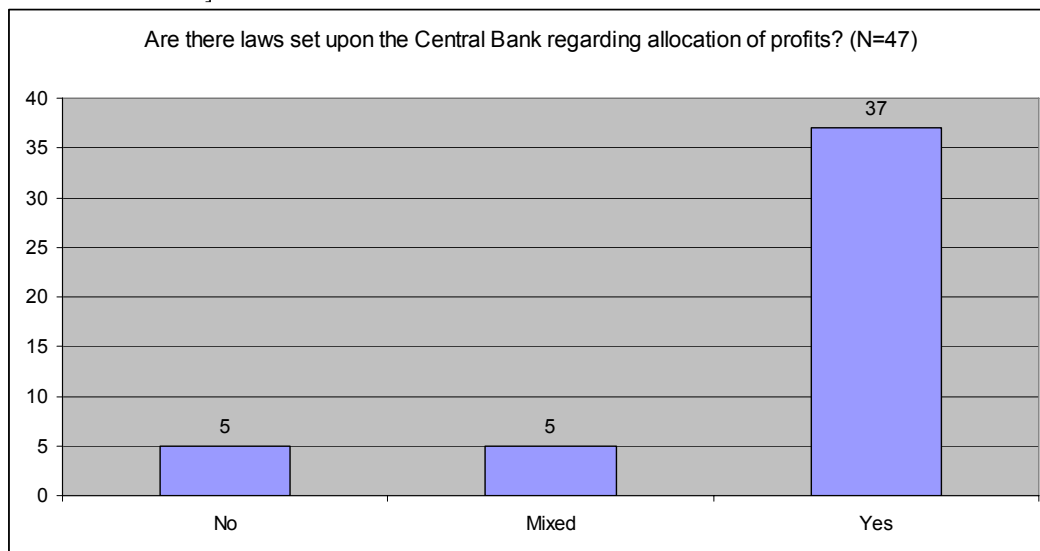
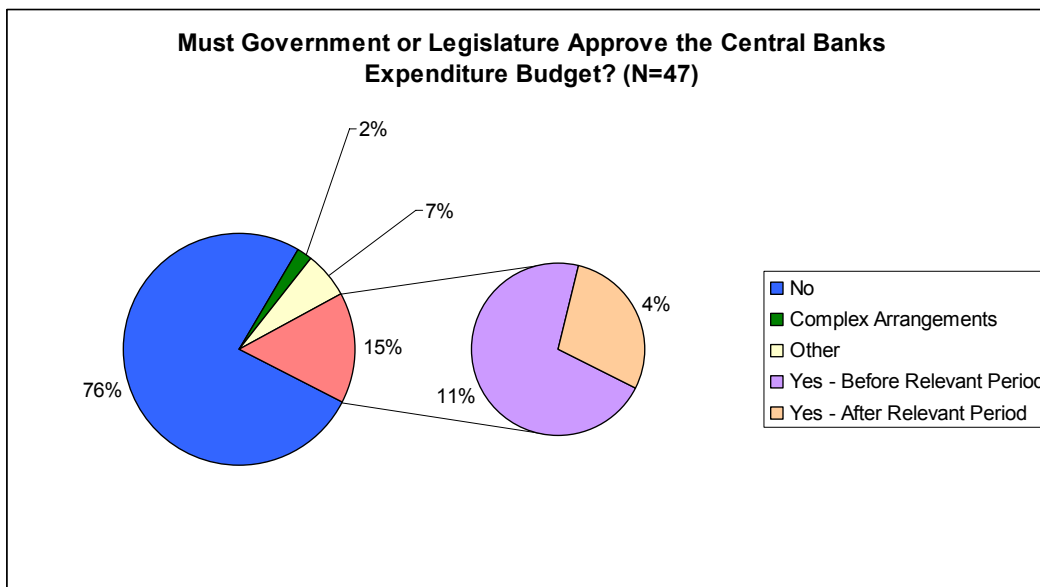


Figure 19. Central Bank Budgetary Independence.

[Source: FRS 20060728 – PRELIMINARY GRAPH!!]



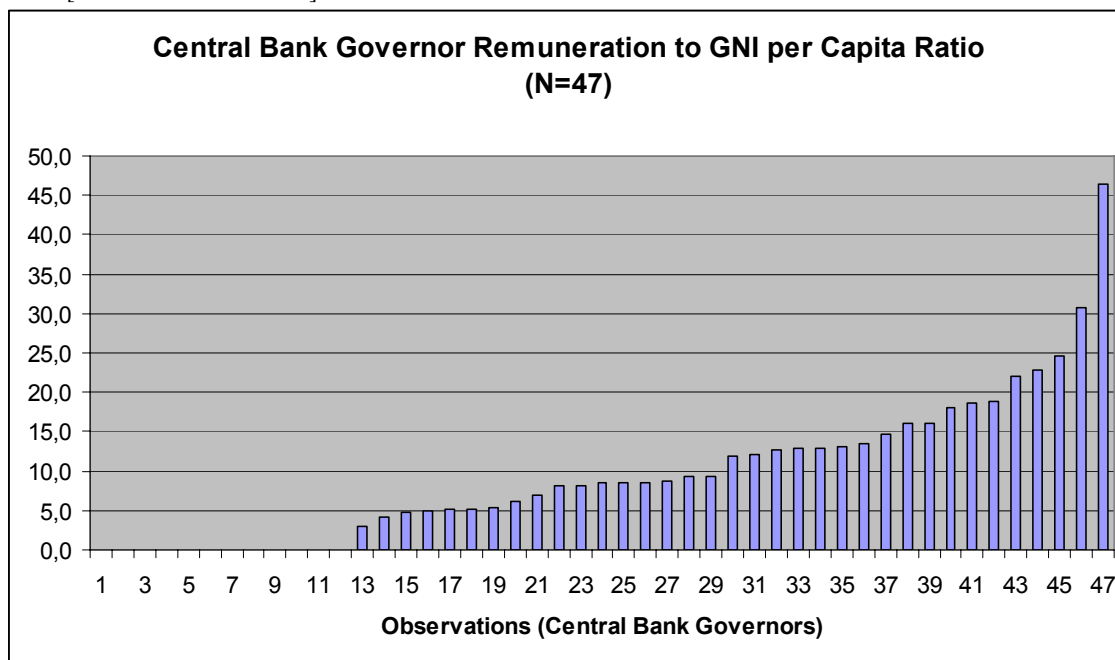
2.7. Governor Compensation and Benefits

What is a Central Bank governor's "market value"? And how much should he or she be paid relative to it? Answering the first question requires a judgment of which skills are more important for the job -- those typical of business bankers or those typical of macroeconomists? Figure 20 shows the governor's pay normalized by the respective country's GDP per capita. The variation in Governors' pay is stunning. For rather similar tasks, governors in our sample are paid from 3 to 47 times their country's GDP per capita. It is also known that many Central Banks offer Board members subsidized housing and other perks, while they limit the possibility to receive compensation from other appointments.

If the salary of a professor in macroeconomics is the relevant benchmark, Central Bankers' compensation appears quite above market value on average, very much above it for, some countries, and very much below it for others. The question is then whether it is a good idea to pay Central Bankers above (or perhaps below) market value, and whether we rationalize the enormous variation.

Figure 20. The remuneration of governors

The bars show how much Central Bank governors earn relative to GNI per capita in their country (Atlas method). A ratio of 0 indicates that there was no Governor Remuneration data provided to us by the Central Bank. [Source: FRS 20060728]



The economic literature purports two main arguments why one may wish to pay bureaucrats above market wage. The first argument is a classical "efficiency wage" argument (Becker and Stigler, 1974; Shapiro and Stiglitz 1984): bureaucrats enjoying substantial rents from office will be less prone to

corruption or shirking, as they stand more to lose. This kind of argument appears to suggest – at first sight - that central bankers’ wages should be particularly high in countries with high levels of corruption. The second is an “adverse selection” argument: “low quality” individuals have lower reservation wages than high quality ones, so that paying low wages deters high quality individuals from applying to the job, leading to a poorer pool of applicants for the job (Weiss 1980; Caselli and Morelli 2004). This suggests that Bankers’ wages should track the wage levels of top economists (or managers) in general.

Besley and McLaren (1993) show that the intuitive argument that high wages deters shirking might be less robust than it appears. In particular, rents deter misbehavior only when efficient monitoring is present, i.e., when there is a significant probability that a misbehaving bureaucrat is detected and fired.

If this probability is small, the rents necessary to deter misbehavior may become too large, so that this method of securing performance is inefficient. This argument directly clashes against the one that central bankers should not be held accountable and be left largely independent. The adverse selection story is not completely compelling either. In the U.S. there is a long tradition of imposing low wages to public servants in order to select people that have a “vocation” for public service (see the introduction in Besley 2004). Both the issue how much Central Bankers need to be paid, and why they are paid as they are in different countries, appear puzzling and in need of further research. The next section is a first, explorative step in this direction.

3. Explorative empirical analysis

Because of the striking variance across countries in Governors’ relative compensation, we chose to start our empirical analysis trying to understand this particular variable. Several of the arrangements discussed earlier should be relevant to the determination of the Governor’s wage. For example, one would expect the degree of financial independence and the number and type of tasks allocated to the Governor to matter. But also other country-specific institutional variables may be important as they affect the strength of governance problems in the particular country. For example, as discussed in the previous section, the level of corruption in a country should be an important determinant of the need to offer an “efficiency” wage, and the legal origin may be a determinant of general contractual governance problems, e.g. because it is strictly related to the efficiency of law enforcement.

Table n3 presents some descriptive statistics on the variation in governor wages relative to a country’s GNI per capita. Countries with origins in the French legal systems award their governors higher wages

relative GNI per capita compared to other countries in our sample. Countries with German legal origin have lower wages relative to GNI per capita.

Table 3. The legal origin of countries and the remuneration of Governors

The first row displays the absolute remuneration of governors in US\$. The second row relates the absolute salary to the average over all countries. The last and most important row presents governor remuneration in relation to a country's GNI per capita.

	N=36 All	N=11 UK	N=10 French	N=5 German
GOVREM	326302	408169	392933	413099
GOVREM Relative	1,00	1,25	1,20	1,27
GOVREM / GNIC	13,50	15,59	17,85	11,28

Countries with financial stability objectives award their governors significantly higher wages than those who are not responsible for financial stability. Central banks that do not need approval for their budget award their governor higher salary.

Table 4. Financial stability objectives, budget approval and the remuneration of Governors

The first row displays the absolute remuneration of governors in US\$. The second row relates the absolute salary to the average over all countries. The last row presents governor remuneration in relation to a country's GNI per capita. The first two columns split up the sample into Central Banks that do or do not have a financial stability objective. The latter two columns split up Central Banks into those that do or do not need approval (either from parliament or government) for their budget.

	CB Has Fin.Stab. Objective		Budget Approval Needed	
	N=12 No	N=24 Yes	N=28 No	N=8 Yes
GOVREM	254959	361974	353611	230722
GOVREM Relative	0,78	1,11	1,08	0,71
GOVREM / GNIC	9,10	15,70	14,20	11,06

Although the relation does not seem very strong in economic terms, more corrupt countries according to Transparency International's perceived corruption index seem to award relatively higher wages to

their governor, thereby indicating support for countries following suggestion of the early efficiency wages theories discussed earlier.

Figure 21. Relation between a country’s corruption level and governors remuneration

The plot shows the relation between how much a Central Bank governor earns and the level of corruption in their country [Source: FRS 20060728 and Transparency International]

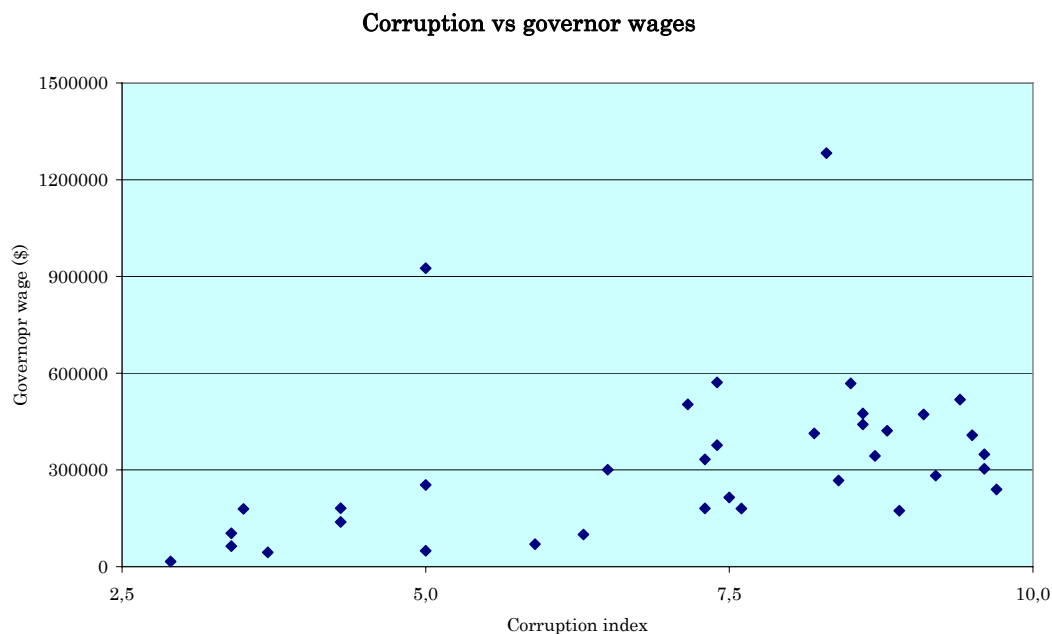


Table 5 contains a number of (very preliminary) competing models of governor wages over GNI per capita. Irrespective which other variables we include, governors of central banks that have a financial stability objective seem to be better rewarded. This may for example be due to direct competition from the private sector for their knowledge about the banking sector, or to reduce the risk for regulatory capture. Central Banks that do not need budget approval also reward their governors better. The source of this effect maybe a greater freedom in wage setting, or, for example, an inefficiency in wage setting at banks where expenditures need to be approved ex-ante [at this moment we cannot say anything about the relation between performance and remuneration – while at the same time controlling for budgetary freedom].

The upward effect of the level of corruption seems to compete with the impact that the income distribution has on wages. The presence of grounds for governor-dismissal (misconduct or poor performance) is associated with a significant effect on wages too.

Table 5: OLS regressions on Governor wage / GNI per capita

Table shows regression coefficients and their significance level. Robust standard errors were used to calculate t-statistics and significance levels

CONSTANT	9,41 0,10	-12,80 0,04	10,54 0,06	12,82 0,00
FINSTAB	8,98 0,00	7,99 0,01	10,61 0,00	6,53 0,00
NOBUDGAPPR	7,80 0,03	7,87 0,01	9,58 0,00	8,19 0,02
CORRUPTION	-1,12 0,05		-1,26 0,02	-1,65 0,00
GINI		0,44 0,01		
MISCOND_CRIMO			-3,84 0,09	
POORPERF				19,24 0,00
Nobs	36	36	36	36
R ²	0,28	0,40	0,31	0,61

4. Concluding remarks

In light of recent debate in a number of European countries about the efficiency, structure and remuneration of central banks, we have described the corporate governance problems of central banks in their complex role as inflation guardians, bankers' banks, financial industry supervisors and, in some cases, even competition authorities and insurance deposit agencies. Drawing from the theories on corporate governance, bank supervision, regulated firms and regulatory agencies, we have tried to understand from which side governance pressure could be exercised to ensure a good central bank performance.

We look empirically at current governance structures in central banks in OECD countries, in terms of board independence, governors' incentives, stakeholders' incentives to monitor, and comparing this with the structures suggested in the literature, we highlighted several interesting problems. At the very least, our study makes clear that aligning central banks' incentives with their (assigned) multiplicity of objectives is a very complex task. The large variations between countries, be it with regard to board structure, governor remuneration, term lengths, appointment rules or which tasks are afforded to the central bank, pose a challenge to research.

In particular, the question of accountability of central banks appears unsatisfactorily addressed by existing research. And to the extent that the accountability issue has been tackled, this has only been with respect to the formation of optimal monetary policy. We would like to raise the question whether

governments have sacrificed the accountability of central banks for the sake of (greater) independence to facilitate monetary policy, and whether recent scandals are a product of this choice?

With respect to avenues for future research, we believe it could be fruitful to follow the path of the law and finance literature and study how central bank performance is related to a range of governance variables. Ultimately, however, good central bank governance will require a theoretical foundation in the same way as monetary policy did in the 1980s and 1990s.

Appendix

Appendix I. Countries included in all N=47 graphs and tables;

Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, China, Croatia, Czech Republic, Denmark, ECB, Finland, France, Germany, Greece, Hong Kong, Hungary, Iceland, India, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Malaysia, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Russia, Saudi Arabia, Singapore, Slovak Republic, South Africa, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Kingdom, United States.

Appendix II. Countries included in all N=96+ graphs and tables;

Angola, Argentina, Armenia, Australia, Austria, Bahamas, Bahrain, Barbados, Belgium, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Bulgaria, Cambodia, CAMU, Canada, Cap Verde, Chile, China PDR, Columbia, Croatia, Cypress, Czech Republic, El Salvador, Eritrea, Estonia, European Central Bank, Fiji, Finland, France, Georgia, Germany, Guatemala, Honduras, Hungary, Iceland, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Korea, Kuwait, Kyrgyz Republic, Lao PDR, Latvia, Lesotho, Liberia, Lithuania, Macedonia, Madagascar, Malawi, Malaysia, Moldova, Morocco, Mozambique, Namibia, Nepal, Netherlands, New Zealand, Nicaragua, Nigeria, Norway, Oman, Pakistan, Papa New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Qatar, Romania, Russia, Rwanda, Serbia, Sierra Leone, Singapore, Slovenia, South Africa, Spain, Sudan, Sweden, Switzerland, Tajikistan, Tanzania, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, UAE, Uzbekistan, Venezuela, West African States, Yemen, Zambia

Note that the list in Appendix II includes 101 countries, and the source of the data is Lybek (2006). Sometimes data was missing for certain countries and hence the number of observations varies.

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