Governing the Governors:

A Clinical Study of Central Banks[1]

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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.

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[1] The views expressed in this paper are solely the responsibility of the authors and should not to be interpreted as reflecting the views of the Executive Board of Sveriges Riksbank.

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1. Introduction

Several European central banks have recently been the subject of media attention and public debate because of alleged corporate governance problems. Typically, discussion has focused on issues like the effectiveness of bank supervision in the context of large corporate bankruptcies with links to the financial sector, the remuneration of bank officials and their ability to accept presents, and their effectiveness in managing some large market operations. [5]

The objective of this paper is to raise a broader 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, Demirguç-Kunt and Levine (2004), Demirguç-Kunt, Laeven and Levine (2003) and particularly Guiso, Sapienza and Zingales (2003) suggests that through its effect on the access to - and the efficient allocation of financial resources, the quality of bank regulation and supervision may have had *dramatic* effects on nations' economic growth.

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. Much of this literature focuses on the way governance structures limit insiders' (management or controlling shareholders) expropriation of outsiders' (especially financiers) input.[6]

The mechanisms ensuring good corporate governance identified by the literature are often 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; 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

[5] These are rather mild alleged governance problems if compared to those of some less developed countries' Central Bank (see e.g. http://www.ex.ac.uk/~RDavies/arian/scandals/centralbanks.html).
[6] Through the enjoyment of private benefits, low productivity or profitability due to slack or straight-out illegal diversion of resources.

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 a good understanding of why the corporate governance 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 naturally subject to (additional) governance problems linked to the intrinsic opaqueness of the banking business that reduces the effectiveness of the above mentioned "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, agency problems between final stakeholders and firms, 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 may well constitute the strongest disciplining force ruling 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 and even straight corruption.[9]

The interaction between these tasks creates complications that add to - and interact with standard management moral hazard problems. For each of the above tasks, a central bank will tend to meet specific governance problems, different from those of a private corporation. The

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[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.

intersection and interaction of these problems associated with each role a central bank performs, raises new questions about adequate governance structures that are likely to be typical for central banks but relevant for more multitask agencies, such as regulated utilities, regulatory agencies, and other complex authorities.

To our knowledge, the existing literature on publicly owned firms, regulation and bank governance does not yet offer satisfactory answers to these questions. The extensive empirical and theoretical literature on the corporate governance of private corporations may, however, be helpful in addressing some of the issues. For example, we may be able to derive some important implications for central banks by contrasting established insights from the corporate governance literature with the actual governance structure of central banks.

For central banks all external governance mechanisms but the reputational one are absent and the only internal mechanisms likely to be effective are board supervision and incentive contracts. For this reason, our main focus in Section 3, where we discuss current governance practices at central banks, will be on these three factors.

Our objective in this paper is to:

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

The remainder of this paper is organized as follows. Section 2 provides an item-wise discussion of the current governance practice at central banks, compare them with the insights from several relevant strands of academic literature and determine what issues remain untreated. Section 3 summarizes our findings and discusses some avenues for further research. Appendix 1 contains more detailed information about central banking practices in a table format.

[29] **Countries or Currency Regions studied in Figure 1**; 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. **Countries or Currency Regions studied in Figure 2**; Argentina, Australia, Brazil, Bulgaria, Canada, China, ECB, France, Germany, Hong Kong, Hungary, India, Italy, Japan, Malaysia, Mexico, New

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) extended their work and studied the optimal contract for central bankers.

Only recently Keefer and Stasavage (2001) looked into the importance of checks and balances; Eijffinger and Hoeberichts (2000) discuss the need of more transparency in the decision making process; and Castellani (2004) introduced accountability into a standard Barro-Gordon setting and allowed a political principal to do an ex-post evaluation of a central bank's independent monetary policy choices to contain the democratic deficit. Moser (1999) studies the factors that empirically determine independence.

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-off between achieving monetary policy goals and financial stability objectives and the link between central bank independence, accountability and supervision performance have received only marginal attention.

Quintyn and Taylor (2002) conclude that improper supervisory arrangements have contributed significantly to the deepening of several recent systemic banking crises (see also Caprio and Levine 2004, Guiso et al. 2003), and 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 describe 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. Although they mention several "essential" components of accountability arrangements, e.g. appointments, dismissal, the budget and transparency, they do not develop any theory of the optimal contract for an independent financial regulator and supervisor.

In this section our objective is to study in detail the various features of reputational and internal governance mechanisms that apply to central banks. We will look at the current practices in 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.

Section 2 contains nine subsections. Section 2.1 treats the multiplicity of tasks and objectives of Central Banks. Section 2.2 deals with the separation of powers while the ownership of Central Banks is the subject of Section 2.3. Budgetary independence is discussed in Section 2.4. In Section 2.5 we describe how governors are appointed and fired. Section 2.6 reviews the role of Board as an advisor and supervisor while Section 2.7 addresses the remuneration. Finally, 2.8 and 2.9 consider term length and - limits and actual cooling-off periods and related problems of revolving doors and capture.

2.1 The Multiple Tasks and Objectives of Central Banks

As we mentioned in the introduction, Central Banks typically perform several roles: they are a bank-of-the-banks and insurer, a publicly owned or - controlled corporation, a regulated monopoly provider of public goods, and a regulator at the same time.

Figure 1. What are the major responsibilities of Central Banks?
The bars show which percentage of all banks counts a specific task to its responsibilities. Multiple tasks are possible.

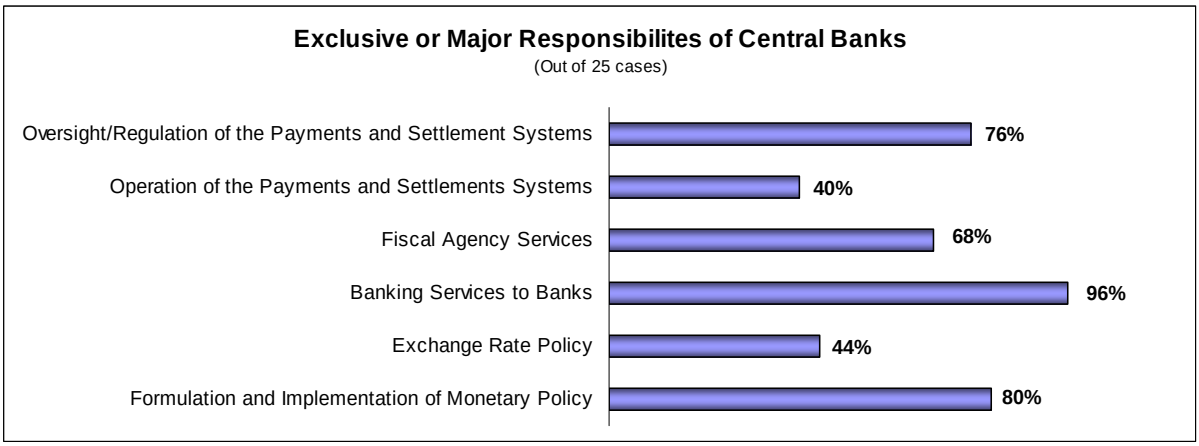
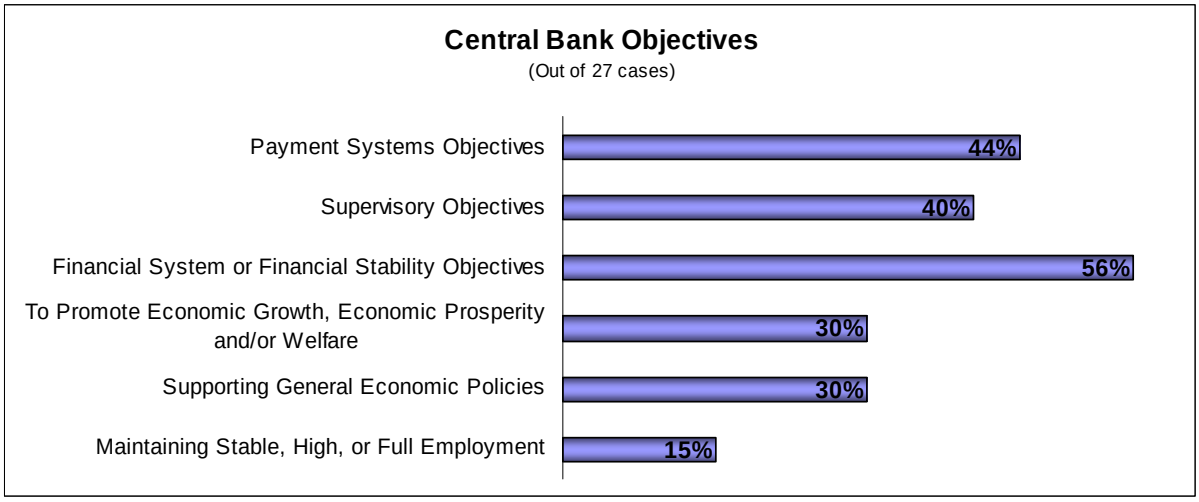


Figure 1 and 2 summarize the information on tasks and objectives for central banks in a number of countries, most of which are OECD members.[29] Central banks are typically given several other tasks besides monetary policy, including guaranteeing payment system stability, individual bank supervision and, more rarely, consumer protection; and they are often given other (generic) objectives than price stability. These stylized facts raise several issues.

Figure 2. What objectives do Central Banks have?
The bars show which objectives the statutes of Central banks mention (expressed as percentage of all banks in the sample). Multiple objectives are possible.



First, 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 banking, arguably caused by the high inflation decades. Originally, the main tasks 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 (two seminal contributions are Mcrae 1977 and Rogoff 1988).

Relatedly, 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 in the last decades, by and large suggesting that the budget of the CB and/or the remuneration of the Governor be linked to the achievement of a low inflation target (see, e.g., Rogoff (1985), Persson and Tabellini (1993), Walsh (1995) and Persson and Tabellini (2000)). However, this literature ignores other tasks and objectives of CBs.

After so many years of successful inflation control, and in the light of recent events, it is perhaps 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 that have any relevance should (optimally) enter a CB's incentive contract. However, it is hard to think of good performance indicators to use for, say, bank supervision (the absence of failed banks?), or for financial stability (the absence of banking crises?). Lacking good performance indicators for other important objectives besides monetary policy, politicians should perhaps refrain from giving full-fledged incentive contracts as attempted in New Zealand. As shown by Milgrom and Holmström (1991), when managers face multiple tasks, high-powered incentives should not be used to motivate them, because managers will distort their efforts towards measurable tasks and away from less measurable (but not necessarily less important) ones.

Even if reliable performance measures can be found for all objectives, the multiplicity of objectives itself may prove problematic. According to several observers, career concerns are a fundamental source of incentives (and thereby of good governance), in particular for independent bureaucrats (e.g. Alesina and Tabellini 2004). But 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.

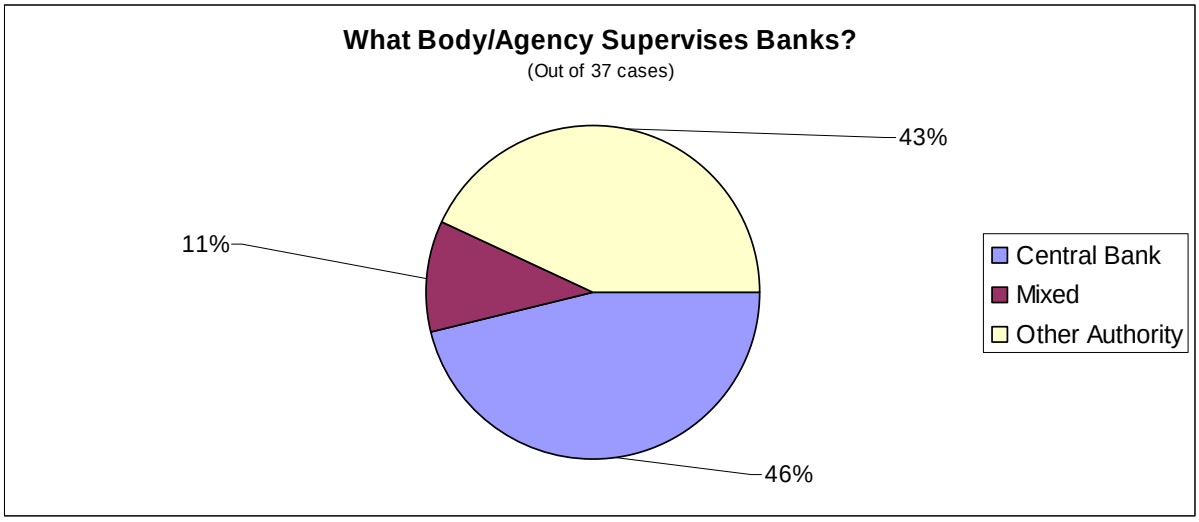
2.2 Separation of Powers

The multiplicity of objectives has sparked a recent debate on the optimal allocation of tasks between central banks and other authorities. There are several reasons why combining different responsibilities, such as lender-of-last-resort function, monetary policy, and bank supervision, may give rise to conflicts of interest. Recognizing that the government or future job market explicitly or implicitly rewards "good performance" by regulators (i.e., fulfilling the agency's objectives), it means that regulators on the margin will trade off tasks so as to obtain the highest reward/least penalty, which makes the allocation of powers important.

Figure 4 below shows that the sample is approximately equally divided between countries that have independent supervisory agencies, and those where supervision resides within the central bank (a ratio that also holds for OECD countries). This raises the question what are the pros and cons with a unified regulator, and whether theory can explain different institutional solutions in similar countries.

Figure 4. Supervision of the Central Bank[30]

The pie shows by what type of body Central Banks are supervised: by an internal body, some other (external) institution or a mixture. Figures are expressed as percentages.



An early contribution by Schoenmaker (1992) recognizes that a central bank with supervision responsibility may hold down interest rates because of concern with the banking system, although purely monetary considerations suggest higher rates. 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 acts as a monopolist in banking supervision. Boot and Thakor (1993) show that if there is uncertainty about the supervisor's ability (e.g., in evaluating the quality of banks' assets), then foreclosing a bank may signal poor monitoring ability, so the supervisor will tend to delay such decisions. The authors suggest that the responsibility for bank closures should be separated from that of asset-quality monitoring.

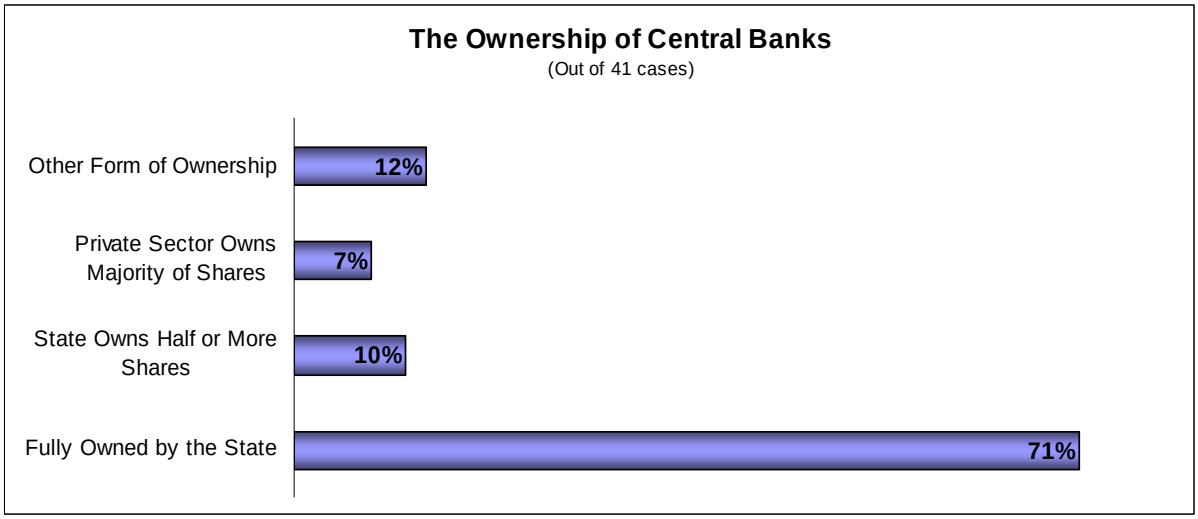
[30] **Countries or Currency Regions studied in Figure 4:** Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, China, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, India, Ireland, Israel, Italy, Japan, Republic of Korea, Malaysia, Mexico, Netherlands, New Zealand, Poland, Portugal, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, Taiwan (China), Turkey, United Kingdom, United States. Source: 2003 World Bank Survey of Bank Regulation and supervision, http://www.worldbank.org/research/projects/bank_regulation.htm.

However, the question remains how to induce the latter to truthfully share its information with the former.

Kahn and Santos (2004) study the allocation of the lender-of-last-resort-function, closure authority (supervision), and deposit insurance. They find that giving supervisory powers to either the CB or the deposit insurance agency reduces the forbearance problem. Also, the higher are the costs of supervision, the stronger is the case for one unified regulator. An interesting venue for future empirical research would be to assess the costs of supervision in different countries, and relate this to different outputs of the system (e.g., bank closures).

Figure 5. The ownership of Central Banks [33]

The bars show if 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.



[33] Countries and currency regions this sample: Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, China, Czech Republic, Denmark, ECB, Finland, France, Germany, Greece, Hong Kong, Hungary, India, Ireland, Israel, Japan, Korea, Malaysia, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Russia, Singapore, South Africa, Spain, Sweden, Switzerland, Taiwan – China, Thailand, Turkey, United Kingdom, and United States.

2.3 Ownership

As Figure 5 shows, most CBs are either entirely state-owned or fully state-controlled through a majority-holding of shares nowadays. The economic literature suggests that public ownership implies low incentives to innovate, both in terms of improved quality and cost reduction (see Shleifer 1998, and Hart, Shleifer and Vishny 1997). According to this view, which goes back to Alfred Marshall, public ownership is considered 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 other cases, the cost of potential political use of the firm's assets and of low incentives to cut costs and to innovate will dominate, which makes contracting production to private firms more efficient.[34]

For CBs, requirement 3) is clearly satisfied, and probably also requirement 1). It is less clear whether requirements 2) and 4) are satisfied. However, the importance of the regulatory function of most CBs 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 the Bank of Italy, which is supposed to enforce competition between the (state-controlled) banks that own it, but the conflict may appear in more subtle ways for other CBs. Moreover, the potential advantage of private ownership stems incentives being linked to residual claims on profits. But in the case of CBs, even when they are private, the allocation of profits is typically stipulated in advance (e.g., fixed dividends on shares and upper bounds on retained profits), so that the incentives for owners to monitor management, and for the management to promote innovation and cost efficiency are greatly reduced. The case for state-ownership, therefore, appears well-grounded.

2.4 Budgetary independence

Von Ungern-Sternberg (2003), in an essay on the governance and independence of the Swiss National Bank, argues against the idea of Quintyn and Taylor that independence and accountability complement each other. He believes there is a natural trade-off between the independence and the accountability of a central bank and that "the emphasis on the

[34] For example, Paola Sapienza (2003) shows empirically that Italian publicly owned banks distort their lending behavior in response to political pressures.

[36] However, letting the financier or central government control the organization leads to too few projects being started.

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.

Public managers are also thought to be facing soft budget constraints (SBC's). This is because the principal (central government) cannot use bankruptcy as a credible threat since it is usually in the government's own interest to bail out a public enterprise in case of financial distress. The bail-out can occur with either fiscal means, extended credit, or by imposing protective regulation. According to Kornai, Maskin and Roland (2003), bodies exposed to SBC's include national economies, local governments, non-profit organizations, and even private financial intermediaries (such as commercial banks considered too-big-to-fail).

Dewatripont and Maskin (1995) and several other authors have pointed out that the mere *ability* to refinance non-profitable projects lies at the heart of the SBC problem. Maskin (1999) notes that SBC's can result not only because ex-ante unprofitable projects are continued ex-post; when bureaucrats' payoff only can be made dependent on final project outcomes, ex-post non-profitable projects can be forced to completion as a way for the principal to induce bureaucrats to exert sufficient effort on screening in the future. However, hard budget constraints also have downsides; it can for example give rise to short-termism.

Li (1998) shows that a soft budget constraint can arise when insiders (managers) gain complete control of a firm and enjoy substantial control benefits but do not have full claim rights to the liquidation value. As a result, public managers initiate more projects than what is socially efficient.[36] The organizational structure of government institutions should thus trade off the importance of good ex-post decisions (when managers are in control) and good ex-ante decisions (when principals are in control). When finding profitable projects to undertake is easy, insider control is thus likely to be efficient, while owner control will be better when inefficient undertakings are probable.

Moesen and Van Cauwenberge (2000) find evidence that lower levels of government typically operate under a hard budget constraint compared with the central level because they have only limited borrowing opportunities and no access to money creation (seigniorage). As displayed in Figure 6, most central banks have some regulations regarding profit (seigniorage) allocation.

Figure 6. The financial independence of Central Banks
The pie shows s whether Central Banks can decide autonomously how profits are to be allocated or if some rules have been imposed that restrict this allocation. Source: BIS. [37]

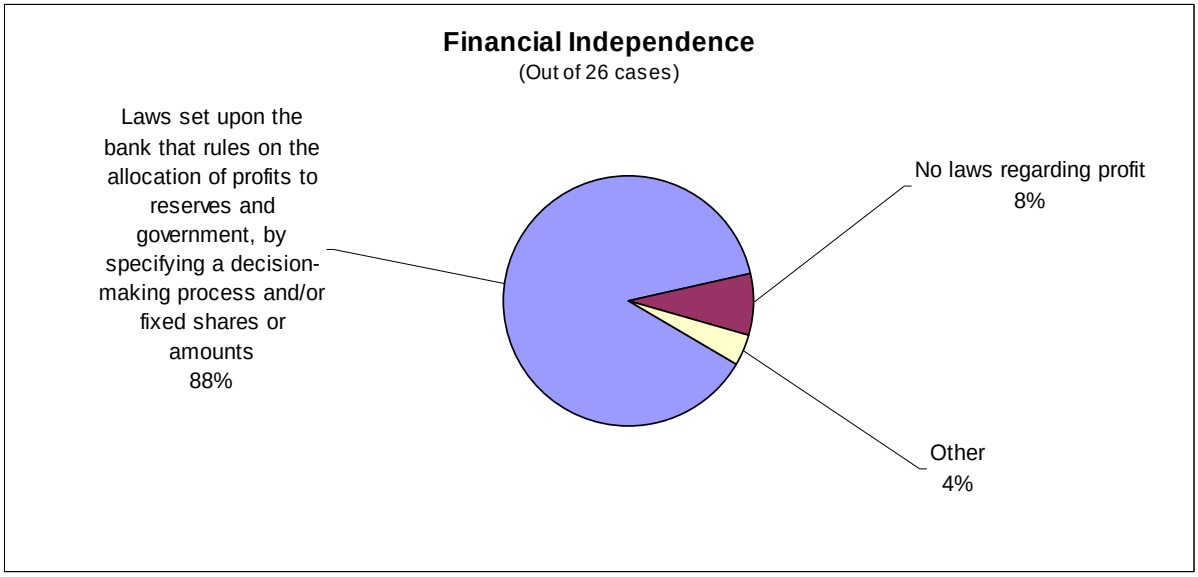


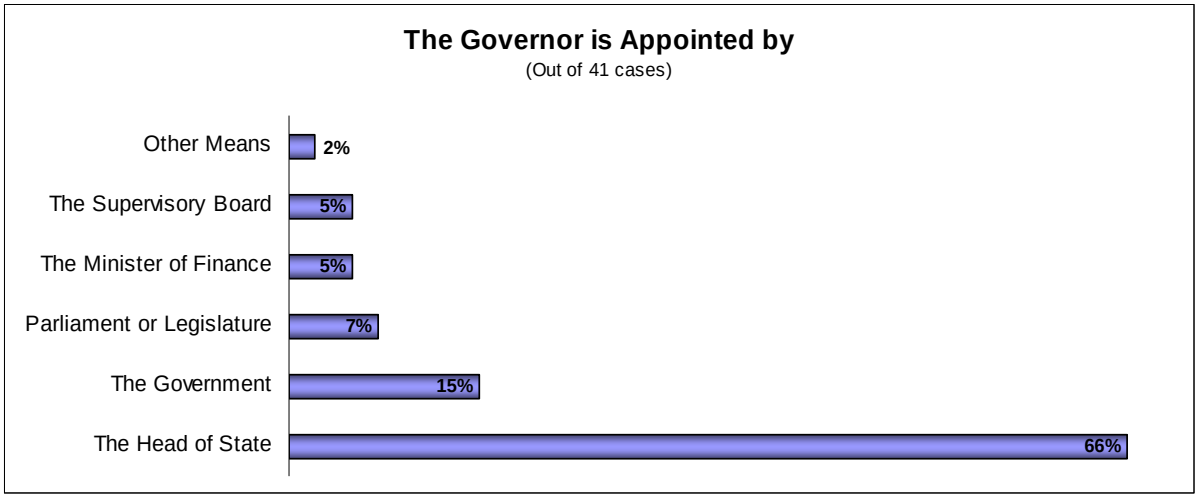
Figure 6 summarizes the information that is available on banks' financial independence. In nearly nine out of ten countries has the legislator imposed laws on the bank that regulate the allocation of profits to reserves and government, by specifying a decision-making process and/or fixed shares or amounts. When the central banks' budget is concerned, only 8 out of 27 require preliminary government approval of their expenditure budget. 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 common with many other government agencies, Central Banks appear to have a large degree of financial freedom. **[TO BE COMPLETED]**

2.5 Governor Appointment and Dismissal

Figures 7 and 8 summarize the information we collected on the appointment

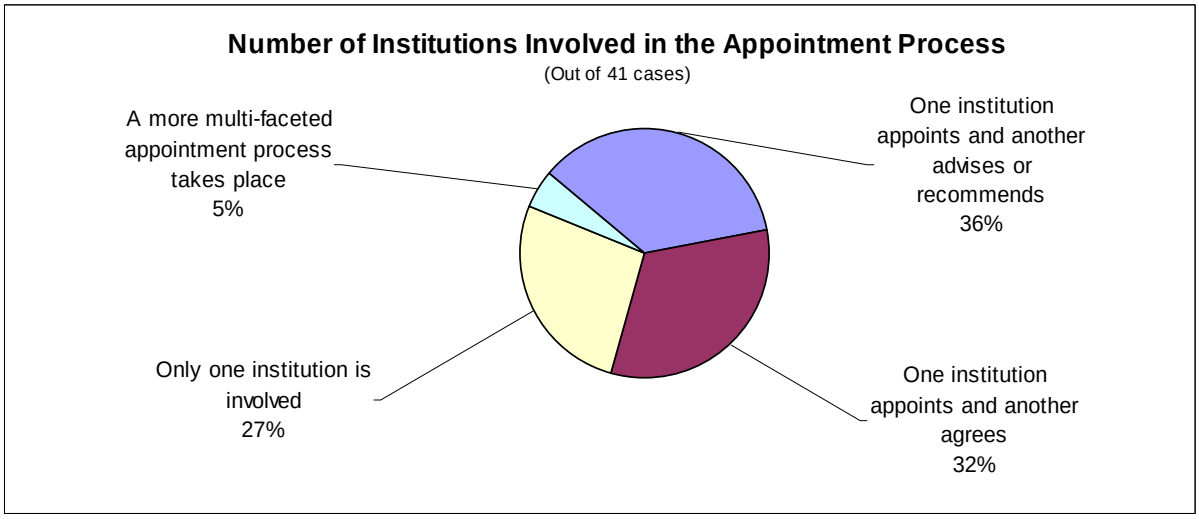
Figure 7. Who appoints the governor?
The bars show who appoints the governor. (figures expressed as a percentage of all banks in the sample). Only one alternative is possible. Source: BIS. [39]

[37] Countries and currency regions in this sample: Argentina, Australia, Brazil, Bulgaria, Canada, China, ECB, France, Germany, Hungary, India, Italy, Japan, Malaysia, Mexico, New Zealand, Norway, Poland, Russia, Singapore, South Africa, Sweden, Switzerland, Turks and Caicos Islands, Great Britain, and the US.
[39] Countries and currency regions in this sample: Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, China, Czech Republic, Denmark, ECB, Finland, France, Germany, Greece, Hong Kong, Hungary, India, Ireland, Israel, Japan, Korea, Malaysia, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Russia, Singapore, South Africa, Spain, Sweden, Switzerland, Taiwan – China, Thailand, Turkey, United Kingdom, and United States



process for central bankers. It shows that in most cases the Governor is appointed by the head of state, typically a non-partisan figure, and that the appointment process involves often more than one institution. Information on dismissal is less complete, displayed in Figure 9, but grounds for dismissal are typically left rather generic, leaving in principle the door open

Figure 8. How many institutions are involved in the appointment of governors?
The pie shows the process by which Central Bank governors are appointed (expressed as percentage of all banks in the sample). Source: BIS.[41]



[41] Countries and currency regions in this sample: Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, China, Czech Republic, Denmark, ECB, Finland, France, Germany, Greece, Hong Kong, Hungary, India, Ireland, Israel, Japan, Korea, Malaysia, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Russia, Singapore, South Africa, Spain, Sweden, Switzerland, Taiwan – China, Thailand, Turkey, United Kingdom, and United States.
[43] Some central banks have not answered this question or have governors that cannot be fired. Countries or currency regions in the sample: Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, China, Czech Republic, ECB, Finland, France, Germany, Greece, Hong Kong, Hungary, India, Ireland, Israel, Italy, Japan, Korea, Malaysia, Mexico, Netherlands, New Zealand, Norway, Poland,

to this (seldom observed) threat. In theory, the most accountable governor appears the one of the Federal Reserve, who can be dismissed by the US President for any "cause". At the other extreme are those Governors whose dismissal requires a decision of Court of Law to intervene, and that of ECB.

Figure 9. The dismissal of governors
The bars show by whom Central Bank governors can be fired (expressed as percentage of all banks in the sample). Source: BIS.[43]

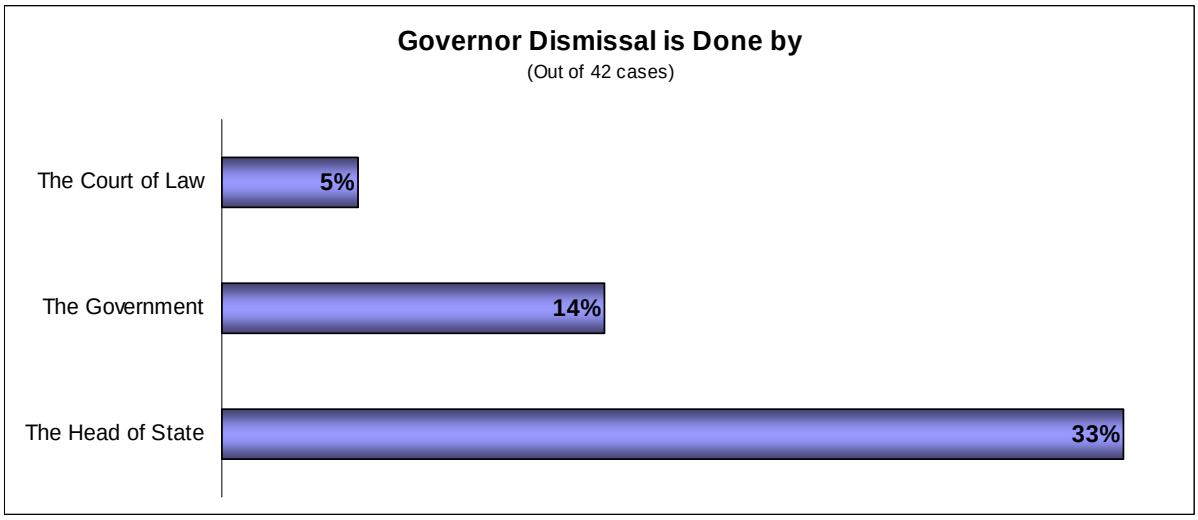


Figure 9b shows what circumstances constitute grounds for the dismissal of a governor. One out of eight bank laws contains no specific definition of these grounds, thereby making dismissals most likely easier to dispute. One out of four governors can be fired for not

Figure 9b. 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). Source: xx

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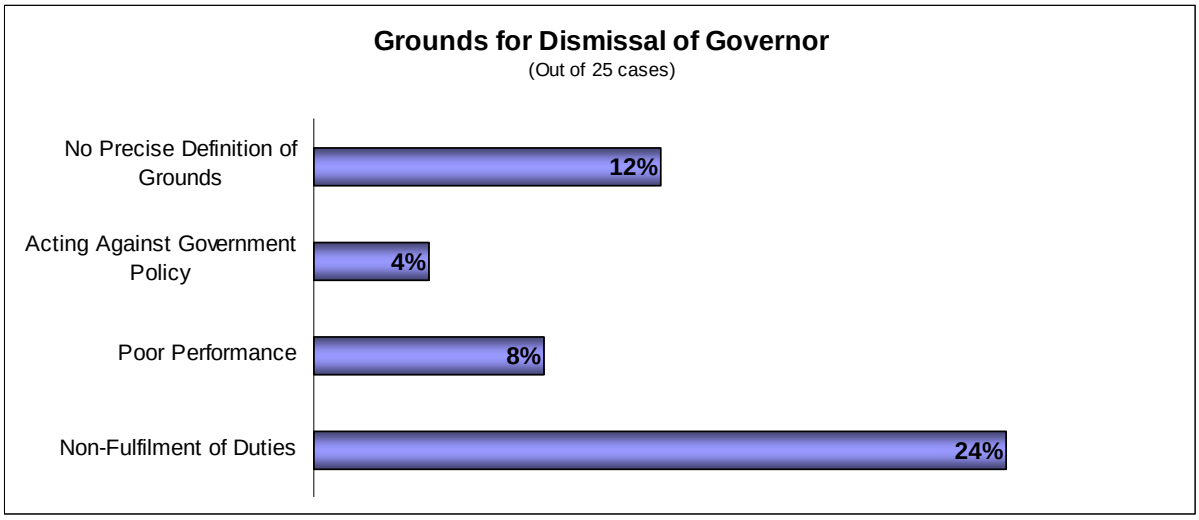
Portugal, Russia, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, Taiwan – China, Thailand, Turkey, United Kingdom, and United States.



"fulfilling his or her duties" and in one country, acting against government policy can cost a central banker his job. Only eight percent of central banks responded that a governor can be dismissed for poor performance, a criterion commonly applied in corporations.

We mentioned the more recent literature on Central Bank accountability, such as Eijffinger and Hoeberichts (2000) and Castellani (2004), that focuses on ways to make accountable a central banker while still preserving his independence from the political process. The attention in this work remains restricted to accountability in terms of monetary policy targets.

A more general trade-off between political accountability and independence of public managers is the focus of a recent political economy literature. For example, Besley and Coate (2000) build a model to evaluate the potential effect of directly electing regulators rather than having politicians appoint them.[44]

With respect to Central Banks, this literature typically claims that its depoliticization through delegation to independent bureaucrats is beneficial because of the technical skills required in the making of monetary policy and because of the contrast between the long-term effects of monetary policy and the short-term objectives of politicians under election pressure(see e.g. Maskin and Tirole (2004) and Alesina and Tabellini (2004)). This appears in line with our stylized facts that Central Bankers tend to be appointed by non-partisan institutions, and that

[44] 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.

governors, although their dismissal is a theoretical possibility, are virtually never dismissed. A natural question arises at this point: Should we thus view generous private benefits and tolerance for slack or mistakes as an intrinsic feature of the optimal institutional arrangement with lack of accountability for Central Banks? We find "yes" an implausible answer and regard this as an important open issue for future research.

2.6 The Board as a Supervisor and Advisor

Generally, the existence of a board of directors can be seen as an equilibrium solution to the agency problem between shareholders (or a political principal) and (private or public) 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 Boards' size.

Board independence from managment. The recent debate fuelled by the wave of corporate scandals has focused on the importance of boards' independence from management. In particular, boards have been criticized for having being too "friendly" to the management and thereby having contributed through poor monitoring to the emergence of the scandals. However, empirical research has generally found negligible effects of independent directors on firm performance (see Sect. 3.1 in Hermalin and Weisbach, 2003).
On the contrary, 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 in their activity 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 the requires the management's trust and information.

Where a dual board system is in place, where an executive/advising board and a specialized Supervisory board are present, the question whether there are independent directors is only relevant for the Supervisory board. In our sample, no member of the supervisory board is proposed or appointed by the governor. In this sense, supervisory boards can be seen as independent from the governor.

Where only one boad is present…

[ADD AND COMMENT DATA ON BOARD's INDEPENDENCE FROM GOVERNOR]

[TO BE COMPLETED: What banks have Board members that are independent rel. to CEO?

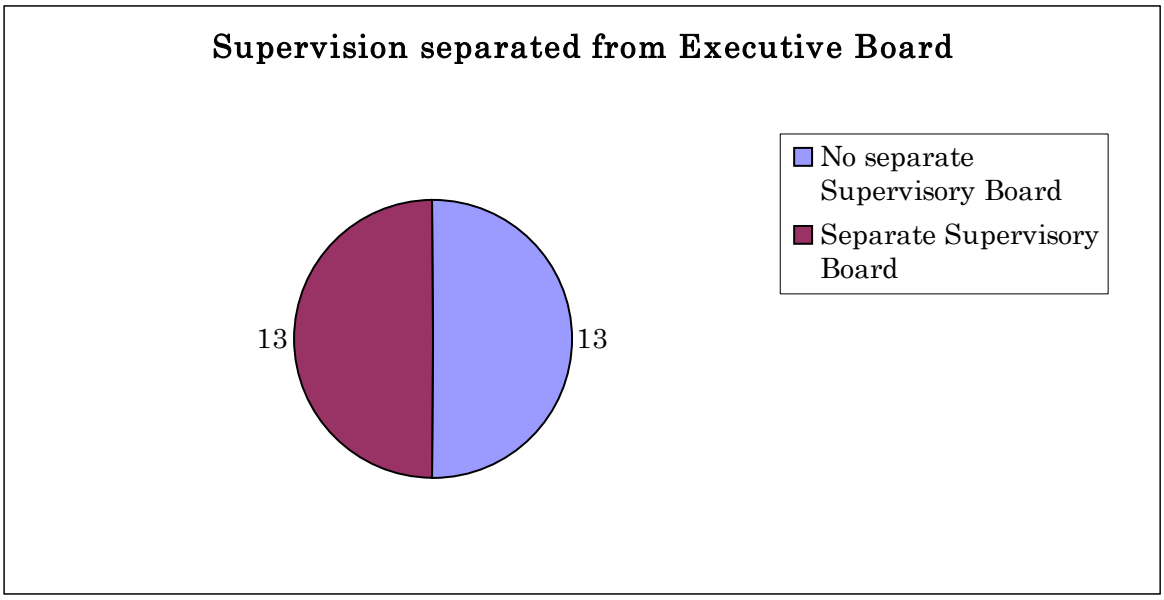
[TO BE COMPLETED: How are Board members hired and fired?]

[The relation between staggering and independence]

Figure 9c. Separate Supervisory Board

The pie shows what share of all Central Banks has a separate Supervisory Board.

Source: BIS and Central Banks.



One or two boards? Adams and Ferreira (2004) also explore the optimal choice between "sole" or "unitary" boards, and the "dual board system" common in some 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 elicit more information and effort from the management when this has preferences sufficiently allined to those of shareholders. They also find, though, 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 9c shows that exactly half of the banks on which we collected information has a separate supervisory boards. If one was to assume that institutions are selected optimally, according to the Ferreira-Adams theory the Central Banks with separate boards should be those where accountability problems were more relevant in the past. Figure 9d shows that with few exceptions, the dual board system is diffuse in northern European countries, which makes this speculation somewhat implausible. It is 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 I 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.[47] Theoretical and

[47] 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).

empirical work appears badly needed to shed more light on the relative efficiency of these different governance arrangements.

Figure 9d. Size of Supervisory Board

The pie shows what how many members Central Banks' Supervisory Boards have.

Source: BIS and Central Banks.

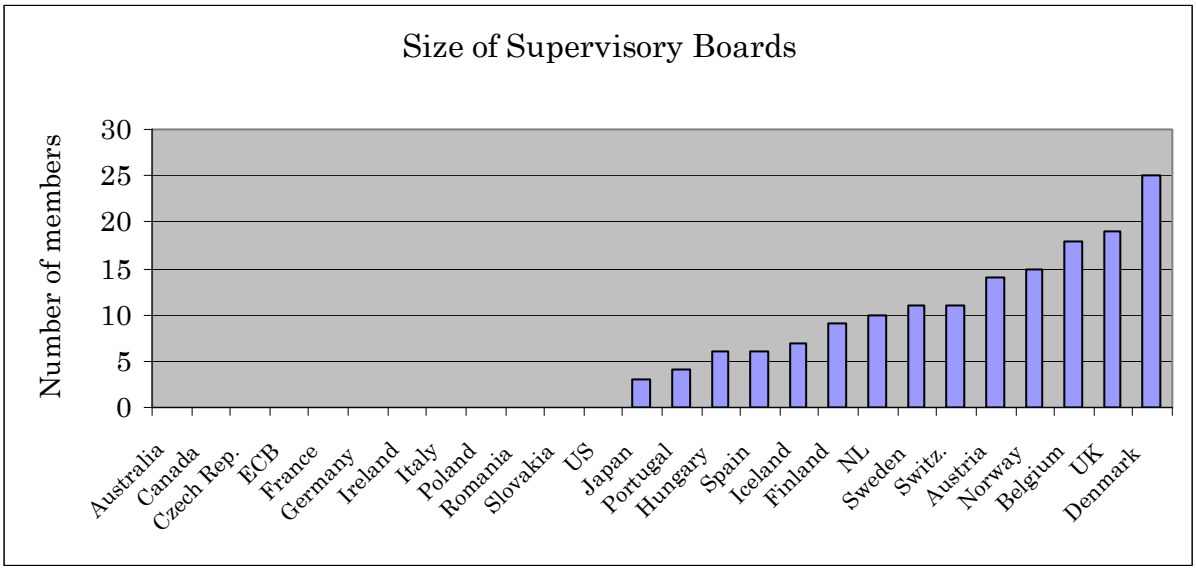


Figure 9e. Size of Executive (or Unitary) Board

The pie shows what how many members Central Banks' Supervisory Boards have.

Source: BIS and Central Banks.

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. This study was relative to US Banks, with unitary or sole boards only. In our "sample" we have Central Banks with both sole and dual board systems, so we Figure 9d and 9e report board size for both. It strikes that board size variates a lot across countries. **[TO BE COMPLETED]**

2.7 Governors' Compensation and Benefits

The variation in Governors' pay described in Figure 10 and 11 is striking. For rather similar tasks, governors in our sample are paid from 4 to 24 times their country's GDP per capita. It i also known that many Central Banks also offer Board members subsidized housing and other perks, while they limit the possibility to receive compensation from other appointments.

With the notable exception of the (admittedly extreme) US case, these compensation packages appear rather fat compared to that of other top public managers (e.g. prime ministers), and rather meager compared to top business bankers. What is a Central Bank governor's "market value"? And how much should he be paid relative to it?

Answering the first question requires a judgment about which skills are more important for the job, those typical of business bankers or those of typical of applied macroeconomists. We believe the second skills are more important, and the Board of the Bundesbank appeared to agree on this when they chose a macroeconomics professor as a governor to re-establish its reputation after the Welteke crisis. If this is the case, Central Bankers' compensation appears quite above market value on average, very much above it for Italy, and very much below it for the Federal Reserve. Taking this as a good judgment, we should now ask whether it is it a good idea to pay Central Bankers above market value, and whether and how can we rationalize the enormous variation?

The economic literature suggests two main arguments why one may wish to pay bureaucrats above market wage. The first argument is a classical "efficiency wage"/franchise value/moral hazard argument (Becker and Stigler, 1974; Shapiro and Stiglitz 1984): bureaucrats enjoying substantial rents from office should be more afraid of losing their job if caught shirking, hence they should perform better. At first instance, this kind of argument could explain why central bankers' wages are particularly high in countries such as Italy where, in the absence of proper incentives, the threat of corruption could be significant.

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 selection from a worse pool (Weiss 1980; Caselli and Morelli 2004).

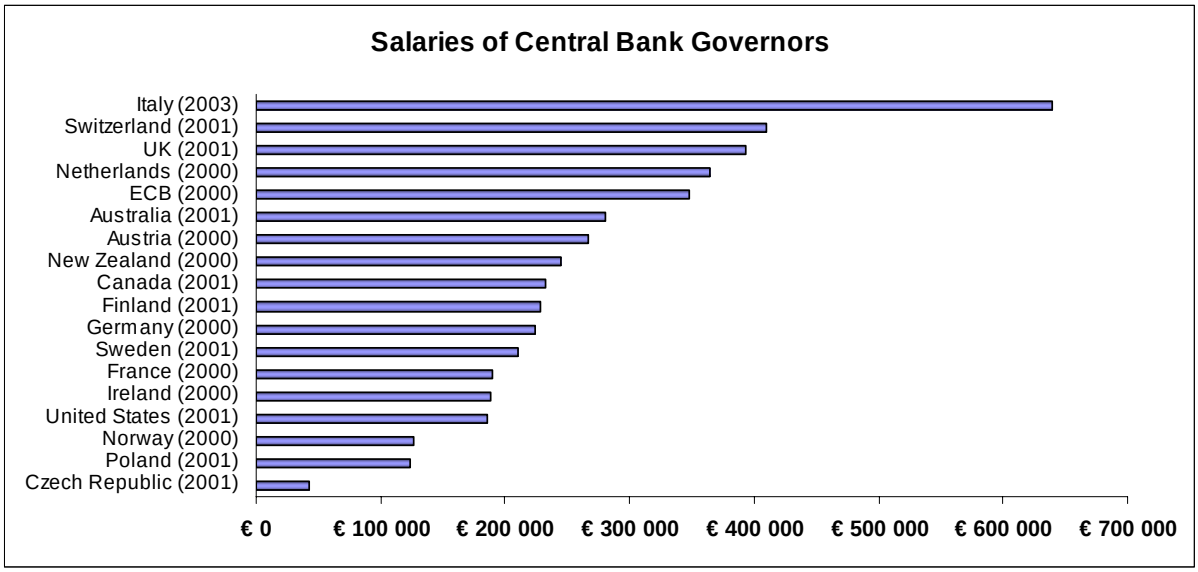
Besley and McLaren (1993) let these two forces interact in a model of corruption and show that the intuitive argument that high wages should pay off is much less robust than it appears. In particular, rents deter misbehavior only if there is good monitoring, i.e. a substantial probability for a misbehaving bureaucrat to be detected and fired. When this probability is small the rents necessary to deter misbehavior become too large and this method of securing performance is inefficient. Analogously, Besley (2004) obtains that high wages are good in terms of selecting and disciplining politicians, but in a model where these are monitored and held accountable trough recurrent elections.

For Central Bankers, instead, the argument that rents deter moral hazard – because it requires very effective monitoring - directly clashes against the one that central bankers should not be held accountable but rather left independent (discussed above in section 2.4). The positive selection effect is not completely convincing either. In the US 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). It would be easy to build a model where agents are heterogeneous with respect to the marginal value of income – hence in how much they value bribes relative to, say, social status – and obtain that high wages select agents more interested in money, hence in private benefits and bribes.

Both questions how Central Bankers should be paid and why they are paid as they are in different countries appear puzzling issues in need of further research.

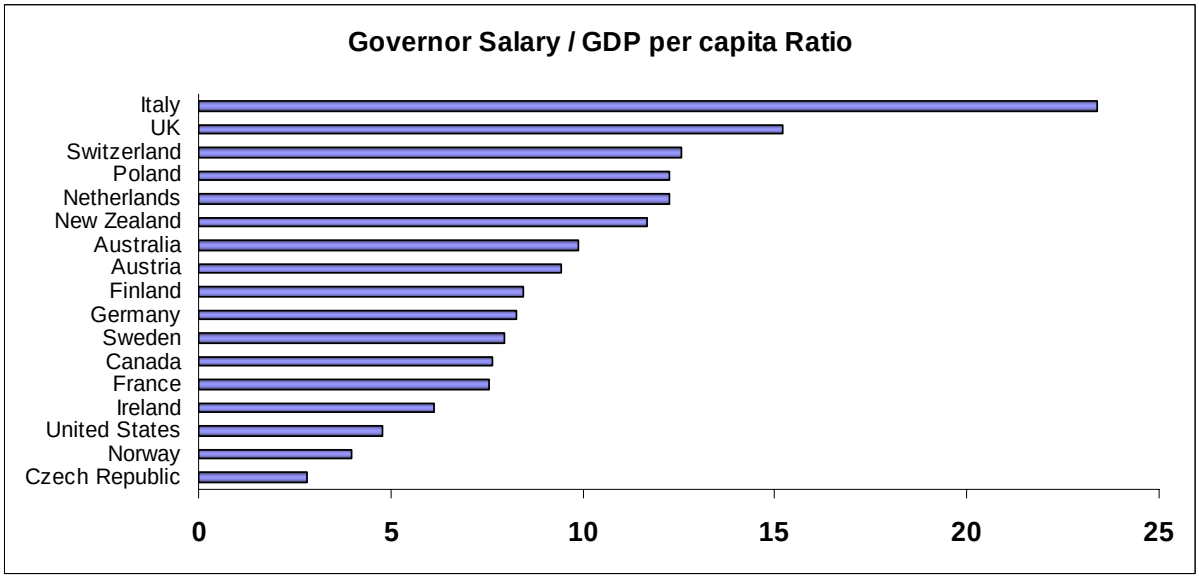
Figure 10. The remuneration of governors
The bars show how much Central Bank governors earn per annum. The year of reference is provided within parentheses. All figures converted to euros using the average exchange rate of the year of reference. Source: BIS.[48] [49]

[48] For Italy the data was obtained from a member of the Italian Parliament.
[49] The Economist estimates the salary of the Italian governor to be EUR 700,000: "Money's worth", Economist, August 23, 2004. The last confirmed figure dates back to 1995: USD 600,000: "For sale: central banker, low mileage, high running-costs", Economist, January 28, 2004.



As Figure 12 shows, 41 percent of the central banks reports externally imposed constraints on wages for senior officials, while 37 percent has self-imposed limits and seven percent has a

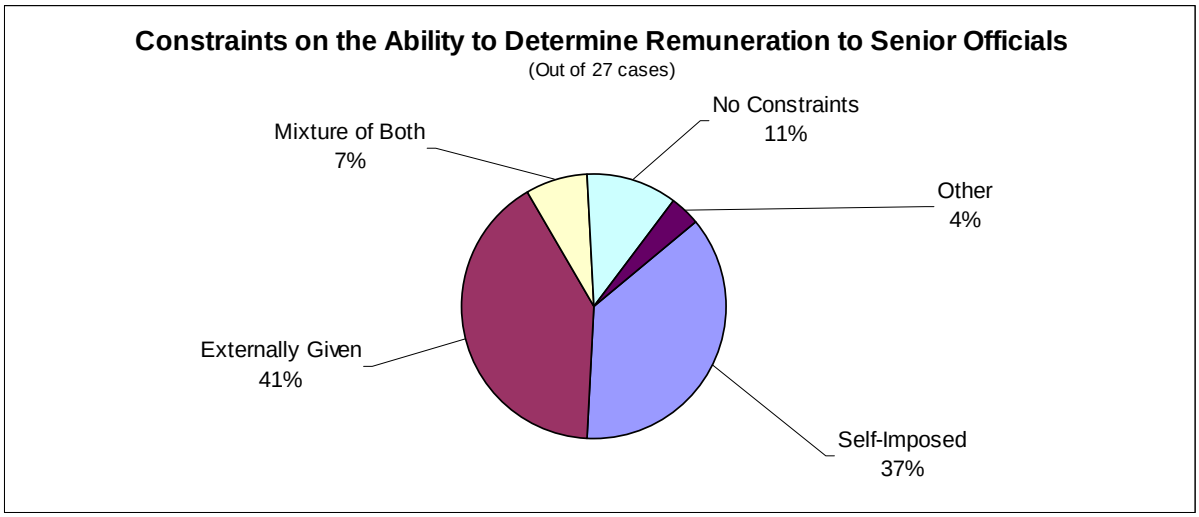
Figure 11. The remuneration of governors
The bars show how much Central Bank governors earn relative to GDP per capita in their country. Sources: Figure 10 and OECD.[51]



combination of the two. Only one out of nine banks has no restrictions whatsoever when determining the remuneration of its senior employees. More than half of the banks grants either mortgage loans at below-market rates or provides housing to its board members.

[51] GDP per capita figures are from the OECD. They were converted from USD to EUR based on the average year 2000 exchange rate: $ = €1.084675. Source: www1.oecd.org/publications/figures/2001/anglais/079_GDPcapita.pdf

Figure 12. Constraints on remuneration of senior officials
The bars show what restrictions Central Banks face when determining the wages of senior employees. Source: […].



2.8 Term length and term limits

Table 1 shows term lengths and possible term limits for Central Bank governors. The average term is 5-6 years and most countries have no restriction on the number of terms a governor can stay in office, with the ECB and the Federal Reserve as notable exceptions. In the U.S. term limits for public officials goes back a long time, and regained popularity during the 1990s when several states introduced it for various public offices (for a recent survey, see Lopez 2003). The most common argument behind term limits is that 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, wasteful activities.[53] 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 significant resources on ensuring re-election, and divert time from productive work.

[53] In particular, the literature has recognized that 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).

However, there at least three potential costs with term limits. First, high-quality policymakers will sometimes be forced out of office, which is obviously wasteful. Second, there is a loss of accountability. In the last period in office there is no re-election pressure on the incumbent, i.e., he becomes a "lame duck". The lame duck-effect is usually thought to be negative, for example because the incumbent will shirk, spend more resources,[54] or engage in "short-termism", i.e., focus on projects with positive short-term effects, at the expense of those with long-term effects (Palley 1998). Third, there may be a negative selection effect. By introducing term limits, the (maximum) value of winning office is reduced (similar to the effect of lowering the wage) which may lead to a lower quality in the pool of aspirants for the job. An interesting question is if, following the ECB, term limits will become more common as central banks gain more independence vis-à-vis governments around the world.

Closely related to the issue of term-limits is the less-debated question 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

Table 1. Length of term of governor and reappointment possibility
The table shows for how many years governors of Central banks are appointed, whether it is possible for them to be reappointed and if an explicit term limit exists. Source: BIS.

Country or Economic Region	Term of Governor	Reappointment Possibility/Limit
Argentina	6 years	No Limit
Australia	7 years	No Limit
Bulgaria	6 years	No Limit
Canada	7 years	No Limit
China	x years	No Limit
ECB	8 years	No reappointment possible

[54] See Besley and Case 1995 for some evidence on last-term spending increases by U.S. governors.
[56] The Chairman may be reappointed to additional four-year terms within his or her term as a member of the Board of Governors. The term of office of a member of the board is 14 years. Once a full 14-year term has been completed, re-appointment is not possible, but a partial term may be followed by a full term.

France	6 years	One Reappointment possible
Germany	8 years	No Limit
Hungary	6 years	No Limit
Hong Kong	Non specified	Not available
India	5 years	No Limit
Italy	5 years	No Limit
Japan	5 years	No Limit
Mexico	6 years	No Limit
New Zealand	5 years	No Limit
Norway	6 years	No Limit
Poland	6 years	One reappointment possible
Russia	4 years	Two Reappointments possible
Singapore	3 years	No Limit
South Africa	5 years	No Limit
Sweden	6 years	No Limit
Switzerland	6 years	No Limit
Taiwan	No Limit	No Limit
Great Britain	5 years	No Limit
United States	4 years	0-7 [56]

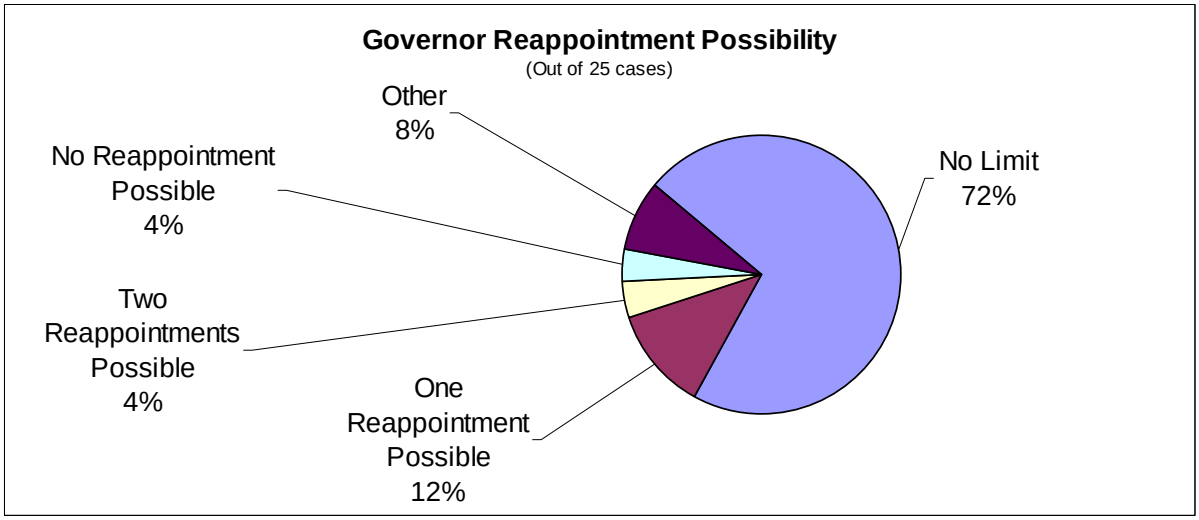
term is longer then one election cycle, which holds for almost all countries.[58] On the other hand, long tenure reduces accountability, and decreases the public's ability to change the course of monetary policy if it so desires (O'Flaherty 1990, Tirole 1994, Waller and Walsh 1996). It has also been argued that long terms increase the risk of regulatory capture and collusion between regulator and industry (Leaver 2001).

[The relation between staggering and term limits (Waller & Walsh)]

[The relation CEO entrenchment and term limits (Guiso et al. 2003, Caprio and Levine, 2002)]

[58] Another way to help insulate the appointment process from political pressure is to stagger the governor's term, so that governor appointments occur during election years to the smallest extent possible.

Figure 13. Reappointment possibilities for governors.
The pie indicates how many times Central Bank governors can be reappointed. Source: [xxx]



2.9 Revolving Doors, Cooling off and Capture

An other important issue for central bank governance is central bankers career concerns in terms of post retirement employment, the so called "revolving door". Personnel of regulatory agencies are often subject to limited ability to work for the firms they were formerly regulating. These limits take usually the form of a prohibition of employment of a certain duration, a so called "cooling off" period, and are aimed at limiting regulatory capture through exchanges of "soft regulation" against "fat jobs". Table 2 shows that among the Central Banks about which we could collect information, about one third has some kind of cooling off period.

The issue of the optimality and optimal length of a cooling off period is complex in itself, and interacts in an even more complex way with other issues discussed earlier. The traditional view about "revolving doors" is that they facilitate regulatory capture through collusion between regulators and firms, thereby worsening the quality of regulation (see Laffont and Tirole 1991, and references therein). One way agencies try limit regulatory capture is using short-term employment contracts with term limits for regulators, to prevent collusion with regulated firms induced by long-term interaction. However, Clare Leaver (2001) shows that the stronger but biased career concerns induced by short term contracts together with open revolving doors may make short term contracts counterproductive.
On the other hand, Che (1995) recently showed 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 the non-contractible highly industry-specific skills necessary to perform a good

regulatory activity and highly valued by the regulated firms, so that the welfare effects of revolving doors are ambiguous. Moreover, if career concerns must be the main force eliciting central bankers' performance – as argued/assumed by Alesina and Tabellini (2004) - these must be able to go on with their careers, typically in the banking industry, once they leave the bank. These arguments would speack against the use of cooling off periods.

These few lines highlight how complex and unsettled is the interaction between career concerns, term limits, investment incentives and optimal regulation is. On the empirical side, Horiuchi and Shimizu (2001) did find that Japanese banks involved in *amakudari*, i.e. the practice of offering directorships to retired financial regulators from the Bank of Japan and the Ministry of Finance, are associated to higher risk-taking and more bad loans. Causality tests for this relation, however, do not give sufficiently strong results.

Whether there should be a "cooling off" period to limit the influence of "revolving doors" on central bankers' behavior appears therefore an important open issue in need of both theoretical and empirical research.

Table 2. Post-employment restrictions

The table shows for how many years governors of Central banks are appointed, whether it is possible for them to be reappointed and if an explicit term limit exists. Source: Central bank staff and/or central bank laws, September 2004.

Country	Cooling-off period (jobs related to credit market)
Austria	None
Belgium	2 years for Governor or Board members, 1 year for jobs unrelated to credit institutions
Czech Republic	6 months for Governor and Board of Directors
Denmark	None
Finland	None
Greece	None
Hungary	6 months
Iceland	No, but Governor's one-year severance pay may be annulled
Netherlands	None
Norway	None
Poland	None
Portugal	None
Slovak Republic	None
Spain	2 years for Governor and Deputy Governor. During this period, they are paid 80% of salary
Sweden	1 year for Governor. The governor is paid a salary during this period
Switzerland	None
UK	3 months for any type of employment

Japan	2 years for Executives (applies to commercial banks holding current accounts with the BOJ)

3. Discussion

In light of recent debate in a number of European countries about the effectiveness, efficiency and remuneration of central banks, we have studied 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 and attempted to identify special features of central banks.

Drawing from the theories on corporate governance, bank supervision, public organizations, 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.

By looking empirically at how central bank governance currently is organized 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.

Governments seem to have sacrificed the accountability of central banks for the sake of (greater) independence to facilitate monetary policy. Our analysis also made clear that central banks' incentives and their (obligation to pursue) a multiplicity of objectives are not yet well aligned. Moreover, the accountability of central banks, its relation with the large degree of independence appears unsatisfactorily addressed by existing research. To the extent that research has addressed the accountability issue, this has been with respect to the formation of optimal monetary policy.

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.

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