UDC: 336.71.078.3;338.246.025.2
JEL Classification: G18, G28, K20, L50
Keywords: financial sector; financial services regulation; prudential supervision; supervisory agencies; integrated supervision

Is One Watchdog Better Than Three? International Experience with Integrated Financial Sector Supervision

Martin ČIHÁK – Richard PODPIERA*

1. Introduction

The last twenty years have been characterized by increasing integration of the banking, securities and insurance markets, as well as their respective products and instruments. Largely in response to the integration in the markets, there has been a substantial shift from the traditional sector-by-sector approach to supervision toward integrated financial supervision.

This paper presents the first comprehensive, cross-country analysis of the emerging experience with integrated financial supervision. We survey the theoretical arguments for and against the integrated supervisory model and use empirical data to assess the validity of some of these arguments. In particular, we analyze how the quality of supervision (measured by compliance with international standards and codes) in countries with integrated supervisors compares with that in other countries. We also use data on staffing to assess any potential cost savings associated with integrated supervision.

So, is one watchdog better than two, three, or more? Although there are a number of theoretical arguments for and against the integrated model, our empirical results suggest that (i) integrated supervision is generally associated with higher quality and consistency of supervision across supervised institutions, even though a large part of the difference is explained by other variables, mainly income level; and (ii) integrated supervision is not associated with a significant reduction in supervisory staff.

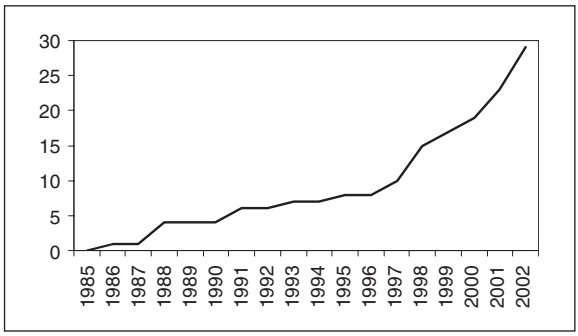
The structure of the article is as follows: Section 2 reviews the trends in integration of supervision. Section 3 surveys the theoretical arguments for and against integration. Section 4 analyzes some of these arguments using empirical data, and Section 5 concludes the article.

---

* Both authors: International Monetary Fund, Monetary and Financial Systems Department, Washington, D.C. (mcihak@imf.org), (rpodpiera@imf.org)

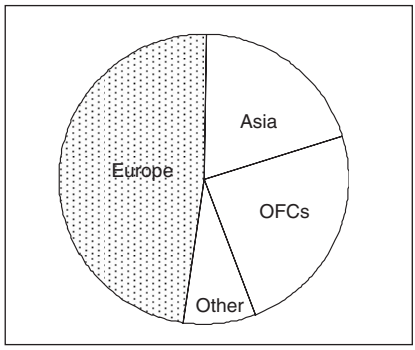
The authors would like to thank – without implicating – Ashok Bhatia, Ana Carvajal, Udaibir S. Das, Jennifer Elliott, Michaela Erbenová, Socorro Heysen, Michal Mejstřík, Mark O'Brien, Marc Quintyn, Klaus Schaeck, Mark Swinburne, Judit Vadasz, two anonymous referees of this journal, and participants in seminars at the International Monetary Fund and the Czech Economic Association for useful comments. The views expressed in this article are those of the authors and do not necessarily represent those of the IMF or IMF policy.

FIGURE 1 Number of Fully Integrated Supervisory Agencies, 1985–2003



Source: authors' calculations based on data in Central Banking Publications (2004)

FIGURE 2 Regional Distribution of Integrated Supervisory Agencies, 2004



Source: authors' calculations based on data in Central Banking Publications (2004)

2. Trends in Integrated Supervision

One of the most notable developments in the financial landscape in many countries has been the ongoing cross-sector and cross-border consolidation of financial institutions, which has led to a blurring of distinctions between financial sectors and national financial markets (e.g., (Group of Ten, 2001), (Zalm, 2005)). For example, the number of conglomerates in the top 500 financial institutions worldwide increased from 42 percent to 60 percent between 1995 and 2000 (de Nicoló et al., 2003).

Partly in response to the increased consolidation in the financial sectors, the number of fully integrated supervisory agencies has grown rapidly in the last two decades (*Figure 1*). The first countries to embark on integrated supervision were Singapore in 1982 and Norway in 1986. In the following years, integrated supervisors were established in other Nordic countries and elsewhere in Europe. Outside Europe, integrated agencies were established in Australia, Korea, Japan, and other countries. As of the end of 2004,

TABLE 1 General Structure of Financial-Sector Regulation and Supervision

Type of market failure		Systemic instability	Asymmetric information	Market misconduct	Anticompetitive behavior
Regulatory area		Macroprudential surveillance/ /financial stability	Microprudential supervision/ /individual institutions	Business supervision/ /consumer protection	Competition
Sub-sectors	Banks	Central bank, monetary authority	***One***[a]	***One***	Separate agency responsible for competition in general
	Insurance companies		***or***	***or***	
	Capital market firms		***more***	***more***	
	Other financial firms		***agencies***	***agencies***	

Note: [a] Deposit insurers can have an important role in banking supervision, no matter which regulatory model is applied across sectors.

Sources: the authors, based loosely on (Kremers – Schoenmaker – Wierts, 2003) and (Carmichael – Heming – Llewellyn, 2004)

there were 29 fully integrated supervisory agencies worldwide, of which about half were in Europe (*Figure 2*).

Prudential supervision is part of the broader framework for financial-sector regulation and supervision. The framework consists of macroprudential surveillance, microprudential supervision, consumer protection, and competition policy, each of which responds to one type of market failure (*Table 1*). In most countries, macroprudential surveillance is carried out by a central bank, and competition issues are handled by a separate agency regulating competition in general. The focus of this paper is on the middle part of the table, i.e., microprudential supervision and consumer protection.

We define a fully integrated supervisory agency as an agency that is in charge of (micro)prudential supervision of at least the three main segments of most financial sectors – banking, insurance, and securities markets. Such an agency may or may not be in charge of consumer protection. Under this definition, a framework where one supervisory agency is in charge of all prudential supervision in the three main sectors and another one is responsible for market conduct, consumer protection, and corporate governance (so-called "twin peaks" framework, used in Australia and the Netherlands) qualifies as integrated supervision. In contrast, partly integrated supervisory agencies (which are in charge of prudentially supervising two of the three segments), and sectoral supervisors (which supervise only one segment), do not quali-fy as integrated supervisors. In theory, there are alternatives to full integration, for instance, creation of a unified oversight board or sharing of support services among agencies, but these are not widespread and we do not address them in this paper.

Despite the trend toward fully integrated supervision, there is still a wide range of models for supervisory structure that have been adopted in various countries (*Table 2*). The framework for organizing supervision functions

TABLE 2 Economies with Single, Semi-Integrated, and Sectoral Prudential Supervisory Agencies, 2004[a]

Single prudential supervisor for the financial system (year of establishment)		**Agency supervising two types of financial intermediaries**			**Multiple sectoral supervisors (at least one for banks, one for securities firms and one for insurers)**	
		Banks and securities firms	**Banks and insurers**	**Securities firms and insurers**		
Australia (1998)	Japan (2001)	Finland	Canada	Bolivia	Albania*	Italy*
Austria (2002)	Kazakhstan* (1998)	Luxembourg	Colombia	Bulgaria*	Argentina*	Jordan*
Bahrain* (2002)	Korea, Rep. of (1997)	Mexico	Ecuador	Chile	Bahamas*	Lithuania*
Belgium (2004)	Latvia (1998)	Switzerland	El Salvador	Jamaica*	Barbados*	New Zealand*
Bermuda* (2002)	Maldives* (1998)	Uruguay	Guatemala	Mauritius*	Botswana*	Panama
Cayman Islands* (1997)	Malta* (2002)		Malaysia*	Slovak Republic*,[b]	Brazil*	Philippines*
Denmark (1988)	Netherlands* (2004)		Peru	Ukraine*	China	Poland*
Estonia (1999)	Nicaragua* (1999)		Venezuela		Croatia*	Portugal*
Germany (2002)	Norway (1986)				Cyprus*	Russia*
Gibraltar (1989)	Singapore* (1984)				Czech Republic[b]	Slovenia*
Guernsey (1988)	South Africa* (1990)				Dominican Rep.*	Sri Lanka*
Hungary (2000)	Sweden (1991)				Egypt*	Spain*
Iceland (1988)	United Arab Emirates* (2000)				France*	Thailand*
Ireland* (2002)	United Kingdom (1997)				Greece*	Tunisia*
					Hong Kong SAR*	Turkey
					India*	Uganda*
					Indonesia*	United States*
					Israel*	
As share of all countries in the sample (percent)						
33		6	11	9	41	

Notes: * Banking supervision is conducted by the central bank.

[a] The table focuses on prudential supervision, not on business supervision (which can be carried out by the same agencies or by separate agencies, even in the integrated model). Also, we do not consider deposit insurers here even though they play an important role in banking supervision in a number of countries and can do so under any regulatory model.

[b] The authorities announced plans to integrate prudential supervision in their central banks in 2006.

Sources: the authors, based on data in Central Banking Publications (2004), and on the websites of supervisory agencies

is along sectoral lines (multiple supervisors), is integrated for two sectors regardless of the objectives of supervision, or is integrated across all sectors into one agency. National differences reflect a multitude of factors: historic evolution, structure of the financial system, political structure and traditions, and size of the country and financial sector. The fully integrated supervisory model can be found in a wide range of financial systems, from very small (e.g., some of the offshore financial systems) to large and complex (e.g., United Kingdom and Japan), from very concentrated (e.g., Estonia) to relatively dispersed (e.g., United Kingdom), and from countries with a systemic banking crisis prior to integration (e.g., Norway) to countries with no recent systemic banking crisis.

Our article focuses on domestic supervisory integration, but the importance of cross-border integration will also continue to increase as the cross-border links among financial systems continue to grow rapidly. The recent growth of cross-border cooperation in supervision is evidenced for example by increasing numbers of memoranda of understanding (MOUs) among supervisory agencies from different countries.[1] There is an ongoing – even though so far only theoretical – discussion on a Europe-wide supervisor (e.g., (Kremers – Schoenmaker – Wierts, 2001)). Similar discussions are taking a more concrete shape in Australia and New Zealand, which have been working on implementing an enhanced 'home-host' model of supervision for their highly integrated banking systems (Reserve Bank of New Zealand, 2004).

3. Review of Literature on Integrated Financial Supervision

This section reviews the key arguments for and against integrating financial-sector supervision identified in the literature, largely following Abrams and Taylor (2000).[2] The theoretical literature on the subject notes that the structure of regulation and supervision is only one aspect that affects its effectiveness and efficiency (e.g., (Carmichael – Heming – Llewellyn, 2004)). Key pre-requisites, some of which are linked to the organization of the supervisor, include clear objectives, independence and accountability, adequate resources, effective enforcement powers, comprehensiveness of regulation, and cost efficiency.[3] However, it would be too simplistic to consider the organization of regulation and supervision to be only a second-or-

[1] For example, the number of MOUs with foreign supervisors signed by the Bank of England and U.K. Financial Services Authority increased from 1 in 1995 to 20 in 2005; for the Czech National Bank and the Slovak National Bank, the number of cross-border MOUs increased from 0 in 2000 to 8 and 9 in 2005, respectively.

[2] The literature reviewed here is theoretical in the sense that it provides theoretical arguments rather than an empirical assessment. Formal theoretical models of supervision (e.g., (Dewatripont – Tirole, 1994)) focus on banking supervision and say little about supervising non-bank financial institutions, which is an area for future research. Also, see (Kahn – Santos, 2005) for a discussion on allocating the lender of last resort, deposit insurance, and supervision responsibilities within banking supervision.

[3] Abrams and Taylor (2000) provide a detailed overview of the key preconditions. Das and Quintyn (2002) examine country experience with regulatory governance, which includes independence, accountability, transparency, and integrity. Huepkes, Quintyn, and Taylor (2005) explore the accountability aspect in detail.

der problem as it may often have a strong impact on the degree to which the key pre-requisites are satisfied.

The literature generally concludes that the question of the most appropriate structure for regulation and supervision is to a large extent a practical one and the answer depends on the interaction of a number of factors that, moreover, evolve over time. Therefore, there is no strong theoretical argument for any particular organization of supervision; there are only potential advantages and disadvantages of various setups, the importance of which depends on the conditions in place in a given jurisdiction.

3.1 Possible Benefits of Integrated Supervision

The most important arguments for unified supervision are related to efficiency, effectiveness, and issues stemming from the creation of financial conglomerates. Merging multiple supervisors should increase efficiency, even if only by eliminating duplicated support functions, not to mention broader synergies. The blurring of demarcation lines among financial sectors and the creation of conglomerates in many industrialized countries have created an added incentive to unify supervision to ensure uniform coverage and competitive neutrality.

The rise of financial conglomerates has also raised the issue of how to supervise them efficiently and effectively.[4] Financial conglomerates cover a range of financial services for which supervision has been typically fragmented and this has raised concerns about the ability of supervisors to assess the overall risk a conglomerate is taking. But besides the need to take a consolidated view and assess group-wide risks that may not exist at a lower level, the existence of financial conglomerates has also increased the importance of having a regulatory and supervisory framework that is consistent and free of gaps. While supervisors try to make companies create firewalls between their different businesses, the effectiveness of such firewalls could be low in the event of financial problems and they certainly do not protect against all forms of regulatory arbitrage. Furthermore, in crisis management, supervisors need to be able to respond on a conglomerate-wide basis even if problems affect, initially, only one part of the conglomerate.

While some or perhaps all of the issues outlined above could be resolved by close coordination and cooperation of sectoral supervisors, an integrated supervisor is likely to be in a much better position to address them. In particular, coordination and exchange of information may be smoother within one institution, as may the effort to close any existing regulatory gaps. For the conglomerates, an integrated supervisor may be able to minimize the burden of supervision as well, by minimizing any overlaps and duplication, and simplify the decision-making process.

In terms of competitive neutrality, an integrated supervisor may be better able to ensure that similar financial products receive comparable regulatory treatment, leveling the playing field for all financial-sector partici-

[4] For information on financial sector developments and conglomerates, see for instance (Group of Ten, 2001) and (de Nicolo et al., 2003).

pants. This is particularly important given that the differences among institutions and products have become blurred to some extent in recent years. Differences in regulation may give some financial services providers an unfair advantage, but could also encourage regulatory arbitrage as conglomerates would place particular financial products into the part of the conglomerate where the oversight or costs are the lowest. Sectoral supervisors could be tempted to compete for "clients" by relaxing supervisory requirements instead of trying to harmonize supervision across sectors.[5]

An integrated financial supervisor is also likely to be more flexible. A single institution may deal more effectively with possible turf wars that could lower the effectiveness of a supervisory system based on sectoral supervisors. An integrated supervisor may also be better placed to respond more promptly and effectively to the emergence of new products and services, which is important not only for financial innovation in industrialized countries, but also for financial systems in emerging and developing economies, which undergo substantial structural changes.

Economies of scope should lead to greater efficiency of operations of an integrated supervisor. Shared infrastructure, administrative and support functions can directly reduce costs. A large organization should also allow greater specialization of staff and acquisition of technologies that may be too costly for each supervisor separately. In the actual supervisory work, unified data collection can help create a more efficient reporting system and unnecessary duplication of research and data collection could be avoided.[6]

Economies of scope extend to staffing as well. A larger organization may be better placed to attract, train, and retain professional staff. A human resources policy could be easier to develop in a large organization, which could also offer a more diverse and interesting career path for its staff. Integration should also make it easier to share and use effectively specialized knowledge across supervised sectors.

Integrating supervision may improve accountability. When there is one supervisor, it is very clear who bears the responsibility for supervision, thus eliminating the possibility of "blame games" among sectoral supervisors. However, the objectives of the integrated supervisor must be well defined.

Individual country cases suggest that for economies with small financial sectors, the economies of scope from establishing an integrated agency outweigh the costs of moving to such a model. A case can also be made for consolidated supervision in a system dominated by banks, with a small role for capital markets or a highly integrated financial sector.

3.2 Potential Disadvantages of Integrated Supervision

There are also several arguments against the integrated supervisor model. First, if the objectives of the integrated supervisor are not clearly specified, an integrated supervisor may be less effective than sectoral supervisors. Se-

[5] Complete competitive neutrality may not be the ultimate goal of a supervisory system because the optimal intensity of supervision of similar products is likely to depend on the type of institution involved – as long as different types of institutions pose different degrees of systemic risk.

[6] Cost savings could be also achieved if sectoral supervisors agreed to share support services.

cond, the economies of scope (synergies) may be difficult to achieve as long as the regulations across banking, insurance, and securities are not harmonized. Third, there may even be some diseconomies of scope. Fourth, an integrated supervisor may extend moral-hazard problems across the whole financial sector.

The range of objectives of an integrated supervisor may be rather wide, from maintaining systemic stability in the banking sector to protecting customers of insurance companies or pension funds. Therefore, if the objectives are not clearly specified and communicated to all stakeholders, the supervisor may not be able to differentiate among different types of institutions, the accountability of the supervisor may be lower, and the supervisor may struggle in the event of conflict between different objectives.

If sectoral supervisors are simply put under one roof, without substantial organizational changes and changes in the regulation of individual sectors, the synergies will likely be small. Creating a truly single agency without substantial differences in style, culture, and, indeed, quality of supervision, is a demanding managerial task. Furthermore, complete integration may not be possible, as the types of supervised businesses and the issues under consideration may be too diverse – e.g., from credit risk in banking to consumer protection in the pension funds industry.

The integrated supervisor could become too large an organization to be managed effectively, leading to diseconomies of scope. Very large organizations are likely to become more bureaucratic and inflexible, compared to smaller sectoral supervisors. If the operations become too broad-based, managers may not be able to understand the full range of responsibilities of the organization, thus lowering its efficiency and effectiveness. This issue, however, is likely to be very much country-specific, as an integrated supervisor may be a smaller organization than sectoral supervisors in large countries.

Moral hazard is another potential problem. Financial market participants may believe that all creditors of all institutions supervised by an integrated supervisor will receive the same protection. For instance, the creditors of other financial institutions may expect – and demand through a political process in the event of financial problems – that they will be given the same protection as depositors in banks. This could implicitly extend the banking safety net to other parts of the financial sector for which such safety net may not be appropriate. While this is an informational problem and a clear communications strategy by the supervisor would alleviate it partly, it is unlikely to be fully resolved unless and until the supervisor acts exactly in line with the pre-announced rules in specific cases of financial failures.

3.3 Risks in the Integration Process

It is not only the final structure of supervision may bring substantial risks, but also the integration process itself.[7] There may be a risk that: (i) some politicians will use the fact that the supervisory structure is open for discussion to push through the creation of a unified supervisor quickly regardless of whether it is optimal; (ii) the change process will

reopen issues in regulation and supervision and that their effectiveness will be diminished by special interests; (iii) integration will lead to a loss of key staff and the effectiveness of regulation will therefore be lowered; and (iv) the technical process of integration will be mismanaged and the supervisor will not pay full attention to developments in the financial sector.

Once the creation of an integrated supervisor is open for discussion, the political process may lead to its creation regardless of whether such model is optimal under a given country's circumstances or not. Some politicians who would see an opportunity to increase their influence in regulation and supervision may be tempted to push changes through quickly, without proper public discussion, before the balance of power shifts against them. A rushed proposal may then lead to the creation of an agency with unclear objectives, a low degree of independence, or other serious flaws.

The integration process requires the creation of new legislation, but this may be an opportunity for special interests to capture the process and lower the effectiveness of regulation and supervision. Major issues that were likely settled under the existing system of sectoral supervisors may now be reopened and the resulting legislation supporting the integrated supervisor may be weakened relative to the previous situation. Relevant issues may concern the scope of activities of financial-sector firms, powers of the supervisor, exemptions from regulatory requirements, etc. One way to minimize this potential problem is to leave the sectoral legislation largely intact and approve only a simple law enabling the creation of the integrated supervisor. However, while such approach minimizes the risk that the legislative process will be captured by special interests, it also lowers the potential benefits of harmonization of the legislation in different sectors.

The integration process may lead to a loss of key staff or a very high level of turnover. Any major change brings uncertainty, and, if compounded by less than skillful management, delays or even the prospect of a loss of prestige or pay, staff may decide to look for other opportunities in the private sector or other organizations. Generally, it will be the staff with the highest potential that will be likely to leave. This problem may be particularly severe if banking supervision is to be transferred from the central bank and integrated into a new agency. The loss of highly qualified staff may severely impede the effectiveness of the supervisor.

There is also a risk that the change management process will go off track. The challenge of combining several separate organizations is substantial and the managers in supervisory agencies seldom have experience with large-scale change management. Outside experts may need to be brought in and a detailed change-management plan needs to be developed and implemented if the integration process is to be relatively smooth.

Individual country cases suggest that creating an integrated supervisory agency can be a complex management challenge. For example, in Australia

[7] In cases where the unified supervision resulted also in merging prudential supervision with customer protection issues, the integration involved a drastic reduction of supervisory agencies (e.g., in the United Kingdom, the creation of the Financial Services Authority meant that the number of financial sector supervisory agencies declined from ten to one).

TABLE 3 Summary of Pros and Cons of Integrating Financial Sector Supervision

Potential Pros	Potential Cons
Easier to achieve efficiency in supervising financial conglomerates	If objectives not clearly specified, may be less effective than sectoral supervisors.
Possible economies of scope	Possible diseconomies of scope if too large an organization that is difficult to manage.
Possibly improved accountability	If objectives not clearly communicated, possibility to extend moral hazard problems across the whole financial sector.
Easier to eliminate duplicities, turf wars	Process of integration may lead to politically or special interest motivated changes in supervisory framework.
Easier to ensure level playing field across market segments	Process of integration, if not managed properly, may lead to loss of key staff or to other problems.

Source: the authors, based on the reviewed literature

the process of creating the integrated prudential supervisory agency (APRA) was reviewed by Palmer (2002). The review noted that the integration was designed in an ambitious way and without a phase-in period, which had many potential benefits likely to be realized in the medium to longer term. However, the review also notes a number of unavoidable short-term consequences, including: (i) some loss of corporate memory due to the departure of people from predecessor agencies; (ii) some loss of industry expertise, for the same reason; (iii) inevitable delays in reacquiring industry knowledge as new, less-experienced people were recruited and asked to supervise more than one type of entity; and (iv) insufficient qualifications of some staff from predecessor agencies or newly recruited staff. According to Palmer (2002), these factors had a short-term negative impact on the quality of supervision.

Country cases suggest that integration should be implemented in a way that allows the key benefits to be reaped, namely (i) efficiency of the transferring of information, experience and knowledge within the institution; (ii) harmonization of the quality of regulation and supervision, resulting in better supervision of conglomerates; and (iii) cost savings resulting from the reduction in support activities. There are important risks in the integration process that need to be addressed, in particular: changing the existing "silo" culture; finding ways to address competing goals or possible conflicts of interest (monetary policy vs. financial stability, prudential supervision vs. consumer protection); accountability of results. Once the decision to move to an integrated agency has been made, implementation should take place quickly. A well-conceived change-management process should aim to overcome the cultural barriers associated with the previous structure.

3.4 Where Does the Central Bank Fit In?

Another important issue is the degree to which the central bank should be involved in supervision. There is general agreement that the central bank should be involved in macroprudential surveillance (Table 1, left column).

The degree of its involvement in microprudential supervision is an open question, both in the sectoral supervisor model (a number of central banks have been involved in banking supervision) and in the integrated supervisor model.

The arguments for and against central banks' involvement in banking supervision were summarized by, e.g., Goodhart and Schoenmaker (1995). There are clear synergies between banking supervision and monetary policy. For instance, the central bank needs to be aware of the financial position of banks when formulating and implementing its monetary policy and there is a clear synergy between the information needed for banking supervision and the information about banks needed for monetary policy purposes. The central bank also needs to have information about the creditworthiness of the participants in the payment system, which involves an assessment of the solvency and risk management of individual banks, and information about the liquidity and solvency of banks for its lender of last resort responsibilities.

There are also operational arguments for the central bank being in charge of banking supervision. Economies of scope and commonalities between banking supervision and other functions of the central bank may be substantial and indeed stronger than those between banking and other parts of the financial sector. The overlap in expertise and experience required for banking supervision and other central banking functions may also allow the central bank to attract and retain high-quality staff. In some countries, the central bank has more independence and resources than any separate supervisor would likely have, so inclusion of supervision in the central bank protects supervisors from political pressures and provides adequate resources – these are major pre-conditions for effective supervision.

However, the issues above can be largely resolved through appropriate legislation, funding, and cooperation among agencies, and there are also arguments for separation of banking supervision and monetary policy. There may be a conflict of interest between monetary and banking supervision goals; for instance, the central bank may not be sufficiently aggressive in controlling inflation when it fears that higher interest rates would lead to bank failures. Furthermore, bank failures happen and are often blamed on the supervisor. Then, if the credibility of the central bank as a bank supervisor is undermined, its credibility in monetary policy could suffer as well. Also, with new payment-system technology (real-time gross-settlement systems), central banks do not need to follow payment-system participants as closely as was previously the case. As the financial system becomes more diversified and interconnected through financial conglomerates, the moral-hazard arguments may be more important and it may be safer for the central bank to be separated from supervisory activities. On the other hand, as pointed out by Briault (1999), there is little evidence that the conflict of interest has any practical significance – Goodhart and Schoenmaker (1995) did find some positive correlation between the rate of inflation and the combination of monetary and supervisory functions, but it is very difficult to interpret their results as evidence of any causality. Also, Briault (1997) found no evidence of any impact of important U.K. bank failures on the credibility of U.K. monetary policy.

Similar considerations apply for the question of whether the central bank should become the integrated supervisor. This solution may have practical advantages, particularly in countries where banking is the main form of intermediation and the non-bank financial sector is relatively small, where the central bank is independent and is in a better position to attract high-caliber staff than other government agencies. However, there are also potentially strong disadvantages. First, the moral-hazard issues are likely more serious if the central bank is to become the integrated supervisor, with the public expecting the same degree of protection for all institutions supervised by the central bank. Again, public education can lessen but not solve this problem. Second, inevitable failures in the wide range of supervisory activities may have a negative impact on the credibility of the central bank in monetary policy. Third, there may also be concerns about the concentration of power in an independent, unelected body, particularly if there are no strong accountability mechanisms.

One additional consideration is the fundamental difference in the type of decisions taken by the central bank in monetary policy and decisions taken in supervision and regulation. This difference may put into question the ability of a single decision-making body to make both types of decisions effectively and efficiently. Here, the comparison between monetary-policy and competition-policy decisions put forward by Vickers (2002) appears to be relevant. Vickers notes that the monetary-policy decision is basically the same decision taken repeatedly, simply defined (not simple!), and taken relatively transparently based on information that is largely publicly available. The effects of the decision are widespread, and there is no opportunity of appeal by those affected. Supervisory decisions are not taken at a predefined time, are based on private and often confidential information, there are many types of decisions that need to be made, concerned parties may be significantly affected and have the opportunity to appeal the decision in court.

It remains unclear whether members of one decision-making body would have sufficiently broad expertise and experience to be able to make qualified decisions on both monetary policy as well as on a wide range of supervisory issues from banking to capital markets. If people with different experience are included in the decision-making body, there is the danger that the decision-making body will be split into monetary policy and supervisory parts, each one effectively making decisions in one area. Alternatively, if the decision-making body relies on staff or an advisory body, the clear lines of responsibility and accountability may become blurred.[8]

4. Analysis of International Experience with Integrated Supervision

In this section, we use available cross-country data on the quality of supervision and on supervisory staffing to investigate whether integrated supervisory agencies have a higher and more consistent quality of supervision

[8] Some countries (e.g., Ireland) tried to resolve this issue by integrating two separate boards in the central bank.

across sectors and whether they are more cost efficient than supervisors under other structures. This type of analysis has not yet been carried out in a systematic, cross-country fashion. There are only a few studies summarizing the experience in individual country cases, e.g., (Taylor – Fleming, 1999), reviewing the early Northern European experience, and (Carmichael – Fleming – Llewellyn, 2004).

4.1 Does Integration Mean a Higher Quality of Supervision?

Does integrated supervision mean that there is a higher quality of supervision? Or does integration mean diluting the higher quality of supervision in some sectors with a lower quality of supervision in other sectors? The theoretical literature is unclear on this point, only listing various pros and cons. In this subsection, we address this question empirically. We largely leave aside the more general issue of whether and how better supervision translates into more sound financial systems, even though we offer some insights on this in *Box 1*.

To make the empirical analysis tractable, we focus on fully integrated supervisors. As mentioned in Section 2, we define a fully integrated supervisory agency as an agency that is in charge of (micro)prudential supervision of at least the three main segments of most financial sectors – banking, insurance, and securities markets. We introduce an "integrated supervision dummy" that takes a value of 1 for economies with fully integrated supervision (see the list in Table 2) and 0 for all others. In principle, one can also distinguish partial integration, but we have not done so here, given that there are different types of such integration and their empirical comparison is far from straightforward.

We measure the quality of supervision using the degree of compliance with internationally accepted standards in banking, insurance, and securities regulation.[9] These are, respectively, the Basel Core Principles for Effective Banking Supervision (BCP), the International Association of Insurance Supervisors (IAIS), Insurance Core Principles (ICP), and the IOSCO Objectives and Principles of Securities Regulation (IOSCO).[10] For example, the BCP contains 25 "Core Principles" (CPs) that include a wide range of issues in the areas of regulatory governance, prudential framework, regulatory practices, and financial integrity.

The methodology for assessing compliance with these standards and codes is well established,[11] and an internal database of assessments based on assessment results has been created by the IMF. Most of the assessments have

[9] While this approach has some limitations – we need to assume that international standards measure the correct characteristics of the regulatory system and that the assessments are precise – and data is not available for all countries, we are not aware of any data set measuring the quality of regulation and supervision that would be more appropriate for our purposes.

[10] This approach potentially excludes intermediaries other than banks, insurance companies, and securities markets, which is likely to bias our results against integrated supervision, as integrated supervisors are more likely than sectoral supervisors to capture institutions that fall outside of these three main categories.

[11] See http://www.imf.org/external/standards/index.htm for a list and further details on the internationally recognized standards and codes.

BOX 1 Integrated Supervision and Financial System Soundness

Ideally, we would like to assess how supervisory integration helps in achieving the ultimate objective of prudential supervision, i.e. a stable and robust financial sector. However, understanding the links between the quality of supervision (whether integrated or non-integrated) and financial-sector performance is a very complex question that has not yet been properly addressed in the literature. We have therefore focused in this paper on the link between integration and the quality of supervision, measured by compliance with international standards.

As regards financial soundness, let us just observe that countries with integrated supervision are obviously not absolutely immune to banking sector crises or other financial sector problems. A juxtaposition of the widely-accepted list of systemic banking crises in (Caprio – Klingebiel, 2003) and the list of countries with integrated supervisory agencies does not suggest a lower frequency of systemic crises than in countries in general. In the 28 countries with integrated supervisory agencies, two cases of systemic banking crises were observed (Norway, 1987–1993, Sweden, 1990–1993) and several episodes of important problems (even though not full-fledged banking crises) were observed in several other countries with integrated supervisors – for instance, recent credit card problems in Korea or the 2001 HIH collapse in Australia, see (Palmer, 2002). The decision to set up an integrated supervisor was not a major cause of these financial-sector problems and it is too early to assess whether the frequency of crises in countries with integrated supervisors is lower or higher than in other countries, but it is obvious that integrated supervision does not prevent crises completely.

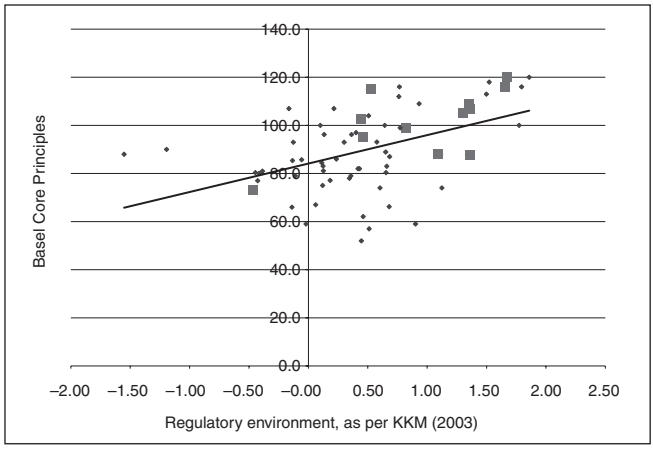
Other proxies for the „ultimate output" of supervision include soundness indicators. Podpiera (2004) analyzed, using cross-country panel data, whether compliance with Basel Core Principles brings any measurable benefits, and found that higher levels of BCP compliance are accompanied by lower ratios of nonperforming loans to total loans, and lower margins. The existing data are not sufficient to perform a full--fledged econometric analysis. Nonetheless, as an introductory observation, the results presented in Table 4 would, in combination with the results in (Podpiera, 2004), suggest that the presence of integrated supervision is likely to be associated with better soundness and performance indicators such as nonperforming loan ratios and interest rate margins. As with the other empirical analyses on this topic, however, causality remains an open question, i.e. is it that integration leads to better soundness indicators, or that systems with better soundness are more likely to have integrated supervision?

been prepared as part of the joint IMF-World Bank assessment program started in 1999.[12] The compliance of each country with each CP is assessed on a 4-point scale, from compliant to non-compliant, even though the exact names of the "grades" are slightly different across sectors.

We explore the relationship between observance of international standards and the organization of the supervisor (integrated or not) from two angles. First, we look at the BCP, for which the highest number of assessments is available, construct an index of overall BCP compliance and ex-

[12] Many countries have chosen to publish summaries of the financial sector assessments (Reports on Standards and Codes, or ROSCs). Some have chosen to also publish detailed assessments which include the underlying gradings of the individual principles. The published ROSCs and detailed assessments are available at the IMF and World Bank websites.

FIGURE 3 BCP Compliance and Overall Regulatory Environment



Notes: Large squares correspond to integrated regulators.
The regulatory environment index includes a measure of the incidence of market-unfriendly policies such as price controls or inadequate bank supervision, as well as perceptions of the burdens imposed by excessive regulation in areas such as foreign trade and business development.

plore the relationships between this index and supervisory integration. Second, we look at all three standards in a consistent way, split the CPs in each area into four categories and, again, look for any relationship with supervisory integration.

For the BCP, we have a sample of 65 assessments mostly completed in 2000–2002, which includes 33 developing, 19 emerging, and 13 industrialized economies – see (Podpiera, 2004) for a detailed list of the countries. We construct a simple index of overall BCP compliance by assigning values to assessment grades – compliant (4), largely compliant (3), materially non-compliant (2), and non-compliant (1). The value of the index of overall compliance for a given country is equal to the sum of the ratings for individual CPs.[13] Therefore, the actual values of the index of overall BCP compliance will be between 30 and 120, with higher values indicating a higher degree of compliance.[14] Of the 65 countries in the sample, 12 countries had fully integrated supervisors at the time of the assessment.

A simple comparison of compliance in countries with integrated supervision and in other countries could be misleading as integrated supervisors tend to be found in more developed countries that also have a better general regulatory environment. There is a positive relationship between the general regulatory environment on one hand and the level of implementation of standards on the other hand (see, for instance, (IMF, 2004)). We illustrate this problem in *Figure 3*, which shows the relationship between BCP compliance and the general regulatory environment as measured by one of the Kaufmann, Kraay, and Mastruzzi (KKM) (2003) in-

[13] Some principles were "not assessed" or "not applicable." These were assigned an average value of compliance of the principles with the available rating for a given country so that these countries wouldn't be penalized.

TABLE 4 Explaining BCP Compliance
(Dependent variable: Index of BCP Compliance)

Model specification	Constant	Integrated regulator dummy	Quality of the overall regulatory environment	GDP per capita (in PPP, 2000)	Number of observations	Adj. R^2	R^2	DW Stat.
(1)	87.16***	14.29***						
	(2.29)	(4.56)	...	...	65	0.09	0.11	2.00
(2)	83.37***	8.23*	10.23***					
	(2.33)	(4.44)	(3.18)	...	65	0.23	0.26	2.03
(3)	77.60***	4.67		0.001***				
	(2.42)	(4.69)	...	(0.0002)	65	0.43	0.45	2.06
(4)	77.56***	4.80	-0.75	0.001***				
	(2.48)	(4.87)	(2.68)	(0.0002)	65	0.43	0.45	2.06

Notes: */**/*** denotes significance level of 10/5/1 percent. Standard errors are in parentheses.

Ordinary least squares (OLS) estimation; the standard errors are heteroskedasticity-consistent.

Index of BCP compliance is defined as the sum of gradings from 4 (compliant) to 1 (noncompliant) for individual CPs 2–25 and 6 sub-principles of CP 1. Quality of the regulatory environment as per KKM (2003). This includes a measure of the incidence of market-unfriendly policies such as price controls or inadequate bank supervision, as well as perceptions of the burdens imposed by excessive regulation in areas such as foreign trade and business development. PPP denotes purchasing power parity.

dices.[15] The upward-sloping regression line suggests a positive relationship between these two variables. However, Figure 3 also suggests that integrated supervisors generally have a higher degree of compliance with BCP even after taking the general regulatory environment into account – 9 out of 12 integrated supervisors are above the regression line in the scatter plot. To analyze this more formally, we now turn to regression analysis.

Regression analysis confirms that integrated regulators tend to have a higher quality of banking supervision, but income level appears to be a more powerful explanatory variable. The two key variables indicated in previous research are the quality of the general regulatory environment (KKM, 2003) and GDP per capita (IMF, 2004). *Table 4* presents four different specifications of a regression model, depending on whether we include one of the two variables, neither of them, or both of them. In all the specifications, the integrated regulator dummy has a positive sign. If we include no other explanatory variable, the integrated regulator dummy is highly significant: the BCP compliance index in integrated supervisors is, on average, about 14 points higher than in other supervisory agencies. This difference shrinks to 8 points if we adjust for the higher overall quality of the regulatory environment in countries with integrated supervision, and

[14] We treat the 6 subcategories of Core Principle 1 (CP1) as separate principles. This does not have a significant impact on the index – the correlation coefficient of our index (with 6 subcategories treated as separate principles) and an index with only one entry for CP1 (equal to the average of the 6 subcategories) is 0.991.

[15] KKM (2003) describe regulatory quality as being focused on government policies and including measures of the incidence of market-unfriendly policies such as price controls or inadequate bank supervision, as well as perceptions of the burdens imposed by excessive regulation in areas such as foreign trade and business development.

TABLE 5 Financial Standards and Their Four Main Components

Four Main Components	Sub-components	Sector (core principles)		
		Banking (BCP)	Insurance (ICP)[a]	Securities (IOSCO)
Regulatory governance	Objectives of regulation Independence and adequate resources Enforcement powers and capabilities Clarity and transparency of regulatory process External participation	1, 19	1	1, 2, 3, 4, 5, 6, 7
Prudential framework	Risk management Risk concentration Capital requirements Corporate governance Internal controls	2, 3, 4, 6, 16, 17, 18, 20, 22, 23, 24, 25	2, 3, 4, 5, 12, 13, 15, 16, 17	8, 9, 10, 11, 12, 13, 29
Regulatory practices	Group-wide supervision Monitoring and on-site inspection Reporting to supervisors Enforcement Cooperation and information sharing Confidentiality Licensing, ownership transfer, corporate control Qualifications	5, 6, 7, 8, 9, 10, 11, 12, 13, 14	6, 7, 9, 10	17, 18, 20, 21, 22, 23, 25, 27
Financial integrity and safety nets	Markets (integrity, financial crime) Consumer protection Information, disclosure, transparency	15, 21	11, 16	14, 15, 16, 19, 24, 26, 28, 30

Note: [a] The allocation of insurance principles are based on the 2000 IAIS standard.
Source: (IMF, 2004)

it shrinks further in half (and becomes insignificant) when we adjust for the higher GDP per capita in countries with integrated regulatory agencies. Regression (4) needs to be interpreted carefully, given that there is a positive correlation between the two explanatory variables, i.e. the quality of the regulatory environment and GDP per capita.[16]

Turning to the three sectors of banking, insurance, and securities markets, we use a sample of 36 countries for which assessments of compliance of all three sectors were prepared.[17] As the CPs in these sectors are different, we need to transform the assessment results to be able to compare the quality of supervision across sectors. Following the methodology proposed in (IMF, 2004), we look at the following four main components of good regulation: (i) regulatory governance, which includes the aims, independence, and accountability of regulators; (ii) prudential framework, i.e. risk management, capital adequacy, internal control, and corporate governance; (iii) regulatory practices, i.e. monitoring and supervision, enforcement, conglomerates, and licensing; and (iv) financial integrity/safety net, including consumer protection and addressing financial crimes. For a listing of the CPs included in each of the four components, see *Table 5*.

For each of the four components, a compliance index was constructed, in a similar way as the BCP compliance index above, across countries and standards. The assessment of each principle was transformed into a nu-

meric value from 4 (compliant) to 1 (noncompliant) and the compliance index was calculated as a simple average of the CPs included in a given component.

Integrated supervisory agencies also tend to have a higher quality of not only banking supervision, but also insurance supervision and securities regulation, measured by compliance with the relevant international standards (BCP, ICP, and IOSCO, respectively). The quality of supervision as measured by the four components is also correlated with the level of economic development approximated by GDP per capita.[18] The BCP results in *Table 6* are consistent with the more detailed BCP analysis presented earlier in Table 4, i.e. after an adjustment for the level of GDP per capita in countries with integrated supervisory agencies, we still find a positive point estimate of the integrated supervisor dummy, but these estimates are not statistically significant. On the other hand, for insurance (ICP) and securities (IOSCO), the integration dummy retains its statistical significance in some cases even after per capita income is taken into account. Namely, this is true for regulatory practices (insurance), prudential framework (securities), and financial integrity/safety net (both insurance and securities).

Whether the integrated supervision is located inside or outside the central bank does not have a significant impact on the quality of supervision. We have tried to distinguish in the regressions in Table 4 and Table 6 integrated regulators in central banks from those outside central banks, but the estimated coefficients were generally not significant.

The regression results need to be interpreted with caution. In particular, the estimations do not look at causality and should not be interpreted in a causal way. The estimates do not make it possible to determine whether integration leads to a higher quality of supervision, or whether supervisory agencies with a higher quality of supervision are more likely to get integrated.

4.2 Does Integration Mean More Consistent Supervision Across Sectors?

More consistent regulation and supervision across sectors is one of the important suggested advantages of integrated supervision. The data on the four components of the BCP, ICP, and IOSCO standards described above – regulatory governance, prudential framework, regulatory practices, and financial integrity/safety net – allow us to test whether integrated super-

[16] The correlation coefficient between the quality of the regulatory environment and GDP per capita (both in 2000) was 0.75. We have also replaced the quality of the regulatory environment with a KKM (2003) measure of "government effectiveness" which includes indicators of the quality of public-service provision, the quality of the bureaucracy, the competence of civil servants, the independence of the civil service from political pressures, and the credibility of the government's commitment to policies. The results were very similar.

[17] This is the same sample used in IMF (2004) and consists of 10 industrialized countries, 12 emerging market countries, and 14 developing countries.

[18] As for the BCP estimation above, we have also included variables measuring the quality of the regulatory environment and government effectiveness, but they were not significant in almost all specifications when GDP per capita was also included.

TABLE 6 Explaining BCP, ICP and IOSCO Compliance by Main Components
(Dependent variables: indices of BCP, ICP, and IOSCO compliance, respectively)

	Constant	Integrated regulator dummy	GDP per capita (PPP)	No. of observations	Adj. R^2	R^2	DW Stat.
Banking (BCP)							
Regulatory governance	3.02*** (0.11)	0.02 (0.16)	2.08*** (0.53)	36	0.21	0.25	1.97
Prudential framework	2.92*** (0.10)	0.08 (0.15)	2.17*** (0.53)	36	0.34	0.38	2.33
Regulatory practices	2.62*** (0.13)	0.13 (0.19)	2.81*** (0.72)	36	0.33	0.36	2.25
Financial integrity/safety net	2.50*** (0.20)	0.06 (0.23)	3.89*** (1.25)	36	0.35	0.38	2.00
Insurance (ICP)							
Regulatory governance	2.36*** (0.22)	0.23 (0.26)	2.38*** (0.85)	34	0.13	0.18	2.36
Prudential framework	2.93*** (0.11)	0.15 (0.14)	1.92*** (0.52)	36	0.27	0.31	2.05
Regulatory practices	2.51*** (0.16)	0.36** (0.14)	2.40*** (0.50)	36	0.33	0.37	2.28
Financial integrity/safety net	2.32*** (0.21)	0.42* (0.21)	3.21*** (0.90)	36	0.31	0.35	2.46
Capital markets (IOSCO)							
Regulatory governance	2.90*** (0.16)	0.11 (0.20)	2.03** (0.75)	36	0.16	0.20	2.20
Prudential framework	2.45*** (0.14)	0.42* (0.23)	2.96*** (0.70)	36	0.37	0.41	2.41
Regulatory practices	2.94*** (0.17)	0.14 (0.18)	2.22*** (0.62)	36	0.17	0.21	2.51
Financial integrity/safety net	2.52*** (0.13)	0.34* (0.19)	2.89*** (0.13)	36	0.39	0.42	2.24

Notes: */**/*** denotes significance level of 10/5/1 percent. Standard errors are in parentheses.
OLS estimation; the standard errors are heteroskedasticity-consistent.
The indices of BCP, ICP, and IOSCO compliance were calculated as a simple average of the CPs included in a given component; please see the discussion in the text above. We have also included variables measuring the quality of the regulatory environment and government effectiveness, but they were not significant in almost all specifications when GDP per capita was also included. PPP denotes purchasing power parity.

visors achieve a more consistent quality of regulation across the three sectors (i.e., banking, insurance, and securities market). For each of the four components, we use the variation coefficient (standard deviation/average) across the three sectors as a measure of consistency. Again, as one would expect more developed countries to have a more consistent regulatory framework for the whole financial sector, we include GDP per capita (in purchasing power parity, PPP) as a control variable.

Our results suggest that integrated supervisory agencies indeed tend to have a more consistent quality of supervision across the sectors they supervise (*Table 7*). We have found that integrated supervisors have a lower

TABLE 7 Explaining Variability in Compliance with International Standards
Dependent variable: Variation coefficient (standard deviation/average) of an index of compliance with international standards of supervision in banking, insurance, and securities markets

	Constant	Integrated regulator dummy	GDP per capita (in PPP)[a]	Number of observations	Adj. R^2	R^2	DW Stat.
Regulatory governance	0.25*** (0.03)	-0.04 (0.03)	-0.37*** (0.12)	36	0.15	0.20	2.36
Prudential framework	0.18*** (0.01)	-0.04 (0.03)	-0.28*** (0.10)	36	0.26	0.30	2.04
Regulatory practices	0.21*** (0.02)	-0.05*** (0.02)	-0.31*** (0.08)	36	0.39	0.42	2.66
Financial integrity/safety net	0.22*** (0.03)	-0.06* (0.03)	-0.24 (0.15)	36	0.12	0.17	1.94
Overall	**0.15*** (0.02)**	**-0.04* (0.02)**	**-0.17** (0.08)**	**36**	**0.19**	**0.24**	**1.76**

Notes: */**/*** denotes significance level of 10/5/1 percent. Standard errors are in parentheses.
[a] Coefficients multiplied by 105.
OLS estimation; the standard errors are heteroskedasticity-consistent. PPP denotes purchasing power parity.

variation coefficient of the degree of compliance with international standards and the impact of integration seems to be higher in the area of regulatory practices and financial integrity/safety net and generally holds even after the level of development of an economy (GDP per capita in PPP) is taken into account.

4.3 Does Integration Help Reduce Resource Costs?

One of the arguments in favor of integrated supervision is the possibility that integration may lower costs, both for supervisors and for the supervised institutions. Data that would allow us to analyze changes in the regulatory burden are scant at best. We therefore focus on supervisory staff resources, for which cross-country data are available in the annual report "*How Countries Supervise Their Banks, Insurers, and Securities Markets"* published by Central Banking Publications (the latest edition available to us was from 2004). As far as we know, these data have not yet been used for this type of analysis.

We find that integrating supervision does not lead to substantial supervisory staff reduction (*Table 8*). We have tried to explain the number of supervisory staff by country population, area, the level of development (approximated by GDP per capita), and the size of the financial sector (approximated by M2/GDP). We have found that population matters, as does the country's level of development. The dummy variable for integrated regulators has the expected negative sign, but the reduction in staffing associated with supervisory integration was not statistically significant. There may be several reasons for this. First, the time since integration has in most cases not yet been sufficient for the cost savings to materialize. Second, we

TABLE 8 Integrated Supervision and Staffing
Dependent variable: Total number of professional supervisory staff

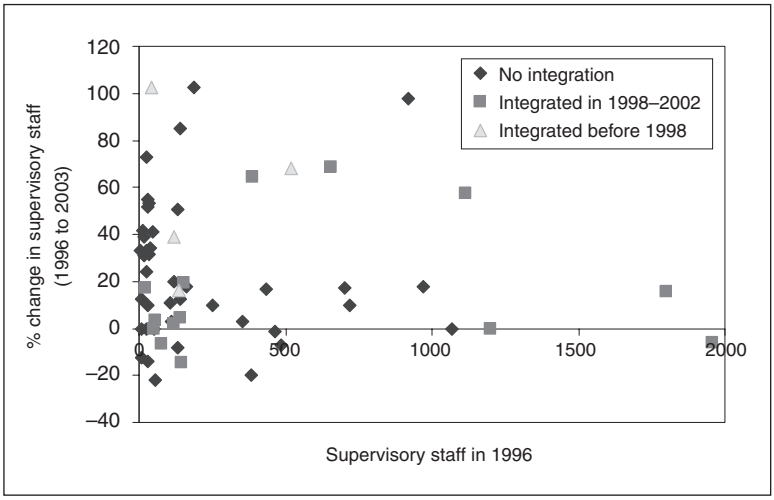
Model	Constant	Integrated regulator dummy	Population[a]	GDP per capita (PPP)[a]	Area[a]	M2/GDP	No. of obs.	Adj. R^2	R^2	DW Stat.
(1)	-999* (584)	-69.6 (127)	238*** (55.9)	96.4 (70.9)	10.3 (48.6)	2.21 (2.63)	55	0.43	0.49	1.97
(2)	-1,018* (562)	-102 (128)	244*** (51.4)	123** (56.0)	-6.92 (36.7)	...	58	0.43	0.47	1.96
(3)	-1,063** (450)	-108 (121)	236*** (38.5)	127** (48.3)	...	...	58	0.44	0.47	1.95
(4)	-442*** (106)	-70.5 (153)	...	...	...	...	64	-0.01	0.003	2.33

Notes: Standard errors are in parentheses.
*/**/*** denotes significance level of 10/5/1 percent.
PPP denotes purchasing power parity.
[a] logarithm

look at supervisory staff numbers, not at total staff numbers, so there could be some savings in support staff that we do not observe. Third, there may be no savings in supervisory staff because in some cases the integrated regulator took on new responsibilities that the previous regulators did not have (e.g., supervision of additional types of financial firms, or functions previously not covered, such as consumer protection) or, fourth, there may not be any true synergies among the sectors that would allow for supervisory staff savings.

In addition to this cross-country analysis, we have also looked at changes in supervisory staffing over time in countries that introduced integrated supervision, compared to other countries. The cross-country supervisory staffing data are available only for 1996–2003 (Central Banking Publications, 1999–2004), which limits the time dimension of our analysis. We have therefore focused on supervisory agencies that were integrated during 1998–2002, and compared the total staffing of all the supervisory agencies in the country at the end of 1996 with the staffing of the integrated agency at the end of 2003. Similarly to the cross sectional analysis, we have found no evidence of a systematic reduction in supervisory staffing, even though there were individual country cases when such reduction took place (*Figure 4*). On average, supervisory staffing in the 61 countries for which we had observations increased by 23 percent between 1996 and 2003. For the sub-sample of 14 countries that underwent integration of supervisory agencies between 1998 and 2002, supervisory staffing also increased in the same period; this increase was smaller on average (16 percent), but this difference was not significant (the standard deviation of the changes was 27 percent). Countries with supervisory agencies integrated before 1998 recorded an above-average increase in staffing in the same period (by 41 percent, with standard deviation of 26 percent). These findings are in line with the results of the cross-country analysis presented in Table 7. In particular, they suggest that integration of supervisory agencies is not associated with substantial reductions in supervisory staff.

FIGURE 4 Supervisory Staffing in Countries with Integrated Supervision, 1996–2003



Source: the authors' calculations, based on data from Central Banking Publications (1999–2004)

5. Conclusions

The theoretical literature on integrated supervision is relatively inconclusive. The prevalent view is that there is no optimal supervisory structure (Camichael, 2004), but that there are various pros and cons that need to be taken into consideration in individual country cases.

Our empirical results lead to several preliminary conclusions:

– We found that countries with integrated supervisory agencies enjoy greater consistency in the quality of supervision across supervised institutions, even though a part of the difference is due to the higher level of development in countries with integrated supervisory agencies.
– This higher consistency is not associated with diluting the overall quality of supervision; on the contrary, we find that integrated supervision is associated with a higher overall quality of supervision. For banking, the higher quality can be explained by an above-average level of economic development in the countries that have opted for integrated supervision so far. For insurance and securities markets, the higher level cannot be fully explained by economic level, suggesting that other factors, notably integration of supervision, may be at play. Overall, these results may be interpreted as suggesting that integration, while not having an impact on banking regulation, helps increase the quality of regulation in other sectors and thus improves consistency and overall quality of regulation.
– Whether the integrated supervision is located inside or outside the central bank does not appear to have a significant impact on the quality of supervision.
– Integrating supervision does not seem to be associated with significant reduction of supervisory staff. This may be either because the time since

integration has, in most cases, not yet been sufficient for the cost savings to materialize or because there are no cost savings (e.g., because the integrated supervisors took on new responsibilities). It is also possible that there are savings in support staff and support activities, but cross-country data on these are not available.

The preliminary conclusions in this paper suggest that integrated supervision may be associated with benefits in terms of increased supervisory consistency and quality. This strengthens the case in favor of integrated supervision in the medium- to long-term. It should be noted, however, that while our methods and results are useful in illustrating international trends, they cannot serve as a substitute for detailed analysis of the specific institutional and economic factors in individual countries. Country authorities considering whether to integrate their supervisory framework need to compare the likely medium- and long-term benefits (in particular, of having a single institution with the potential for better information flows and more consistent supervisory practices, better supervision of conglomerates, and possible cost savings on support activities) with the short-term challenges and risks involved in the integration process and in the chosen model.

There are a number of topics to follow up on in further research, in particular:

– *Degree of integration.* The presented paper compared fully integrated supervisory agencies with all others. This "zero-one" approach made the analysis more straightforward, but abstracted from the fact that there is a continuum of degrees of integration. In future research, one could investigate whether creating partially integrated supervisors is an improvement over the purely sectoral model. The key challenge in this approach is how to define, in an objective and cross-country comparable way, the many different degrees of supervisory integration. Also, some nonintegrated supervisory agencies may have in place a good framework for cooperation, while some supervisory agencies may be integrated only on paper. Moreover, in some countries, there is an integrated prudential regulator but a small part of the responsibilities is, for practical reasons, carried out by a cooperating agency. These factors are likely to play a role but are much more difficult to model. Therefore, we have used the zero--one approach in this paper, but including a more continuous definition of integration is a challenge for future research.
– *Burden on financial institutions.* An important argument in favor of integrated supervision is that it helps reduce the regulatory burden. Only limited data are presently available to address this question. These data suggest that integration indeed leads to some reduction in regulatory overlaps and duplicities. If more complete data become available, a more rigorous analysis of this issue can be carried out, most likely strengthening the arguments for integrated supervision.
– *Cross-border integration.* Recent policy papers on supervision have devoted substantial attention to the modalities of home-host supervisory cooperation (e.g., Basel Committee on Banking Supervision, 2005). In terms of empirical research, however, this subject has received even less attention than domestic supervisory integration.

– *Formal models.* There is also scope for developing formal theoretical models of integrated supervision. At present, the theoretical literature consists of formal models focusing on banking supervision (e.g., (Dewatripont – Tirole, 1994)), and various lists of pros and cons not based on an explicit model.
– *Supervision of conglomerates.* Given that the increased importance of conglomerates has been one of the key stated reasons for integration, it would be useful to explore directly whether integrated supervisors are more successful in creating and implementing a consistent and complete framework for the supervision of conglomerates. The methodology used in the empirical section of this paper addresses the issue, but only using indirect methods.

REFERENCES

ABRAMS, R. K. – TAYLOR, M. W. (2000): Issues in the Unification of Financial Sector Supervision. *IMF, Working Paper*, no. 00/213.

Basel Committee on Banking Supervision (2005): *Home-host information sharing for effective Basel II implementation*. Basel, BIS, 2005, http://www.bis.org/publ/bcbs120.htm.

BRIAULT, C. (1997): Comments on Central Bank Independence in the European Union. In: Kuroda, I. (ed.): *Towards More Effective Monetary Policy*. London, Macmillan, 1997.

BRIAULT, C. (1999): The Rationale for a Single National Financial Services Regulator. London, Financial Services Authority, *FSA Occational Paper*, 1999, no. 2.

CAPRIO, G. – KLINGEBIEL, D. (2003): *Banking Crises Database*. Washington D.C., World Bank, http://www1.wordbank.org/finance/html/database_sfd.html.

CARMICHAEL, J. – FLEMING, A. – LLEWELLYN, D. T. (2004): Washington, DC, World Bank, *Aligning Financial Supervisory Structures with Country Needs*.

Central Banking Publications (1999–2004): *How Countries Supervise their Banks, Insurers, and Securities Markets*. London, Central Banking Publications, Annual reports.

DAS, U. S. – QUINTYN, M. (2002): Crisis Prevention and Crisis Management: The Role of Regulatory Governance. *IMF Working Paper*, no. 02/163.

DAS, U. S. – QUINTYN, M. – CHENARD, K. (2004): Does Regulatory Governance Matter for Financial System Stability? An Empirical Analysis. *IMF Working Paper*, no. 04/89.

DEWATRIPONT, M. – TIROLE, J. (1994): The *Prudential Regulation of Banks.* Cambridge, MIT Press, 1994.

GOODHART, C. A. E. – SCHOENMAKER, D. (1995): Institutional Separation between Supervisory and Monetary Agencies. In: C. A. E. Goodhart (ed.): The *Central Bank and the Financial System*. Cambridge, Massachusetts, MIT Press, 1995.

Group of Ten (2001): *Consolidation in the Financial Sector*. Basel, 2001.

HOLTHAUSEN, C. – RØNDE, T. (2004): Cooperation in International Banking Supervision. *Centre for Industrial Economics Discussion Papers*, no. 2004-02 (Copenhagen, University of Copenhagen).

HUEPKES, E. – QUINTYN, M. – TAYLOR, M. W. (2005): The Accountability of Financial Sector Supervisors: Principles and Practice. *IMF Working Paper*, no. 05/51.

International Monetary Fund (2004): *Financial Sector Regulation: Issues and Gaps*. http://www.imf.org/external/np/mfd/2004/eng/080404.pdf.

KAHN, C. – SANTOS, J. (2005): Allocating bank regulatory powers: Lender of last resort, deposit insurance and supervision. *European Economic Review*, vol. 49, 2005, pp. 2107–2136.

KAUFMANN, D. – KRAAY, A. – MASTRUZZI, M. (KKM) (2003): Governance Matters III: Governance Indicators for 1996–2002. Washington, D.C., World Bank, 2003, www.worldbank.org.

KREMERS, J. – SCHOENMAKER, D. – WIERTS, P. (2001): Does Europe need a euro-wide supervisor? The *Financial Regulator*, vol. 6, 2001, no. 3, pp. 50–56.

KREMERS, J. – SCHOENMAKER, D. – WIERTS, P. (2003): Cross-Sector Supervision: Which Model? *Brookings-Wharton Papers on Financial Services*, 2003, pp. 225–243.

NICOLÓ, G. de – BARTHOLOMEW, P. – ZAMAN, J. – ZEPHIRIN, M. G. (2003): Bank Consolidation, Internationalization and Conglomeration: Trends and Implications for Financial Risk. *IMF Working Paper*, no. 03/158.

OOSTERLOO, S. – HAAN, J. de (2003): Survey of International Frameworks for Financial Stability. Amsterdam, *De Nederlandsche Bank*, *Occasional Studies*, vol. 1, 2003, no. 4.

PALMER, J. (2002): *Review of the Role Played by the Australian Prudential Regulation Authority and the Insurance and Superannuation Commission in the Collapse of the HIH Group of Companies.* July 15, 2002. www.apra.gov.au.

PODPIERA, R. (2004): Does Compliance with Basel Core Principles Bring Any Measurable Benefits? *IMF Working Paper*, no. 04/204.

Reserve Bank of New Zealand (2005): *Financial Stability Report*. May 2005, http://www.rbnz.govt.nz/finstab/fsreport/fsr_may2005.pdf.

TAYLOR, M. – FLEMING, A. (1999): Integrated Financial Supervision: Lessons from Northern European Experience. Washington, D.C., *World Bank*, *Policy Research Working Paper*, no. 2223.

VICKERS, J. (2002): The hedgehog and the fox in economic policy. *Oxford Business Alumni Lecture,* June 2002. http://www.oft.gov.uk/NR/rdonlyres/932DC0F2-6E41-436A-A4FF-A21E894A543F/0/spe0502.pdf.

World Bank and International Monetary Fund (2005): *Financial Sector Assessment: A Handbook.* http://www.imf.org/external/pubs/ft/fsa/eng/index.htm.

ZALM, G. (2005): *Blurring of distinctions: the policy response*. Speech for the Conference: Integrated Supervision of Financial Conglomerates: Challenges for the Future. May 12, Amsterdam, De Nederlandsche Bank.

SUMMARY

JEL Classification: G18, G28, K20, L50
Keywords: financial sector; financial-services regulation; integrated supervision; prudential supervision; supervisory agencies

Is One Watchdog Better than Three? International Experience with Integrated Financial--Sector Supervision

Martin ČIHÁK – International Monetary Fund, Washington, D.C. (mcihak@imf.org)
Richard PODPIERA – International Monetary Fund, Washington, D.C. (rpodpiera@imf.org)

Over the past two decades, there has been a clear trend toward integrating the regulation and supervision of banks, nonbank financial institutions, and securities markets. This paper reviews the international experience with integrated supervision. We survey the theoretical arguments for and against the integrated supervisory model, and use data on compliance with international standards to assess the validity of some of these arguments. We find that (i) integration is associated with a higher quality of supervision in insurance and securities and a higher consistency of supervision across sectors, after controlling for level of development; and (ii) integrated supervision is not associated with a significant reduction in supervisory staff.