Special Studies

The Structure, Scope, and Independence of Bank Supervision: An International Comparison

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Introduction

Many countries around the world have experienced banking crises in the past two decades, and all countries are witnessing substantial changes in the structure and nature of banking. These developments have led national and multilateral policymakers to focus increased attention on the crucial role of banking supervision. This focus is reinforced by the fact that "one of the important [international] trends has been, and continues to be, a move away from regulation and towards supervision."[1]

In light of this trend, policy discussions specifically focus on several issues that must be addressed in establishing and maintaining effective supervision, including the structure, scope, and independence of bank supervision.

- Should banks be subject to one or multiple supervisory authorities?
- Should the central bank be involved in bank supervision?
- Should bank supervisory authorities supervise other financial service industries, including in particular securities and insurance?
- To what degree should bank supervisors be subject to political and economic policy pressure and influence?

How these issues are addressed is important because policies that fail to provide for an appropriate bank supervisory framework may undermine bank performance and even lead to full-scale banking crises.

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[1] Crockett, Andrew (2001), "Banking Supervision and Regulation: International Trends," Paper presented at the 64th Banking Convention of the Mexican Bankers' Association, Acapulco, March 30. "Regulation" refers to the set of laws and rules applicable to banking, and "supervision" is defined as the monitoring by authorities of banks' activities and the enforcement of banking regulations.

The intense interest policymakers have shown in these issues has not been matched by researchers. In particular, there is very little systematic empirical evidence on how, or indeed whether, the structure, scope, and independence of bank supervision affect the banking industry. This gap was addressed in a recent OCC working paper (Working Paper 2002-2),[2] which this article summarizes.

Section I of this article provides information on the structure, scope, and independence of banking supervision across a wide range of developed and emerging market economies. Section II draws on the discussion in the OCC Working Paper 2002-2 of the conceptual debates to explain possible channels of influence of the structure, scope, and independence of banking supervision on bank performance. Section III summarizes the statistical tests developed in the working paper to test whether and how the structure, scope, and independence of banking supervision affect a key dimension of bank performance—bank profitability. The results indicate, at most, a weak influence for the type of structure of supervision on actual bank performance.

I. The Structure, Scope, and Independence of Bank Supervision Around the Globe

Supervisory Structure: Single or Multiple Bank Supervisors?

A key policy decision in designing the structure of a bank supervisory system is whether there should be a single bank supervisory authority or multiple supervisors. Although previous conceptual literature covers a number of possible advantages and disadvantages to each option, perhaps the strongest reason for advocating a single supervisory authority is because of a fear of "competition in laxity" between multiple supervisors, while those in favor of having two or more bank supervisors stress the benefits of a "competition in ideas" among multiple supervisors.[3]

One essential set of information largely missing from the previous literature on the issue of the structure of supervision is what different countries around the world have chosen to do. Table 1 provides information on the international "landscape" of bank supervisory structure.[4] The vast majority of countries—83 percent of the 118 countries for which the relevant information is available—have a single bank supervisory authority. Nevertheless, 20 countries (17 percent of the

[2] Barth, James R., Daniel E. Nolle, Triphon Phumiwasana, and Glenn Yago (2002), "A Cross-Country Analysis of the Bank Supervisory Framework and Bank Performance," *Economic and Policy Analysis Working Paper 2002–2* (September), Office of the Comptroller of the Currency.

[3] OCC Working Paper 2002–2 includes an extended discussion and summary of the previous literature on the possible advantages and disadvantages of single versus multiple bank supervisors. See especially pp. 6–9.

[4] Tables 1–4 in this article draw directly on detailed information in the working paper and augment that information with new information on a wider range of countries. The data come from a World Bank survey of 118 countries' bank supervisory authorities. Not all of the countries listed in Tables 1–4 were included in the statistical analyses in the working paper because of gaps in necessary complementary data, as required by the statistical model developed in that paper.

total), including the United States, assign banking supervision to multiple supervisory authorities. There is no systematic pattern to the division between single and multiple supervisory regimes across geographical regions or country income levels.

Supervisory Structure: A Role for the Central Bank?

Countries must also decide whether to assign responsibility for bank supervision to the central bank. As with the issue of single or multiple bank supervisors, the conceptual literature is split on the relative advantages and disadvantages of the central bank being a bank supervisor.[5] Perhaps the most strongly emphasized argument in favor of assigning supervisory responsibility to the central bank is that as a bank supervisor, the central bank will have first-hand knowledge of the condition and performance of banks. This in turn can help it identify and respond to the emergence of a systemic problem in a timely manner.

Those pointing to the disadvantages of assigning bank supervision to the central bank stress the inherent conflict of interest between supervisory responsibilities and responsibility for monetary policy. The conflict could become particularly acute during an economic downturn, in that the central bank may be tempted to pursue a too-loose monetary policy in order to avoid adverse effects on bank earnings and credit quality, and/or encourage banks to extend credit more liberally than warranted based on credit quality conditions in order to complement an expansionary monetary policy.

As with the single–multiple supervisor debate, a useful first step in addressing the debate over the bank supervisory role of the central bank is to ascertain basic facts. Table 2 compares the bank supervisory role of the central bank in 117 countries. More than three-fourths of the 117 countries shown assign banking supervision to the central bank, including 64 percent in which the central bank is the single bank supervisory authority. Like the United States, a few countries (12 percent of the total) give bank supervisory authority to the central bank and at least one other agency. About one-fifth of the countries do not assign any bank supervisory responsibilities to the central bank.

The Scope of Supervision: Which Financial Institutions Should the Bank Supervisor Supervise?

Policymakers have also grappled with the issue of whether bank supervisory authorities should be responsible for the supervision of nonbank financial service industries—in addition to banking. Impetus for the debate over the scope of supervisors' responsibilities comes from the ongoing blurring of distinctions between different types of financial activities, the growing complexity and size of financial services firms, and the increasing globalization of financial services. In general,

[5] OCC Working Paper 2002–2 summarizes the theoretical debate and the small amount of empirical literature on this issue on pp. 9–12.

Table 1—Single banking supervisory authority predominates (118 countries)

Region	Single Banking Supervisory Authority			Multiple Banking Supervisory Authorities
Africa	Botswana	Burundi	Egypt	Rwanda
	Gambia	Ghana	Kenya	
	Lesotho	Malawi	Morocco	
	Namibia	Nigeria	South Africa	
	Zambia			
Americas	Bolivia	Brazil	Canada	Argentina
	Chile	El Salvador	Guatemala	United States
	Guyana	Honduras	Jamaica	Puerto Rico
	Mexico	Panama	Peru	
	Trinidad and Tobago	Venezuela		
Asia/Pacific	Azerbaijan	Bangladesh	Bhutan	Australia
	Cambodia	China	India	Korea
	Indonesia	Israel	Japan	Taiwan
	Jordan	Malaysia	Maldives	Thailand
	New Zealand	Kuwait	Kazakhstan	
	Kyrgyzstan	Lebanon	Nepal	
	Philippines	Qatar	Saudi Arabia	
	Singapore	Sri Lanka	Tajikistan	
	Tonga	Turkmenistan	Vietnam	
Europe	Albania	Austria	Belgium	Belarus
	Bosnia-Herzegovina	Bulgaria	Croatia	Czech Republic
	Denmark	Estonia	Finland	Germany
	France	Georgia	Greece	Hungary
	Iceland	Ireland	Italy	Latvia
	Liechtenstein	Lithuania	Luxembourg	Poland
	Macedonia	Moldova	Netherlands	Turkey
	Portugal	Romania	Slovakia	Yugoslavia
	Slovenia	Spain	Sweden	
	Switzerland	Cyprus	United Kingdom	
Offshore Financial Centers	Aruba	Bahrain	Cayman Islands	Gibraltar
	British Virgin Islands	Guernsey	Macau	Vanuatu
	Malta	Mauritius	Oman	
	Seychelles	Solomon Islands	St. Kitts and Nevis	
	Turks and Caicos Islands	Western Samoa		
	83% of countries			**17% of countries**

Sources: Barth, James R., Daniel E. Nolle, Triphon Phumiwasana, and Glenn Yago, “A Cross-Country Analysis of the Bank Supervisory Framework and Bank Performance,” Economic and Policy Analysis Working Paper 2002–2 (September), Office of the Comptroller of the Currency; and World Bank.

Table 2—Majority of Countries Rely on Central Bank as a Supervisory Authority (117 countries)

Region	Central Bank Only		Central Bank Among Multiple Supervisors	Central Bank Not a Bank Supervisor	
Africa	Botswana Burundi Egypt Gambia Ghana Kenya	Lesotho Malawi Morocco Nigeria South Africa Zambia	Rwanda		
Americas	Brazil Guatemala Guyana	Jamaica Trinidad and Tobago	Argentina United States	Bolivia Canada Chile El Salvador	Mexico Panama Peru Puerto Rico
Asia/Pacific	Armenia Azerbaijan Bangladesh Bhutan Cambodia China India Indonesia Israel Jordan Kazakhstan Kuwait Kyrgyzstan Lebanon	Malaysia Maldives Nepal New Zealand Philippines Qatar Saudi Arabia Singapore Sri Lanka Tajikistan Tonga Turkmenistan Vietnam	Taiwan Thailand	Australia Japan Korea	Venezuela
Europe	Albania Bosnia-Herzegovina Bulgaria Croatia Estonia Georgia Greece Ireland Italy Lithuania	Macedonia Cyprus Moldova Netherlands Portugal Romania Russia Slovakia Slovenia Spain	Belarus Czech Republic Germany Hungary Latvia Poland Turkey Yugoslavia	Austria Belgium Denmark Finland France Iceland Liechtenstein Luxembourg Sweden Switzerland	
Offshore Financial Centers	Aruba Bahrain Cayman Islands Macau Malta Mauritius	Oman Seychelles St. Kitts and Nevis Solomon Islands Western Samoa	Vanuatu	British Virgin Islands Gibraltar Guernsey Turks and Caicos	
	64% of countries		**12% of countries**	**22% of countries**	

Sources: Barth, James R., Daniel E. Nolle, Triphon Phumiwasana, and Glenn Yago, "A Cross-Country Analysis of the Bank Supervisory Framework and Bank Performance," Economic and Policy Analysis Working Paper 2002–2 (September), Office of the Comptroller of the Currency; and World Bank.

the debate has been cast in terms of whether or not it is best to have a single "consolidated," or "unified," supervisor of all financial services.[6]

Much of the discussion about consolidating financial services supervision takes as its starting point the observation that financial service companies are growing increasingly complex. Financial conglomerates that operate in the banking, securities, and insurance industries are among the most powerful corporations in many countries. In order to supervise such entities effectively, and in particular to insure that supervisory oversight of risk management by such conglomerates is not fragmented, uncoordinated, or incomplete, some have argued that a supervisor with broad scope to cover all financial services is necessary. The most significant argument against a supervisory authority with broad scope is that it would result in an undue concentration of power that would otherwise be somewhat dispersed among several agencies.

Table 3 presents an international comparison of the scope of supervision across 116 countries. In the majority of countries (55 percent) the authority responsible for bank supervision is confined to just the banking industry. However, bank supervisory authorities also supervise securities firms in 11 percent of the countries and insurance firms in 20 percent of the countries. In 16 countries (14 percent), the authority responsible for bank supervision also supervises both securities and insurance firms.

A third bank supervision issue has begun to receive far greater attention from researchers in the wake of numerous recent and costly banking and currency crises. There is an emerging consensus, arising out of the burgeoning research on the causes of banking and currency crises, that independence for supervisory authorities is crucial for well-functioning banks and, more

[6] Generally the discussion focuses on banks, securities firms, and insurance companies. Abrams, Richard K., and Michael W. Taylor (2000), "Issues in the Unification of Financial Sector Supervision" IMF Working Paper 213, includes a discussion of a "unified" supervisor also having supervisory responsibility for pension funds, finance houses, and leasing companies. They also note that the case for consolidating the supervision of banking and securities firms may be stronger than for including insurance firms as well. This is because, for banking and securities firms, "risks tend to arise on the assets side of the balance sheet," whereas for insurance firms "the main financial risks occur on the liabilities side of the balance sheet (i.e., the primary risk is unanticipated claims by policyholders)" [Abrams and Taylor (2000, p. 9)].

In the debate over unified supervision, more attention generally has been given to a discussion of consolidation of "prudential" supervision (i.e., safety and soundness), as compared to "conduct of business" supervision (i.e., consumer and investor protection). Nevertheless, both issues have played a prominent part in policy debates in the United Kingdom, where the Financial Services Authority (FSA) became the first consolidated supervisor to have wide responsibility for both of these main aspects of supervision. In Australia, however, a "twin peaks" supervisory structure was constructed that gives prudential supervision responsibility to the Australian Prudential Regulation Authority and conduct of business supervision responsibility to the Australian Securities and Investments Commission. Although the latter has responsibility across banking, insurance, and securities firms, the former has responsibility over banking and insurance firms, but not securities firms. Abrams and Taylor (2000) discuss the issue of an even wider scope for a unified supervisory authority, which could include the setting of accounting standards and competition (antitrust) policy.

Table 3. Scope of Supervision for Bank Supervisors: International Comparison (116 countries)

Banks Only			Banks and Securities Firms	Banks and Insurance Firms	Banks, Securities, and Insurance Firms
Argentina	Albania	Armenia	Belgium	Anguilla	Australia
Bahamas	Bahrain	Bangladesh	Bermuda	Aruba	Bolivia
Barbados	Belarus	Bosnia-Herzegovina	Cyprus	Austria	China
Botswana	Brazil	Bulgaria	Finland	British Virgin Islands	Denmark
Cambodia	Chile	Croatia	France	Canada	Guernsey
Czech Republic	Egypt	Estonia	Guyana	Cayman Islands	Iceland
Georgia	Germany	Ghana	Hungary	Ecuador	Japan
Greece	Hong Kong	India	Ireland	El Salvador	Jersey
Indonesia	Israel	Italy	Isle of Man	Ethiopia	Korea
Jamaica	Jordan	Kazakhstan	Luxembourg	Gambia	Malta
Kenya	Kuwait	Latvia	Mexico	Gibraltar	Norway
Liechtenstein	Lithuania	Macedonia	Saudi Arabia	Guatemala	Singapore
Maldives	Mauritius	Mozambique	Switzerland	Honduras	Sweden
Netherlands	Nepal	New Zealand		Lesotho	United Kingdom
Nigeria	Oman	Panama		Macau	Uruguay
Philippines	Poland	Portugal		Malaysia	Zambia
Romania	Russia	Seychelles		Malawi	
Slovakia	Slovenia	South Africa		Paraguay	
Spain	Sri Lanka	Taiwan		Peru	
Thailand	Trinidad and Tobago	Tunisia		Saudi Arabia	
Turkey	United States	Vanuatu		Sierra Leone	
Venezuela				Suriname	
				Turks and Caicos	
55% of countries			**11% of countries**	**20% of countries**	**14% of countries**

Sources: Barth, James R., Daniel E. Nolle, Triphon Phumiwasana, and Glenn Yago, "A Cross-Country Analysis of the Bank Supervisory Framework and Bank Performance," Economic and Policy Analysis Working Paper 2002–2 (September), Office of the Comptroller of the Currency; and Courtis, Neil (ed.), "How Countries Supervise Their Banks, Insurers and Securities Markets 2002," London: Central Banking Publications (2001).

generally, for financial system stability.[7] Supervisors are "independent" to the extent they are insulated from, or able to resist, pressure and influence to modify supervisory practices in order to advance a policy agenda that is at odds with the maintenance of a safe and sound banking system. Supervisory independence allows bank supervisors to monitor the financial condition of banks in a strictly professional and consistent fashion. In addition, it allows them to elicit the appropriate level of responsiveness to the guidance, constructive criticism, and direction they give to banks. In essence, supervisory independence makes it possible for supervisors to "call it like they see it" and to have their advice and orders heeded.

[7] The issue of independence for supervisory authorities has also attracted increasing attention among policymakers. In particular, the Basel Committee's 1997 *Core Principles for Effective Banking Supervision* highlights supervisory independence. The *Core Principles* is comprised of 25 basic principles that need to be in place for a supervisory system to be effective. The principles cover licensing, prudential regulations and requirements, methods of supervision, information requirements, formal powers of supervisory authorities, and cross-border banking. Importantly, the first principle outlines necessary "preconditions for effective banking supervision," and chief among these fundamental preconditions is that agencies responsible for banking supervision "should possess operational independence." (*Core Principles*, p. 4.)

Using information from the World Bank, the working paper constructs an index of the degree of independence bank supervisors possess. The index, with values from 1 (low independence) to 3 (high independence), was based on supervisory authorities' answers to a series of questions designed to ascertain how insulated from political pressure the supervisor is. Table 4 displays how 104 countries ranked according to this index. Just over half (54 percent) of the countries have bank supervisory authorities with relatively low independence, while almost one-quarter (24 percent) have relatively high independence; 22 percent of the countries rank in between. One pattern that emerges from this ranking is that less developed economies are less likely to have highly independent bank supervisory authorities.

Table 4. Independence of Bank Supervisory Authorities: International Comparison (104 countries)

Region	Low Independence		Medium Independence		High Independence	
Africa	Botswana	Morocco			Egypt	
	Burundi	Nigeria			Ghana	
	Gambia	Rwanda			Lesotho	
	Kenya	Malawi				
	South Africa	Zambia				
Americas	Argentina	Guyana	Bolivia		Canada	
	Brazil	Honduras	Trinidad and Tobago	Jamaica		
	Chile	Mexico	Venezuela		Panama	
	El Salvador	Guatemala			Peru	
	Puerto Rico				United States	
Asia/Pacific	Bhutan	Philippines	Bahrain	Indonesia	Australia	
	Cambodia	Vietnam	Kuwait	Japan	Lebanon	
	China	Sri Lanka	Bangladesh	Singapore	Qatar	
	Israel	Taiwan	Malaysia	Thailand	Saudi Arabia	
	Korea	Tajikistan	India	Jordan		
	Nepal	New Zealand	Maldives	Tonga		
Europe	Austria	Greece	Belgium	Sweden	Belarus	Poland
	Czech Republic	Lithuania	Switzerland	Cyprus	France	Netherlands
	Denmark	Macedonia	Croatia	Liechtenstein	Portugal	Spain
	Estonia	Moldova	Italy		Germany	Turkey
	Finland	Romania			Slovenia	United Kingdom
	Hungary	Russia			Ireland	Luxembourg
Offshore Financial Centers	Aruba	Oman	Guernsey		Solomon Islands	
	British Virgin Islands					
	St. Kitts and Nevis Islands					
	Cayman Islands					
	Turks and Caicos Islands					
	Gibraltar	Macau				
	Malta	Mauritius				
	Vanuatu	Western Samoa				
	54% of countries		**22% of countries**		**24% of countries**	

Sources: Barth, James R., Daniel E. Nolle, Triphon Phumiwasana, and Glenn Yago, "A Cross-Country Analysis of the Bank Supervisory Framework and Bank Performance," Economic and Policy Analysis Working Paper 2002–2 (September), Office of the Comptroller of the Currency; and World Bank.

II. Impact on Bank Performance?

As decision makers consider policy changes affecting the structure, scope, and independence of banking supervision, a key issue is whether these aspects of bank supervision affect bank performance. A related question is, "If there is an impact on bank performance, what is the direction of the impact?" OCC Working Paper 2002–2 is the first to provide systematic empirical evidence on this issue, by developing a statistical model in which the structure, scope, and independence of supervision enter as explanatory factors for a key dimension of bank performance—profitability. Before summarizing that evidence, it is useful to consider possible channels of influence of bank supervision structure, scope, and independence on bank profitability.[8]

If a multiple supervisors system leads to a competition in laxity, which in turn could encourage poor risk management by banks, then one could argue that a single supervisor system is to be preferred for avoiding this route to a detrimental impact on bank performance. In addition, some have argued that a single supervisor system imposes less regulatory burden on banks than does a more complicated multiple supervisors system. To the extent there is less burden, bank costs would be lower and profits higher. However, if a multiple supervisors system results in a competition in ideas between supervisory authorities, and hence greater responsiveness to banking industry innovations than would be the case under a single supervisor system, bank profitability would be enhanced. With equally plausible conceptual arguments, but no empirical evidence on the issue, it is not possible to say definitively what the expected direction of influence would be for this aspect of the structure of supervision on bank profitability.

In the absence of previous empirical evidence, one also must be agnostic about the relationship between [or prediction of] bank profitability and whether or not the central bank is the supervisory authority. This is particularly true with respect to the conflict of interest between managing monetary policy and being responsible for bank supervision. On the one hand, if, during a downturn in the economy the central bank eases up on banks, and they therefore subsequently grow out of credit quality problems (i.e., there is "enlightened forbearance"), then the central bank's conflict of interest will have resulted in a positive impact on bank profitability. On the other hand, if supervisory easing encourages poor credit extension, and subsequently even worse credit quality problems, bank profitability would decline.

Similarly, the conceptual research yields no definitive directional prediction for the effect of the scope of bank supervision on bank profitability. It is possible, for example, that a consolidated supervisor would foster better risk management by banks, especially large, complex

[8] The current discussion draws on a much more detailed discussion in the OCC working paper of the prior conceptual literature on the advantages and disadvantages of various supervisory structure, scope, and independence policy options.

organizations, and hence result in better banking industry performance. However, it has also been argued that a supervisor with a wide scope of financial activity to oversee might be less attuned to the banking industry and its innovations than to some other aspect of the financial services industry. This lack of focus could lead to less responsiveness to the needs of the banking industry, resulting in lower profitability than under a more narrowly focused supervisory system. As with the issues of single versus multiple supervisors and the role of the central bank in bank supervision, without clear-cut guidance from the conceptual literature, and in the absence of previous empirical evidence, it is not possible to unambiguously predict the effect of the scope of supervision on bank profitability.

There is no ambiguity in the expected effect for supervisory independence on bank performance. Under a supervisory regime dominated by political pressures instead of market forces, banks are more likely to make (and/or be compelled by the government to make) credit extension decisions that advance a particular political agenda. With an independent supervisor able to effectively encourage banks to make decisions on the basis of objective credit quality criteria, bank performance and profitability will be better.

III. An Empirical Test of the Impact of the Structure, Scope, and Independence on Bank Profitability

Data and Model

The OCC working paper develops a multivariate regression model to test whether the structure, scope, and independence of bank supervision affect bank profitability. The analysts use country-specific data from a new World Bank database, as well as country-specific data on banking industry structure and performance collected in an OCC survey of over 100 supervisory agencies around the world. The resultant data set was then combined with bank-specific data from FitchIBCA's BankScope database to yield a data set of over 2,300 banks in 55 countries.

The analysts observe that there is a group of recent empirical studies employing cross-country data to investigate the determinants of bank profitability.[9] Following those studies, they model bank profitability (measured as the bank-specific ratio of pre-tax profits to total assets) as a function of bank-specific variables (such as the bank capital to asset ratio), country-specific macroeconomic variables (e.g., gross domestic product per capita), and other control variables such as the percent of banking system assets that are government-owned.[10] To this they add new

[9] Among the most significant are Demirgüç-Kunt, Asli, and Harry Huizinga (2000), "Financial Structure and Bank Profitability," *World Bank Policy Research Working Paper 2430*; and Demirgüç-Kunt, Asli, and Harry Huizinga (1999), "Determinants of Commercial Bank Interest Margins and Profitability: Some International Evidence," *The World Bank Economic Review* 13: 2: 379–408.

[10] See OCC Working Paper 2002–2, Table 6, and pp. 26–33 for a detailed description of the model variables.

variables to test for the influence of the structure, scope, and independence of supervision on bank profitability, as follows: SINGLE for whether a banking system has one or multiple supervisory authorities, CBANK for whether or not the central bank is a bank supervisor, SCOPE for the range of financial services industries for which the bank supervisory authorities are responsible, and INDSUP for the degree of independence the bank supervisor enjoys. Table 5 precisely defines these key variables, and shows their expected impact on bank profitability.

Table 5—Banking Supervisory Variables and Expected Impact on Bank Profitability

Supervisory Variable	Concept	Value	Expected Impact on bank profitabliity
SINGLE	Is there a single bank supervisor, or are there multiple supervisors?	1 if there is a single bank supervisor, 0 if there are multiple supervisors.	?
CBANK	Is the central bank a bank supervisor?	1 if central bank is a bank supervisor, 0 if it is not.	?
SCOPE	Do bank supervisory authorities also supervise other financial industries?	1 if bank supervisor has responsibility for securities firms, insurers, or both, 0 if bank supervisor just supervises banks.	?
INDSUP	Independence of supervisor: How independent from outside political pressures is the supervisory authority?	1 = low independence, 2 = medium independence, 3 = high independence	Positive

Note: "?" indicates theoretical ambiguity about the expected impact.

Empirical Results

The results of the regression analysis of the determinants of bank profitability are in line with the previous cross-country research on which the working paper's model is based.[11] This article focuses primarily on the new supervisory structure, scope, and independence variables' results, which are displayed in Table 6. That table shows six sets of regression results for the supervisory variables, entered separately and in combination with each other. The top line in the table highlights the only statistically significant result: regardless of whether it is entered as the lone supervisory variable in the equation, or in combination with one or more of the other supervisory variables of interest, only SINGLE is statistically significant. The positive sign on this variable indicates that, controlling for other determinants of bank profitability (not shown), banks in a system with a single supervisor will perform better than under a multiple supervisors system.

[11] See OCC Working Paper 2002–2, Tables 8–11 and pp. 34–39 for a detailed discussion of regression results.

Table 6—Impact of Bank Supervisory Variables on Bank Profitability: Ordinary Least Squares Estimation Results

Bank supervisory variables	Estimated coefficients					
SINGLE	0.0083* (0.028)		0.0090* (0.028)			0.0090* (0.031)
CBANK		-0.0020 (0.366)	0.0014 (0.550)			-0.0021 (0.561)
SCOPE				0.0009 (0.650)		-0.0051 (0.177)
INDSUP					-0.0027 (0.199)	-0.0025 (0.262)
Summary statistics:						
Adjusted R^2	0.1922	0.1906	0.1923	0.1910	0.1910	0.1933
F-statistic	27.92**	27.64**	26.59**	27.54**	27.70**	24.27**
Number of observations	2,368	2,368	2,368	2,354	2,368	2,354
Number of countries	55	55	55	53	55	53

Notes: See table 5 for description of bank supervisory variables.
* Significant at the 5% level
** Significant at the 1% level
p-values in parentheses

The working paper's authors caution against drawing firm conclusions based on these results, however. In particular, they introduce an alternative set of data on supervisory structure, based on information from a private sector catalog of financial supervisors across the globe.[12] This set of data is largely in accord with the data from the World Bank survey of supervisory authorities. However, in the case of a few countries, the two sources of information differ because a key difficulty in characterizing the structure of supervision is being able to ascertain "where to draw the line" in deciding if an agency has supervisory power.[13] For example in France, central bank officials contribute to deliberations conducted by the bank supervisory authority but do not themselves have direct responsibility for bank supervision. Is the central bank a bank supervisory authority? It is possible for reasonable people to disagree on the answer.

In light of this, the analysts re-estimated the regressions using the somewhat different data on supervisory structure. They found only one significant difference between the re-estimated results and their first results: the statistical significance of the SINGLE variable disappeared. That is, the alternative data yielded results indicating that, whether there is a single bank supervisor or multiple bank supervisory authorities, this has no impact on bank performance.

[12] Courtis, Neil (ed.) (1999), *How Countries Supervise Their Banks, Insurers and Securities Markets,* London: Central Banking Publications, compiled detailed information on financial system supervision in 137 countries.

[13] For Argentina, Canada, Czech Republic, France, Japan, Korea, Poland, Thailand, and Turkey, there are discrepancies between the two data sets in whether there is a single bank supervisor or multiple bank supervisors. In addition, for one of the countries (France), there is a discrepancy in the supervisory role played by the central bank.

IV. Conclusions

In a recent address, Edgar Meister, member of the directorate of the Deutsche Bundesbank, pointed out that the "design of regulatory and supervisory responsibilities is one of the most important matters affecting the future course of financial market policy. There is, however, no universally valid answer to the question of *how* this should be done."[14] He went on to observe that the "best way of organizing supervision cannot be derived from theory."[15] Policymakers in a growing number of countries not only continue to debate supervisory framework issues, but a growing number have acted to radically change supervision within their countries. They have had to do so without the benefit of empirical evidence on the impact of choices about supervisory structure on the banking industry. The primary aim of the OCC's working paper is to provide such evidence. The results published in this paper indicate, at most, a weak influence for the structure of supervision on bank performance. In particular, they found some evidence that a single-supervisor system enhances bank performance. However, their re-estimates using an alternative source of data on the structure of supervision failed to duplicate this result.

These results have a bearing on a key dimension of the policy debate on how to structure supervision. In particular, given the dearth of empirical evidence on the issues, advocates of one form or another of supervisory structure have asserted that a particular change is likely to affect (favorably or adversely, as the advocate sees fit) the performance of banks. The working paper's results provide little support at best to the belief that any particular bank supervisory structure will greatly affect bank performance. This is significant, because it suggests that the on-going debate might more broadly focus on the impact of the supervisory structure on other aspects of the health of the banking system, including individual bank safety and soundness, systemic stability, and the development of the banking system.

[14] Meister, Edgar (2001), "How Should Regulatory and Supervisory Responsibilities Be Shared among the National Functional Regulators?" Lecture held at the Multinational Banking Seminar, New York (June 9).

[15] *Ibid.*