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The Evolution and Impact of Bank Regulations

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Abstract

This paper reassesses what works in banking regulation based on the new World Bank survey (Survey IV) of bank regulation and supervision around world. The paper briefly presents new and official survey information on bank regulations in more than 125 countries, makes comparisons with earlier surveys since 1999, and assesses the relationship between changes in bank regulations and banking system performance. The data suggest that many countries made capital regulations more stringent and granted greater discretionary power to official supervisory agencies over the past 12 years, but most countries have not enhanced the ability and incentives of private investors to monitor banks rigorously—and several have weakened such private monitoring incentives. Although it is difficult to draw causal inferences from these data, and while there are material cross-country differences in the evolution of regulatory reforms, existing evidence suggests that many countries are making counterproductive changes to their bank regulations by not enhancing the ability and incentives of private investors to scrutinize banks.

The Evolution and Impact of Bank Regulations

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I. Introduction

Have countries reformed bank regulatory and supervisory policies over the last twelve years, and which reforms have enhanced banking system performance? The Bank for International Settlements (BIS), the International Monetary Fund (IMF), and the World Bank (Bank) work on designing effective financial sector reform strategies, communicating those recommendations to countries, and helping countries implement changes to improve the efficiency and stability of their financial systems. Indeed, in 1999 the Bank and the IMF started the Financial Sector Assessment Program (FSAP) to assess systematically the status of banking systems in countries and to make recommendations for reform. But have these recommendations been adopted and have they been successful at boosting the efficiency and stability of financial systems?

Motivated by these very basic questions, the World Bank asked us more than twelve years ago to start assembling the first cross-country database on bank regulation and supervision. Based on guidance from bank supervisors, financial economists, and our own experiences, the Bank began putting together an extensive survey of bank regulation and supervision.[1] The original survey, Survey I, had 117 country respondents in 1999.[2] The first update in 2003, Survey II, characterized the regulatory situation at the end of 2002, and had 152 respondents. Survey III, the last one taken while one of us was still with the Bank, has responses from 142 countries characterizing regulation and supervision as of 2005-2006. The World Bank completed Survey IV in 2011 (with some corrections in 2012) with responses from over 125 countries.

In this paper, we reassess what works in banking regulation based on the new World Bank survey (Survey IV) of bank regulation and supervision around world. This paper briefly

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[1] As in Barth, Caprio, and Levine (2006), we sometimes use the term regulation generically to apply to banking-sector policies and compliance mechanisms, while at other times to discuss particular, specific regulations or special aspects of supervision.

[2] Specifically, the survey received answers from 1998 through 2000, but since the bulk of the answers were in 1999 we use this year to date the survey.

presents new and official survey information on bank regulations in over 125 countries,[3] makes comparisons with earlier surveys since 1999, and assesses the relationship between changes in bank regulations and banking system performance. To measure banking system performance, we use indicators of banking system depth, efficiency, and stability. In the analyses, we examine both the relationship between the level of banking system performance and indictors of bank regulation and supervision at various points in time over the last twelve year and we assess the relationship between changes in bank regulations and supervisory practices and banking system performance. Thus, we examine levels and changes to provide additional evidence on the linkages between banking system performance bank regulatory and supervisory policies.

This paper is structured as follows. Section II will very briefly review the structure of the survey and discuss some issues that arise in the responses to the three surveys. Next, Section III looks at the state of bank regulation around the world, and importantly how it has changed since 1999. At this point, we primarily focus on comparing Survey I and Survey IV. These comparisons and analyses will be updated and enhanced as our work continues. Section IV then asks whether the changes in bank regulation are contributing positively to banking sector development and to the efficiency and stability of banking systems around the world, comparing the results we obtained from Survey I. Section V concludes by drawing a few cautious, highly qualified lessons.

Based on our empirical analysis of what works best in bank regulation (BCL, 2006) and the subsequent changes that have taken place since the late 1990s in the regulatory environment, we see no basis for the view that countries around the world have primarily reformed for the better. Our earlier results showed no support for the view that tightening capital requirements or increasing supervisory powers had a positive impact on the financial sector, and in fact increased

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[3] See Barth, Caprio, and Levine, 2012, for much greater detail.

supervision was found to be negatively related to the development of the banking sector and the integrity of the system (in other words, positively related to corruption in banking). On the other hand, we found considerable support that strengthening private monitoring was associated with deeper, more efficient, and less corrupt financial systems, but not with greater financial stability. As noted in Section IV, our results here, even with the Survey I data, are a bit weaker because of the smaller sample size used in this paper in order to preserve comparability with the Survey IV data. We continue to stand by the results as presented in BCL (2006). Thus, while many countries have followed the Basel guidelines and strengthened capital regulations and empowered supervisory agencies to a greater degree, existing evidence does not suggest that this will improve banking-system stability, enhance the efficiency of intermediation, or reduce corruption in lending. Although some countries have reformed their regulations to empower private monitoring, consistent with the third pillar of Basel II, there are many exceptions and even reversals along this dimension. Moreover, many countries intensified restrictions on non-lending activities, which existing evidence suggests hurts banking system stability, lowers bank development, and reduces the efficiency of financial intermediation.

Our tempered advice continues to be that countries will benefit from an approach to bank regulation that is grounded in what has worked in practice. In our earlier work, we found that an approach that favors private monitoring, limits moral hazard, removes activity restrictions on banks, encourages competition, including competition by foreign banks, and requires or encourages greater diversification appears to work best to foster more stable, more efficient, and less corrupt financial-sector development. Our earlier findings did not support a hurried adoption of the first two pillars of Basel II by developing countries, but rather stressed the value of first developing the legal, information, and incentive systems in which financial systems flourish to the benefit of everyone. Based on the existing evidence, we continue to believe that this approach is

the most sensible one for country authorities to pursue. Critically, the data in this new survey provide the raw material for research that should help confirm, refute, or refine this private-monitoring view.

II. The Survey

The Survey of Bank Regulation and Supervision Around the World assembles and makes available a database to permit international comparisons of various features of the bank regulatory environment. BCL (2012) and the World Bank website list the questions as they appear in the current survey, previous surveys and responses are on the World Bank website and the CD in BCL (2006).[4] Although the current version has over 300 questions, compared with only about 60% much of the expansion was in the form of making explicit separate categories for responses or otherwise clarifying issues. Most questions could be answered "Yes/No" though in many cases we requested that in case of doubt the authorities attach governing regulations or laws. Some of these explicitly or implicitly refer to Basel II, such as those enquiring as to the plans for the implementation of Basel II, and if so then the variant of the first pillar to be adopted. Similarly, some of the questions relating to capital, provisioning, and supervision have been modified to keep abreast of current thinking and emerging practice in these areas.

We will not go into detail about the survey here given the earlier explanations provided in BCL (2012, 2006, 2004, and 2001). The latest survey continues to group the survey questions and responses into the same twelve sections as previously, namely,

- Entry into banking
- Ownership
- Capital
- Activities
- External auditing requirements

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[4] Available at
http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/0,,contentMDK:20345037~pagePK:64214825~piPK:64214943~theSitePK:469382,00.html

- Internal management/organizational requirements
- Liquidity and diversification requirements
- Depositor (savings) protection schemes
- Provisioning requirements
- Accounting/information disclosure requirements
- Discipline/problem institutions/exit, and
- Supervision.

Also, as is evident in the survey, the majority of questions are structured to be in a yes/no format, or otherwise require a precise, often quantitative, response. Experience suggests that simple and precise questions increase the response rate and reduce the potential for mis-interpretation. With the fourth survey, we now have data spanning about 12-13 years.

We have noted in past work that the individual responses in the survey likely are of interest in their own right, especially for authorities who want to compare particular features of their own banking systems with those in other countries. However, notwithstanding interest in individual responses, it is difficult to extract lessons from so many responses. Yet policy makers want to know the general direction in which to proceed with reforms (e.g., whether to emphasize bank activity restrictions, capital requirements, bank supervision, or private monitoring) to improve banking systems. Consequently, this group will appreciate a greater degree of grouping and aggregation (and thus quantification) of the responses, as will empirical researchers bound by degrees of freedom (and a need for quantifiable variables). So we follow our earlier practice (BCL 2006, 2004, and 2001) and aggregate the data into broader indices, the principal ones being: Overall Restrictions (on bank activities), Entry Requirements, Official Supervisory Powers, Private Monitoring, and Capital Regulation. As in the past, we stress that there is no unique grouping or aggregation (or even quantification), and we still encourage researchers to experiment with their own groupings.[5]

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[5] See BCL (2006) for the description of the indices, and the caveat on their arbitrary nature. For example, we include the Certified Audit Required variable, which measures whether an external audit by a licensed or certified auditor is required of banks, in the index of Private Monitoring. Yet, in the countries in which this is a requirement imposed by

Before turning to the data, an obvious question concerns the accuracy of the responses. The survey was sent to the principal contacts in each country of the Basel Committee on Bank Supervision. Even though these contacts should know the regulatory environment, the survey's scope is such that for any country a number of people usually are involved in its completion, and some or all of the members of this group might change over time, raising the issue of differences in the interpretation of questions over time (in addition to changes in the wording noted above). In the first three surveys, we ourselves went back to or directed correspondence with authorities for clarification, where there were notable changes, as well as posting the survey responses on the web, so that the data could be challenged and inconsistencies resolved. As none of us were with the World Bank, we were not involved with this cleaning process for Survey IV, and in this paper use the data posted on the World Bank website. As always, there are instances of unclear responses from the authorities and we accordingly recommend ongoing efforts to clean (and update) the data. There are also some notable gaps at present, such as the absence of responses from Japan and Saudi Arabia in the latest survey. It might also be noted that some countries chose not to respond to any surveys, not to respond to some surveys but to others, and not to answer some questions but others, which raises the question as to whether this was a strategic decision or simply survey fatigue.

III. Bank Regulation and Supervision around the World: What the Data Say

With four surveys over more than a decade, one can ask to what extent have there been changes in the regulatory environment in countries around the world. As Survey IV is just becoming available, analysis of these changes understandably is in an early stage, and we hope that with the data available on the web, more people will investigate the impact of variations in

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supervisors, one could instead include this variable in an index of supervision.

bank regulation on various outcomes. Also, in principle this analysis can be done for all of the individual questions and countries that are available over the surveys. Here we restrict our attention to the major indices that we highlighted in BCL (2006, 2012). As noted, that focus was motivated by the view that country authorities were interested in the strategy that they should take in reforming their financial systems, a view that we continue to hold. As also mentioned and reemphasized above, others may identify more appropriate ways of constructing indices based on particular questions or circumstances.

Figure 1 shows the changes in overall restrictiveness of bank activities. Although it would be possible to compute a single score by adding up or taking the average degree of restrictiveness in each country, it is not clear how to interpret such a number. One could weight all countries equally, or by their share in world GDP or world banking assets, and likely get different results. Figure 1 shows the countries for which we were able to make comparisons on restrictiveness in Surveys I and IV, and except for banks' ability to own nonfinancial firms, it appears as though restrictions are on the decrease (for other categories, the amount of red and yellow is decreasing from survey I to IV. However, as BCL (2012) show, most of this easing was up to 2006, and tightening has been on the rise since then.

Figure 1. Regulatory restrictions on bank activities and the mixing of banking and commerce: Percentage distribution of 126 countries in Survey I and 124 countries in Survey IV by degree of restrictiveness
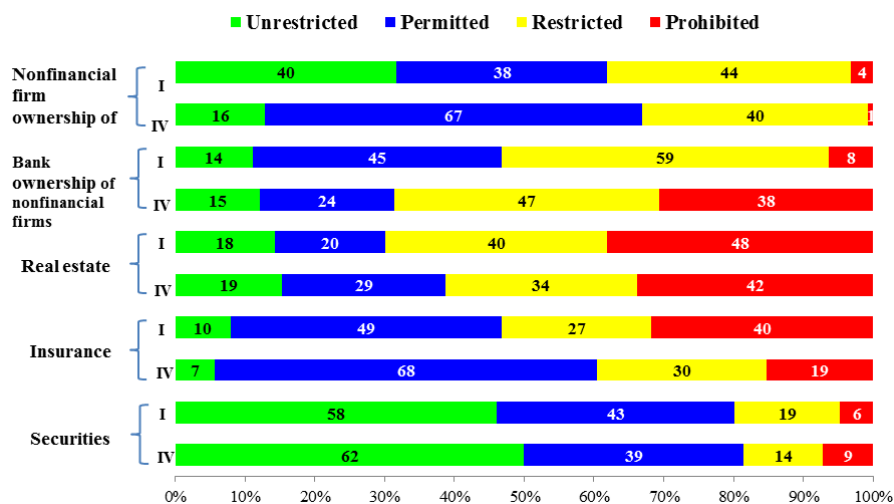
Domestic bank entry requirements (Figure 2) mostly remained unchanged, though there was some tightening in crisis countries, including in the U.S. case (increases shown in blue). Note that this index essentially counts the number of requirements for a banking license: (1) Draft by-laws; (2) Intended organizational chart; (3) Financial projections for first three years; (4) Financial information on main potential shareholders; (5) Background/experience of future directors; (6) Background/experience of future managers; (7) Sources of funds to be used to capitalize the new bank; and (8) Market differentiation intended for the new bank. Thus this index is a proxy for the hurdles that entrants have to overcome to get a license. However, the absence of changes does not necessarily imply that the banking sector was not undergoing significant change, as foreign entry was expanding sharply in a number of countries.

In the original survey, we did not have a separate question for the ease of foreign entry, as this was captured in a parallel survey by the U.S. Office of the Comptroller of the Currency,[6] and is not directly comparable to the question on foreign entry in the current survey.

Figure 2. Change in the index of entry into banking requirements: Surveys I to IV

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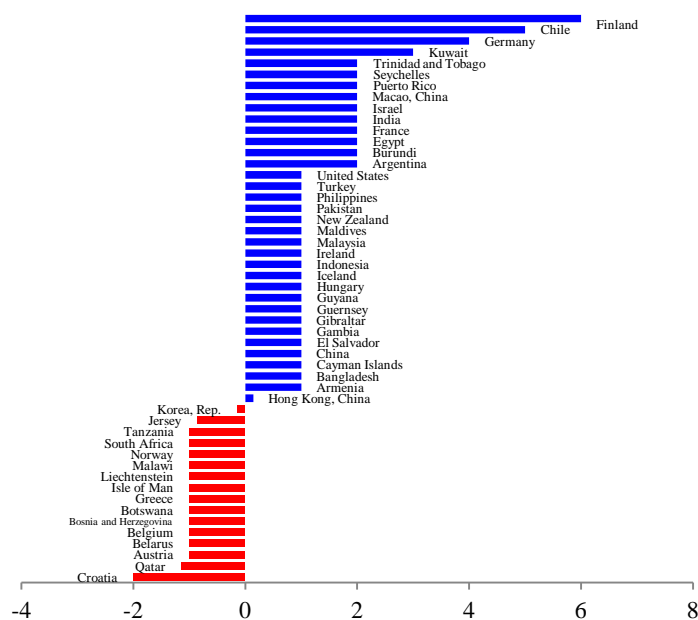
[6] This is based on a survey of bank borrowers on the extent to which they had to pay a bribe to get a bank loan. Since in this effort we controlled for economy-wide corruption, it is not the case that our results reflect countries stepping up supervision in response to greater corruption.

Note: 85 countries with no change are Angola, Australia, Bahrain, Belize, Benin, Bhutan, Brazil, Bulgaria, Burkina Faso, Canada, Colombia, Costa Rica, Côte d'Ivoire, Cyprus, Denmark, Dominican Republic, Ecuador, Estonia, Ethiopia, Fiji, Ghana, Guatemala, Guinea-Bissau, Honduras, Italy, Jamaica, Jordan, Kazakhstan, Kenya, Kosovo, Kyrgyz Republic, Latvia, Lebanon, Lesotho, Lithuania, Luxembourg, Madagascar, Mali, Malta, Mauritius, Mexico, Moldova, Morocco, Mozambique, Namibia, Nepal, Netherlands, Nicaragua, Niger, Nigeria, Oman, Panama, Paraguay, Peru, Poland, Portugal, Romania, Russia, Samoa (Western), Senegal, Singapore, Slovakia, Slovenia, Spain, Sri Lanka, Suriname, Swaziland, Switzerland, Syria, Taiwan (China), Tajikistan, Thailand, Togo, Tonga, Tunisia, Uganda, Ukraine, United Arab Emirates, United Kingdom, Uruguay, Vanuatu, Venezuela, Virgin Islands (British), and Zimbabwe.

Figures 3, 4, and 5 show the changes in the three pillars of Basel II, namely Capital Regulation, Official Supervisory Power, and Private Monitoring, respectively. Interestingly, many more countries were increasing capital requirements over the entire period, whereas there is no marked difference in the increase or decrease of supervisory powers and slightly fewer countries increasing private monitoring compared with those decreasing it.

Figure 3. Change in the index of bank capital regulations: Surveys I to IV
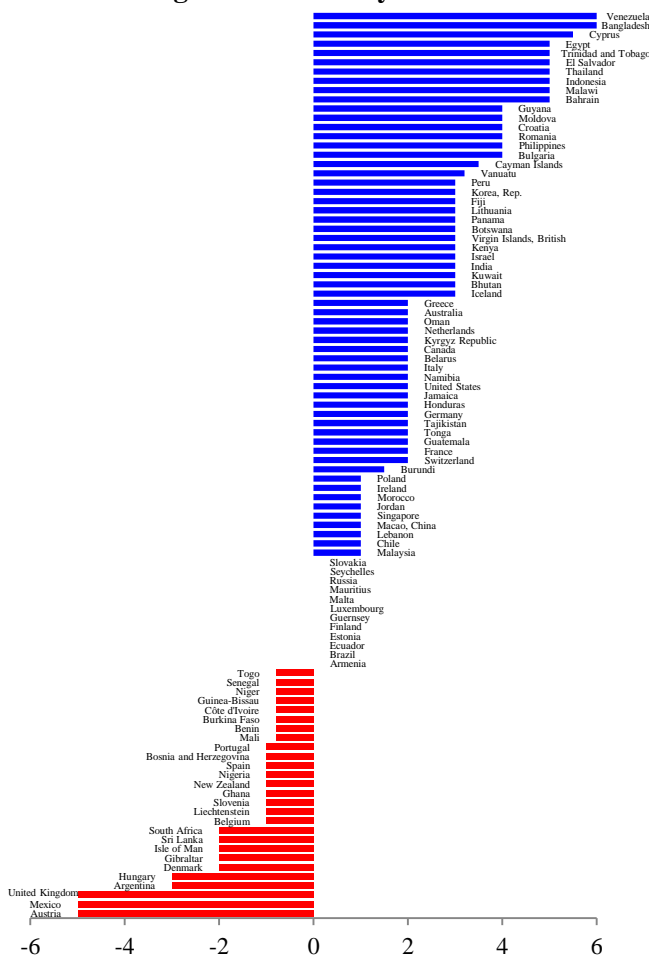
Figure 4: Change in the index of official supervisory powers: Surveys I to IV
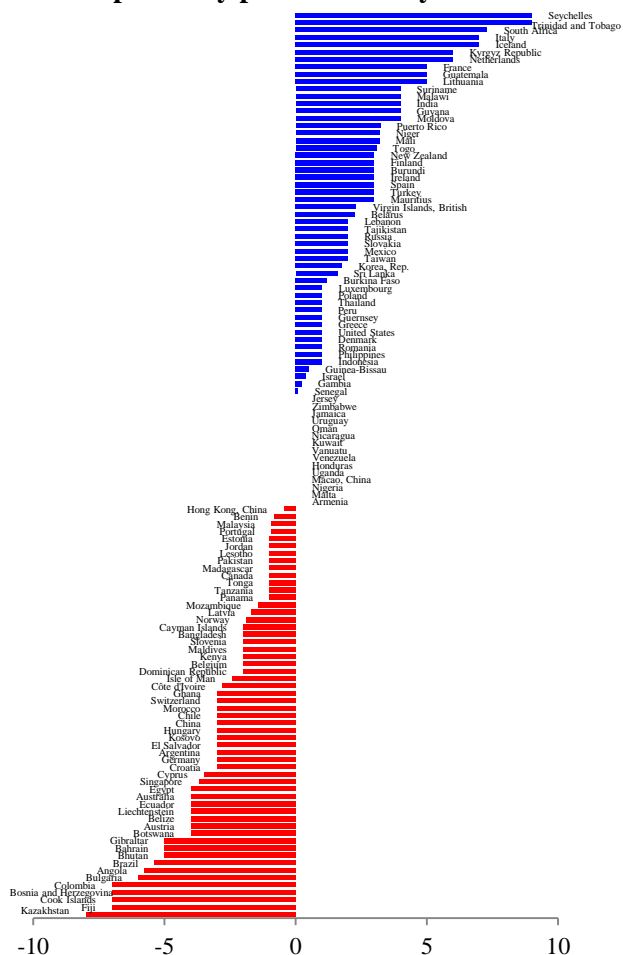
Figure 5: Change in the index of private monitoring from Surveys I to IV
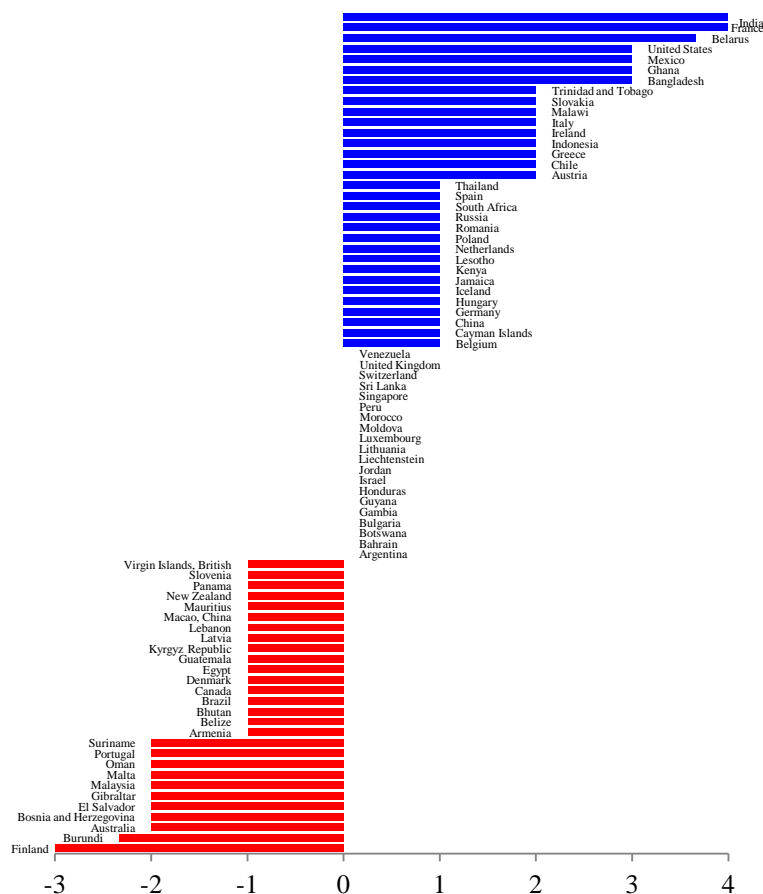
We will now turn our attention to a more systematic extension of our earlier research to gauge the impact of the aforementioned changes in the regulatory environment on the development of the banking sector, its fragility, and other outcomes of interest.

IV. Bank Regulation and Supervision around the World: What the Data Mean

IV. A. Variable Definitions

Since BCL (2006) provides information on the data, sources, and specific survey questions used to construct the variables for this paper, we only briefly define them here in the text.

1. *Bank Activity Regulatory Variables*. We measure the degree to which national regulatory authorities allow banks to engage in the following three fee-based rather than more traditional interest-spread-based activities:

a. **Securities Activities:** the ability of banks to engage in the business of securities underwriting, brokering, dealing, and all aspects of the mutual fund industry.

b. **Insurance Activities:** the ability of banks to engage in insurance underwriting and selling.

c. **Real Estate Activities:** the ability of banks to engage in real estate investment, development, and management.

d. **Restrictions on Bank Activities:** includes restrictions on securities, insurance, and real estate activities plus restrictions on the banks owning and controlling nonfinancial firms.

2. *Capital Regulatory Variables.* We use three measures of capital regulatory stringency.

a. **Overall Capital Stringency** measures the extent of regulatory requirements regarding the amount of capital banks must hold.

b. **Initial Capital Stringency** measures whether the source of funds that count as regulatory capital can include assets other than cash or government securities, borrowed funds, and whether the regulatory/supervisory authorities verify the sources of capital.

c. **Capital Regulatory Index** incorporates the previous two measures of capital stringency.

3. *Official Supervisory Action Variables.*

a. **Official Supervisory Power** measures the extent to which official supervisory authorities have the authority to take specific actions to prevent and correct problems.

We also decompose this variable into three constituent parts:

(1) **Prompt Corrective Power** measures the extent to which the law establishes pre-determined levels of bank solvency deterioration that forces automatic enforcement actions, such as intervention, and the extent to which supervisors have the requisite, suitable powers to do so.

(2) **Restructuring Power** measures the extent to which supervisory authorities have the power to restructure and reorganize troubled banks.

(3) **Declaring Insolvency Power** measures the extent to which supervisory authorities have the power to declare a deeply troubled bank insolvent.

b. **Supervisory Forbearance Discretion** measures the degree to which supervisory authorities may engage in forbearance when confronted with violations of laws or regulations or with other imprudent behavior on the part of banks.

c. **Loan Classification Stringency** measures the degree to which loans that are in arrears must be classified as sub-standard, doubtful, or loss.

d. **Provisioning Stringency** measures the degree to which a bank must provision against a loan that is classified first as sub-standard, then as doubtful, and lastly as loss.

e. **Diversification Index** measures whether regulations support geographical asset diversification. It is based on two variables:

(1) **Diversification Guidelines:** whether there are there explicit, verifiable, and quantifiable guidelines for asset diversification.

(2) **No Foreign Loans:** whether banks are prohibited from making loans abroad.

4. *Private Monitoring Variables*. We measure private-sector monitoring with four indicators.

   a. **Certified Audit Required:** This variable captures whether an outside licensed audit is required of the financial statements issued by a bank. Such an audit would presumably indicate the presence or absence of an independent assessment of the accuracy of financial information released to the public.

   b. **Percent of 10 Biggest Banks Rated by International Rating Agencies:** The percentage of the top 10 banks that are rated by international credit-rating agencies. The greater the percentage, the more the public may be aware of the overall condition of the banking industry as viewed by an independent third party.

   c. **No Explicit Deposit Insurance Scheme:** takes a value of 1 if there is an explicit deposit insurance scheme, and 0 otherwise. Lower values indicate more private monitoring.

   d. **Bank Accounting:** this variable takes a value of 1 when the income statement includes accrued or unpaid interest or principal on nonperforming loans and when banks are required to produce consolidated financial statements.

   e. **Private Monitoring Index:** includes (a), (b) [which equals 1 if the percentage is 100; 0 otherwise], (c), and (d). In addition, three other measures are included in the index based on 'yes or no' answers. Specifically, a 1 is assigned if off-balance sheet items are disclosed to the public; if banks must disclose risk management procedures to the public; and if subordinated debt is allowable (required) as a part of regulatory capital. Higher values indicating more private oversight.

5. *Entry into Banking Requirements***:** measures the specific legal requirements for obtaining a license to operate as a bank

6. *Government-Owned Banks***:** fraction of system's assets 50% or more government owned.

7. *Outcomes*:

   a. **Bank Development:** equals claims on the private sector by deposit money banks as a share of GDP from 1999 for the Survey 1 results and 2011 for the Survey IV results.

   b. **Net Interest Margin:** equals net interest income divided by total assets, 1999 and 2011 for the Survey IV results.

   c. **Overhead Costs:** equals total bank overhead costs as a share of total banks assets, 1999 and 2011 for the Survey IV results.

   d. **Nonperforming Loans:** nonperforming loans as a share of total assets, 1999 and 2011 for the Survey IV results.

8. **Indexes.** We use here just one method to construct indexes of regulations and supervisory practices that incorporate the answers to several questions from our survey, with the specific questions listed in Table 1. Since many of the questions can be specified as simple zero/one variables, we simply add up the individual zero/one answers. This method gives equal weight to each of the questions in constructing the index. In previous work (BCL 2006) we have used the first principal component of the underlying questions. In constructing this component, the factor analytic procedure produces a principal component with mean zero and standard deviation one. An advantage of this method is that equal weights for the individual questions are not specified. A disadvantage is that it is less transparent how a change in the response to a question changes the index.

IV.B How Reforms Affect Banking Systems

How have reforms to bank regulations and supervisory practices affected national banking systems? In countries that changed their regulatory policies, have these reforms boosted banking system development? Have these policy changes enhanced the efficiency of intermediation and reduced the fragility of the banking system? Answers to these questions will help some countries adjust their reforms and help other countries avoid mistakes and select more appropriate reform strategies. We should point out that it is of course early to make these assessments. No one would argue, for example, that changes to financial regulation and supervision in 2011 would have an immediate impact on financial development, the efficiency of banking or the fragility of the system, yet 2011 is the latest for which we can get measures of the outcome variables.

In light of data constraints, we first re-run the regressions of the relationships between bank regulations and banking-system fragility, development, and efficiency, using the Survey I data posted on the World Bank website, and we then re-run these regressions using the Survey IV data. Tables 1 – 4 present estimates of the relationships between various bank regulations and bank development, efficiency, and fragility. Although we employ the same control variables as in BCL (2004), there are some differences. First and most importantly, BCL (2004) uses the first principal component of the underlying survey questions to construct an index while in this paper we use the summation of the individual questions. Second, there are some small differences in sample size, as noted below, which emerge both because of revisions to the survey responses and because of the treatment of missing values in the underlying survey questions.

What has changed from earlier research? The first three rows of Table 1, which correspond to the three pillars of Basel II, show no impact of capital regulation on bank development or either measure of efficiency, and some effect in the right direction of capital on fragility as measured by

NPLs. When the government-owned banks variable is added to the right-hand side, this latter effect loses significance (Table 2). Private monitoring has significant effects across the board in Table 1 and with the same signs found in earlier research, but with government-owned banks (Table 2) only remains significant in the regression of overhead costs.[7] These results differ somewhat from BCL (2006), where the addition of government ownership also decreased the size of the coefficients but for the most part they remained statistically significant. One difference here is that the sample is smaller due to differences in the construction in the indexes. In our earlier work, the use of principal components in constructing the indexes allowed us to use observations even when a few questions were not answered, and more importantly we were able to fill in a large number of missing values or clearly incorrect responses by going back to the country authorities (after the survey results had already been posted). In this paper, we took the raw data 'as is' from the World Bank website, and for countries with missing values, had to drop that observation as we were producing the indexes by summation, and summing responses with different numbers of replies would clearly lead to a mischaracterization of the data. This approach was dictated by the desire to be consistent with the Survey IV results; although we will attempt to fill in missing values in BCL (2012) for that survey, that work is not yet complete.

The difference in the index construction did not change materially the results on official supervisory powers, which remains insignificant with or without the addition of government-owned banks. That supervision has no impact on bank fragility, as measured by NPLs, thus remains troubling. Tighter entry requirements are linked with an increase in efficiency, even when government banks are added, and restrictions on banks' activities lead to lower bank development and higher interest margins in both Tables 1 and 2. Interestingly, restrictions on activities are not linked with greater stability here, when stability is measured by NPLs, but this coefficient was significant in our

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[7] This result likely is due to the highly negative correlation between private monitoring and government ownership of the banking sector. As is easily understood, it makes no sense for the private sector to bother monitoring state-owned banks, as the risk is the same across all such banks.

earlier work when stability was measured by the likelihood of a systemic crisis.

Tables 3 and 4 show the first results for the Survey IV data, and here it is necessary to point out an even smaller sample size, relative to Tables 1 and 2, as a result of the missing values needed for the construction of the indexes. Interestingly, an increase in the capital regulation index now is associated with a significant decrease in the development of the banking sector, though we would note that the contemporaneous nature of the right- and left-hand side variables raises a caution in the interpretation of this or other results in these two tables. Private monitoring remains positively associated with banking development and with efficiency (via a lower interest margin) in Table 3, though the former effect disappears with government-owned banks. Official supervisory powers, entry requirements, and activity restrictions have no statistical significance whatsoever.

Table 1. Bank Performance and Regulation in 1999, Survey I

	Bank Development	Interest Margin	Overhead Costs	Nonperforming Loans
Capital Regulatory Index	-0.0333	0.00194	0.000398	-0.0186**
	(0.0252)	(0.00323)	(0.00177)	(0.00888)
Private Monitoring Index	0.0564**	-0.00743**	-0.00697***	-0.0299***
	(0.0267)	(0.00295)	(0.00162)	(0.00787)
Official Supervisory Power Index	0.00701	0.00217	0.000176	0.00511
	(0.0151)	(0.00196)	(0.000950)	(0.00486)
Entry Requirements Index	0.00440	0.00493*	0.00405**	0.00431
	(0.0223)	(0.00269)	(0.00176)	(0.0104)
Restrictions on Activities Index	-0.0621**	0.00504**	0.00117	0.00126
	(0.0246)	(0.00199)	(0.00140)	(0.00789)
Observations	66	72	72	68

Notes: This table presents four regressions, where each column reports the findings from an OLS regression. The dependent variables, measured in 1999, are: Bank Development equals claims on the private sector by deposit money banks as a share of GDP; Interest Margin equals net interest income divided by total bank assets; Overhead Costs equals total bank overhead costs as a share of total bank assets; and, Nonperforming Loans equals officially reported nonperforming loans as a share of total banks assets. The regulatory indexes are measured in 1999: Capital Regulatory Index measures the extent and stringency of regulatory requirements; Private Monitoring Index measures the degree to which regulatory policies encourage and facilitate private sector monitoring of banks; Official Supervisory Power Index measures the extent to which official supervisory agencies have the authority to take specific actions to prevent and correct problems; Entry Restrictions Index measures the number of specific legal requirements for obtaining a banking license; and Restrictions on Activities Index measures regulatory restriction on the degree to which banks can engage in securities, insurance, and real estate activities plus restrictions on banks owning and controlling nonfinancial firms. Though unreported, the regressions also control for the legal origin of each country by including three dummy variables for Common, French civil, and German civil law countries, as well as a constant term. Heteroskedasticity-consistent standard errors are in parentheses under the estimated coefficients. To designate statistically significant benchmarks, *** indicates significance at the 0.01 level, ** at the 0.05 level, and * at the 0.10 level.

Table 2. Bank Performance, Regulation, and Government Owned Banks in 1999, Survey I

	Bank Development	Interest Margin	Overhead Costs	Nonperforming Loans
Capital Regulatory Index	-0.0463	0.00379	0.00184	-0.0162
	(0.0316)	(0.00497)	(0.00271)	(0.0104)
Private Monitoring Index	0.0204	-0.00945	-0.00841**	-0.0101
	(0.0406)	(0.00612)	(0.00330)	(0.0111)
Official Supervisory Power Index	0.00419	0.00335	0.00104	0.000772
	(0.0191)	(0.00333)	(0.00166)	(0.00532)
Entry Requirements Index	-0.00297	0.00248	0.00282	0.00802
	(0.0225)	(0.00281)	(0.00199)	(0.0112)
Restrictions on Activities Index	-0.0699**	0.00787**	0.00226	0.00262
	(0.0313)	(0.00332)	(0.00224)	(0.00950)
Government Owned Banks	-0.00550**	-0.0000171	0.000141	0.00144*
	(0.00246)	(0.000406)	(0.000237)	(0.000752)
Observations	40	43	43	38

Notes: This table presents four regressions, where each column reports the findings from an OLS regression. The dependent variables, measured in 1999, are: Bank Development equals claims on the private sector by deposit money banks as a share of GDP; Interest Margin equals net interest income divided by total bank assets; Overhead Costs equals total bank overhead costs as a share of total bank assets; and, Nonperforming Loans equals officially reported nonperforming loans as a share of total banks assets. The regulatory indexes are measured in 1999: Capital Regulatory Index measures the extent and stringency of regulatory requirements; Private Monitoring Index measures the degree to which regulatory policies encourage and facilitate private sector monitoring of banks; Official Supervisory Power Index measures the extent to which official supervisory agencies have the authority to take specific actions to prevent and correct problems; Entry Restrictions Index measures the number of specific legal requirements for obtaining a banking license; and Restrictions on Activities Index measures regulatory restriction on the degree to which banks can engage in securities, insurance, and real estate activities plus restrictions on banks owning and controlling nonfinancial firms. Government Owned Banks equals the percentage of the banking system's assets held by banks that are 50% or more government owned. Though unreported, the regressions also control for the legal origin of each country by including three dummy variables for Common, French civil, and German civil law countries, as well as a constant term. Heteroskedasticity-consistent standard errors are in parentheses under the estimated coefficients. To designate statistically significant benchmarks, *** indicates significance at the 0.01 level, ** at the 0.05 level, and * at the 0.10 level.

Table 3. Bank Performance and Regulation in 2011, Survey IV

	Bank Development	Interest Margin	Overhead Costs	Nonperforming Loans
Capital Regulatory Index	-0.156**	0.00445	0.00459	0.717
	(0.0669)	(0.00268)	(0.00490)	(0.430)
Private Monitoring Index	0.131**	-0.0131**	-0.0123	0.0971
	(0.0630)	(0.00531)	(0.00873)	(0.390)
Official Supervisory Power Index	-0.0375	-0.00173	-0.00180	0.0512
	(0.0361)	(0.00289)	(0.00509)	(0.272)
Entry Requirements Index	0.111	0.00570	0.00281	0.752
	(0.198)	(0.00772)	(0.0163)	(1.723)
Restrictions on Activities Index	-0.0347	0.00124	-0.00272	-0.425
	(0.0503)	(0.00211)	(0.00376)	(0.352)
Observations	55	60	59	50

Notes: This table presents four regressions, where each column reports the findings from an OLS regression. The dependent variables, measured in 2011, are: Bank Development equals claims on the private sector by deposit money banks as a share of GDP; Interest Margin equals net interest income divided by total bank assets; Overhead Costs equals total bank overhead costs as a share of total bank assets; and, Nonperforming Loans equals officially reported nonperforming loans as a share of total banks assets. The regulatory indexes are measured in 2011: Capital Regulatory Index measures the extent and stringency of regulatory requirements; Private Monitoring Index measures the degree to which regulatory policies encourage and facilitate private sector monitoring of banks; Official Supervisory Power Index measures the extent to which official supervisory agencies have the authority to take specific actions to prevent and correct problems; Entry Restrictions Index measures the number of specific legal requirements for obtaining a banking license; and Restrictions on Activities Index measures regulatory restriction on the degree to which banks can engage in securities, insurance, and real estate activities plus restrictions on banks owning and controlling nonfinancial firms. Though unreported, the regressions also control for the legal origin of each country by including three dummy variables for Common, French civil, and German civil law countries, as well as a constant term. Heteroskedasticity-consistent standard errors are in parentheses under the estimated coefficients. To designate statistically significant benchmarks, *** indicates significance at the 0.01 level, ** at the 0.05 level, and * at the 0.10 level.

Table 4. Bank Performance, Regulation, and Government Owned Banks in 2011, Survey IV

	Bank Development	Interest Margin	Overhead Costs	Nonperforming Loans
Capital Regulatory Index	-0.160*	0.00443	0.00668	0.495
	(0.0860)	(0.00382)	(0.00751)	(0.572)
Private Monitoring Index	0.119	-0.0164**	-0.0187	0.465
	(0.109)	(0.00801)	(0.0122)	(0.480)
Official Supervisory Power Index	-0.0511	-0.00285	-0.00377	0.206
	(0.0443)	(0.00342)	(0.00588)	(0.308)
Entry Requirements Index	0.0289	0.00805	0.0128	3.030
	(0.223)	(0.0102)	(0.0253)	(2.105)
Restrictions on Activities Index	-0.0509	0.00100	-0.00498	-0.276
	(0.0577)	(0.00286)	(0.00575)	(0.510)
Government Owned Banks	-0.00168	0.0000740	0.000252	-0.0303
	(0.00550)	(0.000240)	(0.000514)	(0.0450)
Observations	35	42	41	35

Notes: This table presents four regressions, where each column reports the findings from an OLS regression. The dependent variables, measured in 2011, are: Bank Development equals claims on the private sector by deposit money banks as a share of GDP; Interest Margin equals net interest income divided by total bank assets; Overhead Costs equals total bank overhead costs as a share of total bank assets; and, Nonperforming Loans equals officially reported nonperforming loans as a share of total banks assets. The regulatory indexes are measured in 2011: Capital Regulatory Index measures the extent and stringency of regulatory requirements; Private Monitoring Index measures the degree to which regulatory policies encourage and facilitate private sector monitoring of banks; Official Supervisory Power Index measures the extent to which official supervisory agencies have the authority to take specific actions to prevent and correct problems; Entry Restrictions Index measures the number of specific legal requirements for obtaining a banking license; and Restrictions on Activities Index measures regulatory restriction on the degree to which banks can engage in securities, insurance, and real estate activities plus restrictions on banks owning and controlling nonfinancial firms. Government Owned Banks equals the percentage of the banking system's assets held by banks that are 50% or more government owned. Though unreported, the regressions also control for the legal origin of each country by including three dummy variables for Common, French civil, and German civil law countries, as well as a constant term. Heteroskedasticity-consistent standard errors are in parentheses under the estimated coefficients. To designate statistically significant benchmarks, *** indicates significance at the 0.01 level, ** at the 0.05 level, and * at the 0.10 level.

IV.C How Countries Choose Regulations

In BCL (2006), we analyze why countries choose the regulations that they do. Do countries behave according to a Coasian theory of bank regulation, picking that structure which is efficient for their economy? Do they make mistakes because of bad information? Or do countries choose seemingly suboptimal regulatory systems because the people who control government are maximizing their own welfare, rather than selecting the system that would most benefit their societies? In the light of this debate, we examined the relationship between key regulatory variables – such as private monitoring, official supervision, entry requirements, activity restrictions, and government owned banks – and measures of the nature of political systems. In this paper we replicate that earlier work, but due to data availability issues, just with the indicator of Voice and Accountability, which attempts to measure the extent to which average citizens have a voice in the political process and can hold politicians accountable. As before we use the same instruments for Voice and Accountability, namely legal origin, and have the same control variables.

The results are shown in Tables 5 and 6. In both Survey I and Survey IV, more open political systems (as measured by voice and accountability) tend to have greater limitations on supervisory powers (as measured by lower value of the Official Supervisory Power Index) and fewer restrictions on what banks can do (as measured by the Activity Restrictions Index). We also find that greater political voice and accountability is positively associated with private monitoring, though this relationship is only statistically significant in the Survey IV regressions.

Table 5. Bank Regulation and Political Institutions in 1999, Survey I

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--------------------------------------------------------------------------------
                  Private    Official  Entry      Activity       Government
                  Monitoring Sup.      Req.       Restrictions   Owned
                  Index      Power     Index      Index          Banks
                             Index
--------------------------------------------------------------------------------
Voice &           0.194      -1.092**  -0.0659    -1.824***      -7.928
   Accountability  (0.271)    (0.472)   (0.174)    (0.333)        (6.590)
--------------------------------------------------------------------------------
Observations      65         66        67         66             39
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Notes: This table presents five regressions, where each column reports the findings from an instrumental variables regression.

The dependent variables, measured in 1999, are: Private Monitoring Index measures the degree to which regulatory policies encourage and facilitate private sector monitoring of banks; Official Supervisory Power Index measures the extent to which official supervisory agencies have the authority to take specific actions to prevent and correct problems; Entry Restrictions Index measures the number of specific legal requirements for obtaining a banking license; and Restrictions on Activities Index measures regulatory restriction on the degree to which banks can engage in securities, insurance, and real estate activities plus restrictions on banks owning and controlling nonfinancial firms. Government Owned Banks equals the percentage of the banking system's assets held by banks that are 50% or more government owned.

The explanatory variable of focus is Voice & Accountability, which measures the degree to which average citizens have voice in the political process and the degree of accountability on the part of politicians (Kaufmann, Kraay, and Zoido-Lobaton, 1999).

The unreported, though included in the second-stage instrumental variables, are the legal origin of each country (that is, we include three dummy variables for Common, French civil, and German civil law countries respectively).

The excluded instrumental variables are the latitude of the capital, the percentage of years since 1776 that the country has been independent, the fraction of the population that is Catholic, the fraction of the population that is Muslim, and the fraction of the population that is not Catholic, Muslim, or Protestant. Heteroskedasticity-consistent standard errors are in parentheses under the estimated coefficients. To designate statistically significant benchmarks, *** indicates significance at the 0.01 level, ** at the 0.05 level, and * at the 0.10 level.

Table 6. Bank Regulation and Political Institutions in 2011, Survey IV

	Private Monitoring Index	Official Sup. Power Index	Entry Req. Index	Activity Restrictions Index	Government Owned Banks
Voice & Accountability	0.479* (0.271)	-1.077** (0.445)	-0.0706 (0.0747)	-0.513* (0.273)	-3.906 (4.784)
Observations	54	60	62	60	48

Notes: This table presents five regressions, where each column reports the findings from an instrumental variables regression.

The dependent variables, measured in 2011, are: Private Monitoring Index measures the degree to which regulatory policies encourage and facilitate private sector monitoring of banks; Official Supervisory Power Index measures the extent to which official supervisory agencies have the authority to take specific actions to prevent and correct problems; Entry Restrictions Index measures the number of specific legal requirements for obtaining a banking license; and Restrictions on Activities Index measures regulatory restriction on the degree to which banks can engage in securities, insurance, and real estate activities plus restrictions on banks owning and controlling nonfinancial firms. Government Owned Banks equals the percentage of the banking system's assets held by banks that are 50% or more government owned.

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The excluded instrumental variables are the latitude of the capital, the percentage of years since 1776 that the country has been independent, the fraction of the population that is Catholic, the fraction of the population that is Muslim, and the fraction of the population that is not Catholic, Muslim, or Protestant. Heteroskedasticity-consistent standard errors are in parentheses under the estimated coefficients. To designate statistically significant benchmarks, *** indicates significance at the 0.01 level, ** at the 0.05 level, and * at the 0.10 level.

V. Conclusions

Over the last twelve years, many countries have substantially reformed components of their bank-regulatory regimes. Based on our analyses of the pros and cons of a wide range of bank regulations (BCL, 2006), there is no reason for believing that countries around the world have primarily reformed for the better. While many have followed the Basel guidelines and strengthened capital regulations and empowered supervisory agencies, existing evidence does not suggest that this will improve banking-system stability, enhance the efficiency of intermediation, or reduce corruption in lending. The empirical work above is compromised by some missing data, but certainly no one would read these results and come away with greater faith in the Basel approach to bank regulation and supervision.

While our preliminary examination of the data challenges the confident proclamations of many observers about improvements in bank regulation and supervision, the qualifications associated with these results should be emphasized. We are merely taking a first look at the latest survey data. Much work remains in assessing which regulatory and supervisory policies work best in different countries.

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