# Differences in bank regulations: the role of governance and corruption

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This paper provides a detailed explanation of cross-country differences in bank regulations and their sources. The results suggest that the patterns of bank regulations imply important differences between developed and developing countries. While developing countries have stricter banking regulations, they are more likely to reduce competition among banks and provide greater safety nets to existing banks. The choice of banking regulations is affected by countries' political characteristics, which are in turn endogenous to countries' historical experiences and cultural characteristics. When political characteristics are replaced by corruption control, less corruption leads to less denied entries and banking restrictions as well as more constrained deposit insurance schemes. This implies that bank regulations may not be easy to change.

**Keywords:** bank regulations; bank supervision; corruption; JEL classification: G21, G28, P51

## 1. Introduction

Countries rely on banking regulations so that the banking system can fulfill its role in the efficient distribution of funds and have a favorable influence on relevant macroeconomic outcomes. A weak banking system has been known to magnify any given economic problem. Especially in developing countries, banking crises may coincide with balance of payments crises and increase the fragility of the economy even further (Kaminsky and Reinhart 1999). This paper focuses on the cross-country differences in bank regulations and the determinants of these regulations. It contributes to the existing literature in two ways. First, the available bank regulations data on about 70 developed and developing countries have not yet been described. This paper provides a comprehensive description of differences in bank regulations between developed and developing countries in terms of 10 categories and over 60 variables. Second, this paper introduces a new angle to the determination of bank regulations. It uses corruption as a proxy for the political system-related variables to predict the characteristics of bank regulations.

Regarding the differences in the overall patterns of bank regulations, the results of the paper imply important differences between developed and developing countries. Developing countries have stricter banking regulations with respect to auditing requirements, various capital-related ratios, reserves, etc., and the type of mandatory actions to be taken in the case of violations of bank regulations. However, greater strictness in banking regulations does not translate into their applicability and effectiveness. In fact, the results show that developing countries are also more likely to reduce competition among banks, provide greater safety nets to existing banks, and withhold relevant information from the public.

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Although bank supervisory agencies seem to be powerful in developing countries, their accountability is less certain. Supervisory agencies are likely to be directly accountable to the government and not to a legislative body, which may reduce the external supervision of bank regulators.

This paper also examines the sources of the different types of bank regulations and concludes that open, competitive, and democratic political systems are associated with greater banking freedom and competition as well as less generous deposit insurance schemes. Additionally, political system-related variables are in turn endogenous to the historically relevant geographic variables such as latitude. Lower latitude countries (tropical and subtropical environments) that have a greater likelihood of being a former colony are associated with lower degrees of political competition and openness as well as strict banking regulations. When political system-related variables are replaced by corruption, the latter becomes capable of explaining the differences in bank regulations among countries by serving as a viable proxy for the political system-related variables.

The policy relevance of the above results lies in the fact that bank regulations, as any other regulation, may be related to countries' political systems that are in turn endogenous to their cultural and social characteristics. If so, international agreements such as Basel Accords cannot be implemented with ease in every country.

The paper is organized as follows. Section 2 describes the differences in bank regulations between developed and developing countries. Section 3 provides an explanation as to the sources of differences in bank regulations. Section 4 concludes.

## 2.   Differences in bank regulations

This section describes the extent of differences in bank regulations between developed and developing countries based on the data of Barth *et al*. (2006), hereafter the BCL data. This dataset contains a large number of bank regulation-related variables in 76 countries and represents the first example of a comprehensive collection of bank regulations around the world. The list of countries is provided in Table 1. As the name of the BCL data suggests (The 2003 World Bank Survey of Bank Regulations), a questionnaire with over 220 bank regulations-related questions was sent to the sample countries' bank supervisory agencies. The survey questions are arranged under 12 categories: entry, ownership, capital, activities, external auditing requirements, internal management and organization, liquidity and diversification requirements, depositor protection, provisioning requirements, accounting and information disclosure requirements, discipline/problem institutions/exit, and supervision. The difficulty of compiling such an extensive dataset based on survey results is clear, which is the reason for the cross-section nature of the dataset.

Because of the large number of questions in the survey, this paper tabulates only those questions whose answers imply significant differences between developed and developing countries. Therefore, Tables 2 and 3 contain only 10 categories of banking regulations, because we could not find any significant differences between developed and developing countries in the categories of banking activities and internal management and organization.

Regarding Table 2, the original survey has about 160 questions whose answers involve "yes" or "no". These answers were converted into binary variables by the author to construct contingency tables. Table 2 is a contingency table that shows the probability of various types of regulations in developed and developing countries. The results of the $\chi^2$ tests regarding the independency of country types and banking regulations indicate whether these two categories are independent. As low *p* values in Table 2 indicate, Pearson $\chi^2$ statistic associated with all categories of questions rejects the null hypothesis

Table 1.   Sample countries that are used in describing the differences in bank regulations.

| Developed Countries (including EU members) | Developing Countries | |
| --- | --- | --- |
| 1. Australia | 33. Argentina | 65. Philippines |
| 2. Austria | 34. Bangladesh | 66. Rwanda |
| 3. Belgium | 35. Bolivia | 67. El Salvador |
| 4. Canada | 36. Botswana | 68. Saudi Arabia |
| 5. Cyprus | 37. Brazil | 69. Singapore |
| 6. Czech Republic | 38. Burundi | 70. South Africa |
| 7. Denmark | 39. Chile | 71. Sri Lanka |
| 8. Estonia | 40. China | 72. Thailand |
| 9. Finland | 41. Egypt | 73. Trinidad & Tobago |
| 10. France | 42. Guatemala | 74. Turkey |
| 11. Germany | 43. Honduras | 75. Venezuela |
| 12. Greece | 44. India | 76. Vietnam |
| 13. Hungary | 45. Indonesia | |
| 14. Ireland | 46. Jamaica | |
| 15. Israel | 47. Jordan | |
| 16. Italy | 48. Kenya | |
| 17. Japan | 49. Korea | |
| 18. Latvia | 50. Kuwait | |
| 19. Lithuania | 51. Lesotho | |
| 20. Luxembourg | 52. Malawi | |
| 21. Malta | 53. Malaysia | |
| 22. The Netherlands | 54. Maldives | |
| 23. New Zealand | 55. Mauritius | |
| 24. Poland | 56. Mexico | |
| 25. Portugal | 57. Moldova | |
| 26. Romania | 58. Morocco | |
| 27. Slovenia | 59. Namibia | |
| 28. Spain | 60. Nepal | |
| 29. Sweden | 61. Nigeria | |
| 30. Switzerland | 62. Oman | |
| 31. United Kingdom | 63. Panama | |
| 32. United States | 64. Peru | |

of the independency of country types and banking regulations. Considering the fact that the numbers in cells indicate empirical probabilities associated with a certain regulation in each country group, when interpreting the results, the phrase of "more likely" or "less likely" is used. As to Table 3, the original survey has over 65 numerical variables, for which mean comparison tests (*t test* for unequal variances) are conducted. In the following, we will summarize our results in Tables 2 and 3 based on the question categories.

Regarding *entry into banking* (Category I), the results suggest that it is more likely in developing countries that central banks are the sole source of granting commercial bank licenses. The results also imply that developing countries are more likely to impose

Table 2. Empirical probabilities associated with categorical bank regulation-related variables in developed and developing countries.

| Survey Categories | Developing Countries | Developed Countries | Pearson $\chi^2$ Statistic |
|---|---|---|---|
| **Category I: Entry into Banking** | | | |
| Central bank is the main body/agency that grants commercial banking licenses. | | | |
| Yes | 30.67 | 8.67 | 2.94 |
| No | 39.33 | 21.33 | (.086) |
| The submission of background/experience of future directors is legally required before issuance of the banking license. | | | |
| Yes | 68.87 | 27.15 | 4.06 |
| No | 1.32 | 2.65 | (.044) |
| The submission of background/experience of future managers is legally required before issuance of the banking license. | | | |
| Yes | 68.87 | 26.49 | 6.08 |
| No | 1.32 | 3.31 | (.014) |
| Foreign entities are prohibited from entering through branching. | | | |
| Yes | 11.26 | 0.66 | 5.74 |
| No | 58.94 | 29.14 | (.017) |
| **Category II: Ownership** | | | |
| There is a maximum percentage of bank capital that can be acquired by a single owner. | | | |
| Yes | 19.87 | 4.64 | 2.77 |
| No | 50.33 | 25.17 | (.096) |
| Nonfinancial firms' ownership of banks is permitted. | | | |
| Yes | 62.92 | 32.58 | 2.86 |
| No | 1.12 | 3.37 | (.075) |
| **Category III: Capital** | | | |
| The minimum ratio varies as a function of an individual bank's credit risk. | | | |
| Yes | 16.56 | 11.26 | 3.17 |
| No | 53.64 | 18.54 | (.075) |
| The minimum ratio varies as a function of market risk. | | | |
| Yes | 8.78 | 11.49 | 12.26 |
| No | 60.81 | 18.92 | (.000) |
| **Category IV: External Auditing Requirements** | | | |
| Specific requirements for the extent or nature of the audit spelled out. | | | |
| Yes | 53.64 | 26.49 | 3.09 |
| No | 16.56 | 3.31 | (.079) |
| Auditors are required by law to communicate directly to the supervisory agency about any presumed involvement of bank directors or senior managers in illicit activities, fraud, or insider abuse. | | | |
| Yes | 46.67 | 24.67 | 3.73 |
| No | 23.33 | 5.33 | (.054) |

Table 2.   (*Continued*).

| Survey Categories | Developing Countries | Developed Countries | Pearson $\chi^2$ Statistic |
|---|---|---|---|
| **Category V: Liquidity & Diversification Requirements** | | | |
| Banks are prohibited from making loans abroad. | | | |
| Yes | 14.00 | 0.00 | 10.47 |
| No | 56.00 | 30.00 | (.001) |
| Banks are required to hold either liquidity reserves or any deposits at the central bank. | | | |
| Yes | 68.67 | 21.33 | 20.64 |
| No | 2.00 | 8.00 | (.000) |
| Liquidity reserves earn interest. | | | |
| Yes | 31.88 | 16.67 | 5.53 |
| No | 42.75 | 8.70 | (.019) |
| Banks are required to hold reserves in foreign currencies or other foreign denominated instruments. | | | |
| Yes | 21.62 | 1.35 | 10.99 |
| No | 50.00 | 27.03 | (.001) |
| **Category VI: Depositor Protection Schemes** | | | |
| There is an explicit deposit insurance protection system. | | | |
| Yes | 26.00 | 24.00 | 23.14 |
| No | 44.00 | 6.00 | (.000) |
| Participation in the deposit insurance system is compulsory for all banks. | | | |
| Yes | 41.24 | 29.90 | 2.48 |
| No | 21.65 | 7.22 | (.106) |
| The deposit insurance scheme is funded by | | | |
| Government | 4.00 | 1.33 | |
| Banks | 28.00 | 40.00 | 9.49 |
| Both | 21.33 | 5.33 | (.009) |
| There is formal co-insurance, that is, depositors are only insured for some percentage of their deposits, either absolutely or above some floor and/or up to some limit. | | | |
| Yes | 20.55 | 28.77 | 3.95 |
| No | 32.88 | 17.81 | (.047) |
| Depositors were wholly compensated (to the extent of legal protection) the last time a bank failed. | | | |
| Yes | 34.88 | 23.26 | 3.01 |
| No | 32.56 | 9.30 | (.083) |
| The insurance fund is managed by | | | |
| Solely by the private sector | | | |
| Yes | 5.26 | 10.53 | 6.03 |
| No | 59.21 | 25.00 | (.014) |
| Jointly by private-public officials | | | |
| Yes | 14.86 | 20.27 | 13.25 |
| No | 54.05 | 10.81 | (.000) |

Table 2.   (*Continued*).

| Survey Categories | Developing Countries | Developed Countries | Pearson $\chi^2$ Statistic |
|---|---|---|---|
| **Category VII: Provisioning Requirements** | | | |
| There is a formal definition of a non-performing loan. | | | |
| Yes | 64.00 | 22.00 | 8.57 |
| No | 6.00 | 8.00 | (.003) |
| The primary system for loan classification is based on the number of days a loan is in arrears. | | | |
| Yes | 69.17 | 18.05 | 18.71 |
| No | 3.76 | 9.02 | (.000) |
| If a customer has multiple loans and one loan is classified as non-performing, the other loans are automatically classified as non-performing. | | | |
| Yes | 38.36 | 9.59 | 4.35 |
| No | 33.56 | 18.49 | (.037) |
| **Category VIII: Accounting/Information Disclosure Requirements** | | | |
| Financial institutions are required to produce consolidated accounts covering all bank and any non-bank financial subsidiaries. | | | |
| Yes | 56.08 | 29.05 | 5.55 |
| No | 13.51 | 1.35 | (.019) |
| Off-balance sheet items are disclosed to the public. | | | |
| Yes | 49.32 | 26.35 | 5.71 |
| No | 20.95 | 3.38 | (.017) |
| Banks are required to disclose their risk management procedures to the public. | | | |
| Yes | 17.33 | 16.00 | 11.57 |
| No | 52.67 | 14.00 | (.001) |
| Bank directors are legally liable if information disclosed is erroneous or misleading. | | | |
| Yes | 31.13 | 6.62 | 6.58 |
| No | 39.07 | 23.18 | (.010) |
| Regulations require credit ratings for commercial banks. | | | |
| Yes | 12.67 | 2.00 | 3.29 |
| No | 57.33 | 28.00 | (.070) |
| **Category IX: Discipline/Problem Institutions/Exit** | | | |
| The supervisory agency can order the bank's directors or management to constitute provisions to cover actual or potential losses. | | | |
| Yes | 67.79 | 26.17 | 3.12 |
| No | 2.68 | 3.36 | (.077) |
| Bank supervisor can legally declare – such that this declaration supersedes the rights of bank shareholders – that a bank is insolvent. | | | |
| Yes | 50.77 | 14.62 | 6.84 |
| No | 19.23 | 15.38 | (.009) |

Table 2. (*Continued*).

| Survey Categories | Developing Countries | Developed Countries | Pearson $\chi^2$ Statistic |
|---|---|---|---|
| Bank supervisor can remove and replace bank directors during bank restructuring and reorganization. | | | |
| Yes | 65.54 | 22.97 | 7.78 |
| No | 4.73 | 6.76 | (.005) |
| Bank supervisor is responsible for appointing and supervising a bank liquidator/receiver. | | | |
| Yes | 50.85 | 16.10 | 5.93 |
| No | 17.80 | 15.25 | (.015) |
| Court approval is required for supervisory actions, such as superseding shareholder rights, removing and replacing management, removing and replacing director, or license revocation. | | | |
| Yes | 12.33 | 1.37 | 4.22 |
| No | 58.22 | 28.08 | (.040) |
| *Category X: Bank Supervisory Agency* | | | |
| Central bank supervises banks. | | | |
| Yes | 33.78 | 10.14 | 2.94 |
| No | 35.81 | 20.27 | (.086) |
| The bank supervisory bodies are responsible or accountable to a legislative body. | | | |
| Yes | 8.04 | 0.00 | 4.09 |
| No | 62.50 | 29.46 | (.043) |
| The bank supervisory bodies are responsible or accountable to Prime Minister. | | | |
| Yes | 20.00 | 21.67 | 18.01 |
| No | 49.17 | 9.17 | (.000) |
| The head of the supervisory agency can be removed by the head of government (e.g., President, Prime Minister). | | | |
| Yes | 40.16 | 9.02 | 6.19 |
| No | 31.15 | 19.67 | (.013) |
| Any infraction of any prudential regulation that is found by bank supervisor must be reported. | | | |
| Yes | 69.80 | 28.19 | 7.08 |
| No | 0.00 | 2.01 | (.008) |
| There are mandatory actions in the case of an infraction. | | | |
| Yes | 54.42 | 16.33 | 6.55 |
| No | 16.33 | 12.93 | (.010) |

Notes: Values in parentheses are p values associated with Pearson $\chi^2$ statistic where the null hypothesis implies the independency between rows (banking regulations) and columns (country type).

background and experience checks for future managers and directors and prevent foreign banks from entering the domestic market through branching (Table 2). Additionally, a higher percent of foreign bank applications is denied in developing countries, if they were trying to enter the market through the acquisition of a domestic bank (Table 3). The results

Table 3. Mean differences in numerical bank regulation-related variables in developed and developing countries.

| Survey Categories & Questions | Developing Countries | Developed Countries | $p$ value |
|---|---|---|---|
| **Category I: Entry into Banking** | | | |
| Percent of applications from foreign entities denied entering through acquisition of domestic bank? | 28 | 5 | .0211 |
| **Category II: Ownership** | | | |
| What fraction of capital in the largest 10 banks is owned by commercial/industrial or financial conglomerates? | 45 | 66 | .0286 |
| **Category III: Capital** | | | |
| What is the minimum capital-asset ratio requirement? | 9.29 | 7.96 | .0001 |
| What is the actual equity capital ratio (i.e., not risk-adjusted) of banks as of year-end 2001? | 12.02 | 9.04 | .0052 |
| As of year-end 2001, what fraction of the banking system's assets is government-owned? | | | |
| 50% or more | 18.29 | 8.13 | .0032 |
| **Category V: Liquidity & Diversification Requirements** | | | |
| If banks are required to hold either liquidity reserves or any deposits at the central bank, what are these requirements? | 16.83 | 3.44 | .0000 |
| If banks are allowed to hold reserves in foreign denominated currencies or instruments, what is the ratio? | 23.14 | 2.93 | .0000 |
| What percent of the commercial banking system's assets is funded with deposits? | 66.33 | 57.43 | .0235 |
| What percent of the commercial banking system's assets is funded with insured deposits? | 15.23 | 35.56 | .0006 |
| **Category VI: Depositor (Savings) Protection Schemes** | | | |
| On average, how long does it take to pay depositors in full? (in days) | 426.11 | 117.79 | .0044 |
| What was the longest that depositors had to wait in the last five years? (in days) | 563.5 | 188.38 | .0028 |
| **Category VII: Provisioning Requirements** | | | |
| How many days is a loan in arrears classified as doubtful? | 198.8 | 90 | .0001 |
| As of year-end 2001, what is the ratio of non-performing loans to total assets? | 6.25 | 1.52 | .0003 |
| During the last five years, what was the percentage of assets of the banking system accounted for by | | | |
| closure and liquidation? | 5.65 | .7 | .0028 |
| intervention and open bank assistance? | 7.05 | .83 | .0015 |
| transfer of assets and liabilities? | 7.11 | 2.54 | .0202 |
| **Category X: Bank Supervisory Agency** | | | |
| What is the average number of years current supervisors have been supervisors? | 6.62 | 8.45 | .0212 |

regarding *ownership* (Category II) indicate that developing countries are more likely to permit single ownership as well as non-financial firms' ownership of banks (Table 2). However, the fraction of capital in the largest 10 banks which is owned by commercial/industrial or financial conglomerates is higher in developed countries (Table 3). Regarding *capital* (Category III), it is more likely in developing countries that the minimum capital

ratio does not vary with either banks' credit risk or market risk (Table 2). Additionally, the state ownership of banks, the minimum capital asset requirement, and the actual equity capital ratio are higher in developing countries (Table 3).

In terms of *external auditing requirement* (Category IV), it is more likely in developing countries that the nature and extent of auditing is explicitly stated and auditors are required to contact the supervisory agency in the case of a problem (Table 2). The results regarding *liquidity and diversification requirements* (Category V) suggest that banks in developing countries are more likely to hold liquidity reserves in domestic and foreign currencies and earn interest on these reserves. Banks in developing countries are also more likely to be prohibited from making loans abroad (Table 2). While banks in developing countries have a higher ratio of liquidity reserves and a larger percent of commercial banks' assets funded with deposits, the asset-insured deposits ratio is higher in developed countries (Table 3).

There are differences regarding the *depositor protection scheme* (Category VI) as well. Developing countries are more likely to make the deposit insurance scheme compulsory for all banks, even though they are more likely not to have an explicit deposit insurance scheme. It is also more likely in developing countries that the funding of deposit insurance is provided both by government and banks. However, the insurance fund is less likely to involve the private sector or any kind of partnership with it. Developing countries are more likely to provide total compensation to depositors in the event of a bank failure and not to introduce limits to deposit insurance (Table 2). However, depositors in developing countries wait on average almost four times longer (in days) to be fully compensated in the event of a bank failure. Additionally, the longest waiting time for compensation (in years) is almost three times longer in developing countries (Table 3).

In terms of *provisioning requirements* (Category VII), developing countries are more likely to provide a formal definition of non-performing loans and loan classifications based on the number of days a loan is in arrears. These countries are also more likely to automatically define all other loans as non-performing if one of them is non-performing (Table 2). However, the number of days required for a loan to be classified as in arrears is twice as long in developing countries. The ratio of non-performing loans to total assets is also more than four times larger in developing countries. Additionally, a larger share of banking systems' assets is used for liquidation, intervention, and transfer of assets and liabilities in developing countries (Table 3).

Regarding *accounting/information disclosure* (Category VIII), developing countries are more likely to require banks to produce consolidated accounts of their bank and non-bank activities, disclose off-balance sheet items, and make bank directors legally liable in the case of erroneous information. However, banks in developing countries are more likely not to disclose their risk management procedures to the public and require credit ratings for commercial banks (Table 2). In terms of *discipline/problem institutions/exit* (Category IX), bank supervisors seem to be powerful in developing countries. It is more likely in developing countries that bank supervisors order bank directors to provide provisions to cover losses, declare a bank insolvent and supersede shareholders' rights, remove or replace bank directors, appoint bank liquidators, and forbear prudential regulations. Additionally, it is more likely in developing countries that bank supervisors do not need court approval when superseding shareholders' rights or removing or replacing directors (Table 2).

Finally, with respect to *bank supervision* (Category X), developing countries are more likely to let the central bank supervise banks and make the bank supervisory agency be responsible to the executive branch (mostly at the minister level, for example, finance

minister). However, the removal of a bank supervisory body is more likely to be undertaken by the head of the government. Developing countries are more likely to require bank supervisors to report any infringement and impose explicitly defined actions to be taken against the infringement (Table 2). Also, bank supervisors' tenure is about two years shorter in developing countries (Table 3).

Based on the above results, the overall patterns of bank regulations imply important differences between developed and developing countries. Surprisingly, developing countries have stricter banking regulations with respect to auditing requirements, various capital-related ratios, reserves, and the type of mandatory actions to be taken in the event of a violation in bank regulations. Their bank directors are more likely to be liable for disclosing erroneous information. However, greater strictness in banking regulations does not translate into their applicability and effectiveness. In fact, the results show that developing countries are also more likely to reduce competition among banks through entry restrictions imposed on foreign banks, provide greater safety nets to existing banks, and withhold relevant information from the public. Additionally, developing countries' deposit insurance schemes may not reflect the risk. Although bank supervisory agencies seem to be powerful in developing countries, their accountability may be less certain. In these countries, supervisory agencies seem to be directly accountable to the government and not to a legislative body, which reduces external supervision of bank regulators. Additionally, bank supervisory agencies in developing countries seem to have power over courts and bank shareholders in the event of a liquidation or closure.

## 3.   Explaining the differences in bank regulations

In this section, the question is why countries decide to implement certain bank regulations and not others. The public choice approach to this question implies that special interest groups politically organize themselves and extract rents from others by using the coercive power of the government (Olson 1965, Stigler 1971, Becker 1983, Grossman and Helpman 2001). However, some of the recent research emphasizes the effects of countries' political and cultural characteristics on their selection of regulations. Katayama (2000), for example, addresses the relationship between the Japanese political culture and the system of government regulations, and identifies the reflections of this culture on banking regulations in Japan. More recently, Demirgüç-Kunt *et al*. (2004) and Barth *et al*. (2006) have led the way to a novel approach that demonstrates the relevance of historical, political, and cultural characteristics of a country in the explanation of the country's choice in bank regulations.

The new approach to banking regulations implies that banking regulations of a country are the mirror image of its political system. Countries that lack democracy and transparency tend to have powerful supervisory agencies that are accountable only to the political executive and banking regulations that seem explicit and strict on the paper. However, democratic and transparent political systems with checks and balances on the executive power create an environment in which political decision-makers are accountable to the broader segments of the population. In the following, we will identify the relevant variables with which the sources of bank regulations can be tested.

### 3.1   *Data and variable description*

The data used in this analysis are obtained from Barth *et al*. (2006) and Beck *et al*. (2006). Although there are 151 countries in the original dataset, many countries have a large number

Table 4.   Sample countries that are used in estimations regarding the sources of bank regulations.

| Developed Countries (including EU members) | Developing Countries | |
|---|---|---|
| 1. Australia | 23. Bahrain | 47. Lesotho |
| 2. Austria | 24. Belize | 48. Malaysia |
| 3. Belgium | 25. Benin | 49. Mali |
| 4. Canada | 26. Botswana | 50. Mauritius |
| 5. Cyprus | 27. Burkina Faso | 51. Mexico |
| 6. Denmark | 28. Burundi | 52. Niger |
| 7. Finland | 29. Cameroon | 53. Nigeria |
| 8. France | 30. Chile | 54. Panama |
| 9. Germany | 31. Colombia | 55. Papua New Guinea |
| 10. Greece | 32. Congo | 56. Peru |
| 11. Ireland | 33. Côte d'Ivoire | 57. Philippines |
| 12. Israel | 34. Ecuador | 58. Senegal |
| 13. Italy | 35. Egypt | 59. Seychelles |
| 14. Japan | 36. El Salvador | 60. Singapore |
| 15. The Netherlands | 37. Gabon | 61. South Africa |
| 16. New Zealand | 38. Gambia | 62. Sri Lanka |
| 17. Norway | 39. Ghana | 63. Swaziland |
| 18. Portugal | 40. Guatemala | 64. Thailand |
| 19. Sweden | 41. Guinea | 65. Togo |
| 20. Switzerland | 42. Guyana | 66. Tunisia |
| 21. United Kingdom | 43. Honduras | 67. Turkey |
| 22. United States | 44. India | 68. Uruguay |
| | 45. Jordan | 69. Venezuela |
| | 46. Kenya | |

of missing observations, which reduces the dataset to 69 countries. The sample countries that are used in this section are listed in Table 4. A comparison of countries listed in Table 1 and Table 4 reveals that Table 4 contains 22 out of 32 developed countries and 23 out of 44 developing countries indicated in Table 1. The observation year is 2002. In the following, the relevant variables are discussed under three subject categories: bank regulatory indicators, political system-related variables, and instrumental variables that explain the differences in political systems across countries. As we define these variables, we will also discuss their expected signs.

Regarding the bank regulations-related variables, fraction of entry denied, banking restrictions, and generosity of deposit insurance are used, of which the last two are index variables. *Fraction of entry denied* is the percent of domestic bank applications that are not approved. *Banking restrictions* take a value between 4 and 14, where higher numbers indicate increasing restrictions on banking activity. The generosity of deposit insurance is an index variable and takes a value between 2.5 and 3.5. Because higher numbers indicate a less generous deposit insurance scheme, we rename this variable as the *constraints to the deposit insurance scheme*. Regarding the political system-related variables, *executive constraints* are employed (Marshall and Jaggers 2002).[1] This is also an index variable where higher numbers indicate greater restriction on the political executive's power.[2]

When using the bank regulations- and governance-related variables, the question is whether and how the latter affect the former. Countries that promote open, competitive elections and impose significant constraints on the executive power are expected to be more democratic, where the political and business elite do not have an overwhelming power. However, the relationship between bank regulations and political system-related variables may produce ambiguous predictions (Barth *et al*. 2006). In more democratic countries, one expects lower fractions of entry denied, less banking restrictions, and a constrained deposit insurance scheme. However, it is possible that a less democratic system can produce the same results, if the political and business elite may control the markets in less obvious ways so that banking restrictions and government involvement in banking may seem weak. The ambiguity may be true for the deposit insurance scheme as well in that political systems with varying degrees of democracy may introduce more constrained or generous deposit insurance schemes.

In addition to the bank regulation- and political system-related variables, instrumental variables are used to extract the exogenous part of the political system variables. While bank regulations may be affected by the characteristics of the political system, it is possible that bank regulations shape political systems as well. If the bank regulatory environment is such that it protects the power of the economic and political elite, it will further reduce the development of democratic efforts in this country. In this case, if the effects of political systems on bank regulations are measured by the ordinary least squares regression, the estimated political system coefficient will be biased. Therefore, instruments are used to extract the exogenous component of the political system indicators.

Instruments that are used in the empirical analysis are latitude, initial executive constraints, competition, openness, years of independence, and religious composition. *Latitude* is used as a proxy for the geographical location of the country (La Porta *et al*. 1999, Barth *et al*. 2006).[3] While lower latitudes indicate the country's closeness to the equator (tropical environment), higher latitudes imply that the country lies in temperate zones. Latitude can be used to deduce information regarding the influence of natural resources on the development of political institutions. It is more likely for tropical environments to have been colonized by the European powers, which may have interfered with the development of indigenous political institutions (Acemoglu *et al*. 2005, Easterly and Levine 2003).

*Years of independence* imply the possibility that countries can develop a political system that is transparent and inclusive, if they gained their independence early on (Barth *et al*. 2006).[4] The value of *initial executive constraints* is based on the values associated with this variable in 1800 or in the first year of independence. Even though the current values of these variables are used to explain the differences in bank regulations among countries, the use of their initial values as an instrument reflects the possibility that initial political characteristics may have affected the current political system. *Religious composition* implies the representation of Catholic, Muslim, Protestant, or other denominations in population in terms of percentage. Weber (1958) and Landes (1998) are among those who proposed a relationship between religion and adopted political system in a country. In particular, it has been suggested that predominantly Catholic and Muslim countries are likely to promote strong executive powers. Weber (1958), for example, emphasized the tendency to authoritarianism regarding the interpretation of these religious orientations by their followers. Clearly, the above-mentioned instruments are not perfect and finding data about the perfect instrument is difficult. However, the instruments used in this study seem to be plausible and, in the following, it will be tested whether these instruments fulfill the statistical conditions for good instruments.

Table 5.   Summary statistics.

| Variable name | All countries | | Developed countries | | Developing countries | |
|---|---|---|---|---|---|---|
| | Mean | Standard deviation | Mean | Standard deviation | Mean | Standard deviation |
| Fraction of entry denied (%) | 21.28 | 29.88 | 3.19 | 6.59 | 38.47 | 33.27 |
| Banking restrictions | 9.26 | 2.55 | 7.91 | 2.61 | 10.24 | 2.03 |
| Limits to deposit insurance | −.39 | 2.45 | 1.25 | 1.96 | −1.16 | 2.29 |
| Absolute latitude | 28.92 | 18.37 | 50.37 | 12.16 | 21.51 | 13.74 |
| Years of independence | 109.09 | 188.12 | 218.36 | 313.99 | 70.89 | 91.45 |
| Executive constraints | 5.16 | 2.03 | 6.88 | .42 | 4.53 | 2.03 |
| Initial executive constraints | 3.54 | 2.39 | 4.36 | 2.83 | 3.24 | 2.16 |
| Corruption control | 6.28 | 2.34 | 8.82 | 1.21 | 4.84 | 1.42 |
| Fraction of Catholics (%) | 37.42 | 36.85 | 36.45 | 36.35 | 37.87 | 37.46 |
| Fraction of Protestants (%) | 15.96 | 23.87 | 29.59 | 33.53 | 9.14 | 13.03 |
| Fraction of Muslims (%) | 17.79 | 31.12 | 1.71 | 4.14 | 25.46 | 35.22 |
| Fraction of other religions (%) | 29.43 | 28.66 | 32.26 | 33.32 | 28.11 | 26.49 |

Table 5 provides descriptive statistics associated with the aforementioned variables. The results suggest that, compared to developed countries, developing countries have higher mean values in denied entry and banking restrictions. However, the mean values in latitude, years of independence, current as well as initial executive constraints, and limitations to deposit insurance are lower in developing countries.[5] Table 6 shows the correlation coefficients associated with the above-mentioned variables, where significant results at the 10% significant level or better suggest the following patterns. There is a positive association between denied entries in the banking system and banking restrictions. For example, there is a negative association between the restrictive nature of the banking system and latitude as well as executive constraints. The relation between latitude and years of independence as well as executive constraints is positive. Additionally, years of independence and executive constraints are positively related.

### 3.2   Estimation-related issues and empirical results

To assess the impact of the political system-related variables on bank regulations, the method of two-stage least squares regression (2SLS) is employed. Because of the possibility that political systems may be endogenous to countries' cultural and historical characteristics and that bank regulations possibly affect the redistribution of capital and the political system, one has to account for the endogeneity of the political system. Consider the following regression model:

$$Y_i = \beta_0 + \beta_1 X_{1i} + ..... + \beta_k X_{ki} + \phi_1 W_{1i} + ...... + \phi_r W_{ri} + u_i \tag{1}$$

where $Y_i$, $W_i$, and $X_i$ represent the banking regulation-related dependent variable, exogenous explanatory variables, and endogenous variables that may be related to the political system in country $i$, respectively.

Table 6.  Spearman correlation coefficients.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | | | | | | | | | | | | | |
| 2 | **.5432** | 1 | | | | | | | | | | | | |
| 3 | −.2432 | −.0631 | 1 | | | | | | | | | | | |
| 4 | **−.4333** | **−.4634** | .1019 | 1 | | | | | | | | | | |
| 5 | **−.3859** | −.1657 | .2323 | **.4181** | 1 | | | | | | | | | |
| 6 | **−.4787** | **−.3878** | .2449 | **.5345** | **.4112** | 1 | | | | | | | | |
| 7 | −.0177 | −.0661 | .0265 | .0412 | **−.4541** | .0453 | 1 | | | | | | | |
| 8 | −.2293 | −.2091 | .0896 | −.0283 | .2045 | −.0477 | −.1467 | 1 | | | | | | |
| 9 | **.4341** | −.1819 | −.1745 | **−.3736** | **−.4493** | **−.5068** | .1949 | **−.3871** | 1 | | | | | |
| 10 | −.1934 | **−.4352** | .2078 | **.3138** | .0801 | **.2889** | .1501 | −.0041 | **−.2869** | 1 | | | | |
| 11 | **.3045** | .1746 | −.1665 | **−.3176** | **−.6029** | −.0691 | **.5311** | **−.2987** | **.3852** | .0323 | 1 | | | |
| 12 | −.0809 | .0705 | −.0141 | −.0974 | **.3369** | −.2242 | **−.3742** | **.4956** | −.1207 | **−.4122** | **−.6724** | 1 | | |
| 13 | **−.2827** | −.2674 | .1468 | .2383 | .2043 | .2583 | −.1816 | .0468 | −.2187 | .1574 | **−.3162** | −.2658 | 1 | |
| 14 | **−.5043** | **−.5336** | .1894 | **.7743** | **.4528** | **.6803** | .0108 | −.1302 | **−.3854** | **.4848** | −.1297 | **−.2934** | **.2819** | 1 |

Notes: Bold entries imply correlation coefficients at the level of significance of 10% or better.
1. Fraction of entry denied
2. Banking restrictions
3. Limits to deposit insurance
4. Latitude
5. Years since independence
6. Executive constraints
7. Initial executive constraints
8. Percent Catholic
9. Percent Muslim
10. Percent Protestant
11. British legal origin
12. French legal origin
13. German legal origin
14. Corruption control

Even though $E(u_i) = 0$ and $Cov(W_i, u_i) = 0$, it may be that $Cov(X_i, u_i) \neq 0$. In this case, the use of the OLS estimation of the effect of political system-related variables on banking regulations results in inconsistent estimators. It means that the estimated coefficients associated with the political system-related variables may not be close to the true values of the regression coefficients even when the sample size is large. However, if there is a valid instrumental variable, $Z$, the effect on $Y$ of a unit change in $X$ can be estimated using the instrumental variables estimator. The 2SLS estimation provides a general solution to the problem of endogenous explanatory variables by employing an observable variable $Z_i$ that satisfies two conditions. First, $Z_i$ must be uncorrelated with $u_i$ or $Cov(Z_i, u_i) = 0$. In other words, $Z_i$ must be exogenous to Equation (1), which satisfies the *instrument exogeneity* condition. Second, the variation in the instrument should be related to the variation in the endogenous variable or $Cov(Z_i, X_i) \neq 0$, which satisfies the *instrument relevance* condition (Wooldridge 2002).

Three procedures are used to test the validity of the instruments used in the empirical analysis. First, a test is conducted for the presence of weak instruments that explain little of the variation in $X$, the political system-related variables. The relevance of this test lies in the fact that, if the instruments are weak, the 2SLS estimator may be biased and the 2SLS method is no longer reliable. The first-stage F-statistic is the F-statistic testing the null hypothesis that the coefficients on the instruments $Z_{1i}, .., Z_{mi}$ equal zero in the first stage of the 2SLS. In Table 7, the *p*-value associated with the F-statistic is provided. The associated low *p*-value implies the rejection of the null hypothesis that the instruments are weak. Therefore, the instruments used in the 2SLS can be considered as valid instruments.

Second, the over-identifying restrictions (OIR) test is conducted to test the exogeneity of instruments. As the name of the test suggests, in this case, the identification becomes an issue. The coefficients are under-identified, if the number of instruments equals less than the number of endogenous variables or $m < k$. They are exactly identified, if $m = k$. However, the OIR test requires over-identification, that is, $m > k$. The null hypothesis implies that the instruments are valid, because they are uncorrelated with the error term of the 2SLS regression, $u_i$. Let $\hat{u}_i^{2\,SLS}$ be the residuals from 2SLS estimation. We can use OLS to estimate the regression coefficients in

$$\hat{u}_i^{2\,SLS} = \delta_0 + \delta_1 Z_{1i} + \ldots + \delta_m Z_{mi} + \phi_1 W_{1i} + \ldots + \phi_r W_{ri} + e_i \tag{2}$$

Let F denote the F-statistic testing the hypothesis such that $\delta_0 = \ldots\ldots = \delta_m = 0$. The OIR test statistic is $J = m * F$. Under the null hypothesis that all the instruments are exogenous, $J$ is distributed $\chi^2_{m-k}$ in large samples, where $m - k$ is the degree of over-identification, that is, the number of instruments minus the number of endogenous regressors (Wooldridge 2002). The results of the OIR test in Table 7 suggest that we fail to reject the null hypothesis and the instruments are exogenous.

Third, the Hausman test indicates whether OLS is a consistent estimator for the model. The null hypothesis is that the model is generated by an OLS process, and the test is performed under the assumption that the instrumental variables estimations are consistent. Therefore, the Hausman specification test indicates whether the OLS estimator yields a value that is significantly different from the value that is produced by the 2SLS model. If the null hypothesis is true, both are consistent estimators of the true parameter. If the alternative hypothesis is true, the OLS estimate is inconsistent and there will be differences between the OLS and 2SLS estimates. The Hausman statistic is distributed with $\chi^2_p$ where

Table 7.    2SLS results (instrumented: executive constraints).

| Variables | Model 1 Fraction of entry denied | Model 2 Banking restrictions | Model 3 Limits to deposit insurance |
|---|---|---|---|
| Constant | .7793 (.0043) | 14.8309 (.0000) | 1.6597 (.1485) |
| Executive Constraints | −.1032 (.0028) | −.9135 (.0032) | .0516 (.1737) |
| British legal origin | .1532 (.3275) | −.2908 (.8411) | 2.7595 (.0215) |
| French legal origin | .0091 (.9556) | .5419 (.7136) | 2.3939 (.0447) |
| German legal origin | −.0397 (.8321) | −1.4436 (.4069) | .3469 (.8264) |
| *Instruments for executive constraints* | | | |
| Constant | 6.1438 (.0000) | 5.4793 (.0000) | −1.3702 (.7865) |
| Latitude | 1.9281 (.0027) | 3.1208 (.0000) | 14.5687 (.0064) |
| Years of independence | −.0002 (.5563) | −.0002 (.6832) | −.0007 (.8718) |
| Catholic | −.0034 (.5052) | −.0022 (.7497) | .0286 (.5419) |
| Muslim | −.0452 (.0000) | −.0311 (.0000) | .0034 (.9466) |
| Initial executive constraints | −.0311 (.6183) | −.0608 (.4084) | −.0302 (.9564) |
| *Diagnostics* | | | |
| F test, Prob > F | .0000 | | |
| OIR test, Prob > $\chi^2$ | .1532 | .2517 | .1936 |
| Hausman, Prob > $\chi^2$ | .0263 | .0374 | .0538 |

$p$ implies the number of common coefficients in the models being compared. Based on $p$-values associated with the Hausman test in Table 7, the null hypothesis is rejected. Therefore, we conclude that the OLS procedure produces inconsistent estimates of the relationship between bank regulations- and political system-related variables.

The 2SLS results that are obtained by using heteroskedasticity-robust standard errors are summarized in Table 7. The endogenous political system-related variable is executive constraints. The results indicate that executive constraints significantly explain bank regulations. Higher levels of executive constraints lead to lower fractions of entry denied and fewer banking restrictions. As far as legal origin is concerned, British and French legal origin is associated with less generous deposit insurance schemes. Because the constant includes the socialist legal origin, the results suggest that formerly socialist countries have a higher degree of denied entries and banking restrictions.

Regarding the instruments that affect executive constraints, the coefficient associated with latitude is statistically significantly positive, indicating that higher latitude (temperate climate zone) countries tend to have higher degrees of executive constraints. Regarding religion, while overwhelmingly Muslim countries have lower degrees of political freedom and transparency, overwhelmingly Protestant countries are associated with higher degrees

of executive constraints. However, years of independence and initial levels of executive constraints do not significantly explain executive constraints.

There may be several reasons as to why executive constraints do not significantly explain the extent of limitations to the deposit insurance scheme. For example, while countries with higher levels of executive constraints may be inclined to limit the generosity of the deposit insurance scheme based on their concerns for fiscal accountability, they may also be willing to provide generous deposit insurance schemes based on the concerns associated with income distribution. Similarly, countries with lower levels of executive constraints may have their reasons to make the deposit insurance scheme more or less generous.

Even though the above results are largely consistent with those of the previous studies (for example, Barth *et al.*, 2006), additional estimations are conducted to test the robustness of the results to different specifications. To rule out the possibility that overwhelmingly Muslim countries are driving the results, the models shown in Table 7 were estimated without the countries in which Muslims have a share in population 10% or higher. However, the results remain largely unchanged.[6]

### 3.3 Bank regulations and corruption

The inclusion of corruption in the analysis represents a possible extension of the above discussion, because the lack of executive constraints in a political system may imply the presence of corruption. Political and bureaucratic corruption is among the well-known types of corruption (Bardhan 2006). Political corruption implies illegal and undemocratic behavior in the process of gaining and maintaining political power. Individual as well as party- or ideology-based dictatorships are examples of this kind of corruption. Even if political corruption does not exist, bureaucratic corruption can be present, especially with respect to the government's dealing with the public through the allocation of public goods and the implementation of regulations. It is also possible that both types of corruption exist in a country. Our hypothesis is that the lack of executive constraints may imply tendencies toward authoritarianism as well as the lack of accountability. These tendencies are also implied by corruption.

In the following, we want to examine whether corruption can be used as a proxy for executive constraints. The source of corruption data is the International Country Risk Guide by the PRS Group. In these data, corruption is an index variable that takes the values 1 through 10, where higher numbers indicate less corruption. Therefore, we will call this variable *corruption control*. Corruption data are available for 67 out of 69 countries that were included in our previous 2SLS estimations. In fact, Table 5 shows that there is less corruption in developed countries than in developing countries. In Table 6, we observe that the association between corruption control and restrictive banking practices (denied entries and banking restrictions) is negative. However, executive constraints, latitude, and years of independence are positively correlated with corruption control.

Table 8 summarizes the 2SLS results, where corruption control is used as a proxy for executive constraints. The results suggest that less corruption leads to significantly lower denied entries and banking restrictions as well as limited deposit insurance schemes. It is worthwhile to note that higher executive constraints did not significantly lead to limited deposit insurance schemes in Table 7. When we use corruption control as a proxy for executive constraints, however, we are able to capture a significant relation between corruption control and a constrained deposit insurance scheme. We can explain the differences in this particular result such that, while it is possible to have a powerful political executive

Table 8. 2SLS results (instrumented: corruption control).

| Variables | Model 1 Fraction of entry denied | Model 2 Banking restrictions | Model 3 Limits to deposit insurance |
|---|---|---|---|
| Constant | .6505 (.0012) | 12.6961 (.0000) | −4.0538 (.0000) |
| Corruption control | −.0645 (.0032) | −.5591 (.0011) | .6182 (.0000) |
| *Instruments for corruption* | | | |
| Constant | 3.5357 (.0000) | 3.6686 (.0000) | 4.1873 (.0000) |
| Latitude | 7.5307 (.0000) | 6.3968 (.0000) | 6.1091 (.0000) |
| Years of independence | .0011 (.1653) | .0014 (.0825) | .0012 (.0932) |
| Protestant | .0138 (.0248) | .0116 (.0417) | .0094 (.0219) |
| Muslim | −.0149 (.0893) | −.0143 (.0912) | −.0132 (.0328) |
| *Diagnostics* | | | |
| F test, Prob > F | .0000 | | |
| OIR test, Prob > $\chi^2$ | .1925 | .2847 | .1432 |
| Hausman, Prob > $\chi^2$ | .0163 | .0283 | .0471 |

with the intent of avoiding generous bailout mechanisms and moral hazard (a benevolent dictator), a political executive with much less power may have the same intentions. Clearly, we could not distinguish between these two types of executives when executive constraints are used as an explanatory variable. However, when we replace executive constraints by corruption control, this dichotomy is avoided.

Table 8 also indicates that corruption control seems to be endogenous to latitude, years of independence, and religion. Among these instruments for corruption, lower latitudes and shorter years of independence lead to more corruption. Again, lower latitude countries imply mostly tropical environments that were colonies until the mid-twentieth century. This particular characteristic of countries is also captured by the years of independence. Therefore, one could argue that the lack of established political and judicial institutions contributes to higher corruption in these countries.

## 4. Conclusion

This paper has two main goals: providing a detailed description of cross-country differences in bank regulations and examining the sources of these differences in bank regulations.

Regarding the first goal, the results suggest that the overall patterns of bank regulations imply important differences between developed and developing countries. Developing countries have stricter banking regulations with respect to auditing requirements, various capital-related ratios, reserves, and the type of mandatory actions to be taken in the case of violations of bank regulations. However, developing countries are also more likely to reduce competition among banks, provide greater safety nets to existing banks, and withhold relevant information from the public. Additionally, developing countries' deposit insurance schemes may be less constrained. Although bank supervisory agencies seem to be

powerful in developing countries, their accountability may be weak. Supervisory agencies are likely to be directly accountable to the government and not to a legislative body, which reduces the external supervision of bank regulators. These agencies also have power over courts and bank shareholders in the event of liquidation or closure.

Regarding the second goal, the results show that the choice of banking regulations is affected by countries' political characteristics, which are in turn endogenous to countries' historical experiences and cultural characteristics. This result remains robust even when different measures of banking regulations are employed, such as denied entries, banking regulations, and limitations to the deposit insurance scheme. The results suggest that higher executive constraints lead to lower denied entries and banking restrictions. Additionally, this paper introduces a new angle into the determination of bank regulations, which is corruption control. When we replaced executive constraints by corruption control, we not only verified the above results, we could also find a significant relation between deposit insurance scheme and corruption control. When corruption control is used as a proxy for executive constraints, less corruption leads to lower denied entries and banking restrictions as well as more constrained deposit insurance schemes. Latitude, years of independence, and the initial level of executive constraints are among the instruments that are used for executive constraints and corruption control. The results suggest that countries in lower latitudes and with fewer years of independence tend to have weaker executive constraints and more corruption.

The policy relevance of these results lies in the fact that even though banking regulations are relevant for the economic outcome in a country, it may not be easy to change them if they seem to be in need of a change. If the characteristics of banking regulations can be reasonably considered as a function of the political system and if the political system is in turn influenced by countries' historical and cultural characteristics as well as corruption control, the difficulty associated with reforming bank regulations in many developing countries becomes clear. Apparently bank regulations reflect the political systems of countries and not necessarily their ignorance of effective banking regulations. For example, Acemoglu *et al*. (2005) suggest that ineffective government policies may be put in place quite deliberately and not because of ignorance or insufficient knowledge.

Therefore, as Barth *et al*. (2006) point out, discovering the "best" policies that would minimize banking crises will not necessarily convince policy-makers to adopt these policies, because their convictions regarding bank regulations are not independent of their general convictions regarding the power and authority of the government. The policy relevance of this view is related to the Basel Accords that aim to reinforce the application of similar accounting principles and capital requirements in the banking systems of various countries. In fact, as Basel Accords have evolved from minimal capital requirements in Basel I to greater standardization in bank-risk management in Basel II, the chance of their implementation may not have increased in many developing countries. In addition to the present pillars of the Basel Accords, namely, capital requirements, supervisory review, and market discipline, the Basel Committee may include even more dimensions into the Accords in the future (von Thadden 2004). The new dimensions may be related to bank supervisory agency, deposit insurance scheme, and private sector monitoring of banks. However, as the Basel Accords incorporate institutional bank regulations-related pillars, one needs to be mindful of the endogeneity of bank regulations.

**Notes**

1. The data on executive constraints are from the Polity IV Database, available at: www.cidm.umd.edu/inscr/polity/index.htm.

2.  Although not reported in the paper for space reasons, we also used two alternative measures of a country's political characteristics such as *executive competition* and *executive openness* that measure the openness of a country's political system to entry. When using these alternative measures, our results did not change qualitatively. These results are available from the author upon request.
3.  The data on latitude are available in La Porta *et al.* (1999).
4.  The data on years of independence are from the CIA World Factbook, available at: https://www.cia.gov/library/publications/the-world-factbook/index.html.
5.  Tables 5 and 6 include corruption control as well. We will discuss this variable later in this section.
6.  These results are available from the author upon request.

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