

Government Ownership of Banks

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ABSTRACT

We assemble data on government ownership of banks around the world. The data show that such ownership is large and pervasive, and higher in countries with low levels of per capita income, backward financial systems, interventionist and inefficient governments, and poor protection of property rights. Higher government ownership of banks in 1970 is associated with slower subsequent financial development and lower growth of per capita income and productivity. This evidence supports “political” theories of the effects of government ownership of firms.

THIS PAPER DISCUSSES A NEGLECTED ASPECT of financial systems of many countries: government ownership of banks. It shows that such ownership is pervasive around the world, and has had significant consequences for economic and financial development.

There are two broad views of the government’s participation in financial markets. The first, basically optimistic, “development” view is associated with Alexander Gerschenkron (1962), who focuses on the necessity of financial development for economic growth. Gerschenkron argues that privately owned commercial banks have been the crucial vehicle of channeling savings into industry in several industrializing countries in the second half of the 19th century, especially Germany. However, in some countries—most conspicuously Russia—economic institutions were not sufficiently developed for private banks to play the crucial development role. “The scarcity of capital in Russia was such that no banking system could conceivably succeed in attracting sufficient funds to finance a large scale industrialization; the standards of honesty in business were so disastrously low, the general distrust of the public so great, that no bank could have hoped to attract even such small capital funds as were available, and no bank could have successfully engaged in long term credit policies in an economy where fraudulent bankruptcy had been almost elevated to the rank of a general business practice” (Gerschenkron (1962), p. 19). In such countries, the government could step in and, through its financial institutions, jump start both financial and eco-

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conomic development. Thus in Russia in the 1890s, "it was the government that generally fulfilled the function of industrial banks" (Gerschenkron (1962), p. 22), with salutary effects.

Gerschenkron's (1962) view was part of a broader sentiment in development economics which advocated government ownership of firms in the strategic economic sectors (see Shleifer (1998) for a summary). Hawtrey (1926), for example, sees such "strategic" advantages of the nationalization of banks, along with utilities, coal mines, and education. Lewis (1950) explicitly advocates government ownership of banks, as part of the "commanding heights" approach whereby the government would develop certain strategic industries through both direct ownership and control over finance. Myrdal (1968) is sympathetic toward government ownership of banks in India and other Asian countries. In 1917, a few days before the October Revolution, Lenin laid out his own perspective on banking: "Without big banks, socialism would be impossible. The big banks are the 'state apparatus' which we need to bring about socialism, and which we take ready-made from capitalism . . ." (Garvy (1977), p. 21). These ideas were widely adopted around the world, as governments in the 1960s and the 1970s nationalized the existing commercial banks and started new ones in Africa, Asia, and Latin America.

The alternative "political" view of government participation in finance shares with the development view the desire of politicians to control investment by firms, but emphasizes political rather than social objectives. In this view, governments acquire control of enterprises and banks in order to provide employment, subsidies, and other benefits to supporters, who return the favor in the form of votes, political contributions, and bribes (see, e.g., Kornai (1979) and Shleifer and Vishny (1994)). The attraction of such political control of banks is presumably the greatest in countries with underdeveloped financial systems and poorly protected property rights, because the government does not need to compete with the private sector as a source of funds. This view of state ownership is buttressed by considerable evidence documenting the inefficiency of government enterprises, the political motives behind public provision of services, and the benefits of privatization (e.g., Megginson, Nash, and Randenborgh (1994), Barberis et al. (1996), Lopez-de-Silanes, Shleifer, and Vishny (1997), Frydman et al. (1999), La Porta and Lopez-de-Silanes (1999)). Gerschenkron (1962, p. 20) has some sympathy for this view: "There is no doubt that the government as an *agens movens* of industrialization discharged its role in a far less than perfectly efficient manner. Incompetence and corruption of bureaucracy were great. The amount of waste that accompanied the process were formidable." Still, Gerschenkron considers government financing of industrialization in Russia a great success.

A government can participate in the financing of firms in a variety of ways: it can provide subsidies directly, it can encourage private banks through regulation and suasion to lend to politically desirable projects, or it can own financial institutions, completely or partially, itself. The advantage of owning banks—as opposed to regulating banks or owning all projects outright—is that ownership allows the government extensive control over the choice of projects being financed while leaving the implementation of these projects to

the private sector. Ownership of banks thus promotes the government's goals in both the "development" and the "political" theories. In the former, ownership of banks enables the government both to collect savings and to direct them toward strategic long-term projects. Through such project finance, the government overcomes institutional failures undermining private capital markets, and generates aggregate demand and other externalities fostering growth. In the political theories, ownership of banks enables the government to finance the inefficient but politically desirable projects. In both theories, the government finances projects that would not get privately financed. In the development theories, these projects are socially desirable. In the political theories, they are not.

Using data on government ownership of banks from 92 countries around the world, we address four related questions. First, how significant is government ownership of banks in different countries? Second, what types of countries have more government ownership of banks? Third, does government ownership of banks promote subsequent financial development? Fourth, does government ownership of banks promote subsequent economic growth and, relatedly, how does it effect factor accumulation, savings, and growth of productivity?

Both the development and the political view imply that government ownership of banks should be more prevalent in poorer countries, countries with less developed financial markets, and more generally, countries with less well-functioning institutions. The development theories also imply that, other things equal, government ownership of banks should benefit subsequent financial and economic development, factor accumulation, and especially productivity growth. The political theories, in contrast, imply that, other things equal, government ownership of banks should displace (crowd out) the financing of private firms. Moreover, while government financing through its banks can encourage savings and capital accumulation, the projects the government finances are likely to be inefficient and have an adverse effect on productivity growth. By looking at financial development and productivity growth, we can thus attempt to distinguish the two theories of government ownership of banks.

Although our results support some elements of the development view, they are overall more favorable to the political view. We show, first, that government ownership of banks was and still is common around the world: In an average country, 59 percent of the equity of the 10 largest banks was owned by the government in 1970, and 42 percent was still state owned in 1995. Such ownership is especially common in poor countries, as well as in countries with poorly protected property rights, heavy government intervention in the economy, and underdeveloped financial systems. The latter findings are consistent with Gerschenkron's (1962) idea of where governments are likely to own banks. However, our results on the effects of government ownership of banks in 1970 on subsequent financial and economic development do not support Gerschenkron's optimism. We find that higher government ownership of banks is associated with slower subsequent development of the financial system, lower economic growth, and, in particular, lower growth of productivity. These results, and particularly the finding of low productivity growth in countries with high government ownership of banks, are broadly

supportive of the political view on the effects of government interference in markets.

This research is related to the recent literature of financial development and economic growth. King and Levine (1993), Levine and Zervos (1998), Rajan and Zingales (1998), Levine (1999, 2000), Beck, Levine, Loayza (2000), Wurgler (2000), and Cetorelli and Gambera (2001) examine the relationship between financial structure and economic growth. Young (1995) shows that in several East Asian countries, growth has taken the form of factor accumulation rather than productivity growth. Since the allocation of financial resources in East Asian economies is heavily politicized, our results suggest that the problems that have undermined productivity growth in East Asia may be pervasive when the government controls the flow of capital.

Two recent papers consider government ownership of banks. Sapienza (1999) finds that Italian state-owned banks pursue political objectives in their lending policies, consistent with the political view. Barth, Caprio, and Levine (1999) present a comprehensive database on government regulation of banks around the world. As with our paper, they find that government ownership of banks is higher in countries with less developed financial systems. This result is consistent with both the political and the development views.

The remainder of the paper is organized as follows. Sections I through IV deal with the four questions raised above: the pervasiveness of government ownership of banks, the characteristics of countries that have it, its effect on financial development, and its effect on the growth of output, factor accumulation, and growth of productivity. Section V concludes.

I. How Common Is Government Ownership of Banks?

A. Variable Definitions

All the variables used in this paper are summarized in the Appendix. We describe them as they come up in the analysis.

To begin, we analyze recent government ownership of large banks in 92 countries. We use *Polk's World Banking Profiles* (1997) and the *Thomson Bank Directory* (1996) to determine the number of countries with sufficient data on banks. For each country in the sample, we identify the 10 largest commercial or development banks (in terms of assets) that lend money to firms, regardless of their ownership structure and of whether or not they take deposits. We include development banks because their function is precisely to finance long-term development projects where private finance may fail (Myrdal (1968)), and hence they constitute one prominent form of government entry into bank lending. Below we discuss the role of such banks at some length. We do not include Central Banks, Postal Banks (which generally do not lend money to firms and are described as nonbanking institutions), investment banks, other specialized financial intermediaries (trust companies, home loan banks) or worldwide development banks such as the World Bank. If a country has fewer than 10 banks in *Polk* and *Thomson*, we add information where we can from *Europa Yearbook* (1995), *Bankers' Almanac* (1977), and *Euromoney Bank Register* (1996).

We identify ownership structures of banks in this sample using company reports as well as national and international sources. Identifying state versus private ownership is usually straightforward, but there are a few judgment calls. First, we classify ownership by foreign governments as private rather than state ownership. This reduces estimates of state ownership, but makes analytical sense since foreign governments are less likely to support money-losing firms abroad. Second, we keep subsidiaries of foreign banks in the sample as long as they make loans and extend credit locally. Third, some development banks in the sample are regional, and owned by the governments of several countries. Some of these banks also have private owners, as well as ownership by multi-lateral agencies such as the World Bank. We take the equity ownership in a regional bank by a country's government as the estimate of the proportion of the bank's assets that are in that country. These steps give us estimates of government ownership of the 10 largest banks in each country.¹

Using these data, we compute government ownership of banks in 1995, *GB95*, taking account of the possibility of governments owning shares in holding or other companies, which in turn, own shares in sample banks. For each of the 10 largest commercial and development banks in a country, we first calculate the percentage of government ownership by multiplying the share of each shareholder in that bank by the share the government owns in that shareholder, and then summing the resulting shares:

$$GB95_{ik} = \sum_{j=1}^J s_{ji} s_{gj}, \quad (1)$$

where $k = 1 \dots 92$ indexes the countries in our sample, $I = 1 \dots 10$ indexes the 10 largest banks in a country, $j = 1 \dots J$ indexes shareholders of a given bank, $GB95_{ik}$ stands for the government's share in bank I in country k , s_{ji} is the share of bank I owned by shareholder j , and s_{gj} is the share of equity the government owns in j ($s_{gj} = 0$ if j is a private individual). For example, the government of Korea owns 47.9 percent of the shares in Bank of Korea, which in turn owns 100 percent of Korea Exchange Bank. For this bank, $j = 1$, $s_{1i} = 1.00$ and $s_{g1} = 0.48$.

Government ownership of banks *GB95* for country k is computed by multiplying $GB95_{ik}$ of every sampled bank I by its total assets a_{ik} , summing the resulting numbers and dividing the sum by total assets of the top 10 banks:

$$GB95_k = \frac{\sum_{i=1}^{10} GB95_{ik} a_{ik}}{\sum_{i=1}^{10} a_{ik}}. \quad (2)$$

¹ In all but nine countries in the sample (Colombia, Hong Kong, Indonesia, Japan, Malaysia, Paraguay, Peru, South Africa, and the United States), our top 10 banks represent more than 75 percent of the total claims on the private sector. In only the United States and Hong Kong do they represent less than 50 percent.

Thus, *GB95* captures the share of the assets of the top 10 banks in a given country that is “owned” as opposed to “controlled” by the government.

The variable *GB95* does not take into account the possibility that the extent of government control of a bank, particularly when the government is a large shareholder, may exceed its equity ownership. The next three variables classify banks as “government-owned” when the government’s equity ownership exceeds certain thresholds.

To construct *GC20*, we start with government ownership measures for each of the 10 largest banks. We then classify a bank as government-owned if $GB95_{ik} > 0.2$ and the government is the largest known shareholder or if $GB95_{ik} > 0.5$ (in case we do not know the percentage ownership by other shareholders). Using this definition, *GC20* is the sum of assets of all government-owned banks (among the 10 largest) divided by the total assets of 10 largest banks in the country. This approach is in line with our earlier work which suggests that 20 percent ownership is typically sufficient for control (La Porta, Lopez-de-Silanes, and Shleifer (1999)). Similarly, we construct *GC50* as a ratio of the assets of the banks in which the government holds over 50 percent of equity to the total assets of the 10 largest banks, and *GC90* as a corresponding measure for banks where government equity ownership exceeds 90 percent. These measures of government ownership of banks are highly correlated with each other: The correlation between *GB95* and *GC20* is 0.95; the correlation between *GB95* and *GC50* is 0.97, and the correlation between *GB95* and *GC90* is 0.92.

Both *GB95* and the control variables reflect government ownership of banks at the end of the period for which we have data on growth. Since we are interested in the effect of government ownership of banks on the subsequent financial and economic development, we need an estimate of the percentage of banking assets owned by the government at the beginning of the period over which we compute growth. Our growth numbers are for the period 1960 to 1995, but we are not able to find good quality data on government ownership of banks circa 1960. However, with some effort, we are able to find data on government ownership of banks around 1970. In our sample, six countries experienced bank nationalizations during the 1960s (Algeria, Egypt, India, Korea, Libya, and Tanzania). We reestimate the results presented later in the paper without these six countries, as well as using growth numbers between 1970 and 1995 where possible. Our results are robust to these alternative estimation strategies.

To construct *GB70*, we use *Bankers’ Almanac* (1972), *Polk’s World Banking Directory* (1973) and *Europa Yearbook* (1971) to identify each country’s 10 largest commercial and development banks in 1970 for the 92 countries in our sample.² In general, to identify ownership structures, we follow the same procedure to construct *GB70* as that for *GB95*. Because the data for 1970 are

² An earlier version of this paper presented data on ownership of banks in 1985. These numbers are easier to find the sources for, and yield similar results to those for 1970. The correlation between these two indices is 0.90. In general, government ownership of banks was higher in 1970 than in 1985.

more limited than those for 1995, we rely to a greater extent on country sources.³ When the exact ownership numbers are unavailable for some banks, we proceed as follows. First, for 10 countries in the sample, it is not possible to get ownership information for each bank, so we rely on aggregate measures from country sources that provided us with a percentage of the total banking assets that were in the hands of the state.⁴ Second, for an additional 15 banks in the rest of the sample, we know that government was a shareholder at the time but we do not have the exact share ownership. When we know that the government was a shareholder, but another party was the controlling shareholder, we assigned 0 percent of assets to government ownership (seven cases). For government controlled banks (the remaining eight cases), we assign 100 percent of assets to the government. (Alternative assumptions make virtually no difference.) Finally, for 10 countries, some of the information is not available or its quality is very poor for the year of 1970. For these countries, we gather information for the year closest to 1970. With two exceptions, we stay within four years of 1970.⁵ The correlation between *GB95* and *GB70* is 0.77.

B. Findings

Table I presents our basic findings on the extent of government ownership of banks. We divide countries into groups by the origin of their commercial laws (common law, French civil law, German civil law, Scandinavian law, and socialist law). Our previous research shows that the nature of both financial markets and government involvement in economic life differs significantly across legal origins. In particular, civil law countries, and especially French civil law countries, tend to intervene in economic activity to a greater extent than do common law countries (La Porta et al. (1997, 1998, 1999, 2000)). The table presents both means and medians by legal origin, although the discussion below focuses on the means.

Government ownership of banks is large and pervasive around the world. Even looking at the 1995 data, after bank privatization had been completed in many countries, the world mean of government ownership is 41.6 percent (median 33.4 percent), and a somewhat lower 38.5 percent (median 30 percent) if we exclude the former socialist countries. The corresponding number for 1970 ownership is an even higher 58.9 percent (median 57.1 percent),

³ These data sources are described in an Appendix available from the authors.

⁴ These countries are: Dominican Republic, Kenya, Oman, Panama, Paraguay, Saudi Arabia, Sri Lanka, Trinidad and Tobago, United Arab Emirates, and Zimbabwe.

⁵ The specific countries and year of information are as follows: Bahrain (ownership and assets are for 1974), Kenya (ownership and assets are for 1973), Qatar (ownership and assets are for 1974), South Korea (ownership and assets are for 1972), United Arab Emirates (ownership and assets are for 1975), El Salvador (ownership for 1967 and assets for 1970), Guatemala (ownership for 1963 and assets for 1970), Iran (ownership for 1974 and assets for 1970), Kuwait (ownership for 1974 and assets for 1970), Lebanon (ownership for 1974 and assets for 1970). For these countries, we know that there were no major privatizations or nationalizations between the year of the ownership data and 1970.

Table I
The Prevalence of Government Ownership of Banks

Panel A shows the data of government ownership of banks for all the 92 countries in the sample. The countries are classified according to the legal origin of their commercial laws. Panel B shows the results of tests of means across legal origins. Panel C shows the results of tests of medians across legal origins. Variable definitions are in the Appendix.

Country	Share of the Assets of the Top 10 Banks Owned or Controlled by the Government				
	GB95	GB70	GC20	GC50	GC90
Panel A: Data by Country and Legal Origin					
Australia	12.33	20.89	20.99	20.99	3.54
Bahrain	7.34	6.67	3.40	3.40	3.40
Bangladesh	95.00	100.00	100.00	100.00	89.79
Canada	0.00	10.95	0.00	0.00	0.00
Cyprus	0.00	0.00	0.00	0.00	0.00
Hong Kong	0.00	0.00	0.00	0.00	0.00
India	84.94	100.00	100.00	94.61	59.61
Ireland	4.48	3.78	4.50	4.50	4.50
Israel	64.64	67.56	79.81	82.25	0.00
Kenya	29.94	45.09	48.74	22.30	8.57
Malaysia	9.93	20.00	9.93	9.93	9.93
New Zealand	0.00	33.47	0.00	0.00	0.00
Nigeria	9.91	57.53	13.05	7.82	7.82
Pakistan	85.96	73.49	97.75	80.10	80.10
Saudi Arabia	29.10	37.59	43.30	22.14	22.14
Singapore	13.53	12.85	34.35	4.92	0.00
South Africa	0.00	0.00	0.00	0.00	0.00
Sri Lanka	71.39	100.00	76.29	68.64	68.64
Tanzania	94.95	100.00	95.22	95.23	93.94
Thailand	17.09	24.07	21.78	21.78	0.00
Trinidad and Tobago	1.54	3.57	1.54	1.54	1.54
United Arab Emirates	41.93	45.86	37.08	59.11	9.81
United Kingdom	0.00	0.00	0.00	0.00	0.00
United States	0.00	0.00	0.00	0.00	0.00
Zimbabwe	30.04	0.00	49.69	29.75	7.05
English origin average	28.16	34.53	33.50	29.16	18.82
English origin median	12.33	20.89	20.99	9.93	3.54
Afghanistan	100.00	100.00	100.00	100.00	100.00
Algeria	99.96	100.00	99.96	99.96	99.96
Argentina	60.50	71.94	60.50	60.50	60.50
Belgium	27.59	39.87	22.29	22.29	16.64
Bolivia	18.48	53.14	17.70	17.70	17.70
Brazil	31.70	70.80	56.89	23.22	14.23
Chile	19.72	91.49	19.72	19.73	19.73
Colombia	53.92	57.67	52.47	52.47	52.47
Costa Rica	90.92	100.00	90.92	90.92	90.92
Cote d'Ivoire	20.60	54.90	20.46	15.96	13.56
Dominican Republic	38.93	70.08	38.93	38.93	38.93
Ecuador	40.61	100.00	40.61	40.61	40.61
El Salvador	26.43	100.00	39.03	39.03	13.90
Egypt	88.62	53.08	96.02	86.32	80.87
France	17.26	74.37	26.18	22.42	4.91
Greece	77.82	92.69	85.47	84.09	68.65
Guatemala	22.20	32.10	22.20	22.19	22.19
Honduras	29.90	49.20	29.90	29.90	29.90

continued

Table I—Continued

Country	Share of the Assets of the Top 10 Banks Owned or Controlled by the Government				
	GB95	GB70	GC20	GC50	GC90
Panel A: Data by Country and Legal Origin (continued)					
Indonesia	42.90	74.89	42.90	42.90	42.90
Iran	100.00	89.36	100.00	100.00	100.00
Iraq	93.77	100.00	93.77	93.77	93.77
Italy	35.95	75.69	27.81	27.81	16.61
Jordan	26.03	28.08	28.96	28.96	21.61
Kuwait	32.84	35.99	46.19	31.67	18.43
Lebanon	7.18	15.31	7.40	7.40	7.40
Lybia	95.12	100.00	100.00	100.00	73.11
Mexico	35.62	82.66	35.62	35.62	35.62
Morocco	37.90	59.11	50.89	42.23	24.03
Netherlands	9.20	7.80	10.30	10.30	6.67
Nicaragua	63.36	90.44	63.36	63.36	63.36
Oman	25.84	4.50	27.27	27.27	24.16
Panama	17.08	17.93	17.08	17.08	17.08
Paraguay	48.02	55.00	48.02	48.02	48.02
Peru	26.46	87.38	23.87	23.87	23.87
Philippines	27.23	52.18	34.41	34.42	17.69
Portugal	25.66	100.00	23.73	23.73	23.73
Qatar	33.74	46.53	58.87	8.61	8.61
Senegal	27.98	49.43	36.68	21.86	19.73
Spain	1.98	32.64	6.83	0.00	0.00
Syria	100.00	100.00	100.00	100.00	100.00
Tunisia	37.42	52.92	82.12	36.67	2.54
Turkey	56.46	81.84	55.90	55.90	55.90
Uruguay	68.79	42.29	68.79	68.79	68.79
Venezuela	57.98	82.88	63.36	53.41	53.41
French origin average	45.45	65.37	49.40	44.77	39.83
French origin median	35.79	70.44	41.76	36.15	24.09
Austria	50.36	70.80	70.17	70.17	0.00
Germany	36.36	51.90	37.47	37.47	29.86
Japan	0.00	6.90	0.00	0.00	0.00
South Korea	25.41	56.64	41.56	21.64	13.16
Switzerland	13.35	24.85	14.92	14.92	10.37
Taiwan	76.51	50.43	100.00	100.00	47.84
German origin average	33.67	43.59	44.02	40.70	16.87
German origin median	30.89	51.17	39.51	29.56	11.76
Denmark	8.87	9.80	10.60	8.87	8.87
Finland	30.65	32.06	30.65	30.65	30.65
Iceland	71.34	100.00	71.34	71.34	71.33
Norway	43.68	54.55	87.14	62.43	7.86
Sweden	23.20	20.78	29.61	29.61	12.07
Scandinavian origin average	35.54	43.44	45.87	40.58	26.16
Scandinavian origin median	30.65	32.06	30.65	30.65	12.07
Bulgaria	85.68	100.00	92.31	92.31	72.61
China	99.45	100.00	100.00	99.07	99.07
Croatia	1.04	100.00	1.29	0.00	0.00
Czech Republic	52.00	100.00	75.44	50.45	9.58
Hungary	36.56	100.00	82.50	14.64	0.03
Kazakhstan	56.13	100.00	80.72	44.76	44.76
Poland	84.29	100.00	94.16	83.19	76.13
Romania	62.68	100.00	87.77	87.77	24.61
Russia	32.98	100.00	49.90	49.90	13.18

continued

Table I—Continued

Country	Share of the Assets of the Top 10 Banks Owned or Controlled by the Government				
	GB95	GB70	GC20	GC50	GC90
Panel A: Data by Country and Legal Origin (continued)					
Slovakia	73.93	100.00	89.57	82.77	57.52
Slovenia	57.29	100.00	57.29	57.29	57.29
Vietnam	99.06	100.00	99.06	99.06	99.06
Socialist origin average	61.76	100.00	75.83	63.43	46.15
Socialist origin median	59.99	100.00	85.14	70.03	51.03
Average with socialist	41.57	58.89	47.98	42.47	32.71
Average without socialist	38.54	52.72	42.28	33.04	19.73
Median with socialist	33.36	57.09	42.23	33.04	19.73
Median without socialist	29.99	53.00	37.28	29.68	18.07
Panel B: Test of Means (<i>t</i> -statistics)					
English vs. French	-2.25 ^b	-3.91 ^a	-1.96 ^c	-1.94 ^c	-2.70 ^a
English vs. German	-0.37	-0.58	-0.62	-0.70	0.14
English vs. Scandinavian	-0.46	-0.50	-0.69	-0.67	-0.49
English vs. Socialist	-2.95 ^a	-8.98 ^a	-3.48 ^a	-2.78 ^a	-2.36 ^b
French vs. German	0.94	1.80 ^c	0.41	0.30	1.76 ^c
French vs. Scandinavian	0.74	1.16	0.25	0.30	0.95
French vs. Socialist	-1.73 ^c	-8.12 ^a	-2.79 ^a	-1.88 ^c	-0.60
German vs. Scandinavian	-0.12	0.01	-0.09	-0.01	-0.67
German vs. Socialist	-1.97 ^c	-5.92 ^a	-2.05 ^c	-1.32	-1.83 ^c
Scandinavian vs. Socialist	-1.77 ^c	-3.54 ^b	-1.93 ^c	-1.38	-1.10
Panel C: Test of Medians (<i>z</i> -statistics)					
English vs. French	-2.90 ^a	-3.46 ^a	-2.42 ^b	-2.84 ^a	-3.92 ^a
English vs. German	-0.73	-1.11	-0.68	-0.91	-0.67
English vs. Scandinavian	-1.09	-0.76	-0.92	-1.79 ^c	-1.79 ^c
English vs. Socialist	-2.70 ^a	-4.27 ^a	-2.83 ^a	-2.43 ^b	-2.47 ^b
French vs. German	0.99	1.78 ^c	0.24	0.58	2.03 ^b
French vs. Scandinavian	0.60	1.41	0.20	0.07	1.09
French vs. Socialist	-1.78 ^c	-4.31 ^a	-2.42 ^b	-1.63	-0.35
German vs. Scandinavian	0.00	0.18	0.00	-0.18	-0.55
German vs. Socialist	-1.97 ^c	-4.01 ^a	-1.73 ^c	-1.08	-1.69 ^c
Scandinavian vs. Socialist	-1.79 ^c	-3.40 ^a	-2.11 ^c	1.37	1.05

^aSignificant at 1 percent level; ^bsignificant at 5 percent level; ^csignificant at 10 percent level.

and 52.7 percent (median 53 percent) if we exclude the former socialist countries. The comparison of 1995 and 1970 numbers suggests that privatization sharply reduced but far from eliminated government ownership of banks.

Our adjustments for government control relative to cash flow ownership also increase the world average compared to *GB95*. Using *GC20* to measure government control, the world average share of banking assets controlled by the government is 48 percent (42.2 percent without former socialist countries). As we illustrate below, these magnitudes are considerably higher than the measures of government participation in more general economic activity such as production or investment. These findings establish our first propo-

sition: Government ownership of banks remains very large, even after the wave of privatizations in the 1980s.

It is also pervasive across continents and legal origins of commercial laws. Outside of the few rich common law countries and Japan (at the time we took the measurement), governments nearly everywhere own a respectable share of bank equity. The common law average *GB95* is 28.2 percent (median 12.3 percent), and statistically significantly lower than the French civil law origin average of 45.5 percent (median 35.8 percent). The corresponding means for 1970 are 34.5 percent and 65.4 percent. As is often the case in these comparisons of financial structures, the German and the Scandinavian averages are between the English and French ones, and close to each other. The former socialist countries still have the highest average share of equity of the largest banks owned by the government (61.8 percent), although this share is down sharply from 100 percent in 1970. The corrections for government control change these numbers somewhat, but do not alter the picture of high and pervasive government ownership of banks, occurring nearly everywhere, but especially in French civil law and socialist law countries.

Table II examines the importance of development banks in our sample. An argument has been made that because development banks are so important in some countries, our results are driven by them alone. The first column shows, by legal origin, how much of the ownership of the top 10 banks is accounted for by government ownership of development banks. On average, about 5.3 percent out of 41.6 percent overall level of government ownership is accounted for by development banks. Development banks are particularly prevalent in French legal origin countries (largely in Latin America), and utterly uncommon in German, Scandinavian, and socialist origin countries.

The second column of Table II reproduces the averages of *GB95* from Table I, and the third column shows how these averages change when we take development banks out of the sample (i.e., both the numerator and the denominator in the definition of *GB95*). The corrected variable, government ownership of commercial banks or *GBCOM95*, has a worldwide average of 38.3 percent (compared to 41.6 percent for *GB95*). The difference between French and English origins remains large, but no longer statistically significant. The last two columns of Table II show that the development bank correction does not change our conclusions for *GB70* either.

Conceptually, we believe it is appropriate to include development banks in the sample, since in some countries these are precisely the banks allegedly addressing the Gerschenkron–Myrdal development problems. We therefore keep these banks in the results we present. For completeness, we have redone every regression excluding them. The statistical significance of some results falls, but the important results presented below remain statistically significant.

The results on the differences in government ownership of banks among legal origins are in principle consistent with both the development and the political view. Earlier research (La Porta et al. (1997, 1998)) shows that countries with French legal origin laws have less investor protection and

Table II
Development Banks and the Prevalence of Government Ownership of Banks

Panel A shows the average of government ownership of banks by legal origin. Panel B shows the results of tests of means across legal origins. Variable definitions are in the Appendix.

Country	Share of Assets of the Top Banks Owned or Controlled by the Government			
	<i>GBDEV95</i> Development banks Owned by the Government in 1995	<i>GBCOM95</i> Commercial banks Owned by the Government in 1995	<i>GB70</i>	<i>GBCOM70</i> Commercial Banks Owned by the Government in 1970
Panel A: Means by Legal Origin				
English origin average	4.36	28.16	34.53	32.03
French origin average	7.45	45.45	65.37	59.10
German origin average	2.19	33.67	43.59	43.37
Scandinavian origin average	1.11	35.54	43.44	43.44
Socialist origin average	2.87	61.76	100.00	100.00
Average with socialist	5.33	41.57	58.89	55.20
Average without socialist	5.70	38.54	52.73	48.48
Panel B: Test of Means (<i>t</i> -statistics)				
English vs. French	-1.36	-2.25 ^b	-3.19 ^a	-3.22 ^a
English vs. German	-0.73	-0.37	-0.58	-0.73
English vs. Scandinavian	1.06	-0.46	-0.50	-0.64
English vs. Socialist	-0.65	-3.01 ^a	-2.98	-7.38 ^a
French vs. German	1.25	0.94	1.80 ^c	1.16
French vs. Scandinavian	1.39	0.74	1.60	1.03
French vs. Socialist	1.50	-1.73 ^c	-2.02 ^b	-8.49 ^a
German vs. Scandinavian	-0.44	-0.12	0.01	-0.01
German vs. Socialist	-0.23	-1.97 ^c	-8.65 ^a	8.43 ^a
Scandinavian vs. Socialist	0.63	1.77 ^c	-3.54 ^b	3.54 ^a

^aSignificant at 1 percent level; ^bsignificant at 5 percent level; ^csignificant at 10 percent level.

less developed private financial markets than do common law countries, which on the development view would increase the demand for government provision of finance. Other research (La Porta et al. (1999)) shows that French legal origin countries generally intervene more in economic life. Consistent with the political view, government ownership of banks may then reflect the greater politicization of economic activity in French legal origin (and socialist) countries than in common law countries. In the subsequent sections, we present further evidence that attempts to distinguish the two theories. Importantly, all the results presented below have been rerun excluding socialist countries, and the conclusions we draw do not depend on them.

II. Which Countries Have High Government Ownership of Banks?

In this section, we ask which characteristics of countries predict high government ownership of banks. In Table III, we first consider the correlations between various country characteristics and *GB95*. In general, we try to find the earliest available measures of country characteristics, but most data are still from the 1990s, and hence, we cannot really say what “causes” high government ownership of banks. In addition, because poorer countries generally have higher *GB95*, Table III also presents the coefficients from the regression of *GB95* on the country characteristic in question, a constant, and the log of 1960 per capita GDP. These results crudely correct for the differences in initial conditions.

We begin the analysis with the 1960 level of per capita income simply to point out that poorer countries indeed have more government ownership of banks. We then examine a number of indicators of the quality of government, some of which we have studied in an earlier paper (La Porta et al. (1999)). These include measures of government intervention in economic life (such as regulation, price controls, black market premium, political rights, and government spending), measures of the efficiency of government (such as tax compliance, corruption, and bureaucratic quality), measures of the security of property rights, rule of law, and investor protection, measures of the importance of state-owned firms in the overall economy as opposed to just in banking, measures of initial levels of financial development, and, finally, measures of the incidence of political and financial crises in the economy.

Panel A of Table III establishes that *GB95* is higher in countries that were poorer in 1960. Panel B shows that countries with more interventionist governments also have higher *GB95*. Heavier regulation, higher frequency of price controls, heavier banking regulation, and higher black market exchange rate premiums are all associated with greater government ownership of banks, even controlling for initial per capita income. Both the correlations and the regression coefficients are statistically significant. At the same time, there is no relationship between *GB95* and the size of government, as measured by government consumption or government transfers

Table III
Which Countries Have More Government
Ownership of Commercial Banks?

The first column of numbers shows the correlation between each variable and the extent of government ownership of commercial banks in 1995 (*GB95*). The second column shows coefficients and their significance resulting from ordinary least squares regressions on the cross section of countries. The regression we run is $GB95 = \alpha + \beta x + \varphi \text{GDP per capita in 1960}$, where x represents the independent variable. The independent variables are classified into seven different panels: (a) initial level of development; (b) government intervention; (c) government efficiency; (d) property rights; (e) state owned enterprises; (f) initial level of financial development; and (g) crisis and instability. Robust standard errors are shown in parentheses. Variable definitions are in the Appendix.

Independent Variables	Dependent Variable: <i>GB95</i>		Number of Observations
	Raw Correlations	Regression Coefficients	
Panel A: Initial Level of Development			
Log of GDP per capita in 1960	−0.3560 ^a	−0.1133 ^a (0.0302)	91
Panel B: Government Intervention			
Business regulation index	−0.4511 ^a	−0.1301 ^a (0.0375)	87
Frequency of price controls index	−0.5088 ^a	−0.0572 ^a (0.0162)	74
Government intervention in the banking sector	−0.5151 ^a	−0.1557 ^a (0.0274)	87
Black market premium 1980s	0.5236 ^a	0.2927 ^a (0.0837)	75
Government consumption/GDP	0.1019	−0.2497 (1.2331)	87
Transfers and subsidies/GDP	−0.0563	1.1326 ^b (0.5274)	70
Political rights index	−0.3398 ^c	−0.0335 ^c (0.0171)	90
Democracy score	−0.3569 ^b	−0.0182 ^b (0.0087)	90
Panel C: Government Efficiency			
Tax compliance	−0.5048 ^a	−0.1212 ^a (0.0352)	47
Bureaucratic quality index	−0.4495 ^a	−0.0450 ^a (0.0139)	85
Corruption index	−0.3004 ^b	−0.0182 (0.0176)	85
Panel D: Property Rights			
Property rights index	−0.5343 ^a	−0.1416 ^a (0.0300)	89
Rule of law index	−0.3202 ^b	−0.0352 (0.0261)	85
Government repudiation of contracts index	−0.4386 ^a	−0.0587 ^a (0.0180)	85
Antidirector rights index	−0.2663	−0.0499 ^c (0.0257)	49
Creditors rights index	−0.1141	−0.0086 (0.0257)	47
Panel E: State Owned Enterprises			
SOEs in the economy index	−0.4632 ^a	−0.0559 ^a (0.0122)	76
SOE output/GDP	0.3511	0.8289 ^a (0.2740)	49
SOE investment/gross domestic investment	0.5489 ^a	1.1696 ^a (0.2220)	55
Public sector employment/total employment	0.2548	1.0363 ^c (0.6080)	40
Panel F: Initial Level of Financial Development			
Private credit/GDP in 1960	−0.2299	−0.1634 (0.1535)	88
Liquid liabilities/ GDP in 1960	−0.2325	−0.1651 ^c (0.1177)	87
Commercial bank assets/total bank assets in 1960	−0.2699	−0.2172 (0.1727)	89
Stock market capitalization/GDP in 1976	−0.3298	−0.3091 ^b (0.1485)	82

continued

Table III—Continued

Independent Variables	Dependent variable: <i>GB95</i>		Number of Observations
	Raw Correlations	Regression Coefficients	
Panel G: Crisis and Instability			
Log of inflation	0.2246	0.4656 ^c (0.2720)	68
Major government crises	−0.1198	−0.0531 (0.0496)	75
Number of coups d'etat	0.0665	−0.0061 (0.2881)	75
Banking crisis dummy	0.0584	−0.0441 (0.0629)	91
Bank assets affected by crises	0.2031	0.2216 (0.1400)	69
Bank nationalizations in crisis dummy	−0.0437	−0.0602 (0.0976)	63
Bank liquidations during crisis dummy	−0.0801	−0.1299 (0.0988)	62

^aSignificant at 1 percent level; ^bsignificant at 5 percent level; ^csignificant at 10 percent level.

and subsidies relative to GDP. This may be partly due to the fact that government spending is high in developed market economies, which generally have both big and good government (La Porta et al. (1999)).

Panel B also shows that government ownership of banks is lower in countries that have wider political rights or are more democratic. This result actually helps distinguish the political from the development view. If government ownership of banks served social goals, we would expect that governments subject to greater public pressure, (i.e., the more democratic governments) would have higher ownership, other things being equal. To the extent that per capita income controls for the “need” for such ownership in the development view, the evidence contradicts this view. In contrast, it supports a key prediction of the political story, namely that governments are less able to use the banks they own to redistribute wealth to political supporters when they are subject to greater oversight by the electorate. As a consequence, they have less interest in owning such banks. Djankov et al. (2002) make a similar argument in the context of government regulation of entry by new firms, which is lighter in more democratic countries.

Panel C considers government efficiency, which is related to interventionism but is not necessarily the same thing. Countries with less efficient governments have greater government ownership of banks. Higher tax compliance, higher bureaucratic quality, and lower corruption are all associated with lower government ownership of banks. The corruption index is not statistically significant in a regression controlling for income, but other variables are.

Panel D focuses on the security of property rights. The property rights index, rule of law, and the likelihood of government repudiation of contracts all show that countries with greater security of property rights have lower *GB95*. This result is consistent not only with Gerschenkron's (1962) views, but also with the prediction of the political story that government ownership will be higher when the government gets a greater bang for the buck from its control of finance (Shleifer and Vishny (1994)). There is no significant

correlation between *GB95* and the La Porta et al. (1998) measures of legal protection of either shareholders or creditors.

Panel E examines the relationship between government ownership of banks and measures of the importance of state-owned enterprises (SOEs) in the economy, including an index of their prevalence as well as measures of relative output, investment, and employment of SOEs. Not surprisingly, countries with greater roles of SOEs in the economy also have higher government ownership of banks, although *GB95* is on average higher than the measures of the relative size of the SOEs in the economy. These numbers are not, however, directly comparable, since we do not consider the smaller banks, where government ownership may be lower.

Panel F examines the relationship between *GB95* and measures of initial financial development. We use measures of banking development from Beck et al. (2000), who propose three variables: credit by financial intermediaries to the private sector relative to GDP, liquid liabilities of the financial system relative to GDP, and a ratio of commercial bank domestic assets to commercial plus central bank domestic assets. Theoretically, the first variable is the most suitable for our purposes, since, unlike the other two, it measures private as opposed to overall financial development. The data show negative correlations between these measures of financial development and *GB95*, though the results are insignificant.⁶ In addition, we use the ratio of stock market capitalization to GDP around 1976 as a measure of initial financial development. Although the raw correlation with *GB95* is insignificant, the regression coefficient indicates that countries with more developed stock markets in the 1970s have lower government ownership of banks in 1995.

Finally, in Panel G we examine the question of whether government ownership of banks is associated with economic and political instability, as measured by inflation, the incidence of political crises and coups, as well as the incidence and depth of banking crises. The data on banking crises pertain to the period 1970 to 1990. Here causality is a particularly thorny issue, since government ownership may be a cause of instability because of politicized lending, but may also be a response to instability through nationalizations. Ironically, except for some evidence that countries with higher inflation have higher *GB95*, the association between *GB95* and the available measures of instability is weak. This may be because of the timing problems in the data. Alternatively, such factors as the general interventionist stance of the government, its efficiency, and the security of property rights may be more important correlates of government bank ownership than are the assorted crises.⁷

The evidence in this section is generally consistent with both the development and the political views of government ownership of banks. Countries

⁶ Starting in 1970, we have further measures of financial development: the ratio of quasi-liquid liabilities to GDP, the ratio of domestic credit by the banking sector to GDP, and the ratio of claims on the private sector to GDP. The results for two out of these three variables, controlling for 1970 per capita GDP, are statistically significant.

⁷ We have redone this analysis using *GB70* rather than *GB95*. The results are similar both in terms of the coefficients and in terms of the patterns of statistical significance.

with higher *GB95* are more backward and more statist: They are poorer and have more interventionist and inefficient governments and less secure property rights. Countries with less developed financial systems also seem to have higher government ownership of banks. At the same time, consistent with the political but not the development view, less democratic countries have higher government ownership of banks, holding per capita income constant.

In the next two sections, we examine the consequences of government ownership of banks. Are interventionist and inefficient governments able to step in and, through their ownership of banks, jump-start the financial system and accelerate development consistent with the development view? Alternatively, do such governments simply politicize resource allocation without much benefit to growth consistent with the political view?

III. Does Government Ownership of Banks Speed Up Financial Development?

Gerschenkron (1962) suggests that the government, by participating in the financial sector, can encourage the subsequent development of lending to the private sector. The government may help to develop the institutions of lending such as standardized contracts or specialized courts, show by example that long-term lending is possible and profitable, or simply subsidize private banks. In contrast, in the political theory, government control of finance and the resulting politicization of resource allocation would, other things being equal, slow down financial development.

In Table IV, we examine the effect of *GB70* on the measures of future financial development controlling both for initial per capita income and initial financial development. Because *GB70* comes from the beginning of the sample period, it is more natural, though still imperfect, to interpret this evidence as causal. In assessing financial development, we are mostly interested in access of private firms to finance, as this is the dimension that Gerschenkron (1962) himself emphasized as a measure of success. We use two approaches to this measurement, each having some advantages and some problems. First, we consider the growth in Beck, Levine, and Loayza (2000) measures of financial development between 1960 and 1995 introduced in Panel F of Table III, extending their sample to cover 82 countries. Recall that only the first of these three variables measures the lending to the private sector specifically. In addition, we consider the growth of the ratio of stock market capitalization to GDP. Second, we examine the efficiency of the banking system at the end of the period. The three categories of efficiency measures we look at are access of firms to credit, efficiency of the banking sector, and financial stability. Again, these three variables are not constructed to pertain to private sector only.

Panel A of Table IV examines financial development between 1960 and 1995. First, the initial level of financial development is negatively correlated with its own subsequent growth, possibly reflecting some convergence in financial development. Second, government ownership of banks *ceteris pa-*

Table IV
Government Ownership of Banks and Financial Development

Ordinary least squares regressions for the cross section of countries. The definitions of all variables can be found in the Appendix. The dependent variables are measured for 1999 or the most recent period for which information is available. Robust standard errors are shown in parentheses.

Independent Variables							Adjusted R^2 [N]
Dependent Variables	GB70	Log GDP per Capita in 1960	Initial Private Credit/GDP	Initial Liquid Liabilities/ GDP	Initial Commercial Bank Assets/ Total Bank Assets	Initial Stock Market Capitalization/ GDP	
					Bank Assets	GDP	
Panel A: Financial Development							
Growth of private credit/GDP	-0.0394 ^a (0.0107)	-0.0006 (0.0043)	-0.0558 ^a (0.0187)			-0.0668 ^b (0.0262)	0.2111 [82]
Growth of liquid liabilities/GDP	-0.0138 ^c (0.0079)	-0.0015 (0.0028)		-0.0470 ^a (0.0147)		-0.0520 ^a (0.0186)	0.2475 [82]
Growth of commercial bank assets/ total bank assets	-0.0050 (0.0048)	0.0041 ^c (0.0022)			-0.0741 ^a (0.0178)	0.0406 ^b (0.0195)	0.4456 [82]
Growth of stock market capitalization/ GDP	0.0071 (0.0341)	-0.0338 ^b (0.0148)				0.3117 ^a (0.1012)	0.2880 [47]
Change in stock market capitalization/ GDP	-0.5306 ^a (0.1620)	-0.0305 (0.0411)				-0.1000 (0.3382)	0.1910 [67]

Panel B: Access to Credit				
Private claims – claims of non-top-20 firms/GDP	-0.3153 ^c (0.1749)	-0.0231 (0.0595)	0.6118 ^c (0.3121)	0.6542 ^c (0.3687)
Loan availability	-0.5787 ^b (0.2629)	0.5152 ^a (0.0914)	0.2772 (0.2714)	0.4156 (0.6019)
Panel C: Efficiency of the Banking System				
Bank overhead costs/total bank assets	0.0232 ^a (0.0067)	-0.0012 (0.0026)	-0.0134 (0.0107)	0.0374 (0.0166)
Interest rate spread	22.2802 ^a (7.2241)	4.1503 (4.1113)	-27.6439 ^c (14.4694)	-8.6116 (22.0295)
Panel D: Instability				
Soundness of banks	-1.2416 ^b (0.5205)	0.7522 ^a (0.1564)	0.3818 (0.4794)	0.5838 (1.1210)
Log of inflation	0.1198 ^a (0.0363)	0.0095 (0.0146)	-0.0719 (0.0477)	0.0260 (0.0880)
Panel E: Capital Market				
Stock market capitalization in 1995	-0.7411 ^a (0.2058)	0.0089 (0.0422)		0.7464 ^b (0.3660)
Stock market capitalization in 1995	-0.5409 ^a (0.1762)	-0.0343 (0.0438)	0.9011 ^a (0.3404)	0.7938 ^b (0.3460)

^aSignificant at 1 percent level; ^bsignificant at 5 percent level; ^csignificant at 10 percent level.

ribus reduces subsequent financial development. This effect is statistically significant at the one percent level for the growth in the ratio of private credit to GDP and for the change in the ratio of stock market capitalization to GDP.⁸ It is less significant or insignificant for the other measures. These results are inconsistent with the development view of government ownership of banks, but consistent with the political view.

In Panel B, access to credit is measured first as the share of private credit that goes to firms outside the top 20 and second as a survey measure of credit availability to firms. In both cases, higher *GB70* is associated with sharply lower measures of access of firms to credit at the end of the period. These findings are particularly ironic in light of the development view that government ownership broadens the access of firms to credit.

In Panel C, end-of-period efficiency of the banking sector is measured first as a ratio of bank overhead costs to bank assets and second as the spread between the lending and the borrowing rate. On both measures, the efficiency of the banking sector is sharply lower when *GB70* is higher. In Panel D, we measure financial stability first as a survey measure of the soundness of banks in 1999, and second as inflation between 1970 and 1995. On all measures, a higher *GB70* is associated with greater subsequent financial instability. While one can quibble with each of these individual measures, the evidence in this table shows that financial systems of countries with higher initial government ownership of banks grow less fast, and are less efficient. This evidence does not support the development theories of government banking.

IV. Does Government Ownership of Banks Speed Up Economic Growth?

In the development view, government ownership of banks should encourage savings, capital accumulation, and productivity growth. The political view does not have strong implications for savings and capital accumulation, but holds that political resource allocation is likely to have detrimental effects on the growth of productivity.

Table V presents growth regressions, in which the dependent variable is the growth in per capita income between 1960 and 1995. In the first regression, we include only the initial per capita income and *GB70* as independent variables. In subsequent regressions, we include additional controls. The use of ownership data from the beginning of the sample, as well as the inclusion of important controls that might be correlated with both *GB70* and subsequent growth, gives us a plausible though imperfect way of evaluating the effect of government bank ownership on subsequent economic development.

To begin, the results confirm the “convergence” finding that initially poorer countries grow faster (Barro (1991)). In addition, higher *GB70* is associated

⁸ Because many countries do not have stock markets in the 1970s, we can only properly define and use the growth rate of the ratio of stock market capitalization to GDP for 47 countries. However, we can use the change in this ratio rather than the growth rate for 67 countries.

Table V
Simple Growth Regressions

Ordinary least squares (OLS) regressions of the cross section of countries. The dependent variable is the average annual growth rate of GDP per capita for 1960 to 1995. The independent variables are described in the Appendix. Robust standard errors are shown in parentheses.

Dependent Variables	Independent Variables							Adj. R^2 [N]
	GB70	Initial Log of GDP per Capita	Initial Private Credit/GDP	Initial Liquid- Liabilities/ GDP	Initial Commercial Bank Assets/ Total Bank Assets	Initial Stock Market Capitalization/ GDP	Average Years of Schooling	
GDP per capita growth 1960–95	−0.0235 ^a (0.0077)	−0.0065 ^b (0.0032)					0.0681 ^a (0.0205)	0.1240 [85]
GDP per capita growth 1960–95	−0.0199 ^a (0.0071)	−0.0160 ^a (0.0033)					0.0911 ^a (0.0171)	0.3403 [85]
GDP per capita growth 1960–95	−0.0171 ^b (0.0072)	−0.0175 ^a (0.0030)	0.0302 ^a (0.0103)				0.0942 ^a (0.0163)	0.4168 [82]
GDP per capita growth 1960–95	−0.0152 ^c (0.0079)	−0.0166 ^a (0.0032)		0.0198 ^b (0.0086)			0.0881 ^a (0.0176)	0.3835 [82]
GDP per capita growth 1960–95	−0.0180 ^b (0.0084)	−0.0160 ^a (0.0037)			0.0026 (0.0136)		0.0876 ^a (0.0190)	0.3216 [83]
GDP per capita growth 1960–95	−0.0160 ^c (0.0082)	−0.0134 ^a (0.0034)				0.0146 ^b (0.0014)	0.0784 ^a (0.0187)	0.3028 [75]
GDP per capita growth 1960–95	−0.0140 ^c (0.0083)	−0.0151 ^a (0.0032)	0.0263 ^b (0.0105)			0.0107 (0.0084)	0.0826 ^a (0.0180)	0.3671 [73]

^aSignificant at 1 percent level; ^bsignificant at 5 percent level; ^csignificant at 10 percent level.

with statistically significantly slower economic growth. A parameter estimate of around -0.024 suggests that, as government ownership of banks rises by 10 percentage points, growth falls by 0.24 percent per annum—by no means a small effect. Although this result requires a number of qualifications and robustness checks, taken up below, it does not support the development view that government participation in finance promotes economic development.

In the second regression, we control for average years of schooling, as is standard in growth regressions. The coefficient on *GB70* remains statistically significant. We then add alternatively the three measures of initial financial development from Beck, Levine, and Loayza (2000), as well as the initial ratio of stock market capitalization to GDP. For all four measures, the initial level of financial development exerts a positive influence on future growth, consistent with the work of Levine and his co-authors.⁹ Yet holding initial financial and economic development and schooling constant, *GB70* continues to exert a large and statistically significant negative effect on subsequent growth. The coefficient remains between -0.015 and -0.018 . Controlling for the traditional variables in the growth regressions, government ownership of banks reduces subsequent economic growth.

One concern with these specifications is that *GB70* may simply proxy for some alternative measure of distortionary economic policies or poorly protected property rights. These policies, rather than government ownership of banks per se, may retard economic growth (Knack and Keefer (1995)). After all, we have already shown that government ownership of banks is more prevalent in countries with interventionist and inefficient governments, as well as poorly protected property rights. In Table VI, we include some of the standard measures of government intervention, using the earliest data available so that we can interpret these variables as having a possible causal effect on growth. Because in the political view some of these variables should be correlated with *GB70*, their inclusion may spuriously reduce the estimate below the true effect of *GB70*. In all these regressions, we include initial private credit relative to GDP, initial economic development, and average years of schooling, as well as a number of geographic controls to address the possible omitted variable bias.

Measures of government distortions reduce and sometimes eliminate the statistical significance of the effect of *GB70* on subsequent growth, although in part, this is due to the decrease in the number of observations. The coefficient falls to about -0.013 on average. Interestingly, the distortions we measure do not themselves have statistically significant adverse effects on future growth when included in the regression with *GB70*, which, among the measures of government intervention, is the most significant variable.

Another possible concern is that smaller countries have near-monopoly banking, and hence are more likely to have higher government ownership of

⁹ When we include the ratio of initial private credit to GDP and the ratio of initial stock market capitalization to GDP in the same regression, the former, but not the latter, is statistically significant. In this regression as well, *GB70* negatively affects growth.

Table VI
Growth Results with Different Combinations of Controls

Ordinary least squares regressions of the cross section of countries. The dependent variable is the average growth rate of GDP per capita for the period from 1960 to 1995. The independent variables are defined in the Appendix. The regional dummies are for Africa, North America, South America, Europe, Oceania, Middle East, and the rest of Asia. Robust standard errors are shown in parentheses.

Independent Variables	Dependent Variable: Growth Rate of GDP per Capita 1960 to 1995				
GB70	-0.0152 ^c (0.0090)	-0.0181 ^b (0.0086)	-0.0154 (0.0114)	-0.0117 (0.0079)	-0.0073 (0.0065)
High inflation dummy 1970-1995	-0.0073 (0.0090)				
Black market premium 1960s		-0.0036 (0.0065)			
Index of government intervention in the economy 1975			-0.0013 (0.0022)		
Top marginal tax rate 1975				0.0199 (0.0204)	
Transfers and subsidies/GDP 1975					-0.0004
SOE in the economy index 1975					(0.0014)
Latitude	-0.0039 (0.0184)	-0.0024 (0.0191)	-0.0050 (0.0214)	-0.0109 (0.0231)	0.0007 (0.0010)
Log of GDP per capita in 1960	-0.0157 ^a (0.0042)	-0.0150 ^c (0.0054)	-0.0047 (0.0052)	-0.0101 ^c (0.0054)	0.0043 (0.0172)
Private credit/GDP in 1960	0.0217 ^b (0.0102)	0.0207 ^c (0.0112)	0.0178 (0.0126)	0.0153 (0.0098)	-0.0056 (0.0046)
Average schooling	0.0044 ^b (0.0018)	0.0039 ^b (0.0018)	0.0019 (0.0020)	0.0032 (0.0021)	0.0103 (0.0097)
Intercept	0.1020 ^a (0.0212)	0.1027 ^a (0.0258)	0.0655 ^c (0.0349)	0.0732 ^a (0.0225)	0.0024 (0.0017)
Regional dummies	Yes	Yes	Yes	Yes	Yes
Number of observations	82	81	52	54	73
Adjusted R ²	0.5012	0.4610	0.5314	0.5661	0.4196

^aSignificant at 1 percent level; ^bsignificant at 5 percent level; ^csignificant at 10 percent level.

banks. To address this concern, we reestimate the regressions in Tables IV through VII using weighted least squares. We try as weights both the initial population of each country and the initial adult population. Our results are robust to this alternative estimation strategy.

Following Beck, Levine, and Loayza (2000), we next consider specific channels through which government ownership of banks can influence economic growth. Panel A of Table VII focuses on savings and capital accumulation. Initial per capita income exerts a (statistically insignificant) negative influence on capital accumulation, and a positive influence on savings. Higher years of schooling are associated with higher capital accumulation. Greater initial financial development is associated with faster subsequent capital accumulation, consistent with Beck, Levine, and Loayza. However, *GB70* has no significant influence on either capital accumulation or savings. The positive but insignificant effect of government ownership of banks on savings provides mild support for the development view, although we find no evidence of an effect on capital accumulation, which is central to that view.

Panel B of Table VII focuses on the growth in productivity. Following Beck, Levine, and Loayza (2000), we consider three measures of productivity growth (see the Appendix for exact definitions). The first measure derives productivity growth as output growth adjusted for capital accumulation. The second and third measures also adjust output growth estimates by the growth of human capital. We have been able to expand the Beck, Levine, and Loayza sample from 61 to 77 countries for their first two measures of productivity growth, but not for the third one, since the data needed for the last productivity measure were not available for the extra countries.

The results on productivity growth are striking: *GB70* exerts a negative and, in most specifications, statistically significant effect on future productivity growth, even controlling for initial financial development and schooling. The coefficients in specifications with controls are around -0.01 , indicating that a 10 percentage point higher measure of government ownership is associated with 0.1 percent per annum lower rate of productivity growth. Productivity appears to be the place where government ownership of banks negatively impacts growth.

This evidence is broadly consistent with the political view according to which government ownership leads to misallocation of resources that are detrimental to productivity growth and ultimately economic growth itself. The evidence on resource misallocation is also consistent with Sapienza's (1999) findings for Italian banks, as well as with a large literature on state firms. Finally, the data support Young's (1995) interpretation of Asian growth. The evidence is not, however, consistent with the development view of the beneficial effects of government ownership of banks on productivity growth.¹⁰

¹⁰ In an earlier draft, we provided instrumental variable estimates of our growth of income, capital, and productivity regressions using legal origins and the percent of the population in various religions in 1900 as instruments (see La Porta et al. (1999)). The results corroborated the OLS evidence, and the statistical tests accepted the instruments.

Table VII
Capital Accumulation, Productivity Growth and Government Ownership of Banks

Ordinary least squares (OLS) regressions for the cross section of countries. The dependent variables are: (1) the annual growth rate of physical capital per worker for the period 1960 to 1992; (2) the average of the savings to GDP ratio for the period 1960 to 1993; (3) the annual productivity per capita growth rate for the period 1960 to 1995 (Productivity growth 1); (4) the annual productivity per capita growth rate considering human capital accumulation, following Mankiw (1995) for the period 1960 to 1995 (Productivity growth 2); and (5) the annual productivity per capita growth rate considering human capital accumulation, following Hall and Jones (1999), for the period 1960 to 1995 (Productivity growth 3). The independent variables are defined in the Appendix. Robust standard errors are shown in parentheses.

Dependent Variables	Independent Variables				Adj. R^2 [N]
	GB70	Log of GDP per Capita in 1960	Private Credit/ GDP in 1960	Average Years of Schooling	
Panel A: Capital Accumulation and Savings Rate					
Growth in physical capital per worker	-0.0039 (0.0096)	-0.0036 (0.0035)		0.0542 ^b (0.0250)	0.0156 [77]
Savings/GDP	0.0202 (0.0265)	0.0363 ^a (0.0128)		0.0201 (0.0810)	0.1757 [76]
Growth in physical capital per worker	0.0029 (0.0092)	-0.0137 ^a (0.0044)	0.0284 ^b (0.0115)	0.0044 ^b (0.0017)	0.1615 [77]
Savings/GDP	0.0140 (0.0261)	0.0448 ^c (0.0233)	0.0461 (0.0574)	-0.0082 (0.0066)	0.2061 [75]
Panel B: Productivity Growth					
Productivity growth 1	-0.0134 ^b (0.0054)	-0.0024 (0.0022)		0.0317 ^b (0.0146)	0.0857 [77]
Productivity growth 2	-0.0162 ^b (0.0066)	-0.0007 (0.0033)		0.0132 (0.0211)	0.0870 [77]
Productivity growth 3	-0.0178 ^b (0.0079)	-0.0025 (0.0023)		0.0343 ^b (0.0166)	0.0890 [61]
Productivity growth 1	-0.0084 ^c (0.0044)	-0.0099 ^a (0.0021)	0.0199 ^a (0.0069)	0.0514 ^a (0.0108)	0.3339 [77]
Productivity growth 2	-0.0093 ^c (0.0048)	-0.0123 ^a (0.0030)	0.0186 ^b (0.0074)	0.0057 ^a (0.0010)	0.4526 [77]
Productivity growth 3	-0.0104 (0.0066)	-0.0129 ^a (0.0032)	0.0247 ^a (0.0091)	0.0039 ^b (0.0015)	0.2743 [61]

^aSignificant at 1 percent level; ^bsignificant at 5 percent level; ^csignificant at 10 percent level.

Finally, it could be argued that the benefits of government ownership of banks appear only in backward countries with poorly developed economic, financial, and property rights regimes. By grouping all countries into a regression, we may have failed to test this theory correctly. In Table VIII, we reproduce some of our analyses by dividing the sample into the relatively rich and relatively poor countries as of 1960, relatively financially developed and relatively financially underdeveloped countries as of 1960, and countries with good and poor protection of property rights, for which an assessment is only available for the 1990s. In all three instances, *GB70* has a more adverse effect on income growth in less developed countries, and in one case (sorting on initial financial development), the difference is statistically significant. Perhaps the richer countries can better get around the distortions associated with heavy government involvement in the financial sphere, in part because they have better access to foreign capital. In contrast, the more backward countries cannot, and pay with a lower rate of growth of output and productivity. In any case, these results do not support the development thesis, according to which government ownership of banks should have a more positive—as opposed to negative—effect on growth in the less developed countries.

V. Conclusion

In this paper, we investigate a neglected aspect of financial systems of many countries around the world: government ownership of banks. The data shed light on four issues. First, government ownership of banks is large and pervasive around the world even in the 1990s. Second, such ownership is larger in countries with low levels of per capita income, underdeveloped financial systems, interventionist and inefficient governments, and poor protection of property rights. Third, government ownership of banks in 1970 is associated with slower subsequent financial development. Finally, government ownership of banks is associated with lower subsequent growth of per capita income, and in particular with lower productivity growth rather than slower factor accumulation. These negative associations are not weaker in the less developed countries. Of course, as with most growth regressions, these results are not conclusive evidence of causality.

Some aspects of the empirical story are consistent with the 1960s development economics view that government ownership of banks may arise as a response to institutional and financial underdevelopment. However, the results are inconsistent with the optimistic assessment inherent in this view of the beneficial consequences of such ownership for subsequent development, advanced by Gerschenkron (1962), Myrdal (1968), and others. In contrast, the results are consistent with the political view of government ownership of firms, including banks, according to which such ownership politicizes the resource allocation process and reduces efficiency. Ultimately, and in line with the latter theories, government ownership of banks is associated with slower financial and economic development, including in poor countries.

Table VIII
Growth by Groups of Countries

Ordinary least squares regressions (OLS) of different groups of countries classified according to country characteristics. The dependent variable in all regressions shown is the average annual growth of GDP per capita for the period 1960–1995. The independent variables are described in Appendix A. The table has three panels corresponding to different classifications of the countries in the sample. Panel A divides the sample in those countries with initial GDP per capita in 1960 below the median and those above the median. Panel B divides the sample in those countries with initial level of financial development below and those above the median as measured by private credit as a proportion of GDP in 1960. Panel C divides the sample in those countries with property rights in the 1990s below the median and those above the median value for the sample.

Dependent Variable: Growth Rate of GDP per Capita 1960–95	Independent Variables				Adj. R^2 [N]
	GB70	Log GDP per Capita 1960	Initial Private Credit/GDP	Average Years of Schooling	
Panel A: Countries Ranked by Initial Level of Economic Development					
Countries with Log GDP per capita in 1960 < median	−0.0207 (0.0133)	−0.0232 ^a (0.0080)	0.0329 ^c (0.0171)	0.0070 ^b (0.0026)	0.1173 ^b (0.0436) [42]
Countries with Log GDP per capita in 1960 > median	−0.0140 ^c (0.0079)	−0.0206 ^a (0.0045)	0.0289 ^b (0.0140)	0.0030 ^b (0.0012)	0.1328 ^a (0.0279) [40]
Panel B: Countries Ranked by Initial Level of Financial Development					
Countries with private credit/GDP per capita in 1960 < median	−0.0342 ^a (0.0097)	−0.0204 ^a (0.0033)	−0.0219 (0.0684)	0.0077 ^a (0.0016)	0.1131 ^a (0.0184) [41]
Countries with private credit/GDP per capita in 1960 > median	−0.0089 (0.0106)	−0.0132 ^b (0.0053)	0.0239 ^b (0.0103)	0.0029 (0.0019)	0.0839 ^b (0.0319) [41]
Panel C: Countries Ranked by Property Rights Index of the 1990s					
Countries with property rights index < median	−0.0256 ^b (0.0104)	−0.0225 ^a (0.0067)	0.0656 ^a (0.0154)	0.0069 ^b (0.0030)	0.1123 ^a (0.0339) [36]
Countries with property rights index > median	−0.0080 (0.0086)	−0.0189 ^a (0.0036)	0.0221 ^b (0.0084)	0.0039 ^a (0.0014)	0.1146 ^a (0.0225) [44]

^aSignificant at 1 percent level; ^bsignificant at 5 percent level; ^csignificant at 10 percent level.

Appendix. Description of the Variables

Variable Name	Description and Source	Number of Observations
<i>Government Banking</i>		
Government ownership of banks in 1995 [GB95]	Share of the assets of the top 10 banks in a given country owned by the government of that country in 1995. The percentage of the assets owned by the government in a given bank is calculated by multiplying the share of each shareholder in that bank by the share the government owns in that shareholder, and then summing the resulting shares. <i>Source:</i> Authors' calculations based on various sources.	92
Government ownership of banks in 1970 [GB70]	Share of the assets of the top 10 banks in a given country owned by the government of that country in 1970. The percentage of the assets owned by the government in a given bank is calculated by multiplying the share of each shareholder in that bank by the share the government owns in that shareholder, and then summing the resulting shares. <i>Source:</i> Authors' calculations based on various sources.	92
Government control of banks at 20 percent [GC20]	Share of the assets of the top 10 banks in a given country controlled by the government at the 20 percent level in 1995. A bank is controlled by the government if GB is larger than 20 percent and the state is the largest shareholder or if government ownership of the bank in 1995 is greater than 50 percent (in case we did not know the percentage of ownership by other shareholders of the bank). <i>Source:</i> Authors' calculations based on various sources.	92
Government control of banks at 50 percent [GC50]	Share of the assets of the top 10 banks in a given country controlled by the government at the 50 percent level in 1995. Government ownership at the 50 percent level is defined as the government having at least 50 percent ownership. The percentage of assets owned by the government in a given bank is calculated following the same methodology outlined for GB. <i>Source:</i> Authors' calculations based on various sources.	92
Government control of banks at 90 percent [GC90]	Share of the assets of the top 10 banks in a given country controlled by the government at the 90 percent level in 1995. Government ownership at the 90 percent level is defined as the government having at least 90 percent ownership. The percentage of assets owned by the government in a given bank is calculated following the same methodology outlined for GB. <i>Source:</i> Authors' calculations based on various sources.	92
Government ownership of development banks [GBDEV95]	Share of the assets of the top 10 banks in a given country owned by the government and reported to be development banks in 1995. The percentage of assets owned by the government is calculated following the same methodology outlined for GB. <i>Source:</i> Authors' calculations based on various sources.	92
Government ownership of commercial banks [GBCOM95]	Same definition as <i>GB95</i> except that it excludes development banks from the calculation of both government ownership and total assets of the top 10 banks in a given country. <i>Source:</i> Authors' calculations based on various sources.	92
Government ownership of commercial banks before privatization [GBCOM70]	Same definition as <i>GB70</i> except that it excludes development banks from the calculation of both government ownership and total assets of the top 10 banks in a given country. <i>Source:</i> Authors' calculations based on various sources.	92

<i>Initial Level of Development</i>		91 (1960)	92 (1970)
Log of GDP per capita	Logarithm of GDP per capita expressed in current U.S. dollars in 1960 and in 1970. <i>Source: International Financial Statistics</i> (various), <i>World Development Indicators</i> (1997).		
<i>Government Intervention</i>			
Business regulation index	An index of regulation policies related to opening a business and keeping open a business (on a scale from 1 to 5). A high score indicates that regulations are straightforward and applied uniformly to all businesses and that regulations are less of a burden to business. The score refers to the index in 1997. <i>Source: Holmes, Johnson, and Kirkpatrick</i> , eds. (1997).	87	
Frequency of price controls index	An index of frequency of price controls imposed by the government that interfere with the freedom of buyers and sellers to undertake exchanges even though the terms of trade are mutually agreeable. Indicates the extent to which companies can set prices freely: 0 = not at all, 10 = very much so. Average of indices for 1989 and 1994, which are the only available. <i>Source: Gwartney, Lawson, and Block</i> , eds. (1996).	74	
Government intervention in the banking sector index	An index of the degree of openness of a country's banking system. Specifically, the index accounts for the following: how difficult it is to open domestic banks; how heavily regulated the banking system is; the degree of government influence over the allocation of credit; whether banks are free to provide customers with insurance, sell real estate, and invest in securities; and whether foreign banks are able to operate freely. The scale is from 1 to 5. A high score means: There are very few restrictions on banks, they can engage in all types of financial services, government controls few commercial banks, and that there is no government deposit insurance. The score refers to the index in 1997. <i>Source: Holmes, Johnson, and Kirkpatrick</i> , eds. (1997).	87	
Black market premium	Natural logarithm of 1 plus the average exchange rate black market premium measured for the 1960s and the 1980s <i>Source: Easterly and Levine</i> (1997) and authors own calculations.	90 (1960s)	75 (1980s)
Government consumption/GDP	Government consumption expenditures as a percentage of GDP (scale from 0 to 100). Average for the years 1971 to 1995. Government consumption expenditures "include all spending on goods and services purchased by the government, such as national defense, road maintenance, wages and salaries, office space, and government owned vehicles. Since it is obtained from the national income accounts, it includes all levels of government spending. It does not include direct transfers and subsidies since these do not enter into the national income accounts." <i>Source: Gwartney, Lawson, and Block</i> , eds. (1996, p. 23) (with data from the World Bank and the International Monetary Fund).	87	
Transfers and subsidies/GDP	Total government transfers and subsidies as a percentage of GDP (scale from 0 to 100). Average for the years 1974–1994. <i>Source: Gwartney, Lawson, and Block</i> , eds. (1996) (with data from the World Bank and the International Monetary Fund).	70	
Top marginal tax rate	The top marginal tax rate imposed by the government on high income levels. Average of the 1975 to 1995 period. <i>Source: Gwartney, Lawson, and Block</i> , eds. (1996).	54	

continued

Appendix—Continued

Variable Name	Description and Source	Number of Observations
Index of government intervention in the economy 1975	A composite index constructed from all the government intervention measures in <i>Economic Freedom of the World</i> : government consumption to GDP, SOE in the economy index, frequency of price controls index, entry regulation index, legal system (equality of citizens under the law and access to nondiscriminatory judiciary), government intervention and regulation causing negative interest rates. Scale ranging from 0 to 10, 10 indicating minimal or no government intervention. <i>Source</i> : Gwartney, Lawson, and Block, eds. (1996).	52
Political rights index	Index of political rights. Higher ratings indicate countries that come closer to the ideals suggested by the checklist questions of: (1) free and fair elections; (2) those elected rule; (3) there are competitive parties or other competitive political groupings; (4) the opposition has an important role and power; and, (5) the entities have self determination or a very high degree of autonomy. <i>Source</i> : <i>Freedom in the World</i> (1996).	91
Democracy index	Average of democracy score for the period 1970 to 1994. Scale from 0 to 10, with lower values indicating a less democratic environment. <i>Source</i> : Jagers and Gurr (1996).	90
<i>Government Efficiency</i>		
Tax compliance index	An index of the assessment of the level of tax compliance. Scale from 0 to 6, where higher scores indicate higher compliance. The score refers to the index in 1995. <i>Source</i> : Schwab et al., eds. (1999).	47
Bureaucratic quality index	High scores indicate autonomy from political pressure and strength and expertise to govern without drastic changes in policy or interruption in government services. Scale from 0 to 10, with higher score indicating greater efficiency. Average of the months of April and October of the monthly index between 1982 and 1995. <i>Source</i> : <i>International Country Risk Guide</i> (1996).	86
Corruption index	An index of corruption in government. Scale from 0 to 10. Low ratings indicate high government officials are likely to demand special payments and illegal payments are generally expected throughout lower levels of government in the form of bribes connected with import and export licenses, exchange controls, tax assessment, policy protection, or loans. Average of the months of April and October of the monthly index between 1982 and 1995. <i>Source</i> : <i>International Country Risk Guide</i> (1996).	86
<i>Property Rights</i>		
Property rights index	An index of property rights in each country (on a scale from 1 to 5). The more protection private property receives, the higher the score. The score is based, broadly, on the degree of legal protection of private property, the extent to which the government protects and enforces laws that protect private property, the probability that the government will expropriate private property, and the country's legal protection to private property. <i>Source</i> : <i>Freedom in the World</i> (1996).	90

Rule of law index	86	Assessment of the law and order tradition in the country produced by the country-risk rating agency Political Risk Services. Average of the month of April and October of the monthly index between 1982 and 1995. Scale from 0 to 6. Lower scores indicate less tradition for law and order. <i>Source: International Country Risk Guide</i> (1996).
Government repudiation of contracts index	86	An index of ICRG's assessment of the risk of a modification in a contract taking the form of a repudiation, postponement, or scaling down due to budget cutbacks, indigenization pressure, a change in government, or a change in government economic and social priorities. Average of the months of April and October of the monthly index between 1982 and 1995. Scale from 0 to 10, with lower scores indicating higher risks. <i>Source: International Country Risk Guide</i> (1996).
Antidirector rights index	49	An index aggregating shareholder rights. The index is formed by adding 1 when: (1) the country allows shareholders to mail their proxy vote to the firm; (2) shareholders are not required to deposit their shares prior to the General Shareholders' Meeting; (3) cumulative voting or proportional representation of minorities in the board of directors is allowed; (4) an oppressed minorities mechanism is in place; (5) the minimum percentage of share capital that entitles a shareholder to call for an Extraordinary Shareholders' Meeting is less than or equal to 10 percent (the sample median); or (6) shareholders have preemptive rights that can only be waived by a shareholders' vote. The index ranges from 0 to 6. <i>Source: La Porta et al.</i> (1998).
Creditor rights index	47	An index aggregating different creditor rights. The index is formed by adding 1 when: (1) the country imposes restrictions, such as creditors' consent or minimum dividends to file for reorganization; (2) secured creditors are able to gain possession of their security once the reorganization petition has been approved (no automatic stay); (3) secured creditors are ranked first in the distribution of the proceeds that result from the disposition of the assets of a bankrupt firm; and (4) the debtor does not retain the administration of its property pending the resolution of the reorganization. The index ranges from 0 to 4. <i>Source: La Porta et al.</i> (1998).
<i>State-owned Enterprises</i>		
SOEs in the economy index	76	An index of the prevalence of state-owned enterprises as a share of the economy (scale from 0 to 10). Higher scores given to countries with fewer government-owned enterprises, where government-owned enterprises are estimated to produce a low percentage of the country's output. As the estimated size and breadth of the SOE sector increases, countries are assigned lower ratings. Computed both for 1975 and as the average of 1975 to 1995. <i>Source: Gwartney, Lawson, and Block, eds.</i> (1996).
SOE output/GDP	49	SOE value added of all nonfinancial SOEs as percentage of total GDP of the economy at market prices. SOE value added is estimated as the sales revenue minus the cost of intermediate inputs, or as the sum of operating surplus (balance) and wage payments. Average for the period 1978 to 1981. <i>Source: The World Bank</i> (1995a).
SOE investment/gross domestic investment	55	Investment (fixed capital formation) by all nonfinancial SOEs as a percentage of total gross domestic investment of the economy. Average for the period 1978 to 1991. <i>Source: The World Bank</i> (1995a).

continued

Appendix—Continued

Variable Name	Description and Source	Number of Observations
<i>State-Owned Enterprises (continued)</i>		
Public sector employment/total employment	Average of the ratio of public sector employment in general government to total employment for the period 1976 to 1996. General government employment includes employment in "all government department offices, organizations and other bodies which are agencies or instruments of the central or local authorities whether accounted for or financed in, ordinary or extraordinary budgets or extra-budgetary funds. They are not solely engaged in administration but also in defense and public order; in the promotion of economic growth and in the provision of education, health, cultural and social services." <i>Source</i> : Schiavio-Campo, de Tommaso, and Mukherjee (1997, p. 47).	39
<i>Financial Development</i>		
Private credit/GDP	Value of credits by deposit money banks and other financial institutions to the private sector divided by GDP. It excludes credit issues by the central bank, credit to the public sector, and cross-claims of one of the group of intermediaries to another. The variable is constructed following the methodology of Beck, Levine, and Loayza (2000) based on data from the <i>International Financial Statistics</i> . Private credit is calculated using lines 22d and 42d, GDP uses line 99b, and CPI comes from line 64 and the monthly statistics from the IFS database. For most countries, the data is available for the period 1960 to 1995. <i>Source</i> : <i>International Financial Statistics</i> (various) and Beck, Levine, and Loayza (2000).	91
Liquid liabilities/GDP	Liquid liabilities of the financial system (currency plus demand and interest-bearing liabilities of the banks and nonbanks financial intermediaries) divided by GDP. The variable is constructed following the methodology of Beck, Levine, and Loayza (2000) based on data from the <i>International Financial Statistics</i> . Liquid liabilities are calculated using line 551 (liquid liabilities) or line 351 (money plus quasi money), if liquid liabilities are not available. If neither of these two numbers is available, we use line 25 (time and saving deposits). Data for GDP uses line 99b, and data for CPI comes from line 64 and the monthly statistics from the IFS database. For most countries, the data is available for the period 1960 to 1995. <i>Source</i> : <i>International Financial Statistics</i> (various) and Beck, Levine, and Loayza (2000).	89
Commercial bank assets/total bank assets	Commercial banks domestic assets divided by commercial banks domestic assets plus central bank domestic assets. The variable is constructed following the methodology of Beck, Levine, and Loayza (2000). Based on data from the <i>International Financial Statistics</i> using lines 22a-d for the assets of deposit money banks, and lines 12a-d for the assets of the central bank. For most countries, the data is available for the period 1960 to 1995. <i>Source</i> : <i>International Financial Statistics</i> (various) and Beck, Levine, and Loayza (2000).	91
Private claims – claims of non-top-20 firms/GDP	Total private claims in the country minus the claims of the top 20 firms in each country as a proportion of GNP in the period 1992 to 1994. <i>Source</i> : <i>WorldScope Global</i> (1996) and <i>International Financial Statistics</i> (various).	32

Stock market capitalization/GDP	Total stock market capitalization divided by GDP. The initial year of the data available for most countries is 1976. If 1976 is not available, we use the earliest year before 1980. The countries that did not have a stock market by 1980 are given a value of zero for the 1976 to 1980 period. The measure "change in stock market capitalization/GDP" is the total percentage point change of stock market capitalization to GDP ratio from 1976 to 1995. <i>Source:</i> Beck, Demirguc-Kunt, and Levine (2001). Supplemented by the authors.	82
Loan availability	An index of WCR's assessment of the "relative easiness to obtain loans without a business plan and no collateral." Scale from 1 to 7, where higher scores indicate stronger agreement with the statement. The score refers to the index in 1999. <i>Source:</i> Schwab et al., eds. (1999).	59
Bank overhead costs/total bank assets	The accounting value of a bank's overhead costs as a share of its total assets. The data is obtained from individual bank's balance sheets. The measure refers to 1995. <i>Source:</i> Beck, Demirguc-Kunt, and Levine (2001).	79
Interest rate spread	Interest rate charged by banks on loans to prime customers minus the interest rate paid by commercial or similar banks for demand, time or saving deposits. For most countries, the data is available for the period 1970 to 1995. <i>Source:</i> The World Bank (1995b).	59
Soundness of banks	An index of WCR's assessing the soundness of banks in terms of their "general health and sound balance sheets." Scale from 1 to 7, where higher scores indicate stronger agreement with the statement. The score refers to the index in 1999. <i>Source:</i> Schwab et al., eds. (1999).	59
<i>Crisis and Instability</i>		
Log of inflation	Logarithm of the geometric average annual growth rate of the implicit price deflator for the time period 1970 to 1993. <i>Source:</i> The World Bank (1995b).	68
Major government crisis	Any rapidly developing situation that threatens to bring the downfall of the present regime—excluding situations of revolt aimed at such overthrow. The data covers the 1960s, 1970s, and 1980s. <i>Source:</i> Easterly and Levine (1997).	75
Coups d'état	The number of extraconstitutional or forced changes in the top government elite and/or its effective control of the nation's power structure in a given year. Unsuccessful coups are not counted. The data covers the 1960s, 1970s, and 1980s. <i>Source:</i> Easterly and Levine (1997).	75
Banking crisis dummy	Dummy variable equal to 1 if the country had a banking crisis in the period between 1970 and 1995. <i>Source:</i> Data constructed by the authors based on Caprio and Klingebiel (1996).	92
Bank assets affected by crises	Percentage of financial or banking system assets affected by the crisis. The variable is set equal to 0 if the country did not have a banking crisis in the period between 1970 and 1995. <i>Source:</i> Data constructed by the authors based on Caprio and Klingebiel (1996).	70
Bank nationalizations in crises	Dummy variable equal to 1 if as a result of the banking crisis in the period between 1970 and 1995 the government nationalized any commercial banks. <i>Source:</i> Data constructed by the authors based on Caprio and Klingebiel (1996).	64

continued

Appendix—Continued

Variable Name	Description and Source	Number of Observations
Bank liquidation in crisis	Dummy variable equal to 1 if as a result of the banking crisis in the period between 1970 and 1995 the government liquidated some state-owned banks or if some banks of the private sector were liquidated. <i>Source:</i> Data constructed by the authors based on Caprio and Klingebiel (1996).	63
<i>Crisis and Instability (continued)</i>		
<i>Growth</i>		
GDP per capita growth, 1960–1995	The annual rate of GDP per capita growth for the period 1960 to 1995. Because of the short period for which there are data available, the variable is not constructed for those countries in our sample which emerged as a result of a breakup of another country (i.e., Czech Republic, Slovak Republic, Croatia, Slovenia, Russia, and Kazakhstan). <i>Source:</i> <i>International Financial Statistics</i> database and Beck, Levine, and Loayza (2000).	86
GNP per capita growth, 1970–1995	The annual rate of GNP per capita growth for the period 1970 to 1995. Because of the short period for which there is data available, the variable is not constructed for those countries in our sample which emerged as a result of a breakup of another country (i.e., Czech Republic, Slovak Republic, Croatia, Slovenia, Russia, and Kazakhstan). <i>Source:</i> The World Bank (1997).	85
Growth in physical capital per worker	The annual rate of growth in physical capital per worker for the period 1960 to 1995 and the period 1970 to 1995. Because of the short period for which there is data available, the variable is not constructed for those countries in our sample which emerged as a result of a breakup of another country (i.e., Czech Republic, Slovak Republic, Croatia, Slovenia, Russia, and Kazakhstan). The variable is constructed following Beck, Levine, and Loayza (2000). <i>Source:</i> <i>International Financial Statistics</i> (various) and Beck, Levine, and Loayza (2000).	71
Savings/GDP	Index of total gross domestic savings as a percentage of GDP for the period 1960 to 1992. Gross domestic savings are calculated as the difference between GDP and total consumption. <i>Source:</i> The World Bank (1995c).	76
Productivity growth 1	The annual growth rate of total factor productivity. Because of the short period for which there is data available, the variable is not constructed for those countries in our sample which emerged as a result of a breakup of another country (i.e., Czech Republic, Slovak Republic, Croatia, Slovenia, Russia, and Kazakhstan). The variable is constructed following Beck, Levine, and Loayza (2000). Growth of productivity equals the growth of GDP per capita minus 0.3 times the growth in physical capital per worker. <i>Source:</i> <i>International Financial Statistics</i> (various) and Beck, Levine, and Loayza (2000).	71

Productivity growth 2	63	The annual growth rate of total factor productivity considering human capital accumulation as proposed by Mankiw (1995). Because of the short period for which there is data available, the variable is not constructed for those countries in our sample which emerged as a result of a breakup of another country (i.e., Czech Republic, Slovak Republic, Croatia, Slovenia, Russia, and Kazakhstan). The variable is constructed following the methodology suggested in Beck, Levine, and Loayza (2000). Growth of productivity equals the growth of GDP per capita minus 0.3 times the growth in physical capital per worker minus 0.5 times the average growth rate in years of schooling. <i>Source: International Financial Statistics</i> (various) and Beck, Levine, and Loayza (2000).
Productivity growth 3	61	The annual growth rate of total factor productivity considering human capital accumulation as proposed by Hall and Jones (1999). Because of the short period for which there is data available, the variable is not constructed for those countries in our sample which emerged as a result of a breakup of another country (i.e., Czech Republic, Slovak Republic, Croatia, Slovenia, Russia, and Kazakhstan). The variable is constructed following Beck, Levine, and Loayza (2000). Growth of productivity equals the growth of GDP per capita minus 0.3 times the growth in physical capital per worker, minus 0.7 times the product of the average number of years of schooling and the return to schooling estimated in a Mincerian wage regression (Mincer (1974)) all divided by 0.7. Formally, productivity growth $3 = [\text{GDP per capita growth} - 0.3 * \text{growth in physical capital per worker} - 0.7 * (\text{years of schooling} * \text{the return to schooling})] / 0.7$. <i>Source: International Financial Statistics</i> (various) and Beck, Levine, and Loayza (2000).
Average years of schooling	89	Average of years of schooling for the total population aged 15 and over for the period 1960 to 1990 and 1970 to 1990. <i>Source: Barro and Lee</i> (1996).
<i>Other Variables</i>		
Legal origin	92	Identifies the legal origin of the Company Law or Commercial Code of each country. There are five possible origins: (1) English Common Law; (2) French Commercial Code; (3) German Commercial Code; (4) Scandinavian Commercial Code; (5) Socialist/Communist Laws. <i>Source: La Porta et al.</i> (1998, 1999).
High inflation dummy	92	Equals 1 if the average rate of inflation during the period 1970 to 1995 exceeds 20 percent and 0 otherwise. <i>Source: The World Bank</i> (1997).
Latitude	92	The absolute value of the latitude of the country, scaled to take values between 0 and 1. <i>Source: CIA World Factbook</i> (various).

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