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Is Government Ownership of Banks Really Harmful to Growth?

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Abstract

We show that previous results suggesting that government ownership of banks has a negative effect on economic growth are not robust to adding more 'fundamental' determinants of economic growth, such as institutions. We also present regression results from a more recent period (1995-2007) which suggest that, if anything, government ownership of banks has been associated with higher long run growth rates, even after controlling for institutions and other variables suggested by the growth literature. Drawing on the current global financial crisis, we provide a conceptual framework which explains why under certain circumstances government owned banks could have a greater effect on economic growth than privately-owned banks.

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1. Introduction

In their attempt to prevent financial meltdown in the autumn of 2008, governments in many industrialised countries took large stakes in major commercial banks. While many countries in continental Europe, including Germany and France, have had a fair amount of experience with government owned banks, the UK and the US have found themselves in unfamiliar territory. It is, therefore, perhaps not surprising that there is deeply ingrained hostility in these countries towards the notion that governments can run banks effectively.[1] We argue in this paper that such views are not supported by the empirical evidence. Our findings which utilise a variety of cross-country datasets suggest that, if anything, government ownership of banks has, on average, had a positive influence on economic growth.

Hostility towards government owned banks reflects the hypothesis – known as the 'political view of state banks' – that these banks are established by politicians who use them to shore up their power by instructing them to lend to political supporters and state-owned enterprises. In return, politicians receive votes and other favours. This hypothesis also postulates that politically motivated banks make bad lending decisions, resulting in non-performing loans, financial fragility and slower growth. The political view of state banks was purportedly backed by empirical evidence in a paper by La Porta *et al* (2002) – henceforth LLS – which utilises cross-country regressions that uncover a negative association between government ownership of banks and average growth rates. LLS predict a 0.23 percentage point increase in the annual long run growth rate for every reduction in government ownership of banks by 10 percentage points, which is a very sizeable effect. These econometric findings have been used by the Bretton Woods institutions to back calls for privatising banks in developing countries (see, for example, World Bank, 2001).[2]

As a first step in our argument, we show in this paper that the LLS results are fragile to extending the set of conditioning variables to include more 'fundamental' determinants of economic growth such as institutions (e.g. Acemoglu *et al* 2005), which previous empirical literature has found to be significant (e.g. Knack and Keefer, 1995; Hall and Jones, 1999; Acemoglu *et al*, 2001; Rodrik *et al*, 2004; Demetriades and Law, 2006). Specifically, we show that the coefficient of government ownership of banks becomes insignificant as soon as one such variable is introduced; moreover, we show that the econometrically preferred model specification excludes government ownership of banks. As a second step, we address head on the issue of whether government ownership of banks really reduces average growth rates by providing new empirical evidence from cross-country regressions that utilise a variety of more recent datasets. Our findings suggest that, if anything, government ownership of banks has had a robust positive and significant effect on long-run

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[1] See for example the article by Martin Wolf in the 16th October 2008 edition of *The Financial Times* which aptly summarises these views in its conclusion: *"...Crisis-prone private banking is bad; state monopoly banking is still worse."*

[2] World Bank (2001) elaborates on the LLS results as follows: "…the fitted regression line suggests that had the share of government ownership in Bangladesh been at the sample mean (57 percent) throughout the period from 1970 instead of at 100 percent, annual average growth would have risen by about 1.4 percent, cumulating to a standard of living more than 50 percent higher than it is today." (p. 127).

growth rates, even after controlling for institutions. The third step in our analysis draws on previous literature as well as on the current financial crisis to provide a rationale for these results.

The paper is structured as follows. Section 2 provides some additional background for the current investigation by outlining our own previous contribution to the same topic, which provides evidence which suggests that the real reasons for the widespread government ownership of banks are not political but weaknesses in regulation and contract enforcement. Section 3 presents the various data sets we utilise and their sources. Section 4 presents our empirical results. Section 5 provides a conceptual framework which explains why government ownership of banks can have positive effects on growth. Section 6 summarises and concludes.

2. Additional Background

In a precursor to this paper (Andrianova *et al*, 2008) we conclude that simple correlations between government ownership of banks and various macroeconomic aggregates need to be interpreted with caution, since they may reflect a common driving force. Specifically, we argue that government ownership of banks is, if anything, the result of institutional weaknesses rather than the desire of politicians to control banks. Using the circular city model of banking, we show that depositors prefer government banks to privately-owned banks when a fraction of the latter behave opportunistically and when deposit contract enforcement is weak. For a wide range of parameters, the share of deposits in government owned banks declines with better institutions and a lower fraction of opportunists in banking. We also show that there is a 'low equilibrium' region, where opportunism is rife and institutions sufficiently weak, in which depositors will not choose private banks at all; privatising government owned banks in this region can only result in financial disintermediation, which cannot be good for growth.

In Andrianova *et al* (2008) we also provide cross-country evidence which suggests that institutional factors are indeed the main statistically significant determinants of the share of government owned banks, while political or historical factors are not significant. Specifically, we show that regulatory quality or rule of law and disclosure – used as proxies for contract enforcement and the proportion of opportunistic banks - are both statistically significant determinants of the degree of government ownership in banking. Moreover, we also show that prior banking crises increase the degree of government ownership in banking, which tallies well with the theoretical case of multiple equilibria driven by depositor beliefs. Thus, much like in the current crisis, the positive association between government ownership of banks and financial crises in cross-country regressions is not a causal one: if governments take over failed private banks, it does not follow that governments cause financial instability.

In Andrianova *et al* (2008), we did not, however, address the question – which should now be uppermost in the minds of policy makers worldwide – of what are the consequences of government owned banks on long run growth. This is precisely the focus of the current paper.

3. Data and Sources

For the first set of regressions reported in Tables 1 and 2 we use the original database from LLS. We reproduce results from Table V and Table VI in LLS in the first column of each of these Tables. We then add two additional conditioning variables from the LLS database, which capture "institutional quality": the index measuring bureaucratic quality and its insulation from political intervention (bqualitt) and the index of property rights (prop_hf9), which measures how well private property rights are protected.

For the second set of estimations reported in Tables 3 and 4 we utilise annual GDP growth, GDP *per capita* and inflation rates from the World Economic Outlook database. Annual GDP *per capita* growth (in 2005 US$) is from the ERS. Data on institutional quality are from the Kaufmann *et al* (2005) Quality of Governance dataset. We create an average variable for each institutional quality variable from all the available databases spanning 1998-2005. Both transition economies and many oil exporting countries have seen above average growth during the period. We therefore include two dummy variables in the regressions. The first is a "transition dummy" for all former members of the Warsaw Pact and the former Soviet republics. The second is a dummy for all non-OPEC net oil exporters, constructed from data on annual imports and exports of oil from the CIA World Factbook 2008. This is to control for countries which have grown fast after their transitional recessions or on the basis of oil exploitation over the period, regardless of economic instability, institutional quality or regulatory structures.

The government ownership of banks variables are from the various World Bank datasets on banking regulation and financial structure (Caprio, Levine and Barth 2008 – henceforth, CLB). They measure the "percentage of (the) banking system's assets in banks that are 50% or more owned by government". The data are available for 1999, 2001 and 2005. We also include the LLS variable for government ownership of banks in 1995 (with state ownership at 50% for compatibility) for robustness checks. Correlation between the CLB 2001 and 2005 variables is high (.866) and the correlation between the CLB 1999 and 2001 observations slightly lower (0.721). The correlation between the LLS 1995 variable and the CLB 2001 and 2005 variable is 0.654 and 0.572 respectively. Data availability is best in the 2001 dataset with 134 observations, compared to 110 in 2005, 103 in 1999 and 92 in the LLS dataset.

The LLS regressions include a variable for the average years of secondary schooling in the labour force. We collect data on educational attainment from the World Development Report, which records the percentage of the labour force with at least secondary education. We use the first available entry for secondary and tertiary education between 1995 and 2007 to maximise data availability. The series is highly correlated with the Barro and Lee (2001) dataset on the average number of years of schooling. For both variables the number of observations for the final regression specification is low (80 observations or below) and there are no statistically significant effects for the education variable. The results reported below therefore mostly exclude this variable.

More details on the variables we utilise and their sources are provided in the Data Appendix.

4. Empirical Results

4.1 Re-examining the LLS results for omitted variable bias

Table 1 presents four models based on Table V in the LLS paper. Model Ia is one of the original LLS regressions used as a comparison. Models Ib and Ic include bureaucratic quality and the index of property rights, respectively, to capture the quality of institutions, which were omitted in the LLS regressions. Including institutional quality variables consistently weakens the statistical significance of the government ownership variable (gbbp_70, henceforth GB70). Specifically, the inclusion of bureaucratic quality in Model Ib, reduces the statistical significance of this variable from 1% in the corresponding LLS regression to 10%. The inclusion of the property rights index in Model Ic renders GB70 insignificant, even at the 10% level. Instead, institutional quality is shown to make a positive and statistically significant contribution to average growth. Models Ic and Id, which exclude the government ownership variable but include institutional variables in their place, have a higher R-square than the LLS model and the same number of variables. The model specification including institutional variables is therefore econometrically preferred to the original LLS specification. The result that institutional variables undermine the effect of GB70 is robust to using a variety of alternative institutional indicators, though property rights and bureaucratic quality are the most consistently significant variables.

Table 2 is based on Table VI in the LLS paper. These regressions included a dummy for high inflation countries and variables measuring financial sector development at the beginning of the period. Including the latter variables probably captures some aspect of initial institutional quality and their inclusion therefore undermines the significance of GB70, even in the original LLS regression shown in the first column of Table 2. As can be seen, the significance level of GB70 drops to 9%.[3] Including either of the two institutional quality indicators improves the explanatory power of the regression and renders GB70 insignificant. Model IIa has a better fit than Model IIb, reflecting the higher level of statistical significance of bureaucratic quality. The property rights indicator in Model IIb is significant but only at the 10% level. Excluding GB70 (Models IIc and IId) and including instead the two institutional quality indicators again improves the R-square vis-à-vis the LLS model. Interestingly, in Model IId, the property rights index is significant at the 1% level, which suggests that its near insignificance in Model IIb could be due to the collinearity between this variable and GB70.

To summarise, government ownership of banking in LLS had a negative and almost always statistically significant coefficient in the published model specifications.

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[3] In addition the LLS results are fragile in other dimensions. Specifically, they rely on the presence of insignificant regional dummies. If these dummies are removed from the regression (leaving only the African dummy which is significant), statistical significance of the state ownership variable is lost. Furthermore, the LLS results rely on a non-standard measure of GDP growth (*growthff*), which appears to utilise some of their own data (defined as "GDPpcGth (Levine+own) excl.breaku"). If the alternative variable in the dataset measuring GNP per capita (*gnpcagav*) - obtained from World Development Indicators - is used the coefficient on the gbbp_70 variables becomes statistically insignificant in model specifications, irrespective of whether the regional dummies are included or excluded.

However, these models excluded institutional quality indicators which are widely considered the more fundamental determinants of long run growth. As we argued in Andrianova *et al* (2008), government ownership of banks is the symptom of weak institutions. If institutional quality is omitted from growth regressions, government ownership acts as a proxy for the missing fundamental variable. This explains the LLS results. Once, however, institutional quality indicators are added alongside government ownership of banking, government ownership of banks is no longer significant and the main LLS finding disappears. "Governance" matters, while bank ownership does not. The widely publicised negative effect of government ownership of banks was clearly the result of omitted variable bias, rather than the true effect of government owned banks on the long-run average growth rate.

4.2 The Effect of Government Ownership on Growth in Recent Years
Table 3 shows the regression results using the data set we compiled, which contains data from 1995 onwards. To maximise the number of observations we used the CLB 2001 variable as our measure for state ownership of banking. Average GDP growth is either from 2000-2007 or from 1995-2007. We include the log of initial GDP per capita to capture convergence. We also control for whether a country was in economic "transition" or exporting oil during the period and include a measure of average inflation between 1995 and 2005 as a control for macro-economic stability. All the controls have the expected effects, with richer countries growing more slowly than poorer countries and transition countries and oil exporters experiencing fast growth. The inflation measure is not statistically significant over this time period, probably reflecting that transition countries have grown fast even if monetary stabilisation was delayed. The regulatory quality variable from the Kaufmann database also has the expected positive effect and is always statistically significant at the 1% level.

Interestingly in all these models the effect of the state-ownership of banks variable is now **positive** and statistically significant at the 1% level, both for the 1995-2007 and 2000-2007 periods (Models III and IV). It appears that in recent years state-ownership of banks was, on average, helpful in enabling countries to take advantage of long-run growth opportunities. We conducted a large number of robustness checks for this somewhat surprising result. Model V uses GDP growth instead of GDP *per capita* growth as the dependent variable with the same result.[4] Model VI includes the measure of educational attainment. This weakens the significance of the state ownership variable, but on further examination this is entirely due to patchy availability of education data in less developed countries.[5] Sample selection therefore matters and a bias against including LDCs in the sample weakens our result. We return to this issue in more detail in section 4.3 below. Model VII includes an indicator of financial development (liquid liabilities / GDP, similar results are obtained with other financial development indicators). Again the sample excludes a number of fast-growing LDCs and the size of the coefficient is reduced, but the overall result of a positive and significant association of state-ownership of banks with faster growth is preserved.

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[4] Note that the LLS results were highly sensitive to the choice of the dependent variable.

[5] The coefficient and the significance level of the state ownership variable in the regressions of the 80 countries for which education data are available are almost the same whether or not educational attainment is included.

The results are also robust to using the LLS 1995 or the CLB 2005 data on state ownership (significance of the state ownership variable remains at the 1% level despite smaller data-sets of 88 and 100 observations respectively). We have also checked that the results are not driven by a few outliers with unusually fast growth. All reported models exclude China. The results remain robust when we remove India or the top ten or fifteen fastest growing countries from the specification - only the size of the coefficient on the state ownership variable changes. Both the "rule of law" and the "corruption" indices from the Kaufmann governance dataset can be used instead of regulatory quality and are positive and significant at the 1% level over the 1995-2007 time period. The positive and highly significant effects of government ownership of banks and of "governance" on economic growth are thus robust in a large variety of model specifications.

4.3 The Effect of Government Ownership on Growth in LDCs
Table 4 directly examines the claim that government ownership of banks is particularly damaging in countries with low levels of income and property rights. The first two columns in the Table (LLS Model and Model VIII) use the LLS dataset and show that in the original LLS specification the effect of government ownership is barely significant at the 10% level when the regression is restricted to the lower half of the distribution in the sample in terms of the initial *per capita* GDP level. The coefficient on state ownership of banks is marginally higher than in the full sample but it is not statistically different.[6] Again, adding bureaucratic quality improves the fit of the regression and completely undermines the significance of the "state owned banks" variable (Model VIII). In the new dataset there is evidence that government ownership may in fact be particularly beneficial in low income countries. For countries with low GDP *per capita* the effect of government ownership is positive and significant, with a larger coefficient than in the whole sample. The lower the threshold we set for the sample of low income countries, the higher the coefficient (Models IXa and IXb).

4.4 Discussion
Our findings suggest that in recent years government ownership of banks has had, if anything, positive effects on long run growth. This is, of course, a surprising result, especially in the light of the widespread belief – typically supported by anecdotal evidence – that "…bureaucrats are generally bad bankers" (See, for example, World Bank, 2001 p. 127). Our results, however, should be interpreted with caution. They suggest that this result is valid *on average* and during a rather short, albeit recent, period. Average results do of course mask a lot of individual variation and do not rule out the possibility that a lot of government bureaucrats are indeed bad bankers. However, our results do suggest that the anecdotal evidence alluded to by World Bank (2001) and others cannot easily be generalised. Indeed, our findings suggest that government banks in recent years have been, on balance and on average, better banks than private banks in terms of promoting long run growth. The next question that needs to be answered is why this has been the case. This is addressed in the next section.

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[6] If the alternative growth variable from the World Bank dataset measuring GNP per capita (*gnpcagav*) is used instead of *growthff* the coefficient on the gbbp_70 variables is lower and not statistically significant (t-ratio = -0.72).

5. **Government Ownership of Banks and Economic Growth: Conceptual Issues**

There are numerous well known market failures in banking which, by themselves, can justify a significant role for various forms of government intervention, including financial regulation and interest rate controls (see, for example, Stiglitz, 1993). The need for central banks to provide lender of last resort services, the need for deposit insurance to prevent bank runs and the need for financial regulation to lessen adverse selection and moral hazard problems are, of course, widely accepted (see, for example, Goodhart 1995 and Goodhart 1988). Most of these market failures can be attributed to asymmetric information between borrowers and lenders, including importantly the informational asymmetry that exists between a bank and its creditors, be they depositors or other banks. The nature of bank balance sheets magnifies the impact of liquidity shocks affecting individual banks and could generate external effects on other banks and the rest of the economy. With confidence evaporating from the financial system, the credit channel and the payments system freeze up and the real economy grinds to a halt. The combination of deposit insurance, lender of last resort and financial regulation is intended to address these market failures by helping to ensure that depositors are protected, if not fully informed about bank balance sheets, and banks remain sound and solvent. All this could work well in theory to address market failures or limit their impact, but the recent global financial crisis has demonstrated that there exist additional market failures in private banking that provide scope for an even wider role for government. These could also be partly, if not wholly, attributed to imperfect information, since they include agency problems within banks and the capture of regulators by the regulated. We argue that these massive failures provide a rationale for why private banks may have performed badly in terms of promoting growth in recent years.

It is, of course, well known that in any organisation there are principal-agent problems. Our conjecture is that 'high-tech' banking, which involves the creation of new complex and opaque financial products, exacerbates any such problems within privately owned banks. Specifically, it has widened the wedge that already exists between the management of a corporation and its shareholders because the risks involved in complex new financial products are not well understood. Financial innovation could therefore be seen as having provided an unfair advantage for bank insiders: they could make unfair bets using shareholders' – and even depositors' – money ("heads we win, tails you lose"). If known, the existence of unfair bets within banks is likely to result in adverse selection in senior jobs within private banks: opportunists who are in search of quick enrichment will be more likely to apply for such jobs.[7] 'High-tech' banking and the speculative activities with which it was associated could be one of the reasons why private banks may have diverted their attention from growth enhancing activities in recent years. The business of packaging and re-packaging sub-prime mortgage loans into derivatives of various shapes and forms could hardly be considered growth-promoting; other than an asset price bubble and the roots of a deep recession, it seems to have promoted little else. From a macroeconomic perspective, the lucrative reward structures of 'high-tech' banking may have also distorted the allocation of human capital, thereby resulting in a large social cost. Specifically, the very high financial rewards associated with 'high-tech'

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[7] It is debatable whether this has been the case in the current crisis although anecdotal evidence suggests that chief executives of large international banks may have knowingly taken excessive risks.

banking appear to have diverted large numbers of talented university graduates, including scientists and engineers, away from productive occupations and into speculation.

How about financial regulation? Regulation is intended to contain excessive risk taking by banks. In the last twenty years or so, the Basle approach towards financial regulation has focussed the emphasis almost exclusively on capital adequacy. The implicit assumption has been that all that needs to be done for banks to avoid excessive risk is to raise 'adequate' capital from shareholders for the risks they are taking. Large international banks have, however, been left alone to measure risk of their on and off balance sheet activities using their own risk models and ratings supplied by credit rating agencies. Regulators are expected to simply review these models instead of examining the quality of bank assets, whether on or off the balance sheet. There has been no attempt to regulate credit rating agencies, which are now known to have had incestuous relationships with the banking industry. There has been little, if any emphasis, on addressing corporate governance issues within banks other than on avoiding the lone insider type of operational risk (known as the 'Nick Leeson-Barings' problem). Little, if anything, has been said about how the Basle II process could contain extreme moral hazard by insiders of the type we have witnessed recently in large international banks. Indeed, this is perhaps not at all surprising since the Basle II process was to a large extent captured by the large international banks (see, for example, Claessens, Underhill and Zhang, 2008). The process has implicitly assumed that a bank's management is above suspicion – no moral hazard needs to be contained here. Regulatory capture in financial markets has rendered banking regulation and supervision ineffective.[8] When an industry is busy promoting the short-term interests of insiders, promoting long-term economic growth will be the least of its concerns.

What about government owned banks? Our conjecture is that such banks are less prone to extreme moral hazard problems, especially in democracies. The standard moral hazard problems in private banking become extreme due to (i) remuneration structures that reward excessive risk-taking, (ii) punishments incommensurate with the crime and (iii) opaqueness of the environment in which financial innovation is rife. In each of these three factors government owned banks are likely to fare better than private owned banks. The reward structures in government owned banks are not as attractive for insiders as they have been in large international banks. Could government owned banks be corrupt? Indeed, they could, but there is a limit to what corrupt bank officials can get away with in countries where politicians are accountable to the electorate. Corruption, when uncovered, tends to have significant political costs, hence it is in the interest of politicians who want to be re-elected to contain it. Punishments for excessive risk taking in a private bank even in a democracy tend to be limited, as highlighted by recent experience: witness the recent high-profiled example of an unjustifiably high pension for a chief executive directly responsible for the largest fall in profits in British corporate history of a major privately owned international bank.[9] The combination of high rewards in good times

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[8] See Johnson (2009) for an excellent and vivid account of the ways in which the American financial industry gained political power and was able to dictate not only a weak regulatory environment but also massive bailout subsidies, which were often less than transparent.

[9] See the Financial Times article on January 19th 2009 "RBS set to reveal biggest loss in British corporate history".

and lax or absent punishment in bad times is much more likely to attract opportunists to run a private owned bank. Additionally, government owned banks tend to be a lot more constrained – in some sense less innovative – in the type of assets they can invest, which limits the scope for excessive risk taking. Frequently, they have developmental objectives and their investments may have social benefits that are not directly reflected in their profitability of their loans but may, nevertheless, generate positive spillovers on other companies.[10] Political priorities in banking, if they are the outcome of a democratic political process are more likely to be growth enhancing than the priorities of opportunistic bankers whose objective is their own quick enrichment.

To conclude, uncontained extreme moral hazard, resulting in a failure of corporate governance within private banks, provides a relatively new rationale as to why such banks may not promote economic growth as effectively as government owned banks. We do not claim that this is a completely new explanation of this phenomenon because, broadly speaking, it is one of the reasons why policy makers in the developing world have traditionally been sceptical about bank privatisation. For instance, the banking crises experienced in Latin America in the 1980s have been ascribed, at least partially, to excessive risk taking by newly privatised banks in a financially liberalised environment (See, for example, Diaz Alejandro, 1985, or Villanueva and Mirakhor, 1990).[11]

6. Summary and Conclusion

We have provided new evidence which suggests that the view that government ownership of banks is harmful to economic growth is unjustified. If anything, our findings suggest that government ownership of banks has had positive effects on long-run economic growth. We have argued that besides the well known externalities and other market failures that provide a rationale for government intervention in the financial system, the recent global financial crisis has added a new one. Specifically, unchecked extreme moral hazard behaviour by opportunistic bank insiders poses an extreme, yet real, threat to the growth promoting role of banks. Such behaviour diverts bank resources towards short-term enrichment of insiders at the expense of maximising shareholder wealth and may also be responsible for the misallocation of human capital by attracting talented individuals to unproductive speculative activities. Our findings suggest that even in the 21st century, government owned banks can continue to play a "developmental" role, not only in developing but also in industrialised countries by containing extreme moral hazard behaviours that have a capacity to undermine long term economic growth.

References

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[10] See, for example, DeLong and Summers (1991).

[11] More recently, we have witnessed banking crises in Asia as well as in transition economies, where extreme moral hazard behaviour within private financial institutions was a contributory, if not the only, cause. See, for example, Zhang and Underhill (2003).

Acemoglu, D., Johnson, S. and Robinson, J.A. (2001). "The Colonial Origins of Comparative Development: An Empirical Investigation". *American Economic Review*.

Acemoglu, D., Johnson, S. and Robinson, J. A. (2005). "Institutions as a Fundamental Cause of Long-Run Growth", in P. Aghion & S. Durlauf (ed.), Handbook of Economic Growth, edition 1, volume 1, chapter 6, pages 385-472 Elsevier.

Andrianova, S., Demetriades, P. and Shortland, A. (2008) "Government Ownership of Banks, Institutions and Financial Development", *Journal of Development Economics*, 85, 218-252.

Arestis, P. and Demetriades, P., (1997) "Financial Development and Economic Growth: Assessing the Evidence", *The Economic Journal* , 107, 783-799.

Barro, R.J. and Lee, J.W. (2000) "International Data on Educational Attainment: Updates and Implications", CID Working Paper No. 42.

Caprio, G., Levine, R., Barth, J., (2008) "Bank Regulation and Supervision" Permanent URL: http://go.worldbank.org/SNUSW978P0.

Claessens, C. , Underhill, G.R.D. and Zhang, X. (2008) "The Political Economy of Basle II: The Costs for Poor Countries", *The World Economy*, 313-344.

Demetriades, P. and Law, S.H. (2006) "Finance, Institutions and Economic Development", *International Journal of Finance and Economics*, 11, 245-260.

DeLong, J.B. and Summers, L.H. (1991), "Equipment Investment and Economic Growth," *Quarterly Journal of Economics* 106: 2 (May), pp. 445-502.

Diaz-Alejandro, C. (1985), "Good-bye Financial Repression, Hello Financial Crash", *Journal of Development Economics*, 19, 1-24.

Gerschenkron, A. (1962), Economic Backwardness in Historical Perspective: A Book of Essays, Harvard University Press, Cambridge, MA.

Goodhart, C.A.E. (1988), The Evolution of Central Banks, MIT Press: Cambridge, MA.

Goodhart, C.A.E. (1995) The Central Bank and the Financial System, MacMillan Press: Houndmills and London.

Hall, R. E. and Jones, C. (1999). "Why Do Some Countries Produce So Much More Output per Worker than Others?" *Quarterly Journal of Economics* 114(1): 83-116.

Johnnson, S. (2009), "The Quiet Coup", *The Atlantic Online* (May).

Kaufmann, D., Kraay, A., Zoido-Lobaton, P. (1999) "Governance Matters", World Bank Working Paper 2196.

Kaufmann, D., Kraay, A., Mastruzzi, M. (2005) "Governance Matters IV: Governance Indicators 1996-2004". World Bank.

Knack, S. and Keefer, P. (1995) "Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Measures", *Economics and Politics*, 7, 207-227.

La Porta, R., Lopez de Silanes, F., and Schleifer, A. (2002) "Government Ownership of Banks", *Journal of Finance*, 57, 265-301.

Laeven L. and Valencia F. (2008) "Systemic Banking Crises: A New Database", *IMF Working Paper* WO/ 08/224.

Rodrik, D., Subramanian, A., Trebbi, F. (2004) "Institutions Rule: The Primacy of Institutions Over Geography and Integration in Economic Development", *Journal of Economic Growth,* 9, 131-165.

Stiglitz, J.E. (1993) "The Role of the State in Financial Markets", *Proceedings of the World Bank Annual Conference on Development Economics*.

Villanueva, D. and Mirakhor A. (1990), "Strategies for Financial Reforms: Interest Rate Policies, Stabilisation and Bank Supervision in Developing Countries", *IMF Staff Papers*, 37, 509-36.

World Bank (2001), <u>Finance for Growth: Policy Choices in a Volatile World</u>, Oxford: University Press.

Zhang, X. and Underhill, G. (2003), "Private Capture, Policy Failures and Financial Crisis: Evidence from South Korea and Thailand in Underhill, G. and Zhang, X. (eds.) <u>International Financial Governance under Stress</u>, Cambridge: University Press.

Data Appendix

Variable	Dates	Number of Observa-tions	Definition / Source
Average annual GDP per capita growth rate	1995-2007 2000-2007	177	In 2005 US$ http://www.ers.usda.gov/Data/
Average annual GDP growth	1995-2007 2000-2007	173 177	World Economic Outlook database
Inflation average	1995-2005	177	World Economic Outlook database
Initial GDP per capita	1999	177	World Economic Outlook database
Initial GDP per capita	1995	173	In 2005 US$ http://www.ers.usda.gov/Data/
State owned banks	1995	92	Share of assets of the top ten banks controlled by the government at the 50% level: LLS dataset available from http://mba.tuck.dartmouth.edu/pages/faculty/rafael.laporta/publications
State owned banks	1999 2001 2005	103 134 110	"What fraction of the banking system's assets is in banks that are 50% or more government owned as of yearend" Beck, T., Caprio, G and Levine, T. World Bank Research Databases: Bank Regulation and Supervision. Permanent URL: http://go.worldbank.org/SNUSW978P0 1999 data from original database, 2001 data from 2003 database; 2005 data from 2007 database
Regulatory Quality (Rule of Law and Corruption for robustness checks)	Average of 1998, 2000, 2002-2005	185	Measures whether regulation aids the functioning of private markets (including banking supervision). It also measures whether the regulatory burden is perceived to be excessive, undermining private business. Kaufmann, Kray and Mastruzzzi, M: Governance matters IV : Governance indicators for 1996-2005 Permanent URL: http://go.worldbank.org/V9IMLWZ4C1
Secondary eduation	First post 1995 observation	95	Percentage of labour force with completed secondary education (% secondary education + % tertiary education) World Bank: World Development Indicators
Financial Development Liquid liabilities / GDP	1995	147	Thorsten Beck, Asli Demirgüç-Kunt and Ross Levine, (2000), "A New Database on Financial Development and Structure," World Bank Economic Review 14, 597-605 updated November 2008
Non-OPEC oil exporters	Mostly 2005	185	Own calculations: non-OPEC countries in which exports of oil exceed imports. https://www.cia.gov/library/publications/the-world-factbook/rankorder/2176rank.html (accessed February 2009) https://www.cia.gov/library/publications/the-world-factbook/rankorder/2175rank.html (accessed February 2009)
Transition countries dummy	1988	185	Countries of the Former Soviet Union and the Central and Eastern European members of the Warsaw Pact

Table 1
Robustness checks of results in LLS Table V "Simple Growth Regressions"

Ordinary least squares regressions of the cross section of countries.
The dependent variable is the average annual growth rate of GDP per capita for 1960-95.
Robust standard errors are shown in parentheses.

	LLS model	LLS model with institutional variables		Model with institutional variables	
		Ia	Ib	Ic	Id
GB70 [gbbp_70]	–0.0199*** (0.0071)	–0.0110* (0.0064)	–0.0092 (0.0066)		
Log of initial GDP per capita [logy60f]	–0.0160*** (0.0033)	–0.0187*** (0.0026)	–0.0199*** (0.0034)	–0.0180*** (0.0026)	–0.0195*** (0.0034)
Average years of schooling [ysch_av]	0.0061*** (0.0013)	0.0037*** (0.0012)	0.0044*** (0.0012)	0.0036*** (0.0012)	0.0043*** (0.0013)
Bureaucratic quality [bqualitt]	omitted	0.0048*** (0.0010)		0.0054*** (0.0010)	
Property rights [prop_hf9]	omitted		0.0104*** (0.0028)		0.0117*** (0.0028)
Intercept	0.0911*** (0.0171)	0.0857*** (0.0137)	0.0791*** (0.0168)	0.0726*** (0.0118)	0.0678*** (0.0150)
R^2	0.3403	0.4751	0.4590	0.4545	0.4459
Observations	85	84	83	84	83

All variables are defined in La Porta et al (2002) and taken from La Porta et al database available at
http://mba.tuck.dartmouth.edu/pages/faculty/rafael.laporta/publications.html .
     * denotes significance at the 10% level; ** denotes significance at the 5% level; *** denotes significance at the 1% level.

Table 2
Robustness checks of results in LLS 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 annual growth rate of GDP per capita for 1960-95.
Robust standard errors are shown in parentheses.

	LLS model	LLS model with institutional variables		Model with institutional variables	
		IIa	IIb	IIc	IId
GB70 [gbbp_70]	−0.0152*	−0.0052	−0.0067		
	(0.0091)	(0.0085)	(0.0082)		
High inflation dummy [infl_d20]	−0.0073	−0.0073	−0.0076	−0.0093*	−0.0103*
	(0.0070)	(0.0062)	(0.0066)	(0.0050)	(0.0056)
Latitude [lat_abst]	−0.0039	−0.0039	0.0076	−0.0069	0.0045
	(0.0184)	(0.0168)	(0.0165)	(0.0176)	(0.0169)
Log of initial GDP per capita [logy60f]	−0.0157***	−0.0179***	−0.0192***	−0.0178***	−0.0193***
	(0.0042)	(0.0034)	(0.0044)	(0.0034)	(0.0045)
Private credit / GDP in 1960 [prif_i60]	0.0217**	0.0144*	0.0197*	0.0146*	0.0202**
	(0.0102)	(0.0084)	(0.0103)	(0.0081)	(0.0100)
Average years of schooling [ysch_av]	0.0044**	0.0026	0.0028	0.0029*	0.0032*
	(0.0018)	(0.0016)	(0.0020)	(0.0015)	(0.0019)
Bureaucratic quality [bqualitt]		0.0050***		0.0053***	
		(0.0010)		(0.0011)	
Property rights [prop_hf9]			0.0084*		0.0092***
			(0.0031)		(0.0032)
Regional dummies	Yes	Yes	Yes	Yes	Yes
Intercept	0.1019***	0.0905***	0.0908***	0.0845***	0.0831***
	(0.0212)	(0.0174)	(0.0206)	(0.0155)	(0.0178)
R^2	0.5012	0.6016	0.5751	0.5990	0.5709
Observations	82	81	80	81	81

All variables are defined in La Porta et al (2002) and taken from La Porta et al database available at
http://mba.tuck.dartmouth.edu/pages/faculty/rafael.laporta/publications.html
* denotes significance at the 10% level. ** denotes significance at the 5% level. *** denotes significance at the 1% level.

Table 3: Government Ownership and Growth in Recent Years.
Ordinary least squares regressions of the cross section of countries.
The dependent variable is the average annual growth rate of *per capita* GDP for 1995-2007 and 2000-2007.
Robust standard errors are shown in parentheses.

	Model III	**Model IV**	**Model V**	**Model VI**	**Model VII**
	Average GDP *per capita* growth 2000-2007	Average GDP *per capita* growth 1995-2007	Average GDP growth 1995-2007	Average GDP *per capita* growth 1995-2007	Average GDP *per capita* growth 1995-2007
State owned banks in 2001	3.6020***	3.1739***	2.3192***	1.328*	2.2926***
	(1.2581)	(0.8689)	(0.92)	(.7472)	(0.7915)
Log of initial GDP per capita[1]	-0.6087***	-0.4309***	-0.4476**	-0.5308**	-.5297***
	(0.2117)	(0.1727)	(0.2172)	(0.2481)	(0.1637)
Inflation average 95-05[2]	0.0186	0.0012	-0.0058	-.0060	-.0107
	(0.0154)	(0.0097)	(0.0131)	(0.0076)	(0.0117)
Regulatory quality	1.4207***	1.1857***	0.6237*	1.2303***	1.3529***
	(0.4134)	(0.2996)	(0.3629)	(0.4156)	(0.3003)
Non-OPEC Oil exporter	1.4124**	0.911*	0.8646**	0.3137	0.5674
	0.6825	(0.4936)	(0.4586)	(0.47702)	(0.4651)
Transition countries dummy	4.058***	2.8508***	1.3867**	2.6257***	2.8426***
	(0.8126)	(0.5678)	(0.6128)	(0.4321)	(0.522)
Secondary education				0.0014	
				(0.0089)	
Liquid liabilities / GDP					-0.1253
					(0.3187)
Intercept	5.9493***	4.8157***	6.9102***	5.8821***	5.8575***
	(1.5882)	(1.3974)	(1.7642)	(1.9683)	(1.2662)
R^2	0.5474	0.4547	0.1981	0.4765	0.4469
Observations	118	118	118	80	105

All variables are defined in the Data Appendix.
- denotes significance at the 10% level. ** denotes significance at the 5% level. *** denotes significance at the 1% level.

Notes:
[1] For the 2000-2007 regressions the base year is 1999 (WEO) and for 1995-2007 it is 1995 (ERS).
[2] The inflation dummy used by LLS with inflation >20% is never significant.

Table 4
Government Ownership and Growth in LDCs.
Ordinary least squares regressions of the cross section of countries.
Robust standard errors are shown in parentheses.

	Dependent variable			
	Average annual *per capita* GDP growth rate over 1965-95		Average annual *per capita* GDP growth rate over 1995-07	
	LLS Model 1960 GDP per capita <270US$	**Model VIII** 1960 GDP per capita <270US$	**Model IXa** 1995 GDP per capita <US$6000	**Model IXb** 1995 GDP per capita <US$4000
Independent variables				
State owned banks in 1970	–0.0239* (0.0142)	–0.013 (0.013)		
State owned banks in 2001			3.0587*** (0.9794)	3.1498*** (1.0651)
Log of initial GDP per capita[1]	–0.0169** (0.0079)	–0.0163** (0.0074)	–0.2627 (0.2527)	–0.1881 (0.2943)
Inflation average			0.0003 (0.0100)	0.0001 (0.0105)
Average years of schooling	0.0084*** (0.0026)	0.0065*** (0.0021)		
Bureaucratic quality		0.0069*** (0.0017)		
Regulatory quality			1.1278*** (0.4076)	1.1289** (0.5337)
Non-OPEC Oil exporters			1.0567 (0.6966)	1.1013 (0.8711)
Transition countries dummy			3.0687*** (0.6705)	3.0477*** (0.8676)
Intercept	0.089*** (0.0431)	0.0546 (0.0420)	3.5728* (1.9212)	3.0749 (2.1656)
R^2	0.3202	0.4827	0.4927	0.4634
Observations	42	41	77	65

All variables in LLS Model and Model VIII are defined in La Porta et al (2002) and taken from La Porta et al database available at
http://mba.tuck.dartmouth.edu/pages/faculty/rafael.laporta/publications.html
All other variables are defined in the Data Appendix.
* denotes significance at the 10% level.
** denotes significance at the 5% level.
*** denotes significance at the 1% level.

Notes:
[1] For the 1965-1995 regressions the base year is 1960 and for 1995-2007 it is 1995