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**IS GOVERNMENT OWNERSHIP OF BANKS
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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 is associated with lower long run growth rates are not robust to adding more ‘fundamental’ determinants of economic growth. We also present new cross-country evidence for 1995-2007 which suggests that, if anything, government ownership of banks has been robustly associated with **higher** long run growth rates. While acknowledging that cross-country results need not imply causality, we nevertheless provide a conceptual framework, drawing on the global financial crisis of 2008-09, which explains why under certain circumstances government owned banks could be more conducive to 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, been associated with higher long run growth.

Hostility towards government owned banks reflects the hypothesis – known as the ‘political view of government 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 government-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 government 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 that the LLS results are fragile to extending the set of conditioning variables to include more ‘fundamental’ determinants of economic growth such as institutional quality / quality of governance (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

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; government 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).

ownership of banks has been robustly associated with higher long-run 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 shows 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 shows that the original LLS are sensitive to omitted variable bias. Section 5 presents new cross country evidence of a positive association between government ownership of banks and economic growth. It also reports results from a battery of robustness checks, including Extreme Bounds Analysis. Section 6 provides a conceptual framework which explains why government ownership of banks can have positive effects on growth. Section 7 summarises and concludes.

2. Additional Background

In a precursor to this paper (Andrianova *et al*, 2008) we argue 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. We then proceed to show both theoretically and empirically that government ownership of banks is much more a symptom of institutional weaknesses than an outcome of political factors. 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 exists a ‘Low Equilibrium’ (LE) region, where opportunism is rife and institutions sufficiently weak, in which depositors will not choose private banks at all. At the other extreme, when deposit contract enforcement is strong, there is a ‘High Equilibrium’ (HE) region in which only private banks exist as no depositor would choose the less-efficient government owned bank. In between LE and HE, there is an ‘Intermediate Equilibrium’ (IE) region in which private banks and government owned banks co-exist; in this region the market share of government banks is shown to be decreasing in the quality of contract enforcement. We show that privatising government owned banks in the LE region results in a collapse of financial intermediation with depositors choosing not to place their savings in the banking system. We also show that multiple equilibria can arise when resources devoted to deposit contract enforcement are fixed, and the effectiveness of enforcement declines with the fraction of contracts breached. In such case, high and intermediate equilibria co-exist in the same parameter space and depositor beliefs determine the type of equilibrium that prevails. Because beliefs are slow to change, we argue that a prior banking crisis is likely to keep the economy in the IE region even if institutional quality improvements commensurate with a High Equilibrium have occurred.

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. In addition, we 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 the implications of government owned banks for long run growth. This is precisely the focus of the current paper.

3. Data and Sources

For the first set of regressions aimed at examining the robustness of the LLS results 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 new regression results 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 1998-2005.³ 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.⁴ 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 government 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

³ The table of pair-wise correlations in the data appendix shows a correlation of average regulatory quality and government ownership of banks of -0.325. As in our previous paper, better regulatory quality is associated with a lower share of government owned banks.

⁴ The table of pair-wise correlations in the data appendix shows that transition has been strongly associated with a strong growth performance in the period 1995-2007.

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. Figure 1 shows the distribution of the 2001 CLB government ownership variable. Even after a decade of determined privatisation under the “Washington consensus” a number of countries have preserved often significant shares of government ownership of banks.

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, as well as summary statistics and the list of countries on which the reported results are based are provided in the Data Appendix.

4. Fragility of LLS Results

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%.⁵ 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. 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 a 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 evaporates. “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.

5. Government Ownership of Banks and Economic Growth: New Evidence

Table 3 presents the regression results using the data set we compiled, which contains data from 1995 onwards. To maximise the number of observations we use the CLB 2001 variable as our measure for government ownership of banking. Average GDP growth is either from 2000-2007 or from 1995-2007. In all regressions, we include the log of initial GDP per capita to capture convergence and Kaufman’s measure of regulatory quality to capture the influence of institutions. 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, with the exception of the inflation rate, have the expected effects, with richer countries growing more slowly than poorer countries and transition countries and oil exporters experiencing faster growth. The regulatory quality variable from the Kaufmann database has the expected positive effect and is always statistically significant at the 1% level. The inflation measure, however, is not

⁵ 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 government 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.

statistically significant over this time period, probably reflecting that transition countries have grown fast even if monetary stabilisation was delayed.

The baseline Models III and IV show that the effect of the government-ownership variable is **positive** and statistically significant at the 1% level, for both for the 1995-2007 and 2000-2007 periods. This suggests that, if anything, government ownership of banks during these periods was, on average, helpful in enabling countries to take advantage of long-run growth opportunities. This is of course a rather surprising result and it is, therefore, paramount to check the extent to which it is robust. To start with, Table III reports robustness checks by using an alternative dependent variable and adding more conditioning variables. Specifically, Model V utilises GDP growth during 1995-2007 instead of GDP *per capita* growth as the dependent variable; the coefficient on government owned banks remains positive and significant at the 1% level.⁶ Model VI includes a measure of educational attainment as an additional conditioning variable; this variable has been found significant in explaining long run growth rates by the literature on human capital. The inclusion of this variable, which is not found to be significant, weakens the significance of the government ownership variable to the 10% level. However, on further examination this is a reflection of the more limited and arguably biased sample; the number of observations declines from 118 to 80, due to patchy availability of education data in less developed countries.⁷ Hence, sample selection appears to matter in that the strong significance of the coefficient on government owned banks requires the presence in the sample of a sufficiently large number of LDC's. We have explored the sample selection issue further and have found that the main result does not reflect a few outliers with unusually fast growth rates nor does it reflect a specific region of the world. Indeed, all reported models exclude China, which is a country with very fast growth and a very high government share in banking. Moreover, the result remains robust when we remove India – another important example of fast growth in the presence of substantial government ownership in banking - or the top ten or fifteen fastest growing countries from the specification - only the size of the coefficient on the government ownership variable changes. Additional regional dummies can also be included without changing the main result – these are not included in the baseline as they were found to be insignificant.

Returning to Table 3, Model VII includes an indicator of financial development (liquid liabilities / GDP), which the finance and growth literature has found important in explaining growth. This variable is not found to be significant; however its inclusion reduces the sample to 105 observations. Although the sample excludes a number of fast-growing LDCs and the size of the coefficient on government owned banks is reduced, the overall result of a positive and highly significant association of government-owned banks with faster growth is preserved. Similar results are found using alternative financial development indicators (e.g. bank credit/GDP).

We also experimented with alternative measures of the regressors, including the variable of interest.⁸ The main result is found to be robust to using the LLS 1995 or

⁶ Note that the LLS results were highly sensitive to the choice of the dependent variable.

⁷ The coefficient and the significance level of the government 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.

⁸ These results are not reported in Tables to save space but are available from the authors on request.

the CLB 2005 data on government ownership of banks. Significance of the government ownership variable remains at the 1% level despite smaller data-sets of 88 and 100 observations respectively. Also, instead of regulatory quality, we used the “rule of law” and “corruption” indices from the Kaufmann governance dataset. The use of these alternative institutional quality measures over the 1995-2007 time period, do not alter the positive and highly significant effects of government ownership of banks and continue to suggest that “governance” matters for economic growth. Finally, in an attempt to understand whether our finding reflects a different set of countries to the LLS ones, as opposed to a different model specification or time period, we ran a number of variants of the models reported in Table 3 on as many of the LLS countries as was possible – depending on the specification the sample of countries was down to 68-70. The main finding remains intact with the estimated coefficient on government ownership of banks remaining around 3 and significant.⁹

Additional robustness checks are reported in Table 5, which summarises the results of an Extreme Bounds Analysis (EBA), designed to check whether the main result is robust to the inclusion of all possible linear combinations of an additional group of conditioning variables.¹⁰ The baseline regression includes the variable of interest and a group of ‘focus’ variables which in our case include initial GDP per capita, regulatory quality and a transition dummy. Initial GDP per capita is an uncontroversial variable to include in the focus group as it is intended to capture convergence. The inclusion of the transition dummy in the focus group is intended to avoid potential upward bias of the coefficient of the variable of interest. Most transition countries experienced fast growth during the period under investigation while their banking systems remained at least partially under government control; not including a transition dummy could bias the coefficient of interest upwards as government ownership of banks may then to some extent act as a proxy for transition. Including regulatory quality in the focus group can be rationalised by alluding to the literature that emphasises institutions as a fundamental determinant of economic growth, and is consistent with the uniformly highly significant coefficients found for institutional quality in Tables 1, 2 and 3. The group of ‘doubtful’ variables that we include in our EBA comprises (i) the average inflation rate; (ii) trade openness, defined as the ratio of exports plus imports to GDP; (iii) liquid liabilities as a ratio of GDP; (iv) Foreign Direct Investment as a ratio of GDP; and (v) non-OPEC oil exporter dummy. The extreme bounds reported in Table 4 are the upper and lower bounds of the estimated coefficient of the variable of interest, plus or minus two standard errors, respectively. As can be seen, the range between the lower and upper bounds does not include zero, which suggests that the main result is robust.

Table 6 carries out an alternative robustness check that involves testing whether our baseline specification should include bank privatisation. It could be argued that bank privatisation is an omitted variable and that government ownership of banks acts as a proxy for it. Since countries with a high government share in banking are also countries that embarked on significant privatisations of their banking systems, there is likely a positive correlation between government ownership of banks and bank privatisation. If bank privatisation spurs economic growth, omitting it from the

⁹ These results are not reported to save space but are available from the authors on request.

¹⁰ Extreme bounds analysis has its origins in the pioneering work of Leamer (1982) and has been applied extensively in the growth literature, see for example, Bougheas et al (2000).

baseline specification could bias the coefficient of government ownership of banks upwards. In other words, the positive coefficient of government ownership of banks may - to a large or small extent - be picking up the positive effects of bank privatisation on growth. Model I in Table 5 tests this version of the bank privatisation hypothesis directly, by replacing the government ownership variable with a variable that measures the extent of bank privatisation (defined as the reduction in the proportion of government ownership of banks). The estimated coefficient is found to be negative and statistically insignificant, providing no support to this hypothesis whatsoever. Model II tests an alternative form of the privatisation hypothesis which postulates that bank privatisation is simply an omitted variable from our specification. Now the coefficient of bank privatisation is found to be positive, however it is highly insignificant, while the coefficient on government owned banks is positive and significant and the 1% level. There is, therefore, no evidence that bank privatisation is an omitted variable nor that government ownership of banks should not be included. Model III conducts an alternative, complementary, experiment. It retains the privatisation variable but drops the transition dummy, which was significant in both Models I and II. Dropping the transition dummy results in bank privatisation becoming significant at the 5% level. However, the R-square of the regression declines to 0.27 compared with 0.50 in Model II. Hence, bank privatisation in Model III is acting like a - crude - proxy for transition, which the drop in R-square suggests is an omitted variable. However, even in this misspecified regression government ownership of banks retains its positive and highly significant coefficient. Moreover, the net effect of government ownership in transition countries remains positive. The results in Table 5 therefore provide no support to the view that bank privatisation is an omitted variable, contradict the assertions of the World Bank (2001) and therefore, if anything, strengthen the interpretation of the positive effects of government ownership on long run growth.

The next set of results, reported in Table 6, examines the hypothesis that government ownership of banks is damaging only in countries with low levels of income. In this Table we, therefore, focus our attention to Less Developed Countries, which inevitably reduces the sample quite considerably. 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 government ownership of banks is marginally higher than in the full sample but it is not statistically different.¹¹ Again, adding bureaucratic quality improves the fit of the regression and completely undermines the significance of the “government owned banks” variable (Model VIII). In the new dataset there is again no evidence that government ownership is particularly harmful in low income countries. For countries with low GDP *per capita* the effect of government ownership is positive and significant, with a similar coefficient to that in the whole sample. If anything the coefficient rises as we lower the threshold we set for the sample of low income countries (Models IXa and IXb).

¹¹ 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).

Our findings suggest that government ownership of banks has, if anything, been associated with faster long run growth. Specifically, we have found that, conditioning on other determinants of growth, countries with government owned banks have, on average, grown faster than countries with no or little government ownership of banks. It is therefore clear that, on balance, government ownership of banks, where it prevailed, has not been harmful to economic growth.¹² 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 certainly suggest that such anecdotal evidence cannot and should not be generalised. Indeed, a growing body of evidence suggests that publically owned banks are no less efficient than privately owned banks and have helped to promote economic growth. Altunbas *et al* (2001), for example, find, using data from Germany, that public banks, if anything, have slight cost and profit advantages compared to private banks. Similarly, in the case of Russia, Karas *et al* (2008) find that domestic public banks are more efficient than domestic private banks. There is also evidence from China, where government owned banks dominate the banking system, which suggests that banks there helped to promote economic growth, by boosting the productivity and value added growth of firms they financed (See, for example, Demetriades *et al*, 2008 and Rousseau and Xiao, 2007).

Caution, however, needs to be exercised when deriving policy implications from findings obtained from cross-country regressions, as there is a risk of obtaining misleading conclusions. The implicit assumption that is frequently made when interpreting such results is that the long run relationship between the variables of interest is homogeneous across countries. This need not be the case if, for example, countries have differential access to technology. If the relationship is heterogeneous across countries, the average relationship estimated from cross-country regressions cannot be used to carry out policy experiments such as ‘What is the effect on country X’s long run growth if country X’s share of government ownership increased by Z%?’ Even if the long run relationship is homogeneous across countries, it does not necessarily follow that the direction of causality is the same across countries.¹³ Hence, while government ownership of banks has been associated with higher long run growth in a cross-country setting, our results should not be taken to imply that increasing the degree of government ownership in countries with little or no government ownership will result in higher long run growth rates. Although reverse causality would be hard to rationalise in this particular case – there is no obvious reason why high growth rates should result in greater government ownership of banking – the relationship, if homogeneous across countries, could reflect common unobserved driving factors. Likely unobservable factors that may result in greater government ownership of banks and have an impact on GDP growth include various

¹² In the sense that, all other things equal, these countries did not have lower growth rates than countries without government owned banks. It can, of course, be argued that countries with government owned banks and high growth rates, like China, India and Taiwan, could have grown even faster if they had privatised their banking systems. This is of course something that cannot be tested directly, although the evidence presented in this paper and elsewhere (e.g. Demetriades *et al*, 2008; Rousseau and Xiao, 2007) does not provide much support to this view.

¹³ For example, although cross country regressions show that finance and growth are positively correlated, it does not follow that finance leads growth in all countries; indeed time-series evidence suggests that causality between finance and growth varies across countries. See, for example, Demetriades and Hussein (1996); Arestis and Demetriades (1997).

forms of financial market failures. If such failures abound and if, also, institutions designed to contain them are weak, governments may choose to nationalise banks. Such failures would of course correlate negatively with GDP growth, so arguably the coefficients of government ownership of banks on growth in OLS regressions may display downward bias.¹⁴

The above analysis suggests that an important final check of robustness of our results would be to isolate the effect of the ‘exogenous’ component of government ownership of banks on economic growth in so far as this is feasible. To this end, Table 7 reports results from Instrumental Variable regressions designed to shed further light on this issue. As instruments for government ownership we use the black market premium which is a good indicator of market failure and correlates well with government ownership of banks and much less so with economic growth.¹⁵ As additional instruments we also use prior bank failures which provide another form of evidence on financial market failure which frequently necessitates takeovers of banks by government. In the regressions reported in Table 7 we also utilise a sub-Saharan African dummy as an additional instrument for regulatory quality, which we also treat as an endogenous variable in some regressions. Unfortunately, the use of black market premium – although a good instrument – restricts the sample down to 56 observations. Nevertheless, the results appear reasonable. While the coefficient on government ownership of banks declines by about a third in Models I and II (compared to Model IV in Table 3) and its standard error increases somewhat, it remains significant at the 5% level. Regulatory quality however appears more fragile as a regressor and loses significance when it is treated as an endogenous variable. This, however, may be because of the lack of appropriate instruments for institutional variables. Models II and IV present the IV results for average GDP growth. If anything, these results show that the coefficient on government ownership of banks increases compared to the corresponding model in Table 3 (Model V). While it is estimated somewhat less precisely it remains significant at the 1% level when regulatory quality is treated as an exogenous variable and is significant at the 5% level when regulatory quality is treated as an endogenous variable. Regulatory quality is, however, statistically insignificant in both Models III and IV.

To conclude, the evidence we have presented in this section suggests that government ownership of banks during 1995-2007 has been robustly associated with higher economic growth. Extreme Bounds Analysis shows that this finding does not appear to be the result of omitting other important determinants of growth, such as openness, inflation, overall financial development or FDI. Moreover, we have shown that it is not the result of omitting bank privatisation from the regressions; the latter has a positive effect only when the transition dummy is omitted when it acts as a rather crude proxy for transition. Finally, IV estimations show that the main result does not reflect reverse causality or common driving factors, although the latter, if important, would likely have biased the relevant coefficient downwards. Specifically, when we instrument government ownership of banks using variables that proxy financial market failures, we find that the main result remains intact. However, because the

¹⁴ See, for example, Rodrik (2005) who has argued that we can learn nothing from regressing economic growth on policies largely because the latter may reflect an optimal government response to market failure that is negatively correlated to growth.

¹⁵ The correlation coefficient between the black market premium and government ownership of banks is 0.45; the same variable has a correlation coefficient with GDP per capita growth of 0.15.

need to find appropriate instrument restricts the sample to half the original one, we prefer not to draw the conclusion that government ownership of banks leads to higher economic growth, although this is a hypothesis that the evidence suggests should be maintained.

6. Government Ownership of Banks and Economic Growth: Conceptual Issues

Although we are reluctant to draw causal inferences from cross-country growth regressions, notwithstanding the IV results we have presented, our findings do nevertheless dictate that we should maintain the hypothesis that government owned banks may be able to promote long run growth better than private banks. Indeed, if we set aside concerns relating to heterogeneity across countries and causality, our findings suggest that this hypothesis is supported by the evidence. It is therefore fruitful, if not mandatory, to explore the mechanisms through which government ownership of banks may promote economic growth and how - typically unregulated - private finance can undermine it.

There are well known market failures in banking which, by themselves, can provide 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 liquid and solvent. All this could work well in theory to address market failures or limit their impact, without requiring government ownership of banks. Indeed, it was widely believed before the global financial crisis of 2008-09 that the US and UK banking systems had effectively addressed these issues without the need for government owned banks. The crisis, however, has changed perceptions. It has revealed that financial regulation, especially in the US and the UK has been inept – arguably almost by design - at deterring excessive risk taking by banks. It has also revealed that there exist additional, possibly massive, agency problems within private banking that cannot easily be addressed by financial regulation. Moreover, it has highlighted a neglected political economy dimension – namely the capture of regulators by the regulated – that could turn on its head the political view of government owned banks. We argue that these new elements provide a plausible rationale for why private banks may perform worse than government owned banks in terms of promoting long run growth.

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 widens 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 providing 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.¹⁶ ‘High-tech’ banking and the speculative activities that it involves could be one of the reasons why private banks may divert their attention from growth enhancing activities. From a macroeconomic perspective, the lucrative reward structures of ‘high-tech’ banking may also distort the allocation of human capital, thereby resulting in a large social cost. There is ample anecdotal evidence that the exceptionally high financial rewards associated with ‘high-tech’ banking have attracted large numbers of talented university graduates, including scientists and engineers, who could have been more productively employed in other sectors.

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 the risk of their (on and off balance sheet) assets 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, or nothing, 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. It is now clear that regulatory capture in financial markets has rendered banking regulation and supervision ineffective (See, for example, Johnson 2009 and Stiglitz 2009).

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

¹⁶ Anecdotal evidence is now emerging from American courts that chief executives of financial institutions have knowingly taken excessive risks or committed outright fraud (e.g. Bernard Madoff, Allen Stanford), while others made exaggerated and unjustifiable pay claims (Richard Grasso).

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 – frequently the end of a political career. 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.¹⁷ The combination of high rewards in good times 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 the profitability of their loans but may, nevertheless, generate positive spillovers on other companies.¹⁸ Political priorities in banking, if they are the outcome of a democratic political process are more likely to be growth enhancing, even if they reflect one political party's agenda, than the priorities of opportunistic bankers whose objective is their own quick enrichment.¹⁹

The above analysis suggests that uncontained extreme moral hazard, resulting in a failure of corporate governance within private banks, can provide 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).²⁰

The failure of corporate governance within private banks coupled with the capture of politicians by bankers can turn on its head the political view of government owned banks. In a democratic setting, opportunistic politicians are more likely to prefer a

¹⁷ See the Financial Times article on January 19th 2009 “RBS set to reveal biggest loss in British corporate history”.

¹⁸ See, for example, DeLong and Summers (1991).

¹⁹ One such example of political priorities in banking is modelled in Hakenes and Schnabel (2006), who demonstrate how a local government owned bank can prevent “capital drain” in a financial market prone to moral hazard problems. By promising to invest in local projects such local public bank prevents the outflow of funds from the region and ensures a more efficient investment and a higher regional economic growth.

²⁰ 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).

privately owned banking system than a government owned one, since the personal and political rents they can extract from private banks are likely to be larger than those they could extract from public banks. Johnson (2009) provides an excellent and vivid account of the ways in which the American financial industry gained political power in the last two decades and was able to dictate not only a weak regulatory environment but also massive bailout subsidies, which were often less than transparent. In turn politicians received rents, including senior positions on the boards of private banks, often switching back and forth between public office and private banking. The very cosy and close relationship between Wall Street and Washington was enormously helpful in terms of generating short term profits for the banking industry - and generating largesse for senior executives and politicians to share. However, because of the failures in corporate governance, such profits were little more than accounting entries that satisfied shareholders, protected by convenient lack of transparency and weak regulation, which politicians allowed.

Igan, Mishra and Tressel (2009) provide a unique new insight into the relationship between bankers and politicians in the United States in recent years by collecting a unique new data set on donations by banks to both political parties. The magnitudes involved were not trivial. In fact, lobbying by the financial and insurance industry appears to have been more prominent than by other industry, with average lobbying expenditure per firm just under half a million dollars in 2006, which is about 50% higher than firms in the defence industry and more than twice as much as construction firms. According to the authors, during 1999-2006 total lobbying expenditure by financial intermediaries on issues relating to mortgage loans and securitisation amounted to US\$475 millions. Alarming, the empirical results presented by the authors reveal that lenders that lobbied more actively had engaged in riskier lending, leading to the conclusion that they may have expected special treatments from policy makers.

Our conjecture is that in an environment of weak corporate governance, private banks can be a convenient vehicle for politicians who wish to obtain either private rents for themselves or financial contributions for their political parties. It is not implausible to argue that the magnitude of the rents that politicians can receive is likely to be much smaller if banks are in public hands than in private ones. In a democracy, public sector accountability, pay structures and procedures make it extremely hard for any politician to use such institutions for their own personal advantage. A simple example suffices to illustrate this point. Positions on the board of private banks or lucrative consultancies – which politicians frequently find themselves in after a period of public office – are typically more financially rewarding than positions on the boards of public sector companies.²¹ It may, therefore, be in the - private or political party - interest of politicians to promote a privately owned banking system with weak corporate governance and lax regulation. Such banking systems are of course less

²¹ *The Times* in their lead article on 29 October 2009 relating to Tony Blair's bid for the EU presidency reports: "Allies said that if he got the job, he would give up his business interests, reported to be a £2.5million-a-year consultancy with the investment bank JP Morgan, a £2 million deal to advise the finance firm Zurich and speaking engagements worth £100,000 a time. Reports suggest that he has earned £12 million to £15 million since standing down from government in 2007".

likely to promote economic growth than public sector banks that are accountable to government and ultimately the electorate.

In the appendix we provide some evidence on the different types of financial relationship that can exist in a democracy between banks and political parties, through a case study of Germany. In Germany, some banks were in public hands prior to the crisis while many other banks were not, which makes comparisons between the two types of ownership very pertinent for our conjecture. The case study vividly demonstrates that banks in public hands were not able to make campaign contributions to political parties while private banks – including some of those that needed to be rescued – were able to do so. This evidence provides additional weight to our conjecture that in democracies banks that are in public hands cannot be used - or abused – by politicians in the ways suggested by the political view of government owned banks while privately owned banks can. It therefore appears that the political view of government owned banks can be turned on its head in the case of democratic regimes. This could also explain why countries with government owned banks may have fared better in terms of economic growth in recent years, which have been characterised by rapid financial innovation.

7. Summary and Conclusion

We have provided new evidence which suggests that the view that government ownership of banks is harmful to economic growth lacks empirical grounding. If anything, our findings suggest that recently government ownership of banks has been associated with better long-run growth performance. 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.

Finally, our analysis suggests that in a democracy opportunistic politicians may have a preference for privately owned banks with weak corporate governance as opposed to government owned ones. This is because they are more likely to extract large personal rents from privately owned banks than from publically owned banks. This argument turns the political view of government owned banks on its head. Opportunistic politicians are still the source of poor economic performance, but the mechanism they choose to extract rents from and distort resource allocation with is not government owned banks but privately owned ones. This line of argument warrants itself for further theoretical and empirical research, not least because it can help inform policy makers and the electorate as to the true costs and benefits of publically owned banks.

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Data Appendix

<i>Variable</i>	<i>Dates</i>	<i>Number of Observations</i>	<i>Definition / Source</i>
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/
Government 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
Government 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 Mastruzzi, M: Governance matters IV : Governance indicators for 1996-2005 Permanent URL: http://go.worldbank.org/V9IMLWZ4C1
Secondary education	First post 1995 observation	95	Percentage of labour force with completed secondary education (% secondary education + % tertiary education) World Development Indicators December 2008
Openness	Average 1995-2005	165	Export Share / GDP + Import Share / GDP World Development Indicators December 2008
FDI	Average 1995-2005	160	Net Foreign Direct Investment / GDP World Development Indicators December 2008
Privatisation	1970, 1995	92	Government ownership of banks in 1970 - Government ownership of banks in 1995: LLS dataset available from http://mba.tuck.dartmouth.edu/pages/faculty/rafael.laporta/publications
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 former Warsaw Pact

List of Countries

Albania, Algeria, Antigua and Barbuda, Argentina, Armenia, Australia, Austria, Azerbaijan, Bahrain, Belarus, Belgium, Belize, Benin, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Bulgaria, Burkina Faso, Canada, Chile, Colombia, Costa Rica, Cote d'Ivoire, Croatia, Cyprus, Czech Republic, Denmark, Dominica, Ecuador, Egypt, El Salvador, Estonia, Fiji, Finland, France, Germany, Ghana, Greece, Grenada, Guatemala, Guinea, Hong Kong SAR, Hungary, Iceland, India, Israel, Italy, Japan, Jordan, Kazakhstan, Kenya, Korea, Kuwait, Kyrgyzstan, Latvia, Lebanon, Lesotho, Lithuania, Luxembourg, Macau, Macedonia, Madagascar, Malaysia, Mali, Malta, Mauritius, Mexico, Moldova, Morocco, Namibia, Netherlands, New Zealand, Niger, Nigeria, Norway, Oman, Pakistan, Panama, Paraguay, Peru, Philippines, Poland, Portugal, Puerto Rico, Russia, Rwanda, Saudi Arabia, Senegal, Seychelles, Singapore, Slovakia, Slovenia, South Africa, Spain, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Sudan, Suriname, Swaziland, Sweden, Switzerland, Taiwan Province of China, Tajikistan, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Ukraine, United Arab Emirates, United Kingdom, United States, Uruguay, Vanuatu, Venezuela, Zimbabwe

Summary Statistics of Key Variables

Variable	Observations	Mean	Std. Dev.	Min	Max
GDP per cap growth average 95-07	123	2.938	2.307	-2.857	15.150
GDP per cap growth average 00-07	123	3.330	2.931	-5.477	16.676
Government ownership of banks 2001	134	0.159	0.217	0.000	0.960
ln GDP 1995	124	8.196	1.525	3.918	10.907
ln GDP 2000	124	8.315	1.539	3.895	11.141
Inflation average 95-05	121	13.884	29.097	-0.070	197.474
Regulatory Quality	123	0.293	0.885	-1.987	1.889
Liquid Liabilities	108	0.536	0.421	0.063	2.887
Openness	121	88.257	44.890	21.128	296.321
Foreign Direct Investment	113	4.195	4.143	0.063	22.099

Pairwise Correlation of Key Variables

	GDP per cap growth average 95-07	Government ownership of banks 2001	ln GDP 1995	Inflation average 95-05	Regulatory Quality	Oil (non-OPEC)	Transition	Liquid liabilities	Openness	FDI
GDP per cap growth av. 95-07	1									
Government ownership of banks 2001	0.2437	1								
ln GDP 1995	-0.1031	-0.1893	1							
Inflation av. 95-05	0.2379	0.3236	-0.3501	1						
Regulatory Quality	-0.0288	-0.3246	0.8442	-0.4981	1					
Oil (non-OPEC)	0.1081	0.0447	0.0409	0.1119	-0.0678	1				
Transition	0.5585	0.1065	-0.1937	0.4379	-0.1697	0.0144	1			
Liquid Liabilities	-0.0902	-0.1169	0.5331	-0.2216	0.5112	-0.0968	-0.2430	1		
Trade Openness	0.1448	-0.1077	0.1823	0.0772	0.1824	-0.0734	0.1404	0.4844	1	
FDI	0.2550	-0.0328	0.1387	-0.0534	0.1827	0.0629	0.0732	0.2333	0.4909	1

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* (0.0091)	-0.0052 (0.0085)	-0.0067 (0.0082)		
High inflation dummy [infl_d20]	-0.0073 (0.0070)	-0.0073 (0.0062)	-0.0076 (0.0066)	-0.0093* (0.0050)	-0.0103* (0.0056)
Latitude [lat_abst]	-0.0039 (0.0184)	-0.0039 (0.0168)	0.0076 (0.0165)	-0.0069 (0.0176)	0.0045 (0.0169)
Log of initial GDP per capita [logy60f]	-0.0157*** (0.0042)	-0.0179*** (0.0034)	-0.0192*** (0.0044)	-0.0178*** (0.0034)	-0.0193*** (0.0045)
Private credit / GDP in 1960 [prif_i60]	0.0217** (0.0102)	0.0144* (0.0084)	0.0197* (0.0103)	0.0146* (0.0081)	0.0202** (0.0100)
Average years of schooling [ysch_av]	0.0044** (0.0018)	0.0026 (0.0016)	0.0028 (0.0020)	0.0029* (0.0015)	0.0032* (0.0019)
Bureaucratic quality [bqualitt]		0.0050*** (0.0010)		0.0053*** (0.0011)	
Property rights [prop_hf9]			0.0084* (0.0031)		0.0092*** (0.0032)
Regional dummies	Yes	Yes	Yes	Yes	Yes
Intercept	0.1019*** (0.0212)	0.0905*** (0.0174)	0.0908*** (0.0206)	0.0845*** (0.0155)	0.0831*** (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: New Results on Government Ownership of Banks and Economic Growth

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
	<i>Average GDP per capita growth 2000-2007</i>	<i>Average GDP per capita growth 1995-2007</i>	<i>Average GDP growth 1995-2007</i>	<i>Average GDP per capita growth 1995-2007</i>	<i>Average GDP per capita growth 1995-2007</i>
Government owned banks in 2001	3.6020*** (1.2581)	3.1739*** (0.8689)	2.3192*** (0.92)	1.328* (.7472)	2.2926*** (0.7915)
Log of initial GDP per capita ¹	-0.6087*** (0.2117)	-0.4309*** (0.1727)	-0.4476** (0.2172)	-0.5308** (0.2481)	-.5297*** (0.1637)
Inflation average 95-05 ²	0.0186 (0.0154)	0.0012 (0.0097)	-0.0058 (0.0131)	-.0060 (0.0076)	-.0107 (0.0117)
Regulatory quality	1.4207*** (0.4134)	1.1857*** (0.2996)	0.6237* (0.3629)	1.2303*** (0.4156)	1.3529*** (0.3003)
Non-OPEC Oil exporter	1.4124** 0.6825	0.911* (0.4936)	0.8646** (0.4586)	0.3137 (0.47702)	0.5674 (0.4651)
Transition countries dummy	4.058*** (0.8126)	2.8508*** (0.5678)	1.3867** (0.6128)	2.6257*** (0.4321)	2.8426*** (0.522)
Secondary education				0.0014 (0.0089)	
Liquid liabilities / GDP					-0.1253 (0.3187)
Intercept	5.9493*** (1.5882)	4.8157*** (1.3974)	6.9102*** (1.7642)	5.8821*** (1.9683)	5.8575*** (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: Extreme Bounds Analysis

Dependent variable is the average annual growth rate of *per capita* GDP for 1995-2007
 Variables included in every specification are: Government-owned banks in 2001, initial GDP per capita, regulatory quality and transition dummy
 Doubtful (Z) variables are: Liquid liabilities / GDP, Openness, FDI and non-OPEC oil exporter dummy

	$\beta_{\text{government-owned banks}}$	# of observations	R ²	Additional Z variables	Result
Upper Bound	4.978	114	0.4359	Inflation, Openness	
Baseline	2.887 (0.8861)	121	0.4031	None	Robust
Lower	0.159	97	0.5230	Inflation, Openness, Liquid Liabilities, FDI	

Upper bound estimate is the largest estimated coefficient + 2 (robust) standard errors
 Lower bound estimate is the smallest estimated coefficient - 2 (robust) standard errors
 Baseline: Coefficient Estimate and robust Standard error in parentheses

Table 5: Government Ownership of Banks, Privatisation and Economic Growth

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

Robust standard errors are shown in parentheses.

	Model I	Model II	Model III
	Average GDP <i>per capita</i> growth 1995-2007	Average GDP <i>per capita</i> growth 1995-2007	Average GDP <i>per capita</i> growth 1995-2007
Privatisation of Government Banks	-0.7672 (0.5651)	0.2237 (0.5337)	1.6254** (0.7177)
Government owned banks in 2001		2.1032*** (0.6727)	2.3616*** (0.7558)
Log of initial GDP per capita ¹	-0.5842*** (0.2144)	-0.5143*** (0.1690)	-0.4928*** (0.1835)
Inflation average 95-05 ²	-0.0274* (0.0147)	-0.0149 (0.0098)	.0002 (0.0121)
Regulatory quality	0.8602** (0.3578)	1.3338*** (0.3191)	1.4903*** (0.3351)
Non-OPEC Oil exporter	0.1273 (0.4454)	0.4321*** (0.3917)	.5532 (0.4764)
Transition countries dummy	2.74*** (0.5003)	2.5504*** (0.4804)	
Intercept	7.3332*** (1.7429)	5.5742*** (1.3433)	5.1422 (1.5481)
R ²	0.2831	0.4967	0.2741
Observations	88	75	75

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.

Table 6: Government Ownership of Banks 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 <i>per capita</i> GDP growth rate over 1965-95		Average annual <i>per capita</i> 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				
Government owned banks in 1970	-0.0239* (0.0142)	-0.013 (0.013)		
Government 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

Table 7: Government Ownership of Banks and Growth

IV regressions of the cross section of countries.

Robust standard errors are shown in parentheses.

	Dependent variable			
	Average annual <i>per capita</i> GDP growth rate 1995-07		Average GDP growth 1995-2007	
	Model I	Model II	Model III	Model IV
Instrumented variables				
Government owned banks in 2001	2.1027** (0.9995)	2.1362** (1.0088)	2.5881*** (0.9758)	2.4575** (1.2252)
Regulatory quality	--	1.1701* (0.6861)	--	0.6508 (1.0097)
Exogenous variables				
Log of initial GDP per capita ¹	-0.4057** (0.2036)	-0.4519 (0.3708)	-0.6175*** (0.2480)	-0.4835 (0.4442)
Regulatory quality	1.0735** (0.45580)	--	0.9635** (0.4332)	--
Non-OPEC Oil exporters	0.8364 (0.5268)	0.8482 (0.5744)	0.9023* (0.4951)	0.8608* (0.5089)
Intercept	4.7135*** (1.6174)	5.0518* (2.8539)	7.7357* (2.0807)	6.8061* (3.4734)
R ²	0.0875	0.0856	0.1073	0.1303
Observations	56	56	56	56

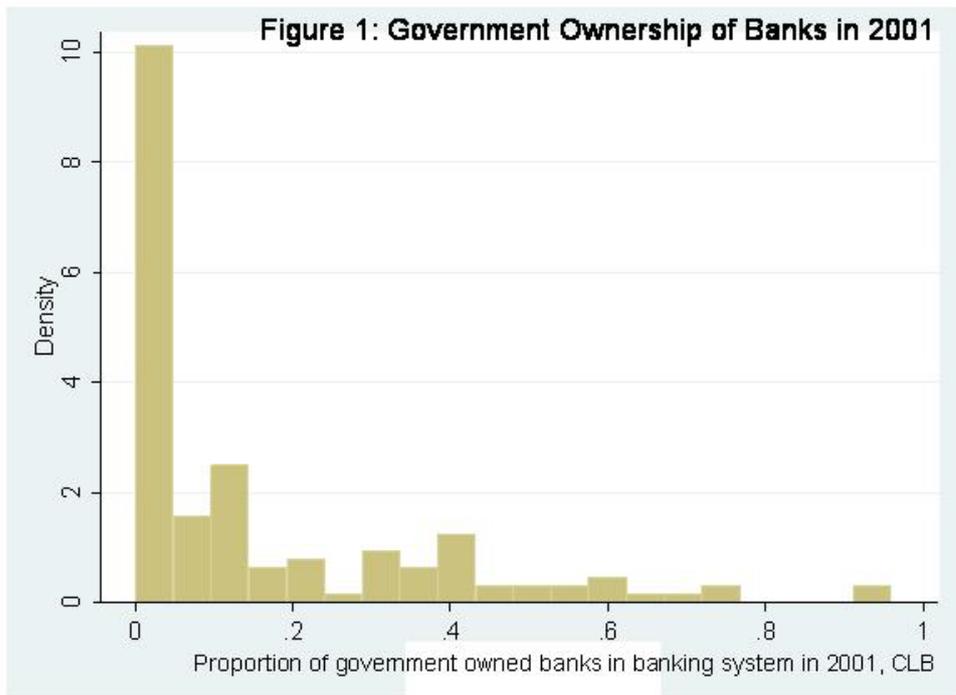
All variables are defined in the Data Appendix.

* denotes significance at the 10% level.

** denotes significance at the 5% level.

*** denotes significance at the 1% level.

Instruments utilised include all exogenous variables plus black market premium, bank failures 1995, bank failures 2000 and sub-Saharan African dummy.



Appendix: Donations by banks to political parties in Germany

Donations by public sector companies have been forbidden by the law on political parties since 1967. All firms in which the central or federal governments (directly or indirectly) hold a stake greater than 25% are considered to be public sector companies.²² The rule therefore applies to all the Landesbanken in Germany, which are partially state-owned and partially owned by the co-operative savings banks (Sparkassen).²³ Parties who break this law incur significant fines. In addition accepting covert or illegal donations and/or obscuring their sources became a criminal offence in the revision to the party law of June 2002 punishable by fines and imprisonment of up to 3 years.²⁴

Donations to political figures and political parties by Landesbanken have occasionally occurred. However, both the media and the legal system ensure that when such transactions come to light the involved politicians' careers are ended. For example the finance minister of Westphalia Heinz Schleusser resigned in January 2000 after his use of planes owned by the Westdeutsche Landesbank for private trips was revealed.²⁵ The involvement of Johannes Rau in the same affair overshadowed his office of president of Germany from 1999-2004 and led to repeated (and unprecedented) calls for his resignation.²⁶ President Rau did not seek re-election in 2004.²⁷ Another example is Klaus Landowski, a manager of the federal state-owned Berlin Hyp and the leader of the CDU in Berlin. In 2001 Landowski lost both offices in a scandal over a DM 40,000 cash donation to his party via his bank office linked to property deals. In addition Berlin's SPD cancelled the coalition agreement with a discredited CDU. The CDU suffered massive losses in the next election and went into opposition. In 2007 Landowski was sentenced to 16 months in prison.²⁸

The story is very different for the party donations of the private commercial banking sector.²⁹ Although the amount of large scale donations varies the electoral cycle, diagram A below shows that the pro-market Christian Democratic and Christian Social Union CDU/CSU clearly get the lion's share of such donations.³⁰ The much smaller free market Liberal Democratic Party (FDP) also attracts many large-scale donations, as the party is often in the position of king-maker in coalition governments.

²² http://bundesrecht.juris.de/partg/_25.html § 25, section 5, subsection 2

²³ http://www.publicgovernance.de/knowledge_center/13420_13865.htm

²⁴ § 31d

²⁵ <http://www.manager-magazin.de/geld/artikel/0,2828,61976,00.html>

²⁶ <http://wissen.spiegel.de/wissen/dokument/dokument.html?id=15613841&top=SPIEGEL>

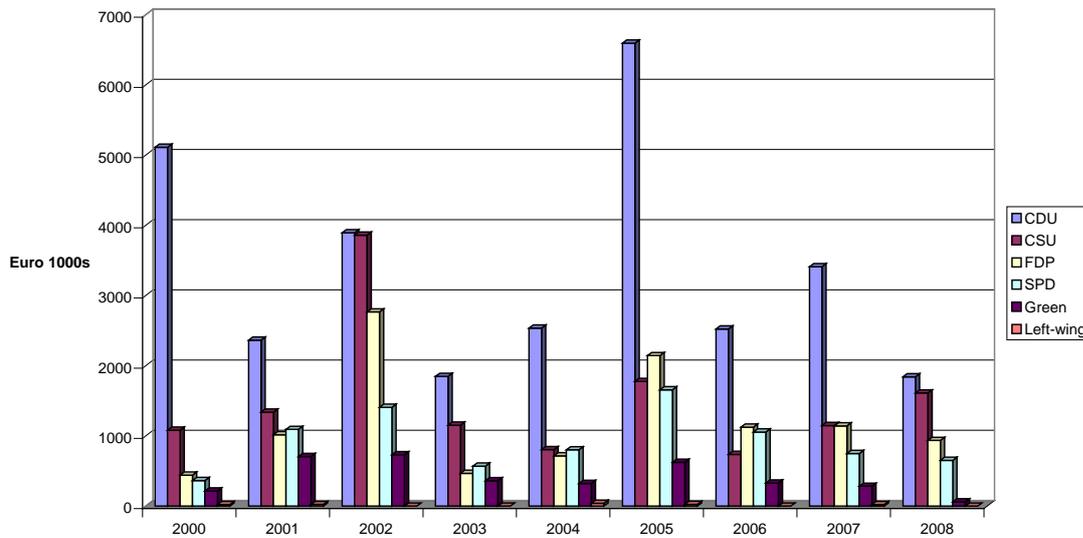
²⁷ <http://www.stern.de/politik/deutschland/johannes-rau-versoehnen-statt-spalten-521357.html>

²⁸ <http://www.faz.net/s/Rub594835B672714A1DB1A121534F010EE1/Doc~E57EFCC33AF1E4D5788B03121CC2928AE~ATpl~Ecommon~Scontent.html>

²⁹ Figures below based on <http://www.parteispenden.unklarheiten.de/?seite=index> accessed October 2009.

³⁰ Donations over Euro 50,000 have to be declared immediately and over Euro 20,000 annually. The 2008 figures in the diagram are based only on donations exceeding Euro 50,000.

Total Large-scale (>Euro20,000) Donations to German Political Parties



A significant proportion of large-scale donations officially come from the financial sector. Deutsche Bank and Commerzbank regularly appear as party donors, as well as the insurer Allianz and smaller private banks.³¹ Based on the figures from 2000-2007 the CDU received just under 20% of its large-scale donations from the financial sector, while for the FDP it was around 25%. For the SPD and the Green parties the equivalent figures are around 16%. The annual donation of the Deutsche Bank to the CDU in recent years was Euro 200,000 – ten times the donation that landed the Berlin CDU in trouble in 2001.

Financial sector interests probably also appear in other guises – or not at all. For the CSU the proportion of financial sector contributions is just 10.2% of total large-scale donations. However, August Finck, who owned the German private bank Merck Finck and Co as well as significant shares in the Allianz and Munich Re regularly donates to the CSU through two of his Real Estate companies. Total donations through Mercator Verwaltungs GmbH and Clair Immobilien (Euro 1.3 Million and Euro 430,000 between 2000 and 2008) represent another 16% of total large-scale donations to the CSU. Donations below Euro 20,000 do not have to be declared by name.

There is public concern and often enraged media coverage of the cosy relations between politicians and the banking sector. During the 2008 financial crisis the media queried government policy when the staunch political donor Commerzbank acquired its long-term rival Dresdner Bank and then almost immediately accessed emergency government funding to boost bank capital.³² In 2009 the press severely criticised the 60th birthday party given by the German chancellor Angela Merkel (CDU) in her official residence in honour of Deutsche Bank CEO Joseph Ackermann.³³ However, neither issue prevented the election of a CDU/CSU and FDP government in the 2009 general election.

³¹ <http://www.parteispenden.unklarheiten.de/?seite=index> accessed October 2009.

³² <http://www.spiegel.de/wirtschaft/0,1518,599769,00.html>

³³ http://www.focus.de/politik/weitere-meldungen/ackermann-merkel-verteidigt-geburtstagsessen_aid_429860.html