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Does the size and quality of the government explain the size and efficiency of the financial sector?

Arusha V. Cooray
University of Wollongong, arusha@uow.edu.au

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Abstract

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Keywords

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DOES THE SIZE AND QUALITY OF THE GOVERNMENT EXPLAIN THE SIZE AND EFFICIENCY OF THE FINANCIAL SECTOR?

Abstract: This study examines the impact of two dimensions of the government, namely, *size* and *quality*, on two dimensions of the financial sector, *size* and *efficiency*, in a cross section of 71 economies. The study finds that while increased quality of the government as measured by governance and legal origin positively influence both financial sector size and efficiency, that the size of the government proxied by government expenditure and government ownership of banks, has a negative effect on financial sector efficiency, however, a positive impact on financial sector size, particularly in the low income economies.

JEL Codes: O11, O16, O43, O57

Keywords: financial sector size, financial sector efficiency, government size, government efficiency, governance, legal origin, cross country

1. Introduction

Since the seminal work of La Porta, Lopez-de-Silanes, Shleifer and Vishny (1997) which examines the relation between a country's legal origin and investor protection, there has developed a growing literature on law, governance and finance. La Porta *et al.* conclude that countries with English Common law origin provide the highest investor protection while countries with French law origin provide investors with the least protection. Beck, Demirguc-Kunt and Levine (2003) examine the association between legal origin, initial endowment and financial development. They show that both legal origin and initial endowments are important in determining institutional structure that contribute to financial sector development. Levine (1998, 1999) investigating the relation between legal systems and financial sector development concludes that countries with superior creditor protection directives have better developed financial systems.

Since the work of McKinnon (1973) and Shaw (1973) there has developed a growing consensus on the positive link between financial sector development and economic growth. This positive relation has been supported in the work of King and Levine (1993), Levine and Zervos (1998), Beck, Levine and Loayza (1999), Demirguc-Kunt and Maksimovic (1996), Cooray (2009 b) among others. Arestis and Demetriades (1995) show that the relationship between finance and growth may reflect differences in institutional structure between economies. In a similar vein, Chinn and Ito (2005) argue that countries with a higher degree of legal/institutional development are in a better position to benefit from financial liberalization.

Barth, Caprio and Levine (2001) in a study that provides a comprehensive database on the government regulation of banks, conclude that government ownership of banks is negatively associated with bank performance and stability. Similarly, La Porta, Lopez-de-Silanes and Shleifer (2002) demonstrate that increased government ownership of a banking system can negatively impact upon financial sector development and economic growth. Andrianova, Demetriades and Shortland (2008) examining the relation between government ownership of banks, institutions and financial development emphasise the importance of institutions for financial sector development. They argue that while the government sector can establish banks to jump start economies with very low institutional quality, governments should build institutions that promote private sector banking. The present study is closely related to these studies that investigate the relation between the government and financial sector.

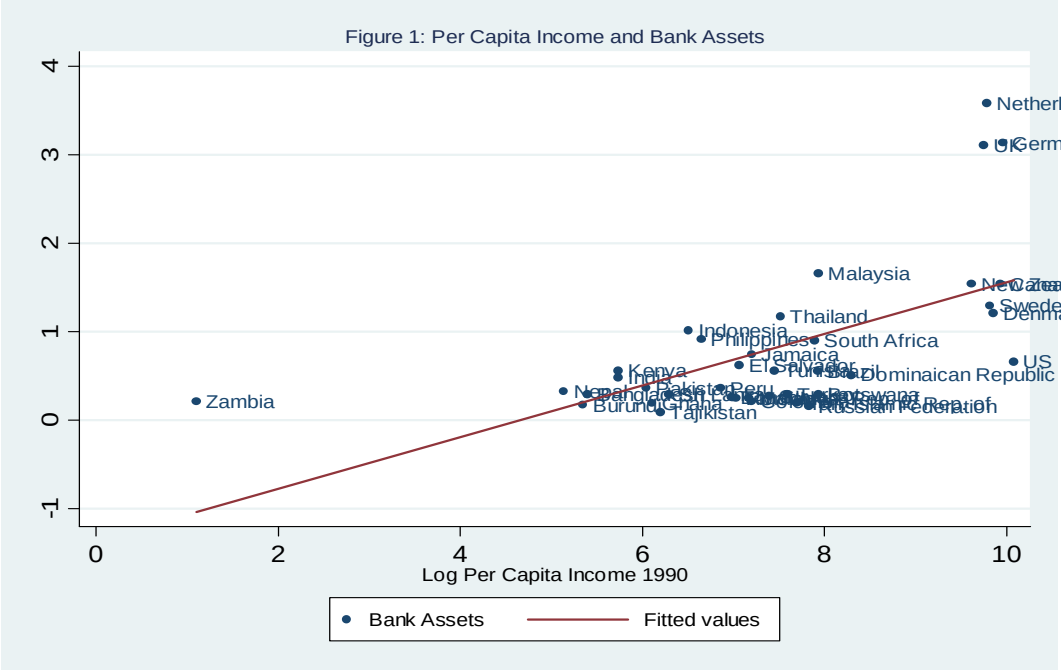
The distinction between this study and the previous literature is that it differentiates between two dimensions of the government, namely, *size* and *quality*, and investigates their impact on two dimensions of the financial sector, specifically, *size* and *efficiency*. The government plays an important role in the provision of financial services, particularly, in the developing world. Even in the developed economies where government ownership of the banking system is relatively lower than in the developing economies, the government takes responsibility for regulating the private sector and ensuring that outcomes are within acceptable bounds. If governments attempt to increase their market power, financial sector development maybe constrained due to the disincentive effects of taxes, increased rent seeking and the crowding out effect on private investment. For example, the provision of private credit by a banking system could be low due to large government expenditures, an

inefficient legal system or a corrupt bureaucracy. Similarly, interest margins and overhead costs could be high due to inefficient political institutions. The size and quality of the government are therefore inextricably linked to the size and efficiency of a financial system. Consequently, the size of the government is proxied by: (1) the government ownership of banks (see Barth, Caprio Jr. and Levine (2001), La Porta, Lopez-de-Silanes, Shleifer (2002)); and (2) government expenditure as in Barro (1991), Barro and Sala-i-Martin (1992), Devarajan, Swaroop and Zou (1996), Rousseau and Wachtel (2000), Cooray (2009 a). The quality of the government is measured by: (1) legal origin as in La Porta *et al.* (1998); and (2) the level of governance using the dataset compiled by Kaufmann, Kraay and Mastruzzi (2006). Using the dataset of Kaufmann *et al*. a composite governance index is constructed, which is then used to identify four levels of governance – very high, high, low, very low (see Cooray 2009 a). Ranking the countries by their level of governance this way enables investigating the differential impact of each level of governance (government quality) on financial sector size and efficiency. This is another aspect in which the present study differs from the previous literature. This study focuses specifically on the banking sector of the countries under study, rather than the stock market. This is because, the banking sector comprises a large proportion of the financial sector in most countries in the sample. Given the heterogeneity of the countries in the sample, the regressions are also estimated by grouping the countries by income distribution.

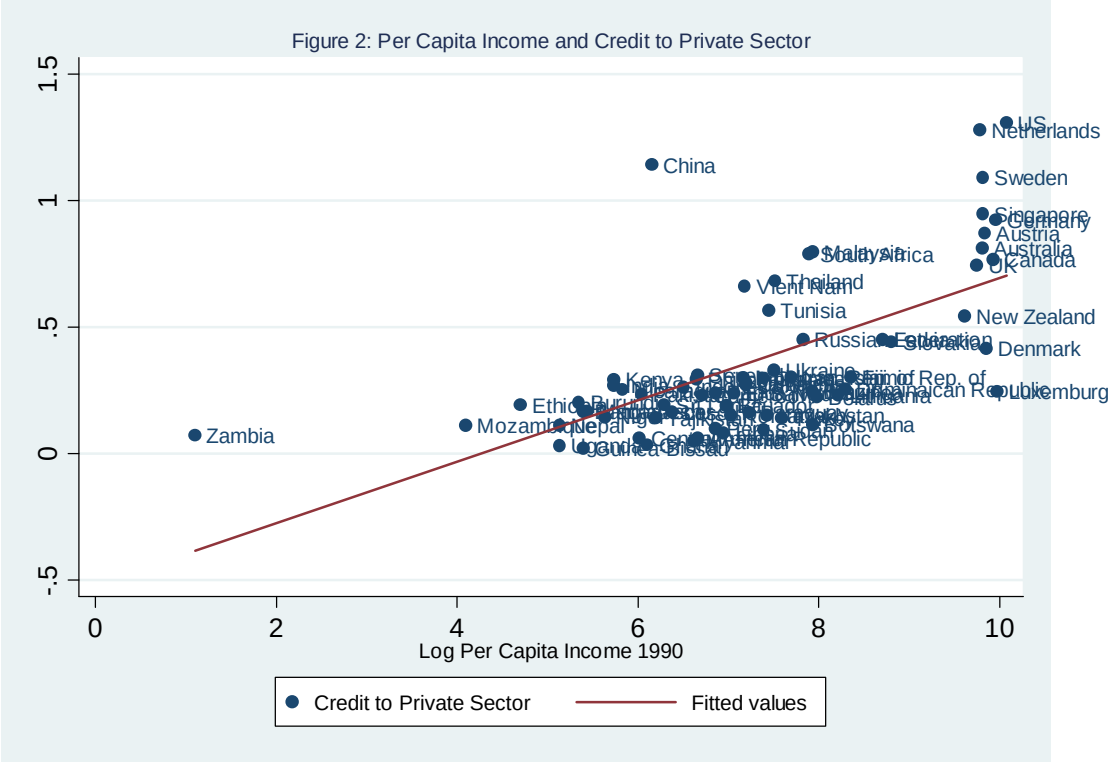
The rest of the paper is structured as follows. Section 2 presents some country characteristics. Section 3 states the hypothesis. Section 4 describes the data. Section 5 evaluates the empirical results and Section 6 summarizes the conclusions.

2. Country Characteristics

Figures 1 and 2 plot bank assets/GDP and lending by banks and other financial institutions to the private sector/GDP against the initial (1990) level of per capita income. Bank assets/GDP and Lending to the private sector/GDP are averaged over the 1990-2005 period. These Figures highlight some interesting observations. While there is a positive association between per capita income and these financial sector indicators, many countries fall below the fitted regression lines suggesting that income alone does not explain financial sector development.



Note: The regression represented by the fitted line reports a coefficient of 0.16 (Robust SE = 0.06), N = 38, R^2 = 0.37 from a regression of Per Capita Income 1990 on Bank Assets/GDP.

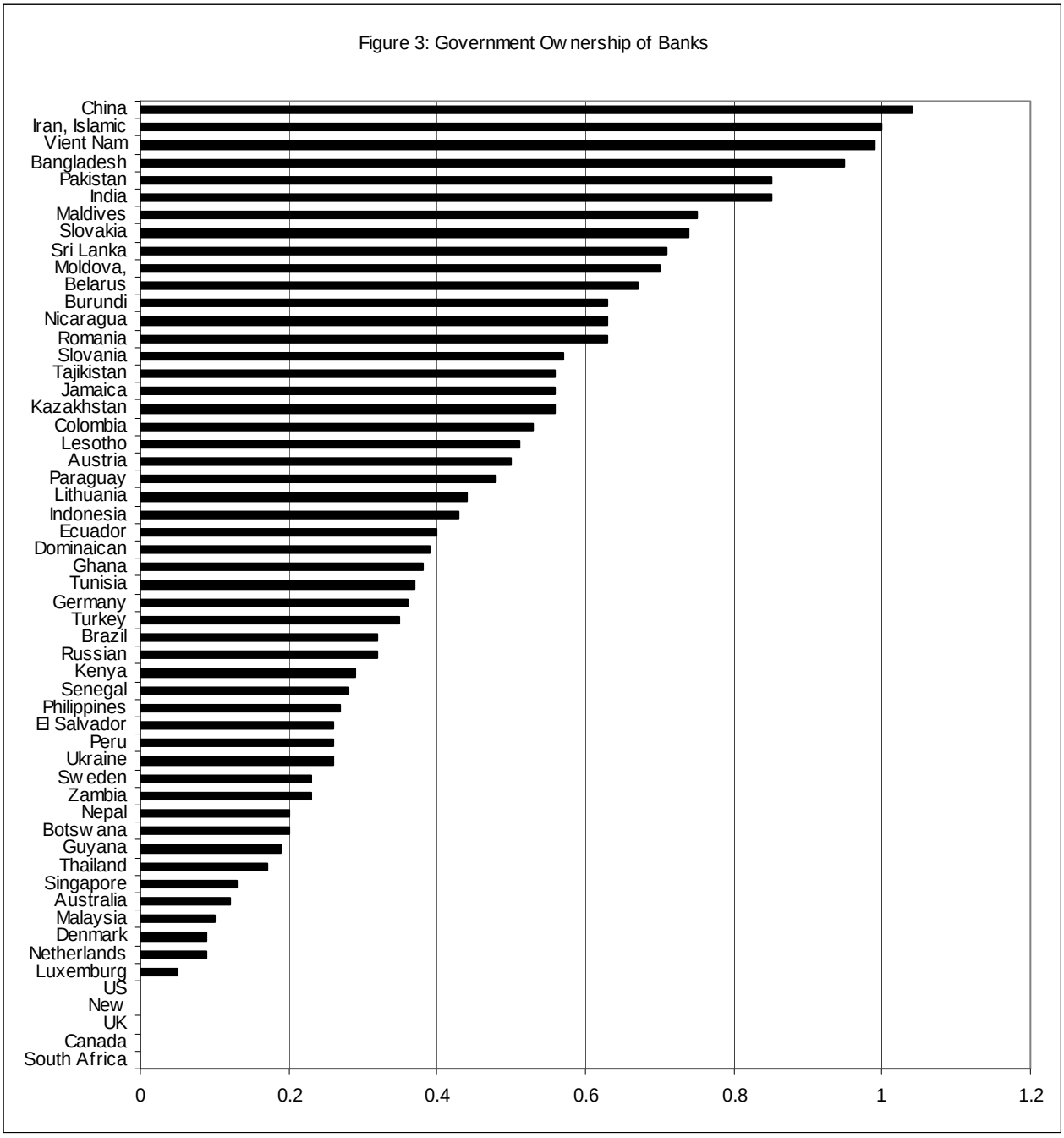


Note: The regression represented by the fitted line reports a coefficient of 0.19 (Robust SE = 0.05), N = 68, R^2 = 0.42 from a regression of log Per Capita Income 1990 on Credit to the Private Sector/GDP 1990-2005.

A question that arises at this point is, what other factors explain financial sector development?

[Table1, about here]

Table 1 groups the countries in the sample by level of governance: very high, high, low, very low (see Section 3 for explanation of classification). Note that the averages for the country groups reveal that as the level of governance decreases from very high to low that the government ownership of banks increase and the size of the financial sector as measured by deposit bank assets/GDP and credit by deposit banks and other financial institutions/GDP decrease. Financial sector in/efficiency as measured by overhead costs and net interest margins increase as the level of governance decreases. Figure 3 plots the government ownership of banks. Government ownership is highest in the Asian region and countries that belonged to the former Soviet Union.



Source: La Porta, Lopez-De-Silanes and Shleifer (2002). For, Botswana, Nepal, Lesotho, Burundi, Ghana, Guyana, Maldives, Luxemburg from Barth, Caprio Jr and Levine(2001).

3. The Hypotheses

Based on the preliminary findings reported in Table 1, this study hypothesises that:

1) Government sector size affects financial sector size and efficiency.

2) Government sector quality affects financial sector size and efficiency.

Government sector size affects financial sector size and efficiency

There are two views associated with government involvement in the financial sector. The development view associated with Gerschenkron (1962) and Lewis(1950), and the political view associated with Kornai (1979) and Shleifer and Vishney (1994)[1]. The development view argues that the government can help overcome market failures and promote development through lower costs and increased access to finance, particularly in the developing economies. The political view on the other hand, argues that the government, by pursuing its own political objectives is subject to conflicting interests which can lead to less than optimal outcomes, primarily in economies with weak property rights. This in turn can lead to increased inefficiency by way of increasing interest margins and overhead costs. The political view is supported in the work of La Porta *et al.* (2002), La Porta and Lopez-de-Silanes (1999), Lopez de-Silanes *et al*. (1997). A preliminary analysis of the data reported in Table 1 suggests that, bank assets to GDP and the volume of credit disbursed by the financial sector decreases with the increased government ownership of banks, and that overhead costs and net interest margins increase with the increased government ownership of banks. Thus, this study goes on to empirically investigate if increased government sector size leads to reduced financial sector size and efficiency.

Increased government sector quality leads to increased financial sector size and efficiency

The importance of the role of institutions in economic growth has been emphasised in the work of Acemoglu *et al*. (2008), Barro (1999); investor protection in La Porta *et*

[1] See La Porta *et al*. (2002) for a discussion.

al. (1997); governance in Cooray (2007, 2008a). La Porta *et al.* (1997), conclude that countries in which legal systems provide proper protection to investors against expropriation by entrepreneurs, are likely to have larger and better developed financial markets. Thus, it can be argued that better institutions, legal systems and improved governance can lead to not only to better developed financial markets but also more efficient financial systems through the better protection of property rights.

4. Data

The study covers a cross section of 71 countries both developed and developing. See Data Appendix for greater detail on data. The sample is selected so as to capture countries at all four levels of governance. However, most data for the very low governance group are not available and these three countries are therefore omitted from the empirical estimation. The data are annual and cover the period 1990-2005.

The dependent variables in the study are the financial sector size and efficiency variables. Financial sector size is measured by: (1) the ratio of deposit banks assets to GDP and (2) domestic credit by deposit banks and other financial institutions to the private sector as a ratio of GDP. The provision of credit by the banking sector to the private sector is also an indicator of the degree of activity of financial intermediaries. Financial sector efficiency is measured by (1) the value of banks' net interest margin to total assets, and (2) banks' overhead costs to total assets. Increased competition in the financial sector should reduce overhead costs and interest margins. Therefore, if these measures are low it would imply increased efficiency and vice versa. These financial sector indicators are used by Demirguc-Kunt and Maksimovic (1996), King

and Levine (1993), Levine and Zervos (1996) among others. All the financial sector variables have been averaged over the 1990-2005 period (see data appendix).

The main independent variables are the government size and quality variables. The size of the government is measured by: (1) the share of government expenditure to GDP and (2) the government ownership of banks[2]. Government expenditure is used in Rousseau and Wachtel (2005), Devarajan *et al.* (1996) as a proxy for the government and the government ownership of banks is used in (La Porta *et. al*. 2001 and Barth *et al.* 2001). The quality of the government is measured by: (1) legal origin and (2) level of governance. La Porta, Lopez De-Silanes and Shleifer (1997) differentiate between English, French, German, Scandinavian and Communist legal origin. As in the La Porta study, this study too, groups countries by the same legal origin categories.

Classification of Countries by Level of Governance: Kaufmann, Kraay and Mastruzzi (1996) have constructed six indicators of governance – (1) voice and accountability: the degree to which a country's citizens are able to participate in the political decision making process (2) political stability and absence of violence: measures the stability of a government to political violence and terrorism (3) government effectiveness measures the capability of a government to implement effective policies and maintain credibility (4) regulatory quality is the ability of the government to formulate and implement sound policies that encourage private sector participation (5) rule of law is the existence of a good legal system including property rights and

[2] The government ownership of banks are from La Porta, Lopez-De-Silanes and Shleifer (2002). For Belarus, Ukraine, Jamaica, Moldova, Botswana, Nepal, Lesotho, Burundi, Ghana, Guyana, Maldives, Luxemburg the data are from Barth, Caprio Jr, Levine(2001). Note that in La Porta et al. (2001) the government ownership of banks is defined as the ownership of deposits by the government in the 10 largest commercial and development banks. In Barth et al. (2001) the government ownership of banks is defined as the ownership of deposits by the government in the 5 largest banks.

enforcement of contracts (6) control of corruption measures the degree to which public power is diverted from private gain. These indicators range from a value of -2.5 to +2.5 with higher values corresponding to better governance.

The individual indicators for the initial year, are averaged to construct an overall composite governance index (quality index). This composite governance index ranges from a value of -2.5 to +2.5. Four levels of governance are then identified[3]:

$\theta \geq 1.5$ *very high governance*
$1.5 > \theta > 0$ *high governance*
$0 > \theta > -1.5$ *low governance*
≤ -1.5 *very low governance*

and countries are divided into groups by level of governance.

The initial level of per capita income is included in the empirical analysis and is designed to capture the level of development of an economy.

A number of control variables are used to ensure the robustness of the results. These include:

Share of Private Investment to GDP: As increased government expenditure can reduce competitiveness by crowding out private sector investment expenditure, the share of private investment to GDP is considered. The private investment series is constructed as in Easterly and Rebelo (1996) by subtracting the public investment series from total investment.

[3] See Cooray (2009). The composite governance indicator does not take on a value of above 2 for any of the countries in the sample in 1996. Many of the developed countries have composite governance indicators in the range of 1.5 and 2. Hence, a composite governance index of over 1.5 it is labled as very high governance. The initial year for the governance indicators is 1996 as this is the earliest for which the governance indicators are available.

Net Secondary Enrolment Ratio: is used as proxy for human capital as in MRW. *Religious Fractionalisation*: Licht, Goldschmidt and Schwartz (2005) examine the relation between culture, law and corporate governance and conclude that the formation of laws are determined to a great extent by cultural values. Culture is found to be associated with financial sector development also in Stultz and Williamson (2003). Therefore the religious fractionalisation measure of (Alesina *et al*. 2003) is employed to capture culture. Religious fractionalistion rather than religion is used as studies find that increased ethnic/religious fractionalisation can impede financial sector development (Beck, Demirguc-Kunt and Levine 2003).

French Colonialism Dummy Variable: Given the importance of legal origin in financial sector development and the fact that studies (for example La Porta *et al*. 1998) find that French legal origin provide investors with the least protection, a colonial dummy variable is created with a value of one assigned to French colonies and a value of zero otherwise.

Latitude: is used as a proxy for geography in several studies (Beck *et al*. 2003, La Porta et al. 2002). Beck *et al.* (2003) conclude that countries that are closer to the equator have lower levels of financial development to those which are not. Therefore latitude is used as a control variable in the empirical analysis that follows.

The equations are also estimated using the General Method of Moments (GMM), to correct for any potential endogeneity in the model. Instruments used for GMM estimation are: stock market capitalisation/GDP, total value traded on the stock market/GDP and the population growth rate. These instruments ae selected on the basis of She's partial correlation coefficient (1997).

5. Empirical Results

The following model forms the basis of the empirical analysis:

$$F_{it} = \nu G_{it} + \gamma log\, Y_{it-1} + \boldsymbol{x}_{it}\beta + \mu_i + \delta_i + \upsilon_{it}$$

where F_{it} = financial sector size/efficiency variables for country i in period t. G_{it} denote government size variables. Y_{it-1} represents the initial level of income. All control variables mentioned in Section 3 are captured by the vector $\boldsymbol{x}_{it}$. μ_i represents the set of legal origin dummy variables and δ_i the series of governance dummy variables. υ_{it} is a random error term that captures all other variables.

Table 2 presents results for the effects of government sector size and quality on financial sector size. Columns (1) – (3) are estimated with Deposit Money Bank Assets/GDP as the dependent variable and equations (4)-(6) with Private Sector Credit/GDP as the dependent variable. Estimation is initially carried out with the initial level of per capita income and government sector size and quality variables as independent variables. Four dummy variables are defined for French, German, Scandinavian and Soviet legal origin with the English legal origin group as the benchmark group. Similarly, selecting the very high governance group as the reference group, two dummy variables are defined for high and low governance. As mentioned previously, the very low governance group is excluded from the empirical estimation due the lack of most data series.

[Table 2, about here]

The variables of key interest are the government sector size and quality variables. The results reported in Table 2 indicate that the coefficients on government expenditure and government ownership of banks are not statistically significant but positive, suggesting that there is some support for the hypothesis that the size of the

government positively impacts upon financial sector size. Column (1) of Table 2 indicates that a 10% increase in the government ownership of banks leads to a 2.4% increase in bank assets to GDP and column (4) indicates that a 10% increase in the government ownership of banks leads to a 1.3% increase in private credit to GDP. Column (2) indicates that a 10% increase in government expenditure leads to a 0.10% increase in the bank assets to GDP ratio. The government quality indicators measured by legal origin show that financial sector development is lower in all regions compared to the benchmark group, English legal origin, except for those countries of German legal origin. In column (1) for example, the estimated coefficients on the legal origin dummy variables suggest that the assets to GDP ratio in countries with German legal origin is $[100(e^{0.024} -1)] \approx 2.42\%$ higher than in countries with English legal origin, and 9.24% lower in countries with French legal origin. The coefficients on the French legal origin dummy variables are negative and significant at the 10% level and the coefficients on the German legal origin variables are positive and significant at the 1%, 5% and 10% levels. The Scandinavian and Soviet legal origin dummy variables are not statistically significant. Similarly, the coefficients on the governance dummy variables are negative suggesting that financial sector development is lower in the high governance and low governance groups compared to the reference group which is the very high governance group. The estimated coefficients on the governance dummy variables in column (2) suggest that deposits to assets in countries with 'high' governance are 4.5% lower than in countries with 'very high' governance, and 11.3% lower in countries with 'low' governance than in countries with 'very high' governance. The coefficients on the governance dummy variables are statistically significant implying that governance matters for financial sector development. The initial level of per capita income is important for financial

sector development with these coefficients being statistically significant in all equations.

Table 3 reports results for the estimation of government sector size and quality and the initial level of per capita income on financial sector efficiency. In columns (1)-(3) the dependent variable is overhead costs and columns (4)-(6) the net interest margin. The initial level of per capita income is statistically significant in all of the equations. All legal origin dummy variables except for the German legal origin dummy variables are positive in these equations suggesting that overhead costs and net interest margins in all of these groups except for German legal origin countries are above that of the English legal origin group. Similarly, overhead costs and net interest margins are higher in the high governance and low governance countries compared to that of the benchmark group which is, the very high governance group. All of the governance variables continue to be statistically significant suggesting that governance is important for financial sector efficiency. In column (1), the estimated coefficients on the governance dummy variables indicate that, overhead costs in the 'high' governance group is 3.15% higher and overhead costs in the 'low' governance group is 6.4% higher than in countries with 'very high' governance. Note that in contrast to the results obtained with regard to government sector size in Table 2, government expenditure and the government ownership of banks exert a significant negative impact on financial sector quality. Column (2) of Table 3 shows that a 10% increase in government expenditure leads to a 0.07% increase in overhead costs and column (5) a 0.08% increase in the net interest margin. The estimated coefficients for the government ownership of banks indicate that a 10% increase in the government ownership of banks leads to a 0.68% increase in overhead costs in column (1) and a

0.66% increase in the net interest margin in column (4). The results suggest that increases in government expenditure and the government ownership of banks lead to increases in overhead costs and net interest margins.

[Table 3, about here]

Given the statistically significant coefficients on the French legal origin dummy variables, in Table 4, the equations are estimated by interacting French legal origin with the low governance dummy variable, to investigate if the marginal effect of French legal origin is increased when governance is low. The government ownership of banks and government expenditure are also interacted with the low governance dummy variable to examine if low governance acts to reduce the efficiency of government expenditure/ government ownership of banks. Only the French and German legal origin variables are included in the estimation in Table 4 as the other legal origin groups were not found to be significant. As in Tables 2 and 3, the coefficients on per capita income are statistically significant in all equations. The coefficients on the French and German legal origin dummy variables statistically significant consistent with the results obtained above. The governance variables are statistically significant at the 5% and 10% demonstrating the importance of governance for financial sector development. The coefficients on government expenditure and government ownership of banks are significant in equations (3) and (4) confirming that increased government expenditure and government ownership of banks lead to increased overhead costs and interest margins. The estimates in columns (1) and (2) respectively, for the interaction terms for French legal origin-low governance is significant at the 1% and 10%s levels suggesting that the marginal effect of French legal origin on deposits/GDP and credit/GDP is reduced when governance is low. The interaction term for government ownership of banks-low

governance is negative and significant in column (2) suggesting that the effect of government ownership of banks on credit /GDP is reduced when governance is low. The government expenditure-low governance estimates are significant in columns (3) and (4), implying that the effect of government expenditure on overhead costs and net interest margins are increased when governance is low. The introduction of the interaction terms increase the explanatory power of the equations.

[Table 4, about here]

Robustness Tests

A number of robustness tests are carried out to ensure that the results are robust, to the choice of estimation technique and variables used. In order to account for the heterogeneity of countries in the sample, the estimation is also carried out by grouping the countries by income distribution.

Sample Split

Quah (1996) shows that cross country studies, by grouping countries at different levels of development together could overlook the thresholds of development. Therefore the estimation is carried out by dividing the countries into 3 groups by income distribution - low income, middle income and high income[4]. For each income group the English legal origin group is the benchmark group. For the low income group, the high governance group is the benchmark group; and for both the middle income and the high income groups, the very high governance group is the benchmark group. The Seemingly Unrelated Regression (SUR) method is used to account for any correlation of the error terms across the equations. Results are reported in Table 5 for financial sector size as the dependent variable.

[4] Countries are grouped according to the World Bank classification.

[Table 5, about here]

Per capita income is statistically significant in all equations. The French legal origin dummy variables are negative and statistically significant for all three income groups suggesting that deposits to GDP and credit to GDP is lower in French civil law countries as opposed to British common law countries in all three groups. The German legal origin variable is positive and statistically significant. The coefficient on government expenditure is positive and significant in the low income group and the governance dummy variables are statistically significant in all income groups. A 10% increase in government expenditure in the top panel leads to a 2.89% increase in bank assets/GDP in the low income group. The government ownership of banks is significant at the 10% level for the high income group in the upper panel of the Table.

Table 6 reports results for financial sector efficiency by income distribution.

[Table 6, about here]

The benchmark groups are the same as those for Table 5. However, note that the government size variables assume statistical significance for all three income groups. Both increases in government expenditure and the government ownership of banks lead to increases in overhead costs and interest margins. In the low income group top panel for example, a 10% increase in government expenditure will lead to a 0.35% increase in overhead costs and a10% increase in the government ownership of banks will lead to a 1.10% increase in overhead costs. The bottom panel indicates that the net interest margin in the low income French legal origin group is 4.08% higher than in the English legal origin group. The net interest margin in the high income group with 'high' governance is 1.82% higher than in the 'very high' governance group.

Control Variables

In order to ensure that the results are robust to the choice of variables, this section estimates the model with several control variables. The control variables include human capital, private capital, a French colonialism dummy variable interacted with the low governance dummy variable, the religious fractionalisation index of (Alesina *et al*. 2003) to capture culture and latitude to capture geography.

[Table 7, about here]

The overall conclusions obtained above do not change with the incorporation of the control variables. An examination of the control variables show that human capital is important for financial sector development. Interesting is the fact that the religious factionalisation variable is statistically significant in columns (2)-(4). Column (2) suggests that religious fractionalisation has a negative impact on lending to the private sector and columns (3) and (4) that overhead costs and net interest margins rise with religious fractionalisation. The French colony dummy variable is statistically significant in equations (3) and (4) suggesting the importance of historical factors in affecting financial sector development. The latitude variable is statistically not significant.

GMM Estimation

This section estimates the model using GMM estimation to correct for any potential endogeneity bias in the model and to ensure that the results are robust to the estimation method. Stock market capitalisation/GDP, total value traded on the stock market/GDP and the population growth rate are used as instruments. The instruments are chosen on the basis of Shea's partial correlation coefficient.

[Table 8, about here]

The results obtained before are supported with the coefficients on the governance variables assuming statistical significance. Only the German legal origin and French legal origin dummy variables are incorporated in the estimation given that only these legal origin variables were statistically significant. Consistent with the OLS results obtained above, the French and German legal origin coefficients and the governance variables are statistically significant. As before, the results indicate that increases in government expenditure and government ownership of banks will lead to increases in overhead costs and net interest margins and also increases in deposits/GDP and credit/GDP. A Durbin-Wu-Hausman (1954, 1973, 1978) test is carried out to test for any statistically significant difference between the OLS and GMM estimates. There is no evidence of any significant difference between the OLS and GMM estimates. The J Statistic of Hansen (1996) suggests that the instruments are valid and that the model is correctly specified.

6. Conclusions

This study investigates the effects of government size measured by the government ownership of banks and government expenditure, and government quality proxied by governance and legal origin on financial sector size and efficiency. Financial sector size is proxied by the ratio of deposit bank assets/GDP and credit by deposit banks and other financial institutions/GDP; and financial sector efficiency by overhead costs and net interest margin. The results are interesting lending support to the conclusion that both government sector size and quality are important for financial sector efficiency, however, that government quality matters more than the size of the government sector for financial sector size. The results unambiguously support the argument that good governance is a pre-condition for financial sector development –

both size and efficiency. The results confirm the conclusions of La Porta *et al.* (1997) and Levine (1999), in that countries of French legal origin have lower levels of financial development compared to countries of English legal origin. According to Beck *et al*. (2003), "British colonizers advanced a legal tradition that stresses private property rights and fosters financial development, whereas in contrast colonizers that spread French Civil law implanted a legal tradition that is less conducive to financial development" which perhaps explains this result. However, the present study shows that countries of German legal origin have higher levels of financial development compared to English legal origin countries. This result is supported in the work of Beck *et al*. (2001) and Keefer (2005) according to who the German legal system is more conducive to financial sector development in comparison to other legal systems. Keefer, observes that the German legal system is characterised by bureaucratic efficiency and a willingness to adapt the law to changing circumstances. The Scandinavian and Socialist legal origin dummy variables are statistically not significant, however, financial sector development is slightly lower, however, not very different in these systems to the English legal origin countries consistent with the findings of La Porta *et al*. (1997) and Harper and McNulty (2008). Therefore, better governance and proper legal systems, and reduced government expenditure and government ownership of banks are important for improving financial sector efficiency. Despite that fact that the government size variables are not statistically significant in the overall financial sector size estimations, they are positive, providing some support for the argument that increased government expenditure and government ownership of banks have a positive effect of financial sector size. The size of the government is found to have a significant positive effect on financial sector size in the low income economies. This is consistent with the development view of

Gerschenkron (1962) and Lewis (1950). This is a reasonable conclusion considering that in many developing economies, it is the government that sets up banks in unbanked and under-banked areas in the rural sector increasing public access to finance. The private sector is reluctant to set up in rural areas which increases the role of the government in the provision of finance, particularly by way of financing development banks and micro-finance institutions. The conclusion that financial sector efficiency falls with increased government sector size and low governance is also not unreasonable as the continued subsidization of development banks and micro-finance institutions can lead to a lack of competitiveness, and rising overhead costs and interest margins.

There is also some evidence that an increase in religious fractionalization leads to a fall in credit to the private sector, and increase in financial sector inefficiency. Beck *et al*. (2003) argue that greater ethnic fractionalisation suggests the use of policies and institutions that are aimed at gaining power and control rather than improved competition. Similarly, La Porta *et al*. (1999) state that countries become more interventionist with increased ethnic diversity. Religious diversity therefore could be said to increase the power of certain interest groups, thereby slowing down financial sector efficiency. Human capital is found to have a positive effect on financial sector development consistent with the findings of Mankiw, Romer and Weil (1992) among many others who find a positive relation between human capital and economic growth. In conclusion, it can be argued that improving levels of governance and legal systems in the countries under study are important for promoting financial sector development.

Appendix

Data Sources:

- Ratio of Deposit Bank Assets/GDP, Domestic Credit by Deposit Banks and Other Financial Institutions/GDP, Banks Net Interest Margin/Total Assets, Banks' Overhead Costs/Total Assets, average over 1990-2005: from Beck, Demirguc-Kunt and Levine (1999 updated in 2007)

- Government expenditure/GDP average over 1990-2005: World Development Indicators.

- Government Ownership of Banks: Share of the top 10 banks in a country owned by the government of that country in 1995 from La Porta, Lopez-De-Silanes and Shleifer (2002); and the fraction of deposits held by the five largest banks from Barth, Caprio and Levine (2001).

- Legal origin from La Porta, Lopez-DeSilanes and Shleifer (1997) and Harper and Mc Nulty (2008). Four dummy variables are created for French, German, Scandinavian and Soviet legal origin with the English legal origin group as the benchmark group.

- Level of Governance for 1996: composite index calculated from the governance indicator database of Kaufmann, Kraay and Mastruzzi (1996) and four levels of governance defined for, very high, high, low and very low governance. Two governance dummy variables are created for high and low governance with the very high governance group as the reference group. The very low governance group is excluded from the empirical analysis due to the lack of most data series.

- GDP per capita for 1990: Purchasing Power Parity from the World Development Indicators.

- Share of Private Investment/GDP average over 1990-2005: constructed from subtracting public investment from total investment. Share of public investment to GDP and total investment to GDP from the World Development Indicators.

- Net Secondary Enrolment Ratio average over 1990-2005: from the Human Development Reports.

- Religious fractionalisation 2001: from Alesina A, Devleeschauwer A, Easterly W, Kurlat S and Wacziarg R (2003).

- Colonial dummy variable: Takes a value of 1 if French colony and zero otherwise from Freedom House 2008 http://www.freedomhouse.org/template.cfm?page=35&year=2005 (downloaded November 2008).

- Latitude: Measure of distance from the equator. Scaled to takes a value between 0 and 1, with 0 equal to the equator from La Porta *et al*. (1999).

- Stock market capitalisation/GDP, Total value traded on the stock market/GDP (used as instruments in GMM estimation) average over 1990-2005: from Beck, Demirguc-Kunt and Levine (1999 updated in 2007) and the World Development Indicators.

- Population growth rate (instrument in GMM estimation) average over 1990-2005: World Development Indicators.

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Table 1: Country Characteristics

Country	Level of Governance[a]	Legal Origin[b]	Government Ownership of Banks[c]	Deposit Bank Assets/GDP[d]	Credit by Deposit Banks and Other Financial Institutions/GDP[d]	Overhead Costs[d]	Net Interest Margin[d]
Australia	vh	English	0.12	-	0.81	0.026	0.020
Austria	vh	German	0.50	-	0.87	0.025	0.019
Canada	vh	English	0	1.54	0.77	0.024	0.018
Denmark	vh	Scandinavian	0.09	1.21	0.42	0.036	0.049
France	vh	French	0.17	0.93	0.90	0.044	0.035
Germany	vh	German	0.36	3.13	0.92	0.028	0.025
Luxemburg	vh	French	0.05	-	0.24	0.010	0.007
Netherlands	vh	French	0.09	3.58	1.28	0.010	0.015
New Zealand	vh	English	0	1.54	0.54	0.028	0.025
Singapore	vh	English	0.13	-	0.95	0.014	0.021
Sweden	vh	Scandinavian	0.23	1.29	1.09	0.031	0.027
UK	vh	English	0	3.11	0.74	0.023	0.020
US	vh	English	0	0.66	1.31	0.037	0.038
Average Very High Governance	vh		0.134	1.89	0.833	0.026	0.025
Botswana	h	English	0.20	0.29	0.11	0.055	0.052
Fiji	h	English	-	-	0.30	-	-
Jamaica	h	English	0.56	0.74	0.28	0.076	0.091
Latvia	h	German	-	-	0.45	-	-
Lithuania	h	German	0.44	-	0.23	-	-
Malaysia	h	English	0.10	1.66	0.80	0.016	0.025
Maldives	h	English	0.75	-	-	-	
South Africa	h	English	0	0.9	0.79	0.036	0.039
Slovakia	h	English	0.74	-	0.44	-	-
Slovania	h	German	0.57	0.66	0.48	-	-
Thailand	h	English	0.17	1.17	0.68	0.020	0.030
Tunisia	h	French	0.37	0.56	0.56	0.019	0.022
Average High Governance	h		0.39	0.85	0.465	0.037	0.043
Armenia	l	Socialist			0.06		
Bangladesh	l	English	0.95	0.29	0.16	0.022	0.007
Belarus	l	Socialist	0.67		0.22		
Brazil	l	French	0.32	0.55	0.25	0.120	0.120
Burundi	l	French	0.63	0.17	0.2	0.332	0.512
Cameroon	l	French			0.23	0.047	
Central African Republic	l	French			0.06		
China	l	German	1.04		1.14		
Colombia	l	French	0.53	0.21	0.27	0.083	0.064
Dominican Republic	l	French	0.39	0.51	0.25	0.065	0.063
Ecuador	l	French	0.4	0.26	0.19	0.077	0.072
El Salvador	l	French	0.26	0.62	0.24	0.033	0.039
Ethiopia	l	English			0.19		
Ghana	l	English	0.38	0.19	0.03	0.055	0.0710

Country	Level of Governance[a]	Legal Origin[b]	Government Ownership of Banks[c]	Deposit Bank Assets/GDP[d]	Credit by Deposit Banks and Other Financial Institutions/GDP[d]	Overhead Costs[d]	Net Interest Margin[d]
Guinea-Bissau	l				0.02		
Guyana	l	English	0.19	0.27	0.30	0.039	0.044
India	l	English	0.85	0.48	0.27	0.029	0.030
Indonesia	l	French	0.43	1.01	0.262	0.029	0.041
Iran	l	French	1.00	0.19	0.301		
Kazakhstan	l	Socialist	0.56		0.150		
Kenya	l	English	0.29	0.56	0.291	0.037	0.073
Lesotho	l	English	0.51		0.162		
Madagascar	l	French			0.165	0.033	0.060
Moldova	l	Socialist	0.70	0.25	0.300		
Mozambique	l	French			0.110		
Nepal	l	English	0.20	0.32	0.111	0.025	0.038
Nicaragua	l	French	0.63		0.250		
Niger	l	French			0.144		
Pakistan	l	English	0.85	0.36	0.234	0.030	0.029
Papua New Guinea	l	English			0.240	0.051	0.042
Paraguay	l	French	0.48		0.162	0.064	0.066
Peru	l	French	0.26	0.36	0.098	0.105	0.072
Philippines	l	French	0.27	0.91	0.294	0.051	0.0420
Romania	l	French	0.63	0.25	0.150		
Russian Federation	l	Socialist	0.32	0.16	0.450	0.04	0.040
Senegal	l	French	0.28		0.310	0.067	
Sri Lanka	l	English	0.71	0.29	0.191	0.047	0.051
Tajikistan	l		0.56	0.09	0.140		
Turkey	l	French	0.35	0.29	0.138	0.063	0.094
Uganda	l	English			0.030		
Ukraine	l	Socialist	0.26		0.330		
Vient Nam	l	French	0.99		0.660		
Zambia	l	English	0.23	0.21	0.070	0.541	0.420
Average Low Governance	l		0.52	0.42	0.228	0.083	0.091
Liberia	vl	English	-	-	0.081	-	-
Myanmar	vl	Socialist	-	-	0.048	-	-
Sudan	vl	English	-	-	0.092	-	-
Average Very Low Governance	vl		-	-	0.074	-	-

Sources: a- Author's computation from Kaufmann, Kraay and Mastruzzi (2006). See Data Section for explanation of how countries are grouped by level of governance.
b- Legal Origin from La Porta, Lopez De-Silanes, Shleifer (1997) and Harper and McNulty (2008).
c- Government ownership of banks from La Porta, Lopez-De-Silanes and Shleifer (2002). For Belarus, Ukraine, Jamaica, Moldova, Botswana, Nepal, Lesotho, Burundi, Ghana, Guyana, Maldives, Luxemburg from Barth, Caprio Jr and Levine(2001).
d – All financial sector variables are from Beck, Demirguc-Kunt and Levine (1999).

Table 2: The Size and Quality of the Government and Financial Sector Size:

OLS Estimation

	(1)	(2)	(3)	(4)	(5)	(6)
Independent Variables	Deposit Money Bank Assets/ GDP	Deposit Money Bank Assets/ GDP	Deposit Money Bank Assets/ GDP	Private Credit/GDP	Private Credit/GDP	Private Credit/GDP
Log Initial GDP	-0.063	-0.044	- 0.072	-0.046	-0.049	-0.033
	(0.037)*	(0.021)**	(0.014)***	(0.024)*	(0.028)*	(0.013)**
French Legal	-0.097	-0.089	-0.091	-0.052	-0.044	-0.059
Origin	(0.054)*	(0.051)*	(0.052)*	(0.030)*	(0.024)*	(0.033)*
German Legal	0.024	0.024	0.023	0.023	0.052	0.014
Origin	(0.010)**	(0.009)**	(0.007)***	(0.014)*	(0.014)***	(0.004)**
Scandinavian	-0.012	-0.014	-0.014	-0.011	-0.018	-0.022
Legal Origin	(0.152)	(0.126)	(0.026)	(0.284)	(0.189)	(0.059)
Soviet Legal	-0.051	-0.009	-0.024	-0.014	-0.019	-0.003
Origin	(0.042)	(0.010)	(0.012)	(0.159)	(0.124)	(0.183)
Government	-	0.010	0.026	-	0.044	0.085
Expenditure		(0.072)	(0.023)		(0.103)	(0.082)
Government	0.246	-	0.339	0.130	-	0.173
Ownership of	(0.253)		(0.231)	(0.188)		(0.012)
Banks						
High	-0.074	-0.046	-0.021	-0.034	-0.022	-0.031
Governance	(.023)***	(0.023)**	(0.011)*	(0.012)**	(0.012)*	(0.013)**
Low	-0.125	-0.120	- 0.103	-0.112	-0.122	-0.110
Governance	(0.053)***	(0.043)*	(0.057)*	(0.051)*	(0.052)**	(0.043)**
Intercept	0.243	0.071	0.075	0.046	0.131	0.341
	(0.212)	(0.241)	(0.064)	(0.037)	(0.145)	(0.311)
R^2	0.62	0.69	0.61	0.49	0.47	0.51

Note: Robust standard errors reported in parenthesis. ***, **, *, significant at the 1%, 5% and 10% levels respectively.

Table 3: The Size and Quality of the Government and Financial Sector Quality: OLS Estimation

	(1)	(2)	(3)	(4)	(5)	(6)
Independent Variables	Overhead Costs	Overhead Costs	Overhead Costs	Net Interest Margin	Net Interest Margin	Net Interest Margin
Log Initial GDP	-0.067	-0.042	-0.065	-0.049	-0.040	-0.046
	(0.019)***	(0.007)***	(0.019)***	(0.012)***	(0.007)***	(0.013)***
French Legal	0.055	0.023	0.057	0.053	0.044	0.056
Origin	(0.027)**	(0.013)*	(0.027)**	(0.031)*	(0.025)*	(0.052)*
German Legal	-0.068	-0.051	-0.059	-0.066	-0.043	-0.052
Origin	(0.032)**	(0.030)*	(0.034)*	(0.034)*	(0.028)	(0.035)
Scandinavian	0.013	0.003	0.015	0.016	0.005	0.010
Legal Origin	(0.042)	(0.055)	(0.024)	(0.029)*	(0.068)	(0.031)*
Soviet Legal	0.021	0.020	0.023	0.037	0.018	0.021
Origin	(0.043)	(0.069)	(0.024)	(0.035)	(0.077)	(0.023)
Log	-	0.007	0.020	-	0.008	0.065
Government Expenditure		(0.002)**	(0.011)*		(0.002)***	(0.038)*
Government	0.068	-	0.068	0.066	-	0.029
Ownership of Banks	(0.038)*		(0.036)*	(0.036)*		(0.014)*
High	0.032	0.031	0.024	0.031	0.025	0.027
Governance	(0.012)**	(0.013)**	(0.012)*	(0.012)**	(0.010)**	(0.011)**
Low	0.066	0.062	0.060	0.028	0.023	0.020
Governance	(0.036)*	(0.031)*	(0.032)*	(0.013)*	(0.010)**	(0.011)*
Intercept	0.120	0.265	0.243	0.229	0.238	0.112
	(0.129)	(0.252)	(0.120)**	(0.296)	(0.256)	(0.130)
R^2	0.61	0.47	0.62	0.43	0.40	0.45

Note: Robust standard errors reported in parenthesis. ***, **, *, significant at the 1%, 5% and 10% levels respectively.

Table 4: Interaction between Government Sector Size and Quality and Financial Sector Size and Efficiency: OLS Estimation

	(1)	(2)	(3)	(4)
Independent Variables	Deposit Money Bank Assets/ GDP	Private Credit/GDP	Overhead Costs	Net Interest Margin
Log Initial GDP	-0.065	-0.042	-0.082	-0.061
	(0.035)*	(0.013)***	(0.018)***	(0.010)***
French Legal Origin	-0.036	-0.034	0.088	0.111
	(0.021)*	(0.020)*	(0.030)*	(0.040)***
German Legal	0.041	0.037	-0.076	-0.096
Origin	(0.024)*	(0.010)***	(0.043)*	(0.043)***
Log Government	0.116	0.254	0.068	0.096
Expenditure	(0.199)	(0.275)	(0.026)***	(0.040)**
Government	0.411	0.357	0.072	0.064
Ownership of Banks	(0.376)	(0.254)	(0.016)***	(0.009)***
High Governance	-0.024	-0.027	0.035	0.034
	(0.012)*	(0.017)*	(0.016)*	(0.015)**
Low Governance	-0.094	-0.092	0.083	0.042
	(0.058)*	(0.054)*	(0.033)**	(0.019)*
French Legal	-0.078	-0.072	0.082	0.111
Origin*Low Governance	(0.019)***	(0.045)*	(0.021)***	(0.040)***
Government	-0.368	-0.307	0.100	0.167
Ownership of Banks* Low Governance	(0.243)	(0.132)**	(0.061)	(0.120)
Log Government	-0.106	-0.274	0.049	0.066
Expenditure*	(0.143)	(0.285)	(0.017)***	(0.027)**
Low Governance				
Intercept	0.247	0.444	0.343	0.133
	(0.200)	(0.234)*	(0.138)**	(0.144)
R^2	0.77	0.84	0.77	0.70

Note: Robust standard errors reported in parenthesis. ***, **, *, significant at the 1%, 5% and 10% levels respectively.

Table 5: Development in Financial Sector Size by Income Distribution: SUR Estimation

	Low Income	Middle Income	High Income
Independent Variables	(1)	(2)	(3)
	Dependent Variable: Bank Assets		
Log Initial GDP	-0.240	-0.151	-0.229
	(0.070)***	(0.065)**	(0.063)***
French Legal Origin	-0.023	-0.020	-0.039
	(0.010)**	(0.011)*	(0.022)*
German Legal Origin	-	0.065	0.038
		(0.035)*	(0.018)*
Scandinavian Legal Origin	-	-	-0.003
			(0.019)
Soviet Legal Origin	-0.023	-0.031	-
	(0.019)	(0.029)	
Log Government Expenditure	0.289	0.011	0.004
	(0.010)**	(0.219)	(0.257)
Government Ownership of Banks	0.728	0.603	0.759
	(0.288)	(0.304)	(0.435)*
High Governance Dummy	-	-0.042	-0.027
		(0.023)*	(0.009)***
Low Governance Dummy	-0.091	-0.049	-
	(0.028)***	(0.020)**	
Intercept	-0.329	0.266	-0.134
	(0.245)	(0.215)	(0.121)
R^2	0.44	0.58	0.50
	Dependent Variable: Private Credit		
Log Initial GDP	0.113	0.097	0.112
	(0.023)***	(0.024)***	(0.024)***
French Legal Origin	-0.076	-0.051	-0.052
	(0.033)**	(0.028)*	(0.022)**
German Legal Origin	-	0.054	0.019
		(0.031)*	(0.051)
Scandinavian Legal Origin	-	-	-0.009
			(0.063)
Soviet Legal Origin	-0.024	-0.016	-
	(0.054)	(0.071)	
Log Government Expenditure	0.064	0.069	0.065
	(0.037)*	(0.072)	(0.080)
Government Ownership of Banks	0.018	0.003	0.027
	(0.141)	(0.131)	(0.142)
High Governance Dummy	-	-0.032	-0.039
		(0.012)**	(0.013)***
Low Governance Dummy	-0.045	-0.092	-
	(0.025)*	(0.037)**	
Intercept	-0.108	0.034	-0.132
	(0.348)	(0.339)	(0.325)
R^2	0.43	0.46	0.41

Note: Standard errors reported within parenthesis. *, **, ***, significant at the 10%, 5% and 1% levels respectively.

Table 6: Financial Sector Efficiency By Income Distribution: SUR Estimation

	Low Income	Middle Income	High Income
Independent Variables	(1)	(2)	(3)
	Dependent Variable: Bank Overhead Costs		
Log Initial GDP	-0.041	-0.047	-0.041
	(0.007)***	(0.006)***	(0.006)***
French Legal Origin	0.021	0.028	0.020
	(0.012)*	(0.016)*	(0.011)*
German Legal Origin	-	-0.024	-0.012
		(0.014)*	(0.024)
Scandinavian Legal Origin	-	-	0.004
			(0.020)
Soviet Legal Origin	0.010	0.009	-
	(0.011)	(0.010)	
Log Government Expenditure	0.035	0.031	0.034
	(0.020)*	(0.018)*	(0.020)*
Government Ownership of Banks	0.110	0.106	0.117
	(0.050)**	0.043)***	(0.047)***
High Governance Dummy	-	0.027	0.023
		(0.014)*	(0.013)*
Low Governance Dummy	0.022	0.035	-
	(0.013)*	(0.020)*	
Intercept	0.292	0.368	0.300
	(0.096)***	(0.088)***	(0.090)***
R^2	0.53	0.59	0.54
	Dependent Variable: Net Interest Margin		
Log Initial GDP	-0.035	-0.038	-0.035
	(0.008)***	(0.007)***	(0.007)***
French Legal Origin	0.040	0.043	0.039
	(0.020)**	(0.025)*	(0.022)*
German Legal Origin	-	-0.021	-0.024
		(0.012)*	(0.022)
Scandinavian Legal Origin	-	-	0.002
			(0.019)
Soviet Legal Origin	0.012	0.011	-
	(0.010)	(0.010)	
Log Government Expenditure	0.037	0.036	0.037
	(0.021)*	(0.020)*	(0.020)*
Government Ownership of Banks	0.067	0.064	0.070
	(0.035)*	(0.033)*	(0.030)**
High Governance Dummy	-	0.017	0.018
		(0.010)*	(0.010)*
Low Governance Dummy	0.020	0.027	-
	(0.004)***	(0.013)*	
Intercept	0.229	0.258	0.226
	(0.112)**	(0.108)**	(0.106)**
R^2	0.42	0.44	0.42

Note: Standard errors reported within parenthesis. *, **, ***, significant at the 10%, 5% and 1% levels respectively.

Table 7: Estimation with Control Variables: OLS Estimation

	(1)	(2)	(3)	(4)
Independent Variables	Deposit Money Bank Assets/ GDP	Private Credit/GDP	Overhead Costs	Net Interest Margin
Log Initial GDP	-0.141 (0.123)	0.031 (0.044)	-0.056 (0.011)***	-0.045 (0.012)***
French Legal Origin	-0.065 (0.035)*	-0.042 (0.019)**	0.051 (0.023)**	0.037 (0.020)*
German Legal Origin	0.045 (0.028)*	0.025 (0.012)**	-0.025 (0.018)	-0.023 (0.013)*
Log Government Expenditure	0.027 (0.083)	0.152 (0.073)**	0.018 (0.010)*	0.020 (0.011)*
Government Ownership of Banks	0.045 (0.054)	0.046 (0.040)	0.040 (0.022)*	0.041 (0.018)**
High Governance	-0.042 (0.022)*	-0.045 (0.025)**	0.041 (0.021)**	0.041 (0.021)*
Low Governance	-0.055 (0.035)*	-0.056 (0.018)***	0.058 (0.032)**	0.053 (0.037)*
Log Human Capital	0.083 (0.044)*	0.061 (0.025)***	-0.032 (0.018)*	-0.043 (0.020)**
Log Private Capital	0.140 (0.028)	0.163 (0.112)	0.012 (0.032)	0.015 (0.030)
Culture	0.412 (0.417)	-0.182 (0.086)**	0.128 (0.050)**	0.139 (0.057)**
French Colony Dummy	-0.070 (0.075)	-0.054 (0.055)	-0.040 (0.019)*	-0.044 (0.026)**
Latitude	0.056 (0.045)	0.051 (0.046)	0.043 (0.036)	0.042 (0.041)
Intercept	1.21 (1.13)	0.147 (0.552)	0.636 (0.137)***	0.446 (0.183)**
R^2	0.60	0.58	0.67	0.64

Note: Robust standard errors reported within parenthesis. *, **, ***, significant at the 10%, 5% and 1% levels respectively.

Table 8: Government Sector Size and Quality and Financial Sector Size and Efficiency: GMM Estimation

	(1)	(2)	(3)	(4)
Independent Variables	Deposit Money Bank Assets/ GDP	Private Credit/GDP	Overhead Costs	Net Interest Margin
Log Initial GDP	-0.045	-0.022	-0.032	-0.042
	(0.025)*	(0.013)*	(0.014)***	(0.012)***
French Legal Origin	-0.016	-0.013	0.028	0.011
	(0.012)	(0.009)*	(0.010)***	(0.004)***
German Legal	0.022	0.017	-0.017	-0.019
Origin	(0.012)*	(0.010)*	(0.009)*	(0.010)*
Log Government	0.105	0.125	0.031	0.021
Expenditure	(0.101)	(0.121)	(0.012)**	(0.009)**
Government	0.201	0.127	0.041	0.024
Ownership of Banks	(0.212)	(0.120)	(0.013)***	(0.019)*
High Governance	-0.021	-0.024	0.024	0.027
	(0.010)*	(0.014)*	(0.015)*	(0.013)*
Low Governance	-0.062	-0.031	0.043	0.038
	(0.022)***	(0.014)**	(0.023)*	(0.017)**
Durbin-Wu-Hausman Test: p value	0.15	0.17	0.19	0.18
J statistic: p value	0.16	0.17	0.18	0.17
Intercept	0.201	0.231	0.145	0.131
	(0.211)	(0.233)	(0.134)	(0.130)
R^2	0.77	0.84	0.77	0.70

Notes: Robust standard errors reported within parenthesis. *, **, ***, significant at the 10%, 5% and 1% levels respectively. Instruments used for GMM estimation: stock market capitalisation/GDP, total value traded on the stock market/GDP, the population growth rate.