

**FINANCIAL SYSTEM SIZE IN TRANSITION ECONOMIES:  
THE EFFECT OF LEGAL ORIGIN**

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# FINANCIAL SYSTEM SIZE IN TRANSITION ECONOMIES: THE EFFECT OF LEGAL ORIGIN

## ABSTRACT

Gorton and Winton (1998) link the size of the banking system in transition economies to financial stability. We provide empirical evidence consistent with their notion that the size of the financial system will be smaller in these countries, This effect holds even after controlling for the effect of rule of law and/or legal origin and other relevant variables. Transition economy status thus adds additional explanatory power to traditional law and finance explanations of financial development. Classification of transition economies by legal origin reveals that Russian legal origin has a strong negative effect on financial development. Regression analysis shows claims on the private sector/GDP to be 46 to 60 percentage points lower in the countries of the former Soviet Union, and 23 to 39 percentage points lower in non-Soviet transition economies compared to countries of English legal origin. There is a positive relation between claims on the private sector and the rule of law for a broad cross section of countries.

## 1. Introduction.

Gorton and Winton (1998) provide a theoretical study linking the size of the banking system in transition economies to financial stability. Banks in these countries have a large volume of problem loans inherited from the former central bank. They show that when a bank regulator imposes higher capital requirements and attempts to enforce market discipline, banks will exit the industry and new banks will be prone to failure. Thus, the banking system will be small and inefficient.

We call the idea that the banking system will be smaller than normal in transition economies the “transition economy effect.” To measure the effect, we use a regression model to compare the level of bank lending to the private sector in the former communist (transition) economies of Central and Eastern Europe (henceforth Eastern Europe) to a broad sample of more than 80 other countries. Buch (1996), Murrell (1996) and Bonin and Wachtel (2003) report that banking systems are poorly developed in transition economies, but there is little research on financial development in these countries that uses a comprehensive econometric model.

Our econometric approach is similar to Levine (1999) who also finds a significant relationship between legal origin and financial development for 47 countries. We focus on the period 1995-1999, after the early stage of the transition. We would expect the transition economy effect to be most evident in this early period. Consistent with the theory, we find financial intermediation as a percent of GDP is 46 to 60 percentage points lower in the former Soviet countries and 23 to 39 percentage points lower in the non-Soviet transition economies than in countries of English legal origin. Furthermore, Russian legal origin has a strong negative impact on financial development. Transition economy status provides an important explanation of banking system development in these countries, adding explanatory power even when legal origin and rule of law variables are included in the regression equations. We suggest that problems common to transition economies help explain financial development in these countries. Supporting the law and finance literature, there is a strong positive relation between the rule of law and the level of financial development.

The literature review in Section 2 discusses the effect of legal systems on financial development. We develop the concept of Russian legal origin and classify the transition economies by legal origin in Section 3. In Section 4, we present four hypotheses about the factors affecting the size of the banking system in these countries and develop a model to test these hypotheses, as well as discuss the data sources. Section 5 presents the hypothesis tests and Section 6 concludes.

## **2. Literature Review**

Our measure of financial intermediation, claims on the private sector (CLAIMS) is used as the measure of financial development by Levine (1998) and Boyd, Levine, and Smith (2001).

These two closely interrelated variables - financial development (King and Levine, 1993a, 1993b; Levine, 1997, 2003; Levine and Zervos, 1998) and the rule of law (Levine, 1999; Mahoney, 2001) - have a direct effect on the rate of economic growth. Stronger creditor and investor protection makes external finance more readily available, both through the banking system and capital markets (e.g., LaPorta *et al*, 1997). The evaluation and monitoring of firms provided by the banking system facilitates identification and funding of positive net present value projects (Levine 1997, 1999). Transition economies have significant problems in all three areas. Besides weak legal systems and low levels of financial development, they also have low or negative rates of economic growth since the transition (Campos and Coricelli, 2002).

Gorton and Winton's (1998) theory of why transition economies' banking systems are smaller is an important addition to the literature on finance in transition economies. The overhang of bad loans creates incentives for banks to continue to lend to inefficient, formerly state-owned, enterprises. They show that if a regulator imposes higher capital requirements and attempts to enforce market discipline, banks will exit the industry. New banks will be risky and prone to failure, so the resulting banking system will be too small to be efficient. We measure the size of this transition economy effect.

Scholten (2000) provides data on the extent of the bad loan problem. Two patterns are clear. First, there is wide variation by country; problem loans/total assets for either 1995 or 1996 range from 74% in Bulgaria to 3% in Estonia. Second, the values are quite high for most countries – over 30% is common. The median for 1995 or 1996 (taking the latest data available for each country) is 16% for nine countries.

The law and finance literature of La Porta, Lopez-de-Silanes, Shleifer and Vishny (1997, 1998, 2000 (henceforth LLSV)), as well as many others, finds firms' access to external finance is

directly related to legal systems providing better investor protection. LLSV's research demonstrates common law legal systems provide greater investor and creditor protection, leading to greater equity capitalization and larger financial markets.<sup>2</sup> Civil law countries (French, German and Scandinavian legal origins) generally have smaller financial markets due to weaker investor and creditor protection. This is pertinent to this study because weak legal systems and less emphasis on private property rights in the transition economies constrain the development of financial markets (Murrell, 1996; Rapaczynski, 1996; Pistor, Raiser and Gelfer, 2000). The problem is compounded by a communist tradition that historically put little emphasis on private property rights. LLSV (1998) and Levine (1998, 1999) contend that legal origin is exogenous. Since legal systems are endogenous, particularly with respect to enforcement, focusing on legal origin allows us to analyze the simultaneous relationship between intermediation, gross domestic product and the rule of law.

Earlier research has excluded former Soviet republics and eastern European transition economies. This is due in part to the time periods studied, but also to the simultaneous economic, political, and social change in this area. In all the transition economies, both legal and banking environments have been greatly influenced by communist rule. For example, in many transition countries, banks are reported to be unwilling to lend to small firms because contracts are difficult to enforce.<sup>3</sup> Rapaczynski (1996) argues that this problem cannot be corrected quickly because legal systems are endogenous and property rights are complex. He suggests it will be at least a generation before legal systems in these countries allow private debt transactions (such as bank lending) to occur in a manner that is comparable to other economies at similar stages of development.<sup>4</sup> Pistor, Raiser and Gelfer (2000) provide evidence that enforcement is the source of these weaknesses.

### 3. Legal Origin Classification Issues

Legal origin refers to the source of a country's legal code. LLSV (1998) report legal origin for 48 countries using four legal families: English common law, French civil law, German civil law and Scandinavian civil law. Levine, Loyaza, and Beck (2000) extend this procedure to obtain data for 71 countries. We add 18 transition economies, plus some other countries not considered by Levine, Loyaza, and Beck (2000), for a total sample of up to 115 countries.<sup>5</sup>

Legal origin is difficult to determine precisely because many transition economies could be classified more than one way. Legal origin is closely intertwined with history and this part of the world has been characterized by political instability, war (including two world wars) and dramatic regime change. Many of these transition economies were part of the Austro-Hungarian Empire before 1917 and the communist system after 1945.

Poland provides an extreme example of these classification problems. Reynolds and Flores (2003) report that Poland operated under three different legal systems in various parts of the country before World War I – one primarily German, one French, and one Russian. Other countries such as Bulgaria have strong elements of both French and German legal traditions and are similarly difficult to classify.<sup>6</sup>

Relying upon Reynolds and Flores<sup>7</sup> (2003), we consider a fifth legal family, Russian legal origin, imposed on other countries by the czars for several centuries prior to World War I, and by the expansion of communism afterward. As we appear to be the first to include Russian legal origin in an econometric intermediation study, a brief overview is appropriate.

Russian legal tradition emanating from Peter the Great (1700-1720) and Alexander II (1855-1881) emphasized the supreme power of the Czar. Reynolds and Flores describe its

essential characteristics as “chaotic” or “fluid” in more polite, but slightly less accurate terms.<sup>8</sup> It is a legal system characterized by conflicts, contradictions, undefined or poorly defined principles and concepts, and major gaps. At the end of the eighteenth century, for example, it is estimated that only 6% or 7% percent of the population in Russia (and less in the other states of the Russian empire) were affected by the “law” at all (Reynolds and Flores (2003, p. 3).

Beginning in 1989 a “colossal” (Reynolds and Flores, p. 8) amount of new law was imposed on a system with a very weak foundation. In Russia, a 1991 decree of the Supreme Soviet proclaimed that Soviet law continued to apply as long as it was not in conflict with Russian law, the Russian constitution, or the Minsk agreement, the latter establishing the Commonwealth of Independent States. The absence of any well-established tradition presents serious obstacles to reform. From the early 1990s, Russian leaders recognized that in order to develop a market economy, the laws governing property ownership and contracts needed complete rewriting. One positive development was a new civil code, first instituted in partial form in 1996, with much more structure and integration than previous efforts. Reynolds and Flores predict that the Russian legal system will eventually develop, after many fits and starts, along the lines of the civil law countries, with less emphasis on case law and precedent than in the Anglo-American countries.

Table 1 presents our classification of the transition economies by legal origin.<sup>9</sup> Despite almost 45 years of Soviet domination, it is inappropriate to assume Russian legal origin for all the transition economies. While the communist systems imposed after 1945 had a profound effect on the non-Soviet countries’ legal systems, these changes are being reversed. The Baltic countries in particular have attempted to restore their historic legal systems. In the discussion of

Lithuania, Reynolds and Flores describe the restructuring of the legal system as an effort to unlearn everything that was learned from the Russians.

[Insert Table 1 About Here]

Because of differences in legal origin, private property rights were stronger in the other transition economies of Eastern Europe (e.g, the Czech Republic, Hungary, and Poland) than in the former Soviet countries between 1945 and 1991. Hence, contracts were better understood and enforced in these countries than in the former Soviet countries.

Hungary and the Czech Republic are classified as French legal origin because Roman law significantly influenced the development of their legal systems (through the Austro-Hungarian Empire). In some countries, such as Croatia, pre-World War II legal systems were closely tied to their neighbors, in this case Hungary. Several of the other countries had legal systems based on French civil law, while the Baltic States have a greater Germanic influence.

With the exception of the Baltic States, all the former Soviet countries are classified as Russian, because virtually all were part of the Russian Empire before 1917 and part of the Soviet system for over 70 years thereafter (and because Reynolds and Flores report no other mitigating factors). If a country is difficult to classify because it had a fractured legal system with multiple influences (such as Poland), or virtually no well-defined legal system before 1917 (as in the case of Albania), we classify it by default as Russian.<sup>10</sup>

#### **4. Hypotheses and Empirical Methods.**

We consider four hypotheses. The first is that bank lending to the private sector is lower in countries of Russian legal origin. This hypothesis tests whether there are more serious weaknesses in banking development in countries with a Russian legal tradition, which, as noted,

has put much less emphasis on private property rights and much more emphasis on the rights of the state than other legal traditions. Legal origin is separate from communism imposed in Russia and other Eastern European countries after 1917 and 1945 respectively.

The second hypothesis tests the theoretical proposition that, *ceteris paribus*, there are lower levels of intermediation in *both groups* of transition economies (considered together) than in other countries, regardless of legal origin.<sup>11</sup> Virtually all transition economies have banks with an overhang of bad loans, weak capital positions, and a tradition of lending to unproductive state owned enterprises. This exacerbates the problem of establishing a market-oriented banking system based on adequate capital and sound prudential regulation and supervision. This hypothesis focuses on all the transition economies *as a group* and attempts to determine if transition economy status has additional explanatory power when both this variable and rule of law variables are included in the same equation. Thus, we test to see whether transition economy status provides an explanation of the low level of banking development in these countries that will complement traditional law and finance theories.

The third hypothesis considers the two types of transition economies *separately* to account for the length and degree of communist influence on the country. The hypothesis is that the level of financial development is lower in the former Soviet countries than in the non-Soviet transition economies, other things (including the rule of law measures) held constant. The justification for this hypothesis is that former Soviet countries have more serious weaknesses in the economic and legal systems that are not captured by the commercial rule of law measures, legal origin, or by the other control variables used in previous literature. The former Soviet countries had a partially planned (and hence non-market) economy, for a longer period, in some cases from 1917 until the early 1990s. The former Soviet countries also relied much less on

markets to allocate resources in the period in which both were in the communist system (generally 1945 to 1991) than did the other transition economies, such as Hungary, the Czech Republic and Poland. This hypothesis is different from the first hypothesis, as not all former Soviet countries are of Russian legal origin. For example, the Baltic States are former Soviet countries without a Russian legal origin. In addition, some non-Soviet transition economies, such as Poland, are classified as of Russian legal origin<sup>12</sup>.

The fourth hypothesis is that the law and finance explanation for financial development applies across the entire sample of countries, regardless of transition economy status. It tests whether intermediation differences can be explained by the rule of law. We expect higher levels of financial development in countries that ensure the enforcement of contracts and the protection of private property rights. Legal systems play a crucial role in allowing financial markets to develop. This is critical to our study because the weaknesses in Eastern European banking systems are partially attributable to the absence of a well established tradition of private property rights.

We test each hypothesis separately by adding different legal origin and transition economy indicators. We then test the hypotheses together by including *both* rule of law and the legal origin dummy variables, as well the as transition economy variables, in one regression equation. We test whether there are differences in banking system development in the transition economies that cannot be explained purely by commercially produced indexes of legal systems such as the Political Risk Services Index. These differences would reflect either differences in legal and economic systems that are not captured by the rule of law measure, or some other institutional weaknesses unique to these countries.

There are two distinct econometric approaches to the analysis of financial intermediation across countries and over time. The more sophisticated method uses panel data techniques. Many such studies, such as Levine, Loyaza, and Beck (2000), span a time period of 30 to 40 years. In fitting the panel data, it is common to use averages of time periods (such as four- or five- year averages) so that there are six to eight time series points instead of 30 to 40. While this technique is econometrically appropriate, the drawback is that sample sizes are often limited for lack of data over a long time period or for missing data. Clearly, these techniques cannot be applied to the transition economies since the data begin only in the mid-1990s.

The second approach is to use a shorter time period and/or average the data over the entire time period (such as Levine, 1999, and Levine, Loyaza, and Beck, 2000) and use models that account for problems of simultaneity in the data. We follow this approach. First, we consider the level of financial intermediation (measured by average claims on the private sector) to be a function of legal origin and the rule of law. Next, we expand the regression model to include other country-specific factors that would impact financial intermediation. The OLS regression model is as follows:

$$\text{CLAIMS} = f(\text{LEGAL ORIGIN, RULE OF LAW, FORMER SOVIET, NON-SOVIET, ECONOMIC FACTORS, SOCIAL/CULTURAL FACTORS}). \quad (1)$$

Note that in evaluating the second hypothesis, all the transition economies are grouped together and denoted by a single indicator variable.

Our simultaneous equations system is based on the notion that legal origin has its effect on the financial system and living standards through other variables. Legal origin determines the framework to protect investors and creditors, and enforce business contracts (including loans), generally measured as rule of law. Additionally, an effective rule of law is more likely in a

country with a literate citizenry and above average per capita income. Previous studies, such as Levine (1998, 1999), find positive effects from both rule of law and financial intermediation on economic growth. These studies use simultaneous equations techniques to estimate this endogenous relationship between financial intermediation, living standards and the rule of law. Legal origin is considered an exogenous determinant of rule of law, as in our model.

Our simultaneous equations model can thus be written as follows:

$$\text{RULE OF LAW} = f(\text{LEGAL ORIGIN, FORMER SOVIET, NON-SOVIET, INITIAL GDP, LITERACY}) \quad (2)$$

$$\text{INTERMEDIATION} = g(\text{RULE OF LAW, FORMER SOVIET, NON-SOVIET, INITIAL GDP, AGRICULTURE, LITERACY, POPULATION}) \quad (3)$$

Financial intermediation (CLAIMS) and RULE OF LAW are endogenous and LEGAL ORIGIN and the transition economy indicator variables are exogenous. In addition, we assume that INITIAL GDP is also exogenous since it is a proxy for initial wealth in the years prior to the sample period. LITERACY, POPULATION, and the percentage of economic output from AGRICULTURE, are also treated as exogenous. The system is fully identified since the exogenous variables AGRICULTURE and POPULATION are used only in the FINANCIAL INTERMEDIATION equation and the LEGAL ORIGIN variables (also exogenous) are used only in the RULE OF LAW equation.

The dependent variable, CLAIMS, is claims on the private sector scaled by gross domestic product, compiled from the IMF's International Financial Statistics (IFS). This measure is defined as total credit extended by banks to entities in the private sector. It excludes credit extended by banks to governments through the purchase of securities. CLAIMS is one of the four intermediation (financial development) measures first used by King and Levine (1993a, 1993b) in their analysis of the relationship between financial development and economic growth.

It is perhaps the most important of the four because it measures the degree to which the banking system transforms claims on itself (deposits) into loans granted to potentially productive enterprises such as business firms, as well as to households.

We use dummy variables to indicate the LEGAL ORIGIN of the sample countries – English, French, German, Scandinavian, or Russian. While the latter includes many countries of the former Soviet Union and Central and Eastern Europe, not all transition economies are of Russian legal origin. We also include a variable for countries with an Islamic legal influence, because Islamic law can affect how loans are made and how interest is computed. ISLAM is defined as one for countries with over 45% Muslim population, according to the *CIA Factbook*, and zero otherwise. ISLAM is generally considered a secondary legal influence, *not* a legal origin variable.<sup>13</sup> In the empirical estimation, the English legal origin variable is the omitted variable to prevent a linear combination of these variables. The coefficients of the other legal origin variables can be interpreted as the differences in financial intermediation compared to countries of English legal origin.

We also create dummy variables to indicate whether a sample country was part of the former Soviet Union (FORMER SOVIET), or is a transition economy that was not part of the Soviet Union (NON-SOVIET). These are designed to measure the impact of transition economy status on financial intermediation, independent of legal origin. The measure of RULE OF LAW is the political risk index developed by Political Risk Services for foreign investors called “law and order” and used in LLSV (1997, 2000).

We also use a set of control variables to account for differences among countries in economic and social/cultural characteristics that might be expected to affect the level of financial intermediation. Economic structure and conditions are measured using the percent of output

produced by AGRICULTURE, INFLATION, and POPULATION, averaged over the same time period as FINANCIAL INTERMEDIATION. We also include INITIAL GDP as a proxy for the initial wealth of the country, measured as the average GDP for the two years prior to the sample period. Agricultural-based economies tend to be underdeveloped, with a dispersed population that does not allow the agglomeration effects necessary for higher levels of banking development and should be inversely related to the level of financial intermediation. Unexpected inflation and high inflation should reduce financial intermediation. For example, Boyd, Levine, and Smith (2001) find that inflation levels over 15% per year sharply reduce banking development. POPULATION is included to control for the size of the country in the sample. All of these data are collected from the World Bank Development Indicator (WBDI) database.

The social and cultural factors used to control for economic development and financial intermediation levels are the percentage of the population that is literate (LITERACY) as well as the percentage of the population living in RURAL areas. As with AGRICULTURE, a dispersed rural population will make financial intermediation more difficult (e.g., there may be a limited number of financial centers). A literate population would be more likely to enter into more formal contracts, including banking contracts, than populations that are less literate. The WBDI provides data on rural population and education, but not on literacy. Therefore, we use the CIA Factbook for data on the percentage of a population that is literate.<sup>14</sup>

[Insert Table 2 and Table 3 About Here]

Because we want to provide information on the development of banking systems early in the transition, we use data for the period 1995 through 1999. The annual observations are averaged over the time period and used to estimate the model. We begin with all the countries that have at least four years of financial intermediation data in IFS. There are 115 countries in

the broad sample and a minimum of 102 countries in the simultaneous equations model. The sample of 115 countries is listed in Table 2.

Descriptive statistics for the economic and cultural control variables as well as RULE OF LAW are given in Table 3. We see a sharply lower level of intermediation in the former Soviet countries; CLAIMS averages slightly over 10% of GDP, compared to 28.7% in the non-Soviet transition economies and 32.3% in other developing countries. Somewhat surprisingly, both groups of transition economies rank higher with respect to RULE OF LAW than other developing countries. This finding is consistent with the idea that something beyond the traditional law and finance variables is driving banking development in the transition countries. This is evidence of our transition economy effect, based on Gorton and Winton's model. A correlation matrix of economic and cultural variables that affect financial intermediation is presented in Table 4.

[Insert Table 4 About Here]

## **5. Empirical Results**

Table 5 presents regression results for the models including LEGAL ORIGIN (models 1-4) and legal origin plus the RULE OF LAW measure (model 5). We exclude English legal origin to avoid a positive-definite matrix. Our analysis of legal origin in Table 5 is similar to that in Levine (1998). Since English legal origin is the omitted variable, the coefficients of the other legal origin variables measure differences in the level of financial intermediation relative to the base case of English legal origin.

Our findings are consistent with those of Levine (1999) and Levine, Loyaza, and Beck (2000) that countries of French legal origin have lower levels of financial intermediation. Specifically, French legal origin countries are 21 percentage points lower than countries of

English legal origin. German and Scandinavian legal origins are associated with higher levels of intermediation, but the results are not statistically significantly different from English legal origin, consistent with the findings of Beck, Levine and Demeriguc-Kunt (2003).

The empirical tests also support our first hypothesis. Russian legal origin is associated with lower levels of intermediation, significantly different from countries of English legal origin, when tested in model 1. Specifically, CLAIMS is 35 percentage points lower for countries of Russian legal origin than in English legal origin countries. All of these differences are significant at the one percent level.

To test hypothesis 2, which deals with the transition economy effect, model 2 combines the two sets of transition economies (FORMER SOVIET and NON-SOVIET) into a single indicator variable (TRANSECON) to test the overall effect of transition economy status on financial intermediation. In model 2, the transition economy effect dominates Russian legal origin as a determinant of financial intermediation. The coefficient for TRANSECON is  $-0.334$ . The other significant coefficients are French legal origin and ISLAM. This result indicates that both the former Soviet countries and the non-Soviet transition economies would have lower levels of financial intermediation, whatever their legal origin. In other words, the transition economy effect helps explain the low level of financial intermediation in these countries.

[Insert Table 5 About Here]

Model 3 separates the former communist countries into FORMER SOVIET and NON-SOVIET. Non-Soviet countries have a variety of legal origins – French, German, and Russian. The former Soviet countries have Russian legal origin with the exception of the Baltic countries. Since the correlation is very high between Russian legal origin and FORMER SOVIET, we exclude the Russian legal origin variable from the equation.<sup>15</sup>

The results of model 3 support the third hypothesis that the former Soviet countries have lower levels of intermediation than other transition economies. The effect of the FORMER SOVIET variable is a 60 percentage point reduction in CLAIMS, highly significant both economically and statistically. In contrast, the NON-SOVIET transition economies are 23 percentage points below countries with English legal origin. Panel B of Table 5 indicates that the difference is statistically significant at the one percent level.

Model 4 adds a measure of the rule of law to legal origin and transition economy status in order to evaluate our fourth hypothesis that legal systems protecting private property rights increase financial intermediation. We find RULE OF LAW, as measured by the PRS Law and Order index, does play a significant role in determining the level of financial intermediation.

After controlling for the effect of the rule of law, the significant difference between the influence of English and French legal origin on financial intermediation remains (at the ten percent level). Differences between English and German (positive) and English and Scandinavian (negative) legal origins appear here for the first time. The coefficient of ISLAM is again negative.

Thus, part of the difference in intermediation levels originally attributed to legal origin is more appropriately explained by RULE OF LAW, but the model that includes both has much greater explanatory power. Model 4 has twice the explanatory power of the first three models in Table 5, with  $R^2 = 57.2\%$ .

RULE OF LAW helps explain the differences between non-Soviet and former Soviet countries, reducing the level of statistical significance in the differences between the levels of financial intermediation (Panel B). The difference in these two variables in model 4 is partially

explained by the higher value for RULE OF LAW in NON-SOVIET transition economies compared to FORMER SOVIET countries (see Table 3).

Model 4 indicates that CLAIMS is 33 percentage points lower in the non-Soviet transition economies and 46 percentage points lower in the former Soviet countries, after accounting for legal origin and the country's rule of law measure. The economic and statistical significance of the transition economy effect thus remains in this regression equation with its improved explanatory power.

Finally, we expand model 4 to create model 5 which considers the additional economic and social control variables. The results for LEGAL ORIGIN, RULE OF LAW, and the NON-SOVIET/FORMER SOVIET variables are robust when we add both the control variables and the rule of law measures.<sup>16</sup> The differences in the level of financial intermediation between FORMER-SOVIET and NON-SOVIET transition countries remain but are not statistically significant. Interestingly, the control variables do not have an incremental effect on financial development<sup>17</sup>

In Table 6 we use a two-stage least squares regression to estimate the simultaneous equations model described in equations (2) and (3). We cannot evaluate the first hypothesis (the effects of Russian legal origin) in the simultaneous equations model because this variable and FORMER-SOVIET are highly correlated. The 2SLS results support the second and third hypotheses (that the transition economy effect holds, and that the negative effect on intermediation is greater in the FORMER SOVIET countries). That is, both NON-SOVIET and FORMER SOVIET are negative and significant in the intermediation equation and the coefficient levels are consistent with the results reported earlier. There is not a significant difference between the FORMER SOVIET and NON-SOVIET coefficients. The fourth

hypothesis (the positive effect of the RULE OF LAW on intermediation) is also supported by these results. The LITERACY variable is positive and significant, but only at the 10 percent level.

[Insert Table 6 About Here]

## 6. Summary and Conclusions

For the transition economies of Eastern Europe over the period 1995-1999, bank lending to the private sector is only 10% of GDP in Russia and averages the same amount in the other countries of the former Soviet Union, compared to an average of 32% in 80 other developing economies. In the non-Soviet transition economies the ratio is quite comparable to other developing economies at 29%. We explore the causes of these differences.

Theoretical analysis by Gorton and Winton (1998) suggests that the banking system will be smaller in transition economies. We call this the transition economy effect and confirm this expectation based on one measure of intermediation (claims on the private sector/GDP). Levels of financial intermediation are much lower in both groups of countries than in the other countries in our sample, even after controlling, in some equations, for the other factors that affect intermediation, such as income, population distribution, and the rule of law. The differences are 46 to 60 percentage points for the former Soviet countries and 23 to 39 percentage points for the other (non-Soviet) transition economies compared to countries of English legal origin. The differences between the two groups are statistically significant. These coefficients are measured in some equations *after* controlling for differences in various measures of the rule of law.

As expected, Russian legal origin has a strong negative impact on financial development. CLAIMS is 35 percentage points lower for countries of Russian legal origin than in English legal origin countries. In another model, the transition economy effect dominates Russian legal origin

as a determinant of financial intermediation. The transition economy effect is thus an additional influence on intermediation beyond traditional law and finance variables such as rule of law and legal origin.

While the level of intermediation in the other transition economies is similar to the level in other developing countries at about 30% of GDP (based on the raw data), our results suggest that the banking system would be larger in the other transition economies if they had not been part of the communist system between World War II and the early 1990's.

In a sample of over 100 countries, we confirm the findings of Levine (1999) and Levine, Loyaza, and Beck (2000) that countries of French legal origin have lower levels of financial intermediation and the effect of English legal origin is strongly positive. The rule of law has strongly positive effects on intermediation.

Economic growth in these countries since the transition has been much slower than had been expected at the beginning of the transition (Campos and Coricelli, 2002). In many of these countries growth has been negative. One of the implications of our results is that expectations of eventual normal economic growth in these countries any time soon may be unwarranted, since growth depends in part on a developed banking system (e.g., King and Levine, 1993a, 1993b; Levine, 1997, 1998, 2003). Our examination indicates that many of the underpinnings of a strong banking system are missing in the transition countries, so it is reasonable to consider a more pessimistic scenario in which there are serious constraints on economic growth in these countries for some time.

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**Table 1**  
**Legal Origin of Transition Economies<sup>a</sup>**

<b>Former Soviet</b>		<b>Other Transition Economies</b>	
<b>Country</b>	<b>Legal Origin</b>	<b>Country</b>	<b>Legal Origin</b>
Armenia	Russian	Albania	Russian
Belarus	Russian	Bulgaria	French
Estonia	German	Croatia	French
Kazakhstan	Russian	Czech Republic	French
Latvia	German	Hungary	French
Lithuania	German	Poland	Russian
Moldova	Russian	Romania	French
Russia	Russian	Slovak Republic	French
Ukraine	Russian	Slovenia	German

Source: Constructed by the authors based on Reynolds and Flores (2003) as described in Section 3.

<sup>a</sup> This list includes only those countries for which intermediation data are available. We did not attempt to classify the transition economies for which these data are unavailable

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**Table 2**  
**Countries Included in the Sample**

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Albania	Haiti	Pakistan
Algeria	Honduras	Panama
Argentina	Hong Kong	Paraguay
Armenia	Hungary	Peru
Australia	Iceland	Philippines
Bahrain	India	Poland
Bangladesh	Indonesia	Portugal
Belarus	Iran	Qatar
Bolivia	Ireland	Romania
Botswana	Israel	Russia
Brazil	Italy	Rwanda
Bulgaria	Jamaica	Saudi Arabia
Burkina Faso	Japan	Senegal
Cameroon	Jordan	Seychelles
Canada	Kazakhstan	Sierra Leone
Central African Rep.	Kenya	Singapore
Chad	Kuwait	Slovak Republic
Chile	Latvia	Slovenia
Colombia	Lesotho	South Africa
Congo, Rep.	Libya	South Korea
Costa Rica	Lithuania	Spain
Cote d'Ivoire	Madagascar	Sri Lanka
Croatia	Malawi	Swaziland
Cyprus	Malaysia	Sweden
Czech Republic	Mali	Switzerland
Denmark	Malta	Syria
Dominica	Mauritius	Thailand
Dominican Republic	Mexico	Togo
Ecuador	Moldova	Tunisia
Egypt	Morocco	Turkey
El Salvador	Mozambique	Uganda
Equatorial Guinea	Namibia	Ukraine
Estonia	Nepal	United Kingdom
Ethiopia	New Zealand	United States
Finland	Nicaragua	Uruguay
Germany	Niger	Venezuela
Greece	Nigeria	Yemen
Guatemala	Norway	
Guinea-Bissau	Oman	

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**Table 3****Descriptive Statistics for Variables Used in the Study**

Descriptive statistics of all countries in the sample for levels of intermediation, rule of law, financial and economic variables and social and cultural variables. Data are averages for the years 1995-1999.

<b>Variable</b>	<b>N</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Maximum</b>
Financial Intermediation	115	0.376	0.344	0.025	1.690
Former Soviet Countries	9	0.102	0.052	0.043	0.223
Other Transition Economies	9	0.287	0.205	0.036	0.690
Developing Countries	79	0.323	0.300	0.025	1.627
Industrialized Countries	18	0.787	0.353	0.328	1.689
Rule of Law	105	4.282	1.230	1.000	6.000
Former Soviet Countries	9	4.11	0.41	3.52	5.00
Other Transition Economies	9	4.84	0.82	3.30	5.98
Developing Countries	69	3.82	1.13	1.00	6.00
Industrialized Countries	18	5.84	0.35	4.87	6.00
Avg. CPI (1995 = 100)	112	145.1	170.4	89.3	1812.0
Initial GDP	113	216,816	849,782	140	7,005,550
Agriculture %	115	16.4	14.1	0.0	54.0
Literacy %	114	79.9	21.9	19.2	100.0
Rural Pop %	115	42.6	23.2	0.0	93.4

**Table 4**  
**Correlation Matrix of Explanatory Variables (excluding Legal Origin dummy variables)**

Correlations of explanatory variables (excluding legal origin and other dummy variables) used in the empirical estimation of regression models.

	Fin. Intermed.	Rule of Law	Avg. CPI	Initial GDP	Agric. %	Lit %	Rural Pop %
Fin. Intermed.	1.000						
Rule of Law	0.587	1.000					
Avg. CPI	-0.152	-0.036	1.000				
Initial GDP	0.259	0.279	-0.049	1.000			
Agriculture %	-0.539	-0.579	0.069	-0.228	1.000		
Literacy %	0.376	0.407	0.103	0.180	-0.536	1.000	
Rural Pop %	-0.470	-0.503	-0.041	-0.214	0.709	-0.608	1.000

**Table 5****Panel A: Effects of Legal Origin and Legal Systems on Financial Intermediation**

Dependent variable is the level of financial intermediation as measured by claims on the private sector divided by GDP averaged over 1995 – 1999. Legal origin variables, NON-SOVIET, FORMER SOVIET, and TRANSECON variables are dummy variables. RULE OF LAW is the PRS Law and Order index averaged over the period.

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>	<b>Model 5</b>
Intercept	0.521** (0.061)	0.560** (0.051)	0.559** (0.050)	-0.137 (0.116)	-0.012 (0.229)
Scandinavian	-0.019 (0.083)	-0.058 (0.145)	-0.057 (0.143)	-0.318** (0.118)	-0.358** (0.118)
French	-0.211** (0.062)	-0.228** (0.063)	-0.233** (0.062)	-0.096 (0.058)	-0.114 (0.058)
German	0.083 (0.193)	0.198 (0.118)	0.235 (0.113)	0.236* (0.096)	0.244* (0.100)
Russian	-0.354** (0.057)	-0.035 (0.160)			
ISLAM	-0.174** (0.053)	-0.203** (0.068)	-0.198** (0.067)	-0.193** (0.055)	-0.110 (0.062)
TRANSECON		-0.344** (0.110)			
NON-SOVIET			-0.227* (0.112)	-0.355** (0.090)	-0.390** (0.108)
FORMER SOV.			-0.491** (0.111)	-0.452** (0.091)	-0.547** (0.102)
RULE OF LAW				0.156** (0.023)	0.119** (0.028)
INFLATION					-1.5E-05 (1.5E-04)
Initial GDP					-0.030 (0.032)
Population					-0.005 (0.019)
AGRICULTURE					-0.002 (0.003)
LITERACY					0.002 (0.002)
RURAL					-0.002 (0.002)
N	115	115	115	105	100
R-Square	0.195	0.264	0.283	0.573	0.625
Adj. R-Square	0.158	0.223	0.243	0.543	0.568
F-Statistic	5.28**	6.47**	7.63**	18.56**	11.02**

**Panel B: Test of coefficient differences for legal origin**

NON-SOVIET = FORMER SOV.	0.270	0.127	0.157
Test Statistic	3.19**	0.66	1.49

\*\* significant at the 0.01 level, \* significant at the 0.05 level

**Table 6**  
**2SLS estimation of a simultaneous model of the**  
**determinants of financial intermediation**

Endogenous variables are RULE OF LAW (PRS Law and Order index) and Financial Intermediation. All other variables are treated as exogenous.

	<b>Rule of Law</b>	<b>Financial Intermediation</b>
Intercept	2.813 ** (0.531)	-0.357 (0.245)
Fin. Intermediation	4.100 ** (0.794)	
Rule of Law		0.151 ** (0.042)
Initial GDP	0.107 (0.127)	0.015 (0.033)
Scandinavian	1.908 ** (0.531)	
French	0.024 (0.295)	
German	-0.889 (0.469)	
Islam	0.498 (0.283)	
Non-Soviet	1.892 ** (0.529)	-0.341 ** (0.108)
Former Soviet	1.845 ** (0.658)	-0.374 ** (0.095)
Literacy	-0.008 (0.008)	0.003 (0.002)
Agriculture		-0.004 (0.003)
Population		-0.005 (0.019)
N	102	102
R-Square	0.489	0.516
Adj. R-Square	0.439	0.480

\*\* significant at the 0.01 level, \* significant at the 0.05 level

**Footnotes**

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<sup>1</sup> Pistor, Raiser and Gelfer (2000) use regression to investigate the effect of the rule of law on intermediation in these countries, but do not control for other factors affecting intermediation or include other countries as a control group.

<sup>2</sup> Hadfield (2004) documents differences in the independence, integrity, and accessibility of the courts; established legal procedure and precedent; the incentives of lawyers and judges, and the ability to enforce penalties between common and civil law countries.

<sup>3</sup> See, for example, the studies cited in Wachtel (1999).

<sup>4</sup> The datasets included in Demirguc-Kunt and Levine (2001) do designate a socialist legal origin but only one country (Myanmar, formerly Burma) falls into that category. Socialist legal origin is completely different from Russian legal origin since Russian legal origin begins with the Czars.

<sup>5</sup> Many countries report intermediation data only for recent years. We can add additional countries because our sample period is shorter and more recent than these earlier studies.

<sup>6</sup> We classify Bulgaria as French because, on balance, the discussion in Reynolds and Flores (2003) suggests that the French effect dominated. However, an argument can be made for German origin as well.

<sup>7</sup> This is the source used in virtually all studies in this area, including LLSV (1997; 1998; 2000), Levine, Loyaza and Beck (2000) and Beck, Demirguc-Kunt and Levine (2003), and we follow that tradition.

<sup>8</sup> The following quotation is illustrative:

Soviet Law, a strange and poorly functioning blend of economic legislation superimposed on an historically unstable legal system more or less was

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commenced with the 1917 revolution and consolidated in the decade of Sovietization that followed, 1919-1930 (Reynolds and Flores, 2003, p. 1).

<sup>9</sup> We also define legal origin for a number of non-transition countries not considered in previous studies, using the CIA Factbook.

<sup>10</sup> There are two reasons to use Russian law as the default option. First, as noted, the Russian legal system is more fractured and less consistent than the others, so countries with such legal systems best fit this model. Second, if a country has no well-defined legal tradition, the Russian influence after 1945 may be expected to be greater. In the case of Poland, there was substantial Russian influence in the period prior to 1914, according to Reynolds and Flores (2003) and Poland was occupied by Russia for two centuries before World War I. Levine (1998) reports substantial French influence on Polish law through Napoleon, but we emphasize the complete historical record which suggests Poland is of Russian legal origin.

<sup>11</sup> While Gorton and Winton (1998) did not specifically address communist rule, the theory is consistent with this hypothesis.

<sup>12</sup> This hypothesis would be supported by a significant negative coefficient for the former Soviet dummy variable in an equation in which we control for all the other factors affecting intermediation.

<sup>13</sup> The exceptions are Iran and Saudi Arabia where Islamic law has been codified and is the basis of constitutional law. For Iran and Saudi Arabia, ISLAM is set equal to one and all the other legal origin variables are zero. For the other countries for which Muslim population is over 45% of total population, their appropriate legal origin variable (English, French, etc.) is set equal to one and ISLAM is also set equal to one to measure this secondary legal influence.

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<sup>14</sup> The CIA variable is highly correlated with the WBDI's education variable for the countries for which both are available. The CIA data is available for a greater number of countries.

<sup>15</sup> Omitting English legal origin and including FORMER SOVIET, NON-SOVIET and Russian legal origin creates a linear combination problem.

<sup>16</sup> We also use the overall country Political Risk rating also developed by PRS as well as the Law and Order index reported. To check the robustness of these measures, we also use the World Bank's 1998 Governance Research Indicators Dataset. This World Bank Index, which is constructed from 13 different measures of legal enforcement and protection and the country's risk ranking, includes rule of law, regulatory quality, control of corruption, and other governance measures. The results are consistent among the three measures of rule of law.

<sup>17</sup> Curiously, Scandinavian legal origin is negative (and significant), even though these countries have above average levels of financial intermediation. We believe this is because Scandinavian legal origin countries have about 30% higher than average rule of law scores and are also some of the wealthiest countries (per capita) in the world. Both these variables are included in the regression and are positive, mitigating the effect of legal origin.