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ABSTRACT

How persistent are the effects of legal institutions adopted or inherited in the distant past? A substantial literature argues that legal origins have persistent effects that explain clear differences in investor protections and financial development around the world today (La Porta et al, 1998, 1999 and passim). This paper examines the persistence of the effects of legal origins by examining new estimates of different indicators of financial development in more than 20 countries in 1900 and 1913. The evidence presented does not yield robust results that can sustain the hypothesis of persistence effects of legal origin, but it is not powerful enough to reject it either. Then the paper examines if there were systematic differences in the extent of investor protections across countries, since that is the main channel through which legal origin affects financial development, and shows that all the evidence supports the idea of relative convergence in corporate governance practices across legal families circa 1900. The paper concludes that, if the evidence presented is representative, the variation observed in financial development around the world today is likely a product of events of the twentieth century rather than a consequence of long-term (and persistent) differences occasioned by legal traditions.

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Introduction

Over the past few years, a series of papers published in top journals in economics and finance find institutions to be powerful predictors of economic and financial development that exert persistent effects over time (e.g., Acemoglu, Johnson, and Robinson, 2001, 2005; Banerjee and Iyer, 2005; La Porta, Lopez-de-Silanes, Shleifer, and Vishny – LLSV hereafter – 1997, 1998, 2000; La Porta, Lopez-de-Silanes, and Shleifer – LLS hereafter – 1999, 2008). The power of these findings derives from a strong correlation between exogenous institutions, or the variables used to instrument for these institutions, and current institutions that are highly correlated with economic and financial development today. These statistical findings are given economic significance by building a theory of how institutions adopted or inherited in the distant past have exerted persistent effects over time. But because few studies have explored whether correlations between institutions and economic and financial outcomes hold in the past, we cannot be certain the alleged persistence of the effects of these institutions passes the scrutiny of history. If these relations were not statistically significant in the past, the correlations observed today might instead be the product of recent events that have not been considered and incorporated into the statistical work of these institutional studies.

This paper examines specifically the relationship between legal origins and financial development by analyzing the implied path-dependent relation between a country's legal tradition and the extent of investor protections and financial development over time. A significant number of recent papers find legal origins to be strongly correlated with current indices of rule of law (Acemoglu, Johnson, and Robinson, 2001; Beck, Demirgüç-Kunt, and Levine, 2003b), financial development (LLSV, 1997, 1998; Djankov, McLeish, and Shleifer, 2007; Beck, Demirgüç-Kunt, and Levine, 2003a, 2003b), the regulation of entry and labor (Djankov, La Porta, Lopez-de-Silanes, and Shleifer, 2002; Botero, Djankov, La Porta, Lopez-de-Silanes, and Shleifer, 2004), and the concentration of ownership (La Porta, Lopez-de-Silanes, and Shleifer, 1999) among other things. In particular, the work of LLSV (1997, 1998, 2000) and LLS (2000, 2008) relates financial development to the extent of a country's legal protections for investors (shareholders and creditors), arguing that "when investor rights such as the voting rights of the shareholders and the reorganization and liquidation rights of the creditors are extensive and well enforced by regulators or courts, investors are willing to finance firms" (LLSV, 2000, p. 5).

Therefore, the theory goes, investors and banks are willing to finance firms as shareholders or creditors in exchange for the power to reduce agency costs by, for example, effectively monitoring management or devising contracts that align the incentives of managers and outside investors. The law and finance literature maintains that because shareholder and creditor protections provided at the company level are often embodied in financial contracts or company bylaws that, because of their exceeding complexity, impede enforcement by the courts, such provisions should instead be written into national company, bankruptcy, and securities laws, and, indeed, research has found financial markets to be more developed in countries that have legislated more shareholder and creditor protections (LLSV, 1997, 1998).

The world is divided by this literature into two main legal traditions, civil law and common law, and four legal families, Common law, French civil law, German civil law, and Scandinavian civil law. LLS (2008, p. 3) find that “legal rules protecting investors vary systematically among legal traditions or origins, with the laws of common law countries (originating in English law) being more protective of outside investors than the laws of civil law (originating in Roman law) and particularly French civil law countries.” Legal origin is a valid exogenous variable for explaining investor protections and financial development because “countries typically adopted their legal systems involuntarily (through conquest or colonization)” and, hence, legal families can “be treated as exogenous to a country’s structure of corporate ownership and finance” (LLSV, 1998, p. 1126).

The current paper replicates in the most basic way the statistical exercises used to find correlations between legal origin and financial development today in order to test the implied persistence of the effects of legal origin using a variety of financial development indicators for 1900 and 1913. This exercise follows the work of Bordo and Rousseau (2006) who use high powered money to GDP as their proxy for financial development and explore its relationship with legal origin in cross-sections in the past. Instead, the current paper uses a variety of conventional financial development indicators for 1900 and 1913 to test this same hypothesis, such as stock and market capitalization to GDP, private credit to GDP, and the not so standard deposits per capita. This exercise reveals significant differences in stock and bond market capitalization across legal families only in a few cases when we look at cross-sections of countries in the past. That is, the historical evidence does not provide robust support for the idea of a persistent effect of legal origin on financial development. Yet, since the sample size is

so small, we would expect the statistical tests (either t-statistics for a simple means test or t-tests for the coefficients of multivariate regressions) to yield no significant differences in financial development across legal families. For this reason, one could argue that the evidence is only weakly rejecting the persistent effects of legal origin according to some indicators of financial development, while accepting the hypothesis with others (especially deposits per capita).

Thus, the last two sections of the paper look at whether there are systematic differences in investor protections in the past just like today. These sections of the paper consequently examine fragmentary evidence on investor protections, specifically, evidence of creditor and shareholder rights across countries at the turn of the twentieth century. That evidence reveals that, across common law and civil law countries circa 1910, creditor rights included in bankruptcy laws were quite similar and that the protection of shareholder did not rely strongly on government or court enforcement of shareholder rights (i.e., there was convergence on weak shareholder rights), most protections being either provided by companies or a product of regulation mandating strict disclosure rules for the prospectuses of new stock and bond issues.

The fragmentary evidence of shareholder protections reveals no clear differentiation in terms of better or worse corporate governance across common and civil law countries. In many countries, companies reliant on outside financing had to win investor trust by either building good reputations or writing strong protections for small shareholders into their company bylaws. Among the latter were provisions that limited the power of large shareholders by restricting the number of votes per shareholder or reducing their voting power as their shareholdings increased.

The idea of seeking significant correlations with legal origin in cross-sections of stock market capitalization in the past is not new. Rajan and Zingales estimated stock market capitalization in 1913 for 23 countries. But their findings that, on average, French and German civil law countries had larger stock markets than common law countries have been criticized for having too many outliers. Their critics argue, for example, that Rajan and Zingales underestimated stock market capitalization for some common law countries and overestimated it for French civil law countries (La Porta, Lopez-de-Silanes, Shleifer, 2008; Sylla, 2006). Evidence of the relationship between legal origin and financial development must thus be considered to be rather preliminary.

The current paper corrects Rajan and Zingales' figures, and follows the work of LLSV (1998, 1999) and Djankov, McLeish, and Shleifer (2007) in examining by means of simple tests the differences in the impact of legal origin on financial development. The small sample size notwithstanding, the data presented here constitute an original attempt to expand Rajan and Zingales' estimates with additional estimates of stock and bond market capitalization in 1900 and 1913 as well as new figures that afford a look at the development of bank finance between 1913 and 1929.

Bordo and Rousseau (2006) use broad money to GDP in a sample of 17 countries to test the relationship between legal origin and financial development in the past, finding persistent effects of some of the legal variables only when the Netherlands is excluded from the regression (because it is a French civil law country with a large banking system). Yet these authors acknowledge that broad money to GDP is an imperfect measure of financial development because it mostly represents the development of the banking system and not of the stock or bond market. For this reason the current paper attempts to expand the evidence on the relationship between legal origins and financial development by using new indicators of financial development.

Finally, according to the law and finance literature one of the main channels through which legal origin affects the development of financial markets is through investor protections. This does not imply that we should instrument for investor protections using legal origin because the latter variable affects financial development through channels other than investor protections (e.g., through regulation of labor, entry, and so forth). Still, we would also want to examine if there are systematic differences in investor protections in the past. This paper consequently assesses investor protections across countries in a separate section by compiling information on creditor and shareholder rights from unpublished sources and directly from some of the laws of the countries under study.

The paper is divided into four sections. Section two briefly describes the data compiled for the present exercise. Section three, which explains the paper's findings, is divided into three parts, the first using the results of the statistical work to examine observed differences in financial development around the world, the second documenting strong convergence in bankruptcy practices circa 1910, and the third finding no clear differences in corporate

governance practices across countries that belong to different legal families. Section four presents the conclusions.

Data and Methodology

Stock Market Capitalization and Companies Traded per Million People

Rajan and Zingales' (2003) study of the evolution of financial development across countries was the first attempt to explore the persistence of the effects of legal institutions. Their examination of the variation in financial market size in 23 countries, every decade, from 1913 to 1999, revealed, irrespective of a country's legal tradition, a first peak in financial market development circa 1913 followed after 1929 by a great and rapid reversal (less so in countries with a common law tradition) from which the financial markets in most countries did not recover until the end of the twentieth century. One of the most important findings of their study, included in the first two columns and the last one of Panel A of Table 1, is that in 1913 both stock market capitalization over GDP and the number of traded companies per million people was higher, on average, in countries that adhered to the French civil law tradition than in common law countries.

[INSERT TABLE 1 AROUND HERE]

The accuracy of Rajan and Zingales' figures, however, has been questioned by, among others, Sylla (2006), who suggests that stock market capitalization in the United Kingdom circa 1913 was perhaps overestimated by including bonds and stocks (a stock market capitalization to GDP ratio of 1.09), and stock market capitalization to GDP for the United States underestimated by including only the New York Stock Exchange and four other regional markets "but not the New York Curb Exchange, other regional exchanges, or the extensive U.S. over-the-counter dealer market (that eventually became the NASDAQ)" (Sylla, 2003, p. 401). Sylla suggests that a more accurate picture of the size of the U.K. and U.S. stock markets can be obtained by using Raymond Goldsmith's (1985) estimates, which show a stock market capitalization of 0.95 for the United States.

Rajan and Zingales' figures have also been criticized in a recent paper by La Porta, Lopez-de-Silanes, and Shleifer (2008), who point out that (1) many of Rajan and Zingales'

estimates of stock market capitalization include some corporate bonds, and (2) companies in many countries cross-listed in stock markets in Europe or the United States and, because what matters is the legal regime of the country in which a company is listed, companies cross-listed in London were perhaps borrowing that municipality's legal system and, hence, not subject to the legal tradition of their home country. Observing that this leads Rajan and Zingales to overestimate stock market capitalization for French civil law countries such as Cuba and Egypt, LLS (2008) correct some of the figures that bias the averages for civil law countries up by, for instance, using new estimates for France and adjusting the figures for Cuba. For Egypt, they subtract the capitalization of bond issues and cross-listed companies (e.g., Havana Electric listed in Cuba, incorporated in New Jersey, and traded in New York). LLS (2008) also follow Sylla's suggestion and correct the capitalization of the U.S. stock market (their figures are presented in Panel A of Table 1). After their corrections, common law countries have an average stock market capitalization almost twice that of the average capitalization for civil law countries.

The present paper contributes to this debate by making two corrections to the data on stock market capitalization. First, the estimates of stock market capitalization in the United Kingdom are corrected using data from the *Investors' Monthly Manual*. (Appendix A explains the methodology and assumptions used to estimate the stock market capitalization figures for the United Kingdom.) Second, using Goldsmith's (1985) data, estimates published by Neymarck (1901, 1902, 1915), and a variety of primary sources described in Appendix B, Table 1 presents corrected estimates of stock market capitalization for 1913 (adding South Africa, Spain, and Uruguay, and correcting the figures for Brazil, Denmark, Egypt, Switzerland, and the United Kingdom) and a new set of estimates for 1900. The new estimates attempt to bias the market capitalization of French civil law countries downwards (by adding countries with relatively small markets and correcting some estimates downwards) and of common law countries upwards (by adding South Africa and correcting the capitalization figure for the United States). Nevertheless, the corrections for the U.K. market bring the average for common law countries down to a figure closer to that for civil law countries.

Panel B of Table 1 assumes that each legal tradition is a country and estimates average stock market capitalization to GDP figures by adding the capitalization (in US dollars) of the stock exchanges of all the countries that follow a specific legal tradition over the sum of GDP

(also in dollars). When these averages are used, common law countries have a larger average stock market capitalization than their civil law counterparts in both 1900 and 1913.

Another important finding is that, with such a small sample, changing the figures for one or two countries too readily alters the average by legal family. For example, whether persistence and common law “domination” are supported can be affected by small errors in estimates of stock market capitalization for countries with larger markets. The paper thus tries to remain skeptical of the econometric findings, and relate them to other qualitative evidence available when making generalizations.

Skeptics of the data on which the present paper relies might find the sample size to be inadequate to the performance of econometric tests, as it is difficult to believe that the sample is random and representative of the population of countries. Yet, the development of stock markets around the world was less broad than today. From a table presented in Appendix D, of the most important stock markets in the world circa 1913, it can be seen that the current sample covers more than half the total exchanges and all of the most important financial markets in the world. Indeed, it is unclear how the results would be changed by adding more observations. For common law countries, for instance, because most of the stock markets not included in the sample were rather small (e.g., Burma, Ceylon, Malaya, and Rhodesia), their inclusion would bias downwards the coefficients that measure the effect of this legal tradition. In other words, the current sample most likely overestimates average stock market capitalization for common law countries. In terms of French civil law countries, markets such as those of Indonesia, Rumania, and Venezuela might bias average stock market capitalization for the group downwards, but the bias introduced by excluding them would be partly compensated by the exclusion of Mexico and Portugal, both of which had markets of average or above average size (at the time, Mexico had a large mining exchange together with a regular stock exchange for banks and industrials, and Portugal significant banking and shipping sectors funded in the local exchanges).

Bond Market Data

Appendix C describes the sources of and assumptions used to estimate the bond market capitalization figures. Most of the new estimates follow Goldsmith (1985), who compiled figures for the stock of corporate bonds and stock market capitalization for 10 countries between the 1870s and 1978 (the number of estimates varies over time). Goldsmith’s figures are

complemented by estimates of ministers of finance, directors of stock exchanges, and statisticians compiled by Neymarck (1902, 1915). For countries not included in the Goldsmith or Neymarck estimates, it was necessary to build new estimates using various official publications.

Banking Data

This paper uses two measures of banking development across countries. Albeit imperfect, they are the only indicators that have been compiled in a somewhat standardized manner. The first measure is private bank credit to GDP, which is usually combined with bond market capitalization to create an estimate of total private credit to GDP. The data on private bank credit are from a variety of sources, but rely heavily on the work of Goldsmith (1985), and include all private credit, discounts, and mortgage loans by banking institutions.¹ It is difficult to compile these data for many countries, however, because they only became a relevant measure of financial development in the second half of the twentieth century. Thus, the sample is quite limited.²

The second measure of banking development used for this exercise is deposits per capita. Whereas Rajan and Zingales (2003) compiled a measure of deposits to GDP for a sample of 20 countries in 1913, the statistics on deposits compiled by the League of Nations (1927, 1930) between 1925 and 1929 provide figures for total deposits for 1913 and 1925-1929 for between 30 and 40 countries.³ This paper uses data from the latter source, and normalizes deposits by population. With this larger sample the confidence in the results for the means test is higher. Yet, it is an imperfect measure of financial development for two reasons. First, it is not clear if more deposits per capita translate into higher supply of credit that can promote growth (we would need to have information about how banks used those deposits to know that). Second, these series of deposits represent the demand and time deposits of commercial and some savings banks, but exclude postal savings and other forms of savings that are more common in civil law countries. It thus has to be acknowledged that the data biases deposits per capita down

¹ Other loan data is taken from Nakamura and Zarazaga(2003) for Argentina ; Eitrheim (2004) for Norway; Leacy (1983) for Canada; and Musacchio (2007) for Brazil.

² I have data on private bank credit to GDP for 16 countries, but there being no data on bond markets for India and Austria, I end up with 14 for the regressions. Another problem is that there is no GDP data for South Africa before 1906 or so, and nothing from Maddison before 1913. Thus, South Africa is also dropped from the regressions.

³ All of the deposits data are from League of Nations (1927), Table 87, and League of Nations (1930), Table 104.

in civil law countries. Finally, for the regression analysis it does not make much difference to have deposits per capita for more countries because GDP estimates from Maddison (2003) are only available for 24 (in 1890) to 33 countries (in 1925 and 1929).

Basic Regression Set Up

The paper tries to mimic the estimates of simple OLS regressions of the correlates of financial development following the set up used by LLSV (1998) or Djankov, McLeish, and Shleifer (2007),⁴ but since there is no complete data on investor protections to include in the regressions, the specification used follows more closely the work of Bordo and Rousseau (2006). The OLS regression specification used is:

$$q_i = \beta_0 + \beta_1 \ln(y/pop)_i + \beta_2 gold + \beta_3 \bar{\pi} + \beta_4 (legal\ origin\ dummy) + e_i$$

where q_i is a measure of financial development for country i (stock or bond market capitalization to GDP, private credit to GDP, number of traded companies per million people or deposits per capita), $\ln(y/pop)_i$ is GDP per capita in either 1870 or 1890 (1990 PPP dollars from Maddison, 2003), $gold$ measures the number of years the country has been on the gold standard (measured in 1900 and 1913), $\bar{\pi}$ is the average inflation rate (arithmetic mean), and legal origin dummies are included. It is assumed that the errors, e_i , are normally distributed. Both years on the gold standard and inflation are good measures of macroeconomic and political stability during this period of time (Bordo and Rousseau, 2006; Bordo and Rockoff, 1996). All regressions are estimated with robust standard errors using White's correction for heteroskedasticity. For robustness I also run regression specifications that mimic the origin LLSV set up and control for GDP growth, either since 1870 or since 1890 using the compound annual growth rate of GDP in 1990 PPP dollars from Maddison (2003).

Creditor and Shareholder Rights in National Laws

The final part of the paper follows the methodology of LLSV (1998) and Djankov, McLeish, and Shleifer (2007) in compiling indices of creditor and shareholder rights from the bankruptcy and company laws of a small cross-section of countries for use in comparing countries over time. This work suggests that credit markets are likely to be larger in countries

⁴ Both LLSV (1998) and Djankov, McLeish, and Shleifer (2007) control for investor protections, but given that the information is not available for all countries, the current set up adjusts the exercise to check for simple correlations between legal origin and financial development indicators.

with bankruptcy laws that include any of the following rights: secured creditors have the right to repossess their collateral in case of default (i.e., no automatic stay on assets for debtors); priority dictates that secured creditors (i.e., collateralized creditors) are paid first; approval of creditors is necessary for reorganizing a firm or rescheduling the service of a firm's debts; and original managers do not stay during reorganization (i.e., no debtor-in-possession reorganization; trustees elected by the court or creditors run a company declared by a court to be bankrupt).

In the second part of the next section, indices of creditor rights are compiled for Argentina, Australia, Belgium, Brazil, Canada, France, Hong Kong, Spain, the Strait Settlements (Singapore), United Kingdom, and United States for 1910 (using the bankruptcy law in operation at that time). The main reason for including only French civil law and common law countries is that it is precisely in these two groups of countries where the literature finds more marked differences in creditor protections (LLSV, 1998; Djankov, McLeish, and Shleifer, 2007). The results of this compilation are included in Table 7.

According to LLSV (1997, 1998), national company laws that contain more protections for minority shareholders have larger equity markets (e.g., larger equity markets to GDP, larger companies per million people, more IPOs per year, and so forth). In Table 10, I follow the methodology used by LLSV (1998) to identify the presence (or absence) of six shareholder rights they deem relevant for the growth of equity markets (relative to GDP) or for the increase in the number of companies that open their capital to the public in a handful of countries for which there is information easily accessible. First, I determine whether shareholders absent from shareholders' meetings could vote (i.e., whether there was proxy voting). Second, I check whether shares were required to be deposited before a meeting and whether shareholders were prevented from selling their equity for several days after a meeting. Third, I look for cumulative voting or proportional representation whereby minority shareholders would elect board members. Fourth, I look for explicit minority-shareholder rights such as the right to challenge directors and assembly decisions in court and the option in the event of disagreement with a managerial or assembly decision to sell stock to the firm and thereby end one's participation. Fifth, I check whether shareholders had the first right to buy new stock in order to preserve their share of the company in the event of a decision to expand total equity. Sixth, I coded as one when the percentage of capital needed to call an extraordinary meeting was less than or

equal to 10%. I added the number of rights present in the laws of each country to create what LLSV (1998) term the “anti-director rights index” (bottom row of Table 10). Because voting rights and disclosure are also important determinants of financial development, but are studied separately by LLSV (1998), I mention differences in these investor protections in the text but do not compile systematic differences in disclosure and voting rights (mainly because there are no major differences across countries).

Statistical Evidence on the Persistence of the Effects of Legal Origins (1900, 1913)

Stock Market Capitalization across Countries in 1900 and 1913

Today, when examining samples of 50 countries or more, students of financial development find significant differences in stock market development across countries that embrace different legal traditions (and families). The stylized view is that common law countries tend to have the largest stock markets, followed closely by German civil law countries, with Scandinavian and French civil law countries having the least developed markets. Panels A and B of Table 1 show the basic differences in average stock market capitalization across legal families in 1900 and 1913 according to Rajan and Zingales (2003), LLS (2008), and the new estimates introduced in this paper. According to all of the average measures except those of Rajan and Zingales, in 1900 and 1913 common law countries had relatively larger stock markets (to GDP) than most civil law countries. Using the average of the new estimates of stock market capitalization, and assuming that each legal family is a country (Panel B of Table 1), we find the average for common law countries to be 0.48 in 1900 and 0.65 in 1913 and the equivalent figures for civil law countries to be 0.38 and 0.37 (French), 0.32 and 0.56 (German), and 0.50 and 0.54 (Scandinavian). This preliminary evidence seems to support the idea that, just as today, on average, common law countries had larger stock markets than civil law countries. In fact, it can be seen in the graphical depiction in Panel A of Figure 1 that the distributions of stock market capitalization in 1900 and 1913 have relatively similar means and about the same level of dispersion across legal families.

A better way to test for significant differences across legal traditions is to take into account the sample variance using t-tests for the difference of means. The results presented in Panel C of Table 1, which reports the t-statistics of the means test by legal tradition, do not

support the hypothesis of persistence of effects over time because there does not seem to be a significant difference in stock market capitalization across legal traditions in 1900 and 1913. The only significant t-statistic shows stock market capitalization to have been higher, on average, in German civil law countries than in all the other countries taken together. But the sample being so small, these tests must be taken only as weak evidence against the persistence of effects hypothesis. Even in LLS' (2008) and Rajan and Zingales' (2003) data, no clear differences can be discerned across legal families. LLS' (2008) estimates show common law countries to have had, on average, larger stock markets in 1913, but the t-statistics for these differences are only significant at the 20% level.

Finally, it can be seen in the data at the bottom of Panel C (Table 1) that countries that experienced higher than 1% average inflation since 1880 (difficult to achieve under the gold standard) also had significantly lower stock market capitalizations (most of these were at the time "emerging" markets such as Argentina, Brazil, Chile, and India). This variable is, in fact, a proxy for macroeconomic instability and weak adherence to the gold standard, and thus suggests the importance of taking into account contingent factors when trying to explain variation in financial development.

In sum, the results as they stand suggest convergence rather than divergence in financial development across legal families. This finding is confirmed by an examination of the correlation between legal origin and stock market development in a multivariate setting. Following LLSV (1997), I estimate specifications that control for the demand for finance using the logarithm of GDP per capita in 1870 or 1890 and the growth rate between 1870/1890 and 1900/1913, and include dummies for legal origin to test for significant differences across legal traditions. The summary statistics are reported in Table 2; the regression output is presented in Tables 3 and 4.

[TABLE 2 AROUND HERE]

Table 3 looks at the conditional correlation of the common law dummy with different measures of financial development in 1900 and 1913. Specifications 1 to 8 in Panel A of this table uses the data compiled by Rajan and Zingales (2003) and LLS (2008) to examine the conditional correlations of legal origin and financial development. In none of the specifications do we find

significant coefficients for the common law dummy and in fact, with the the data of Rajan and Zingales (specifications 1 to 4) the coefficients that capture the difference in stock market size between common and civil law countries (common law coefficient) have mostly the wrong sign (they are negative instead of the expected positive). In specifications 5 to 8, with the data of LLS (2008), the coefficients have the right sign but are not significant in any of the specifications. Across specifications 1 to 8, it can also be seen that the F-statistics that test the joint significance of all the coefficients are not significant except for two specifications.

[TABLE 3 AROUND HERE]

Specifications 9 to 16 perform the same exercise using the new estimates of stock market capitalization in 1900 (specs 13 to 16) and 1913 (specs 9 to 12). Using the new data, all of the specifications are seen to be more powerful in explaining the variation in the new estimates of stock market capitalization, yielding more robust coefficients and higher F-statistics. The coefficients for legal origin, however, are not significant in any of these specifications and have wrong sign (negative instead of positive). In sum, the evidence presented in Panel A of Table 3 does not offer robust support for the idea of persistence of effects of legal origin. Tables 4A and 4B also use the different measures of stock market capitalization and run specifications that control for GDP growth and other combinations of legal origin dummies. The results are basically the same.

It can also be seen in specifications 11, 12, 15, and 16 of Table 3 that that the coefficients for the variables that measure the number of years on the gold standard and average annual inflation since 1880 is large and highly significant. Average inflation between 1880 and 1913 is a proxy for macroeconomic and/or political instability. The fact that this variable is highly significant suggests that perhaps other contingent factors need to be taken into account to understand the variance in financial development across countries. The number of years on the gold standard is also a measure of macroeconomic stability and we would expect it to have provided investors with more security when buying securities with nominal (non-indexed) values and payment schedules. In fact, these results is consistent with the finding of Djankov, McLeish, and Shleifer (2007) and Bordo and Rousseau (2006) that countries with higher average inflation have smaller (private) credit markets. That the coefficient for average inflation does not

work in the same way in specification 16 of Panel A might be related to measurement error in the inflation figures before 1900 inasmuch as for most countries data on inflation is only accurately measured and widely available after 1900.

In sum, these results suggest that other factors such as demand for financing (e.g., how developed a country is) and stability of the macroeconomic and political environments are more highly correlated than legal origin with stock market development. Legal origin dummies are not significant in any of the specifications used. Still, given the sample size, these results cannot be taken at face value. Both the sample size and the low degrees of freedom would lead us to expect insignificant coefficients (because low degrees of freedom increase the size of standard errors and, thus, reduce the size of the t-statistics). This is why fragmentary evidence presented at the end of the paper of relative similarity of corporate governance practices across countries is used to make the case that perhaps there was convergence in financial development.

Bond Markets around the World in 1900 and 1913

The same exercise detailed in the previous section can be performed with the new estimates of bond market capitalization to GDP. Panel A of Table 1 shows the new estimates of bond market capitalization to GDP for 16 countries in 1900 and 18 countries in 1913. The means by legal family in Panel A and estimated means in Panel B (which treats each legal family as a country) show common law countries to have had significantly larger bond markets than civil law countries. In particular, Scandinavian countries seem, on average, to have had the smallest bond markets. Another way to understand why common law countries, on average, have larger bond markets is to look at Panel B of Figure 1, which shows that bond markets in the majority of common law countries were relatively small compared to those in French civil law countries, but because the United Kingdom had the largest bond market in the world, the average for common law countries is strongly biased upwards.

These differences across legal families are partly a product of how the estimates for these countries were constructed, biased upward for common law countries (see Appendix A for the methodology used for the United Kingdom) and downward for civil law countries (see Appendix C). For instance, France had one of the largest bond markets in the world, by some estimates even higher than 100% of GDP, but because many of the bond issues were either cross-listings or government-guaranteed bonds the figures had to be adjusted to reflect the market for private securities rather than the market for securities with sovereign backing. This

problem also applies, however, to common law countries, which traditionally also guaranteed bond coupons and stock dividends in transportation companies. But the figures for common law countries do not correct for that, thus the bond market data has a bias upwards in some common law countries.⁵

Even after biasing the estimates for common law countries up, the differences in bond market capitalization are not significant, either in the simple means test (Panel C of Table 1) or in the multivariate setting. For instance, in Panel B of Table 3 I repeat the multivariate exercise using bond market capitalization to GDP as a dependent variable. The results do not support the hypothesis of persistence of effects of legal tradition, but the dummies that measure the differences between common and civil law countries have the right sign in all of the regressions, and are almost significant at the 10% level. As a robustness check, Table 5 runs specifications of the same regression that control for GDP growth and use different combinations of legal origin dummies. When controlling for GDP growth (done as a robustness check) the coefficient for common law is large and significant at the 10% level, suggesting that common law countries had a bond market capitalization of 0.28 of GDP, higher than that of Scandinavian and German civil law countries, and at least 0.18 larger than that of French civil law countries. Most of the specifications, however, do not pass the joint significance test.

The evidence for bond markets is thus also not powerful enough to suggest that legal origins have persistent effects on financial development. Inflation seems to be more highly correlated with bond market development. Even if the coefficients have the right sign and are sometimes significant, the results are weak statistically and might be driven by the one outlier, the United Kingdom (controlling for the UK does not help because the coefficients for common law did not become significant). The most important correlate of bond market capitalization seems to be average inflation. An average inflation rate of 1% is related to smaller bond market capitalization to GDP by around 0.06 in 1900 and 0.04 in 1913. This is a significant drop given that the means for bond market capitalization in those two years were 0.18 and 0.17 respectively.

⁵ For a discussion of how problematic it is to disentangle government-backed securities from private securities, especially in the railway sector, see Hautcoeur (1994). Government guarantees in common law countries have scarcely been studied. For a good idea of how these guarantees worked, see Carlos and Lewis (1995).

One could argue that these exercises are not equivalent to those performed by the law and finance literature nowadays. Most of the papers in this literature use estimates of private credit over GDP rather than bond markets as the dependent variable. Private credit to GDP is a better measure of credit market development, but it is not clear that it should be related to differences in legal traditions because bank and other forms of private credit do not need formal contract enforcement mechanisms in order to grow, personal connections and other forms of cooperation between banks and companies usually being relied upon to facilitate the enforcement of such contracts (Petersen and Rajan, 1994; Maurer and Sharma, 2001).

Notwithstanding this caveat, specifications 9 to 12 of Panel B (Table 3), use as a dependent variable the scant evidence available on private credit to GDP from Table 1 and displays the same regression specifications used above. In specifications 9 through 12 of Panel B (Table 3), the common law country dummy is only significant after controlling for inflation or years on the gold standard, but has the wrong sign. In fact, in all specifications, this dummy has a negative coefficient, and even if not significant, the results do not go in the expected direction. Moreover, in specifications 13 through 16 (Panel B of Table 3), which use the number of traded companies as a dependent variable in an additional robustness check, no significant difference was observed between common law and civil law countries, and the coefficients were negative. As an additional robustness check, Table 6 runs similar specifications controlling for GDP growth and using other combinations of legal origin dummies. But the results are basically the same.

In sum, even if, on average, common law countries had larger bond markets than civil law countries, these differences are not statistically significant and seem to be driven by the inclusion of the United Kingdom's extremely large bond market. When using the scant evidence on private credit to GDP, the results also go against the persistence of effects hypothesis. Finally, using as an extra check the number of companies traded per million people also reveals no significant difference in financial development across legal families.

Deposits per Capita around the World, 1913-1929

Table 7 presents the summary statistics and means test for the data on bank deposits per capita in 1913, 1925, and 1929. These data provide more robust evidence favoring the persistence of effects hypothesis, deposits per capita in common law countries being significantly larger than in French civil law countries in 1913. Yet there are no significant

differences in deposits per capita among common law and German and Scandinavian civil law countries in that year. Thus, this indicator of financial development provides only weak support for the dominance of common law over civil law countries before 1913.

[TABLE 7 AROUND HERE]

By 1925, common law countries have larger deposits per capita than German civil law countries, an interesting result because, according to Perotti and von Thadden (2006), financial development should be most affected in those countries that suffered the largest inflationary shock after World War I. This evidence supports their view because the high inflation (in some cases, hyperinflation) in many of the German civil law countries during the 1920s must have affected the rate of deposits per capita by 1925. In fact, the average deposits per capita were larger in 1913 than in 1925.

Scandinavian civil law countries also seem to be losing ground vis-à-vis common law countries over the 1920s. In fact, by 1929 average deposits per capita are significantly larger in common law than in Scandinavian civil law countries (with a t-statistic significant at the 18% level).

Panel A of Table 8 displays the results of the multivariate analysis using deposits per capita as the dependent variable. In this case the results confirm the persistent effects hypothesis and are robust to the inclusion of most controls. In fact, with this data we find that the coefficient for the common law dummy is significant at the 1% level. Common law countries have \$50 dollars more in deposits per capita than the average country in 1913, over \$100 in 1925 and \$120 in 1929. Moreover, deposits per capita in French civil law countries are falling relative to the average over time.

[TABLE 8 AROUND HERE]

Panel B of Table 8 repeats the exercise but looking only at the change in deposits per capita from 1913 to 1929 and controlling only for GDP growth and average inflation between 1913 and 1929. In common law countries the growth in deposits is also higher than the average country and French and Scandinavian civil law countries have lower deposits per capita than

the average. The dummy for German civil law countries is not significant because even if they lost ground versus all the countries after the inflation of the early 1920s (with extremely high inflation in Poland, Hungary, Germany, Austria), they recovered their level of deposits per capita by 1929, in contrast French civil law countries did not experience such high levels of inflation, but did not have a significant increase in deposits.

Based on these results one could say that because there are systematic differences in deposits per capita and because some of the coefficients for the common law dummy in Table 3 (where the dependent variable is bond market capitalization to GDP) are also positive and significant at the 10% level, there is enough evidence to sustain the hypothesis of persistent effects with common law having larger financial markets. Given that the sample size is small and the degrees of freedom to estimate the standard errors is low, all of the statistical tests performed so far (including the means tests) would obviously lead us to accept the null hypothesis that there are no significant differences among legal traditions (or that the coefficient for the legal origin dummy is not different from zero). Thus, finding that some of the coefficients are significant should be strong enough to show that legal institutions have persistent effects. Yet, the evidence in some of the other regressions shows not only insignificant coefficients for the common law dummy, but also coefficients with the wrong sign. Thus, it is hard to say the evidence is strongly pushing for one side or the other. This is why the discussion of the next couple of sections might also shed some light on how much there was divergence or not in the institutions that supposedly sustain financial development.

Could it be taxes?

Another explanation, which has been so far disregarded completely by the literature, is that different taxation levels across countries drove some of the differences in the size of equity and bond markets. For instance, in some countries, governments charged stamp taxes for the listing of equity or corporate bonds (usually exempting government bonds). Moreover, there were other taxes that may have affected the listing of securities, like taxes on the turnover of securities, on interest and dividend gains, and the taxes that stock brokers had to pay per transaction.

In Europe there was significant variation in the levels of taxation of stock transactions at the turn of the twentieth century. In Table 11 I show some of the taxes charged for listing securities, for the turnover of those securities, for the interest and dividend gains on stocks and

bonds, and other taxes on the transactions conducted by stock brokers for a selection of European countries for which the data is easily accessible for 1905. Some states taxed heavily stock exchange transactions, while others took a more *laissez faire* approach. For instance, Spain, Sweden, and Germany taxed more heavily the listing of securities, with an estimated stamp tax that was equivalent of two to three percent of the face value of the security, while other countries like Denmark, the United Kingdom, and Austria charged less than 1%. At the extreme was Norway that did not tax the listing of securities at all. The same can be said for other taxes. For example, the taxation of interest and dividend gains shows extreme variation. Countries like Spain, Hungary, and Italy taxed interest and dividend gains from corporate securities more heavily (over 10%), while Sweden, Denmark, and Belgium had taxes around 1% (Belgium apparently had not taxes on dividend/interest gains).

Now, can the variation in these taxes explain some of the variation in stock and bond market size? The question is relevant, unfortunately the number of countries for which information on financial development *and* taxation is available is rather limited. Therefore, in Table 12 I pursue this exercise with 10 observations for which I have complete data. Not surprisingly, taxes do not seem to drive the variation in stock and bond market size. Yet taxes on both stock listings and dividends seem to explain significantly some of the variation in stock market size. Yet, when I include other controls like GDP per capita in 1890 the tax variable loses significance (most likely because of the sample size). It is still interesting to see that the coefficients in specifications 7 and 10 have negative signs and similar magnitudes (approximately an increase in taxes of 1% reduces stock market cap by almost 17 percentage points of GDP, say from 100 percent of GDP to 83 percent of GDP). Further data will render this test more robust, though.

Creditor Rights c. 1910

An alternative way of looking at the persistent effect of legal institutions is to examine if we find systematic differences in investor protections in the past, just like we do today. Today there are clear differences in the way countries and their governments protect creditors in their bankruptcy laws. According to LLSV (1998), countries with bankruptcy laws that afford stronger protections for creditors, in particular, bondholders, tend to have more developed credit and bond markets. In their survey of bankruptcy laws in 1995 they find that common law

countries afford creditors the significantly more protection than civil law countries, with French civil law countries offering the weakest protections. Moreover, Djankov, McLiesh, and Shleifer's (2007) study of creditor protections in the bankruptcy law of six cross-sections of countries between 1978 and 2003 finds differences in the level of creditor protections between French and common law countries to persist over time.

This marked difference in terms of creditor rights protections and credit market development between common and French civil law countries today would be expected to have persisted over time. If the statistical work presented in the previous section did not uncover clear differences in credit market development, perhaps looking at bankruptcy laws in common and French civil law countries will.

But in contrast to what researchers find with recent data, circa 1910 the norm across countries was convergence on relatively strong creditor protections. Differences in creditor rights in the bankruptcy laws of the largest countries in Europe and the Americas were minimal. In Table 9, which compares creditor rights for a cross-section of six common law countries and five French civil law countries circa 1910, it can be seen that, on average, both French civil law and common law countries had three of the four protections LLSV (1998) and Djankov, McLiesh, and Shleifer (2007) find explain significant differences in credit market development today. This table also reveals significant differences in creditor rights in these same countries in the past and today. Even if fragmentary, this evidence against the persistence of effects hypothesis provides a plausible explanation for the weak coefficients for the legal origin dummies when used to explain creditor market development in the past. The evolution of creditor rights from 1910 to 1995 can thus be inferred from an examination of the table. The findings regarding variation in creditor rights at the cross-sectional level are (1) that French civil law countries (and some common law countries such as Australia and Canada) started with pro-creditor laws and ended up, on average, with pro-debtor laws, and (2) that common law countries (primarily former British colonies) in some instances had weaker creditor protections in the past.

[TABLE 9 AROUND HERE]

The leniency of bankruptcy laws in some common law countries and colonies reflects the greater power accorded the judiciary to approve corporate reorganizations and decide whether creditors can take possession of assets. For example, according to a contemporary bankruptcy expert, the United States Bankruptcy Law of 1898 was quite different from those of Continental Europe (and England) because “no one can be made bankrupt against his will, and mere non-payment of debt does not form an act of bankruptcy entitling the creditors to take the estate into their own hands” (Brown, 1900, p. 268).

In contrast, most French civil law countries circa 1910 strictly enforced repossessions and granted creditors more power to run receiverships and take companies to the liquidation stage. Table 9 tries to bias the figures for French civil law countries towards being debtor-friendly by coding them as permitting management to stay during reorganization, although this was not strictly the case. In French civil law countries, reorganizations run by incumbent management had to be approved by creditors, and there was no debtor-in-possession reorganization under the protection of the court that could be applied across the board as in Hong Kong and the United States. In French civil law countries (as well as in Germany), if creditors did not approve compositions, companies went into liquidation under the management of selected trustees, mostly from the largest creditors (Brown, 1900).

The evidence presented in this chapter and the historical evidence presented in other recent works suggest that the decline of creditor rights in civil law countries and emergence of strong creditor rights in common law countries occurred mostly during the twentieth century. For example, using more comprehensive indices of debtor punishment, Sgard (2006) found the bankruptcy laws of common law countries to be more lenient than those of civil law countries throughout the nineteenth century. Civil law countries’ harsh punishments for debtors were eliminated only in the second half of the nineteenth century. Additionally, most countries in Europe adopted procedures that facilitated reorganization (e.g., the *concordat préventif*, a form of debtor-in-possession reorganization) and continuation of the going concern (always with creditor approval). The reason for this convergence on a more lenient bankruptcy system is not clear, but probably has to do with the fact that before World War I there was close communication among lawyers and policy makers across countries. According to Sgard, businessmen across the continent pressured lawyers and lawmakers for a more uniform set of laws.

In sum, the evidence on creditor rights points in the direction of convergence rather than divergence across countries that belong to different legal families. In the next section, the less standardized evidence on shareholder protections across countries is examined.

Shareholder Protections in Company Laws and Corporate Governance Practices before WWI

If neither the financial data nor the survey of creditor rights in the previous section support the persistence of effects hypothesis, it might be the case that there are persistent differences in shareholder rights across countries that have not been captured because the data on stock market development are rather limited. In this section, fragmentary evidence compiled on the extent of shareholder protections across countries circa 1900 and 1913 is examined. Yet, the analysis reveals no clear differences in the way shareholders were protected across countries that belong to different legal families.

Most studies of investor protections in national company laws conclude that the initial boom in stock market development in the early part of the century occurred despite a lack of protection for small shareholders. Table 10 examines the extent of shareholder rights included in national laws for five countries for which detailed data are available. Most countries that have been subjects of documented studies had no more than two of the shareholder protections LLSV (1997, 1998) consider necessary for the development of a large stock market with a high proportion of widely held corporations.

[TABLE 10 AROUND HERE]

Even if investor protections were weak in most countries' national laws, we know from Rajan and Zingales (2003) that stock market activity first peaked in the twentieth century in 1913. Thus, if investors participate in financial markets to a large extent when they know their returns are safe from the abuses or expropriation by insiders and directors, there had to be a system of shareholder protections in place that encouraged investors to buy equity during this period. Perhaps what mattered for the development of equity markets was not the protections for minority shareholders in national company laws, but the conditions that facilitate the private enforcement of protections. For instance, La Porta, Lopez-de-Silanes, and Shleifer (2006) find that stock markets tend to be larger in countries in which the governments require more

detailed disclosure of information about company promoters and directors at the time of an initial public offering, or simplify the burden of proof necessary for smaller shareholders to sue directors for fraudulent behavior.

Indeed, at the turn of the twentieth century, legislators took seriously the need for disclosure of financial information about companies and the identities and intentions of promoters of new share or bond issues. English law was the strictest in this respect, companies being required to publish their statutes, shareholder list, shares each director had on deposit,⁶ a list of securities issued in the last two years, names of the underwriters and fees paid them, and detailed explanations of the fees paid to promoters, among other things, every time they wanted to issue shares. A copy of the prospectus, dated and signed, had to be deposited at the local registry before the securities could be issued.⁷

It is unclear whether requirements for disclosing information about companies and company promoters were influenced by legal tradition. The United States had no disclosure requirement for corporations across the board. In fact, financial disclosure was not mandatory at the New York Stock Exchange until 1895 (Hannah, 2007b, pp. 15–17) and there were no mandatory disclosure requirements for prospectuses in other exchanges or for general issues of shares or bonds. Requirements for disclosure were not as strict in French civil law countries as in England, but new issues of shares or bonds required the publication of balance sheets, complete shareholder lists, names of the directors, and other information that varied by country. For instance, in France after 1907 the law mandated the publication of balance sheets, shareholder lists, and a complete list of the company's debts and bonds in the *Journal Officiel* (Wellhoff, 1917, p.27). In other places (such as Brazil since 1891) the law mandated that “the prospectus for a new share issue should have names of the company founders, a detailed explanation of the contracts with the bankers or financiers involved in the operation, and the amounts that company was paying to these intermediaries in the form of commissions or fees. More importantly, the prospectus had to be accompanied by a copy of the company statutes after their publication in a newspaper of wide circulation” (Musacchio, 2007, pp. 13–14). Italy

⁶ It was common circa 1900 to ask directors to own shares and deposit them at the company during their tenure. This served to align the directors' incentives and constituted a sort of “guarantee deposit” in the event a director committed fraud. For examples of how these deposits operated in England, see Hannah (2007b).

⁷ A detailed description of the disclosure requirements for new issues in England can be found in Wellhoff (1917, pp. 20–24).

required as well the disclosure of the fees paid to founders. In contrast, countries such as Egypt had no provisions regulating the publication of a prospectus (Wellhoff, 1917, p. 20).

In German civil law countries, the evidence is mixed, too. In Germany, the law of 1896, which regulated the operation of the stock exchanges, required that to have its shares admitted to quotation a company had to publish a prospectus that included all of the provisions required by English law (Wellhoff, 1917, p. 25). The Chinese legislation followed the German model and demanded detailed information about the promoters of a company and the company itself. For instance, it literally required details on “whether or not the organizers obtain any extra profits or have been promised such advantage by others” as well as about the “sort of financial agreement with others have been entered into beforehand by the Organizers in order to establish the Company” and provided clear bright-line rules about the fees and penalties for company promoters who committed any fraud against investors (Williams, 1905). But in other German civil law countries, the requirements for prospectuses were less strict. Franks, Mayer, and Miyajima (2007) found in Japan there were no requirements to publish a prospectus. In sum, there was no clear lead in terms of disclosure requirements at the time of new share or bond issues, and significant variation in level and requirements by country.

Disclosure of information was not the only way shareholders were protected from the abuses of managers or corporate insiders at the turn of the twentieth century. Many large corporations gained investors’ trust by including in their charters bylaws that limited the power of large shareholders, for instance, by limiting the maximum number of votes per shareholder or by using graduated voting scales that gave shareholders fewer votes as their shareholdings increased. It is unclear whether legal tradition influenced the level of protection shareholders enjoyed because significant variation within legal families makes it difficult to sustain the persistence of effects hypothesis and the evidence, even if fragmentary, shows less differences across countries than one would expect from looking at the variation in these protections today. In England, for example, companies commonly included maximum vote provisions or graduated voting scales. According to Campbell and Turner (2007), in 1883, 43% of the 716 companies listed on the London Stock Exchange for which they have data incorporated graduated voting scales and 23% maximum vote provisions in their bylaws. In the aggregate, 52% of corporations had caps on voting, graduated voting schemes, or a combination thereof. The percentage of companies with graduated voting was even higher for railways (88%), banks

(59%), insurance companies (49%), and docks (67%). In banking, textiles, insurance, and canals, approximately 40% of companies had maximum vote provisions.

Yet, in the United States, although some companies used voting rights to protect small shareholders in the nineteenth century, abuses of the rights of minority shareholders were common and increased towards the turn of the twentieth century. Many of the protections afforded small investors during the first half of the nineteenth century were backed by state laws that incorporated specific voting or common-law provisions. Virginia, for example, mandated between 1849 and 1860 a graduated voting scale for all corporations (Dunlavy, 2004), and Massachusetts mandated a graduated voting scale for railways until the end of the nineteenth century (Dunlavy, 1998). But less regulated corporations such as manufacturing companies had ample leeway to include in their charters bylaws that would attract outside shareholders. Hilt (2007), for example, finds the use of graduated voting schemes and maximum votes to have been common in corporations chartered in New York in the early part of the nineteenth century, though he notes that “far more common were firms controlled by directors holding or controlling large numbers of shares” (p. 30).

By the 1880s, regulations mandating graduated voting in many of the most industrialized states of the United States had disappeared, most states beginning to mandate instead one-share, one-vote provisions (Dunlavy, 1998). Lamoreaux and Rosenthal (2006) find protection for minority shareholders to have been relatively weak during the late nineteenth and early twentieth centuries. Using an extensive set of court cases to show that directors and large shareholders “engaged in a variety of...actions from which they benefited at the expense of their associates,” they argue that private benefits of control for insiders were large and positive because “directors of corporations large and small frequently negotiated contracts with other companies in which they had a financial interest.” Even if bounded, these benefits were positive, and their “magnitude seems if anything to have increased” (p. 147) over time. But even if private benefits of control were positive, investors continued to buy equity in American corporations because, “to the extent that these large projects also yielded returns that were high relative to government bonds or other similar assets, the private benefits of control that majority shareholders were able to extract were more an annoyance than a serious deterrent to investors” (Lamoreaux and Rosenthal, 2006, p. 148).

In civil law countries, the evidence is also mixed. For some of the countries for which detailed information at the company level is available, maximum vote provisions and graduated voting scales are known to have been common. For instance, more than one fourth of the companies in Brazil circa 1910 had maximum vote provisions. In fact, Musacchio (2007) shows that companies with maximum vote provisions had significantly lower concentration of ownership and control than companies without such provisions, and that, thanks to the lower ownership concentration in those companies, average ownership concentration before 1910 was lower than for any period in the twentieth century. In the case of Chile, Islas Rojas (2007) demonstrates that, notwithstanding the lack of protections for shareholders in Chile's national laws, by the 1870s the Chilean stock market represented 17% of GDP (more than any other Latin American market at the time). Using all of the corporate charters issued in Chile from the 1850s to 1902, he shows that the majority of companies had relatively diffused ownership and strong firm-level protections for shareholders. Forty-five percent of the population of Chilean corporations chartered in the second half of the twentieth century had maximum vote provisions and nearly 10% graduated voting scales, and Islas Rojas estimates that most companies' bylaws included about four of the shareholder protections identified in Table 10. It is perhaps because of these protections that ownership dispersion was common in Chilean corporations during the latter part of the nineteenth century.

Miwa and Ramseyer (2000) show that in contrast to the concentrated ownership that characterizes Japanese companies today, the cotton industry in Japan between the 1880s and 1890s had diffused ownership, firms having, on average, 331 shareholders. "[T]he largest investors held about eight percent of the stock, the five largest together held 24 percent, and the 10 largest held 33 percent... [I]n no firm did the largest shareholder hold 50 percent or more of the stock, and in only three firms did a shareholder hold 20 percent" (Miwa and Ramseyer, 2000, p. 180). These corporations, according to the authors, attracted investors through charter provisions that aligned the incentives of managers with their firms (as by tying managerial pay to profits), by restricting managerial discretion "by charter and statute," and by hiring reputable industrialists to their boards of directors. For example, even though "the Commercial Code provided a one-share-one-vote default rule, firms could legally reduce the voting power of the largest shareholders" (Miwa and Ramseyer, 2000, pp. 198-199) by, for example, adopting graduated voting scales. Miwa and Ramseyer estimate that before 1893, 112 out of 134

companies used some form of voting rights to restrict the power of large shareholders. This number decreased after 1893, but still 20% of companies used graduated voting between 1893 and 1900. Finally, companies hired reputable industrialists to monitor their managers, knowing that their reputations were too valuable to them for these distinguished gentlemen to do a poor job. This last finding has been confirmed by Franks, Mayer, and Miyajima (2007), who argue that one way in which new corporations gained the trust of investors was by including among their founders either prominent industrialists or experienced and reputable investors.

In Germany, the combination of strong laws mandating disclosure and actions of bankers on the boards of directors of large corporations helped to uphold the rights of minority shareholders. According to Franks, Mayer, and Wagner (2006), ownership concentration around 1890 was at its lowest point until after 1950. Although the precise nature of the provisions included in corporate charters to protect shareholders is not known, the literature that studies corporate governance in Germany claims that corporations were motivated by the intermediation of universal banks to respect the interests of small shareholders. “[S]ince banks acted as custodians of minority investors shares, they could also in principle encourage firms to uphold minority shareholders as well as their own interests” (Franks, Mayer, and Wagner, 2006, p. 582). According to O’Sullivan (2000, p. 237), to attract investors “the banks encouraged industrial companies to maintain stable dividends.” Banks became custodians not only because accountholders wanted to purchase securities, but also because accountholders could buy and sell securities with other accountholders at the same bank without incurring the turnover tax imposed on exchange transactions in the market after 1894 (Fohlin, 2007). With the shares they had in custody, banks accumulated enough power to select directors and steer the direction of corporations to their benefit and that of their accountholders (Fohlin, 2007; Fear and Kobrak, 2007).

This does not imply that all firms in either common or civil law countries provided better shareholder protections or that ownership concentration was lower in countries that embraced any particular legal tradition. But it does question one channel through which we expect legal origin to determine clear differences across countries, namely investor protections. Perhaps the fact that most countries had weak protections in national laws did not operate in the same way in practices. For example, using ownership concentration in a country as a reflection of how protected are small shareholders from the abuses of managers and insiders,

LLS (1999) find systematic differences in the concentration of ownership and control in the largest companies of the world according to the legal tradition of their home country. They find that ownership dispersion is higher in common law countries, again with French civil law countries exhibiting the highest concentration of ownership in the world.

The evidence of ownership concentration does not allow us to make bold statements about the differences in ownership concentration in civil and common law countries. For instance, Aganin and Volpin (2006) find in Italy before 1940 lower ownership concentration than during most of the twentieth century. Musacchio (2007) and Islas Rojas (2007) also find lower concentration of ownership in Brazil and Chile circa 1900 than today. And although France today has highly concentrated ownership, Hannah (2007a) argues that circa 1900, in sectors such as "railways, financials, and the Suez Canal," there was widespread ownership dispersion (other sectors such as industrials exhibiting more concentrated ownership). Government guarantees in the French railway sector also help to explain why investors participated actively in the ownership of these large enterprises. Cohen (2007, p. 7) defends the idea that shareholders participated actively in the ownership of railways because shares "always carried government guarantees on their dividends, interest, and amortization, which insulated them from economic volatility." In French commercial and government-supported banks, share ownership was also widely dispersed, as was the case in *Crédit Foncier*, which had "39,510 shareholders as early as 1900," with an average holding of "eight and a half shares" (Hannah, 2007a, p. 17).

Common law countries such as the United States had the opposite experience. Whereas today we find wide ownership dispersion in most large publicly traded corporations, in the past ownership concentration seems to have been the rule rather than the exception. Lipartito and Morii (2007) maintain that the separation of ownership and control observed by Berle and Means (1932) in the early 1930s was not as pronounced as those researchers thought. Using data on the concentration of ownership in the 200 largest U.S. corporations, Lipartito and Morii make the case that the norm was concentrated ownership and almost no separation of ownership and control. Hannah (2007a) found tight ownership of controlling blocks in large corporations more common in the United States than in Europe circa 1900, especially among banking, insurance, mining, and industrial companies. Brecht and DeLong (2006) find the regulation of stock market activity and ownership dispersion that characterize American corporations today to be in sharp

contrast with the past, noting that “before 1900 America did not lack for powerful family groups, for parent companies, or for financial intermediaries that aggressively embraced the role of monitoring and supervising corporate managers” (p. 614).

In the case of Britain, too, it would be difficult to conclude that concentrated or diffused ownership prevailed. It would be safer to say that ownership took, as in French civil law countries, two distinct forms: family or tightly held, and widely held. Campbell and Turner (2007) observe that “many of the publicly-traded companies in late Victorian Britain had diffused ownership. In particular, banks and railways....” Banks tended to exhibit less concentrated ownership because some limited the proportion of equity that could be held by a single shareholder. Campbell and Turner (2007, pp. 4–5) report that “shareholder constituencies exceeding 1,000 were typical in the following sectors: docks, gas, water, telegraph, and shipping,” but that despite evidence of diffused ownership in many companies in these sectors, “it is believed that many commercial and industrial publicly-traded companies in Victorian Britain had concentrated ownership.” Franks, Mayer, and Rossi’s (2004, 2006) research reveals family ownership to have been far more common in England at the turn of the twentieth century than today, and concentrated ownership to have been more common then as well.

The evidence on investor protections and disclosure requirements across countries at the turn of the twentieth century thus does not allow us to draw clear lines separating along the lines of legal families the degree to which investors were protected in the past. The fragmentary evidence on ownership concentration also does not allow us to distinguish countries or legal families according to corporate governance practices, as is done today. For instance, La Porta, Lopez-de-Silanes, and Shleifer (1999) find a clear separation between common law and French civil law countries (and civil law countries in general) with respect to concentration of ownership, something that would have been nearly impossible to do circa 1900 when common law countries had high ownership concentration and some civil law countries had lower ownership concentration. This evidence is still preliminary, but as more research is done on the history of corporate governance practices and financial development around the world, the evidence points more and more towards relative convergence rather than divergence across countries.

From Convergence to Divergence in the Twentieth Century

If the evidence presented on investor protections in the past points in the direction of relative convergence or not so clear differences across countries, then it must be the case that most of the divergence took place in the twentieth century. Some countries embraced weak shareholder and creditor protections, concentrated ownership, business groups, and industrial concentration, others restricted ownership concentration and regulated the actions of powerful market participants such as large shareholders, managers, and investment bankers (La Porta, Lopez-de-Silanes, and Shleifer, 1999; Khanna and Yafeh, 2007). In the United States, after the government eliminated the power of investment bankers to “regulate” the financial market (because of the excessive concentration of power and poor results after the crash of 1929), the Securities and Exchange Commission was established and a strong mandate to protect small investors permeated the ideology of regulators and judges thereafter. In other countries such as Brazil, Canada, and India, and most countries in continental Europe, government action, new regulations, and changes in taxation led to concentrated ownership, large conglomerates dominating the corporate landscape, and somewhat concentrated markets for manufactures and some services (Morck, Percy, Tian, and Yeung, 2006; Khanna and Palepu, 2006; Rajan and Zingales, 2003; Pagano and Volpin, 2005).

What explains, then, the divergence in financial development in the twentieth century? According to Rajan and Zingales (2003), much of the development of stock markets observed worldwide in 1913 was reversed in the course of the century, recovering (especially in civil law countries) only at the end of the 1990s. Analyzing this “great reversal,” Rajan and Zingales observe that the reduction in capital and trade flows after WWI (especially in the 1930s) affected the development of financial markets and changed the incentives of domestic industrialists. In their interpretation of events, industrialists promoted the initial development of markets to finance the expansion of their operations in the face of the intense international competition that prevailed before World War I. But once they had become well established and international competition had become less intense, further development of credit and stock markets that facilitated entry by new competitors did not hold great appeal for them. Rajan and Zingales view the Great Depression as a key inflexion point because it generated a coordinated effort by governments worldwide to restrict capital flows and increase tariffs. In this scenario, labor and industrialists welcomed self-sufficiency. The latter lobbied for government policies that would

limit financial development, preferring a growth strategy whereby the source of corporate financing shifted largely from the stock markets to government subsidized loans.

Other recent works have developed theoretical models that add an important nuance to the stylized model of Rajan and Zingales (2003). According to Perotti and von Thadden (2006), it was the reaction to the inflationary shock of the 1920s that caused the asymmetries observed today in investor protections and financial development, the intuition of their model being that the inflationary shock affected countries asymmetrically. In countries in which the median voter held equity and there was no strong inflationary shock, voters demanded improved regulation and strengthening of the control rights of dispersed equity holders. In countries in which the inflationary shock drastically reduced the financial holdings of the median voter, voters demanded that their labor income be protected, even at the expense of protections for outside shareholders. Albeit a highly stylized picture of what happened after WWI, this model suggests that post-war inflation eroded financial wealth and generated support for governance and regulation less concerned with protecting investors than with protecting labor, as reflected in bankruptcy laws that favored incumbent entrepreneurs and labor over creditors and a corporate governance system that emphasized stability even if it implied concentrated ownership, greater dependence on bank credit, and an important role for the government as an owner and controller of corporations. This view is rather convincing, but empirical tests to date have not been done with financial development indicators. Perotti and Schwiabacher (2007) develop such a test to explain the differences in pension funding schemes across countries, but they do not look at financial development.

Recently, some papers have tried to link the current divergence in corporate governance across countries to differences in electoral systems. For instance, Pagano and Volpin (2005) argue that differences in shareholder protections in OECD countries can be explained by differences in their electoral systems. In proportional electoral systems, in which winning a majority of votes is crucial for competing parties, parties shape their platforms to the interests of large cohesive groups such as entrepreneurs and labor, thus favoring low investor protections and high labor protections. On the other hand, in majoritarian electoral systems in which the winner needs to win more districts, parties cater to the pivotal group, which could be the group of equity and bondholders (i.e., rentiers and unemployed and self-employed workers). The winning platform in this scenario is thus greater investor and lesser labor protections. As

powerful as this can be in explaining the differences in OECD countries, because many of the changes in corporate governance after the 1930s took place under authoritarian regimes (e.g., under Mussolini in Italy, Hitler in Germany, Vargas in Brazil, and others), we need an explanation that goes beyond electoral systems.

Roe (2003) tried to explain differences in corporate governance in OECD countries using ideology (or how social democratic a country is), the idea being that concentrated ownership is a response not only to agency problems between owners and managers, but also a reaction to the conflict between labor and the corporation. In societies in which labor has more power in the political system and in the system of corporate governance, concentrated ownership and less distance between principals and agents helped to mitigate conflicts between management and labor.

Gourevitch and Shinn (2005) try to explain the divergence in corporate governance using a political model that applies to countries with different political regimes including authoritarian countries. For them, what matters is how in different countries in the twentieth century the preferences of owners, managers, and labor changed and shaped regulation to protect shareholders. In societies in which owners and workers were in conflict with managers, protections for shareholders are stronger and ownership is less concentrated. Yet, they argue that beyond shareholder protections there is, in some countries, greater coordination among individuals and groups (more “degrees of coordination”) that led to more concentrated ownership, greater reliance on bank credit, and strong state intervention.⁸ These authors, together with Rajan and Zingales (2003), Roe (2003), Pagano and Volpin (2005), and Perotti and von Thadden (2006), agree that if shareholder protections in national laws are the product of politics, to comprehend the divergence in investor protections and corporate governance regimes across countries we need to understand the political process and the shocks that caused a change in preferences as well as the interaction of politics and legal origins.

Conclusions

The evidence presented in this paper reveals three things. First, the data on financial development across countries in the first part of the twentieth century does not provide strong

⁸ See Peter A. Gourevitch and James Shinn, *Political Power & Corporate Control: The New Global Politics of Corporate Governance*, Princeton, N.J. and Oxford: Princeton University Press, 2005. Their argument is summarized on pp. 10-11 and 277-278.

support for the persistence of effects of legal tradition hypothesis. That is, the significant differences observed today in financial development across legal traditions and legal families are not so clear when cross-sections in the past are examined. Neither the data on stock market capitalization to GDP, private credit to GDP, number of companies traded per million people, or bond market capitalization yield robust results to support the idea that there are clear differences in financial development across legal families. The only evidence that supports the persistence of effects hypothesis is associated with a rather unconventional measure of financial development, specifically, data on deposits per capita, which show common law countries to have had larger banking systems than countries that belonged to other legal families. Even if common law countries had larger financial markets according to some indicators, it is not clear they dominated in all of them.

Second, whereas the law and finance literature argues that the differences observed in credit market development today are largely a product of clear differences in creditor protections contained in national laws (LLSV, 1998; Djankov, McLeish, and Shleifer, 2007), circa 1910 we find convergence in the extent of creditor protections included in the bankruptcy laws of common and French civil law countries. The evidence on creditor rights thus does not support the persistence of effects hypothesis, but does support the idea of relative convergence in financial development across countries.

Third, the evidence on shareholder rights at the turn of the twentieth century also shows that in most countries for which we have data, investor protections included in national company laws were weak. That is, there was convergence on weak shareholder rights in national laws across countries. The evidence makes it hard to discern clear differences in the level of investor protections by country because investors were protected from the abuses of managers and company insiders in the bylaws of many, but not all, of the largest corporations and through the actions of investment and universal banks. For instance, we find in countries belonging to all legal families companies that limited the power of large shareholders through the use of maximum vote provisions and graduated voting scales. But no legal family seems to have provided a specific set of rights that were unmatched in countries that belonged to other legal families.

Thus, the evidence suggests that we do not have a clear idea on whether there were significant differences in financial development among countries of the different legal families.

Yet, investor protections and disclosure requirements at the time of the initial public offering, which are the main channels through which the literature assumes the systematic differences in financial development are generated, do not seem to have been that different across countries in the past. Perhaps that these investor protections are not the actual channel through which legal origin is related to financial development.

Now, obviously because the sample presented here is rather small, one could object to some of the implications of the findings of this paper. But it is not clear what the inclusion of other countries (mostly poor) would imply. Just because the sample includes mostly rich countries and the richest of the then “emerging” economies, does that imply that we find no differences in financial development because the sample excludes poor countries? Is it then the case that legal origins have more perverse effects in those countries? If this is the case, then the theory that links legal origin to financial development needs to be expanded or revised to explain how the effects of legal traditions manifest themselves more clearly in poor economies. Perhaps there is an interaction effect with income that has not been taken into account.

Furthermore, the findings of this paper do not imply that legal origin cannot be a significant explanatory variable of the differences observed in financial development today. Instead, they suggest a need for more research into how shocks of the twentieth century such as the inflationary shock after WWI and the Great Depression triggered a political process that led to state intervention and regulation, which ended up making legal origin matter more. Perhaps the divergence in financial development and investor protections in countries of different legal origins is related to the fact that in French civil law countries the lawmaking process is highly centralized, rendering it more easily captured by interest groups. In contrast, in common law countries judges have an easier time adapting the statutes and guaranteeing that the rules that work best in practice end up prevailing (Glaeser and Shleifer, 2002; Beck, Demirgüç-Kunt, and Levine, 2003a). Even if this is the case, the starting point for this adaptation process was not hundreds of years ago (when legal systems were introduced), but only a few decades ago, and, in any case, the effects of legal origin manifested themselves in the institutions that sustain financial development only after the political economy of these countries digested the shocks of the early part of the twentieth century. But even if this is the case and legal origin matters, we need a better explanation of why Canada and India ended up with concentrated ownership and weak investor protections whereas the United Kingdom and United States ended up with

ownership concentration and strong shareholder rights. Perhaps there are missing variables that need to be taken into account. For instance, Roe and Siegel (2007) find econometric evidence that in countries with more political instability financial markets are smaller, no matter their legal origin. In fact, after controlling for political instability, they find that the effects of legal origin in most of their regressions disappear.

References

- Acemoglu, Daron, Simon Johnson and James Robinson. 2001. "The Colonial Origins of Comparative Development: An Empirical Investigation." *American Economic Review* 91: 1369-1401.
- Acemoglu, Daron, Simon Johnson, and James Robinson. 2005. "The Rise of Europe: Atlantic Trade, Institutional Change and Economic Growth." *American Economic Review* 95 (2005): 546-579.
- Aganin, Alexander and Paolo Volpin. 2006. "The History of Corporate Ownership in Italy." In Randall Morck (ed.) *A History of Corporate Governance Around the World: Family Business Groups to Professional Managers*. Chicago and London, University of Chicago Press and NBER.
- Argentine Yearbook 1902*. Buenos Aires: J. Grant & Son, 1902.
- Argentine Yearbook 1914*. Buenos Aires: J. Grant & Son, 1914.
- Banerjee, Abhijit and Lakshmi Iyer. "History, Institutions and Economic Performance: The Legacy of Colonial Land Tenure Systems in India." *American Economic Review* 95, no. 4 (September 2005): 1190-1213.
- Beck, Thorsten, Asli Demirgüç-Kunt, and Ross Levine. 2003a. "Law and Finance: Why Does Legal Origin Matter?" *Journal of Comparative Economics* 31: 653- 675.
- Beck, Thorsten, Asli Demirgüç-Kunt, and Ross Levine. 2003b. "Law, Endowments, and Finance." *Journal of Financial Economics* 70-2: 137-181.
- Berle, Adolf A. and Gardiner C. Means. 1932. *The Modern Corporation and Private Property*. New York: Hartcourt, Brace & World, Inc.
- Bértola, Luis. 1998. *El PIB de Uruguay 1870-1936 y otras estimaciones*. Montevideo, FCS-CSIC.
- Bolsa de Comercio de Buenos Aires. 1902. *Boletín de la Bolsa de Buenos Aires*.
- Bolsa de Comercio de Buenos Aires. 1913. *Boletín de la Bolsa de Buenos Aires*.
- Bordo, Michael, Michael J. Dueker, and David C. Wheelock. 2007. "Monetary Policy and Stock Market Booms and Busts in the 20th Century." Federal Reserve Bank of St. Louis Working Paper 2007-020A.
- Bordo, Michael and Hugh Rockoff. 1996. "The Gold Standard as a 'Good Housekeeping seal of Approval'." *Journal of Economic History* 56-2: 389-428.
- Bordo, Michael and Peter Rousseau. 2006. "Legal-political factors and the historical evolution of the finance-growth link." *European Review of Economic History* 10: 421-444.
- Botero, Juan, Simeon Djankov, Rafael La Porta, Florencio Lopez de Silanes, and Andrei Shleifer. 2004. "The Regulation of Labor." *The Quarterly Journal of Economics* 119-4: 1339-1382.
- Bozio, Antoine. "La Capitalization Boursière en France au Xxe Siècle." Unpublished masters' thesis, Ecole Normale Supérieure, ENSAE, Ecole Polytechnique, 2002.
- Braun, Juan, Matias Braun, Ignacio Briones, José Díaz, Rolf Lüders, and Gert Wagner. 2000. "Economía Chilena 1810-1996." Pontificia Universidad Católica de Chile, Instituto de Economía, Working Paper 187.
- Brecht, Marco and Bradford DeLong. 2006. "Why Has There Been So Little Block Holding in America?" In Randall Morck (ed.) *A History of Corporate Governance Around the World: Family Business Groups to Professional Managers*. Chicago and London, University of Chicago Press and NBER.
- Brown, Richard. 1900. "Comparative Legislation in Bankruptcy." *Journal of the Society of Comparative Legislation* 2: 251-270.
- Campbell, Gareth and John D. Turner. 2007. "Protecting Outside Investors in a Laissez-faire Legal Environment: Corporate Governance in Victorian Britain." Paper presented at the Business History Conference, Cleveland, June.
- Carlos, Anne and Frank D. Lewis. 1995. "International Financing of Canadian Railroads: The Role of Information." In Michael Bordo and Richard Sylla (eds.) *Anglo-American Finance: Financial Institutions and Markets in the Twentieth Century*. New York and Burr Ridge, Ill.: New York University Press and Irwin Press, pp. 383-414.
- Carosso, Vincent P. 1970. *Investment Banking in America, A History*. Cambridge, Mass.: Harvard University Press.

- Cohen, Jim. 2007. "Divergent Paths: How Capital Market Development Affected Differentiation in Transportation Structures, U.S. and France, 1840–1940." Paper presented at Financer le Entreprises face aux Mutations Économiques do XX Siècle, Institut de la Gestion Publique et du Développement Économique, Paris, France, March.
- Crouchley, Arthur Edwin. 1977. *Investment of Foreign Capital in Egyptian Companies and Public Debt*. New York: Arno Press.
- Davis, Lance E. and Robert E. Gallman. 2001. *Evolving Financial Markets and International Capital Flows: Britain, the Americas, and Australia, 1865-1914*. Cambridge and New York: Cambridge University Press.
- De Jong, Abe and Ailsa Röell. 2006. "Financing and Control in the Netherlands: A Historical Perspective." In Randall Morck (ed.) *A History of Corporate Governance Around the World: Family Business Groups to Professional Managers*. Chicago and London, University of Chicago Press and NBER.
- DeLong, Bradford. 1991. "Did J.P. Morgan's Men Add Value? An Economist's Perspective on Financial Capitalism." In Peter Temin (ed.) *Inside the Business Enterprise: Historical Perspectives on the Use of Information*. Chicago: University of Chicago Press, pp. 205-250.
- Denmark, Det Statistiske Department, *Statistik Årbog*, various years.
- Deutsche Bundesbank. 1976. *Deutsches Geld- und Bankwesen in Zahlen 1873-1975*. Deutsche Bundesbank: Frankfurt A.M.
- Dimson, Elroy, Paul Marsh, and Mike Staunton. 2002. *The Triumph of the Optimists: 101 Years of Global Investment Returns*. Princeton, N.J. and Oxford, U.K.: Princeton University Press.
- Djankov, Simeon, Caralee McLiesh, and Andrei Shleifer. 2007. "Private Credit in 129 Countries." *Journal of Financial Economics* 84: 299–329.
- Djankov, Simeon, Rafael La Porta, Florencio Lopez de Silanes, and Andrei Shleifer. 2002. "The Regulation of Entry." *The Quarterly Journal of Economics* 117-1: 1-37.
- Drummond, Ian M. "Capital Markets in Australia and Canada, 1895-1914." Unpublished Ph.D. dissertation, Yale University, Conn., 1959.
- Dunlavy, Colleen. 1998. "Corporate Governance in Late 19th-Century Europe and the U.S.: The Case of Shareholder Voting Rights." In Klaus J. Hopt et al. (eds.) *Corporate Governance: The State of the Art of Emerging Research*. Oxford: Clarendon Press, pp. 5–39.
- Dunlavy, Colleen. 2004. "From Citizens to Plutocrats: 19th-Century Shareholder Voting Rights and Theories of the Corporation." In Kenneth Lipartito and David B. Sicilia (eds.) *Constructing Corporate America: History, Politics, Culture*. Oxford: Oxford University Press.
- Eitrheim, Øyvind, Jan T. Klovland and Jan F. Qvigstad. 2004. "Historical Monetary Statistics for Norway 1819-2003." Norges Bank Occasional Papers No 35.
- Fear, Jeffrey and Christopher Kobrak. 2007. "Banks on Board: Banks in German and American Corporate Governance, 1870-1914." Mimeo, Harvard Business School and European School of Management, May.
- Fohlin, Caroline. 2007. "Does Civil Law Tradition and Universal Banking Crowd Out Securities Markets? Pre-World War I Germany as a Counter-Example." *Enterprise & Society* 8-3: 602–641.
- Franks, Julian, Colin Mayer, and Hannes F. Wagner. 2006. "The Origins of the German Corporation – Finance, Ownership and Control." *Review of Finance* 10-4.
- Franks, Julian, Colin Mayer, and Hideaki Miyajima. 2007. "Evolution of Ownership: The Curious Case of Japan." Mimeo, Waseda University.
- Franks, Julian, Colin Mayer, and Stefano Rossi. 2004. "Ownership: Evolution and Regulation." Institute of Finance and Accounting Working Paper FIN 401, London Business School.
- Franks, Julian, Colin Mayer, and Stefano Rossi. 2006. "Spending Less Time with the Family: The Decline of Family Ownership in the UK." In Randall Morck (ed.) *A History of Corporate Governance Around the World: Family Business Groups to Professional Managers*. Chicago and London, University of Chicago Press and NBER.
- Glaeser, Edward and Andrei Shleifer. 2002. "Legal Origins." *The Quarterly Journal of Economics* 117-4: 1193-1230.

- Goetzmann, William and Elisabeth Koll. 2006. "The History of Corporate Ownership in China: State Patronage, State Legislation, and the Issue of Control." In Randall Morck (ed.), *A History of Corporate Governance Around the World: Family Business Groups to Professional Managers*. Chicago and London, University of Chicago Press and NBER, pp. 149-181.
- Goldsmith, Raymond W. 1985. *Comparative National Balance Sheets: A Study of Twenty Countries, 1688-1978*. Chicago and London: University of Chicago Press.
- Gourevitch, Peter A. and James Shinn. 2005. *Political Power & Corporate Control: The New Global Politics of Corporate Governance*. Princeton, N.J. and Oxford: Princeton University Press.
- Hannah, Leslie. 2007a. "The Divorce of Ownership From Control from 1900: Re-calibrating Imagined Global Historical Trends." CIRJE Discussion Papers, University of Tokyo, Japan, January.
- Hannah, Leslie. 2007b. "Pioneering Modern Corporate Governance: A View from London in 1900." CIRJE Discussion Papers, University of Tokyo, Japan, March.
- Hautcoeur, Pierre-Cyrille. 1994. "Le Marché Boursier et le Financement des Entreprises Françaises (1890-1939)." Unpublished Ph.D. dissertation, Université de Paris I Panthéon-Sorbonne.
- Hilt, Eric. 2007. "When Did Ownership Separate from Control? Corporate Governance in the Early Nineteenth Century." NBER Working Paper 13093.
- Islas Rojas, Gonzalo. 2007. "Does Regulation Matter? An Analysis of Corporate Charters in a Laissez-faire Environment." Mimeo, University of California Los Angeles, September.
- Jones, Matthew T. and Maurice Obstfeld. 2001. "Saving, Investment, and Gold: A Reassessment of Historical Current Account Data." In Guillermo A. Calvo, Rudi Dornbusch, and Maurice Obstfeld (eds.) *Money, Capital Mobility, and Trade: Essays in Honor of Robert Mundell*. Cambridge, Mass.: MIT Press, pp. 303-364.
- Khanna, Tarun and Krishna Palepu. 2004. "The Evolution of Concentrated Ownership in India: Broad Patterns and a History of the Indian Software Industry." In Randall Morck (ed.) *A History of Corporate Governance around the World: Family Business Groups to Professional Managers*. Chicago and London: University of Chicago Press and NBER, pp. 283-324.
- Khanna, Tarun and Yishay Yafeh. 2007. "Business Groups in Emerging Markets: Paragons or Parasites?" *Journal of Economic Literature* 45-2: 331-372.
- La Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer. 1999. "Corporate Ownership around the World." *Journal of Finance* 54-2: 471-517.
- La Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer. 2006. "What Works in Securities Laws?" *Journal of Finance* 61-1: 1-32.
- La Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer. 2008. "The Economic Consequences of Legal Origins." *Journal of Economic Literature* (forthcoming).
- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert Vishny. 1997. "Legal Determinants of External Finance." *Journal of Finance* 52-3: 1131-1150.
- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert Vishny. 1998. "Law and Finance." *Journal of Political Economy* 106-6: 1113-1155.
- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert Vishny. 2000. "Investor Protection and Corporate Governance." *Journal of Financial Economics* 58-1: 1-25
- Lamoreaux, Naomi and Jean-Laurent Rosenthal. 2006. "Corporate Governance and the Plight of Minority Shareholders in the United States before the Great Depression." In Edward Glaeser and Claudia Goldin (eds.) *Corruption and Reform*. Chicago: University of Chicago Press, pp. 125-152.
- Leacy, F. H. (ed.) 1983. *Historical Statistics of Canada*. Ottawa: Social Science Federation of Canada and Statistics Canada, available at <http://www.statcan.ca/english/freepub/11-516-XIE/sectiona/toc.htm>
- League of Nations. 1927. *International Statistical Yearbook 1926*. Geneva.
- League of Nations. 1930. *International Statistical Yearbook 1929*. Geneva.
- Levy-Leboyer, Maurice and François Bourguignon. 1985. *l'Economie Française au XIXe siècle: Analyse macro-économique, Economica*, Paris.
- Lipartito, Kenneth and Yumiko Morii. 2007. "Rethinking the Separation of Ownership from Management in American History." Mimeo, Johns Hopkins University.

- Maddison, Angus. 2003. *The World Economy: Historical Statistics*. Paris: OECD.
- Marc Flandreau and Frédéric Zumer. 2004. *The Making of Global Finance, 1880-1913*, OECD: Paris.
- Marshall, Monty G. and Keith Jagers. 2002. Polity IV Data Set. [Computer file; version v2004] College Park, Md.: Center for International Development and Conflict Management, University of Maryland.
- Maurer, Noel and Tridib Sharma. 2001. "Enforcing Property Rights through Reputation: Mexico's Early Industrialization, 1878-1913." *Journal of Economic History* 61 (December): 950-973
- Michèle Saint Marc. 1974. "Introduction aux Statistiques Monétaires et Financières Françaises (1807-1970)." *Revue Internationale d'Histoire de la Banque* 8.
- Michie, Randal C. 2006. *The Global Securities Markets: A History*. New York and Oxford: Oxford University Press.
- Miwa, Yoshiro and J. Mark Ramseyer. 2000. "Corporate Governance in Transitional Economies: Lessons from the Prewar Japanese Cotton Textile Industry." *Journal of Legal Studies* 29-1: 171-203.
- Moore, Lyndon. 2006. "The Effect of World War One on Stock Market Integration." Mimeo Victoria University of Wellington.
- Morck, Randall K., Michael Percy, Gloria Y. Tian, and Bernard Yeung. 2006. "The Rise and Fall of the Widely Held Firm: A History of Corporate Ownership in Canada." In Randall Morck (ed.) *A History of Corporate Governance Around the World: Family Business Groups to Professional Managers*. Chicago and London, University of Chicago Press and NBER.
- Moss, David. 2002. *When All Else Fails: Government as the Ultimate Risk Manager*. Cambridge, Mass. and London, England: Harvard University Press.
- Musacchio, Aldo. 2007. "Experiments in Financial Democracy: Corporate Governance and Financial Development in Brazil, 1882-1950." Unpublished book manuscript, Harvard Business School.
- Musacchio, Aldo. 2008. "Can Civil Law Countries Get Good Institutions? Lessons from the History of Creditor Rights and Bond Markets in Brazil." *Journal of Economic History* 68-1 (March).
- Nakamura, Leonardo and Carlos E. J. M. Zarazaga. 2003. "Banking and finance, 1900-1935." In Gerardo della Paolera and Alan Taylor (eds.) *A New Economic History of Argentina*. Cambridge and New York: Cambridge University Press, pp. 295-324.
- Neymarck, Alfred. 1901. *Congrès des Valeurs Mobilières*. 4 vols. Paris: Imprimerie Paul Dupont.
- Neymarck, Alfred. 1902. "La Statistique Internationale des Valeurs Mobilières." In *Bulletin de l'Institut International de Statistique*. Vol. XIV. Berlin: Imprimerie Julius Sittenfeld.
- Neymarck, Alfred. 1914. "La Statistique Internationale des Valeurs Mobilières." *Bulletin de l'Institut International de Statistique*. Vol. XIX. Vienna: Imprimerie Frederic Jaspers.
- Neymarck, Alfred. 1915. "La Statistique Internationale des Valeurs Mobilières." *Bulletin de l'Institut International de Statistique*. Vol. XX. Vienna: Imprimerie Frederic Jaspers.
- O'Sullivan, Mary. 2000. *Contests for Corporate Control: Corporate Governance and Economic Performance in the United States and Germany*. Oxford: Oxford University Press.
- O'Sullivan, Mary. 2007. "The Expansion of the U.S. Stock Market, 1885-1930: Historical Facts and Theoretical Fashions." *Enterprise & Society* 8: 489-542.
- Pagano, Marco and Paolo Volpin. 2005. "The Political Economy of Corporate Governance." *American Economic Review* 95-4: 1005-1030.
- Perotti, Enrico and Armin Schwienbacher. 2007. "The Political Origin of Pension Funding." Mimeo University of Amsterdam, March.
- Perotti, Enrico and Ernst-Ludwig von Thadden. 2006. "The Political Economy of Corporate Control and Labor Rents." *Journal of Political Economy* 114-1: 145-175.
- Petersen, Mitchell A. and Raghuram G. Rajan. 1994. "The Benefits of Lending Relationships: Evidence from Small Business Data." *Journal of Finance* 49-1: 3-37.
- Prados de la Escosura, Leandro. 2003. *El Progreso Económico de España 1850-2000*. Madrid, Fundación BBVA.
- Rajan, Raghuram and Luigi Zingales. 2003. "The Great Reversals: The Politics of Financial Development in the 20th Century." *Journal of Financial Economics* 69: 5-50.

- Roe, Mark and Jordan Siegel. 2007. "Political Instability and Financial Development." Mimeo, Harvard Law School and Harvard Business School, February.
- Roe, Mark J. 2003. *Political Determinants of Corporate Governance*. New York and Oxford: Oxford University Press.
- Sgard, Jérôme. 2006. "Do Legal Origins Matter? Bankruptcy Laws in Europe (1808-1914)." *European Review of Economic History* 10-3: 389-419.
- Sheppard, David K. 1971. *The Growth and Role of the UK Financial Institutions 1888-1962*. London: Methuen & Co.
- Siegel, Jordan. 2005. "Can Foreign Firms Bond Themselves Effectively by Renting U.S. Securities Laws?" *Journal of Financial Economics* 75-2: 319-359.
- Sylla, Richard. 2006. "Schumpeter Redux: A Review of Raghuram G. Rajan and Luigi Zingales's Saving Capitalism from the Capitalists." *Journal of Economic Literature* 44.
- Union of South Africa. Union Office of Census and Statistics. 1918. *Official Year Book of the Union of South Africa*, no. 2.
- Uruguay. 1917. *Anuario Estadístico de la Republica Oriental del Uruguay* 1915, Montevideo.
- Uruguay. Cámara Nacional de Comercio. Departamento de Estudios Económicos. "Historia Monetaria, Bancaria y del Mercado de Capitales del Uruguay." Mimeo, Montevideo, July 1983.
- Wellhoff, S. 1917. *Sociétés par Actions*. Alexandria: Société de Publications Égyptiennes.
- Williams, E. T. 1905. *Recent Chinese Legislation Relating to Commercial, Railway and Mining Enterprises*. Shanghai: Shanghai Mercury.
- Wood, E.R. *Review of the Bond Market in Canada...* Montreal: Dominion Securities Corporation, 1911-1914.

Appendix A. New Estimates of Stock Market Capitalization for the United Kingdom

I estimated stock market capitalization for the United Kingdom in 1895, 1900, 1913, and 1929 using all the quotations of the *Investor's Monthly Manual*. Because the location information for each company was not standard, it was often difficult to determine the best domicile code. As a rule, I used the company headquarters as the domicile according to the information of *Stock Exchange Official Intelligence*.⁹ If a company seemed to be based in a country other than Britain or outside the empire because of the *Stock Exchange Official Intelligence* chapter in which it appears (e.g., Foreign Railways) or because of the title (e.g., Moscow-Windau-Rybinsk Railway), and no headquarters or head office was listed, but instead a London agent, I coded this security as foreign. If there was no other indication of a domicile (no office or agent address or description of financial/managerial home), but there was a description such as “accounts submitted in London,” I coded the security as having the nationality of the location in which the accounts were submitted.¹⁰

There are three striking features of the estimates of stock and bond market capitalization to GDP for the United Kingdom presented in Table 10-2. First, looking *only* at domestic stocks listed in stock markets of the United Kingdom, it can be seen that stock market capitalization to GDP was between 34% and 44% of GDP between 1895 and 1913. Second, the United Kingdom had a relatively large bond market for domestic corporate bonds. Third, the largest share of listings in the U.K. stock markets were of bonds from countries outside the British Empire.

These findings explain why authors such as Sylla complained about the accuracy of the figures available for the United Kingdom. Stock markets in this nation seem to have been

⁹ All the information on headquarters is available at *The stock exchange official intelligence for ...* London: Spottiswoode, Ballantyne, 1899-1930. Using the headquarters as the main criteria to define nationality might overestimate the size of domestic issues in the United Kingdom, but this is not a problem as it biases upwards the estimate of average stock market capitalization for common law countries, thus going against my hypothesis of relative convergence across legal traditions circa 1913.

¹⁰ Most often, the location information came from the address of the company headquarters, which could have been a street name, city name, province name, or country name (or none of these). In cases in which provinces in Australia (e.g., New South Wales, Transvaal, or British Colombia), Canada, New Zealand, and South Africa were given as the location of the headquarters, I labeled them with the collective modern country name, and also coded them as part of the British Empire since their legal systems were extremely similar to those of the United Kingdom, and, according to Niall Ferguson, “they retained the monarch as head of state and their foreign and defense policies were emphatically not independent.” Niall Ferguson, personal correspondence with the author, July 31, 2007.

smaller than the literature assumes. The problem is not that bonds were added to the stock market capitalization figures, but that the cross-listings to the stock market capitalization of the United Kingdom were added, which would not be a problem if what was being studied was not the relationship between national laws and the development of domestic markets. Because this is precisely what I am studying, I use the average estimates for stock market capitalization that take only domestic firms into account.

Table A1 Estimates of Stock and Bond Market Capitalization, United Kingdom, 1895, 1900, 1913, 1929 (at Market Prices by Origin of Listing and as a % of GDP)

| | 1895 | 1900 | 1913 | 1929 |
|---------------------------------------------------------------------------|-------|-------|-------|-------|
| Lower bound estimates of stock market capitalization | | | | |
| Total stock market cap. | 33.8 | 55.9 | 33.9 | 100.6 |
| Domestic | 20.3 | 29.2 | 18.9 | 71.4 |
| British Empire | 7.0 | 11.4 | 4.5 | 20.1 |
| Other countries | 6.5 | 15.2 | 10.4 | 9.1 |
| Total corporate bonds | 418.7 | 436.4 | 762.9 | 163.3 |
| Domestic | 114.7 | 95.6 | 99.8 | 48.0 |
| British Empire | 87.7 | 117.8 | 253.9 | 29.6 |
| Other countries | 216.2 | 223.0 | 409.2 | 85.8 |
| Upper bound estimates of stock market capitalization | | | | |
| Total stock market cap. | 66.2 | 102.6 | 112.2 | 118.4 |
| Domestic | 47.6 | 58.3 | 47.3 | 86.3 |
| British Empire | 7.0 | 11.7 | 6.5 | 20.8 |
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| British Empire | 13.8 | 9.3 | 53.6 | 7.5 |
| Other countries | 82.7 | 100.4 | 205.8 | 27.3 |
| Average estimates for the United Kingdom (domestic companies only) | | | | |
| Stock market capitalization (avg.) | 34.0 | 43.7 | 33.1 | 78.8 |
| Stock of corporate bonds (avg.) | 101.1 | 81.1 | 85.6 | 40.5 |

Note: The lower bound estimation of stock market capitalization assumes that all the securities difficult to identify as stocks or bonds are bonds; the upper bound estimation assumes them to be stocks.

Source: Stock market capitalization is estimated using the capitalization and market prices from *Investor's Monthly Manual*, London, 1895, 1900, 1913, and 1929 (estimated as total listed capital, paid up, times the ratio of market price to par/face value). GDP figures used to normalize the stock market capitalization are from Jones and Obstfeld (2001).

Is there any way to know how far off these estimates are? Dimson, Marsh, and Staunton (2002, p. 23) estimate that the stock market capitalization of the London Stock Exchange at

market prices at the end of 1899 was \$4.3 billion dollars, or about 46% of GDP. This is quite close to my average estimate of stock market capitalization for the United Kingdom of 43.7% of GDP in 1900. Sheppard (1971) estimated the total market value of all private securities quoted in London in 1900 and 1913 at \$40 and \$54 billion dollars in 1900 and 1913, respectively, which is equivalent to 435% and 445% of GDP. The sum of my estimates for those years (bonds plus stocks) equals 278.9% and 443.1%, respectively. Although the 1900 estimate is lower in my case, our estimates for 1913 match up almost exactly.¹¹

¹¹ My estimates might be lower in 1900 because Sheppard's estimates were taken directly from the *The Stock Exchange Official Intelligence* at market prices. I estimate stock market capitalization from the *Investor's Monthly Manual (IMM)*, and in cases in which no last price is reported I use either the face value or paid up value per share. Because for many companies that did not report a price or face value in the *IMM*, the paid up value is smaller than the face value, it might be possible that I underestimated the value of some companies in 1900. But if this were the case, why would my estimates match those of Dimson et al.? For Sheppard's estimates, see Sheppard (1971), pp. 188–189.

Appendix B. Sources of Estimates of Stock Market Capitalization by Country

Unless noted, all estimates of stock market capitalization for 1913 are from Rajan and Zingales, "The Great Reversals: The Politics of Financial Development in the 20th Century," *Journal of Financial Economics* 69 (2003): 5-50, Table 3. Most of GDP data are from Matthew T. Jones and Maurice Obstfeld, "Saving, Investment, and Gold: A Reassessment of Historical Current Account Data," in Guillermo A. Calvo, Rudi Dornbusch, and Maurice Obstfeld (eds.) *Money, Capital Mobility, and Trade: Essays in Honor of Robert Mundell*, Cambridge, Mass.: MIT Press, 2001, pp. 303-364, unless explicitly noted.

| Country | Source |
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| Argentina | Stock market capitalization for 1900 is estimated using the <i>Argentine Yearbook 1902</i> , Buenos Aires: J. Grant & Son, 1902 (which has the paid up capital for companies traded domestically at the end of 1902), converted to market prices using the annual report of the Buenos Aires Stock Exchange from Bolsa de Comercio de Buenos Aires, <i>Boletín Oficial de la Bolsa de Comercio de Buenos Aires</i> , Buenos Aires, 1903. |
| Australia | Stock market capitalization to GDP for 1900 is from Leslie Hannah, "Why were African and European stock markets "better developed" than American and Asian ones in 1900?" presented at the Asia-Pacific Economic and Social History Meeting, Sydney, February 2007 (data are for Sydney only). |
| Austria | The estimate for 1900 is from Alfred Neymarck, "La Statistique Internationale des Valeurs Mobilières," in <i>Bulletin de l'Institute Internationale de Statistique</i> vols. XIV, 1903 (the data likely reflect the capitalization in 1901). GDP for Austria-Hungary is from Marc Flandreau and Frédéric Zumer, <i>The Making of Global Finance, 1880-1913</i> , OECD: Paris, 2004, Table 12. |
| Belgium | Stock market capitalization for 1900 is estimated using Raymond Goldsmith, <i>Comparative National Balance Sheets: A Study of Twenty Countries, 1688-1978</i> , Appendix A. |
| Brazil | For a complete description of methodology and sources, see Appendix 2A (Chapter 2). |
| Canada | Stock market capitalization for 1900 is from Raymond Goldsmith, <i>Comparative National Balance Sheets: A Study of Twenty Countries, 1688-1978</i> , Appendix A. |
| Chile | Stock market data are from Ignacio Briones, "Capital Market Development and Economic Performance: A General Overview of the Chilean Experience 1870 - 1995," paper presented at the European Historical Economics Society (EHES), Summer School, Trinity College, Ireland, 2001. Data for 1900 are actually for 1902. All GDP and exchange rate data are from Juan Braun, Matias Braun, Ignacio Briones, José Díaz, Rolf Lüders, and Gert Wagner, "Economía Chilena 1810-1996," Pontificia Universidad Católica de Chile, Instituto de Economía, Working Paper 187, January 2000, Sections I.I and IV.I.4. |
| Egypt | Data for 1902 and 1913 are from Arthur Edwin Crouchley, <i>Investment of Foreign Capital in Egyptian Companies and Public Debt</i> , New York: Arno Press, 1977, p. 152, and national income estimates are from Robert L. Tignor, <i>State, Private Enterprise, and Economic Change in Egypt, 1918-1952</i> , Princeton, N.J.: Princeton University Press, 1984, p. 25. |
| France | Stock market capitalization is from Antoine Bozio, "La Capitalization Boursière en France au XXe Siècle," unpublished masters' thesis, Ecole Normale Supérieure, ENSAE, Ecole Polytechnique, 2002. GDP is from Maurice Levy-Leboyer and François Bourguignon, <i>l'Economie Française au XIXe siècle: Analyse macro-économique, Economica</i> , Paris, 1985. |
| Germany | Stock market capitalization for 1900 is from Raymond Goldsmith, <i>Comparative National Balance Sheets: A Study of Twenty Countries, 1688-1978</i> , Appendix A. |
| Greece | Stock market capitalization is from Alfred Neymarck, "La Statistique Internationale des Valeurs Mobilières," in <i>Bulletin de l'Institute Internationale de Statistique</i> XIV, Book 2, 1903, pp. 312-313. GDP estimates are from Marc Flandreau and Frédéric Zumer, <i>The Making of Global Finance, 1880-1913</i> , Table 12. |
| India | Data for 1900 are from Raymond Goldsmith, <i>Comparative National Balance Sheets: A Study of Twenty Countries, 1688-1978</i> , Chicago and London: University of Chicago Press, 1985, Appendix A. |
| Italy | Stock market capitalization for 1900 is estimated using Raymond Goldsmith, <i>Comparative National Balance Sheets: A Study of Twenty Countries, 1688-1978</i> , Appendix A. |

| Country | Source |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Japan | Stock market capitalization for 1900 is from Raymond Goldsmith, <i>Comparative National Balance Sheets: A Study of Twenty Countries, 1688-1978</i> , Appendix A. GDP is from Global Financial Data. |
| South Africa | 1913 estimates represent the market capitalization of all stocks traded at the Johannesburg Stock Exchange and are from the database Lyndon Moore used for his paper, "The Effect of World War One on Stock Market Integration," mimeo Victoria University of Wellington, 2006. |
| Switzerland | Stock market capitalization for 1900 and 1913 is from Raymond Goldsmith, <i>Comparative National Balance Sheets: A Study of Twenty Countries, 1688-1978</i> , Appendix A. GDP and exchange rates are from Marc Flandreau and Frédéric Zumer, <i>The Making of Global Finance, 1880-1913</i> , OECD: Paris, 2004, Table 12. |
| United Kingdom | See Appendix A. |
| United States | Estimates for 1900 and 1913 are from Raymond Goldsmith, <i>Comparative National Balance Sheets: A Study of Twenty Countries, 1688-1978</i> , Appendix A, as suggested by Richard Sylla, "Schumpeter Redux: A Review of Raghuram G. Rajan and Luigi Zingales's <i>Saving Capitalism from the Capitalists</i> ." <i>Journal of Economic Literature</i> 44 (June 2006): 391-404. |
| Uruguay | For Uruguay, the estimates are from Uruguay, <i>Anuario Estadístico de la Republica Oriental del Uruguay 1915</i> , Montevideo 1917 (GDP estimates are from Luis Bértola, <i>El PIB de Uruguay 1870-1936 y otras estimaciones</i> . Montevideo, FCS-CSIC, 1998). |

Appendix C. Sources of Estimates of the Stock of Bonds by Country

Unless noted below, all estimates of the stock of bonds are from Goldsmith (1985) and all of the GDP estimates from Jones and Obstfeld (2001).

| Country | Source |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Argentina | I use the scant data on bonds quoted in Buenos Aires obtained from the <i>Boletín de la Bolsa de Buenos Aires</i> 1902 and 1913 and the <i>Argentine Yearbook</i> , 1902 and 1914. |
| Australia | 1895 and 1900 bond and GDP data for Australia are from Davis and Gallman, <i>Evolving Financial Markets</i> , Table 5, pp. 4-8 (1895 estimated using the 1889 data over 1895 GDP); 1913 data were estimated by adding the new issues of bonds in Australia from 1900 to 1913 from Drummond, <i>Capital Markets</i> , Table B, p. 293 (this is clearly an overestimate). |
| Austria | Data for 1900 are from Alfred Neymarck, <i>Congrès des Valeurs Mobilières</i> . 4 vols., Paris: Imprimerie Paul Dupont, 1915, Tome I, and for 1913 I used the 1912 estimate from Alfred Neymarck, "La Statistique Internationale des Valeurs Mobilières," <i>Bulletin de l'Institut International de Statistique</i> , Vol. XX, Tome II, Vienna: Imprimerie Frederic Jaspers, 1915. GDP for Austria-Hungary is from Marc Flandreau and Frédéric Zumer, <i>The Making of Global Finance, 1880-1913</i> , OECD: Paris, 2004, Table 12. |
| Belgium | Data for Belgium for 1895 and 1900 are based on estimates of Alfred Neymarck, <i>Congrès des Valeurs Mobilières</i> , 4 vols., Paris: Imprimerie Paul Dupont, 1915, Tome I; data for 1913 were kindly provided by Marc Deloof and Franz Bulens using the <i>SCOB Database</i> , University of Antwerp, Belgium. |
| Brazil | See Aldo Musacchio, <i>Experiments in Financial Democracy: Corporate Governance and Financial Development in Brazil, 1882-1950</i> , unpublished book manuscript, Harvard Business School, 2007, Appendix 2A. |
| Canada | 1913 figure uses 1912 estimate of the stock of bonds from E. R. Wood, <i>Review of the Bond Market in Canada...</i> Montreal: Dominion Securities Corporation, 1911-1914. |
| Egypt | Data for 1902 and 1913 are from Arthur Edwin Crouchley, <i>Investment of Foreign Capital in Egyptian Companies and Public Debt</i> , New York: Arno Press, 1977, p. 152, and national income estimates from Robert L. Tignor, <i>State, Private Enterprise, and Economic Change in Egypt, 1918-1952</i> , Princeton, N.J.: Princeton University Press, 1984, p. 25. |
| France | High boundary estimates for France are from Michèle Saint Marc, "Introduction aux Statistiques Monétaires et Financières Françaises (1807-1970)," <i>Revue Internationale d'Histoire de la Banque</i> 8 (1974), pp. 72-104 (this is an overestimate because it counts railway bonds with government guarantees and foreign railway bonds). The low boundary estimates are from Hautcoeur, "Le Marché" (includes bonds traded or registered in Paris, either at the <i>parquet</i> or the <i>coulisse</i> , and excludes French colonial companies, foreign companies, and companies with government guaranteed dividends or bonds). For most statistical analyses, I take the average of these two estimates. |
| Germany | All data are from Deutsche Bundesbank, <i>Deutsches Geld- und Bankwesen in Zahlen 1873-1975</i> , Deutsche Bundesbank: Frankfurt A.M., 1976, Table 1.01a. |
| Japan | Data for 1910 are from Alfred Neymarck, "La Statistique Internationale des Valeurs Mobilières," <i>Bulletin de l'Institut International de Statistique</i> , Vol. XIX, Vienna: Imprimerie Frederic Jaspers, 1914. |
| South Africa | For South Africa, the estimate of bonds for 1913 is from Union of South Africa, <i>Official Year Book</i> , No. 2, 1918, p. 729 (this is clearly an overestimate because it counts all bonds registered in South Africa; Lyndon Moore found no bonds traded on the Johannesburg Stock Exchange). |
| Spain | 1900 represents data from 1902 obtained from Alfred Neymarck, "La Statistique Internationale des Valeurs Mobilières," in <i>Bulletin de l'Institut International de Statistique</i> XIV, Book 2, 1903, p. 388; data for 1913 use the figure for 1911 obtained from vol. XX. GDP is from Leandro Prados de la Escosura, <i>El Progreso Económico de España 1850-2000</i> , Madrid, Fundación BBVA, 2003. |
| U. Kingdom | See Appendix A. |
| Uruguay | <i>Anuario Estadístico de la Republica Oriental del Uruguay</i> 1915, Montevideo 1917 (and GDP estimates from Bértola, <i>El PIB de Uruguay</i> , 1998). |

Appendix D The Leading Stock Exchanges in the World and the Representativeness of the Stock Exchange Data Used in the Paper

| Country | Main stock exchanges | In current sample 1900 or 1913 | | | |
|-------------------------------------|----------------------------------------------------------|--------------------------------|---------------|------------|----------|
| | | Exchanges in sample | Country count | In process | Missing |
| Common law (n=10) | | In sample or missing | 6 | 0 | 5 |
| Australia | Melbourne, Sydney, Wellington | All? | 1 | | |
| Burma | Rangoon | | | | 1 |
| Canada | Montreal, Toronto | All | 1 | | |
| Ceylon | Colombo | | | | 1 |
| India | Bombay, Calcutta | Bombay, Calcutta | 1 | | |
| Malaya | Singapore | | | | 1 |
| New Zealand | Wellington | | | | 1 |
| Rhodesia | Bulawayo | | | | 1 |
| South Africa | Johannesburg | Johannesburg | 1 | | |
| United Kingdom | London, Liverpool, etc. | All in <i>IMM</i> | 1 | | |
| USA | NYSE, Boston, Chicago, San Francisco, L.A., Philadelphia | All? | 1 | | |
| German civil law (n=6) | | In sample or missing | 4 | 1 | 1 |
| Austria-Hungary | Vienna, Budapest, Prague | Vienna | 1 | | |
| Bulgaria | Sofia | Sofia | | 1 | |
| Germany | Berlin, Frankfurt | All | 1 | | |
| Japan | Tokyo, Osaka, Yokohama | All? | 1 | | |
| Serbia ^a | Belgrade | | | | 1 |
| Switzerland | Geneva, Zurich | All? | 1 | | |
| Scandinavian civil law (n=4) | | In sample or missing | 3 | 2 | 1 |
| Denmark | Copenhagen | Copenhagen | 1 | | |
| Finland | Helsinki | | | | 1 |
| Norway | Oslo | Oslo | 1 | | |
| Sweden | Stockholm | Stockholm | 1 | | |
| Russian civil law (n=1) | | In sample or missing | | 1 | |
| Russia | St. Petersburg, Moscow | | | 1 | |

^a Most companies were traded on the Vienna Stock Exchange.

Appendix D. The Leading Stock Exchanges in the World circa 1913 and the Representativeness of the Sample Used in the Paper (continues).

| Country | Main stock exchanges | In current sample 1900 or 1913 | | | |
|-----------------------------|-------------------------------------|-----------------------------------|---------------|----------|-----------|
| | | Exchanges in sample | Country count | | |
| | | In sample or missing | 13 | 2 | 6 |
| Belgium | Brussels | Brussels | 1 | | |
| France | Paris, Lyon, Marseille | All | 1 | | |
| Greece | Athens | Athens | 1 | | |
| Italy | Milan, Genoa | Mostly Milan | 1 | | |
| Netherlands | Amsterdam | All | 1 | | |
| Portugal | Lisbon | | | | 1 |
| Rumania | Bucharest | | | | 1 |
| Spain | Madrid, Barcelona | All? | 1 | | |
| Egypt | Alexandria, Cairo | Alexandria | 1 | | |
| Morocco | Casablanca | | | | 1 |
| Mozambique | Beira | | | | 1 |
| Argentina | Buenos Aires | Buenos Aires | 1 | | |
| Brazil | Rio de Janeiro and São Paulo | Rio de Janeiro and São Paulo | 1 | | |
| Chile | Santiago and Valparaiso | Santiago and Valparaiso | 1 | | |
| Cuba | Havana | Havana | 1 | | |
| México | Mexico City, Monterrey, Guadalajara | | | | 1 |
| Perú | Lima | Lima | 1 | | |
| Uruguay | Montevideo | Montevideo | 1 | | |
| Venezuela | Caracas | | | | 1 |
| Indonesia | Batavia | | | | 1 |
| Turkey | Istanbul | | | | 1 |
| Total countries = 51 | | Total in sample or missing | 26 | 4 | 21 |

Source: Michie (2006), with some additions.

Appendix A. New Estimates of Stock Market Capitalization for the United Kingdom

I estimated stock market capitalization for the United Kingdom in 1895, 1900, 1913, and 1929 using all the quotations of the *Investor's Monthly Manual*. Because the location information for each company was not standard, it was often difficult to determine the best domicile code. As a rule, I used the company headquarters as the domicile according to the information of *Stock Exchange Official Intelligence*.⁹ If a company seemed to be based in a country other than Britain or outside the empire because of the *Stock Exchange Official Intelligence* chapter in which it appears (e.g., Foreign Railways) or because of the title (e.g., Moscow-Windau-Rybinsk Railway), and no headquarters or head office was listed, but instead a London agent, I coded this security as foreign. If there was no other indication of a domicile (no office or agent address or description of financial/managerial home), but there was a description such as “accounts submitted in London,” I coded the security as having the nationality of the location in which the accounts were submitted.¹⁰

There are three striking features of the estimates of stock and bond market capitalization to GDP for the United Kingdom presented in Table 10-2. First, looking *only* at domestic stocks listed in stock markets of the United Kingdom, it can be seen that stock market capitalization to GDP was between 34% and 44% of GDP between 1895 and 1913. Second, the United Kingdom had a relatively large bond market for domestic corporate bonds. Third, the largest share of listings in the U.K. stock markets were of bonds from countries outside the British Empire.

These findings explain why authors such as Sylla complained about the accuracy of the figures available for the United Kingdom. Stock markets in this nation seem to have been

⁹ All the information on headquarters is available at *The stock exchange official intelligence for ...* London: Spottiswoode, Ballantyne, 1899-1930. Using the headquarters as the main criteria to define nationality might overestimate the size of domestic issues in the United Kingdom, but this is not a problem as it biases upwards the estimate of average stock market capitalization for common law countries, thus going against my hypothesis of relative convergence across legal traditions circa 1913.

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smaller than the literature assumes. The problem is not that bonds were added to the stock market capitalization figures, but that the cross-listings to the stock market capitalization of the United Kingdom were added, which would not be a problem if what was being studied was not the relationship between national laws and the development of domestic markets. Because this is precisely what I am studying, I use the average estimates for stock market capitalization that take only domestic firms into account.

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| British Empire | 7.0 | 11.4 | 4.5 | 20.1 |
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| Stock market capitalization (avg.) | 34.0 | 43.7 | 33.1 | 78.8 |
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Is there any way to know how far off these estimates are? Dimson, Marsh, and Staunton (2002, p. 23) estimate that the stock market capitalization of the London Stock Exchange at

market prices at the end of 1899 was \$4.3 billion dollars, or about 46% of GDP. This is quite close to my average estimate of stock market capitalization for the United Kingdom of 43.7% of GDP in 1900. Sheppard (1971) estimated the total market value of all private securities quoted in London in 1900 and 1913 at \$40 and \$54 billion dollars in 1900 and 1913, respectively, which is equivalent to 435% and 445% of GDP. The sum of my estimates for those years (bonds plus stocks) equals 278.9% and 443.1%, respectively. Although the 1900 estimate is lower in my case, our estimates for 1913 match up almost exactly.¹¹

¹¹ My estimates might be lower in 1900 because Sheppard's estimates were taken directly from the *The Stock Exchange Official Intelligence* at market prices. I estimate stock market capitalization from the *Investor's Monthly Manual (IMM)*, and in cases in which no last price is reported I use either the face value or paid up value per share. Because for many companies that did not report a price or face value in the *IMM*, the paid up value is smaller than the face value, it might be possible that I underestimated the value of some companies in 1900. But if this were the case, why would my estimates match those of Dimson et al.? For Sheppard's estimates, see Sheppard (1971), pp. 188–189.

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| Country | Source |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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| Germany | Stock market capitalization for 1900 is from Raymond Goldsmith, <i>Comparative National Balance Sheets: A Study of Twenty Countries, 1688-1978</i> , Appendix A. |
| Greece | Stock market capitalization is from Alfred Neymarck, "La Statistique Internationale des Valeurs Mobilières," in <i>Bulletin de l'Institute International de Statistique</i> XIV, Book 2, 1903, pp. 312-313. GDP estimates are from Marc Flandreau and Frédéric Zumer, <i>The Making of Global Finance, 1880-1913</i> , Table 12. |
| India | Data for 1900 are from Raymond Goldsmith, <i>Comparative National Balance Sheets: A Study of Twenty Countries, 1688-1978</i> , Chicago and London: University of Chicago Press, 1985, Appendix A. |
| Italy | Stock market capitalization for 1900 is estimated using Raymond Goldsmith, <i>Comparative National Balance Sheets: A Study of Twenty Countries, 1688-1978</i> , Appendix A. |

| Country | Source |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Japan | Stock market capitalization for 1900 is from Raymond Goldsmith, <i>Comparative National Balance Sheets: A Study of Twenty Countries, 1688-1978</i> , Appendix A. GDP is from Global Financial Data. |
| South Africa | 1913 estimates represent the market capitalization of all stocks traded at the Johannesburg Stock Exchange and are from the database Lyndon Moore used for his paper, "The Effect of World War One on Stock Market Integration," mimeo Victoria University of Wellington, 2006. |
| Switzerland | Stock market capitalization for 1900 and 1913 is from Raymond Goldsmith, <i>Comparative National Balance Sheets: A Study of Twenty Countries, 1688-1978</i> , Appendix A. GDP and exchange rates are from Marc Flandreau and Frédéric Zumer, <i>The Making of Global Finance, 1880-1913</i> , OECD: Paris, 2004, Table 12. |
| United Kingdom | See Appendix A. |
| United States | Estimates for 1900 and 1913 are from Raymond Goldsmith, <i>Comparative National Balance Sheets: A Study of Twenty Countries, 1688-1978</i> , Appendix A, as suggested by Richard Sylla, "Schumpeter Redux: A Review of Raghuram G. Rajan and Luigi Zingales's <i>Saving Capitalism from the Capitalists</i> ." <i>Journal of Economic Literature</i> 44 (June 2006): 391-404. |
| Uruguay | For Uruguay, the estimates are from Uruguay, <i>Anuario Estadístico de la Republica Oriental del Uruguay 1915</i> , Montevideo 1917 (GDP estimates are from Luis Bértola, <i>El PIB de Uruguay 1870-1936 y otras estimaciones</i> . Montevideo, FCS-CSIC, 1998). |

Appendix C. Sources of Estimates of the Stock of Bonds by Country

Unless noted below, all estimates of the stock of bonds are from Goldsmith (1985) and all of the GDP estimates from Jones and Obstfeld (2001).

| Country | Source |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Argentina | I use the scant data on bonds quoted in Buenos Aires obtained from the <i>Boletín de la Bolsa de Buenos Aires</i> 1902 and 1913 and the <i>Argentine Yearbook</i> , 1902 and 1914. |
| Australia | 1895 and 1900 bond and GDP data for Australia are from Davis and Gallman, <i>Evolving Financial Markets</i> , Table 5, pp. 4-8 (1895 estimated using the 1889 data over 1895 GDP); 1913 data were estimated by adding the new issues of bonds in Australia from 1900 to 1913 from Drummond, <i>Capital Markets</i> , Table B, p. 293 (this is clearly an overestimate). |
| Austria | Data for 1900 are from Alfred Neymarck, <i>Congrès des Valeurs Mobilières</i> . 4 vols., Paris: Imprimerie Paul Dupont, 1915, Tome I, and for 1913 I used the 1912 estimate from Alfred Neymarck, "La Statistique Internationale des Valeurs Mobilières," <i>Bulletin de l'Institut International de Statistique</i> , Vol. XX, Tome II, Vienna: Imprimerie Frederic Jaspers, 1915. GDP for Austria-Hungary is from Marc Flandreau and Frédéric Zumer, <i>The Making of Global Finance, 1880-1913</i> , OECD: Paris, 2004, Table 12. |
| Belgium | Data for Belgium for 1895 and 1900 are based on estimates of Alfred Neymarck, <i>Congrès des Valeurs Mobilières</i> , 4 vols., Paris: Imprimerie Paul Dupont, 1915, Tome I; data for 1913 were kindly provided by Marc Deloof and Franz Bulens using the <i>SCOB Database</i> , University of Antwerp, Belgium. |
| Brazil | See Aldo Musacchio, <i>Experiments in Financial Democracy: Corporate Governance and Financial Development in Brazil, 1882-1950</i> , unpublished book manuscript, Harvard Business School, 2007, Appendix 2A. |
| Canada | 1913 figure uses 1912 estimate of the stock of bonds from E. R. Wood, <i>Review of the Bond Market in Canada...</i> Montreal: Dominion Securities Corporation, 1911-1914. |
| Egypt | Data for 1902 and 1913 are from Arthur Edwin Crouchley, <i>Investment of Foreign Capital in Egyptian Companies and Public Debt</i> , New York: Arno Press, 1977, p. 152, and national income estimates from Robert L. Tignor, <i>State, Private Enterprise, and Economic Change in Egypt, 1918-1952</i> , Princeton, N.J.: Princeton University Press, 1984, p. 25. |
| France | High boundary estimates for France are from Michèle Saint Marc, "Introduction aux Statistiques Monétaires et Financières Françaises (1807-1970)," <i>Revue Internationale d'Histoire de la Banque</i> 8 (1974), pp. 72-104 (this is an overestimate because it counts railway bonds with government guarantees and foreign railway bonds). The low boundary estimates are from Hautcoeur, "Le Marché" (includes bonds traded or registered in Paris, either at the <i>parquet</i> or the <i>coulisse</i> , and excludes French colonial companies, foreign companies, and companies with government guaranteed dividends or bonds). For most statistical analyses, I take the average of these two estimates. |
| Germany | All data are from Deutsche Bundesbank, <i>Deutsches Geld- und Bankwesen in Zahlen 1873-1975</i> , Deutsche Bundesbank: Frankfurt A.M., 1976, Table 1.01a. |
| Japan | Data for 1910 are from Alfred Neymarck, "La Statistique Internationale des Valeurs Mobilières," <i>Bulletin de l'Institut International de Statistique</i> , Vol. XIX, Vienna: Imprimerie Frederic Jaspers, 1914. |
| South Africa | For South Africa, the estimate of bonds for 1913 is from Union of South Africa, <i>Official Year Book</i> , No. 2, 1918, p. 729 (this is clearly an overestimate because it counts all bonds registered in South Africa; Lyndon Moore found no bonds traded on the Johannesburg Stock Exchange). |
| Spain | 1900 represents data from 1902 obtained from Alfred Neymarck, "La Statistique Internationale des Valeurs Mobilières," in <i>Bulletin de l'Institut International de Statistique</i> XIV, Book 2, 1903, p. 388; data for 1913 use the figure for 1911 obtained from vol. XX. GDP is from Leandro Prados de la Escosura, <i>El Progreso Económico de España 1850-2000</i> , Madrid, Fundación BBVA, 2003. |
| U. Kingdom | See Appendix A. |
| Uruguay | <i>Anuario Estadístico de la Republica Oriental del Uruguay</i> 1915, Montevideo 1917 (and GDP estimates from Bértola, <i>El PIB de Uruguay</i> , 1998). |

Appendix D The Leading Stock Exchanges in the World and the Representativeness of the Stock Exchange Data Used in the Paper

| Country | Main stock exchanges | In current sample 1900 or 1913 | | | |
|-------------------------------------|----------------------------------------------------------|--------------------------------|---------------|------------|----------|
| | | Exchanges in sample | Country count | In process | Missing |
| Common law (n=10) | | In sample or missing | 6 | 0 | 5 |
| Australia | Melbourne, Sydney, Wellington | All? | 1 | | |
| Burma | Rangoon | | | | 1 |
| Canada | Montreal, Toronto | All | 1 | | |
| Ceylon | Colombo | | | | 1 |
| India | Bombay, Calcutta | Bombay, Calcutta | 1 | | |
| Malaya | Singapore | | | | 1 |
| New Zealand | Wellington | | | | 1 |
| Rhodesia | Bulawayo | | | | 1 |
| South Africa | Johannesburg | Johannesburg | 1 | | |
| United Kingdom | London, Liverpool, etc. | All in <i>IMM</i> | 1 | | |
| USA | NYSE, Boston, Chicago, San Francisco, L.A., Philadelphia | All? | 1 | | |
| German civil law (n=6) | | In sample or missing | 4 | 1 | 1 |
| Austria-Hungary | Vienna, Budapest, Prague | Vienna | 1 | | |
| Bulgaria | Sofia | Sofia | | 1 | |
| Germany | Berlin, Frankfurt | All | 1 | | |
| Japan | Tokyo, Osaka, Yokohama | All? | 1 | | |
| Serbia ^a | Belgrade | | | | 1 |
| Switzerland | Geneva, Zurich | All? | 1 | | |
| Scandinavian civil law (n=4) | | In sample or missing | 3 | 2 | 1 |
| Denmark | Copenhagen | Copenhagen | 1 | | |
| Finland | Helsinki | | | | 1 |
| Norway | Oslo | Oslo | 1 | | |
| Sweden | Stockholm | Stockholm | 1 | | |
| Russian civil law (n=1) | | In sample or missing | | 1 | |
| Russia | St. Petersburg, Moscow | | | 1 | |

^a Most companies were traded on the Vienna Stock Exchange.

Appendix D. The Leading Stock Exchanges in the World circa 1913 and the Representativeness of the Sample Used in the Paper (continues).

| Country | Main stock exchanges | In current sample 1900 or 1913 | | | |
|--------------------------------|-------------------------------------|-----------------------------------|---------------|------------|-----------|
| | | Exchanges in sample | Country count | In process | Missing |
| French civil law (n=21) | | In sample or missing | 13 | 2 | 6 |
| Belgium | Brussels | Brussels | 1 | | |
| France | Paris, Lyon, Marseille | All | 1 | | |
| Greece | Athens | Athens | 1 | | |
| Italy | Milan, Genoa | Mostly Milan | 1 | | |
| Netherlands | Amsterdam | All | 1 | | |
| Portugal | Lisbon | | | | 1 |
| Rumania | Bucharest | | | | 1 |
| Spain | Madrid, Barcelona | All? | 1 | | |
| Egypt | Alexandria, Cairo | Alexandria | 1 | | |
| Morocco | Casablanca | | | | 1 |
| Mozambique | Beira | | | | 1 |
| Argentina | Buenos Aires | Buenos Aires | 1 | | |
| Brazil | Rio de Janeiro and São Paulo | Rio de Janeiro and São Paulo | 1 | | |
| Chile | Santiago and Valparaiso | Santiago and Valparaiso | 1 | | |
| Cuba | Havana | Havana | 1 | | |
| México | Mexico City, Monterrey, Guadalajara | | | 1 | |
| Perú | Lima | Lima | 1 | | |
| Uruguay | Montevideo | Montevideo | 1 | | |
| Venezuela | Caracas | | | | 1 |
| Indonesia | Batavia | | | | 1 |
| Turkey | Istanbul | | | 1 | |
| Total countries = 51 | | Total in sample or missing | 26 | 4 | 21 |

Source: Michie (2006), with some additions.

Table 1 Financial Development Indicators, 1900 and 1913

Panel A: Financial development indicators and means by legal family, 1900 and 1913

| | Stock Market Capitalization to GDP | | | | | Stock of bonds to GDP | | Private credit/GDP | Co.'s per million people |
|-------------------------------|------------------------------------|-------------|------------------------|---------------|---------------|-----------------------|---------------|--------------------|--------------------------|
| | Rajan and Zingales | | La Porta et al. (2008) | New Estimates | New Estimates | New Estimates | New Estimates | | |
| | 1999 | 1913 | 1913 | 1913 | 1900 | 1900 | 1913 | | |
| Common law | 1.30 | 0.53 | 0.64 | 0.44 | 0.36 | 0.36 | 0.27 | 0.71 | 25.2 |
| Australia | 1.13 | 0.39 | 0.39 | 0.39 | 0.39 | 0.01 | 0.01 | | 61.7 |
| Canada | 1.22 | 0.74 | 0.74 | 0.74 | 0.23 | | 0.10 | 0.42 | 14.7 |
| India | 0.46 | 0.02 | 0.02 | 0.02 | 0.03 | | | | 0.8 |
| South Africa | 1.20 | | | 0.22 | | | 0.04 | 0.40 | 22.4 |
| United Kingdom | 2.25 | 1.09 | 1.09 | 0.33 | 0.44 | 0.81 | 0.86 | 1.07 | 47.1 |
| United States | 1.52 | 0.39 | 0.95 | 0.95 | 0.71 | 0.26 | 0.37 | 0.96 | 4.8 |
| German civil law | 1.26 | 0.57 | 0.57 | 0.73 | 0.46 | 0.19 | 0.12 | 1.04 | 33.9 |
| Austria | 0.17 | 0.76 | 0.76 | 0.76 | 0.50 | 0.21 | 0.20 | | 38.7 |
| Germany | 0.67 | 0.44 | 0.44 | 0.44 | 0.20 | 0.06 | 0.07 | 1.66 | 28.0 |
| Japan | 0.95 | 0.49 | 0.49 | 0.49 | 0.32 | 0.05 | 0.02 | 0.58 | 7.5 |
| Switzerland | 3.23 | 0.58 | 0.58 | 1.23 | 0.82 | 0.46 | 0.18 | 0.88 | 61.5 |
| French civil law | 0.81 | 0.71 | 0.40 | 0.37 | 0.32 | 0.14 | 0.15 | 0.74 | 28.7 |
| Argentina | 0.15 | 0.17 | 0.17 | 0.17 | | 0.01 | 0.01 | 0.37 | 15.3 |
| Belgium | 0.82 | 0.99 | 0.99 | 0.99 | 0.65 | 0.17 | 0.25 | 1.00 | 108.7 |
| Brazil | 0.45 | 0.25 | 0.25 | 0.20 | 0.17 | 0.05 | 0.15 | 0.38 | 12.4 |
| Chile | 1.05 | 0.17 | 0.17 | 0.17 | 0.10 | | | | 20.6 |
| Cuba | | 2.19 | 0.33 | 0.33 | | | | | 12.7 |
| Egypt | 0.29 | 1.09 | 0.40 | 0.44 | 0.40 | 0.02 | 0.06 | | 16.6 |
| France | 1.17 | 0.78 | 0.54 | 0.54 | 0.52 | 0.47 | 0.38 | 1.50 | 13.3 |
| Greece | | | | | 0.27 | 0.05 | | | |
| Italy | 0.68 | 0.17 | 0.17 | 0.17 | 0.14 | 0.07 | 0.05 | 0.48 | 6.3 |
| Netherlands | 2.03 | 0.56 | 0.56 | 0.56 | 0.60 | | | | 65.9 |
| Peru | | | | | 0.07 | | | | |
| Spain | 0.69 | | | 0.31 | 0.24 | 0.31 | 0.31 | | |
| Uruguay | | | | 0.16 | | | 0.01 | 0.71 | 15.6 |
| Scandinavian civil law | 0.69 | 0.26 | 0.26 | 0.51 | 0.51 | 0.04 | 0.06 | 1.67 | 35.9 |
| Denmark | 0.67 | 0.36 | 0.36 | 0.86 | 0.76 | 0.03 | 0.03 | 2.23 | 38.2 |
| Norway | 0.70 | 0.16 | 0.16 | 0.16 | 0.26 | 0.06 | 0.10 | 1.12 | 33.5 |
| Sweden | 1.77 | 0.47 | 0.47 | 0.47 | | | | | 20.6 |
| Full Sample | 1.06 | 0.58 | 0.48 | 0.46 | 0.37 | 0.18 | 0.17 | 0.92 | 29.0 |

Table 2 Summary Statistics for Financial Development Data and Controls

| Variable | Full Sample | | | | | Common Law Sample | | | Civil Law Sample | | |
|---------------------------------------|-------------|-------|-----------|-------|--------|-------------------|-------|-----------|------------------|-------|-----------|
| | Obs | Mean | Std. Dev. | Min | Max | Obs | Mean | Std. Dev. | Obs | Mean | Std. Dev. |
| Rajan & Zingales stock mkt data 1913 | 22 | 1.51 | 4.38 | 0.02 | 21.00 | 5 | 0.53 | 0.41 | 16 | 0.60 | 0.51 |
| La Porta et al. stock mkt data 1913 | 22 | 1.41 | 4.38 | 0.02 | 21.00 | 5 | 0.64 | 0.43 | 16 | 0.43 | 0.23 |
| Stock Market Cap/GDP 1900 | 21 | 0.37 | 0.24 | 0.03 | 0.82 | 5 | 0.36 | 0.25 | 16 | 0.38 | 0.24 |
| Stock Market Cap/GDP 1913 | 24 | 0.46 | 0.31 | 0.02 | 1.23 | 6 | 0.44 | 0.34 | 18 | 0.47 | 0.31 |
| Change in stock mkt cap 1900-1913 | 27 | 1.04 | 4.99 | -0.27 | 26.00 | 6 | 0.11 | 0.23 | 20 | 0.07 | 0.15 |
| Bond Market Cap / GDP 1900 | 17 | 0.18 | 0.22 | 0.01 | 0.81 | 3 | 0.36 | 0.41 | 14 | 0.14 | 0.16 |
| Bond Market Cap / GDP 1913 | 19 | 0.17 | 0.21 | 0.01 | 0.86 | 5 | 0.27 | 0.35 | 14 | 0.13 | 0.12 |
| Private credit /GDP 1913 | 14 | 0.93 | 0.56 | 0.37 | 2.23 | 4 | 0.71 | 0.35 | 10 | 1.02 | 0.62 |
| Traded companies/ million people 1913 | 23 | 29.00 | 25.61 | 0.82 | 108.70 | 6 | 25.23 | 24.27 | 17 | 30.33 | 26.65 |
| Average inflation (1880-1913) | 26 | 0.01 | 0.02 | 0.00 | 0.05 | 6 | 0.01 | 0.01 | 20 | 0.02 | 0.02 |
| Growth rate 1870-1900 | 23 | 0.01 | 0.01 | 0.01 | 0.03 | 5 | 0.01 | 0.01 | 18 | 0.01 | 0.00 |
| Growth rate 1870-1913 | 22 | 0.03 | 0.01 | 0.01 | 0.06 | 5 | 0.03 | 0.01 | 17 | 0.03 | 0.01 |
| Growth rate 1890-1900 | 24 | 0.02 | 0.01 | 0.00 | 0.05 | 5 | 0.02 | 0.01 | 19 | 0.02 | 0.01 |
| Growth rate 1890-1913 | 24 | 0.03 | 0.01 | 0.00 | 0.06 | 5 | 0.03 | 0.02 | 19 | 0.03 | 0.01 |
| GDP per cap in 1870 (1990 mill PPP\$) | 22 | 1875 | 837 | 533 | 3915 | 6 | 2295 | 1265 | 16 | 1718 | 591 |
| GDP per cap in 1890 (1990 mill PPP\$) | 24 | 2247 | 1013 | 575 | 4708 | 5 | 2878 | 1541 | 19 | 2081 | 803 |
| Common law | 26 | 0.23 | 0.43 | 0 | 1 | 6 | 1 | 0 | | | |
| French civil law | 26 | 0.50 | 0.51 | 0 | 1 | | | | 20 | 0.65 | 0.49 |
| German civil law | 26 | 0.15 | 0.37 | 0 | 1 | | | | 20 | 0.20 | 0.41 |
| Scandinavian civil law | 26 | 0.12 | 0.33 | 0 | 1 | | | | 20 | 0.15 | 0.37 |

*Note: All GDP per capita and real GDP growth rates used as controls from Maddison (2003) (1990 PPP/International Geary-Khamis Dollars).

Table 3 Simple conditional correlates of financial development and the common law dummy

Ordinary least square regression using as dependent variable different measures of financial development in 1900 and 1913. Controls include log of GDP per capita in 1890 (in 1990 PPP/International Geary-Khamis Dollars), the number of years on the gold standard, and average inflation since 1880. Robust standard errors in brackets. Coefficients marked as follows + significant at 10%; ** significant at 5%; *** significant at 1%.

Panel A: OLS regressions using different estimates of stock market capitalization (1913, 1900) as dependent variables

| | R&Z mkt cap / GDP 1913 | R&Z mkt cap / GDP 1913 | R&Z mkt cap / GDP 1913 | R&Z mkt cap / GDP 1913 | LLS mkt cap / GDP 1913 | LLS mkt cap / GDP 1913 | LLS mkt cap / GDP 1913 | LLS mkt cap / GDP 1913 | Market cap/ GDP 1913 | Market cap/ GDP 1913 | Market cap/ GDP 1913 | Market cap/ GDP 1913 | Market cap/ GDP 1900 | Market cap/ GDP 1900 | Market cap/ GDP 1900 | Market cap/ GDP 1900 |
|---------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
| Common law dummy | -0.076 | 0.007 | -0.065 | -0.024 | 0.211 | 0.152 | 0.117 | 0.123 | -0.028 | -0.046 | -0.133 | -0.103 | -0.017 | -0.077 | -0.145 | -0.086 |
| | [0.215] | [0.174] | [0.181] | [0.179] | [0.192] | [0.152] | [0.154] | [0.156] | [0.153] | [0.145] | [0.148] | [0.149] | [0.122] | [0.086] | [0.091] | [0.085] |
| Ln(GDP per cap 1890) | | 0.117 | 0.05 | 0.039 | | 0.26 | 0.228 | 0.186 | | 0.282 | 0.22 | 0.182 | | 0.243 | 0.16 | 0.197 |
| | | [0.173] | [0.171] | [0.196] | | [0.108]** | [0.112]+ | [0.139] | | [0.098]*** | [0.083]** | [0.101]+ | | [0.069]*** | [0.049]*** | [0.084]** |
| Years on gold | | | 0.01 | | | | 0.005 | | | | 0.009 | | | | 0.012 | |
| | | | [0.007] | | | | [0.005] | | | | [0.004]+ | | | | [0.004]** | |
| Avg. Inflation since 1880 | | | | -5.406 | | | | -5.148 | | | | -7.684 | | | | -3.486 |
| | | | | [3.625] | | | | [3.292] | | | | [2.547]*** | | | | [3.685] |
| Constant | 0.602 | -0.387 | -0.105 | 0.283 | 0.428 | -1.534 | -1.397 | -0.897 | 0.469 | -1.658 | -1.378 | -0.776 | 0.376 | -1.452 | -0.95 | -1.062 |
| | [0.131]*** | [1.342] | [1.223] | [1.544] | [0.059]*** | [0.816]+ | [0.803] | [1.087] | [0.075]*** | [0.725]** | [0.584]** | [0.783] | [0.061]*** | [0.512]** | [0.344]** | [0.665] |
| Observations | 21 | 20 | 20 | 20 | 21 | 20 | 20 | 20 | 24 | 22 | 22 | 22 | 21 | 21 | 21 | 21 |
| Adjusted R-squared | -0.048 | -0.065 | 0.049 | -0.061 | 0.05 | 0.271 | 0.274 | 0.298 | -0.044 | 0.156 | 0.276 | 0.283 | -0.052 | 0.295 | 0.476 | 0.291 |
| F-statistic | 0.12 | 0.23 | 1.73 | 0.93 | 1.2 | 3.26 | 2.9 | 3.9 | 0.03 | 4.16 | 5.6 | 4.88 | 0.02 | 6.58 | 10.88 | 4.01 |
| F-test p-value | 0.73 | 0.80 | 0.20 | 0.45 | 0.29 | 0.06 | 0.07 | 0.03 | 0.86 | 0.03 | 0.01 | 0.01 | 0.89 | 0.01 | 0.00 | 0.02 |

Panel B: OLS regressions using bond market capitalization (1900, 1913), private credit to GDP (1913) and companies per million people (1913) as dependent variables

| | Bond mkt cap 1900 | Bond mkt cap 1900 | Bond mkt cap 1900 | Bond mkt cap 1900 | Bond mkt cap 1913 | Bond mkt cap 1913 | Bond mkt cap 1913 | Bond mkt cap 1913 | Private credit to GDP 1913 | Private credit to GDP 1913 | Private credit to GDP 1913 | Private credit to GDP 1913 | Co's per million pop 1913 | Co's per million pop 1913 | Co's per million pop 1913 | Co's per million pop 1913 |
|---------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|----------------------------|----------------------------|----------------------------|----------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
| Common law dummy | 0.217 | 0.147 | 0.13 | 0.176 | 0.144 | 0.171 | 0.17 | 0.165 | -0.307 | -0.495 | -0.585 | -0.512 | -5.094 | -10.742 | -15.639 | -13.517 |
| | [0.210] | [0.233] | [0.246] | [0.215] | [0.153] | [0.183] | [0.192] | [0.179] | [0.260] | [0.295] | [0.311]+ | [0.277]+ | [11.518] | [10.977] | [12.312] | [11.967] |
| Ln(GDP per cap 1890) | | 0.098 | 0.087 | -0.035 | | 0.052 | 0.052 | -0.024 | | 0.697 | 0.158 | 0.261 | | 27.426 | 23.646 | 23.001 |
| | | [0.066] | [0.063] | [0.100] | | [0.057] | [0.058] | [0.071] | | [0.245]** | [0.247] | [0.285] | | [8.262]*** | [6.991]*** | [7.827]*** |
| Years on gold | | | 0.002 | | | | 0 | | | | 0.031 | | | | 0.597 | |
| | | | [0.004] | | | | [0.002] | | | | [0.010]** | | | | [0.294]+ | |
| Avg. Inflation since 1880 | | | | -6.356 | | | | -4.284 | | | | -17.588 | | | | -334.619 |
| | | | | [3.235]+ | | | | [1.870]** | | | | [7.434]** | | | | [215.214] |
| Constant | 0.144 | -0.595 | -0.535 | 0.494 | 0.13 | -0.263 | -0.261 | 0.381 | 1.02 | -4.267 | -0.906 | -0.719 | 30.326 | -176.385 | -160.764 | -137.131 |
| | [0.044]*** | [0.466] | [0.459] | [0.779] | [0.033]*** | [0.418] | [0.428] | [0.559] | [0.201]*** | [1.711]** | [1.709] | [2.221] | [6.563]*** | [59.549]*** | [52.367]*** | [58.413]** |
| Observations | 17 | 17 | 17 | 17 | 19 | 18 | 18 | 18 | 14 | 13 | 13 | 13 | 23 | 21 | 21 | 21 |
| Adjusted R-squared | 0.093 | 0.078 | 0.019 | 0.169 | 0.047 | 0.075 | 0.009 | 0.134 | -0.012 | 0.171 | 0.427 | 0.308 | -0.039 | 0.283 | 0.336 | 0.291 |
| F-statistic | 1.07 | 1.74 | 1.06 | 2.53 | 0.88 | 0.91 | 0.57 | 2.21 | 1.39 | 5.4 | 4.87 | 4.47 | 0.2 | 5.51 | 4.15 | 3.76 |
| F-test p-value | 0.32 | 0.21 | 0.40 | 0.10 | 0.36 | 0.42 | 0.65 | 0.13 | 0.26 | 0.03 | 0.03 | 0.03 | 0.66 | 0.01 | 0.02 | 0.03 |

Table 4A Stock Market Capitalization to GDP Regressions (OLS) Rajan and Zingales and La Porta et al. Data, 1913

Ordinary least square regression of a sample of 19 countries of different legal families. The dependent variable is stock market capitalization to GDP in 1913 according to Rajan and Zingales (2003) or La Porta et al (2008). Controls include the growth rate of real GDP from 1870/1890 to 1913 and the natural logarithm of GDP per capita in 1870/1890 (all GDP figures for controls in 1990 PPP/International Geary-Khamis Dollars), average inflation from 1880 to 1913, dummies indicating whether the country adheres to the common law or French civil law families, and a dummy for countries that follow the civil law tradition (German, French, and Scandinavian civil law countries). Robust standard errors in brackets. Coefficients marked as follows + significant at 10%; ** significant at 5%; *** significant at 1%.

Panel A: Correlates of Stock Market Capitalization in 1913 using data from Rajan and Zingales (2003)

| | Rajan and Zingales 1913 (1) | Rajan and Zingales 1913 (2) | Rajan and Zingales 1913 (3) | Rajan and Zingales 1913 (4) | Rajan and Zingales 1913 (5) | Rajan and Zingales 1913 (6) | Rajan and Zingales 1913 (7) | Rajan and Zingales 1913 (8) |
|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Ln(GDP per cap 1870) | 0.337 [0.118]** | 0.342 [0.269] | 0.336 [0.116]** | 0.334 [0.206] | | | | |
| GDP growth 1870-1913 | -6.518 [4.341] | -6.697 [8.718] | -6.545 [4.079] | -6.432 [7.090] | | | | |
| Ln(GDP per cap 1890) | | | | | 0.215 [0.157] | 0.14 [0.230] | 0.209 [0.155] | 0.17 [0.213] |
| GDP growth 1890-1913 | | | | | -11.295 [6.532] | -9.023 [8.702] | -11.367 [6.506]+ | -10.301 [8.548] |
| Avg. inflation since 1880 | | 0.251 [9.785] | | -0.152 [6.060] | | -4.317 [7.296] | | -2.089 [5.917] |
| Legal origin dummies | | | | | | | | |
| Common law | -0.024 [0.172] | -0.024 [0.182] | | | 0.056 [0.197] | 0.062 [0.204] | | |
| French civil law | -0.013 [0.146] | -0.016 [0.226] | | | 0.068 [0.135] | 0.132 [0.176] | | |
| Civil law Tradition | | | 0.017 [0.150] | 0.017 [0.160] | | | -0.021 [0.193] | -0.008 [0.194] |
| Constant | -1.828 [0.863]+ | -1.861 [1.845] | -1.843 [0.843]** | -1.824 [1.426] | -0.878 [1.216] | -0.339 [1.708] | -0.778 [1.263] | -0.494 [1.652] |
| Observations | 17 | 17 | 17 | 17 | 20 | 20 | 20 | 20 |
| Adjusted R-squared | 0.18 | 0.11 | 0.24 | 0.18 | 0.01 | -0.03 | 0.07 | 0.01 |
| F-statistic | 2.51 | 2.93 | 3.21 | 3.69 | 1.28 | 1.8 | 1.8 | 2.03 |
| F-test p-value | 0.1 | 0.06 | 0.06 | 0.04 | 0.32 | 0.18 | 0.19 | 0.14 |

Panel B: Correlates of Stock Market Capitalization in 1913 using data from LLS (2008)

| | La Porta et al 1913 (9) | La Porta et al 1913 (10) | La Porta et al 1913 (11) | La Porta et al 1913 (12) | La Porta et al 1913 (13) | La Porta et al 1913 (14) | La Porta et al 1913 (15) | La Porta et al 1913 (16) |
|-----------------------------|-------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Ln(GDP per cap 1870) | 0.343 [0.134]** | 0.279 [0.287] | 0.338 [0.132]** | 0.267 [0.222] | | | | |
| GDP growth 1870-1913 | -2.528 [4.357] | -0.19 [8.241] | -2.657 [4.398] | 0.168 [6.732] | | | | |
| Ln(GDP per cap 1890) | | | | | 0.3 [0.133]** | 0.211 [0.190] | 0.302 [0.125]** | 0.224 [0.179] |
| GDP growth 1890-1913 | | | | | -5.115 [4.728] | -2.439 [5.837] | -5.09 [4.661] | -2.948 [5.488] |
| Avg. inflation since 1880 | | -3.279 [10.323] | | -3.825 [6.793] | | -5.085 [5.871] | | -4.198 [4.455] |
| Legal origin dummies | | | | | | | | |
| Common law | 0.072 [0.176] | 0.084 [0.178] | | | 0.146 [0.177] | 0.154 [0.176] | | |
| French civil law | -0.061 [0.142] | -0.021 [0.222] | | | -0.024 [0.117] | 0.053 [0.161] | | |
| Civil law Tradition | | | -0.104 [0.156] | -0.094 [0.165] | | | -0.158 [0.166] | -0.132 [0.172] |
| Constant | -1.971 [1.003]+ | -1.54 [1.998] | -1.856 [0.973]+ | -1.372 [1.556] | -1.691 [0.979] | -1.056 [1.396] | -1.561 [0.890]+ | -0.989 [1.303] |
| Observations | 17 | 17 | 17 | 17 | 20 | 20 | 20 | 20 |
| Adjusted R-squared | 0.21 | 0.15 | 0.27 | 0.22 | 0.22 | 0.22 | 0.27 | 0.26 |
| F-statistic | 2.05 | 2.12 | 2.49 | 2.8 | 1.71 | 2.39 | 2.12 | 3.12 |
| F-test p-value | 0.15 | 0.14 | 0.11 | 0.07 | 0.2 | 0.09 | 0.14 | 0.05 |

Table 4B Stock Market Capitalization to GDP Regressions (OLS), 1900 and 1913

Ordinary least square regression of a sample of 21 countries of different legal families. The dependent variable is stock market capitalization to GDP in 1913 and 1900. Controls include the growth rate of real GDP from 1870 to 1900/1913 or 1890 to 1900/1913 and the natural logarithm of GDP per capita in 1870 or 1890 (all GDP figures for controls in 1990 PPP/International Geary-Khamis Dollars), average inflation from 1880 to 1900/1913, dummies indicating whether the country adheres to the common law or French civil law families, and a dummy for countries that follow the civil law tradition (German, French, and Scandinavian civil law countries). Robust standard errors in brackets. Coefficients marked as follows + significant at 10%; ** significant at 5%; *** significant at 1%.

Panel A: Correlates of Stock Market Capitalization in 1900 (new estimates of stock market capitalization)

| | Market cap/ GDP 1900 | Market cap/ GDP 1900 | Market cap/ GDP 1900 | Market cap/ GDP 1900 | Market cap/ GDP 1900 | Market cap/ GDP 1900 | Market cap/ GDP 1900 | Market cap/ GDP 1900 |
|-----------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Ln(GDP per cap 1870) | 0.256 [0.051]*** | 0.187 [0.096]+ | 0.233 [0.052]*** | 0.139 [0.100] | | | | |
| GDP growth 1870-1900 | -4.023 [5.862] | -1.572 [8.418] | -1.394 [6.978] | 1.346 [9.363] | | | | |
| Ln(GDP per cap 1890) | | | | | 0.244 [0.065]*** | 0.229 [0.064]*** | 0.24 [0.064]*** | 0.224 [0.064]*** |
| GDP growth 1890-1900 | | | | | 8.386 [4.086]+ | 7.401 [4.786] | 9.77 [3.647]** | 8.691 [4.292]+ |
| Avg. inflation since 1880 | | -4.515 [5.314] | | -6.639 [5.477] | | | -1.831 [2.845] | -1.921 [2.779] |
| Legal origin dummies | | | | | | | | |
| Common law | -0.188 [0.137] | -0.173 [0.133] | | | -0.103 [0.128] | -0.107 [0.130] | | |
| French civil law | | -0.162 [0.128] | | | -0.067 [0.112] | -0.065 [0.114] | | |
| Civil law | | | 0.105 [0.101] | 0.11 [0.103] | | | 0.063 [0.088] | 0.068 [0.087] |
| Constant | -1.341 [0.369]*** | -0.838 [0.706] | -1.389 [0.380]*** | -0.673 [0.743] | -1.604 [0.450]*** | -1.451 [0.476]*** | -1.7 [0.527]*** | -1.543 [0.543]** |
| Observations | 18 | 18 | 18 | 18 | 20 | 20 | 20 | 20 |
| Adjusted R-squared | 0.185 | 0.156 | 0.137 | 0.162 | 0.498 | 0.472 | 0.515 | 0.493 |
| F-statistic | 7.22 | 3.97 | 8.35 | 5.12 | 7.15 | 5.08 | 10.02 | 6.72 |
| F-test p-value | 0.00 | 0.02 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 |

Panel B: Correlates of Stock Market Capitalization in 1913 (new estimates of stock market capitalization)

| | Market cap/ GDP 1913 | Market cap/ GDP 1913 | Market cap/ GDP 1913 | Market cap/ GDP 1913 | Market cap/ GDP 1913 | Market cap/ GDP 1913 | Market cap/ GDP 1913 | Market cap/ GDP 1913 |
|-----------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
| Ln(GDP per cap 1870) | 0.265 [0.107]** | -0.01 [0.137] | 0.237 [0.115]+ | -0.054 [0.140] | | | | |
| GDP growth 1870-1913 | 0.368 [5.231] | 13.469 [7.847] | -0.369 [6.444] | 15.072 [7.708]+ | | | | |
| Ln(GDP per cap 1890) | | | | | 0.289 [0.119]** | 0.167 [0.134] | 0.307 [0.116]** | 0.143 [0.120] |
| GDP growth 1890-1913 | | | | | -2.881 [5.446] | 1.864 [5.920] | -2.838 [6.027] | 3.073 [5.367] |
| Avg. inflation since 1880 | | -14.674 [5.750]** | | -16.669 [5.439]*** | | | -6.947 [3.928]+ | -8.693 [3.198]** |
| Legal Origin Dummies | | | | | | | | |
| Common law | -0.257 [0.209] | -0.217 [0.164] | | | -0.173 [0.188] | -0.165 [0.175] | | |
| French civil law | | -0.307 [0.181] | | | -0.226 [0.140] | -0.114 [0.170] | | |
| Civil law | | | 0.073 [0.170] | 0.167 [0.121] | | | 0.043 [0.160] | 0.114 [0.140] |
| Constant | -1.282 [0.766] | 0.486 [0.934] | -1.307 [0.822] | 0.571 [0.958] | -1.501 [0.837]+ | -0.65 [0.949] | -1.814 [0.792]** | -0.652 [0.871] |
| Observations | 19 | 19 | 19 | 19 | 22 | 22 | 22 | 22 |
| Adjusted R-squared | 0.073 | 0.252 | -0.047 | 0.289 | 0.186 | 0.229 | 0.12 | 0.252 |
| F-statistic | 3.63 | 2.88 | 1.64 | 3.85 | 2.29 | 2.57 | 2.81 | 3.26 |
| F-test p-value | 0.03 | 0.06 | 0.22 | 0.03 | 0.1 | 0.07 | 0.07 | 0.04 |

Table 5 Bond Market Capitalization to GDP Regressions (OLS), 1900 and 1913

Ordinary least square regression of a sample of 15 to 17 countries of different legal families. The dependent variable is the face value of all corporate bonds to GDP in 1900 or 1913. Controls include the growth rate of real GDP from 1870 to 1900 and 1913 or 1890 to 1913 and the natural logarithm of the 1870 and 1890 GDP (all GDP figures for controls in 1990 PPP/International Geary-Khamis Dollars), average inflation from 1880 to 1900 or 1913, dummies indicating whether the country adheres to the common law or French civil law families, and a dummy for countries that follow the civil law tradition (German, French, and Scandinavian civil law countries). Robust standard errors in brackets. Coefficients marked as follows + significant at 10%; ** significant at 5%; *** significant at 1%.

Panel A: Correlates of Bond Market Capitalization in 1900

| | Bond cap/GDP 1900 | Bond cap/GDP 1900 | Bond cap/GDP 1900 | Bond cap/GDP 1900 | Bond cap/GDP 1900 | Bond cap/GDP 1900 | Bond cap/GDP 1900 | Bond cap/GDP 1900 |
|-----------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Ln(GDP per cap 1870) | -0.029 [0.108] | -0.15 [0.175] | -0.023 [0.106] | -0.079 [0.169] | | | | |
| GDP growth 1870-1900 | -25.459 [12.221]+ | -18.588 [14.888] | -25.103 [12.460]+ | -21.412 [13.411] | | | | |
| Ln(GDP per cap 1890) | | | | | 0.119 [0.099] | -0.099 [0.189] | 0.116 [0.096] | -0.07 [0.170] |
| GDP growth 1890-1900 | | | | | -1.84 [4.922] | 3.511 [6.131] | -1.93 [4.582] | 1.961 [5.457] |
| Avg. inflation since 1880 | | -5.092 [5.480] | | -2.545 [4.611] | | -9.024 [5.437] | | -7.158 [4.622] |
| Legal origin dummies | | | | | | | | |
| Common law | 0.284 [0.163] | 0.354 [0.161]+ | | | 0.141 [0.244] | 0.26 [0.272] | | |
| French civil law | 0.041 [0.088] | 0.1 [0.086] | | | 0.019 [0.087] | 0.111 [0.119] | | |
| Civil law | | | -0.256 [0.159] | -0.272 [0.167] | | | -0.133 [0.232] | -0.194 [0.225] |
| Constant | 0.656 [0.857] | 1.486 [1.307] | 0.883 [0.903] | 1.292 [1.343] | -0.721 [0.639] | 0.87 [1.307] | -0.551 [0.688] | 0.916 [1.329] |
| Observations | 16 | 16 | 16 | 16 | 17 | 17 | 17 | 17 |
| Adjusted R-squared | 0.29 | 0.27 | 0.34 | 0.30 | -0.06 | 0.09 | 0.02 | 0.11 |
| F-Test | 1.48 | 1.49 | 1.67 | 1.04 | 1.1 | 1.68 | 1.52 | 1.73 |
| Prob>F | 0.27 | 0.28 | 0.23 | 0.43 | 0.4 | 0.22 | 0.26 | 0.21 |

Panel B: Correlates of Bond Market Capitalization in 1913

| | Bond cap/GDP 1913 | Bond cap/GDP 1913 | Bond cap/GDP 1913 | Bond cap/GDP 1913 | Bond cap/GDP 1913 | Bond cap/GDP 1913 | Bond cap/GDP 1913 | Bond cap/GDP 1913 |
|-----------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
| Ln(GDP per cap 1870) | 0.055 [0.084] | 0.039 [0.156] | 0.066 [0.088] | 0.084 [0.130] | | | | |
| GDP growth 1870-1913 | -10.281 [5.118]+ | -9.482 [7.757] | -9.772 [5.397]+ | -10.864 [7.151] | | | | |
| Ln(GDP per cap 1890) | | | | | 0.122 [0.084] | 0.062 [0.152] | 0.107 [0.080] | 0.079 [0.143] |
| GDP growth 1890-1913 | | | | | -7.95 [4.001]+ | -5.795 [6.520] | -7.872 [4.038]+ | -6.975 [5.990] |
| Avg. inflation since 1880 | | -0.897 [4.535] | | 1.126 [3.049] | | -2.983 [4.480] | | -1.218 [3.628] |
| Legal origin dummies | | | | | | | | |
| Common law | 0.283 [0.150]+ | 0.284 [0.154]+ | | | 0.224 [0.172] | 0.233 [0.169] | | |
| French civil law | 0.093 [0.057] | 0.106 [0.102] | | | 0.074 [0.044] | 0.114 [0.075] | | |
| Civil law | | | -0.222 [0.148] | -0.231 [0.166] | | | -0.191 [0.163] | -0.187 [0.176] |
| Constant | -0.043 [0.604] | 0.058 [1.041] | 0.134 [0.640] | 0.024 [0.854] | -0.624 [0.599] | -0.203 [1.050] | -0.276 [0.529] | -0.073 [0.921] |
| Observations | 17 | 17 | 17 | 17 | 18 | 18 | 18 | 18 |
| Adjusted R-squared | 0.31 | 0.25 | 0.32 | 0.27 | 0.24 | 0.21 | 0.26 | 0.21 |
| F-Test | 1.83 | 2.02 | 1.27 | 1.35 | 1.76 | 2.27 | 1.52 | 1.61 |
| Prob>F | 0.19 | 0.15 | 0.33 | 0.31 | 0.2 | 0.11 | 0.25 | 0.23 |

Table 6 Private Credit to GDP and Traded Companies per Million People Regressions (OLS), 1913

Ordinary least square regression of a sample of 13 countries of different legal families. The dependent variable is private credit (stock of bonds + the stock of private loans) to GDP in 1913 or the number of traded companies per million people in 1913. Controls include the growth rate of real GDP from 1870/1890 to 1913 and the natural logarithm of GDP per capita in 1870/1890 (all GDP figures for controls in 1990 PPP/International Geary-Khamis Dollars), average inflation from 1880 to 1913, and dummies indicating whether the country adheres to the common law. Robust standard errors in brackets. Coefficients marked as follows + significant at 10%; ** significant at 5%; *** significant at 1%.

| | Priv. credit/ GDP 1913 | Priv. credit/ GDP 1913 | Priv. credit/ GDP 1913 | Priv. credit/ GDP 1913 | Co's per million pop 1913 | Co's per million pop 1913 | Co's per million pop 1913 | Co's per million pop 1913 |
|-----------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Ln(GDP per cap 1870) | 0.862 [0.353]** | 0.462 [0.378] | | | 34.228 [9.189]*** | 33.707 [13.469]** | | |
| GDP growth 1870-1900 | -5.884 [9.948] | 4.188 [11.022] | | | -607.735 [396.357] | -580.418 [529.636] | | |
| Ln(GDP per cap 1890) | | | 0.693 [0.279]** | 0.257 [0.448] | | | 35.868 [8.426]*** | 35.447 [9.701]*** |
| GDP growth 1890-1900 | | | -12.811 [8.963] | 0.231 [15.533] | | | -993.031 [370.235]** | -978.414 [409.973]** |
| Avg. inflation since 1880 | | -15.802 [11.456] | | -17.733 [16.486] | | -29.592 [398.163] | | -22.379 [260.613] |
| Legal origin dummies | | | | | | | | |
| Common law | -0.631 [0.377] | -0.659 [0.353]+ | -0.405 [0.308] | -0.514 [0.349] | -14.037 [9.779] | -14.199 [10.266] | -10.314 [8.445] | -10.506 [8.871] |
| Constant | -5.093 [2.509]+ | -2.235 [2.729] | -3.874 [1.990]+ | -0.696 [3.285] | -202.929 [59.180]*** | -199.397 [90.740]** | -214.429 [52.817]*** | -211.244 [63.931]*** |
| Observations | 13 | 13 | 13 | 13 | 19 | 19 | 21 | 21 |
| Adjusted R-squared | 0.27 | 0.286 | 0.183 | 0.221 | 0.314 | 0.265 | 0.456 | 0.422 |
| F-statistic | 2.84 | 2.91 | 3.3 | 4.76 | 4.76 | 3.85 | 6.76 | 4.74 |
| F-test p-value | 0.10 | 0.09 | 0.07 | 0.03 | 0.02 | 0.03 | 0.00 | 0.01 |

Table 7 Deposits per capita, 1913, 1925, 1929

Panel A: Summary statistics, deposits per capita

| | Obs ^a | Mean | Std. Dev. | Min | Max |
|-------------------------------|------------------|-------|-----------|------|-------|
| Full Sample | | | | | |
| Deposits per capita 1913 | 28 | 56.3 | 64.8 | 0.2 | 234.9 |
| Deposits per capita 1925 | 41 | 74.9 | 94.9 | 0.0 | 370.4 |
| Deposits per capita 1929 | 38 | 92.2 | 110.4 | 1.3 | 454.6 |
| Change in deposits 1913-1929 | 26 | 57.3 | 59.1 | -0.5 | 219.7 |
| Common law | | | | | |
| Deposits per capita 1913 | 7 | 108.4 | 71.9 | 0.2 | 206.9 |
| Deposits per capita 1925 | 8 | 185.7 | 118.8 | 1.2 | 370.4 |
| Deposits per capita 1929 | 7 | 223.8 | 106.3 | 58.8 | 389.6 |
| Change in deposits 1913-1929 | 6 | 110.0 | 54.0 | 31.7 | 182.7 |
| German civil law | | | | | |
| Deposits per capita 1913 | 3 | 87.8 | 127.4 | 11.5 | 234.9 |
| Deposits per capita 1925 | 11 | 53.0 | 86.5 | 0.0 | 299.3 |
| Deposits per capita 1929 | 10 | 80.6 | 133.7 | 4.9 | 454.6 |
| Change in deposits 1913-1929 | 3 | 107.1 | 97.6 | 47.4 | 219.7 |
| French civil law | | | | | |
| Deposits per capita 1913 | 14 | 19.8 | 24.0 | 0.9 | 75.1 |
| Deposits per capita 1925 | 18 | 27.4 | 35.4 | 1.3 | 133.1 |
| Deposits per capita 1929 | 17 | 33.5 | 38.2 | 1.3 | 138.7 |
| Change in deposits 1913-1929 | 13 | 17.1 | 18.1 | -0.5 | 63.6 |
| Scandinavian civil law | | | | | |
| Deposits per capita 1913 | 4 | 69.2 | 19.4 | 42.1 | 84.3 |
| Deposits per capita 1925 | 4 | 127.4 | 59.0 | 52.4 | 185.5 |
| Deposits per capita 1929 | 4 | 140.8 | 54.0 | 67.3 | 184.3 |
| Change in deposits 1913-1929 | 4 | 71.6 | 34.8 | 25.1 | 102.3 |

^a Sample size differs from that used for regressions because there is no GDP data for all the countries in the sample

Panel B: Means test, t-statistics

| | Deposits per capita | | |
|-----------------------------------|---------------------|----------|--------------------|
| | 1913 | 1925 | 1929 |
| Common vs. all civil law | -2.71** | -4.46*** | -4.20*** |
| Common vs. French civil law | -4.25*** | -5.26*** | -6.58*** |
| Common vs. German civil law | -0.33 | -2.82** | -2.35** |
| Common vs. Scandinavian civil law | -1.05 | -0.91 | -1.43 [#] |
| French vs. common and civil law | 3.56*** | 3.13*** | 3.32*** |
| German vs. common and civil law | -0.88 | 0.89 | 0.38 |

[#] significant at 20%; + significant at 10%; ** significant at 5%; *** significant at 1%

Table 8 Deposits per capita regressions, 1913, 1925, 1929

Ordinary least square regression of a sample of 24 to 33 countries of different legal families. The dependent variable is deposits per capita in 1913, 1925, and 1929. Robust standard errors in brackets. Coefficients marked as follows + significant at 10%; ** significant at 5%; *** significant at 1%.

Panel A: Deposits per capita regressions, 1913, 1925, 1929

| | Deposits per cap 1913 (1) | Deposits per cap 1913 (2) | Deposits per cap 1913 (3) | Deposits per cap 1925 (4) | Deposits per cap 1925 (5) | Deposits per cap 1925 (6) | Deposits per cap 1929 (7) | Deposits per cap 1929 (8) | Deposits per cap 1929 (10) |
|---------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|-------------------------------------|
| Ln(GDP per cap 1890) | 57.9 [16.2]*** | 60.5 [13.7]*** | 56.5 [14.7]*** | | | | | | |
| GDP growth since 1890 | 922.2 [443.7]+ | 1227.5 [659.8]+ | 921.6 [361.5]** | | | | | | |
| Ln(GDP per cap 1913) | | | | 92.4 [24.6]*** | 99.5 [28.7]*** | 84.6 [25.1]*** | 103.80 [43.1]** | 106.00 [59.0]+ | 88.50 [38.0]** |
| GDP growth since 1913 | | | | 220.8 [298.2] | 47.7 [213.5] | 206.3 [340.0] | 366.10 [376.3] | 91.60 [247.7] | 373.40 [466.4] |
| Avg. inflation since 1880 | | (541) [624.6] | | | -557.9 [258.6]** | | | -618 [405.2] | |
| Common law | 56.9 [19.9]*** | 61.3 [20.2]*** | | 117.5 [32.7]*** | 101.3 [50.4]+ | | 126.40 [48.1]** | 113.40 [88.5] | |
| French civil law | | | -76.9 [15.5]*** | | | -134.4 [34.1]*** | | | -159.4 [41.5]*** |
| German civil law | | | -17.6 [62.4] | | | -119.6 [47.4]** | | | -116.5 [68.2]+ |
| Scandinavian c.l. | | | -33.3 [15.0]** | | | -67.4 [34.6]+ | | | -82.8 [37.7]** |
| Constant | -416.3 [106.9]*** | -433.1 [88.2]*** | -347.8 [110.7]*** | -627.4 [175.3]*** | -644.6 [199.1]*** | -449.4 [199.4]** | -704.9 [309.7]** | -677.3 [405.5] | -457.1 [306.8] |
| Observations | 24.00 | 20.00 | 24.00 | 33.00 | 21.00 | 33.00 | 32.00 | 19.00 | 32.00 |
| Adjusted R-squared | 0.48 | 0.47 | 0.56 | 0.58 | 0.51 | 0.60 | 0.49 | 0.36 | 0.51 |
| F-Test | 18.48 | 18.00 | 10.59 | 17.68 | 7.04 | 13.07 | 16.87 | 6.10 | 19.09 |
| Prob>F | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Panel B: Change in deposits per capita 1913-1929

| | Δ Dep. per cap 1913-29 (1) | Δ Dep. per cap 1913-29 (2) | Δ Dep. per cap 1913-29 (3) | Δ Dep. per cap 1913-29 (4) |
|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| GDP growth 1913-1929 | -253.1 [359.7] | 160.6 [370.0] | -528.4 [467.3] | -265.1 [386.8] |
| Avg. inflation 1913-1929 | | | -127.3 [132.8] | -186.3 [163.5] |
| Common law | 76.5 [25.1]*** | | 67.2 [31.3]** | |
| French civil law | | -108.3 [21.7]*** | | -93.3 [27.8]*** |
| German civil law | | -19.9 [55.1] | | 4 [69.5] |
| Scandinavian c.l. | | -55.2 [26.2]** | | -51.8 [29.3]+ |
| Constant | 54.5 [19.9]** | 122.2 [18.2]*** | 73.2 [32.7]** | 136.4 [20.4]*** |
| Observations | 23 | 23 | 23 | 23 |
| Adjusted R-squared | 0.25 | 0.49 | 0.24 | 0.51 |
| F-Test | 8.44 | 9.02 | 7.71 | 7.35 |
| Prob>F | 0.00 | 0.00 | 0.00 | 0.00 |

Table 9 Creditor Rights for a Cross-section of Common and French Civil Law Countries, c. 1910 and 1995

| | Common law countries | | | | | | | French civil law countries | | | | | | Means | |
|------------------------------------------------|----------------------|---------------|----------|-----------|-----------|----------|-----------|----------------------------|----------|----------|-----------|----------|----------|------------|------------------|
| | United Kingdom | United States | Canada | Australia | Hong Kong | India | Singapore | France | Belgium | Spain | Argentina | Uruguay | Brazil | Common law | French civil law |
| Creditor Rights in 1910 | | | | | | | | | | | | | | | |
| No automatic stay on assets | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0.6 | 1.0 |
| Secured creditors have first priority | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1.0 | 0.8 |
| Creditors approve reorganization | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0.9 | 1.0 |
| Management does not stay during reorganization | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0.6 | 0.2 |
| Creditor Rights Index 1910 | 4 | 2 | 4 | 4 | 2 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3.0 | 3.0 |
| Creditor Rights in 1995 | | | | | | | | | | | | | | | |
| No automatic stay on assets | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0.7 | 0.4 |
| Secured creditors have first priority | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0.8 | 0.6 |
| Creditors approve reorganization | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0.5 | 0.2 |
| Management does not stay during reorganization | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 | 0.0 |
| Creditor Rights Index 1995 | 4 | 1 | 1 | 1 | 4 | 4 | 4 | 0 | 2 | 2 | 1 | 2 | 1 | 2.7 | 1.3 |

Sources: All creditor rights for 1995 from La Porta et al., "Law and Finance," Table 4. Creditor rights for 1910 from the country sections of Oscar Borchardt and Josef Kohler (eds.), *Die Handelsgesetze des Erdballs : umfassend das Handels-, Wechsel-, Konkurs- und Seerecht aller Kulturvölker, mit Ergänzungen und Erläuterungen aus dem Zivilrecht, Prozessrecht und der Gerichtsverfassung und einer Zusammenstellung der handelsrechtlichen Nebengesetze in der Landessprache mit gegenüberstehender deutscher Übersetzung ...* Berlin : R. v. Decker, [1906-1914], vols. I to XIV. Australia and Canada coded as following British bankruptcy law according to Richard Brown, "Comparative Legislation in Bankruptcy." *Journal of the Society of Comparative Legislation* 2 (1900): 251-270.

Table 10. Shareholder Rights Across countries

| Shareholder protection\Country: | Common law | | German civil law | | | French civil law | | | | | Scandinavian |
|------------------------------------------------------------------------------|---------------|--------------|---------------------|------------|------------|-------------------|--------------------|-------------|----------------------------|-------------------|----------------|
| | England 1880s | England 1908 | Germany before 1987 | Japan 1900 | China 1904 | Italy before 1942 | France before 1917 | Brazil 1910 | Chile XIX th c. | Egypt before 1917 | Sweden c. 1910 |
| Proxy voting | 0 | 0 | 0 | 1 | 1 | 1? | 1 | 1 | 0 | 1 | ? |
| Shares not blocked before meeting | 0 | 1 | 0 | 0 | 0 | ? | 0 | 0 | 0 | 0 | ? |
| Cumulative voting or proportional rep. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ? |
| Provision for minorities to challenge directors' decisions | 0 | 0 | 0 | 0 | 0 | ? | 0 | 1 | 0 | 0 | 1 |
| Shareholders have 1 st right to buy new stock | 0 | 0 | 0 | 0 | 0 | ? | 1 | 0 | 0 | 1 | ? |
| Capital needed to call an extraordinary meeting is less than or equal to 10% | 0 | 0 | 1 | 1 | 1 | ? | 0 | 0 | 0 | 0 | 1 |
| Anti-director rights index | 0 | 1 | 1 | 2 | 2 | 1 | 2 | 2 | 0 | 2 | 2 |

Sources: England in the 1880s from Campbell and Turner (2007), England in 1908 from Franks, Mayer, and Rossi (2004), Germany from Franks, Mayer and Wagner (2006), Japan from Franks, Mayer, and Miyajima (2007), China from Williams (1905), Italy from Aganin and Volpin (2006), Brazil from Musacchio (2007), Chile from Islas Rojas (2007), and France, Egypt, and Sweden constructed from information in Wellhoff (1917).

Table 11. Taxation of Securities in Selected Countries (Taxes in Percentage Points), 1905

Panel A Taxes for either registering or listing securities on the stock exchange

| | France | Germany | Austria | Bulgaria | Belgium | Spain | Great Britain | Denmark | Greece | Hungary | Italy ^d | Netherlands | Portugal | Russia ^e | Sweden | Norway | Switzerland ^f | Turkey | Luxembourg | Romania | Serbia |
|------------------------------------|--------|---------|---------|----------|---------|--------|---------------|---------|--------|---------|--------------------|-------------|----------|---------------------|--------|--------|--------------------------|--------|------------|---------|--------|
| Domestic securities | | | | | | | | | | | | | | | | | | | | | |
| Shares (co. authorized for <10yrs) | 0.6 | 2 | 0.3125 | 0.5 | 0.5 | 2 | 0.5 | 0.15 | 1 | 0.32 | 0.07-4.2 | 0.2 | 0.15-1.5 | 0.04-0.4 | 3 | none | 0.15-0.75 | 1 | 0.05 | 0.1 | 0.4 |
| Shares (co. authorized for >10yrs) | 1.2 | 2 | 0.625 | 0.5 | 1 | 4 | 0.5 | 0.15 | 1 | 0.32 | 0.07-4.2 | 0.2 | 0.15-1.5 | 0.04-0.4 | 3 | none | 0.15-0.75 | 1 | 0.05 | 0.1 | 0.4 |
| Corporate bonds | 1.2 | 6 | 0.3125 | 0.5 | 1 | 2-4 | 0.125-0.5 | 0.125 | 1 | 0.32 | 0.07-4.2 | 1 | 0.15-1.5 | 0.04-0.4 | 3 | none | 0.06 | 0.5 | 0.05 | 0.1 | 0.4 |
| Government bonds | exempt | exempt | exempt | exempt | exempt | exempt | exempt | exempt | 1 | 0.32 | 0.07-4.2 | exempt | exempt | exempt | exempt | none | exempt | exempt | exempt | exempt | exempt |
| Foreign securities | | | | | | | | | | | | | | | | | | | | | |
| Shares (unsubscribed) ^a | 2 | 2.5 | 0.625 | | | 2-4 | 0.5 | 0.66 | 1 | 0.32 | 0.07-4.2 | 0.3 | 0.15-1.5 | 0.04-0.4 | 3 | none | 0.15-0.75 | 1 | 0.05 | 0.1 | exempt |
| Shares (subscribed) | 0.6 | 2.5 | 0.625 | | | 2-4 | 0.5 | 0.66 | 1 | 0.32 | 0.07-4.2 | 0.3 | 0.15-1.5 | 0.04-0.4 | 3 | none | 0.15-0.75 | 1 | 0.05 | 0.1 | exempt |
| Corporate bonds | 0.6 | 1 | 0.625 | | | 2-4 | 0.5 | 0.66 | 1 | 0.32 | 0.07-4.2 | 0.3 | 0.15-1.5 | 0.04-0.4 | 3 | none | 0.06 | 1 | 0.05 | 0.1 | exempt |
| Government bonds | 1 | 6 | 0.625 | | | 2-4 | 0.5 | 0.66 | 1 | 0.32 | 0.07-4.2 | 0.2 | 0.15-1.5 | 0.04-0.4 | 3 | none | exempt | 1 | 0.05 | 0.1 | exempt |

Panel B Taxes on the turnover of securities

| | France | Germany | Austria | Bulgaria | Belgium | Spain | Great Britain | Denmark | Greece | Hungary | Italy ^d | Netherlands | Portugal | Russia ^e | Sweden | Norway | Switzerland ^f | Turkey | Luxembourg | Romania | Serbia |
|----------------------------|------------------|---------|---------|----------|---------|-------|---------------|---------|--------|---------|--------------------|-------------|----------|---------------------|--------|--------|--------------------------|--------|------------|---------|--------|
| Domestic securities | | | | | | | | | | | | | | | | | | | | | |
| Nominal Shares/bonds | 0.5 | 0.2 | | | 0.65 | 1 | 0.5 | 0 | 0 | | 0.15-1.5 | 0 | 0 | 3-10 | none | none | none | none | | | none |
| Bearer shares/bonds | 0.2 | 0.2 | | | 0.65 | 1 | 0.5 | 0 | 0 | | 0.15-1.5 | 0 | 0 | 3-10 | none | none | none | none | | | none |
| Government bonds | exempt | 0.2 | | | exempt | 1 | exempt | 0 | 0 | | exempt | 0 | 0 | 3-10 | none | none | none | none | | | none |
| Foreign securities | | | | | | | | | | | | | | | | | | | | | |
| Shares (unsubscribed) | 0.5 ^a | 0.3 | | | 0.65 | 1 | 0.5 | 0 | 0 | | 0.15-1.5 | 0 | 0 | 3-10 | none | none | none | none | | | none |
| Shares (subscribed) | 0.2 | 0.3 | | | 0.65 | 1 | 0.5 | 0 | 0 | | 0.15-1.5 | 0 | 0 | 3-10 | none | none | none | none | | | none |
| Corporate bonds | 1.25 | 0.3 | | | 0.65 | 1 | 0.5 | 0 | 0 | | 0.15-1.5 | 0 | 0 | 3-10 | none | none | none | none | | | none |
| Government bonds | | 0.2 | | | 1.65 | 1 | 0.5 | 0 | 0 | | exempt | 0 | 0 | 3-10 | none | none | none | none | | | none |

Panel C Taxes on interests and dividends or by broker transaction

| | France | Germany | Austria | Bulgaria | Belgium | Spain | Great Britain | Denmark | Greece | Hungary | Italy ^d | Netherlands | Portugal | Russia ^e | Sweden | Norway | Switzerland ^f | Turkey | Luxembourg | Romania | Serbia |
|-----------------------------------------------|---------|---------|--------------------|----------|---------|-------|---------------|---------|--------------------|---------|--------------------|-------------|----------|---------------------|--------|--------|--------------------------|--------|------------|---------|--------|
| On interests and dividends | | | | | | | | | | | | | | | | | | | | | |
| Private securities | 4 | | 2 | 2 | none | 3-5 | 5.83 | 1.3-2.5 | 2 | 10 | 10 | 0.01-1.5 | 8-12 | 5 | 1 | 2-5 | 1.5-3.75 | 5 | 3 | 5 | 6-10 |
| Government and guaranteed bonds | 0 | | 10 | | none | 20 | 5.83 | 1.3-2.5 | 2 | 10 | 20 | 0.01-1.5 | 8-12 | 5 | 1 | 2-5 | | 5 | exempt | 5 | 6-10 |
| On stock market transactions (brokers) | | | | | | | | | | | | | | | | | | | | | |
| Shares and corporate bonds | 0.00125 | 0 | 0.5-1 ^b | | | 0.1 | 0.1 | | 0.1-4 ^c | 0.01 | 0.22-2.0 | none | none | 3-5 | none | none | 0.2-1 | fixed | | | 0.1 |
| Government bonds | 0.00125 | 0 | exempt | | | 0.1 | 0.1 | | 0.1-4 ^c | 0.01 | 0.22-2.0 | none | none | 3-5 | none | none | 0.2-1 | fixed | | | 0.1 |

Source: "Régime fiscal des valeurs mobilières en Europe" in *Bulletin de L'Institut International de Statistique XIV-3* (1905): 295-311.

a One 1/10 of the shares had to be traded and 2/10 of the bonds

b Taxes on stock market transactions for shares and bonds in Austria were fixed in kreuzner, at around 50 for most bonds and 20 for most shares. Most of the securities traded in Austria were quoted at around 400-500 Kr, so approximately the tax would be equivalent to something between 0.5 and 1%, obviously the stamp tax was 1 drachma, with stock and bond prices ranging from 10 to 250 dr, this tax would be equivalent to 0.001 to 0.05%

d Broad ranges of taxes given for Italy because the taxes were in lira and ranged depending on the "dimension" the paper. The percentage equivalent estimated using a range of securities prices from 100 to 1400 liras.

e All rates as a percent estimated using a range of prices from 60 to 350 rubbles

f Swiss rates estimated by looking at the min and max ranges for Basel, Zurich, and Geneva, thus ignoring other financial centers

Table 12 OLS Regressions using Taxation on Listing and Interest/Dividend Gains.

Ordinary least square regression of a sample of between 9 and 11 European countries for which data on taxes is available. The hypothesis tested in specifications 1 through 6 is that higher taxes on the listing of corporate bonds (txlistbonds) or on interest gains (txintdiv) reduces the stock of bonds to GDP in a country. In the same way specifications 4 through 9 test if higher taxes on the listing of company shares (txlisteq) or on dividends reduces stock market capitalization to GDP. Robust standard errors in brackets. Coefficients marked as follows + significant at 10%; ** significant at 5%; *** significant at 1%.

| | bond mkt 1913 (1) | bond mkt 1913 (2) | bond mkt 1913 (3) | mkt cap 1913 (4) | mkt cap 1913 (5) | mkt cap 1913 (6) | mkt cap 1913 (7) | mkt cap 1913 (8) | mkt cap 1913 (9) | mkt cap 1913 (10) | mkt cap 1913 (11) | mkt cap 1913 (12) |
|-------------|-------------------------|-------------------------|-------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|-------------------------|-------------------------|-------------------------|
| Intxlistbon | -0.018 [0.050] | 0.026 [0.066] | 0.015 [0.073] | | | | | | | | | |
| Intxlisteq | | | | | | | -0.172 [0.062]** | -0.081 [0.079] | -0.079 [0.082] | | | |
| Intxintdiv | | | | 0.134 [0.249] | 0.252 [0.196] | 0.244 [0.263] | | | | -0.174 [0.091]+ | -0.091 [0.136] | -0.08 [0.155] |
| Ingdpc90 | | 0.483 [0.453] | 0.525 [0.505] | | 0.653 [0.345] | 0.664 [0.336] | | 0.562 [0.505] | 0.524 [0.552] | | 0.691 [0.463] | 0.639 [0.503] |
| french | | | 0.08 [0.207] | | | 0.018 [0.182] | | | -0.079 [0.162] | | | -0.136 [0.163] |
| Constant | 0.252 [0.081]** | -3.517 [3.483] | -3.887 [3.886] | 0.086 [0.258] | -5.124 [2.733] | -5.207 [2.664] | 0.567 [0.079]*** | -3.816 [3.881] | -3.483 [4.234] | 0.718 [0.156]*** | -4.728 [3.607] | -4.289 [3.938] |
| Observatio | 9 | 9 | 9 | 8 | 8 | 8 | 11 | 11 | 11 | 10 | 10 | 10 |
| Adjusted R | -0.129 | -0.095 | -0.285 | -0.085 | 0.305 | 0.132 | 0.234 | 0.263 | 0.18 | 0.058 | 0.287 | 0.229 |
| F-Test | 0.14 | 0.59 | 0.41 | 0.29 | 2.15 | 1.96 | 7.79 | 3.83 | 3.01 | 3.64 | 3.27 | 3.85 |
| Prob>F | 0.72 | 0.58 | 0.75 | 0.61 | 0.21 | 0.26 | 0.02 | 0.07 | 0.1 | 0.09 | 0.1 | 0.08 |

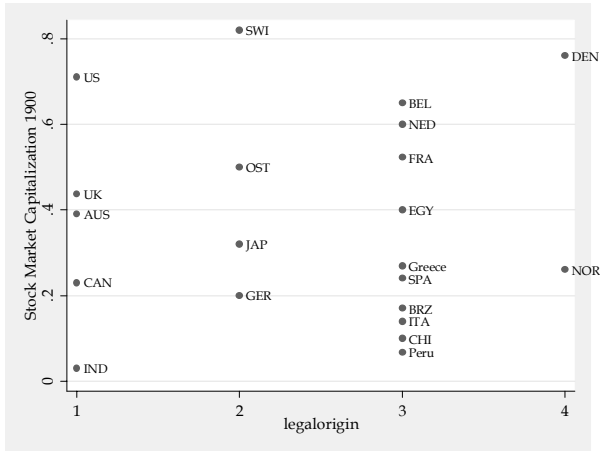
Table 13 Pairwise correlation table of main variables used in the analysis

| | mkt1913 | mkt1900 | bon~1900 | bon~1913 | rzm~1913 | lls~1913 | avginf | gdpcmad1 | gdpcmad1 | gold1900 | gold1913 | yrsgold1900 |
|---------------------|----------|----------|----------|----------|----------|----------|-----------------|----------------|----------------|----------|----------|-------------|
| Mkt. Cap/GDP 1913 | 1 | | | | | | | | | | | |
| Mkt. Cap/GDP 1900 | 0.8700* | 1 | | | | | | | | | | |
| Bond mkt. Cap/GDP 1 | 0.2414 | 0.3407 | 1 | | | | | | | | | |
| Bond mkt. Cap/GDP 1 | 0.152 | 0.213 | 0.9200* | 1 | | | | | | | | |
| R&Z mkt cap 1913 | 0.2214 | 0.4556 | 0.5556* | 0.5476* | 1 | | | | | | | |
| LLS mkt cap 1913 | 0.6749* | 0.6015* | 0.6867* | 0.7268* | 0.9949* | 1 | | | | | | |
| Avg. inf since 1880 | -0.5249* | -0.4645* | -0.4973* | -0.4336 | -0.2041 | -0.5206* | 1 | | | | | |
| GDP per cap 1870 | 0.2568 | 0.4186 | 0.3085 | 0.4256 | 0.5348* | 0.5794* | -0.3824 | 1 | | | | |
| GDP per cap 1890 | 0.4851* | 0.6075* | 0.3414 | 0.2931 | 0.2509 | 0.5544* | -0.3634 | 0.8889* | 1 | | | |
| Gold dummy 1900 | 0.3875 | 0.4912* | 0.2227 | 0.155 | 0.3327 | 0.3384 | -0.4763* | 0.246 | 0.2872 | 1 | | |
| Gold dummy 1913 | 0.161 | 0.2683 | -0.0326 | -0.0418 | 0.1885 | 0.1579 | -0.0083 | 0.1247 | 0.0983 | 0.5860* | 1 | |
| Yrs. On gold 1900 | 0.4879* | 0.6077* | 0.2847 | 0.2232 | 0.0893 | 0.4718* | -0.5173* | 0.4642* | 0.4788* | 0.8507* | 0.4985* | 1 |
| Yrs. On gold 1913 | 0.4404* | 0.5526* | 0.2345 | 0.1654 | 0.1544 | 0.4248 | -0.4458* | 0.3917 | 0.4034 | 0.9040* | 0.6694* | 0.9689* |

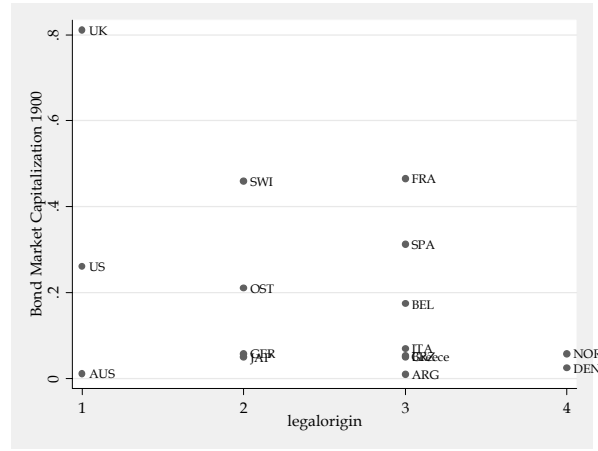
* denotes significance at the 5% level

Figure 1 Measures of Financial Development vs. Legal Origin in 1900 and 1913

Panel A: Stock market cap to GDP by legal family in 1900 and 1913



Panel B: Bond market cap to GDP by legal family in 1900 and 1913



Panel C: Companies traded per million people and private credit to GDP, 1913

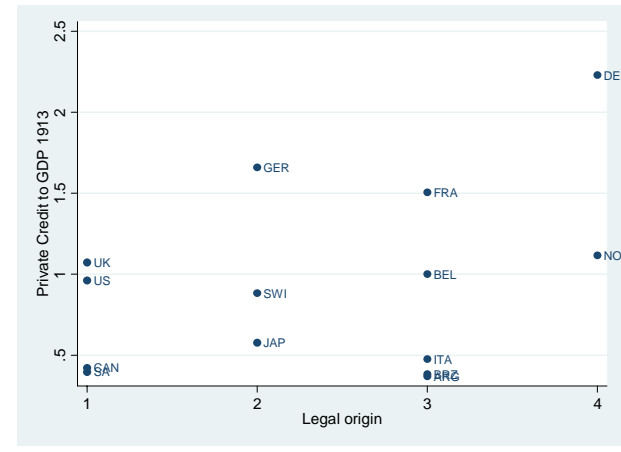
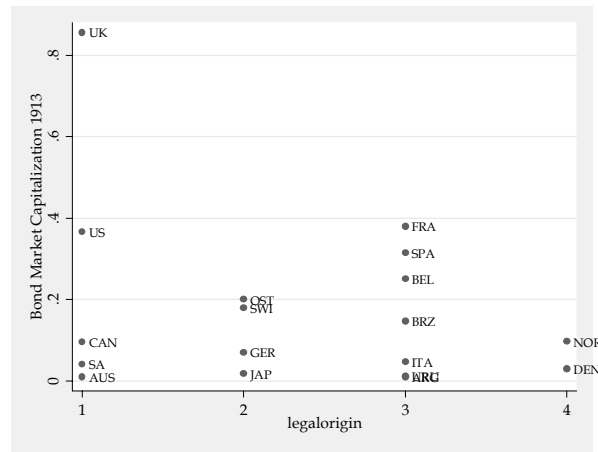
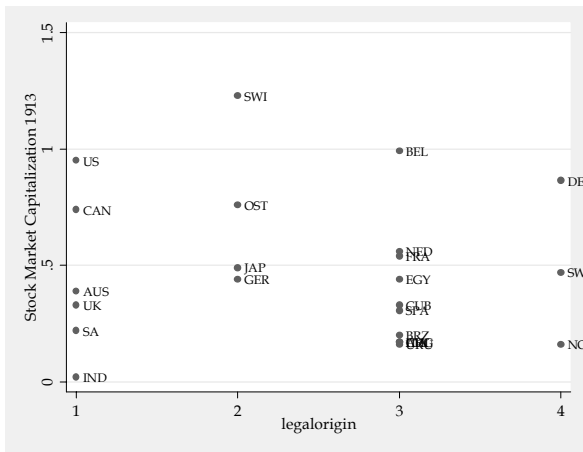
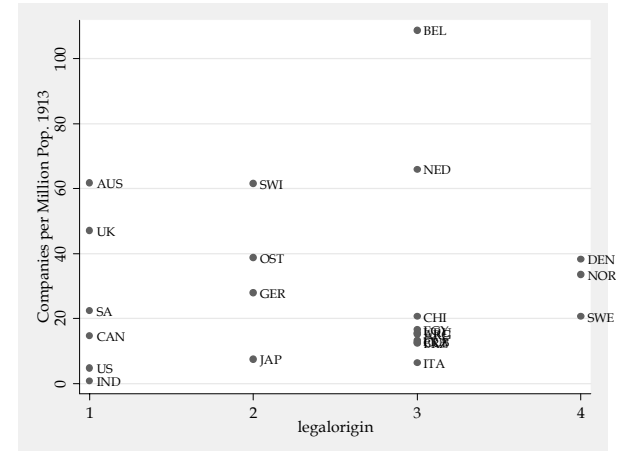


Figure 2 Bank Deposits per capita 1913, 1925, and 1929

