THE EXTERNAL FINANCING OF EMERGING MARKET COUNTRIES: EVIDENCE FROM TWO WAVES OF FINANCIAL GLOBALIZATION

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Abstract

We trace the history of where and why investors from the most advanced countries directed funds, ultimately helping finance economic development in emerging market countries. To do this, we analyze the determinants of international investors' willingness to hold the external liabilities issued by emerging market countries, through cross-country regressions for both prices (bond spreads) and quantities (bond market capitalization or stocks of external liabilities) estimated at various points during two waves of financial globalization (1870–1913 and the present time). The data are drawn from primary sources for the historical period, and the much-expanded, new vintage of the Lane and Milesi-Ferretti (2006) data set for the modern period. The results suggest that, throughout the past one and a half centuries, a combination of human capital (including informal human capital) and institutional quality has been a key determinant of emerging market countries' ability to attract international investors.

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I. MOTIVATION

What features of a developing country convince international investors to hold its external liabilities, thus helping it obtain the factors of production—notably, capital and the technology it embodies—that it needs to converge to prosperity? What made it possible for economies such as those of what are now Australia, Canada, and New Zealand to obtain massive amounts of external finance in the pre-World War I era, whereas Egypt, India, and Sierra Leone to this date do not seem to have attracted the necessary external capital and remain developing countries? While the ultimate causes of a country's economic development are no doubt "deeper" than the size of its capital stock, the premise of this paper is that the ability to attract international finance is an important mechanism—though by no means the only one—whereby deeper factors determine a country's path to prosperity. In this paper, we analyze the determinants of countries' relative success in persuading international investors to hold their external liabilities. We show that the factors that matter today are similar to—indeed, related to—the factors that operated a century ago. To do so, we trace the history of which developing countries were able to attract international investors during the past one and a half centuries, and why they were able to do so.[2]

We draw on evidence from two waves of financial globalization—namely, the pre-WWI era, when emerging market countries were financed to a large extent through bonds issued on the London market, and the present era.[3] Using a data set collected from primary sources for the historical period and a still underexplored data set for the modern period, we undertake the first joint analysis of cross-country differences in the size of external liabilities ("quantities") and the yields required by international investors ("prices"). In addition, the combination of historical and modern data makes it possible not only to analyze similarities and differences between the two eras of financial globalization but also to use a number of historical variables as instruments in regressions for the modern period.

The questions that motivate the present study are essentially as old as economics itself and are related to the vast literature that seeks to explain differences in growth or income levels. Nevertheless, much of the recent literature on this topic has been spurred and shaped by Lucas' (1990) seminal paper, in which he pointed out that a standard neoclassical growth model would predict much larger rates of return on capital for poor countries than for rich countries, and asked why capital doesn't flow from rich to poor countries. Several explanations have been proposed to solve the so-called "Lucas paradox." Lucas (1990) himself argued that externalities

[2] We do not ask what determined the cross-country distribution in the late 1800s of deeper factors (such as institutional quality or education) that have already been identified as determinants of prosperity by other studies (Acemoglu and Johnson, 2005; Glaeser and others, 2004). However, we do find that some of these deeper factors also affected the size of countries' liabilities held by international investors, consistent with the view that external finance is one of the channels through which such deeper factors may lead to prosperity.

[3] The degree of international financial integration peaked in 1870–1913, fell sharply with the two World Wars and the intervening Great Depression, and has increased rapidly since the 1970s, returning in the mid-1990s to levels comparable to the pre-WWI peak (Obstfeld and Taylor, 2004).

associated with human capital represented a potential solution to the paradox: he showed that external benefits from human capital were able to deliver identical rates of return on capital in rich and poor countries, while generating large differences in wages that were consistent with sizable labor flows from poor to rich countries. Reinhart and Rogoff (2004) have recently emphasized the risk of default as a key deterrent for international investors, pointing to the negative correlation between present-day income levels and the percentage of total years in default after World War II.[4] Using data for a cross section of 60–80 advanced and developing countries in 1970–2000, Alfaro and others (2005a, 2005b) and Wei (2005) provide evidence that the institutional quality of the host country is a key determinant of international capital flows over the long run. Faria and Mauro (2004) also show that institutional quality is significantly associated with the composition of countries' external liabilities.

We consider the evidence from the pre-1914 era to be a crucial piece of the puzzle, for three reasons. First, to support his view that default risk and institutional factors are unlikely to be the main factors underlying limited capital flows to developing countries, Lucas (1990) refers to the case of India under British rule in the nineteenth century: he points out that in this case default risk was not a concern, and that many of India's contemporary institutions had been modeled after those of Britain.[5] Indeed, as confirmed by the data we report below, India's debt was issued at interest rates that were as low as those enjoyed by Britain.[6] Thus, it is informative to consider the experience of British colonies (particularly where the debt was at least implicitly guaranteed by Britain), other colonies, and countries that either were never colonized or—as in the case of Latin American countries—had already broken free from their colonizers in the first quarter of the nineteenth century. Second, the pre-1914 era was arguably of key importance for long-run economic development: it was then that many technological advances that originated in Britain in the context of the industrial revolution were transferred to countries in the periphery. While several countries may have reached economic prosperity without much recourse to external finance, this seems to have been a crucial mechanism in the second half of the 1800s for the economies of what are now Australia, Canada, and New Zealand, where crucial infrastructure (such as railways) could not have been financed without international investors' willingness to hold the bonds issued by sovereign or near-sovereign entities.[7]

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[4] In a more general context, Kraay and others (2005) argue that sovereign risk is an important potential determinant of international investors' portfolio choices.

[5] Reinhart and Rogoff (2004) counter that rebellions in British colonies were common and that, as a result, the perceived risk must have been substantial.

[6] Moreover, *The Economist*'s *Investor's Monthly Manual*, our main data source for the historical period, reports data for "British and Indian" debt separately from "colonial" debt, or "foreign government" debt, confirming the contemporary perception of India's especially close status to Britain.

[7] As international investors have always been all too aware, this is not to say that finance was used only for economic development: in a number of cases (such as those of several Latin American borrowers in the historical period), a substantial portion of debt accumulation can be traced to war financing. As there is no practical way to control for whether financing is allocated to its most productive use, we abstract from this issue, though it is worth noting that wartime debt accumulation was usually reversed (occasionally through default) within a few years.

Third, some of the proposed explanations for the paradox involve variables that are generally considered to be persistent: institutional quality (Acemoglu and others, 2001 and 2005; and Acemoglu and Johnson, 2005), education (Gallego, 2006), and "serial default" (Reinhart and others, 2003). Indeed, we confirm the persistence of these variables and use the historical variables as instruments in our estimates for the modern period. More generally, a stronger case can be made if it can be shown that these variables have a consistent impact at different points in history.

Reflecting the importance of the pre-1914 experience, two pioneering papers have already considered closely related issues in this historical context. On quantities, Clemens and Williamson (2004) analyze the determinants of the destination of capital flows from Britain in 1870–1913, and document a "wealth bias" whereby British capital eschewed poor, labor-abundant economies, and seemed instead to chase natural resources and educated populations. Our contribution here is to collect and analyze data from a different source, and to bring new explanatory variables to bear on the questions at hand: for example, we address directly the hypothesis put forward by Clemens and Williamson (2004) and O'Rourke and Williamson (1999) that British capital chased European settlers, using data that have been recently been emphasized in the work of Acemoglu and others (2001); we also analyze the potential role of serial default. On prices, a recent study by Ferguson and Schularick (2006) analyzes the determinants of sovereign bond yields for a large panel of countries in 1880–1913, and finds that affiliation with the British empire played a key role in this respect.[8] Several other studies have addressed this topic, though focusing on the time series information for a smaller cross section of countries (Mauro, Sussman, and Yafeh, 2002 and 2006; and references therein).

In this study, we seek to understand the motivation underlying investors' choices in allocating their holdings across countries, combining modern and historical evidence based on both quantities and prices. We conduct a set of parallel exercises in which we analyze the potential determinants of investors' attitudes toward emerging market countries, as reflected not only in the size of external liabilities, but also in the yields that investors required to hold such liabilities. Our focus on the yields on sovereign or near-sovereign bonds issued by the various countries in our sample is motivated by data availability, as well as by the fact that this was the prevalent form of international finance in the historical period and still plays an important role in modern times.

Our analysis of the modern period draws on a path-breaking effort by Lane and Milesi-Ferretti (2006), who collected and analyzed data on the stocks of external assets and liabilities for more than a hundred countries over 1970–2004. This yields a much-expanded cross section of countries compared with previous studies, allowing us to obtain more reliable estimates and—together with the use of a wider range of historical variables as instruments—to show that it is a broad combination of institutional quality and human capital (including informal human capital) that matters in explaining cross-country differences. In addition, our contribution is to include in

[8] Although we collected our data independently, from primary sources, our historical data set is very similar to (and has been double-checked against) that assembled by Ferguson and Schularick (2006). Our data on spreads are more precise (being a market-capitalization-weighted average of all traded bonds for each country), and we extended the coverage somewhat in terms of countries and variables.

the analysis both prices and the determinants of access to international bond markets. This said, we focus on all liabilities, including those—such as portfolio equity and foreign direct investment—that did not feature as prominently in the pre-WWI era.
The remainder of this paper is organized as follows. Section II presents the salient features of the data and documents their sources, the methodology, and estimates for the pre-WWI period and the modern period. Section III interprets the results and concludes.

II. Methodology, Empirical Analysis, and Results

This section briefly presents the empirical strategy, describes the data, and reports the results. Our main objective is to analyze the role of highly persistent variables in determining differences across emerging market countries in the ability to access international financing. We therefore base our analysis on cross-country regressions, focusing on stocks of liabilities as the dependent variable.[9] This is in line with the literature on long-run determinants (including institutional determinants) of cross-country differences in per capita income levels (for example, Hall and Jones, 1999; and Acemoglu and others, 2001).

A. The First Wave of Financial Globalization (Pre-WWI)

We collect and analyze cross sectional data for 66 countries and colonies. Although we present descriptive statistics for Britain, we exclude it from the sample for all correlations and regressions because of its role as the main source of international finance in the pre-WWI era.[10] Our data refer to the year 1905—toward the end of the first wave of globalization, yet prior to the run up to World War I as well as to the compression of emerging market spreads.[11] We repeat the analysis for 56 countries and colonies for the year 1889, reporting the results in Appendix Tables B1–B3. The year 1889 is of interest because it was a time when borrowing cost differences were more pronounced and because it was just prior to the 1890 Barings crisis, which led to a marked, though temporary, slowdown in capital flows toward emerging market countries.

The results for 1905 and 1889 are similar: this finding reassures us that the determinants of international investors' willingness to hold emerging market countries' liabilities remained broadly the same; it is also consistent with the persistence of both dependent and independent variables—as illustrated, for example, by a scatter plot of the logarithm of the debt-to-population ratios for 1889 and 1905 (Figure 1). A few countries deviate considerably from the

[9] The persistence of the variables argues against an alternative approach based on panel regressions: most of the interesting information would be contained in the country fixed effects.

[10] In light of the limited size of the sample, we keep other relatively industrialized countries, such as France, Germany, and the Netherlands. Dropping them from the sample does not change the main results.

[11] Although emerging market countries' rankings with respect to spreads were fairly persistent in 1870–1913, both the cross-country average level and the variance of spreads displayed a broadly declining trend throughout the period; in particular, the decline in spread differentials across emerging markets in 1906–1913 has attracted much attention, leading several authors to put forward differing hypotheses to explain it. (See Mauro and others, 2006, pp. 33–34, for a summary).

45-degree line: Chile's debt was far higher in 1889, when it was financing a war against Bolivia and Peru, than it was in 1905; in our data set, Portugal's debt is higher in 1889 (when data are available only for total debt) than in 1905 (when data on external debt are available); Western Australia's debt was far higher in 1905 than in 1889, as substantial gold discoveries during the late 1880s and early 1890s made the region more appealing to investors, thereby driving up its debt-to-population ratio. China's debt increased substantially between 1889 and 1905, albeit from a very low level. In addition, the IMM's 1889 issue (see below) provides data only on external debt, whereas the 1905 issue gives only the aggregate debt number. On the whole, however, persistence is quite strong, with a correlation coefficient of 0.88. China's value of the logarithm of the debt-to-population ratio is far more negative than that for other countries (on account of its large population), particularly in 1889, suggesting that it might be a highly influential observation. We have checked that the main results in the paper hold if China is dropped from the sample.

A general note of caution is in order regarding the historical data and results. The likelihood of finding highly significant and robust patterns in the data—especially when working with systems of demand and supply—is limited, owing to the relatively small number of countries with data available, the substantial degree of measurement error involved in the historical data, the relatively large set of potentially relevant explanatory variables, and the presence of influential observations (see below). Indeed, some of the relationships that we find can be rendered statistically insignificant and, occasionally, overturned with changes in the sample of countries or the list of explanatory variables. In reporting our results, we point out which relationships are robust to changes in sample or specification, and which are not.

Data sources and variables used

Whenever possible, we draw our data from contemporary sources, in order to reflect the information available to investors at the time. Specifically, we collect our data for the pre-WWI era from *The Economist*'s *Investor's Monthly Manual* (IMM), complemented by other primary and secondary sources.[12] Further detail is provided in the remainder of this section, as well as Appendix.

Dependent variables

Our "quantity" measure is, generally speaking, external debt divided by population. We scale debt variables by population, rather than GDP, for three reasons. First, our historical sources (notably, the IMM) report "debt per capita" explicitly and emphasize it in their analyses, suggesting that this concept was of key importance to contemporary investors. Second, the concept of GDP was not used in the pre-WWI era. Third, we are ultimately interested in explaining external financing as one of the channels of economic development, and high GDP, exports, or revenues are a reflection of economic success and development. Nevertheless, in

[12] Mauro, Sussman, and Yafeh (2002 and 2006) analyze the behavior and determinants of sovereign bond spreads in 1870–1913 and 1994–2002 for a panel of emerging market countries. The present study relies on newly collected data for a much larger cross section of countries, though data constraints imply that the time-series information is more limited.

some of the estimates we include exports per capita as a control variable, because it is typically viewed as helping determine a country's ability to repay. Exports per capita can also be interpreted as a proxy for natural resource abundance, because natural resources accounted for essentially all exports from the emerging markets of the pre-WWI era (Mauro, Sussman, and Yafeh, 2006, pp. 119–122). We do not use GDP data because those reconstructed by Maddison (2003) are available for only about 20 countries in our sample.

For the historical sample, we take the logarithm of the debt-to-population ratio. Debt as a share of population was far larger in the various independent colonies (New South Wales, Queensland, South Australia, Tasmania, Victoria, and Western Australia) that ultimately federated into the Commonwealth of Australia (in 1901), as well as in New Zealand, than in other countries. These are extremely interesting cases because—despite the vast geographic distance from Britain—they were able to attract unusually large amounts of finance on a per capita basis, likely reflecting the abundance of natural resources and the relatively small population. In 1905, their debt expressed in per capita terms ranged from 43 for Victoria to 87 for Western Australia—far higher than in the other countries in the sample, where it ranged from the single digits to the teens. The log transformation prevents these observations from being unduly influential. (Without the log transformation, the results are far stronger, though largely driven by these observations. The key results hold when the regressions are run with debt/population in levels—rather than logarithms—including a dummy for Australia/New Zealand. These results are not shown for the sake of brevity and are available from the authors upon request.)

We use three variants of the debt variable: (i) external (when available; otherwise total) debt as reported by the IMM in the section that provided investors with macroeconomic information on the various colonies and countries; (ii) debt outstanding on bonds issued by the country in question on the London market; and (iii) market capitalization of bonds issued by the country in question and traded in London. Thus, the most comprehensive measure is (i), because it includes debt issued and traded outside London. On the other hand, (ii) and (iii) are likely to be measured more accurately, because they refer to data observed on the London stock exchange. It is also worth noting that (iii) reflects market views on the likelihood of default, and incorporates lower market values after a default; in contrast, (ii) consists of all outstanding debt as initially incurred. Our results are broadly robust to these changes in definition.

Measures (ii) and (iii) refer to financing from the London market; and even measure (i), though intended to capture all external debt, might lead to concerns that as our main data source is London-based, we might be overlooking other important sources of finance, such as those from other European or perhaps even U.S. financial centers. Most previous studies on related topics have similarly focused on the U.K. experience, not only because of data availability, but also because Britain's role as the world's leading capital exporter was unmatched by its competitors combined in the pre-WWI era (Clemens and Williamson, 2004; Feis, 1930). Flandreau and Zumer (2004), relying primarily on French sources, report data on external debt that are similar

to ours for the countries that are available in both their sample and ours.[13] This said, one will need to bear in mind the "British" focus of our data set when interpreting our results, especially those regarding the role of U.K. colony status.

Our "price" measure—sovereign bond yields—is the market capitalization weighted average yield on all bonds issued by the country and traded on the secondary market in London.[14] This is a more precise measure of the country's overall cost of borrowing than in previous studies, which—largely for practical reasons related to data collection—have relied on yields on one "representative" bond (not always the most liquid bond for a given country), despite substantial differences in secondary market yields across bonds issued by the same country.[15] Regardless of the exact method, it is not possible to compute yields accurately for times of default; thus, throughout the paper, for estimates that involve yields, we exclude observations for countries that are undergoing default. (We keep such observations for estimates involving quantities only.)

Independent variables

Data constraints, as well as the relatively small size of our cross sectional samples, lead us to use a parsimonious list of independent variables. These include primary school enrollment, drawn from Benavot and Riddle (1988), as in Gallego (2006);[16] the share of Europeans in total population, from Acemoglu and others (2001); pre-Panama Canal shipping distances (in alternative specifications we used direct-line distances, obtaining essentially the same estimates). In addition, we use dummies indicating whether a country had defaulted between the beginning of the 19th century and the year in question (1889 or 1905, as applicable); and whether it was a British colony. (Under one interpretation, U.K. colony status may be seen as proxying for English legal origin, whose importance has been emphasized in the work of La Porta and others, 1998.) Moreover, we use a variable taking the values 0, 1, or 2, depending on whether the country was never, some of the time, or always on the gold standard between 1870 and the year in question (1889 or 1905, as applicable).[17]

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[13] The same is true for our data on emerging market bond yields and Flandreau and Zumer's (2004) indicators of creditworthiness reported by the Credit Lyonnais. (A comparison for the available subsample of countries is provided in Mauro, Sussman, and Yafeh, 2006, p. 99.)

[14] The results are virtually identical using a simple average of the yield, and are not reported for the sake of brevity.

[15] Such differences were not due to market imperfections, but rather to special features of the bonds (such as lotteries, collateral, etc.) that can no longer be controlled for, particularly in a large cross-country study (Mauro, Sussman, and Yafeh, 2006).

[16] Benavot and Riddle (1988) calculate primary school enrollment as the number of primary school students divided by the population aged 5-14.

[17] Alternative ways of defining this variable (for example, as a 0-1 dummy) yield similar results. In any case, the ability to sustain the gold standard in the long run might be viewed as endogenous to a country's ability to persuade investors to hold its liabilities. We include this variable for the sake of completeness, because it has been the focus of many previous studies.

We focus on the share of Europeans in total population, rather than settler mortality, for four reasons. First, limiting our analysis to colonies only would curtail the size of our sample (though we report some estimates for the sample of all colonies, or U.K. colonies only). Second, it would undermine a key objective, namely the analysis of the importance of colonial status. Third, Acemoglu and others (2001) have already made a convincing case that settler mortality—a clearly exogenous factor—is a strong determinant of the settler share. Fourth, although one might be concerned that European migrants chose their destinations in the periphery in the 1800s (among those where mortality was not excessive) based on the availability of land and natural resources (O'Rourke and Williamson, 1999), the economic growth literature shows that natural resources have had, if anything, a negative impact on long-run growth (Sachs and Warner, 2001); moreover, we control for exports per capita, and exports by the periphery consisted almost entirely of natural resources. This said, particularly for samples that include non-colonies, the interpretation of the share of Europeans needs to be broader than for Acemoglu and others (2001): we view this variable as a proxy for cultural proximity to the main financial center and to the countries that were at the technological frontier in the pre-WWI era.

Descriptive statistics and salient features of the data

Descriptive statistics for the key variables are reported in Table 1. The distinction between "British and Indian government," "Colonial governments," and "Foreign governments" follows the presentation in the IMM. (A full list of the countries included in the analysis for 1905 is provided in Appendix Table A1.) An immediately notable feature of the data is the lower average for spreads in the U.K. colonies compared with other countries—something that motivated Lucas' (1990) interest in this historical case and is confirmed by multivariate regressions, as shown below (and previously shown by Ferguson and Schularick, 2006).[18]

There is also a bivariate link between British colony status and debt per capita, though in multivariate regressions (below) this link is found to be fragile to the exclusion of the Australian colonies and New Zealand from the sample.[19] These faraway colonies were able to convince international investors to hold large amounts of their liabilities—a simple observation that alone suffices to show that distance was not an insurmountable obstacle for borrowing countries. Although with a logarithmic transformation the large debt/population ratios for New Zealand and the Australian colonies no longer appear as outliers, we present our results for both the sample that includes these special cases and the sample that excludes them.

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[18] The finding that U. K. colonies had relatively low spreads is by no means trivial: see Ferguson and Schularick (2006) for a thorough discussion of the somewhat vague and varying extent to which the British government guaranteed the debt issued by its colonies.

[19] Although our baseline estimates refer to 1905 and the Commonwealth was established in 1901, we think it is reasonable to analyze the Australian colonies as separate entities, because the bulk of their liabilities were issued prior to the turn of the century. (Note also that our main results hold for 1889.) Our key results hold when we use the Canadian provinces as individual observations, but in the estimates presented in the paper we treat Canada as a single unit, because political and economic unification took place before the heyday of pre-WWI international financial integration.

More precisely, correlation coefficients between our main independent and dependent variables are presented for three different samples: (i) the full sample including the South African provinces (Cape Town and Natal) and the Australian provinces as individual observations (and therefore excluding the aggregates for South Africa and Australia); (ii) the provinces aggregated into one single observation for Australia and one for South Africa; and (iii) excluding Australia and New Zealand, though including a single observation for the South Africa aggregate (Table 2).

The logarithm of the ratio of debt (defined in the three ways mentioned above) to population is positively and significantly correlated with both the share of Europeans in total population and, somewhat less robustly, primary enrollment. In contrast, the correlations with past default, U.K. colony status, gold standard adherence, and distance are not robustly significant. The absence of a (robust) link between debt and colonial status is, again, consistent with Lucas' (1990) observation regarding India's failure to attract massive amounts of foreign capital despite its colonial status.

Bond yields are found to be significantly associated with a number of variables: positively with past default and distance, and negatively with U.K. colony status, primary enrollment, and gold standard adherence. The results for bond yields are influenced to a considerably lesser degree by the cases of the Australian colonies and New Zealand.

Regression results

Quantities

Multivariate OLS regressions of quantities (total debt, debt outstanding, or market capitalization, all per capita) on the explanatory variables (share of Europeans in total population, primary school enrollment, colonial status, past default, gold standard adherence, and exports per capita) uncover a number of interesting patterns in the data (Table 3).

In most specifications, the share of Europeans in total population enters significantly, with a positive coefficient. This includes specifications for the sample of all colonies (all countries that gained independence after 1776 inclusive, and all those that remained colonies in 1905), or U.K. colonies only, though this is not robust to the inclusion of many additional controls—presumably owing in part to the limited sample size. The magnitude of the coefficient is economically significant: increasing the share of Europeans in total population by 10 percentage points is associated with a 9–21 percent increase (depending on the specification) in debt per capita in the full sample. Primary enrollment, the U.K. colony dummy, and gold standard adherence are not robustly significant. The coefficient on the logarithm of the area is always estimated to be positive and turns out significant in a number of specifications. This is consistent with the idea that larger countries required larger amounts of financing, particularly to finance infrastructure such as railways: by some estimates, railways accounted for more than

40 percent of British residents' overseas asset holdings in 1913 (Fishlow, 1985, p. 392).[20] In some specifications, past default is positively and significantly associated with the debt/population ratio, presumably reflecting a tendency for countries prone to debt accumulation to default more often. Even with debt measures, such as market capitalization, that somewhat alleviate the problem of reverse causality, there is no glaring evidence that default made it impossible for countries subsequently to persuade investors to hold their debt. Exports per capita (a proxy for a country's ability to repay, natural resource abundance, and economic success) are significantly associated with debt per capita: a 1 percent increase in exports per capita is linked with a 0.6–0.7 percent increase in debt per capita. In some specifications, the results on quantities are somewhat fragile to the inclusion of distance as an additional explanatory variable (which however takes a counterintuitive positive sign, seemingly capturing some of the special effect of the Australian colonies and New Zealand).

Prices

In multivariate OLS regressions of bond yields (Table 4), the U.K. colony dummy is negatively and significantly related to the cost of borrowing—in all specifications. U.K. colony status is associated with yields 50–100 basis points below those of other countries. This suggests a substantial "empire effect," whereby investors may have perceived colonies to be safer places for their investments, thus requiring a lower risk premium. This finding corroborates results obtained by Ferguson and Schularick (2006), as well as Lucas' (1990) classic example involving India. Distance is significant in most specifications, and its coefficient has a positive sign, perhaps proxying for information costs. Primary enrollment is significant (or borderline significant) in most specifications, with the expected negative sign: a 10 percentage point increase in primary enrollment is associated with a decline in yields by 5–9 basis points. The share of Europeans in total population does not seem to play a major role in determining spreads: it is significant when neither shipping distance nor primary enrollment are included as explanatory variables. The coefficient on the logarithm of the area is not significant. Controlling for U.K. colony status, neither past default nor the gold standard are significantly associated with bond yields. Finally, none of the variables are significant in the subset of British colonies. This may well reflect the limited size of the sample. Alternatively, one can interpret the result as showing that in the eyes of creditors the British colonies were seen as broadly similar in terms of risk. The various factors we outline above may have featured significantly in investment decisions only when they related to sovereign countries.

Supply and Demand

A contribution of this paper is to analyze data on prices and quantities simultaneously. For the historical period, it seems reasonable to estimate a system of supply and demand, because yields

[20] In the case of Australia, area may overstate the financing needed to develop railways, because so much of the country is desert and was never likely to be developed or have railways built. (We thank an anonymous reviewer from the Australian Treasury for pointing this out).

on debt—then the main form of international finance—are easily available.[21] Specifically, we apply 3SLS regressions to data on bond yields and debt stocks for a cross section of 46 countries and colonies in 1905. Our exclusion restrictions (assumptions regarding variables that affect one of the equations but not the other) are as follows. The logarithm of a country's area is assumed to affect the demand for international financing, but not its supply. A large area increased the need for infrastructure—notably railways, which as mentioned above accounted for a large share of emerging market countries' liabilities, helping make area a good instrument. U.K. colony status and, in some specifications, gold standard adherence are expected to affect supply, by reassuring investors about their ability to enforce their claims and by buttressing the country's commitment to macroeconomic stability and avoidance of default; at the same time, we assume that the impact of these variables on demand is not substantial. We consider these exclusion restrictions to be warranted, though we recognize that they may involve a degree of judgment. We think that this approach is far preferable to ignoring evidence from either prices or quantities, or—say—simply including spreads in a "quantities" regression.

The main results are as follows (Table 5). Although the estimated elasticities of supply and demand with respect to bond yields are somewhat fragile to changes in specification, in most cases they have the expected sign, and are significantly different from zero for the demand function. The impact of (the logarithm of) a country's area on demand is significant (or borderline significant) in most samples and specifications. U.K. colony status and the gold standard are found to increase the supply of financing significantly, although only in some specifications. The estimated coefficient on the share of Europeans in total population is positive and significant in both supply and demand, and remains significant if the Australian colonies and New Zealand are excluded. On the demand side, the share of Europeans may have facilitated links with countries that at the time were at the technological frontier, thereby raising productivity. On the supply side, the presence of Europeans may have reassured international investors that default (say, by an indigenous revolutionary government) was unlikely to go unpunished. This result is robust to several changes in specification, though not to some where distance is included. The coefficient on primary enrollment is not found to be a significant determinant of demand or supply. A 10 percent increase in exports per capita is associated with a 4–5 percent increase in debt per capita in both the supply and the demand functions; the relationship is statistically significant only for demand.

B. The Second Wave of Financial Globalization (The Modern Era)

Data Sources and Variables Used

This section reports the findings of our analysis of the determinants of external liabilities and spreads for cross sections of countries during the current wave of globalization. Our main interest relates to emerging market and developing countries ("non-high-income countries"—see Appendix Table A2), for which the issue of external financing of development is more

[21] For the modern period, we consider the determinants of prices and quantities, but we emphasize estimates involving quantities only: a parallel estimation of supply and demand would be more problematic. In fact, nowadays non-debt forms of finance are far more prevalent, and exante returns on non-debt forms of finance are difficult to compute. Moreover, the majority of developing countries are unable to issue bonds internationally; as a result, data on yields are available for only a limited cross section of countries.

likely to be relevant. Nevertheless, we also present some results for the whole sample of countries, including advanced countries.[22] The data refer to 2002, the most recent year for which data availability is maximized. The sample excludes offshore financial centers and the countries experiencing severe payments difficulties in 2002 (Argentina, Côte d'Ivoire, and Nigeria).

The data set on countries' stocks of external liabilities was assembled by Lane and Milesi-Ferretti (2006), updating and extending their initial exercise (Lane and Milesi-Ferretti, 2001a).[23] Our largest sample for 2002 consists of 101 developing and emerging market countries (listed in Appendix Table A2). The data on external liabilities are constructed taking as a benchmark, whenever possible, recent estimates of the International Investment Position (IIP—described in detail in International Monetary Fund, 2002). The authors combine this information with data on capital flows, adjusting for capital gains and losses. They obtain estimates for several components of external assets and liabilities: portfolio equity, direct investment, debt (including portfolio debt, bank loans, deposits, and other debt instruments), financial derivatives, and foreign exchange reserves. In this paper, we are primarily interested in total external liabilities, although we also consider some key components—such as FDI and equity—to check the robustness of the results.[24] As is customary in this literature (e.g., Lane, 2004), we measure liabilities as a share of population in our baseline estimates. As mentioned above, we view GDP (economic development) as an outcome that we are ultimately seeking to explain. This said, in many specifications we use GDP per capita as a control variable (see below).

The data on emerging market spreads on sovereign bonds denominated in U.S. dollars are drawn from JPMorgan Chase and consist of the EMBIG (Emerging Markets Bond Index Global) spreads (vis-à-vis yields on U.S. long-term government bonds). For this variable, the largest sample consists of 26 countries—a limited cross section, partly reflecting the fact that emerging markets returned to bond finance during the current wave of financial globalization only recently, with the Brady deals of the mid-1990s (see Mauro, Sussman, and Yafeh, 2006, pp. 18–24).

Potential explanatory variables include: secondary schooling enrollment from the World Bank's *World Development Indicators*;[25] a dummy variable for past default (taking the value of one

[22] We omit the United Kingdom, the Netherlands, and Belgium, because they appear as outliers in terms of their liabilities per capita, presumably as a result of their large banking and financial sectors. The main results are similar or stronger when these countries are included.

[23] In their first exercise, Lane and Milesi-Ferretti (2001a) estimated external assets and liabilities for 67 countries over 1970-1998.

[24] The determinants of countries' external capital structures are analyzed in Lane and Milesi-Ferretti (2001b) and Faria and Mauro (2004).

[25] Similar estimates are obtained (not only for education, but also for institutional quality and other regressors), though for a smaller sample of countries, using alternative, higher-quality indicators that provide a more comprehensive measure of schooling enrollment or attainment (the percentage of population over 25 that has had some schooling, from Barro and Lee, 1993, 2000, and from Cohen and Soto, 2001; or the average number of years of schooling for the population over 25, from Barro and Lee, 1993, 2000, and from Cohen and Soto, 2001). We use secondary school enrollment rather than primary school enrollment because the former correlates more strongly

(continued…)

when the country experienced at least one default in 1970–2001);[26] openness (sum of imports and exports over GDP); the share of natural resources (fuels, metals, and ores) in total exports; and an index of institutional quality. This last variable is the simple average for 2002 of six institutional indicators drawn from Kaufmann and others (2005): Voice and Accountability; Political Stability and Absence of Violence; Government Effectiveness; Regulatory Quality; Rule of Law; and Control of Corruption.[27] In the full country sample of Kaufmann and others (2005), the index ranges from -2.5 to 2.5 (for 99 percent of the observations), with a mean of zero and a standard deviation of one; the range is narrower in our sample because we exclude the countries without adequate data coverage for other variables, as well as—in many specifications—the advanced economies. We also include in the regressions the size of the economy (total GDP in millions of U.S. dollars) and the level of economic development (GDP per capita in thousands of U.S. dollars). The latter in particular is an important control, because consultants rating countries with regard to institutional quality may well be influenced by a country's level of economic development; in addition, GDP per capita may be viewed as a proxy for the borrowing country's ability to repay. More generally, several of these potential explanatory variables are correlated with each other (Table 6), highlighting the importance of using multivariate regressions.

Results

Simple correlations

Higher total liabilities (as well as the equity and debt subcomponents) as a share of population are significantly associated with GDP, GDP per capita, institutional quality, openness, and secondary enrollment. Consistent with Reinhart and Rogoff's (2004) view that past default reduces countries' ability to finance themselves, liabilities per capita are also significantly and negatively associated with past default—though only in the full sample of all countries.[28] Given the high correlations across potential explanatory variables (Appendix Table C2), in the next sections we present multivariate regressions and report which empirical relationships continue to hold, controlling for other factors.

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with the higher-quality measures described above. (Country coverage would be greater with primary enrollment, but the quality of the proxy would be substantially reduced.)

[26] The results are essentially the same when considering only defaults in 1970–1991.

[27] In our view, the indices compiled by Kaufmann and others (2005) are "the state of the art" among indicators of institutional quality, partly because they are a summary measure of the largest available set of such indicators. Note also that instead of simple averaging of the six subcomponents, one could consider extracting a common component, by applying principal components analysis to the six series. This yields essentially the same results.

[28] The key results in this paper are similar using the number of years in default as in Reinhart and Rogoff (2004), rather than the 0-1 dummy used in the baseline estimates presented here.

Prices and Market Access

The determinants of modern spreads are estimated using both OLS regressions and a Heckman two-step procedure that accounts for selection of countries that have access to the international capital markets (Table 7). Specifically, the Heckman procedure estimates, in a first step, the determinants of access (that is, of whether a country's bonds are traded internationally and reported as part of the EMBIG); and, in a second step, the determinants of spreads, given that a country has access to the markets. The estimates obtained using the Heckman procedure are similar to the OLS results.[29]

As is well known from previous studies, it is difficult to find significant and robust relationships between modern spreads and economic fundamentals (Mauro, Sussman, Yafeh, 2006). Besides, this should not be too surprising given the limited size of the sample (a cross section consisting of 26 countries). Spreads (measured in basis points) are found to be higher in countries that defaulted at least once in 1970–2001, though the relationship is only borderline significant in some specifications. (This finding should be interpreted with caution because, depending on the definition of default, only 4–6 countries in the sample failed to default during the period considered.) Spreads are also found to be negatively and significantly associated with institutional quality. However, these relationships are no longer significant at the conventional levels when controlling for openness.

The first step of the Heckman procedure yields interesting and robust findings regarding the determinants of market access. Consistent with previous studies (Gelos and others, 2004), we find that country size and institutional quality are positively and significantly associated with the likelihood of market access.[30] A possible interpretation is that larger size (by facilitating the emergence of a liquid secondary market), as well as better institutional quality, help persuade investors to hold the bonds issued by the country in question. This is an interesting difference with respect to the pre-WWI era, when essentially all countries and colonies, no matter how small, were able to float bonds on the London market with ease (Mauro, Sussman, and Yafeh, 2006, p. 12; and Tomz, 2006).[31]

Quantities

In a cross section of developing and emerging market countries, multivariate regressions show that liabilities are positively and robustly associated with institutional quality and per capita

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[29] This is evident based upon inspection of the coefficients, and is confirmed by the lack of significance of the nonselection hazard statistic, "lambda" (though it is close to the 10 percent level in columns 6 and 7).

[30] To apply the Heckman two-step procedure we need to include a variable in the selection equation that is not included in the equation of the determinants of spreads. The most natural candidate is size, proxied by population in our baseline estimates because, as already mentioned, we are ultimately interested in explaining economic development. This said, the results are essentially the same when we use total GDP.

[31] In fact, reading of the historical record and commentary makes us fully confident of the validity of the assumption that country size had no impact on the supply of financing to emerging markets in the pre-WWI era.

income (Table 8).[32] The results are similar, with slightly lower *p*-values, for 1996 (Appendix Table C3). Interestingly, the association is significant for equity, as well as total liabilities, as the dependent variable, but not for debt when the whole sample of countries is considered.[33] The results are fairly robust to the inclusion of advanced countries in the sample. Per capita income remains significant in all specifications. Institutional quality is strongly significant in the regressions for total equity, but it loses significance for total debt and in one of the specifications for total liabilities. The magnitude of the coefficients is of clear economic significance. A one standard deviation increase in the institutional quality index (0.6 for the non-high-income country sample) is associated with an increase by US$420 per capita (0.6*0.7, from column 1) for total liabilities, US$240 per capita for equity, and US$180 for debt, compared with their current average levels of US$1,400 for total liabilities, US$600 for equity, and US$800 for the debt. Natural resources and openness do not display a robust and significant relationship with liabilities. Human capital plays a limited role in explaining cross-country variation of liabilities and their components. The relationship between past default and debt is significant with the "wrong" sign; this does not, by itself, invalidate the Reinhart-Rogoff hypothesis, because reverse causality is surely at play, as countries with higher debt tend to default more.[34] Interestingly, however, there is no evidence that past default makes international investors more reluctant to holding equity-like liabilities. One might tentatively interpret this as suggesting that serial default may not be the most relevant determinant of overall ability to attract external finance.

Quantity estimates using historical instrumental variables

By conducting parallel exercises for both historical and modern data, we have been able to identify some broad patterns that seem to hold in both periods, as well as some differences. A further important advantage of our approach is that it makes it possible to combine historical and modern data in the same estimation procedure. Specifically, we can use some of the historical variables as instruments for the modern variables, consistent with the view that some determinants of countries' ability to attract external finance are extremely persistent.

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[32] Trinidad and Tobago and Equatorial Guinea appear as outliers in scatter plots of per capita liabilities on the independent variables, and are dropped from the non-high-income sample. They are not excluded from the whole sample (where they do not appear as outliers), though including them does not affect the main results. We also follow standard practice in defining Korea as a high-income country; including it in the non-high-income sample makes the results even stronger (the only substantial difference is an increased importance of openness in attracting equity).

[33] This is consistent with Faria and Mauro's (2004) analysis of the determinants of the composition of countries' external liabilities.

[34] Applying a Heckman two-step procedure that accounts for selection of countries that have access to the international capital markets delivers the "right" negative sign, statistically significant in several specifications when the dependent variable of interest is total liabilities per capita or total equity per capita (this is robust to the exclusion of China from the sample); when the dependent variable is debt per capita, the coefficient on default is negative but always statistically insignificant. However, these results should be interpreted with caution because out of 26 countries with access only 4 to 6 countries have not defaulted from 1970 to 2001, depending on the definition of default.

We choose a parsimonious specification for regression estimates of the determinants of a country's ability to persuade international investors to hold its liabilities (in some variants, we focus on equity-like liabilities only, and debt only). The list of potential modern-day determinants includes institutional quality, secondary enrollment, and default in 1970–2001. The list of instruments includes: the ratio of Europeans in total population in 1900; primary enrollment in 1900; a dummy for U.K. colony status before WWI; and a dummy for pre-WWI default. (Pre-1970 default leads to almost exactly the same country list, because essentially all the countries that defaulted from 1914 onward had already defaulted before).

The first-stage results confirm the strong relationship between historical and modern variables (Table 9). Pre-WWI default is a strong predictor of post-1970 default, consistent with the "serial default" view of Reinhart and others (2003). Institutional quality is positively and significantly correlated with the ratio of Europeans in total population, consistent with Acemoglu and others (2001), but also with primary education in 1900, along the lines suggested by Glaeser and others (2004). Secondary school enrollment in modern times is also significantly predicted by the share of Europeans and primary school enrollment in 1900 (as well as pre-WWI default, though this result holds only for the non-high-income countries).

The second-stage results confirm the important role played by institutional quality and human capital in determining countries' ability to persuade international investors to hold their external liabilities, but they also highlight the difficulty involved in separating the impact of institutions from that of human capital. For each specification, we report estimates for the instrumental variable estimation alongside OLS estimates for the same sample of countries, in order to focus on differences in the coefficient estimates across estimation procedures (Tables 10–12). When institutional quality or secondary enrollment is used as the only explanatory variable or in combination with past default alone, it is positively and significantly associated with total liabilities per capita. In all specifications, the magnitude of the coefficient is at least as high in the instrumental variable estimates as in the OLS estimates—whether using institutional quality or secondary enrollment. However, when institutional quality and secondary enrollment are included together as explanatory variables, neither turns out to be individually statistically significant.[35] This is consistent with the view that it is difficult to disentangle whether the impact on economic development of links to Europe occurred through institutions or human capital (Glaeser and others, 2004).

III. Interpretation and Conclusions

We believe this paper to be the most thorough empirical analysis of the long-run determinants of emerging market countries' access to international finance, to date. The paper draws on evidence on both "quantities" (stocks of external liabilities) and "prices" (yields on sovereign bonds) for cross sections of countries at various points in time during the pre-WWI era and the current wave of financial globalization. By considering both historical and modern data, we can check the consistency of our results at different points in history; we can also use the historical

[35] This is a clear case of multicollinearity. The correlation between the predicted values (from the first-stage regressions) of institutional quality and secondary enrollment is very high. In the second-stage regressions, an F-test of the joint hypothesis that the coefficients on both variables are zero is strongly rejected.

variables as instruments for the modern variables, thus exploiting the persistence in such variables. Although we have made an effort to draw on as comprehensive a database as possible, the implications of the data constraints, especially for the historical sample, cannot be overemphasized. The number of observations is limited, data quality is mixed, and the number of potential (and largely multicollinear) explanatory variables is substantial. We think that the results reported above are strongly suggestive, but have also highlighted that several results are not robust to changes in sample or specification.

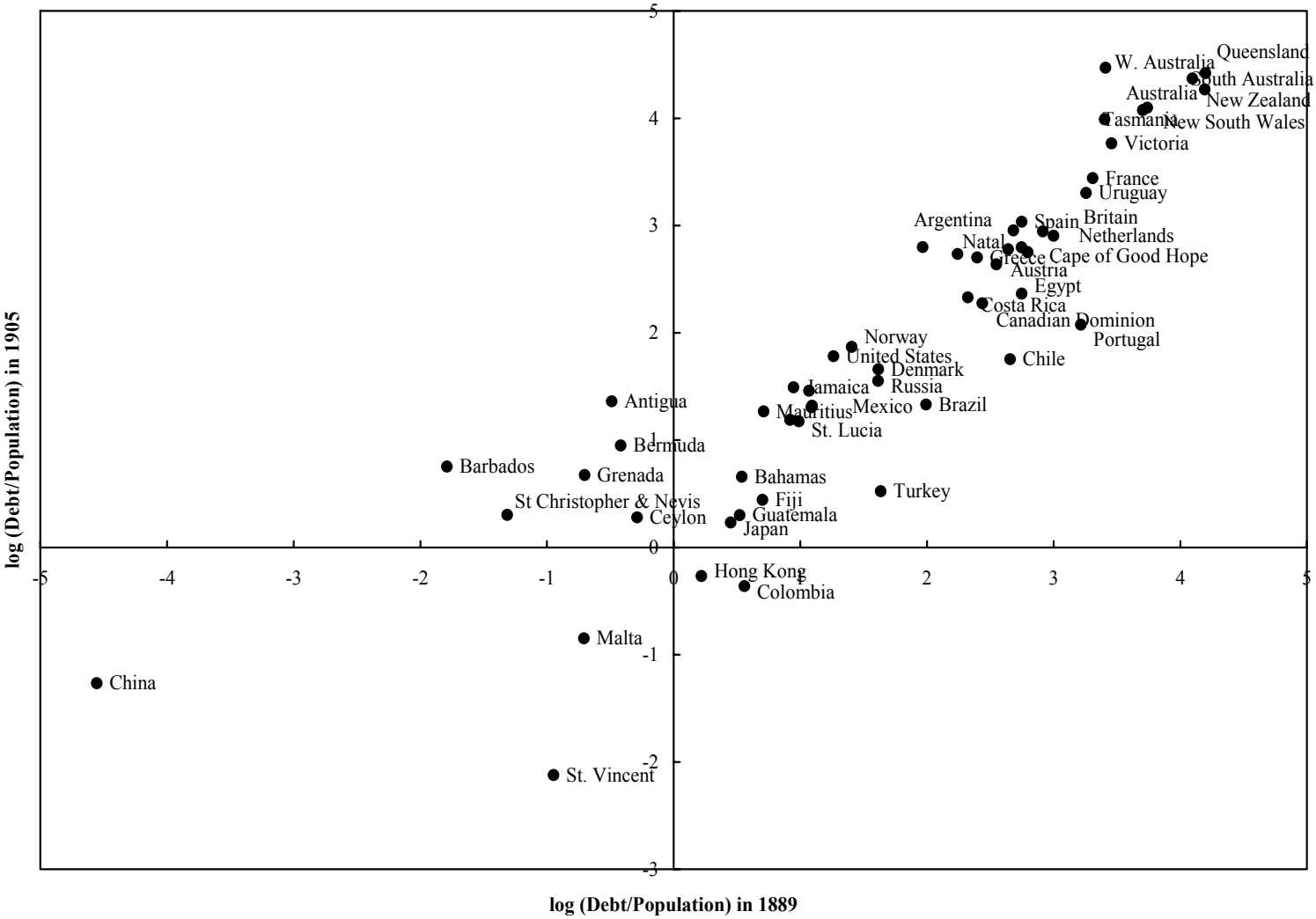
To the extent that relationships are found to be significant, a broad theme emerging from the results presented above is that institutional variables seem to have played an important role throughout the history of the external financing of economic development. Indeed, the factors that determine emerging market countries' relative degree of success in attracting international investors today are similar and related to those that played a role a century ago. However, our reading of the evidence is that the interpretation of the "institutions" that matter in fostering the ability to attract international investors is fairly broad.

The key results may be summarized as follows. The evidence based on the historical period suggests that U.K. colonial status significantly increased the supply of financing, thereby reducing the cost of borrowing. Formal educational attainment seems to have lowered the cost of borrowing, but, on the whole, the share of Europeans seems to have played a more important role. The share of Europeans in the total population, by facilitating acquisition of technology from countries then at the technological frontier, may have raised the marginal product of investment, thereby increasing the demand for financing in emerging countries; it may even have increased supply (perhaps by reassuring U.K. investors that a successful indigenous revolution ultimately leading to default was less likely). Views may differ on exactly what the share of Europeans in total population represents: we interpret it as capturing institutions in a very broad sense that encompasses human capital going beyond formal education. Settlers clearly had formal education, but we have seen that, in several specifications, the impact of the share of settlers is significant controlling for primary enrollment. Indeed, our impression is that settlers also brought with them institutions as well as informal human capital—namely, the ability to operate as entrepreneurs (or, more specifically, to run farms and mines, and to build railways), and function in a market economy governed by such institutions.

Turning to the results for the present day, we have seen that both subjective indicators of institutional quality (de facto, rather than de jure) and—to a lesser extent—educational attainment are significantly and positively associated with the stock of external liabilities that international investors are willing to hold. The relationship seems to be especially strong for equity-like liabilities. Borrowing countries' ability to issue bonds internationally is also significantly related to institutional quality. Some of these relationships can be further analyzed through instrumental variable techniques, using the same historical variables that proved to be significant in the pre-WWI data set. In the first-stage regressions, we find that defaults in the pre-WWI era are a good predictor of modern day defaults, consistent with Reinhart and others' (2003) emphasis on "serial default." We also find that primary enrollment and the share of European settlers in 1900 are good predictors of both institutional quality and educational attainment in modern times. In the second-stage regressions, we find that institutional quality and educational attainment are jointly and robustly significant determinants of countries' ability

to attract international finance, but the individual roles of institutional quality and educational attainment are almost indistinguishable. Again, our own interpretation of this aspect of the history of the external financing of economic development is that European settlers brought with them not only a set of institutions, but also human capital—formal as well as informal. This is reflected to this day in the de facto institutional quality as well as educational levels of the countries where Europeans settled in large numbers more than a century ago.

Figure 1. Ratios of Debt to Population in 1889 and 1905



Sources: *Investor's Monthly Manual* 1889 and 1905; *Colonial Office List* 1889 and 1905; Flandreu and Zumer, 2004; Mitchell, *International Historical Statistics*, 2000.
Note: The ratios represent total external debt, if available and total debt otherwise, to population in current pounds sterling. Hong Kong is now Hong Kong SAR. St. Christopher and Nevis is now St. Kitts and Nevis. Ceylon is now Sri Lanka.

Table 1. Descriptive Statistics, 1905

	Debt per capita (in current Pounds)	Yields (in percent)	Exports per capita (in current Pounds)	Share of European population (in percent)	Primary enrollment (in percent)	Default 1800 - 1905 (0, 1)	Gold standard (0, 1 or 2)
Britain	18.99	2.86	7.17	100	74.10	0	2
India	n/a	3.23	0.35	0	4.70	0	1
Colonial Governments							
Number of Observations	30	24	31	32	29	32	32
Mean	19.01	3.65	8.65	34.39	49.47	0.03	1.63
Minimum	0.12	3.23	0.35	0	3.10	0	0
Maximum	87.40	3.96	56.08	100	90.00	1	2
Standard Deviation	28.80	0.17	10.94	41.43	30.92	0.18	0.61
Foreign Governments							
Number of Observations	31	27	29	33	34	34	34
Mean	9.21	4.19	4.88	65.38	39.17	0.62	0.85
Minimum	0.28	3.04	0.07	0	3.70	0	0
Maximum	31.18	5.55	28.94	100	95.00	1	2
Standard Deviation	8.19	0.73	6.08	39.98	24.74	0.49	0.82

Sources: *The Investor's Monthly Manual*, December 1905; *Colonial Office List*, 1905; Mitchell, 2000; Acemoglu and others, 2000; Benavot and Riddle, 1988; Beim and Calomiris, 2001; Meissner, 2002; Lopez-Cordova and Meissner, 2003; Clemens and Williamson, 2004; Ferguson and Schularick, 2006; and Schuler, 2006.
Notes: Debt is external when available and total otherwise. Yields are reported excluding the countries in default in 1905. Default equals 0 if the country in question has never defaulted during 1800-1905, and 1 otherwise. The gold standard dummy equals 0 if the country in question was never on the gold standard between 1879 (when the US adopted the gold standard) and 1905, 1 if it was on the gold standard for part of the period, and 2 if it was on the gold standard throughout.

Table 2. Pairwise Correlations, Pre-WWI Data

Full Sample	Log (debt/population)	Log (debt outstanding/ population)	Log (market cap/ population)	Bonds yields (market cap weighted)
Share of Europeans in 1900	0.62 ***	0.44 ***	0.45 ***	-0.08
Past default (1800-1904)	0.05	-0.09	-0.21	0.44 ***
Primary enrollment in 1900	0.49 ***	0.50 ***	0.54 ***	-0.41 ***
UK colony dummy	-0.01	0.29 **	0.36 ***	-0.46 ***
Gold standard dummy	0.31 **	0.46 ***	0.53 ***	-0.49 ***
Log (distance)	-0.06	0.11	0.10	0.27 *
Log (area)	0.40 ***	0.08	0.07	0.19
Log (exports/population)	0.70 ***	0.79 ***	0.82 ***	-0.38 ***
Aggregated Provinces	Log (debt/population)	Log (debt outstanding/ population)	Log (market cap/ population)	Bonds yields (market cap weighted)
Share of Europeans in 1900	0.58 ***	0.35 **	0.37 ***	-0.05
Past default (1800-1904)	0.20	0.08	-0.07	0.42 ***
Primary enrollment in 1900	0.36 ***	0.35 **	0.41 ***	-0.41 ***
UK colony dummy	-0.23 *	0.09	0.18	-0.44 ***
Gold standard dummy	0.19	0.35 **	0.44 ***	-0.47 ***
Log (distance)	-0.30 **	-0.14	-0.15	0.36 **
Log (area)	0.38 ***	0.03	0.02	0.21
Log (exports/population)	0.60 ***	0.71 ***	0.75 ***	-0.35 **
Aggregated Provinces Excluding Australia and New Zealand	Log (debt/population)	Log (debt outstanding/ population)	Log (market cap/ population)	Bonds yields (market cap weighted)
Share of Europeans in 1900	0.55 ***	0.29 **	0.31 **	-0.03
Past default (1800-1904)	0.29 **	0.18	0.01	0.42 ***
Primary enrollment in 1900	0.25 *	0.22	0.29 **	-0.41 ***
UK colony dummy	-0.36 ***	-0.04	0.06	-0.43 ***
Gold standard dummy	0.13	0.28 *	0.38 ***	-0.46 ***
Log (distance)	-0.46 ***	-0.31 **	-0.33 **	0.41 ***
Log (area)	0.35 **	-0.04	-0.06	0.23
Log (exports/population)	0.53 ***	0.66 ***	0.71 ***	-0.34 **

*significant at 10 percent; **significant at 5 percent; ***significant at 1 percent.

Table 3. Determinants of Quantities, Ordinary Least Squares, 1905

	Full sample							Aggregated provinces		No AUS & NZ		All Colonies	All UK colonies
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Dependent variable	Log (debt/ population)	Log (debt/ population)	Log (debt/ population)	Log (debt outstanding/ population)	Log (market capitalization/ population)	Log (debt/ population)	Log (debt/ population)	Log (debt/ population)	Log (debt/ population)	Log (debt/ population)	Log (debt/ population)	Log (debt/ population)	Log (debt/ population)
Share of Europeans in 1900	0.021***	0.019***	0.019***	0.017**	0.018**	0.009*	0.011*	0.016**	0.009	0.014**	0.007	0.027**	0.025*
	(0.00)	(0.00)	(0.00)	(0.02)	(0.01)	(0.06)	(0.06)	(0.01)	(0.12)	(0.03)	(0.14)	(0.02)	(0.10)
Primary enrollment in 1900	0.005	0.006	0.001	-0.002	0.003	-0.006	-0.001	0.006	-0.008	0.003	-0.010*	-0.006	0.006
	(0.58)	(0.47)	(0.88)	(0.89)	(0.78)	(0.34)	(0.87)	(0.47)	(0.36)	(0.66)	(0.07)	(0.64)	(0.77)
UK colony dummy	0.553	0.862*	0.794*	1.098**	1.866***	0.298	0.536	0.489	-0.389	0.147	-0.269		
	(0.28)	(0.07)	(0.06)	(0.02)	(0.00)	(0.41)	(0.25)	(0.31)	(0.41)	(0.78)	(0.45)		
Log (area)		0.173**	0.183***	0.055	0.056	0.176***	0.159***	0.143**		0.103	0.121***		
		(0.03)	(0.01)	(0.48)	(0.40)	(0.00)	(0.00)	(0.04)		(0.12)	(0.01)		
Gold standard dummy			0.309	0.414	0.653***	-0.148	-0.035		-0.175			0.538*	
			(0.17)	(0.13)	(0.00)	(0.62)	(0.91)		(0.60)			(0.08)	
Log (exports/population)						0.820***	0.722***		0.765***		0.723***		
						(0.00)	(0.00)		(0.00)		(0.00)		
Past default (1800-1904)					1.159***		0.663						
					(0.01)		(0.10)						
Log (distance)		0.083					0.033						
		(0.61)					(0.83)						
Constant	0.069	-2.694**	-2.222**	-1.016	-2.507***	-1.506**	-2.215*	-1.415	0.941***	-0.688	-0.500	0.142	0.438
	(0.83)	(0.03)	(0.01)	(0.29)	(0.01)	(0.05)	(0.06)	(0.12)	(0.01)	(0.43)	(0.42)	(0.70)	(0.55)
Observations	58	58	58	55	55	53	53	52	47	50	45	39	27
R^2	0.43	0.53	0.54	0.43	0.60	0.71	0.73	0.41	0.52	0.34	0.57	0.46	0.46

Sources: *The Economist*'s *Investor's Monthly Manual* and other sources listed in text and Appendix I.

Notes: Robust *p* values in parentheses. *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent. The dependent variables are in log form in all regressions. The full sample includes the individual provinces of Australia and South Africa. The aggregated provinces sample consolidates these provinces into country aggregates. The "no Australia and New Zealand" sample represents the aggregated provinces sample excluding these two countries. The "all colonies" sample consists of all countries that gained independence after 1776 (inclusive) and all those that remained colonies in 1905. The full U.K. colony sample consists of the U.K. colony subset of the full sample.

Table 4. Determinants of Prices, Ordinary Least Squares, 1905
Dependent Variable: Bond Yields (Market-Capitalization-Weighted)

	Full sample								Aggregated provinces	No AUS & NZ	All Colonies	All UK colonies
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
UK colony dummy	-0.499**	-0.480***	-0.632***	-0.889***	-0.972***	-0.816***	-0.875***	-0.725***	-0.811***	-0.786***	-0.916***	
	(0.02)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	
Share of Europeans in 1900	-0.000		-0.004**		-0.002*	0.002	0.002	0.003	0.002	0.001	0.001	-0.000
	(1.00)		(0.01)		(0.05)	(0.50)	(0.43)	(0.24)	(0.54)	(0.72)	(0.78)	(0.84)
Primary enrollment in 1900	-0.008*	-0.008***		-0.006***		-0.007*	-0.009*	-0.005	-0.008**	-0.007	-0.003	0.003
	(0.09)	(0.00)		(0.00)		(0.05)	(0.08)	(0.21)	(0.04)	(0.16)	(0.56)	(0.34)
Log (area)		0.024	0.028				-0.017	-0.038				
		(0.37)	(0.27)				(0.54)	(0.15)				
Log (distance)				0.367***	0.368***	0.371***	0.410***	0.414***	0.364***	0.351***	0.139	-0.060
				(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.43)	(0.54)
Past default (1800-1904)							0.112	0.239		0.080		
							(0.64)	(0.32)		(0.73)		
Gold standard dummy							0.129	0.046				
							(0.31)	(0.77)				
Log (exports/population)								-0.083				
								(0.28)				
Constant	4.501***	4.227***	4.134***	1.600***	1.505***	1.501***	1.254***	1.380***	1.587***	1.650**	3.440**	4.046***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.04)	(0.03)	(0.00)
Observations	49	50	50	50	50	49	49	45	43	41	30	23
R^2	0.33	0.35	0.29	0.61	0.55	0.61	0.63	0.69	0.61	0.61	0.70	0.18

Sources: *The Economist*'s *Investor's Monthly Manual* and other sources listed in text and Appendix I.
Notes: Robust *p* values in parentheses. *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent. The dependent variable in all regressions are bond yields, weighted by market capitalization of the bonds issued by each country or colony. Countries in default in 1905 have also been excluded from the samples due to the strong effect of a current default on current yields. The full sample includes the individual provinces of Australia and South Africa. The aggregated provinces sample consolidates these provinces into country aggregates. The "no Australia and New Zealand" sample represents the aggregated provinces sample excluding these two countries. The "all colonies" sample consists of all countries that gained independence after 1776 (inclusive) and all those that remained colonies in 1905. The full colony sample consists of the U.K. colony subset of the full sample.

Table 5. Determinants of Supply and Demand for Debt, Three Stage Least Squares, 1905
Dependent Variable: Log (Debt/Population)

	Full sample				Aggregated provinces			No AUS & NZ
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Supply function								
Bond yields (market cap weighted)	2.375	2.151	3.624	-4.694	2.440	2.072	4.103	2.894
	(0.19)	(0.17)	(0.27)	(0.43)	(0.35)	(0.35)	(0.45)	(0.72)
Share of Europeans in 1900	0.028***	0.030***	0.025**	0.018*	0.028***	0.029***	0.026	0.033
	(0.00)	(0.00)	(0.02)	(0.07)	(0.00)	(0.00)	(0.11)	(0.30)
UK colony dummy	2.392**	2.016***	2.241*	-3.065	2.451	1.955	2.499	2.691
	(0.01)	(0.01)	(0.08)	(0.51)	(0.15)	(0.16)	(0.37)	(0.67)
Primary enrollment in 1900	0.018	0.004	0.003		0.023	0.007	0.010	0.016
	(0.30)	(0.76)	(0.89)		(0.39)	(0.74)	(0.78)	(0.84)
Gold standard dummy		0.648**	0.866	-0.237		0.608*	0.966	0.618
		(0.05)	(0.38)	(0.64)		(0.08)	(0.44)	(0.23)
Log (exports/population)			0.426	-0.030			0.444	
			(0.21)	(0.96)			(0.29)	
Log (distance)				1.918				
				(0.39)				
Constant	-10.937	-10.181	-16.631	5.631	-11.467	-9.903	-19.124	-13.987
	(0.19)	(0.16)	(0.28)	(0.56)	(0.35)	(0.34)	(0.46)	(0.72)
Observations	46	46	42	43	40	40	36	38
Demand function								
Bond yields (market cap weighted)	-3.565**	-3.539**	-1.608	-0.822*	-1.942**	-2.098**	-1.206	-1.116*
	(0.04)	(0.03)	(0.12)	(0.07)	(0.04)	(0.03)	(0.15)	(0.06)
Share of Europeans in 1900	0.018*	0.018*	0.013**	0.015***	0.017***	0.017***	0.013**	0.017***
	(0.06)	(0.05)	(0.03)	(0.00)	(0.01)	(0.01)	(0.01)	(0.00)
Primary enrollment in 1900	-0.024	-0.024	-0.017		-0.016	-0.018	-0.019	-0.013
	(0.30)	(0.28)	(0.17)		(0.30)	(0.26)	(0.12)	(0.24)
Log (area)	0.279*	0.278*	0.174**	0.084	0.157*	0.166*	0.132*	0.079
	(0.08)	(0.07)	(0.04)	(0.12)	(0.10)	(0.09)	(0.07)	(0.26)
Log (exports/population)			0.521**	0.360**			0.458**	
			(0.02)	(0.04)			(0.02)	
Log (distance)				0.420**				
				(0.02)				
Constant	12.660*	12.566**	5.525	-0.566	7.256*	7.841**	4.484	4.700**
	(0.05)	(0.04)	(0.18)	(0.69)	(0.05)	(0.04)	(0.19)	(0.05)
Observations	46	46	42	43	40	40	36	38

Sources: *The Economist*'s *Investor's Monthly Manual* and other sources listed in text and Appendix I.
Notes: *P* values in parentheses. *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent. The dependent variable in all regressions is debt/population. Bond yields are weighted by market capitalization of the bonds issued by each country or colony. Countries in default in 1905 are from the samples because the data on yields during default are not reliable. The full sample includes the individual provinces of Australia and South Africa. The aggregated provinces sample consolidates these provinces into country aggregates. The "no Australia and New Zealand" sample represents the aggregated provinces sample excluding these two countries.

Table 6. Correlations (Dependent and Independent Variables), 2002

	Institutional quality index	GDP (log)	GDP per capita	Secondary school enrollment	Natural resources	Openness	Past default
				Non-High Income Countries			
Total liabilities per capita	0.71***	0.31***	0.84***	0.19*	-0.08	0.35***	0.00
	(0.00)	(0.00)	(0.00)	(0.08)	(0.47)	(0.00)	(1.00)
Total equity per capita	0.67***	0.30***	0.78***	0.14	-0.10	0.38***	-0.06
	(0.00)	(0.00)	(0.00)	(0.19)	(0.34)	(0.00)	(0.58)
Total debt per capita	0.65***	0.28***	0.77***	0.21**	-0.04	0.27***	0.06
	(0.00)	(0.00)	(0.00)	(0.05)	(0.71)	(0.01)	(0.55)
				Whole Sample			
Total liabilities per capita	0.76***	0.50***	0.91***	0.60***	-0.11	-0.04	-0.30***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.23)	(0.63)	(0.00)
Total equity per capita	0.73***	0.50***	0.81***	0.60***	-0.16*	0.01	-0.26***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.1)	(0.95)	(0.00)
Total debt per capita	0.74***	0.48***	0.91***	0.56***	-0.11	-0.06	-0.29***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.23)	(0.48)	(0.00)

Sources and notes: The number of observations varies from 74 to 125, depending on data availability. * significant at the 10 percent level; ** significant at the 5 percent level; *** significant at the 1 percent level. Liabilities and their components are from Lane and Milesi-Ferretti (2006). Debt includes portfolio debt, bank loans, and currency deposits. Total liabilities consist of the sum of debt, foreign direct investment, portfolio equity, and financial derivatives. GDP and GDP per capita are from the World Bank's World Development Indicators (WDI). The Institutional Quality Index is the simple average of six indicators for 2002 from Kaufmann, Kraay and Mastruzzi (2005): voice and accountability; political stability and absence of violence; government effectiveness; regulatory quality; rule of law; and control of corruption. Natural resources are the percentage of ore, metals and fuels in total exports; and openness is the sum of imports and exports, divided by GDP; both for 2002 from WDI. Secondary school enrollment (percentage gross) are values for 2000 from WDI. Past default refers to whether a country defaulted at least once between 1970 and 2001. The Appendix provides further detail on sources and variables definitions.

Table 7. Determinants of Emerging Market Bond Spreads, 2002

	Spreads - Second step for Heckman Two-Step Procedure						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OLS	HCK	OLS	HCK	OLS	HCK	HCK
GDP per capita	-51.06	-52.62	18.81	12.68	10.45	-2.83	18.80
	(0.26)	(0.24)	(0.73)	(0.80)	(0.84)	(0.95)	(0.69)
Past default	249.17	246.64	240.07	216.37	171.75	112.55	106.74
	(0.15)	(0.12)	(0.14)	(0.14)	(0.27)	(0.41)	(0.44)
Institutions			-312.12**	-249.70	-214.79	-56.89	-111.30
			(0.05)	(0.12)	(0.17)	(0.75)	(0.49)
Openness					-464.59*	-634.98***	-642.53***
					(0.07)	(0.01)	(0.01)
Constant	455.08**	440.11*	250.32	180.27	652.16**	643.56**	598.13**
	(0.02)	(0.06)	(0.23)	(0.38)	(0.03)	(0.02)	(0.03)
Observations	26	26	26	26	26	26	26
R-squared in OLS	0.14	n.a.	0.28	n.a.	0.38	n.a.	n.a.
	Access - First step for Heckman Two-Step Procedure						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		HCK		HCK		HCK	HCK
Population (log)		0.41***		0.55***		0.52***	0.53***
		(0.00)		(0.00)		(0.00)	(0.00)
GDP per capita							0.16
							(0.13)
Institutions				1.17***		1.24***	0.89**
				(0.00)		(0.00)	(0.03)
Openness						-0.47	-0.49
						(0.45)	(0.44)
Constant		-7.50***		-9.49***		-8.52***	-9.18***
		(0.00)		(0.00)		(0.00)	(0.00)
Observations		99		96		95	95
Lambda		19.8		128.4		259.1	258.4
		(0.92)		(0.42)		(0.12)	(0.13)

Sources and notes: *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent. Liabilities and their components are from Lane and Milesi-Ferretti (2006). Debt includes portfolio debt, bank loans, and currency deposits. Total liabilities consist of the sum of debt, foreign direct investment, portfolio equity, and financial derivatives. GDP and GDP per capita are from the World Bank's World Development Indicators (WDI). The Institutional Quality Index is the simple average of six indicators for 2002 from Kaufmann, Kraay and Mastruzzi (2005): voice and accountability; political stability and absence of violence; government effectiveness; regulatory quality; rule of law; and control of corruption. Natural resources are the percentage of ore, metals and fuels in total exports; and openness is the sum of imports and exports, divided by GDP; both for 2002 from the WDI. Past default refers to whether a country defaulted at least once between 1970 and 2001. The Appendix provides further detail on sources and variables definitions.

Table 8. Ordinary Least Square Regressions, 2002

	Non-High Income Countries						Whole Sample					
	Total liabilities		Total equity		Total debt		Total liabilities		Total equity		Total debt	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
GDP (log)	-0.07	-0.04	-0.03	0.02	-0.04	-0.05	-0.60*	-0.89***	-0.03	-0.12	-0.55**	-0.75**
	(0.15)	(.47)	(0.32)	(0.58)	(0.27)	(0.19)	(0.07)	(0.01)	(0.85)	(0.59)	(0.04)	(0.03)
GDP per capita	0.55***	0.47***	0.27***	0.23***	0.27***	0.23***	1.20***	1.20***	0.28***	0.27***	0.9***	0.92***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Institutional quality index	0.71***	0.68**	0.39***	0.35*	0.32**	0.33**	2.29**	1.41	1.22***	0.89*	0.98	0.50
	(0.01)	(0.02)	(0.01)	(0.06)	(0.04)	(0.03)	(0.03)	(0.29)	(0.01)	(0.07)	(0.15)	(0.60)
Natural resources		0.07		0.000		0.08		-4.02		-0.96		-2.93*
		(0.85)		(1.00)		(0.78)		(0.12)		(0.32)		(0.10)
Openness		0.69**		0.06		0.13		-1.92		-0.59		-1.16
		(0.03)		(0.53)		(0.51)		(0.31)		(0.44)		(0.43)
Past default		0.28*		-0.000		0.22**		-0.33		-0.17		-0.09
		(0.10)		(0.96)		(0.04)		(0.64)		(0.64)		(0.88)
Secondary school enrollment		0.004		-0.000		0.004*		0.03		0.02**		0.01
		(0.22)		(0.55)		(0.10)		(0.15)		(0.04)		(0.57)
Constant	1.37***	0.26	0.54**	-0.30	0.82***	0.58	5.97*	9.07***	0.93	1.25	4.85*	7.64**
	(0.00)	(0.66)	(0.05)	(0.42)	(0.01)	(0.23)	(0.08)	(0.01)	(0.55)	(0.57)	(0.07)	(0.02)
Observations	95	74	95	74	95	74	120	96	120	96	120	96
R-squared	0.75	0.77	0.66	0.68	0.63	0.64	0.83	0.84	0.68	0.69	0.83	0.82

Sources and notes: Robust *p* values in parentheses. * significant at the 10 percent level; ** significant at the 5 percent level; *** significant at the 1 percent level. Liabilities and their components are from Lane and Milesi-Ferretti (2006). Debt includes portfolio debt, bank loans, and currency deposits. Total liabilities consist of the sum of debt, foreign direct investment, portfolio equity, and financial derivatives. GDP and GDP per capita are from the World Bank's World Development Indicators (WDI). The Institutional Quality Index is the simple average of six indicators for 2002 from Kaufmann, Kraay and Mastruzzi (2005): voice and accountability; political stability and absence of violence; government effectiveness; regulatory quality; rule of law; and control of corruption. Natural resources are the percentage of ore, metals and fuels in total exports; and openness is the sum of imports and exports, divided by GDP; both for 2002 from WDI. Secondary school enrollment (gross) are values for 2000 from WDI. Past default refers to whether a country defaulted at least once between 1970 and 2001. The Appendix provides further detail on sources and variables definitions.

Table 9. Two-Stage Least Square Regressions: First stage
(Dependent Variables refer to 2002)

	Institutional quality index		Secondary school enrollment		Past default	
	(1) Non-High	(2) Whole Sample	(3) Non-High	(4) Whole Sample	(5) Non-High	(6) Whole Sample
Share of european settlers in 1900	0.01**	0.01***	0.29***	0.28***	-0.002	-0.004**
	(0.03)	(0.00)	(0.01)	(0.00)	(0.31)	(0.03)
Primary school enrollment in 1900	0.01**	0.02***	0.39**	0.41***	0.002	-0.001
	(0.02)	(0.00)	(0.05)	(0.01)	(0.69)	(0.68)
UK colony	-0.17	-0.23	-4.21	-5.79	-0.17	-0.10
	(0.38)	(0.20)	(0.58)	(0.40)	(0.30)	(0.42)
Default between 1890 and 1913	0.12	-0.05	10.95*	3.28	0.55***	0.46***
	(0.46)	(0.73)	(0.08)	(0.58)	(0.00)	(0.00)
Constant	-0.61***	-0.45***	47.51***	55.29***	0.49***	0.52***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Observations	51	72	51	72	51	72
R-squared in first stage	0.45	0.61	0.46	0.52	0.37	0.35

Sources and notes: Robust *p* values in parentheses. * significant at the 10 percent level; ** significant at the 5 percent level; *** significant at the 1 percent level. Liabilities and their components are from Lane and Milesi-Ferretti (2006). Debt includes portfolio debt, bank loans, and currency deposits. Total liabilities consist of the sum of debt, foreign direct investment, portfolio equity, and financial derivatives. The Institutional Quality Index is the simple average of six indicators for 2002 from Kaufmann, Kraay and Mastruzzi (2005): voice and accountability; political stability and absence of violence; government effectiveness; regulatory quality; rule of law; and control of corruption. Secondary school enrollment (gross) are values for 2000 from WDI. Past default refers to whether a country defaulted at least once between 1970 and 2001. The Appendix provides further detail on sources and variables definitions.

Table 10. Two-Stage Least Squares Regressions: Second-Stage, Total Liabilities, 2002

	Total liabilities per capita											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	OLS	IV	OLS	IV	OLS	IV	OLS	IV	OLS	IV	OLS	IV
	Non-High Income Countries											
Institutional quality index	1.98***	3.04***					1.96***	3.07***			1.47***	2.51
	(0.00)	(0.00)					(0.00)	(0.00)			(0.00)	(0.46)
Secondary school enrollment			0.04***	0.07***					0.04***	0.07***	0.02***	0.01
			(0.00)	(0.00)					(0.00)	(0.00)	(0.01)	(0.92)
Past default					-0.44	-0.61	-0.26	0.32	-0.48	-0.25	-0.34	0.21
					(0.34)	(0.42)	(0.39)	(0.55)	(0.23)	(0.69)	(0.30)	(0.81)
Constant	2.26***	2.54***	-0.72**	-2.53***	1.99***	2.09***	2.41***	2.35***	-0.53***	-2.41***	1.30***	1.73
	(0.00)	(0.00)	(0.05)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.14)	(0.01)	(0.01)	(0.76)
Observations	64	64	52	52	65	65	64	64	52	52	51	51
R-squared	0.57	n.a.	0.37	n.a.	0.02	n.a.	0.57	n.a.	0.40	n.a.	0.60	n.a.
p -value for the F-test	0.00	0.00	0.00	0.00	0.34	0.42	0.00	0.00	0.00	0.00	0.00	0.00
	Whole Sample											
Institutional quality index	12.80***	14.81***					11.83***	14.47***			10.80***	17.93
	(0.00)	(0.00)					(0.00)	(0.00)			(0.00)	(0.33)
Secondary school enrollment			0.31***	0.46***					0.27***	0.42***	0.03	-0.12
			(0.00)	(0.00)					(0.00)	(0.00)	(0.56)	(0.83)
Past default					-12.89***	-24.98***	-4.13***	-1.19	-8.98***	-6.00	-5.02***	-0.78
					(0.00)	(0.00)	(0.01)	(0.77)	(0.00)	(0.33)	(0.01)	(0.90)
Constant	7.04***	6.77***	-14.75***	-26.73***	14.72***	20.42***	9.13***	7.38***	-7.88***	-20.35***	7.33**	15.01
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.03)	(0.68)
Observations	86	86	73	73	87	87	86	86	73	73	72	72
R-squared	0.62	n.a.	0.42	n.a.	0.19	n.a.	0.63	n.a.	0.51	n.a.	0.66	n.a.
p -value for the F-test	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sources and notes: Robust *p* values in parentheses. * significant at the 10 percent level; ** significant at the 5 percent level; *** significant at the 1 percent level. Liabilities and their components are from Lane and Milesi-Ferretti (2006). Debt includes portfolio debt, bank loans, and currency deposits. Total liabilities consist of the sum of debt, foreign direct investment, portfolio equity, and financial derivatives. The Institutional Quality Index is the simple average of six indicators for 2002 from Kaufmann, Kraay and Mastruzzi (2005): voice and accountability; political stability and absence of violence; government effectiveness; regulatory quality; rule of law; and control of corruption. Secondary school enrollment (gross) data are drawn from WDI and refer to the year 2000. Past default refers to whether a country defaulted at least once between 1970 and 2001. The Appendix provides further detail on sources and variables definitions.

Table 11. Two-Stage Least Squares Regressions: Second-Stage, Equity, 2002

	Total equity per capita											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	OLS	IV	OLS	IV	OLS	IV	OLS	IV	OLS	IV	OLS	IV
	Non-High Income Countries											
Institutional quality index	1.04***	1.56***					1.02***	1.56***			0.82***	2.78
	(0.00)	(0.00)					(0.00)	(0.00)			(0.00)	(0.31)
Secondary school enrollment			0.02***	0.03***					0.02***	0.03***	0.01*	-0.03
			(0.00)	(0.00)					(0.00)	(0.00)	(0.08)	(0.60)
Past default					-0.38	-0.41	-0.30*	0.04	-0.39	-0.26	-0.34*	0.25
					(0.15)	(0.33)	(0.09)	(0.90)	(0.12)	(0.51)	(0.09)	(0.73)
Constant	1.02***	1.16***	-0.39*	-1.22**	0.96***	0.98***	1.20***	1.14***	-0.23	-1.10**	0.78***	3.58
	(0.00)	(0.00)	(0.09)	(0.03)	(0.00)	(0.00)	(0.00)	(0.00)	(0.26)	(0.04)	(0.01)	(0.44)
Observations	64	64	52	52	65	65	64	64	52	52	51	51
R-squared	0.49	n.a.	0.25	n.a.	0.04	n.a.	0.52	n.a.	0.30	n.a.	0.52	n.a.
p -value for the F-test	0.00	0.00	0.00	0.00	0.15	0.33	0.00	0.00	0.00	0.00	0.00	0.01
	Whole Sample											
Institutional quality index	3.98***	4.69***					3.74***	4.29***			2.87***	8.32
	(0.00)	(0.00)					(0.00)	(0.00)			(0.00)	(0.36)
Secondary school enrollment			0.10***	0.14***					0.09***	0.12***	0.03*	-0.13
			(0.00)	(0.00)					(0.00)	(0.00)	(0.07)	(0.63)
Past default					-3.78***	-8.40***	-1.02**	-1.37	-2.36***	-3.02*	-1.33**	-0.68
					(0.00)	(0.00)	(0.05)	(0.33)	(0.00)	(0.06)	(0.03)	(0.84)
Constant	2.31***	2.21***	-4.90***	-8.06***	4.59***	6.76***	2.83***	2.92***	-3.10***	-4.85**	0.96	11.68
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.03)	(0.35)	(0.52)
Observations	86	86	73	73	87	87	86	86	73	73	72	72
R-squared	0.57	n.a.	0.43	n.a.	0.16	n.a.	0.58	n.a.	0.49	n.a.	0.59	n.a.
p -value for the F-test	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sources and notes: Robust *p* values in parentheses. * significant at the 10 percent level; ** significant at the 5 percent level; *** significant at the 1 percent level. Liabilities and their components are from Lane and Milesi-Ferretti (2006). Debt includes portfolio debt, bank loans, and currency deposits. Total liabilities consist of the sum of debt, foreign direct investment, portfolio equity, and financial derivatives. The Institutional Quality Index is the simple average of six indicators for 2002 from Kaufmann, Kraay and Mastruzzi (2005): voice and accountability; political stability and absence of violence; government effectiveness; regulatory quality; rule of law; and control of corruption. Secondary school enrollment (gross) are values for 2000 from WDI. Past default refers to whether a country defaulted at least once between 1970 and 2001. The Appendix provides further detail on sources and variables definitions.

Table 12. Two-Stage Least Squares Regressions: Second-Stage, Debt, 2002

	Total debt per capita											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	OLS	IV	OLS	IV	OLS	IV	OLS	IV	OLS	IV	OLS	IV
	Non-High Income Countries											
Institutional quality index	0.93***	1.46***					0.94***	1.50***			0.65***	-0.32
	(0.00)	(0.00)					(0.00)	(0.00)			(0.00)	(0.91)
Secondary school enrollment			0.02***	0.04***					0.02***	0.04***	0.01***	0.04
			(0.00)	(0.00)					(0.00)	(0.00)	(0.01)	(0.54)
Past default					-0.06	-0.18	0.05	0.29	-0.09	0.01	0.004	-0.04
					(0.79)	(0.64)	(0.76)	(0.34)	(0.68)	(0.98)	(0.98)	(0.95)
Constant	1.23***	1.37***	-0.33*	-1.30***	1.02***	1.10***	1.20***	1.21***	-0.29	-1.30***	0.52**	-1.91
	(0.00)	(0.00)	(0.07)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.14)	(0.01)	(0.03)	(0.70)
Observations	64	64	52	52	65	65	64	64	52	52	51	51
R-squared	0.49	n.a.	0.38	n.a.	0.00	n.a.	0.49	n.a.	0.38	n.a.	0.51	n.a.
p-value for the F-test	0.00	0.00	0.00	0.00	0.79	0.64	0.00	0.00	0.00	0.00	0.00	0.00
	Whole Sample											
Institutional quality index	8.52***	9.75***					7.82***	9.87***			7.93***	8.70
	(0.00)	(0.00)					(0.00)	(0.00)			(0.00)	(0.47)
Secondary school enrollment			0.20***	0.31***					0.17***	0.29***	-0.01	0.04
			(0.00)	(0.00)					(0.00)	(0.00)	(0.88)	(0.92)
Past default					-8.82***	-15.86***	-3.03***	0.40	-6.51***	-2.73	-3.58***	-0.09
					(0.00)	(0.00)	(0.01)	(0.90)	(0.00)	(0.49)	(0.01)	(0.99)
Constant	4.61***	4.49***	-9.46***	-18.17***	9.84***	13.16***	6.15***	4.24**	-4.47**	-15.26**	6.68**	1.74
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.03)	(0.02)	(0.02)	(0.02)	(0.94)
Observations	86	86	73	73	87	87	86	86	73	73	72	72
R-squared	0.58	n.a.	0.36	n.a.	0.19	n.a.	0.59	n.a.	0.45	n.a.	0.61	n.a.
p-value for the F-test	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sources and notes: Robust *p* values in parentheses. * significant at the 10 percent level; ** significant at the 5 percent level; *** significant at the 1 percent level. Liabilities and their components are from Lane and Milesi-Ferretti (2006). Debt includes portfolio debt, bank loans, and currency deposits. Total liabilities consist of the sum of debt, foreign direct investment, portfolio equity, and financial derivatives. The Institutional Quality Index is the simple average of six indicators for 2002 from Kaufmann, Kraay and Mastruzzi (2005): voice and accountability; political stability and absence of violence; government effectiveness; regulatory quality; rule of law; and control of corruption. Secondary school enrollment (gross) are values for 2000 from WDI. Past default refers to whether a country defaulted at least once between 1970 and 2001. The Appendix provides further detail on sources and variables definitions.

APPENDIX: DATA DESCRIPTION

A. The Pre-WWI Period

The main data source is *The Economist*'s *Investor's Monthly Manual* (IMM), complemented by other sources as detailed below.

Dependent and Scaling Variables

External liabilities: For each economy, left hand-side variables include: total external debt (or total debt, when no finer breakdown is available); cumulative sovereign debt market issuance on the London market; and sovereign bond market capitalization on the London market.

Yields: The yields on each of the bonds traded on the London market (drawn from the IMM, Vol. 35, No. 12, December 1905, or Vol. 19, No.12, December 1889) were computed as the ratio of the coupon to the market price. When the implied yields deviated substantially from the yields quoted in the IMM, reflecting special features of the bonds, we used the IMM yields. For the 1889 cross section we obtained yields data on Hong Kong (now Hong Kong SAR), Grenada, and St. Lucia from the IMM's December 1892 issue. The average yields for a given country exclude bonds guaranteed by the British government, or bonds issued in currencies other than pounds sterling. The simple average yield is the simple arithmetic mean of the yields on all bonds issued by a given country. The market-capitalization-weighted average yield is the average of the bond yields, weighted by market capitalization as reported in the IMM.

Public debt: The sources are the December 1905 and December 1889 issues of the IMM, except as follows. For data on 1889, the December 1890 issue for Egypt, the December 1891 issue for Ecuador and Nicaragua, and the December 1893 issue for Paraguay. For data on 1905, the December 1906 issue for Barbados, Natal, and the Cape of Good Hope (to account for recent bond issues that had not been included in the 1905 IMM's information on public debt). The *Colonial Office List* (London: Waterlow & Sons, 1905) for Antigua, Grenada, the Bahamas, Bermuda, Fiji, St. Christopher & Nevis, Dominica, Malta, Seychelles, and St. Vincent. Flandreau and Zumer (2004) for Belgium, Germany and Switzerland. The *Colonial Office List* (London: Waterlow & Sons, 1889) for Bahamas, Bermuda, St. Christopher and Nevis, Malta, St. Vincent, Barbados, Hong Kong SAR, Antigua, Sierra Leone, Grenada and St. Lucia in 1889.

Debt outstanding: cumulative net issuance on the London market, that is, the sum of the nominal amounts of the individual bonds listed as outstanding, by country or colony, from the IMM's December 1905 or December 1889 issue.

Market capitalization: sum, by country or colony, of the products of the market prices for each bond times the corresponding amounts outstanding, from the IMM's December 1905 or December 1889 issue.

Population: Drawn from the December 1905 and December 1889 issues of the IMM, except as follows. Antigua, the Gold Coast, the Bahamas, Bermuda, Fiji, St. Christopher & Nevis, Dominica, Seychelles, St. Vincent, Brazil, Cuba, Denmark, Guatemala, Paraguay, Serbia, Switzerland, and

Belgium from Mitchell, B.R., *International Historical Statistics,* 5th edition (*The Americas, 1750-2000*, 2003; *Europe, 1750-2000*, 2003; *Africa, Asia and Oceania, 1750-1993*, 1998). St. Lucia and Malta from the *Colonial Office List*, 1905. The Bahamas, Bermuda, St. Christopher and Nevis, Malta, St. Vincent, Barbados, Hong Kong, Antigua, Sierra Leone, Grenada, and St. Lucia for 1889 from the *Colonial Office List*, 1889.

Revenues: IMM 1905 or 1889*,* except as follows. Colombia from the IMM's 1907 issue. British Guiana, Ceylon Grenada, Sierra Leone, Bahamas, Bermuda, Fiji, St. Christopher & Nevis, Dominica, Malta, Mauritius, Seychelles, and St. Vincent from *Colonial Office List*, 1905. Belgium and Switzerland from Flandreau and Zumer (2004). The Bahamas, Bermuda, St. Christopher and Nevis, Malta, St. Vincent, Barbados, Hong Kong, Antigua, Sierra Leone, Grenada, and St. Lucia for 1889 from the *Colonial Office List*, 1889.

Explanatory Variables:

Primary enrollment rates: the number of primary school students divided by the population aged 5-14 (in line with UNESCO school-age categories), from Benavot and Riddle (1988). Whenever data on the cohort of 5–14 year olds was not available for a particular country, the authors estimated the numbers in this group by applying the observation that the school-age population as a share of the general population is very stable over time, depending on each country's level of economic development. See their Table 3 for details. We assume a uniform distribution of enrollment rates across the provinces of Australia and South Africa. For the 1905 cross sections, we use enrollment data for 1900, except for Turkey (1910) and China (1920) where the 1900 observation is not available. For the 1889 cross sections we use data for 1890, except for Fiji, Sierra Leone, and Guatemala (1900), because data for 1890 are not available. For Prussia we use the observation for Germany. For Antigua and St. Christopher and Nevis we use the observation for the Leeward islands, of which both were part.

Shipping distance: The logarithm of shipping distances from London to the principal port of each country prior to the existence of the Panama Canal, from *Philips' Mercantile Marine Atlas* (London and New York, 1913).

Direct-line distance: The logarithm of direct line distances from London to the capitals of each country and colony, based on Gary L. Fitzpatrick and M. J. Modlin, 1986*, Direct-Line Distances,* International Edition (Metuchen, N.J.: Scareschron Press).

Share of Europeans in total population: From Acemoglu and others (2001). Antigua, Bermuda and Fiji in 1905 from the *Colonial Office List*, 1905. Fiji, Jamaica, Cape of Good Hope, Natal, Straits Settlements, the Bahamas, Bermuda, Malta, St. Vincent, Hong Kong, Antigua, Sierra Leone, and Grenada in 1889 from the *Colonial Office List*, 1889. For 1889, the data are drawn from the *Colonial Office List*, 1889 if data availability allows this and the shares are different from those in 1900.

British colony: The British colony dummy is based on the classification in the IMM, the information in Mitchell's *International Historical Statistics*, and www.wikipedia.org.

Default dates: from Beim and Calomiris (2001) and the IMM. We regard Hungary as having defaulted because the Austrian empire, of which Hungary was a part, defaulted during the period. We have verified the data on historical defaults using Reinhart and others (2003).

Gold standard: Based on Lopez-Cordova, J. E., and C. M. Meissner, "Exchange-Rate Regimes and International Trade: Evidence from the Classical Gold Standard Era," *American Economic Review,* 2003; Clemens and Williamson (2004); Ferguson and Schularick (2006); Schuler, Kurt, *Currency Boards and Dollarization,* http://users.erols.com/kurrency/*,* and the *Colonial Office List*, 1905 and 1889.

Exports: IMM December 1905 and 1889, except as follows. British Guiana, Ceylon, the Gold Coast, Grenada, Sierra Leone, the Bahamas, Bermuda, Fiji, St. Christopher & Nevis, Dominica, Malta, Mauritius, Seychelles, and St. Vincent from the *Colonial Office List*, 1905. Belgium from Flandreau and Zumer (2004). British Guiana, the Bahamas, Bermuda, St. Christopher and Nevis, St. Vincent, Barbados, Antigua, Sierra Leone, Grenada, and St. Lucia in 1889 from the *Colonial Office List*, 1889.

Area: From the CIA Factbook 2006, http://www.cia.gov/cia/publications/factbook/, adjusted for significant discrepancies between historical and present-day area.

B. The Modern Period

Dependent and Scaling Variables

External liabilities: The Lane and Milesi-Ferretti (2006) data set on countries' external liabilities covers 145 countries for 1970–2004. All countries with income above US$1 billion in 2000 (or US$2 billion in 2004) are covered, except Afghanistan, Iraq, and three financial international centers (The Bahamas, Barbados, and the Netherlands Antilles). The data on the stock of external liabilities for 1970–2004 are constructed taking as a benchmark, whenever possible, recent national estimates of the International Investment Position (IIP).[36] Combining this information with data on capital flows and adjusting for capital gains and losses, Lane and Milesi-Ferretti construct stock estimates that go as far back as 1970 for 91 countries of the sample. They also obtain estimates for each component of external assets and liabilities (portfolio equity, direct investment, debt—includes portfolio debt, bank loans, deposits, and other debt instruments, financial derivatives, and foreign exchange reserves).

Spreads: The data on emerging market spreads on sovereign bonds denominated in U.S. dollars are drawn from JPMorgan Chase and Co. and consist of the EMBIG (Emerging Markets Bond Index Global) spreads (vis-à-vis yields on U.S. long-term government bonds).

Population: from World Bank, 2005, *World Development Indicators*, http://www.worldbank.org/data/wdi2005.

[36] A thorough description of the IIP data is provided in IMF (2002).

Independent Variables

***Institutional quality*:** Simple average for 2002 of six institutional indicators (Voice and Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, Rule of Law, Control of Corruption), drawn from Kaufmann, Kraay and Mastruzzi (2005), http://www.worldbank.org/wbi/governance/govdata. The index is scaled so that 99 percent of the observations for the full sample of countries analyzed by the authors range between -2.5 and 2.5.

Secondary schooling gross enrollment: Ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to secondary schooling. Data refer to 2002. Source: World Bank, 2005, *World Development Indicators*.

Population with some schooling: the share of population over 25 that has attended at least primary school. Two sources are used: Barro and Lee (1993, 2000, http://www.cid.harvard.edu/ciddata/ciddata.html), referring to 1999; and Cohen and Soto (2001), referring to 2000. The countries for which data are available do not coincide.

Average years of schooling: average years of schooling for all population over 25. Two sources are used: Barro and Lee (1993, 2000), and Cohen and Soto (2001). Data from Barro and Lee (1993, 2000) refer to 1999; data from Cohen and Soto (2001) refer to 2000. The countries for which data are available do not coincide.

Past defaults: variable taking the value of one if countries defaulted any time between 1970 and 2001. Countries in default in 2002 (Argentina, Côte d'Ivoire, and Nigeria) are excluded from the sample. A country is in default if it is in a "debt crisis" according to the Detragiache and Spilimbergo (2001) definition (arrears on principal and interest of more than 5 percent of total commercial debt or rescheduling/restructuring according to the World Bank's *Global Development Finance*) or the Reinhart and others (2003) definition (default on or restructuring of the country's external debt, relying on data from Beim and Calomiris, 2001, and Standard and Poor's "Credit Week"). In unreported robustness checks (yielding similar results), a more lax definition of default is used: a country is considered in default if it is in a "debt crisis" according to any of the previous definitions or the definition by Manasse and Roubini (2005), which in turn is based on whether the country is classified in default by Standard and Poor's or receives an IMF nonconcessional loan in excess of 100 percent of quota.

***Gross domestic product*:** Total GDP in millions of current U.S. dollars in 2002. Per capita GDP in thousands of current U.S. dollars in 2002. Source: World Bank, 2005, *World Development Indicators*.

***Natural resources*:** share of fuels, metals, and ores in total exports for 2002 or most recent available (but no earlier than 1997). Source: World Bank, 2005, *World Development Indicators*.

***Openness*:** Sum of imports and exports divided by total GDP, for 2002 or most recent available (but no earlier than 1997). Source: World Bank, 2005, *World Development Indicators*.

Table A1. Historical sample of countries and territories.

Britain and British Colonies				
Antigua	Bahamas	Egypt	Mauritius	St. Lucia
Australia	Barbados	Fiji	New Zealand	St. Vincent
New South Wales	Bermuda	Gold Coast	Seychelles	Trinidad
Queensland	Britain	Grenada	Sierra Leone	
South Australia	British Guiana	Hong Kong	South Africa	
Tasmania	Canadian Dominion	India	Cape of Good Hope	
Victoria	Ceylon	Jamaica	Natal	
W. Australia	Dominica	Malta	St Christopher & Nevis	
Foreign governments				
Argentina	Costa Rica	Hungary	Portugal	Uruguay
Austria	Cuba	Italy	Russia	Venezuela
Belgium	Denmark	Japan	Serbia	
Brazil	France	Mexico	Spain	
Bulgaria	Germany	Netherlands	Sweden	
Chile	Greece	Nicaragua	Switzerland	
China	Guatemala	Norway	Turkey	
Colombia	Honduras	Paraguay	United States	

Note: The table uses historical names as in the historical sources used for the study.

Table A2. Modern sample of countries - by group.

Countries used in baseline regressions

Non-High income by region

East Asia & Pacific (10)	Europe & Central Asia (27)	Latin America & Caribbean (18)	Middle East & North Africa (11)	South Asia (5)	Sub-Saharan Africa (30)
Cambodia	Albania	Bolivia	Algeria	Bangladesh	Angola
China,P.R.: Mainland	Armenia	Brazil	Egypt	India	Benin
Fiji	Azerbaijan	Chile	Iran, Islamic Republic of	Nepal	Botswana
Indonesia	Belarus	Colombia	Jordan	Pakistan	Burkina Faso
Lao People's Dem.Rep	Bosnia and Herzegovina	Dominican Republic	Libya	Sri Lanka	Cameroon
Myanmar	Bulgaria	Ecuador	Morocco		Chad
Papua New Guinea	Croatia	El Salvador	Oman		Congo, Dem. Rep. of
Philippines	Czech Republic	Guatemala	Saudi Arabia		Congo, Republic of
Thailand	Estonia	Haiti	Syrian Arab Republic		Equatorial Guinea *
Vietnam	Georgia	Honduras	Tunisia		Ethiopia
	Hungary	Jamaica	Yemen, Republic of		Gabon
	Kazakhstan	Mexico			Ghana
	Kyrgyz Republic	Nicaragua			Guinea
	Latvia	Paraguay			Kenya
	Lithuania	Peru			Madagascar
	Macedonia	Trinidad and Tobago *			Malawi
	Moldova	Uruguay			Mali
	Poland	Venezuela, Rep. Bol.			Mozambique
	Romania				Namibia
	Russia				Niger
	Serbia and Montenegro				Rwanda
	Slovak Republic				Senegal
	Tajikistan				South Africa
	Turkey				Sudan
	Turkmenistan				Swaziland
	Ukraine				Tanzania
	Uzbekistan				Togo
					Uganda
					Zambia
					Zimbabwe

* - Outliers excluded from regressions with non-high income country sample.

Countries added to the whole sample regressions

High-income

Australia	Italy	United Arab Emirates
Austria	Japan	United Kingdom **
Belgium **	Korea	United States
Brunei Darussalam	Kuwait	
Canada	Netherlands **	
Denmark	New Zealand	
Finland	Norway	
France	Portugal	
Germany	Qatar	
Greece	Slovenia	
Iceland	Spain	
Israel	Sweden	

Countries excluded from regressions

OFC	Others	Defaulters during 2002
Bahrain	Euro Area	Argentina
Cyprus	Taiwan province of China	Côte d'Ivoire
Hong Kong S.A.R.		Nigeria
Ireland		
Luxembourg		
Malta		
Singapore		
Switzerland		
Costa Rica		
Lebanon		
Malaysia		
Mauritius		
Panama		

** - Outliers excluded from regressions with whole sample; parts of United Kingdom and the Netherlands are classified by some entities as off-shore financial centers (OFC).

Table B1. Determinants of Quantities in 1889 - Ordinary Least Squares

	Full sample							Aggregated provinces		No AUS & NZ		All Colonies	All UK colonies
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Dependent variable	Log (debt/ population)	Log (debt/ population)	Log (debt/ population)	Log (debt outstanding/ population)	Log (market capitalization/ population)	Log (debt/ population)	Log (debt/ population)	Log (debt/ population)	Log (debt/ population)	Log (debt/ population)	Log (debt/ population)	Log (debt/ population)	Log (debt/ population)
Share of Europeans in 1889	0.019***	0.019***	0.016***	0.017	0.019**	0.017***	0.017***	0.014***	0.022***	0.012**	0.013**	0.025**	0.019
	(0.00)	(0.00)	(0.00)	(0.16)	(0.02)	(0.01)	(0.01)	(0.01)	(0.00)	(0.02)	(0.03)	(0.03)	(0.13)
Primary enrollment in 1889	0.007	0.005	0.002	-0.002	0.008	-0.005	-0.001	0.005	0.001	0.002	-0.004	0.008	0.022
	(0.47)	(0.55)	(0.85)	(0.91)	(0.55)	(0.58)	(0.95)	(0.58)	(0.95)	(0.77)	(0.64)	(0.64)	(0.26)
UK colony dummy	-0.114	0.239	0.353	1.029*	2.303***	0.085	0.251	0.030	-0.334	-0.348	-0.423		
	(0.80)	(0.59)	(0.39)	(0.06)	(0.00)	(0.83)	(0.63)	(0.95)	(0.48)	(0.43)	(0.27)		
Log (area)		0.203***	0.245***	0.051	0.029	0.250***	0.223***	0.199***		0.163***	0.204***		
		(0.00)	(0.00)	(0.51)	(0.67)	(0.00)	(0.00)	(0.00)		(0.01)	(0.00)		
Gold standard dummy			0.190	0.299	0.562**	0.139	0.262		-0.192			-0.158	
			(0.34)	(0.28)	(0.03)	(0.52)	(0.23)		(0.41)			(0.60)	
Log (exports/population)						0.440**	0.407**		0.262*		0.418***		
						(0.02)	(0.02)		(0.07)		(0.01)		
Past default (1800-1889)					1.965***		0.874*						
					(0.01)		(0.05)						
Log (distance)		0.223					0.175						
		(0.21)					(0.28)						
Constant	0.316	-3.937***	-2.597***	-1.013	-3.058***	-2.699***	-4.480***	-1.799**	0.464	-1.095	-1.679**	0.296	-0.372
	(0.27)	(0.00)	(0.00)	(0.30)	(0.01)	(0.00)	(0.00)	(0.02)	(0.16)	(0.17)	(0.03)	(0.26)	(0.56)
Observations	58	58	58	51	51	45	45	52	39	50	37	43	29
R^2	0.42	0.61	0.61	0.32	0.60	0.73	0.77	0.55	0.53	0.53	0.66	0.42	0.49

Sources: *The Economist*'s *Investor's Monthly Manual* and other sources listed in text and Appendix I.
Notes: Robust *p* values in parentheses. *significant at the 10 percent level, **significant at 5 percent, ***significant at 1 percent. The dependent variables are in log form in all regressions. The full sample includes the individual provinces of Australia and South Africa. The aggregated provinces sample consolidates these provinces into country aggregates. The "no Australia and New Zealand" sample represents the aggregated provinces sample excluding these two countries. The "all colonies" sample consists of all countries that gained independence after 1776 (inclusive) and all those that remained colonies in 1905. The full colony sample consists of the U.K. colony subset of the full sample.

Table B2. Determinants of Prices in 1889 - Ordinary Least Squares

	Full sample								Aggregated provinces	No AUS & NZ	All Colonies	All UK colonies
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
UK colony dummy	-1.010***	-0.965***	-1.252***	-1.620***	-1.799***	-1.565***	-1.590***	-1.258**	-1.500***	-1.443***	-1.418***	
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	
Share of Europeans in 1889	-0.001		-0.007**		-0.003	0.002	0.004	0.001	0.002	0.003	0.000	-0.003
	(0.79)		(0.02)		(0.14)	(0.69)	(0.51)	(0.82)	(0.65)	(0.65)	(0.99)	(0.16)
Primary enrollment in 1889	-0.013	-0.015***		-0.010**		-0.012	-0.011	-0.003	-0.012	-0.012	-0.007	0.005
	(0.13)	(0.00)		(0.02)		(0.13)	(0.22)	(0.70)	(0.12)	(0.24)	(0.50)	(0.23)
Log (area)		-0.006	0.004				-0.073	-0.090**				
		(0.90)	(0.93)				(0.12)	(0.02)				
Log (distance)				0.550***	0.575***	0.561***	0.593***	0.547***	0.573***	0.590***	0.160	-0.049
				(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.61)	(0.75)
Past default (1800-1889)							0.042	0.464		0.045		
							(0.93)	(0.19)		(0.92)		
Gold standard dummy							-0.058	0.019				
							(0.78)	(0.92)				
Log (exports/population)								-0.086				
								(0.44)				
Constant	5.580***	5.609***	5.406***	1.118	0.756	0.979	1.530	1.571	0.857	0.640	4.221	4.232***
	(0.00)	(0.00)	(0.00)	(0.12)	(0.31)	(0.18)	(0.16)	(0.16)	(0.36)	(0.63)	(0.11)	(0.01)
Observations	47	47	49	47	49	47	47	37	41	39	32	21
R^2	0.39	0.39	0.34	0.61	0.57	0.62	0.64	0.66	0.60	0.59	0.61	0.10

Sources: *The Economist*'s *Investor's Monthly Manual* and other sources listed in text and Appendix I.
Notes: Robust *p* values in parentheses. *significant at the 10 percent level, **significant at 5 percent, ***significant at 1 percent. The dependent variable in all regressions are bond yields, weighted by market capitalization of the bonds issued by each country or colony. Countries in default in 1905 have also been excluded from the samples due to the strong effect of a current default on current yields. The full sample includes the individual provinces of Australia and South Africa. The aggregated provinces sample consolidates these provinces into country aggregates. The no Australia and New Zealand sample represents the aggregated provinces sample excluding these two countries. The full colony sample consists of the U.K. colony subset of the full sample.

Table B3. Determinants of Supply and Demand for Debt in 1889—Three Stage Least Squares

	Full sample				Aggregated provinces			No AUS & NZ
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Supply function								
Bond yields (market cap weighted)	-4.574	-5.695	-1.332	-1.054	-9.974	-3.223	-4.649	-1.108
	(0.74)	(0.83)	(0.27)	(0.27)	(0.92)	(0.76)	(0.91)	(0.62)
Share of Europeans in 1889	0.022	0.002	0.024***	0.024***	-0.017	0.016	-0.004	0.015
	(0.30)	(0.99)	(0.00)	(0.00)	(0.96)	(0.64)	(0.99)	(0.27)
UK colony dummy	-2.931	-3.600	-1.529	-1.316	-11.826	-2.407	-3.615	-1.109
	(0.78)	(0.87)	(0.41)	(0.36)	(0.92)	(0.82)	(0.93)	(0.70)
Primary enrollment in 1889	-0.036	-0.014		-0.016	-0.148	-0.029	-0.011	-0.017
	(0.68)	(0.82)		(0.14)	(0.92)	(0.74)	(0.94)	(0.48)
Gold standard dummy	-1.518	-1.983	-0.121	-0.091		-1.200	-1.941	-0.355
	(0.78)	(0.80)	(0.55)	(0.60)		(0.74)	(0.80)	(0.60)
Log (exports/population)		0.656	-0.064	0.411*			0.629	
		(0.71)	(0.78)	(0.05)			(0.69)	
Log (distance)			0.802	0.737				
			(0.19)	(0.14)				
Constant	25.857	30.707	0.786	0.154	58.440	18.898	26.053	7.298
	(0.73)	(0.83)	(0.77)	(0.94)	(0.92)	(0.76)	(0.90)	(0.58)
Observations	46	37	39	37	40	40	31	38
Demand function								
Bond yields (market cap weighted)	-0.782**	-0.518	-0.279	-0.122	-0.359	-0.470	-0.221	-0.187
	(0.02)	(0.23)	(0.37)	(0.62)	(0.25)	(0.11)	(0.55)	(0.42)
Share of Europeans in 1889	0.023***	0.019***	0.024***	0.022***	0.020***	0.020***	0.018***	0.019***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Primary enrollment in 1889	-0.014	-0.013		-0.011	-0.008	-0.011	-0.011	-0.009
	(0.22)	(0.15)		(0.11)	(0.42)	(0.28)	(0.19)	(0.28)
Log (area)	0.073	0.118*	0.094	0.085	0.059	0.062	0.112*	0.038
	(0.33)	(0.09)	(0.28)	(0.17)	(0.35)	(0.35)	(0.08)	(0.50)
Log (exports/population)		0.417**	0.014	0.448***			0.405**	
		(0.03)	(0.95)	(0.00)			(0.03)	
Log (distance)			0.244	0.232				
			(0.21)	(0.12)				
Constant	3.863**	1.791	-1.347	-1.708	1.931	2.470	0.462	1.389
	(0.04)	(0.44)	(0.45)	(0.18)	(0.26)	(0.13)	(0.82)	(0.29)
Observations	46	37	39	37	40	40	31	38

Sources: *The Economist*'s *Investor's Monthly Manual* and other sources listed in text and Appendix I.
Notes: *P* values in parentheses. *significant at the 10 percent level, **significant at 5 percent, ***significant at 1 percent. The dependent variable in all regressions is debt/population. Bond yields are weighted by market capitalization of the bonds issued by each country or colony. Countries in default in 1905 are from the samples because the data on yields during default are not reliable. The full sample includes the individual provinces of Australia and South Africa. The aggregated provinces sample consolidates these provinces into country aggregates. The "no Australia and New Zealand" sample represents the aggregated provinces sample excluding these two countries.

C1. Non-High-Income Countries: Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Median	Standard Deviation	Coefficient of Variation
Independent Variables							
Log GDP (US$ millions)	98	7.08	14.05	9.53	9.20	1.59	0.17
GDP per capita (US$ thousands)	98	0.09	8.63	1.74	1.00	1.83	1.05
Institutional quality index	96	-1.78	1.27	-0.39	-0.46	0.61	n.a
Natural resources	90	0.001	0.97	0.28	0.13	0.30	1.07
Openness	98	0.29	1.81	0.77	0.70	0.34	0.44
Past default	99	0	1	0.44	0.00	0.50	1.12
Secondary school enrollment (gross %)	79	6.46	105.33	55.94	68.63	27.66	0.46
Dependent Variables							
(Per capita US$ thousands)							
Total liabilities	99	0.10	7.24	1.40	0.89	1.47	1.05
Total equity	99	0.00	4.21	0.58	0.25	0.80	1.39
Total debt	99	0.08	3.26	0.83	0.50	0.78	0.94
(Shares of GDP)							
Total liabilities	98	0.12	2.48	0.95	0.88	0.45	0.47
Total equity	98	0.00	1.09	0.32	0.26	0.23	0.73
Total debt	98	0.08	1.92	0.63	0.54	0.35	0.56

Sources and notes: Liabilities and their components are from Lane and Milesi-Ferretti (2006). Debt includes portfolio debt, bank loans, and currency, deposits. Total liabilities consist of the sum of debt, foreign direct investment, portfolio equity, and financial derivatives. GDP and GDP per capita are from the World Bank's World Development Indicators (WDI). The Institutional Quality Index is the simple average of six indicators for 2002 from Kaufmann, Kraay and Mastruzzi (2005): voice and accountability; political stability and absence of violence; government effectiveness; regulatory quality; rule of law; and control of corruption. Natural resources are the percentage of ore, metals and fuels in total exports; and openness is the sum of imports and exports, divided by GDP; both for 2002 from WDI. Secondary school enrollment (percentage gross) are values for 2000 from WDI. Past default reports whether a country defaulted at least once between 1970 and 2001. The Appendix provides further detail on sources and variables definitions.

Table C2. Non-High-Income Countries: Correlations (Independent Variables)

	Institutional quality index	GDP (log)	GDP per capita	Secondary school enrollment	Natural resources	Openness	Past Default
Institutional quality index	1						
GDP (log)	0.26***	1					
GDP per capita	0.66***	0.45***	1				
Secondary school enrollment	0.50***	0.39***	0.53***	1			
Natural resources	-0.35***	0.04	0.08	-0.02	1		
Openness	0.24**	-0.26***	0.20**	0.22*	-0.11	1	
Past default	0.04	0.30***	-0.02	0.09	-0.08	0.41***	1

Sources and notes: The number of observations varies from 88 to 99, depending on data availability. * significant at the 10 percent level; ** significant at the 5 percent level; *** significant at the 1 percent level. Liabilities and their components are from Lane and Milesi-Ferretti (2006). Debt includes portfolio debt, bank loans, and currency deposits. Total liabilities consist of the sum of debt, foreign direct investment, portfolio equity, and financial derivatives. GDP and GDP per capita are from the World Bank's World Development Indicators (WDI). The Institutional Quality Index is the simple average of six indicators for 2002 from Kaufmann, Kraay and Mastruzzi (2005): voice and accountability; political stability and absence of violence; government effectiveness; regulatory quality; rule of law; and control of corruption. Natural resources are the percentage of ore, metals and fuels in total exports; and openness is the sum of imports and exports, divided by GDP; both for 2002 from WDI. Secondary school enrollment (percentage gross) are values for 2000 from WDI. Past default reports whether a country defaulted at least once between 1970 and 2001. The Appendix provides further detail on sources and variables definitions.

Table C3. Ordinary Least Square Regressions, 1996

	Non-High Income Countries						Whole Sample					
	Total liabilities		Total equity		Total debt		Total liabilities		Total equity		Total debt	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
GDP (log)	-0.03	-0.01	-0.005	0.02	-0.02	-0.03	-0.40**	-0.61**	-0.03	-0.05	-0.36***	-0.56**
	(0.50)	(.86)	(0.76)	(0.51)	(0.57)	(0.66)	(0.03)	(0.04)	(0.76)	(0.77)	(0.01)	(0.02)
GDP per capita	0.44***	0.35***	0.14***	0.14***	0.30***	0.22***	0.75***	0.69***	0.14***	0.10	0.60***	0.58***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.13)	(0.00)	(0.00)
Institutional quality index	0.23	0.43*	0.22**	0.32*	0.008	0.11	1.21	2.24*	1.01**	1.92***	0.20	0.30
	(0.27)	(0.07)	(0.02)	(0.08)	(0.96)	(0.42)	(0.12)	(0.08)	(0.02)	(0.01)	(0.67)	(0.68)
Natural resources		0.16		0.12		0.04		0.13		0.82		-0.64
		(0.58)		(0.51)		(0.88)		(0.93)		(0.25)		(0.59)
Openness		0.85***		0.39**		0.46		-0.49		-0.62		0.11
		(0.01)		(0.04)		(0.13)		(0.80)		(0.48)		(0.93)
Past default		0.33**		0.04		0.29***		0.03		-0.10		0.11
		(0.02)		(0.57)		(0.01)		(0.95)		(0.73)		(0.77)
Secondary school enrollment		0.003		-0.002		0.005		0.008		-0.007		0.02
		(0.59)		(0.28)		(0.29)		(0.71)		(0.50)		(0.28)
Constant	0.68**	-0.07	0.18	-0.16	0.50	0.10	3.98**	6.65**	0.71	1.777	3.21**	4.80**
	(0.05)	(0.89)	(0.18)	(0.54)	(0.13)	(0.86)	(0.03)	(0.04)	(0.47)	(0.37)	(0.02)	(0.02)
Observations	94	62	94	62	94	62	119	85	121	85	119	85
R-squared	0.69	0.75	0.63	0.68	0.53	0.60	0.83	0.83	0.56	0.60	0.85	0.85

Sources and notes: Robust *p* values in parentheses. * significant at the 10 percent level; ** significant at the 5 percent level; *** significant at the 1 percent level. Liabilities and their components are from Lane and Milesi-Ferretti (2006). Debt includes portfolio debt, bank loans, and currency deposits. Total liabilities consist of the sum of debt, foreign direct investment, portfolio equity, and financial derivatives. GDP and GDP per capita are from the World Bank's World Development Indicators (WDI). The Institutional Quality Index is the simple average of six indicators for 1996 from Kaufmann, Kraay and Mastruzzi (2005): voice and accountability; political stability and absence of violence; government effectiveness; regulatory quality; rule of law; and control of corruption. Natural resources are the percentage of ore, metals and fuels in total exports; and openness is the sum of imports and exports, divided by GDP; both for 1996 from WDI. Secondary school enrollment (gross) are values for 1990 from WDI. Past default reports whether a country defaulted between 1970 and 1995. The Appendix provides further detail on sources and variables definitions.

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