Legal-political factors and the historical evolution of the finance-growth link

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I. Introduction

This paper sheds new and interesting light on the important long-run linkages between economic growth and finance. In earlier work in this area, financial depth has been viewed as a transmission channel through which high inflation hinders growth. In this paper, however, financial depth also serves as a bridge from legal and political factors to growth. This angle is novel, and welcome.

The paper advances and scrutinizes the hypothesis that, in the past, financial maturity mattered for economic growth through three main linkages: (a) legal origin, (b) political factors, and (c) inflation. The empirical results, based on cross-country regressions applied to historical data for 17 countries, are not particularly strong or convincing, however, even if they are suggestive. The results suggest (i) that legal-political factors make a difference for financial depth and growth and (ii) that the inflation linkage, well established in recent experience, was at work also in the past. Of the two, the second conclusion seems more convincing to me because the empirical results on the legal-political factors, suggestive though they are, are not particularly strong or uniform or robust.

So let me address some of the issues taken up in the paper by playing with a different data set that is not old but recent. The data cover some 180 countries over the period 1960-2000 and are fetched mostly from the World Bank's *World Development Indicators* (2002). First, let us allow the data to speak for themselves, without estimation. Thereafter, let us run a few regressions in an attempt to reassess some of the points made in the paper and then conclude the discussion.

II. The data: Inflation, finance, and growth

We begin by looking at the linkages among financial depth, inflation, and growth. Figure 1 shows the cross-country relationship between the inflation distortion,

measured as $\pi/(1+\pi)$ where π is the annual rate of inflation, and financial depth, defined as logarithm of the ratio of broad money to GDP. The inflation distortion is an appropriate measure here because of the significant number of high-inflation countries in the sample. Each of the 155 countries for which we have the requisite data for both variables is described by a single observation combining the average values of the two variables over the sample period, 1960-2000. The pattern in Figure 1 is quite clear: high inflation goes along with low liquidity. The correlation is -0.46. The significantly positive correlation evident in the figure survives the removal of the cluster of twenty high-inflation countries in the southeast corner of the figure, even if the correlation then becomes less clearly visible to the naked eye. Without the high-inflation countries in the sample, the regression line in the figure becomes a bit steeper; its slope changes from -1.2 to -1.5.

Next, in Figure 2, we plot the annual rate of growth of GDP per capita from 1965 to 1998 against financial depth as defined in Figure 1. Again, the pattern is pretty clear. Financial depth and economic growth go hand in hand in the data, even if no account is yet taken of the fact that our large sample includes countries at different stages of economic development. The correlation between financial depth and growth in Figure 2 is 0.42.

Figure 3 combines Figures 1 and 2 by presenting the cross-country relationship between the inflation distortion from Figure 1 and per capita growth from Figure 2. What you see is a rare sight: a clearly visible negative bivariate cross-sectional correlation between inflation and growth in a large sample of countries spanning a period of four decades. The correlation is -0.48. The correlation remains significantly negative, though invisible to the naked eye, even if the thirty-five countries with inflation rates of 40 percent per year or more are removed from the sample. This is a natural cutoff point in view of the result reported by Bruno and Easterly (1998) that inflation must exceed 40 percent per year before it begins to hurt growth, a threshold that more recent studies have found too high (Gylfason and Herbertsson, 2000). When the high-inflation countries are excluded, the regression line in Figure 3 becomes a little steeper; the coefficient estimate changes from -4.8 to -6.1. Therefore, inflation and growth are inversely related across countries, whether or not the countries with inflation rates of 40 percent per year or more are included in the sample. The upshot of this exercise is that inflation reduces financial depth and, thereby, retards economic growth by depriving the economic system of necessary liquidity.

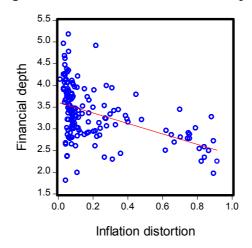## Figure 1. Inflation and financial depth

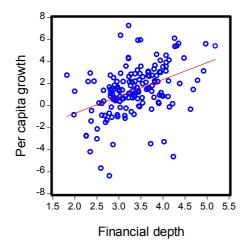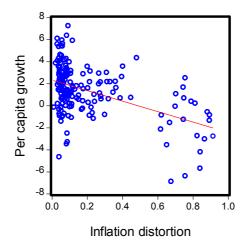## Figure 2. Financial depth and growth

Figure 3. Inflation and growth

III. Enter democracy

One of the chief tenets of Bordo and Rousseau's paper is that financial depth depends on legal and political factors as well as inflation. What do the recent data have to say? I want to bypass the law and let it suffice to proxy the political factors by a broad index of democracy taken from the Polity IV dataset put together by Marshall and Jaggers (2001). The democracy index is defined as the difference between an index of democracy that runs from zero in hard-boiled dictatorships (e.g., Saudi Arabia) to ten in fully fledged democracies and an index of autocracy that similarly runs from zero in democracies to ten in dictatorships. Hence, the democracy index spans the range from -10 in Riyadh to 10 in Reykjavík.

Model 1 in Table 1 shows the results from a regression of financial depth on democracy: increased democracy goes hand in hand with increased financial depth as in Bordo and Rousseau's paper. The democracy variable survives the introduction of the inflation variable in Model 2. But this is not enough. We need to include also initial income, defined as per capita GDP in 2000 divided by an appropriate growth factor to ensure consistency between the initial income, final income, and the economic growth that took place in between.

When we add initial income to the regression in Model 3, the democracy variable drops dead. This suggests that inflation and the level of income do make a difference for financial maturity, as expected, and that democracy, my proxy here for political factors, is not a robust determinant of financial depth once both inflation and initial income are included in the story.

Table 1. Regression results on financial depth

	Model 1	Model 2	Model 3
Democracy	0.018	0.019	0.006
	(2.27)	(2.71)	(0.83)
Inflation distortion		-1.025	-1.282
		(5.97)	(7.39)
Initial income			0.183
			(4.25)
Countries	132	132	127
Adj. R^2	0.03	0.23	0.33

Note: t-values are shown within parentheses. Estimation method: Ordinary least squares. Constant terms are not shown.

Let us now tackle economic growth in the same way by viewing it as a function of the usual suspects – several factors that are missing from Bordo and Rousseau's paper because the necessary historical data do not exist – as well as of financial depth and its determinants. Model 1 suggests convergence. In Model 2, we add financial depth, which stimulates growth as shown in Figure 2; the convergence effect survives.

In Model 3, we introduce a proxy for natural resource dependence, measured by the share of primary production in GDP; we do this in order to test the resource curse hypothesis (Sachs and Warner, 1995). The results show that excessive natural resource dependence hurts growth as hypothesized without knocking out any of the other coefficients. In Model 4, we add the share of gross domestic investment in GDP and everything still works as expected.

In Model 5, we proceed to add education, represented by the logarithm of secondary-school enrolment rate for both genders; this is the measure of education most commonly used in empirical growth work. Education stimulates growth in the model even if no attempt has been made to adjust the school-enrolment figures for quality. The effect of investment on growth is now weaker than before and the adjusted R^2 drops for the first time.

Table 2. Regression results on economic growth

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Initial income	-0.738	-1.030	-1.327	-1.374	-1.459	-1.479	-1.395
	(5.16)	(8.70)	(11.32)	(11.94)	(9.71)	(8.82)	(8.65)
Financial depth		1.949	1.317	1.071	0.739	0.922	0.355
		(9.35)	(6.23)	(4.84)	(3.02)	(3.26)	(1.12)
Primary production			-0.069	-0.067	-0.053	-0.044	-0.049
			(6.58)	(6.60)	(4.33)	(3.11)	(3.66)
Investment				0.060	0.043	0.055	0.056
				(2.96)	(1.68)	(2.08)	(2.24)
Secondary education					0.680	0.473	0.652
					(2.93)	(1.90)	(2.68)
Democracy						0.067	0.049
						(2.67)	(1.99)
Inflation distortion							-2.19
							(3.33)
Countries	164	146	138	138	110	100	100
Adj. R^2	0.14	0.49	0.61	0.64	0.59	0.58	0.62

Note: t-values are shown within parentheses. Estimation method: Ordinary least squares. Constant terms are not shown.

In Model 6, we enter democracy. The coefficient on democracy works statistically as well as economically and all the variables inherited from the preceding models survive. The investment coefficient actually comes back to life whereas the education coefficient now becomes statistically insignificant. The democracy coefficient means that an increase in democracy by fifteen points, spanning three quarters of the scale from –10 to 10, goes along with an increase in growth by one percentage point in a sample where the median per capita growth rate is 1.5 percent per year.

At last, in Model 7, we add inflation. The inflation distortion exerts a negative effect on growth as in Figure 3 without incapacitating any of the preceding variables except one: financial depth, which now becomes insignificant. This suggests that inflation affects growth through financial depth, leaving no room for both variables side by side in the growth equation. Notice also that the democracy variable is slightly weakened, but education is back in full swing.

IV. Concluding remarks

Political and legal factors may well matter for financial depth and growth as well as for the relationship between the two, but neither the historical data analyzed by Bordo and Rousseau in their thought-provoking paper nor the more recent data that I have used here seem to offer any conclusive evidence of this except democracy appears to be good for growth. At present, the more recent data seem to suggest that inflation remains the strongest link between finance and growth. More work is needed.

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