Economic Freedom and Financial Development: International Evidence

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This article arises from two related research programs. One examines the relationship between financial development and economic growth. The basic conclusion from this work is that countries that experience greater financial development also experience faster rates of economic growth and higher levels of income per capita (King and Levine 1993a, 1993b; Levine and Zervos 1998; Rousseau and Wachtel 1998; Levine et al. 2000; and Levine 2003). Under this umbrella also are studies that test for the role of property rights and regulation on financial development. Shehzad and De Haan (2008) find that financial liberalization—a reduction in regulations—reduces the probability of a banking crisis and, therefore, promotes economic growth. Baier et al. (2012) find that countries with relatively low levels of regulation—more economic freedom—are less likely to experience a financial crisis in the near future (five years out) than countries with more regulation. Like De Haan et al. (2009), Baier et al. find that in the period immediately following a crisis there generally is a diminution of economic freedom that stems from increased regulation, portending slower economic growth in the future.

The other line of research investigates the institutional sources of economic growth. In addition to physical and human capital, researchers have considered a number of institutional factors as

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diverse as colonial background and religious preferences (overviews can be found in Sala-i-Martin 2002, Barro and Sala-i-Martin 2004, and Loayza and Soto 2002). A number of studies also have employed indexes of economic freedom to proxy for the socio-economic institutions that may affect economic growth. The weight of evidence from this work suggests that countries with higher levels of economic freedom experience faster economic growth (Gwartney et al. 2006, Weede and Kampf 2002, Weede 2006).

The question addressed in this article is whether greater economic freedom leads to a higher level of financial development. While there is evidence that more economic freedom is associated with improvements in credit allocation at the micro level (Hartarska and Nadolnyak 2007, Crabb 2008, Enowbi-Batuo and Kupukile 2009) and to better sovereign credit ratings (Roychoudhury and Lawson 2010), there does not appear to be any study that explicitly tests for the link between economic freedom and financial development.

The next section discusses the methodology and data used. It considers the role of economic freedom within the framework used by Levine et al. (2000) to explain the development of financial intermediaries across countries. Regression results are presented in the third section followed by a concluding section. Looking ahead, the results of this article do not reject the hypothesis that countries with higher levels of economic freedom are more likely to experience greater development of their financial intermediaries in subsequent years. Given previous research, this article thus identifies a path through which improving social institutions ultimately affect economic growth.

Methodology and Data

To assess the role that economic freedom plays in explaining differences in financial intermediary development across countries, I adopt the approach used by Levine, Loayza, and Beck (2000; hereafter, LLB). To explain observed differences in financial intermediary development, LLB estimate the regression

$$(1)\quad FINANCE_i = \alpha + \beta 1\ LEGAL_i + \beta 2 \log (RGDPCAP_i) + \varepsilon_i$$

where *FINANCE* represents a measure of financial development for the ith country, *LEGAL* represents the origin of the ith country's

legal system, *RGDPCAP* is the ith country's per capita real GDP in the initial year of the sample period, α and the βs are parameters to be estimated, and ε is the error term. Because the financial measures used in LLB are averages for the period 1960–95, initial per capita real GDP is the value in 1960.

LLB focus on three possible measures of financial intermediary development.[1] One is Liquid Liabilities, calculated as the ratio of liquid liabilities of the financial system—equal to currency plus demand deposits and interest-bearing liabilities of banks and nonbank financial intermediaries—relative to GDP. This is a common gauge of financial depth and the overall size of the financial sector (see King and Levine 1993a, 1993b, and the references cited therein). Though popular, LLB note that because it includes deposits among financial intermediaries, this can give rise to a degree of double counting. In addition, the ratio may not adequately capture the ability of the financial sector to reduce transactions costs and informational asymmetries. Even with these caveats, if the general size of the financial sector is positively correlated with the overall provision of financial services, then Liquid Liabilities is a serviceable indicator of the development of financial intermediation.

Another indicator of financial intermediary development is Bank Assets, which is equal to the ratio of commercial bank assets to the sum of commercial bank and central bank assets. This variable, also used in King and Levine (1993a, b), reflects how much of an economy's savings is allocated by commercial banks relative to the central bank. The motivation for using this measure is that commercial banks are profit maximizers and, therefore, are more likely to identify and pursue investments than a central bank. In addition, given their objective functions, commercial banks probably invest in more oversight activities and are actively engaged in risk management and the allocation of financial resources among savers and borrowers in an efficient and socially effective manner. The downside is that Bank Assets may not accurately reflect the quality and quantity of financial services provided by intermediaries.

The third measure used is Private Credit, the ratio of credits by financial intermediaries made to the private sector to GDP. Private Credit isolates the role of the private sector. Considered by LLB as their "preferred" measure of financial intermediary development, it

[1]This discussion draws on Levine et al. (2000: 37–39).

does not, however, capture the reduction in information and transactions costs thought to be the fundamental reason for financial intermediation. Still, LLB argue that higher values of Private Credit indicate "higher levels of financial services and therefore greater financial intermediary development" (p. 39).

Equation (1) controls for the initial level of economic development by including the initial (pre-financial development) level of per capita real GDP. Including the initial value of real income controls for the level of overall economic development prior to the period over which financial intermediary development is measured. Including the variable *LEGAL* draws on LaPorta et al. (1998), who found that the origin of a country's legal structure is important in establishing the rules that affect financial transactions, including contract enforcement, accounting standards, and rules over the use and allocation of credit. LLB view legal origin as an "endowment" similar to colonial history or geographical location. Based on Reynolds and Flores (1996), LLB identify a country's legal origin as stemming from one of four possible sources: English, French, German, or Scandinavian. Of these, the influence of the French legal system is geographically the widest. The French Civil Code, written in 1804 under Napoleon's direction, extended to all conquered lands, which included Italy and the Netherlands. It spread as France colonialized parts of Africa, Indochina, the Caribbean, and the Near East. It also influenced the legal traditions of Portugal and Spain, which then were passed to their respective colonies. At the other end of the spectrum, the legal codes of the Scandinavian countries are the most direct descendants of Roman Law.[2]

Equation (1) is the "baseline" regression to which I add measures of economic freedom to test the hypothesis that economic freedom has an independent effect on financial intermediary development. The extended regression thus becomes

$$(2)\ FINANCE_i = \alpha + \beta 1\ LEGAL_i + \beta 2 \log (RGDPCAP_i) + \beta 3\ FREEDOM_i + \varepsilon_i$$

[2]Since the appearance of LaPorta et al. (1998) and LLB, there have been other studies that examine the role that legal origins play in finance and economics. See Acemoglu and Johnson (2005), Beck and Levine (2005), Demirguc-Kunt and Levine (2009), and Miletkov and Wintoki (2011). Klerman et al. (2011) question the effectiveness of this measure. With the debate unsettled and for comparison purposes, I adopt LLB's specification.

where *FREEDOM* is the Economic Freedom of the World Index (Gwartney et al. 2010) for the ith country. Given a country's endowment of legal origin and its initial level of per capita real GDP, estimating equation (2) directly tests whether economic freedom helps predict cross-country differences in the development of financial intermediaries.

Using the same logic that precipitates the use of initial-year per capita real GDP, I attempt to exogenize economic freedom by using the values for the initial year of the sample period. Thus, the 1980 value for the freedom index for each country is used. The analysis begins with 1980 because of the availability of the freedom measure. Even though freedom measures for some countries are available beginning in 1970, the sample of countries is quite limited until 1980. Starting the analysis in 1980 provides not only a sufficiently long time period over which the financial development indicators can be measured, but also increases the number of countries in the sample for which the economic freedom measures exist. In summary, measures of initial economic freedom and per capita real GDP are for 1980, and the financial development indicators are averages over the period 1980–2009.[3] The total number of countries in the sample is 81.[4]

To assess the role that economic freedom plays in explaining financial development, I use the overall measure of economic freedom and its major subcomponents. Since more detailed definitions for these indexes are available from Gwartney et al. (2010), for present purposes a brief description will suffice. The freedom measure uses a 10-point scale; the higher the value, the greater the degree of economic freedom. The subcomponents of the overall index capture specific aspects of economic freedom as it relates to the level of government activity, the legal structure, and the regulatory environment within which firms operate. More specifically, the Government component accounts for government size relative to the economy, Legal captures the existing legal structure and property rights, Money is used to

[3]The end date is dictated by data availability. In an earlier version, I experimented with including the freedom measure in 1975 using the LLB data set, which measures financial intermediary development over the 1960–95 period. While the results were qualitatively similar to those reported below, I did not feel that the use of the 1975 freedom measure adequately "exogenized" the variable, so I opted to use a data set for the period 1980–2009.

[4]There are instances, as noted below, where insufficient data reduce the size of the sample.

measure government policies to protect the purchasing power of the currency, Trade assesses how free international trade is, and Regulation measures the degree of regulatory intervention. Given this study's focus, I also use the component Credit Market Regulation, which specifically measures the regulation of the credit system.

Indicators of financial intermediary development are, as noted, based on the definitions in LLB. In this article, I use the updated observations of the series found in Beck and Demirguc-Kunt (2009).[5] As discussed earlier, the period covered by the financial development measures is 1980 through 2009. Recall that the initial date (1980) is used to match with the starting date for the freedom measures. The sample of countries includes most of the LLB countries as well as several additional ones. A country's legal origin variable is taken from LLB or, for any country not included in their data set, is determined using information taken from the CIA *Factbook*. Per capita real GDP for 1980 is from the Penn World Tables and the level of economic freedom in 1980 is from Gwartney et al. (2010).

Based on previous work, higher levels of economic freedom are expected to promote greater development in financial intermediaries. That predicted effect stems from the fact that numerous studies have shown that higher levels of economic freedom predict faster economic growth, higher levels of wealth, and healthier and happier populations (Norton 1998, Esposto and Zaleski 1999, Dawson 2003, Welsch 2003, Gwartney et al. 2006, Inglehart et al. 2008, and Gropper et al. 2011). And as noted earlier, Baier et al. (2012) report that greater levels of economic freedom are associated with a lower probability of financial crises, thus suggesting that more freedom begets a more stable financial system.

Table 1 provides summary statistics for the variables used. Even with the country sample and time period changes, the average financial development measures are roughly similar to those reported by LLB (see their Table 1). The average Liquid Liabilities ratio for my sample is about 50 percent compared with 43 percent in LLB. The average Bank Asset ratios are an even closer match: 80 percent using my data compared with 78 percent in LLB. The comparisons of the Private Credit ratio is the most unequal: the mean value in my sample is 49 percent but 38 percent in LLB. The summary statistics for

[5]I use the most recently updated version of these data, available online from the World Bank.

TABLE 1
Summary Statistics

Variable	Mean	Standard Deviation	Max	Min
Liquid Liabilities	0.499	0.298	1.913	0.120
Private Credit	0.493	0.370	1.498	0.036
Bank Assets	0.799	0.177	0.995	0.253
RGDPCAP	$8,912.00	$8,343.66	$29,774.94	$368.19
Freedom	5.520	0.965	7.660	3.210
Government	5.102	1.477	9.100	1.600
Legal	5.504	2.720	10.000	0.900
Money	6.265	1.922	9.600	0.800
Trade	5.076	20.12	9.000	0.000
Credit Market Regulation	5.910	2.259	10.000	0.000
Regulation	5.850	1.771	9.000	0.500

Note: N = 81.

the other variables indicate that real per capita GDP in 1980 averages about $8,900 with quite a wide distribution. Comparatively speaking, the overall economic freedom index has a much tighter distribution compared to its components: freedom ranges from about 3 to 7, while the freedom components range from a low of zero (Trade and Credit Market Regulation) to a high of 10 (Legal and Credit Market Regulation).

To assess the simple bivariate relationships, Table 2 reports correlations between the variables. All of the correlations are significant at the 5 percent level or better *except* for those shown in boldface, mostly associated with the Government component of the freedom index. The correlation between Liquid Liabilities and Regulation also is insignificant. Overall, the correlations show that countries with higher levels of economic freedom in 1980 experienced greater financial development over the next three decades. Moreover, the fact that per capita real GDP and economic freedom (save the Government measure) are significantly and positively correlated supports earlier findings that higher levels of economic well-being are associated with greater economic freedom.

TABLE 2
Correlations

	Liquid Liabilities	Private Credit	Bank Assets	RGDP per Capita	Freedom
Private Credit	0.834				
Bank Assets	0.557	0.689			
RGDPCAP	0.570	0.739	0.616		
Freedom	0.520	0.644	0.608	0.586	
Government	**−0.135**	**−0.111**	**−0.047**	**−0.133**	0.343
Legal	0.474	0.718	0.671	0.735	0.705
Money	0.408	0.352	0.264	0.432	0.712
Trade	0.565	0.698	0.639	0.587	0.691
Credit Market Regulation	0.355	0.507	0.532	0.466	0.688
Regulation	**0.194**	0.260	0.384	0.232	0.0594

Note: Correlations in boldface are *not* significant at the 5 percent level of significance. All others are significant at the 5 percent level or better.

Regression Results

Just how robust is the relationship between measures of financial intermediary development and economic freedom? To answer that question, the results from estimating equations (1) and (2) are found in Table 3.[6] The "baseline" results, found in the first column under each measure of financial measure, indicate that the initial level of (log) per capita real GDP has a positive and statistically significant effect on future financial intermediary development. The estimated coefficients on the legal origin variable are not robust across the different financial development indicators, however. Based on the sample of countries and time period, legal origin offers little explanatory power when the dependent variables are Private Credit and Bank

[6] All regressions include a constant term and regional dummy variables taken from Barro and Lee (2011).

TABLE 3
Regression Results

Variable	Dependent Variable					
	Liquid Liabilities		Private Credit		Bank Assets	
RGDPCAP	0.130**	0.086	0.153***	0.094**	0.116***	0.095***
	(0.021)	(0.117)	(0.005)	(0.048)	(0.000)	(0.000)
British	0.252**	0.208**	0.102	0.035	0.026	0.002
	(0.032)	(0.048)	(0.386)	(0.717)	(0.493)	(0.956)
French	0.261***	0.189**	0.044	−0.057	0.065*	0.029
	(0.004)	(0.015)	(0.700)	(0.546)	(0.061)	(0.428)
German	0.429***	0.348***	0.223*	0.111	−0.010	−0.050
	(0.002)	(0.007)	(0.078)	(0.265)	(0.855)	(0.387)
Freedom		0.089***		0.121***		0.042**
		(0.001)		(0.001)		(0.043)
Adj-R^2	0.547	0.588	0.667	0.717	0.525	0.549
Prob (F-test)	0.000	0.000	0.000	0.000	0.000	0.000

Notes: All regressions include a constant term and Barro-Lee regionals. P-values reported in parentheses. All equations are estimated using White's (1980) heteroskedasticity-consistent standard errors. Significance at the 1 percent level is denoted by ***, at the 5 percent level **, and at the 10 percent level *.

Assets. This is not true, however, for Liquid Liabilities. The outcome for the legal origin variable is qualitatively similar to that in LLB, who also found that inclusion of initial real income often affects the sign and significance of the estimated coefficient on legal origin. Overall, the baseline regressions explain over 50 percent of the variation in the three financial intermediary ratios.

The second column under each financial measure in Table 3 reports the results of estimating equation (2). One thing to note is that, even though per capita real GDP and the freedom measure are correlated (see Table 2), each exerts a significant independent effect on the Private Credit and Bank Assets measures of financial development. For Liquid Liabilities per capita real GDP is significant at the 12 percent level after economic freedom is included. Although the size of the estimated coefficient on per capita real GDP is reduced once economic freedom is included, it remains statistically significant for regressions using Private Credit and Bank Assets as the dependent variable. Moreover, adding economic freedom has little effect on the estimated coefficients for legal origin, though for Private Credit the German legal origin variable now becomes insignificant.

Focusing on the estimated coefficients for economic freedom, the effect is always positive and statistically significant at the 5 percent level or better. After controlling for initial income and legal origin, countries with higher levels of economic freedom experienced, on average, greater development in financial intermediation. Not only is the freedom variable statistically significant, but its economic effects are not miniscule. A one-standard-deviation increase in economic freedom results in an increase in the Liquid Liabilities ratio equal to about one-quarter of its standard deviation. The economic effect on Private Credit and Bank Assets measure is a bit larger: a one-standard-deviation increase in economic freedom produces an increase of about one-third of the dependent variable's standard deviation.

Overall, the adjusted R-squares and the P-values for the F-test indicate that a significant proportion of the variability in financial intermediary development is explained by the regression.

Equation (2) is an admittedly parsimonious specification. Several robustness checks were therefore performed by adding other "institutional" variables to account for social and human capital. The list of variables includes life expectancy, educational attainment (updated Barro and Lee [1996] estimates of average years completed and percentage of the adult population with a BA), and an overall measure

of human development proxied by the Human Development Index (HDI). Observations of these additional variables, like per capita real GDP and economic freedom, are for 1980.[7] The estimation results are not reported in order to conserve space and because including those measures does not alter the finding that economic freedom exerts a positive and significant effect on all three financial intermediary development indicators. (These results are available upon request.) Not too surprising, though, I find that including life expectancy and HDI significantly reduce the statistical significance of initial per capita real GDP. This reflects the fact that all three are highly correlated and are, in effect, capturing similar initial conditions: richer countries tend to have higher life expectancies and by construct a higher HDI index.[8]

Because the financial development indexes are based on data that run through 2009, another question is whether the results in Table 3 reflect influences stemming from the recent financial crisis. To test whether including this turbulent period influences the results, the equations were reestimated using averages of the financial development data ending in 2005. Again, those results are not reported (but are available upon request), because they are qualitatively unchanged from those found in Table 3. With this truncated sample, economic freedom has a positive and statistically significant effect on financial intermediary development.

The results in Table 3 and from other experiments indicate that one cannot reject the hypothesis that more economic freedom is associated with a higher level of financial intermediary development. Does this conclusion hold when the more narrow freedom index components are used in equation (2)? The answer is found in Table 4. To conserve space, only the estimated coefficients for the component measures of freedom are reported. A notable finding is that though correctly signed, the estimated coefficient on the Government component of the economic freedom index never achieves significance at any reasonable level. A better legal system

[7]Due to data limitations for the HDI measure, I use 1985 observations for Cyprus and Uganda. Due to data limitations, countries not included in this estimation include the Bahamas, Madagascar, and Nigeria.

[8]The correlation between real per capita GGP and HDI is 0.85; for income and life expectancy the correlation is 0.74. This is not true for the correlation with freedom, however. The correlation between HDI and freedom is 0.50; between life expectancy and freedom the correlation is 0.49.

TABLE 4
Regression Results Using Freedom Components

Freedom Measure	Dependent Variable		
	Liquid Liabilities	Private Credit	Bank Assets
Government	0.007	0.020	0.001
	(0.605)	(0.260)	(0.915)
Legal	0.020	0.042**	0.015
	(0.163)	(0.018)	(0.112)
Money	0.024**	0.018	0.002
	(0.027)	(0.277)	(0.838)
Trade	0.030**	0.054***	0.020**
	(0.026)	(0.001)	(0.043)
Credit Market Regulation	0.026**	0.043***	0.021**
	(0.018)	(0.003)	(0.021)
Regulation	0.044***	0.041***	0.027***
	(0.004)	(0.008)	(0.006)

Notes: All regressions include constant, the log of per capita real GDP in 1980, legal origin dummies and Barro-Lee regionals. P-values reported in parentheses. All equations are estimated using White's (1980) heteroskedasticity-consistent standard errors. Significance at the 1 percent level is denoted by ***, at the 5 percent level **, and at the 10 percent level *.

with greater protection of property rights (Legal) is important for the development of Private Credit but apparently not the other two measures.[9] The Money component of the freedom index, which is greater for countries whose governments undertake policies to protect the purchasing power of their currency, increases (significantly) the Liquid Liabilities measure of financial development but has no statistical effect on Private Credit or Bank Assets.

The evidence pointing to a role for the subcomponents affecting financial development is much stronger for the other three economic freedom components. The results in Table 4 indicate that greater

[9]This result is based on a reduced sample due to lack of data for the Legal variable. This sample consists of 67 countries.

freedom in international trade (Trade) leads to more development in a country's financial intermediaries.[10] In addition, the estimated coefficients on the Regulation (general business regulation) and Credit Market Regulation measures are all positive and statistically significant across the financial measures.[11] In general, a one-standard-deviation increase in either of these regulation measures has a fairly substantial impact on financial development. This suggests that countries with more intrusive regulations hinder the development of financial intermediaries and, based on previous work, may thus impede future economic growth.

After controlling for several conditioning variables, overall economic freedom has a positive and statistically significant effect on commonly used indicators of financial intermediary development. The results using more narrowly defined measures of economic freedom indicate that openness in foreign trade and reductions in regulatory burden are associated with increases in financial intermediary development. The evidence thus indicates that higher levels of economic freedom are an important component to the future development of financial intermediation.

Conclusion

A number of studies have found that financial development and higher levels of economic freedom are associated with (cause) economic growth. The unanswered question, however, is whether the financial development-economic growth nexus reflects influences of economic freedom operating through the financial system. This article closes that loop: it finds that countries with higher levels of *initial* economic freedom, on average, exhibit greater levels of financial intermediary development in subsequent years. If greater financial intermediary development engenders faster economic growth, the results of this study explain, at least partially, the observed link between economic freedom and economic growth.

[10]This result is related to the findings of Ranciere et al. (2008): countries with greater economic freedom are better able to withstand a currency crisis.

[11]Due to data limitations, the result for Credit Market Regulation is based on a sample that omits Paraguay. For Regulation, Central African Republic, El Salvador, Haiti, and Paraguay are omitted.

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