2. This idea is expressed in specific form in Black and Kraakman 1996. It also emerges from conversations with a minister, discussing development of competition law, to wit: "We don't have administrators or judges who can analyze market definition, market shares, or the like, so we need competition rules that avoid standards like 'tend to monopolize' or 'unfair trade.'"

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Napoleon, Bourses, and Growth, with a Focus on Latin America

Ross Levine

Developing countries' stock markets accounted for a disproportionately large share of the late 1990s boom in global stock market activity. The value of equity market transactions in emerging economies soared from about 2 percent of the world total in 1986 to 12 percent in 1996.[1] This boom was accompanied by an explosion of international capital flows, especially flows into developing country stock markets. Net private capital flows to developing nations had jumped tenfold over the previous decade, exceeding $250 billion in 1996.[2] Moreover, while equity flows had been a negligible part of capital flows to emerging markets in the mid-1980s, equity flows represented about 20 percent of private capital flows to developing nations by 1996. In the late 1990s, however, the dramatic financial disturbances emanating from Asia curtailed some capital flows and raised questions about the role of financial markets.

These developments raise critical questions for policymakers. Are developing country stock markets simply casinos where foreigners place bets? Or do developing countries themselves reap large benefits from liquid equity markets? If better stock markets are important catalysts of economic development, what can policymakers do to improve the functioning of their bourses?

In addressing these policy issues, this essay makes three points.

1. First, stock market development, especially stock market liquidity, exerts a positive, first-order impact on economic development. A growing body of research supports the view espoused by Walter Bagehot more than one hundred years ago: *better-functioning financial markets cause faster economic growth.*

2. Second, particular laws and regulations materially affect the operation of stock markets. Cross-country differences in laws concerning the rights of shareholders—especially minority shareholders—help explain the level of stock market development. Also, countries with

companies that provide high-quality, comprehensive, and comparable financial statements tend to enjoy better-developed stock markets than countries where regulatory systems are less effective in encouraging firms to publish useful information. Thus, governments can augment the functioning of private markets and thereby boost economic growth by effectively protecting property rights and facilitating the dissemination of information. *In sum, countries where legal codes stress the rights of shareholders, and where the regulatory system rigorously encourages corporate information disclosure, tend to have better-developed financial markets.*

3. Third, relatively uninformative financial statements, combined with relatively weak legal protection of minority shareholders, help account for the comparably underdeveloped state of Latin America's stock exchanges and its disappointingly slow growth. These characteristics can in part be traced to the influence of the French legal tradition on Latin America's legal and regulatory systems. The French-Napoleonic legal tradition is in fact strongly associated with relatively underdeveloped financial systems.[3] Once we examine the strong empirical connection between the legal and regulatory environment, the financial system, and growth, *Latin America's legal and regulatory systems stand out as deserving particularly careful scrutiny as it seeks to accelerate economic development.*

Methodologically, the essay primarily uses cross-country comparisons based on data from forty-five countries over the period 1976–94. Each country is one observation. Two major weaknesses of this methodology are that it does not provide a detailed evaluation of the particular circumstances of any individual country and it focuses attention on Latin America as a region instead of on individual countries. The strength of this analysis is that it places Latin America in an international context. The cross-country comparisons suggest an urgency that would not emerge from a country-specific study. Latin America, on average, has notably weaker legal codes in terms of the protection of minority shareholders than does the rest of the world. To an even greater degree, Latin American companies tend to publish lower-quality and less comprehensive financial statements. The results offer a broad reform strategy but not a precise blueprint of how to reform the policies of any particular country.

Sections I and II discuss the theories and empirical evidence regarding the relationship of stock markets and banks with economic growth. The issue here is not whether stock prices efficiently reflect expectations about future corporate profits or whether quickly rising

stock prices are good or bad. The issue is whether a well-developed stock market—*a market where it is relatively easy to trade ownership of the country's companies*—helps that country grow faster.

The data summarized in section II show that, even after controlling for many factors associated with growth, stock market liquidity—*as measured both by the value of stock trading relative to the size of the market and by the value of trading relative to the size of the economy*—is positively and significantly correlated with future rates of long-run economic growth. A growing body of microeconomic evidence supports this finding. These results are consistent with the view that a greater ability to trade ownership of an economy's companies facilitates faster economic growth. Moreover, the level of banking development—*as measured by bank loans to private enterprises divided by gross domestic product (GDP)*—also helps in predicting economic growth. Since measures of stock market liquidity and banking development both enter the growth regressions significantly, the findings suggest that banks provide *different* financial services from those provided by stock markets. Banking and stock market development in developing countries tend to complement each other, not substitute for one another.

Since better stock markets seem to boost economic development, policymakers have a responsibility to implement legal, regulatory, and policy reforms that promote healthy stock market development. Researchers similarly have a responsibility to identify such reforms. Thus, section III examines the relationship between stock market development and both the legal rights of shareholders and the degree to which the regulatory regime successfully encourages firms to publish comprehensive financial statements.

The data presented in section III suggest a strong link between stock market development and a country's legal and regulatory environment. Countries where the legal system emphasizes the rights of minority shareholders, and where the regulatory/accounting regime produces high-quality information about firms, have larger stock markets (where size is measured both by market capitalization and by the number of primary market issues). Furthermore, the relationship between accounting standards and stock market liquidity is significant and economically meaningful. The data imply that one standard deviation increase in information disclosure increases liquidity by the median value of the sample.

Next, section III confronts the issue of causality, tracing the impact of the legal and regulatory environment on stock market development

and ultimately on economic growth. Specifically, I use as instrumental variables measures of the legal rights of minority shareholders and the regulatory regime's ability to encourage high-quality corporate reports as a way of extracting the exogenous component of stock market development—that is, the component of stock market development that is defined by the legal and accounting environment.

There are good reasons to use measures of the legal and regulatory environment as instrumental variables. First, they are direct policy levers. Second, the current legal/regulatory environment has been heavily influenced by legal heritage. In particular, La Porta et al. (1997, 1998) show that differences in the legal treatment of shareholders as well as in the quality of corporate annual reports are systematically linked to the country's legal origin. Based on the work of legal scholars, they categorize countries as having predominantly English, French, German, or Scandinavian legal origins. Since most countries obtained their legal systems through occupation and colonization, and since these systems vary little over time, the legal variables can be treated as exogenous for the 1976–93 period. Section III shows that the exogenous component of stock market development—*the component of stock market development defined by the legal and accounting regime*—is in fact positively associated with long-run economic growth. (The econometric specification passes the test of the overidentifying restrictions: the specific legal variables used in this essay do not influence growth beyond their influence on financial development, eliminating simultaneity bias as an explanation of the correlation.)

The impact of the exogenous component of stock market development on economic growth is positive, statistically significant, robust, and economically meaningful. The results imply that if Latin America as a whole could implement regulatory reforms that improve the quality of its corporate statements from its current value of 48 to the average for the Organization for Economic Cooperation and Development (OECD [65]) this would boost stock market liquidity and thereby accelerate real per capita GDP growth by 0.5 percentage points per year. This would be a very large impact, considering that median real per capita GDP growth for the whole sample is only about 1.9 percent. The limitations of the study are discussed in section IV.

Section V provides policy recommendations and attempts to go beyond the specific legal and regulatory variables used in this essay. There may be ways to improve the position of minority shareholders and the quality of published information on firms without fundamentally altering legal codes. These suggestions may offer practical avenues for boosting financial system development and growth.

I. Theory: Stock Markets and Economic Development

Finance and Growth: A Theoretical Overview

There are good theoretical reasons for believing that the financial system influences the rate of economic growth.[4] In a frictionless world, capital would flow toward the most profitable activities and it would be easy to write and enforce contracts that align the interests of managers and owners. Similarly, in a frictionless world individuals costlessly diversify and pool risks and easily find buyers or sellers for securities at well-known prices. But the world is not frictionless. There are large costs associated with researching firms. There are large information and contracting costs associated with monitoring managers and encouraging them to act in the best interests of firm owners.[5] It is expensive to mobilize capital from disparate savers. Furthermore, an array of costly contractual and institutional arrangements must arise to reduce the costs to savers and investors of pooling risks and trading securities. Financial contracts, markets, and intermediaries have emerged to mitigate the negative consequences of these information, transaction, and contracting costs.[6] These financial arrangements can reduce the adverse effects of market frictions on resource allocation and growth.

Countries have different financial systems due to differences in legal tradition, politics, policies, natural resource endowments, and perhaps historical accident. Financial systems differ in their ability to identify profitable ventures, mobilize capital to fund those ventures, monitor and create appropriate incentives for corporate managers, facilitate risk management and transactions, and augment the ease and confidence with which agents can exchange assets. These differences may have profound implications for economic growth.

Theoretical Issues: From Stock Market to Economic Growth

An important channel via which financial systems affect economic activity is through productivity. For example, Joseph Schumpeter ([1912] 1934, 74) argued that "the banker, therefore, is not so much

primarily a middleman. . . . He authorises people, in the name of society as it were, [to innovate]." Thus, financial markets are not simply pipes via which funds flow. According to Schumpeter, better financial systems will find better-quality investments, so that better financial markets boost overall economic development by boosting productivity growth.

Better-functioning equity markets may also affect productivity. Many profitable investments require a long-term commitment of capital, but investors are often reluctant to relinquish control of their savings for long periods. Liquid equity markets make long-term investment more attractive because they allow savers to sell equities quickly and cheaply if they need access to their savings. At the same time, companies enjoy permanent access to capital raised through equity issues. By facilitating longer term, more profitable investments, liquid markets improve the allocation of capital and thereby boost productivity growth.[7]

Stock markets may also exert a positive impact on productivity growth by stimulating the acquisition of information about firms. Specifically, investors want to make a profit by identifying undervalued stocks and exploiting this information by buying or selling equities quickly and cheaply in liquid markets. If markets are liquid, this will create incentives for investors to evaluate firms energetically. Alternatively, if markets are illiquid, investors have fewer incentives to undertake the costly process of researching firms because they will not be confident about exploiting any information advantage they have garnered in the market.[8] Thus, by stimulating the acquisition of information about firms, liquid stock markets can improve the allocation of capital.

Adverse Implications of Stock Markets

Contentious theoretical debate exists, however, about the impact of financial systems in general and stock markets in particular on economic development.[9] Theory suggests that greater stock market liquidity has ambiguous effects on savings: if greater liquidity boosts the returns to investment, this increase in returns has ambiguous effects on saving rates due to well-known income and substitution effects. So, to the extent that financial development boosts investment returns, it is unclear what will happen to saving rates.[10]

Moreover, theoretical debate exists about whether greater stock market liquidity actually encourages a shift to higher-return projects

that stimulate productivity growth. Since more liquidity makes it easier to sell shares, some argue that more liquidity reduces the incentives of shareholders to undertake the costly task of monitoring managers (Shleifer and Vishny 1986; Shleifer and Summers 1988; Bhide 1993). In turn, weaker corporate governance impedes effective resource allocation and slows productivity growth.

Theory: Stock Markets and Banks May Not Be Substitutes

Traditionally, development specialists have focused on banks, viewing stock markets as unimportant sideshows. They note that much more corporate capital is raised from banks than from equity issues. This traditional view ignores an important point: stock markets may provide different financial services from banks. Put differently, stock markets may positively affect economic development even though not much capital is raised through them. For instance, stock markets may play a more prominent role in easing the risk of trading and boosting liquidity. In contrast, banks may focus more on establishing long-run relationships with firms and monitoring managers. To grow, economies need both liquidity and information about managers and projects.

The point is not to draw too sharp a line between banks and markets. Like stock markets, banks help savers diversify risk and provide liquid deposits, which assists economic activity. Like banks, stock markets may stimulate the acquisition of information about firms because investors want to make a profit by identifying undervalued stocks. The point is simply to highlight the empirical nature of the questions at hand. Do stock markets boost economic development? Do stock markets boost economic development independently of the level of banking development? Are there interactions between stock markets and banks?

II. Evidence on Stock Markets, Banks, and Economic Growth

Substantial evidence supports the view that better financial systems in general and stock markets in particular boost economic growth. Levine (1997) compiles and analyzes this evidence. This section presents figures summarizing the main cross-country findings on stock markets and growth based on data on a maximum of forty-five countries over the period 1976–93.[11] The section also presents new

evidence on the impact of primary market development on economic growth, in contrast to past work, which has focused exclusively on secondary market development. I also summarize microeconomic and time-series evidence regarding the link between stock markets and growth. Special attention is given to the joint role of banks and stock markets in facilitating economic development.

Measures of Stock Market Development

This essay uses two measures of stock market liquidity. The first equals the total value of the trades of domestic stock on domestic stock exchanges divided by GDP and is called *Value Traded*.[12] While it is not a direct measure of trading costs or the uncertainty associated with trading on a particular exchange, theoretical models of stock market liquidity and economic growth directly motivate Value Traded (Levine 1991; Bencivenga et al. 1995). Value Traded measures trading volume as a share of national output and should therefore positively reflect liquidity on an economywide basis. The value-traded ratio is likely to vary with the ease of trading: if it is costly and risky to trade, there will tend to be less trading.

The second measure of stock market liquidity, *Turnover*, equals the value of domestic shares traded on domestic exchanges divided by the value of listed shares. While Value Traded captures trading relative to the size of the economy, Turnover measures trading relative to the size of the market. Thus, a small, liquid market will have high Turnover but small Value Traded.

To measure the size of the secondary market, I use *Capitalization*, which equals the value of listed domestic shares on domestic exchanges divided by GDP. Although large markets do not necessarily function well, and taxes may distort incentives to list on the exchange, many observers use Capitalization as an indicator of market development.

To measure the size of the primary market, I use IPO, which equals the number of initial public offerings of shares in each country relative to the size of the population (in millions). While initial public offerings may reflect many phenomena, I wanted to get some indication of external equity financing. This measure is taken from La Porta et al. 1997. Whereas the other stock market indicators are available for the period 1976–93, IPO is measured only over the period mid-1995 to mid-1996 due to data availability.[13]

Finally, I use a measure termed stock return volatility. Specifi-

cally, *Volatility* is a twelve-month rolling standard deviation estimate that is based on market returns, where the return series is cleansed of monthly means, and twelve months of autocorrelations (Schwert 1989).

Liquidity and Growth

This subsection begins an assessment of whether developing country stock markets are simply casinos where an increasing number of foreigners are coming to place bets or whether the developing countries themselves reap large benefits from having access to liquid stock markets. The data suggest that stock markets are not simply casinos. There is a very strong link between stock market liquidity and future long-run growth.

Figure 1 shows that countries that had relatively liquid stock exchanges in 1976 tended to grow much faster over the next eighteen years. To illustrate this, I use Value Traded for the thirty-eight countries with data in 1976. The countries are first ranked by the liquidity of their stock markets. The first group has the nine most illiquid markets, the second group has the next ten most illiquid markets, the third group has the next ten, and the final group has the nine countries with the largest value-traded ratios. Figure 1 shows there is a systematic relationship between initial liquidity and future real per capita GDP growth.[14]

For developing countries, the returns to boosting stock market liquidity may be large. Here, it is important to note that the strong link between liquidity and growth remains strong even after controlling for cross-country differences in inflation, fiscal policy, political stability, education, the efficiency of the legal system, exchange rate policy, and openness to international trade, as shown in Levine and Zervos 1998a. Thus, it is not that stock market liquidity is merely highly correlated with the nonfinancial factors that are the real causes of economic growth. Raising stock market liquidity may independently produce big growth dividends. For example, regression analyses imply that if Mexico's value-traded ratio in 1976 had been the average of all thirty-eight countries (0.06 instead of 0.01), the average Mexican's income would be 8 percent greater today. This forecast must be viewed cautiously, however, since it does not specify *how* to enhance liquidity. Nevertheless, the example does illustrate the potentially large economic costs of policy, regulatory, and legal impediments to stock market development.
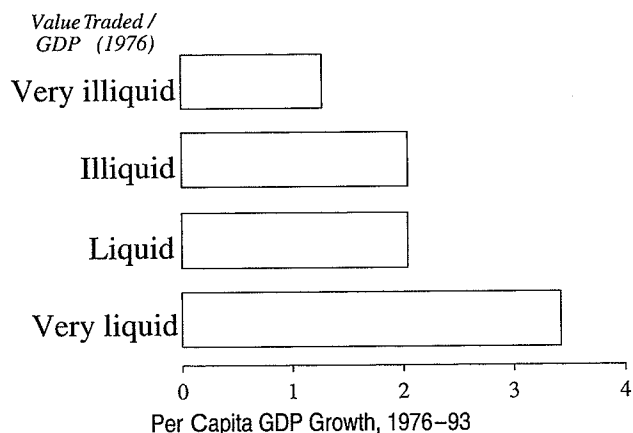
Value Traded /
GDP (1976)

Very illiquid

Illiquid

Liquid

Very liquid

0   1   2   3   4

Per Capita GDP Growth, 1976–93

Fig. 1.   Stock market liquidity predicts growth

Size, Volatility, and Growth

Other measures of stock market development do not tell the same story. For example, stock market size, as measured by market capitalization divided by GDP, is not a good predictor of future economic growth (fig. 2) and greater stock return volatility does not forecast poor economic performance (fig. 3). Countries with large stock markets appear to be no more likely to grow quickly than those with small ones. Nor does there seem to be a strong link between stock market volatility and economic growth. Liquidity—the ability to buy
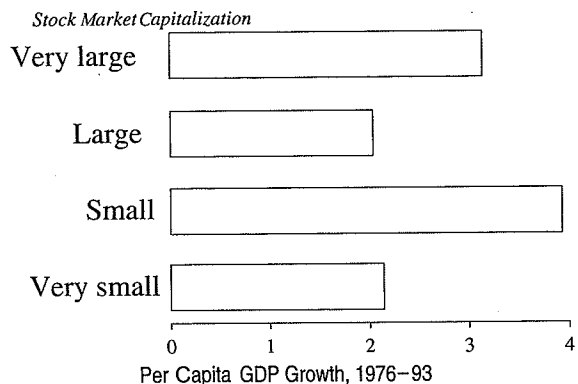
Stock Market Capitalization

Very large

Large

Small

Very small

0   1   2   3   4

Per Capita GDP Growth, 1976–93

Fig. 2.   Market size does not predict growth

Stock Market Volatility

Very volatile

Volatile

Stable

Very stable

0   1   2   3   4

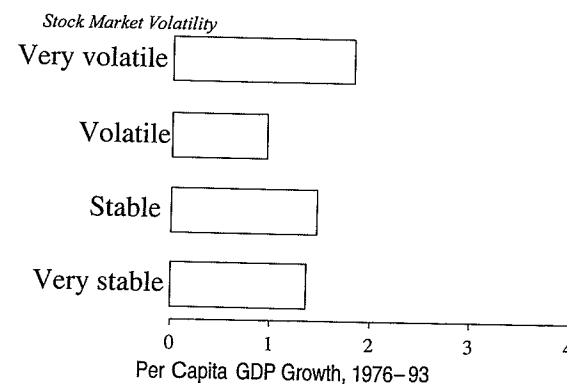Per Capita GDP Growth, 1976–93

Fig. 3.   Market volatility does not predict growth

and sell equities easily—is what exhibits the strong connection to long-run growth.

IPOs and Growth

This essay also examines for the first time the relationship between the primary equity market and long-run growth. With the full sample of countries, there is not a clear positive link between IPO and growth, as illustrated in figure 4. This lack of a strong link is supported by regression analyses that control for other country characteristics. However, it is important to note that two countries skew these results. Taiwan and Korea are the fastest growers but have virtually no recorded IPO activity over the limited time period for which there are data. If these two countries are omitted, the positive relationship between growth and IPO becomes stronger, as shown in table 1. Table 1 presents regression results of average annual real per capita GDP growth over the 1976–93 period (GROWTH) on IPO, while controlling for an assortment of other country characteristics. There is one observation per country. I follow the standard cross-country growth literature in controlling for a range of other country characteristics (e.g., Barro and Sala-i-Martin 1995; Easterly and Levine 1997; and Levine and Renelt 1992). In regression 1, I control for the logarithm of initial real per capita GDP (Income), the logarithm of secondary school enrollment (Enrollment), and the number of revolutions and coups per year (Revolutions). Regression 2 also includes the average annual inflation rate (Inflation) and the ratio of central government spending to GDP (Government). Regression 3
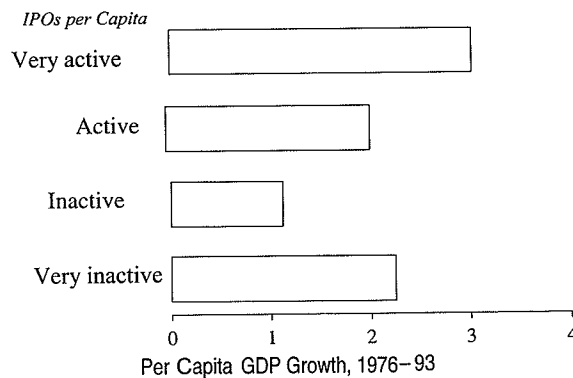
Fig. 4. Primary market activity and growth

TABLE 1. Primary Market Activity and Growth, 1976-93

	Dependent Variable: Average per Capita GDP Growth, 1976-93		
	1	2	3
c	0.116	0.117	0.124
	(3.43)	(2.89)	(4.23)
Initial Income	−0.017	−0.017	−0.005
	−(2.56)	−(2.24)	−(0.62)
Enrollment	0.012	0.012	−0.012
	(0.98)	(0.97)	−(0.97)
Revolutions	−0.022	−0.022	−0.017
	−(2.74)	−(2.50)	−(2.77)
Inflation		0.000	0.002
		−(0.35)	(2.46)
Government		−0.007	−0.001
		−(0.16)	−(4.60)
Black Market Premium			−0.058
			−(1.32)
IPO	0.004	0.004	0.003
	(2.21)	(2.09)	(1.78)
P-value	{0.035}	{0.046}	{0.087}
R^2	0.38	0.38	0.71

Notes: Number of observations = 34. These regressions omit Korea and Taiwan. IPO = initial public offerings per million population; Initial Income = logarithm of Initial real per capita GDP; Enrollment = logarithm of initial secondary school enrollment; Revolutions = number of revolutions and coups per year; Inflation = average annual inflation rate; Government = central government expenditures as a share of GDP; Black Market Premium = average black market premium.

also adds the average annual black market exchange rate premium (Black Market Premium).

In table 1, IPO is positively and significantly correlated with economic growth in regressions 1 and 2 at the 5 percent significance level when Taiwan and Korea are excluded. When also controlling for Black Market Premium, the P-values rise to 0.087. This suggestive though still inconclusive evidence calls for further study of the ties between long-run growth and primary market development. In sum, the above analysis focuses the growth spotlight on stock market liquidity and leaves, at least for now, other characteristics of stock markets in the shadows.

Stock Markets, Banks, and Growth

This analysis may elicit the following skeptical inquiry. Is there really an independent link between stock market liquidity and growth or is stock market development merely highly correlated with banking sector development? Perhaps banks are the real financial engines of growth and stock markets are mere sideshows. Indeed, figure 5 shows that countries with well-developed banking systems—as measured by bank loans to private enterprises as a share of GDP—tend to grow faster than countries with underdeveloped banks.[15]

Empirically, the effect of stock markets on growth can be distinguished from the impact of banking development. To show this, the thirty-eight countries were divided into four groups. The first group had greater than median stock market liquidity (as measured by Value Traded) in 1976 and greater than median banking development. Group 2 had liquid stock markets in 1976 but less than median banking development. Group 3 had less than median stock market liquidity in 1976 but well-developed banks. Group 4 had illiquid stock markets in 1976 and less than median banking development.

Countries with both liquid stock markets and well-developed banks grew faster than countries with both illiquid markets and underdeveloped banks (fig. 6). More interestingly, greater stock market liquidity implies faster growth regardless of the level of banking development. Similarly, greater banking development implies faster growth regardless of the level of stock market liquidity. If one uses Turnover, one gets the same results. Moreover, after controlling for other country characteristics such as initial income, schooling, political stability, and monetary, fiscal, trade, and exchange rate policies, the data still indicate that there is a strong link to growth for each of
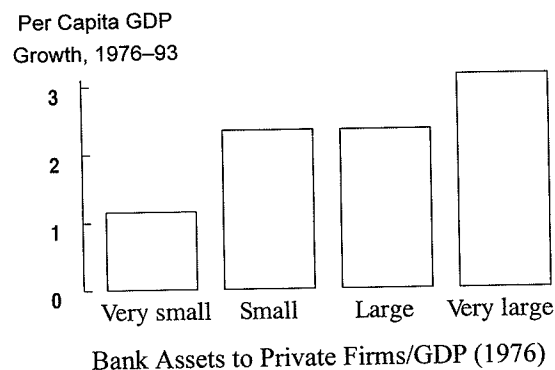
Per Capita GDP
Growth, 1976–93

Bank Assets to Private Firms/GDP (1976)

Fig. 5.   Size of banking sector predicts growth

Per Capita Growth
(%), 1976–93

Initial Stock Market
Liquidity, 1976

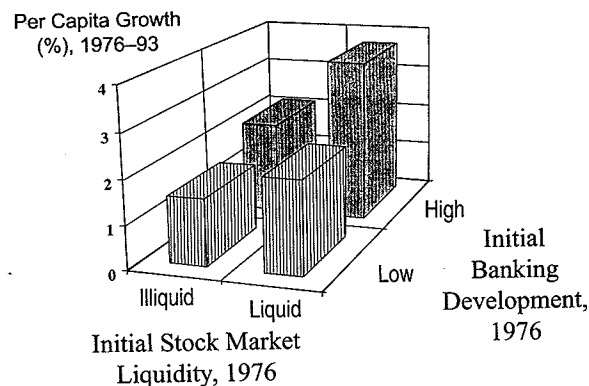Initial
Banking
Development,
1976

Fig. 6.   Growth, stock markets, and banks

the two measures of financial sector development (as shown in Levine and Zervos 1998a).

Growth: Potential Interactions between Banks and Markets

The strong, positive link between economic growth and both stock market and banking sector development suggests a two-part question about the interactions between stock markets and banks.

Will an increase in banking development have a bigger (smaller) impact on growth in the presence of a relatively well developed stock market and will an increase in stock market development have a bigger (smaller) impact on growth in the presence of a relatively well developed banking sector?

To study this question, I used interaction terms. Specifically, let SMI stand for Stock Market Indicator, which can equal Capitalization, IPO, Value Traded, or Turnover. Let Bank equal the bank development indicator, that is, bank credit to the private sector divided by GDP. Finally, let X equal a matrix of control variables such as initial income, the level of schooling, and indicators of political stability as well as monetary, fiscal, trade, and exchange rate policies. Then the following cross-country regressions were run.

$$\text{GROWTH} = a(X) + b(\text{SMI}) + c(\text{Bank}) + d(\text{SMI*Bank}) + u,$$

where u is the regression residual. If the coefficient, d, on the interaction term, SMI*Bank, is positive, this would imply that an increase in stock market development, SMI, would have a bigger positive impact on Growth for a higher level of banking development. This was not the case, however. In all specifications, the coefficient on the interaction term, d, was highly insignificant. Taken together with the findings reported earlier, the data suggest that stock markets and banks are positively associated with growth. The data do not support the view that an improvement in stock market development will positively affect growth *more* in a country with a well-developed banking system. In sum, it is not stock markets *versus* banks; it is stock markets *and* banks. Each of these components of the financial system is an independently strong predictor of growth.

Other Evidence

Although I will present new evidence on causality, it is worth highlighting the results of a growing body of empirical literature. Using different empirical methodologies, a variety of authors present evidence consistent with the view that finance causes growth. Taking a microeconomic approach, Rajan and Zingales (1998) show that, in countries with well-developed financial systems industries that are naturally heavy users of external financing grow relatively faster than other industries. Alternatively, in countries with poorly developed

financial systems industries that are naturally heavy users of external financing grow more slowly than other industries. Furthermore, Demirgüç-Kunt and Maksimovic (1988) show that firms in countries with better-developed financial systems grow faster than they could have grown without this access. Also, in an innovative event study, Jayaratne and Strahan (1996) show that when individual states of the United States relaxed intrastate branching restrictions, the quality of bank loans rose and per capita GDP growth accelerated. Furthermore, Levine (1998, 1999), using instrumental variables to extract the exogenous component of financial development, shows that the exogenous component of financial development is strongly, positively correlated with economic growth. On causality, Hansson and Jonung (n.d.), Neusser and Kugler (1998), Rousseau and Wachtel (1998a), and Wachtel and Rousseau (1995) find that financial intermediation Granger-causes economic performance. Levine, Loayza, and Beck (2000) and Beck, Levine, and Loayza (2000) use dynamic panel econometric procedures to control for both potential endogeneity and omitted variable biases. They show that financial development exerts a causal impact on economic growth. Rousseau and Wachtel (1998b) use time-series procedures and show that equity market development causes growth. Finally, the microeconomic studies of Rajan and Zingales (1998) and Demirgüç-Kunt and Maksimovic (1998) also suggest a causal link running from financial development to economic growth. Thus, while there is still some room for skepticism, a growing and diverse literature is consistent with the view that better financial systems cause faster economic growth.

III. The Legal Environment and Stock Market Development

Since the financial system importantly influences economic development, policymakers have a responsibility to implement legal, regulatory, and policy reforms that promote healthy financial sector development. In turn, researchers have a responsibility to identify legal, regulatory, and policy reforms that promote healthy financial sector development. This section examines the relationship between the legal/accounting environment and stock market development. Specifically, I quantify the link between stock market development and (1) measures of the legal treatment of shareholders and (2) the effectiveness of the accounting system in providing comprehensive and comparable information about firms to investors. Finally, I trace the link from the legal and regulatory environment through stock market

development and on to economic growth. Specifically, I study whether the exogenous component of stock market development—the component of stock market development associated with the legal and regulatory environment—explains long-run economic growth.

Overview

As described by Glendon et al. (1982) and Berman (1983), Roman law was compiled under the direction of the Byzantine emperor Justinian in the sixth century. As particular problems arose throughout Europe during subsequent centuries, Roman law was adapted and modified. Eventually, individual countries formalized individual legal codes. In the seventeenth and eighteenth centuries, the Scandinavian countries codified their national laws. The Scandinavian legal system has remained relatively unaffected by the sweeping influences of the German and especially English and French legal traditions.

The English legal tradition is not a civil law heritage. Under a civil law system, legal scholars play a leading role in shaping laws. In the Common Law—English—legal tradition, laws are heavily influenced by judges trying to resolve particular cases. Common Law was spread through conquest and colonization to various corners of the globe.

Napoleon directed the writing of the French Civil Code in 1804. The Civil Code is relatively short and meant to be accessible to the general public. Napoleon was very proud of the Civil Code and saw its permanence as more important than the fleeting nature of his military conquests. He made it a priority to secure its adoption in all conquered territories. Thus, the code was adopted in Italy, Poland, the Low Countries, and the Hapsburg Empire. France extended its legal influence during the colonial era to parts of the Near East, northern and sub-Saharan Africa, Indochina, Oceania, French Guiana, and the French Caribbean islands. Furthermore, the French Civil Code shaped the Portuguese and Spanish legal systems, with obvious implications for Central and South America.

Almost a century later, Bismarck directed the writing of the German Civil Code, a massive effort that began in 1871 and was completed in 1896. The German Civil Code has no parallel in terms of comprehensiveness and detail. It shaped the legal systems of Austria, China, Hungary, Japan, and Switzerland. Through China and Japan, it also exerted a powerful influence on the legal traditions of Korea and Taiwan.

La Porta et al. (1998) categorize countries as having predominantly English, French, German, or Scandinavian legal origins, based

on the work of legal scholars. Since the English, French, and German systems were spread primarily through conquest and imperialism, I view legal origin as an exogenous "endowment" in studying the relationship between the legal system and financial sector development.

La Porta et al. (1998) show that legal origin materially influences both the legal treatment of shareholders and regulations governing corporate information. English law countries have laws that emphasize the rights of minority shareholders to a greater degree than the French, German, and Scandinavian countries. French civil law countries protect shareholders the least, with German and Scandinavian civil law countries falling in the middle. In terms of regulations governing corporate information disclosure, countries with a French legal heritage have the lowest quality information. La Porta et al. also examine the quality of law enforcement; while legal codes are important, effectively and efficiently enforcing those laws is critical for financial sector operations. They find that countries with a French legal heritage have the lowest quality of law enforcement, while countries with German and Scandinavian legal traditions tend to be the best at enforcing contracts. Thus, legal heritage importantly shapes the current legal/regulatory environment governing financial sector transactions.

1. The legal environment: Data.   Consider the connection between the legal protection of minority shareholders and the liquidity of equity markets. Conceptually, legal systems that protect shareholders, especially minority shareholders, encourage greater participation. Shareholders exercise their power by voting for directors. Thus, to quantify the legal treatment of shareholders I use five measures of their voting rights.[16]

PROXY equals one if shareholders can choose to vote by either showing up in person (or sending an authorized representative) or mailing in their vote. PROXY equals zero if shareholders cannot vote by mail. This can impede shareholder participation because they must either attend the meeting or go through the legal procedure of designating an authorized representative.

CUMULATIVE equals one if the company law or commercial code allows shareholders to cast all their votes for one candidate, and zero otherwise. The ability to vote all of one's shares for one candidate may make it easier for minority shareholders to put their representatives on boards of directors.

BLOCKED equals one if the company law or commercial code does *not* allow firms to require that shareholders deposit their shares prior to a general shareholders' meeting, thus preventing them from selling those shares for a number of days, and zero otherwise. When shares are blocked in this manner, the shares are kept in custody until a few days after the meeting. This practice prevents shareholders who do not bother to go through this arduous exercise from voting.

MINOR equals one if the company law or commercial code grants minority shareholders either a judicial venue in which to challenge the management decisions or the right to step out of the company by requiring the company to purchase their shares when they object to certain fundamental changes (such as mergers, asset dispositions, and changes in the articles of incorporation). The variable equals zero otherwise.

MEETING equals one if a shareholder is entitled to call for an extraordinary shareholders' meeting with a minimum percentage of ownership share capital of less than 10 percent; it is zero otherwise. The minimum percentage of ownership share capital that entitles a shareholder to call for an extraordinary shareholders' meeting ranges from 1 to 33 percent, with a median of 10 percent. Mexico has the highest value in the sample of countries. Presumably, the harder it is for minority shareholders to call a meeting and contest management the less attractive it will be for agents to participate in equity markets.

SRIGHTS aggregates these five indicators into a conglomerate index of shareholder rights.

2. The regulatory/accounting environment: Data.   Besides the legal rights of shareholders, it is important to consider the availability of information about firms. Information about corporations is critical for exerting corporate governance and identifying the best investments. These activities will be facilitated by accounting standards that simplify the interpretability and comparability of information across corporations. Furthermore, many types of financial contracting use accounting measures to trigger particular actions. These types of contracts can only be enforced, and will only be used, if accounting measures are reasonably unambiguous. Since accurate information about corporations may improve financial contracting and intermediation, this section examines the quality, comprehensiveness, and comparability of information disclosed through corporate accounts using a measure from La Porta et al. 1998. Accounting standards differ across countries, and governments impose an assortment of regulations regarding information disclosure and accounting standards.

Thus, measures of the quality of information in corporate financial statements also reflect the regulatory system.

ACCOUNT is an index of the comprehensiveness and quality of company reports. The maximum possible value is ninety and the minimum is zero. The Center for International Financial Analysis and Research assessed general accounting information, income statements, balance sheets, funds flow statements, accounting standards, and stock data in company reports in 1990. Given the importance of information in financial contracting, I expect ACCOUNT to be positively correlated with stock market activity.

3. Summary statistics on the legal and accounting environment. Table 2 provides summary statistics on SRIGHTS and ACCOUNT. The data are sorted by region. There is substantial cross-country variation, where the maximum value is 5, the minimum value is 0, and the standard deviation is about 1.2. Belgium, Italy, and Mexico (all countries with a French-origin legal system) are countries where SRIGHTS equals the minimum value of 0, indicating that their legal systems do not stress the rights of minority shareholders. In contrast, the legal codes of the United States stress the rights of shareholders, such that SRIGHTS = 5.

The French legal tradition is clearly evident in Latin America. This region's legal system places comparatively less emphasis on the legal rights of shareholders, particularly minority shareholders, than those of other regions do (table 2). The average value of the SRIGHTS indicator of the legal protection of shareholders equals two in Latin America, which is the same as in France and about equal to the average of French civil law countries (table 3). It is also important to note the cross–Latin America variation. The legal codes of Argentina, Brazil, and Chile place a comparatively high priority on minority shareholder rights, while Colombia, Mexico, and Venezuela are far below the international average.

As with other French civil law countries, Latin America tends to provide less comprehensive and comparable information about corporations to investors, as shown by the low value of ACCOUNT in table 2. The Latin American average of forty-eight is about the same as the average for all French civil law countries, fifty-one (table 3).

Latin America's comparatively weak legal protection of shareholders and its relatively uninformative accounting systems evidently have a price: comparatively poor stock markets. Latin America's stock markets over the period tended to be smaller (Capitalization,

TABLE 2.   Summary Statistics by Country Groups

Region	SRIGHTS	ACCOUNT	ENFORCE	CAPITALIZATION	IPO	VALUE TRADED	TOR[a]	VOLATILITY
East Asia	2.86	69.00	7.44	0.61	2.06	0.36	0.67	0.09
Latin America	2.00	48.43	5.13	0.16	0.11	0.02	0.23	0.14
Argentina	4	45	6.31	0.05	0.20	0.01	0.27	0.31
Brazil	3	54	6.91	0.21	0.00	0.04	0.36	0.20
Chile	3	52	4.55	0.40	0.35	0.02	0.06	0.06
Colombia	1	50	5.95	0.06	0.05	0.00	0.09	0.06
Mexico	0	60	3.59	0.13	0.03	0.04	0.50	0.11
Peru	2	38	6.34		0.13	0.00		
Venezuela	1	40	5.54	0.09	0.00	0.01		0.08
OECD	2.33	65.48	9.07	0.29	1.17	0.12	0.29	0.05
Sub-Saharan Africa	3.25	64.50	4.82	0.48	0.05	0.02	0.04	0.08
Other	2.67	52.50	4.79	0.21	1.10	0.05	0.30	0.05

[a]Turnover Ratio.

IPO) less active (Value Traded), and more volatile (Volatility) than the markets of other regions of the world, as shown in table 2. Finally, a general index of the efficiency of the legal system in enforcing contracts (ENFORCE) is also notably lower in Latin America. As emphasized by La Porta et al. (1997, 1998), these tendencies can be traced back to Latin America's French legal heritage, as illustrated by table 2.

Regressions of Stock Market Size on Legal and Accounting Variables

Table 3 presents cross-country regressions that examine more rigorously the connection between the legal rights of shareholders, the accounting regime, and stock market size. The dependent variable is either Capitalization or IPO. As regressors, each of the regressions

TABLE 3.   The Legal Determinants of Market Size

| Independent Variable | Dependent Variable | | | | | |
| | Capitalization | | | IPO | | |
	(1)	(2)	(3)	(1)	(2)	(3)
c	−0.72	−0.28	−0.49	−5.34	−4.82	−5.56
	(0.296)	(0.469)	(0.439)	(2.068)	(2.391)	(2.486)
	{0.020}	{0.556}	{0.276}	{0.014}	{0.052}	{0.032}
INCOME	0.09	−0.04	−0.01	0.58	0.22	0.32
	(0.034)	(0.064)	(0.063)	(0.235)	(0.281)	(0.307)
	{0.011}	{0.534}	{0.818}	{0.018}	{0.444}	{0.309}
SRIGHTS	0.10		0.08	0.59		0.42
	(0.036)		(0.032)	(0.160)		(0.149)
	{0.006}		{0.016}	{0.001}		{0.009}
ACCOUNT		0.02	0.01		0.07	0.05
		(0.005)	(0.004)		(0.019)	(0.019)
		{0.002}	{0.010}		{0.002}	{0.019}
Number of observations	44	39	39	41	37	37
R^2	0.21	0.28	0.36	0.3	0.3	0.38

Note: Standard errors appear in parentheses. *P*-values are in braces.

includes a constant and INCOME. I control for INCOME since the overall level of economic development may influence stock market size. I want to isolate the relationship between market size and both the legal rights of shareholders, SRIGHTS, and the quality of corporate financial statements, ACCOUNT. Regression 1 includes the constant, INCOME, and SRIGHTS. Regression 2 includes a constant, INCOME, and ACCOUNT. Regression 3 includes all of the explanatory variables.

The data indicate a strong link between SRIGHTS and ACCOUNT. Both SRIGHTS and ACCOUNT enter all of the regressions with positive and significant coefficients (at the 0.05 level). Even after controlling for the level of real per capita GDP, countries with legal systems that emphasize the rights of shareholders—especially minority shareholders—enjoy larger markets. Similarly, countries that have regulatory/accounting regimes that produce comparable and comprehensive information about firms tend to have larger stock markets. The data also suggest that the links are economically large. For instance, a one standard deviation increase in ACCOUNT (12) translates into a 0.144 rise in Capitalization (0.144 = 12 × 0.12), which is a bit less than the median value of Capitalization (0.19).

Regression of Stock Market Liquidity on Legal and Accounting Variables

The data also indicate a strong link between stock market liquidity and the availability of high-quality information about firms. As shown in table 4, there is a statistically significant relationship between ACCOUNT and the two measures of stock market liquidity, Value Traded and Turnover, when controlling for the legal rights of shareholders. In contrast, shareholder rights do not have a very robust link with stock market liquidity. This differs from the results reported in table 3, where SRIGHTS were strongly linked to market size. Thus, good information (ACCOUNT) is strongly linked to both market size and liquidity, while SRIGHTS is strongly associated with overall market *size* (table 3) but not with market *activity.* These findings highlight the importance of good regulations governing information disclosure.[17]

Furthermore, the relationship between ACCOUNT and liquidity is economically meaningful. For example, a one standard deviation increase in ACCOUNT (12) increases Value Traded by 0.058 (0.058 =

0.0048×12), which is about the median value of Value Traded in the sample (0.054). Although the R^2 in each of these regressions is low, about 10 percent, the legal and accounting variables do help account for cross-country variations in stock market size and liquidity.

Before continuing, it is critical to note that SRIGHTS is not merely a proxy for the overall quality of a country's legal system. As shown by Levine (1998, 1999), legal variables that define the rights of creditors are closely connected to banking sector development. But SRIGHTS is *not* highly correlated with banking sector development, nor are the legal rights of creditors highly correlated with stock market development. Thus, these legal variables are capturing particular aspects of the legal environment. They are not proxying for overall legal efficiency.

TABLE 4. The Legal Determinants of Market Liquidity

| | Dependent Variable | | | | | |
| | Value Traded | | | Turnover | | |
Independent Variable	(1)	(2)	(3)	(4)	(5)	(6)
c	−0.32	−0.05	−0.11	0.03	0.59	0.60
	(0.172)	(0.320)	(0.308)	(0.379)	(0.594)	(0.585)
	{0.074}	{0.884}	{0.731}	{0.929}	{0.331}	{0.308}
INCOME	0.04	−0.02	−0.01	0.03	−0.08	−0.08
	(0.021)	(0.044)	(0.043)	(0.043)	(0.083)	(0.081)
	{0.058}	{0.651}	{0.765}	{0.504}	{0.349}	{0.327}
SRIGHTS	0.04		0.02	0.02		−0.01
	(0.017)		(0.017)	(0.027)		(0.027)
	{0.037}		{0.194}	{0.567}		{0.786}
ACCOUNT		0.01	0.00		0.01	0.01
		(0.002)	(0.002)		(0.003)	(0.003
		{0.005}	{0.013}		{0.052}	{0.037}
Number of observations	45	40	40	44	39	39
R^2	0.08	0.1	0.12	0.01	0.05	0.05

Note: Standard errors appear in parentheses. *P*-values are in braces. Income = logarithm of real per capita GDP in 1976; SRIGHTS = an index of the legal rights of shareholders, especially minority shareholders, that takes values between 0 and 5; Account = an index of the comprehensiveness and comparability of corporate financial statements; Value Traded = total value of shares traded divided by GDP; Turnover = total value of shares traded divided by Capitalization.

Linking Legal and Regulatory Environment to Stock Market and Then to Growth

Thus far, I have explored two distinct links in the chain running from policy levers to economic growth. First, there is a growing abundance of evidence that better-functioning stock markets are associated with more rapid economic growth. Second, there are particular characteristics of legal and regulatory systems that promote better-functioning stock markets. Latin American countries, perhaps because of their French legal heritage, tend to have legal and regulatory (accounting) systems that discourage stock market development. The general implication of these findings is that policymakers can promote economic development with legal and regulatory changes that bolster the legal rights of shareholders and encourage firms to publish comparable and comprehensive financial statements. The analysis, however, has not yet put the two links of the chain together.

This subsection uses instrumental variable procedures to determine whether the exogenous component of stock market development is linked to long-run growth. Specifically, I examine whether the component of stock market development defined by the legal and regulatory regime is positively associated with economic growth. As instrumental variables, I use the SRIGHTS and ACCOUNT variables defined earlier. The basic regression takes the form:

$$GROWTH = \alpha + \beta SMI + \gamma X + \varepsilon, \tag{1}$$

where the dependent variable, GROWTH, is real per capita GDP growth over the 1976–93 period; SMI is either Value Traded, Turnover, Capitalization, or IPO; and **X** represents a matrix of conditioning information that controls for other factors associated with economic growth. I use SRIGHTS and ACCOUNT variables for each of the SMI indicators and use a generalized method of moments (GMM) estimator.

To control for "other factors," I include three different conditioning information sets.[18] Conditioning information set 1 includes a constant plus the logarithm of initial per capita GDP, the logarithm of initial secondary school enrollment, and the number of revolutions and coups.[19] Conditioning information set 2 includes these variables plus the ratio of government spending to GDP, inflation, and the black market exchange rate premium. Conditioning information set 3 includes all the control variables in conditioning information set 2

plus Bank, which equals bank credit to the private sector divided by GDP.

The results indicate a strong, positive relationship between the exogenous component of stock market development and economic growth. Table 5 summarizes the results from twelve GMM regressions: three regressions, based on the three conditioning information sets, for each of the four stock market indicators: Value Traded, Turnover, Capitalization, and IPO. Table 5 presents only coefficient estimates on the stock market indicators and not the results on the other regressors. For the simple conditioning information set (1), table 6 provides the full regression results.

After controlling for a wide array of factors, the exogenous component of Value Traded, Capitalization, and IPO all enter the growth regression with coefficients that are significant at the 0.05 level, and Turnover is significant at the 0.10 level. Tests of the overidentifying restrictions support the econometric specification. Specifically, the tests indicate that shareholder rights and accounting system quality do not affect growth other than through stock market development and the other explanatory variables. I am not claiming that the legal system affects growth only through financial market development. The results do, however, suggest that simultaneity bias is not driving

the strong positive relationship between equity market development and long-run growth.

Moreover, the strong link between the exogenous component of stock market development and growth holds using alternative instrumental variables. Table 7 presents the results of using the dummy variables for legal origin (English, French, or German) as instrumental variables without using SRIGHTS and ACCOUNT. The findings with these alternative instruments are very similar to those reported in table 5, except that IPO no longer enters significantly and Turnover's *P*-value falls below 0.05. The stock market indicators of secondary market development are robustly correlated with economic growth. The exogenous component of stock market development—*the component of stock market development defined by the legal environment*—is positively associated with long-run economic growth. These instrumental variable regressions also pass the test of the overidentifying restrictions, so that the econometric specification is consistent with the data. Simultaneity biases are not driving the results; the data suggest that equity market development exerts a causal impact on economic growth.

The linkages from the regulatory regime through stock market

TABLE 5.   Stock Markets and Growth: Using Instrumental Variables

SMI	Conditioning Information Set 1	Conditioning Information Set 2	Conditioning Information Set 3
Value Traded	0.056**	0.056**	0.060**
	(0.023)	(0.023)	(0.024)
Turnover	0.059*	0.060*	0.059*
	(0.031)	(0.033)	(0.030)
Capitalization	0.03**	0.032**	0.033**
	(0.011)	(0.011)	(0.011)
IPO	0.005*	0.005**	0.006**
	(0.002)	(0.002)	(0.002)

Notes: Growth = a + B[matrix of conditioning information] + c(SMI). Instruments: matrix of conditioning information plus SRIGHTS and ACCOUNT. SMI is alternatively Value Traded, Turnover, Capitalization, and IPO. Conditioning information set 1: logarithm of initial income per capita, logarithm of initial secondary school enrollment, and number of revolutions and coups. Conditioning information set 2: conditioning information set 1 plus the initial values of government spending divided by GDP, inflation, and the black market exchange rate premium. Conditioning information set 3: set 2 plus initial value of bank credit to the private sector divided by GDP. Estimation was performed using the generalized method of moments.
** indicates significant at the .05 level; * indicates significant at the .10 level.

TABLE 6.   Stock Markets and Growth: Full Instrumental Variable Results Instruments, Conditioning Information Set, Plus SRIGHTS and ACCOUNT

	Regression			
	1	2	3	4
c	0.105	0.095	0.134	0.167
	{0.009}	{0.033}	{0.001}	{0.017}
Logarithm of initial GDP per capita	−0.017	−0.018	−0.023	−0.033
	{0.028}	{0.023}	{0.001}	{0.014}
Logarithm of initial secondary school enrollment	0.015	0.017	0.021	0.035
	{0.107}	{0.081}	{0.010}	{0.053}
Number of revolutions and coups	−0.023	−0.025	−0.029	−0.037
	{0.021}	{0.006}	{0.000}	{0.006}
Value Traded	0.056			
	{0.004}			
Turnover		0.059		
		{0.064}		
Capitalization			0.030	
			{0.009}	
IPO				0.005
				{0.073}

Note: P-values are in braces. They were estimated using the generalized method of moments.

liquidity to long-run growth are economically meaningful. For example, the results imply that if Argentina implemented regulatory changes that improved the quality of corporate financial statements from the recorded value of forty-five to the average for OECD countries (sixty-five), the growth would be 0.6 percentage points faster per year. This is quite large, considering that Argentina's real per capita GDP growth averaged only about 0.2 percentage points per year over this period. Furthermore, after a decade, 0.6 percentage points faster per capita GDP growth implies that each Argentinean would be earning 6 percent more *per year*. (This is meant to be illustrative: since the analysis does not consider any country in detail, the coefficients should not be applied to any individual country.) This example serves to demonstrate the large potential costs, measured in slower long-run growth, of permitting poor information disclosure to persist.

IV. Cautionary Notes

It is important to be clear about what these results do *not* show.

First, the essay does *not* show that economic growth does not influence stock markets. The results do not contradict the argument that causality runs in both directions: financial development influences economic growth, and economic growth influences financial

TABLE 7. Stock Markets and Growth: Alternative Instrumental Variables

SMI	Conditioning Information Set 1	Conditioning Information Set 2	Conditioning Information Set 3
Value Traded	0.066**	0.062**	0.063**
	(0.024)	(0.023)	(0.025)
Turnover	0.036**	0.033**	0.032**
	(0.015)	(0.013)	(0.014)
Capitalization	0.023**	0.024**	0.024**
	(0.011)	(0.011)	(0.010)
IPO	0.002	0.001	0.003
	(0.003)	(0.003)	(0.002)

Notes: Growth = a + B[matrix of conditioning information] + c(SMI). Instruments: matrix of conditioning information plus legal origin dummy variables. SMI is alternatively Value Traded, Turnover, Capitalization, and IPO.
   Conditioning information set 1: logarithm of initial income per capita, logarithm of initial secondary school enrollment, and number of revolutions and coups. Conditioning information set 2: conditioning information set 1 plus the initial values of government spending divided by GDP, inflation, and the black market exchange rate premium. Conditioning information set 3: set 2 plus initial value of bank credit to the private sector divided by GDP. Estimation was performed using the generalized method of moments.
   ** indicates significant at the .05 level; * indicates significant at the .10 level.

sector development. Rather, this essay provides evidence for the hypothesis that the exogenous component of stock market development itself promotes economic growth.

Second, this essay does not examine a slew of factors that may influence the operation of stock markets. For instance, a wide range of regulations influence stock market activity beyond those summarized by SRIGHTS and ACCOUNT. These range from listing requirements to requirements governing the trading of securities, supervision of broker/dealers, and so forth. Furthermore, the essay does not consider differences in the organization and trading technologies of individual exchanges. Market microstructure may importantly influence stock market development. These factors were omitted due to data availability, not potential relevance.

This essay makes a more limited argument: legal heritage is closely linked to the legal rights of shareholders and the quality of corporate financial statements, legal and accounting characteristics influence stock market size and liquidity, and the exogenous component of stock market development is strongly linked with long-run rates of economic growth.

Third, the empirical results in conjunction with the theoretical overview do not imply that every country needs its own active bourse. Conceptually, firms and savers benefit from easy access to liquid stock markets. It is the ability to trade and issue securities easily that facilitates long-term growth, not the geographical location of the market. Thus, capital control liberalization may improve the ability of firms to raise capital both by improving the liquidity of domestic exchanges and by providing greater access to foreign exchanges.[20]

Fourth, as noted earlier, this essay uses cross-country comparisons; it does not examine any single country in depth.[21] Thus, while the essay has very clear policy implications, these must be viewed as illuminating a reform strategy. It does not offer a precise blueprint. Nonetheless, the results—and therefore the policy implications— jump out. Particular characteristics of the legal and regulatory environment are strongly linked to how well the stock exchange operates, with important spillovers for economic development.

Finally, many things are changing in Latin America, and "Latin America" is of course not a single entity. By making broad international comparisons, I do not focus on inter–Latin American differences. For example, while Mexico has comparatively good accounting standards, the quality of the financial statements for the rest of the countries of Latin America average almost two standard deviations

below the international mean. Nevertheless, the strong connections between its Napoleonic legal heritage, its generally weak legal and regulatory framework, its comparatively poorly developed markets, and its less than desirable rate of growth certainly make this analysis as relevant for Latin America as for any other region. It is also true that many countries have engaged in serious reforms so as to improve the operations of their markets. (Nonetheless, the time period does not seem to dictate the results. For example, if one considers only the 1990s, Latin America still suffers in international comparisons.) For those countries that have already implemented reforms to boost shareholder rights, improve information availability, and enhance the operation of stock exchanges, this essay can be viewed as encouragement for an effort already begun rather than suggesting a new direction for policy reform.

V. Conclusions and Policy Tips

The essay shows that particular characteristics of national legal and regulatory systems—the protection of minority shareholders and the quality of corporate financial statements—exert a major influence on stock market development. Stock markets, in turn, help determine the rate of long-run growth. Walter Bagehot argued in the mid-1800s that only an excellent financial system can funnel capital to those enterprises that spur economic growth ([1873] 1962). This essay builds on the work of La Porta et al. (1997) to show that legal and regulatory systems play an enormous role in determining the excellence of a financial system. Thus, governments can augment capital market development by protecting the rights of minority shareholders and by encouraging corporations to publish high-quality, comparable financial statements.

The essay also shows that Latin America stands out. It tends to have relatively weak accounting standards, and its legal systems are comparatively lax in enforcing the rights of minority shareholders. In light of the strong empirical connection between the legal and regulatory environments, the financial system, and growth, Latin America's legal and regulatory systems stand out as deserving careful scrutiny as the region seeks to promote faster growth.

These results also have implications for legal reform in Eastern Europe, the former Soviet republics, and other countries. Laws, enforcement mechanisms, and accounting systems make a significant difference in developing capital markets, with consequent repercus-

sions on long-run growth. Governments interested in economic development therefore have an important role to play in defining and enforcing property rights and encouraging the dissemination of sound information. Legal traditions that stress the rights of shareholders and promote sound accounting standards appear to offer tangible benefits over alternative legal systems.

This analysis supports a two-pronged reform strategy. First, the results motivate a detailed evaluation of the legal treatment of minority shareholders, together with regulatory and policy changes that can improve the quality, comparability, and comprehensiveness of information about corporations. Improvements along these lines may offer substantial growth dividends.

The second prong—since it is very difficult to change legal codes—searches for other means of boosting the position of minority shareholders and fostering better accounting standards. For instance, stock exchanges can promote better corporate governance through their listing requirements. As a condition to having its securities traded on the exchange, a company can be required to adopt more effective means of protecting minority shareholders. These might include (1) requiring greater information disclosure by listed companies (both periodic reporting and timely disclosure of special events, including transactions with affiliates), (2) imposing tighter accounting standards, and (3) creating and promoting standards for arbitration of shareholder claims (and perhaps sponsoring its own arbitration system). Further, regulators and exchange officials could encourage companies to incorporate into their articles of incorporation or by-laws important minority shareholder protections that go beyond those currently required by law. These additional provisions can include (1) outside (nonmanagement) director requirements, (2) disclosure of related party transactions and management compensation, (3) supermajority or outside director approval for transactions with related parties, (4) rotation of outside independent auditors, (5) periodic reporting by outside auditors to shareholders, and (6) mandatory private arbitration of disputes between shareholders and the company/management.[22]

Looking forward, much research remains to be done. This essay's aggregate, cross-country approach should be complemented with detailed case studies. For Latin America, it is unrealistic and probably unwise to toss out the French Commercial Code and start again. Nonetheless, parts of Canada and the United States (Louisiana) have successfully modified their legal approaches to financial contracting;

more recently, Argentina has enacted major changes in its legal treatment of shareholders. Detailed information on successes and failures will help foster more successes in the future. To make sound policy recommendations, we also need more data: comprehensive cross-country data on the costs associated with primary and secondary market activities; extensive cross-country information on listing requirements and the full range of securities markets regulations, so as to compare the efficacy of different approaches; and information on primary market offerings in equity and bond markets, so as to investigate the links between secondary market liquidity and the ability to issue new securities. Finally, we have information on the legal codes governing shareholders for only fifty countries; more comprehensive data would provide more accurate information on the relationship between stock market development and economic growth. Given the importance of financial markets for economic growth, this research agenda should be accorded a high priority.

Notes

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1. These figures are from the World Bank 1998 and use its classification of emerging and developed markets. Hong Kong and Singapore are classified as developed. Shifting them into the emerging market category makes the disproportionate boom in emerging markets even more noticeable.

2. The capital flow figures are from World Bank 1997.

3. See especially La Porta et al. 1997, 1998, but also Levine 1998, 1999; and section II.

4. See Levine 1997 for a detailed discussion of the links between the financial system and economic development.

5. See Shleifer and Vishny 1997.

6. See, for example, Gale and Hellwig 1985 on debt instruments, Merton 1992 and Crane et al. 1995 on more sophisticated financial contracts, Levine 1991 and Bencivenga et al. 1995 on stock markets, and Boyd and Prescott 1986 on financial intermediation.

7. This has been shown formally by Levine 1991 and Bencivenga et al. 1995.

8. See Kyle 1984. Also, stock market development can promote corporate governance by making it easier to write managerial performance contracts that align the interests of managers and owners. See Holmstrom and Tirole 1993.

9. See Levine 1997.

10. Also, if there are capital externalities a drop in savings could put sufficient downward pressure on growth, so that overall GDP growth falls even as productivity rises.

11. The following countries were used in the analyses: Argentina, Australia, Austria, Bangladesh, Belgium, Brazil, Canada, Chile, Colombia, Cote d'Ivoire, Costa Rica, Germany, Denmark, Egypt, Spain, Finland, France, the United Kingdom, Greece, Hong Kong, Indonesia, India, Israel, Italy, Jamaica, Jordan, Japan, Korea, Luxembourg, Mexico, Malaysia, Morocco, Nigeria, the Netherlands, Norway, New Zealand, Pakistan, Peru, the Philippines, Portugal, Singapore, Sweden, Sri Lanka, Thailand, Turkey, Taiwan, the United States, Venezuela, and Zimbabwe.

12. Stock market data are from the International Finance Corporation's Emerging Market Data Base (electronic version) and the International Monetary Fund's International Financial Statistics.

13. I am in the process of expanding the data to more years and measuring the quantity of funds raised through equity issues.

14. Moreover, countries with the most liquid stock markets in 1976 both accumulated more capital and enjoyed faster productivity growth over the next eighteen years. See Levine and Zervos 1998a.

15. This is shown more rigorously by King and Levine 1993a, 1993b.

16. The variable descriptions that follow are taken directly from La Porta et al. 1998.

17. Recall that the strong relationship between long-run growth and stock market development runs primarily through market liquidity, which highlights the importance of comprehensive and comparable data in facilitating stock market activity.

18. These conditioning information sets reflect the large cross-country growth regression literature. For a discussion of these variables, see Barro and Sala-i-Martin 1995, Easterly and Levine 1997, or Levine and Renelt 1992.

19. The initial income variable is used to capture the convergence effect highlighted by Barro and Sala-i-Martin 1995. As in many cross-country analyses, initial secondary school enrollment is used to control for investment in human capital accumulation, as emphasized by Lucas 1988. Barro and Sala-i-Martin examine the link between political stability and economic growth.

20. See Levine and Zervos 1998b for empirical evidence that countries that liberalize international capital control restrictions see a marked improvement in the functioning of their stock markets.

21. Other essays and comments in this volume do examine individual countries. See those by Holden and Sobotka, Lanyi and Lee, and Wallis.

22. Of course, the exchange will be sensitive to the effects such additional requirements may have on the decision by potential issuers to list

their securities on the exchange. Nevertheless, better corporate governance will, in the long run, increase the financial benefits of listing on the exchange by promoting greater participation by savers.

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