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MARKET-MOBILIZED CAPITAL

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Abstract

One important channel by which market-augmenting government affects economic growth is through its effect on market-mobilized capital – the level of capital mobilized by market mechanisms. Market-augmenting government, which is measured in part by both statutory law and law enforcement, affects the magnitude of market-mobilized capital, and through this and other channels, economic growth. This variable, market-mobilized capital, allows us to identify, more clearly than in previous work, the causal links between finance and growth, and to show clear links between statutory law and economic performance.

[*] Mancur Olson who originally conceived of a paper on market mobilized capital passed away in February 1998. This paper was written by his intended co-authors. While the central insight should be ascribed to Mancur Olson the errors are the fault of the surviving authors.

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1. Introduction

Governments can augment markets in both simple and sophisticated ways. Many spot markets spring up in response to rudimentary forms of market-augmenting government—such as providing social peace and maintaining a stable currency—but such markets are not sufficient for economic development. Economic development, in large part, depends on the accumulation and efficient allocation of capital, which in turn is greatly facilitated by markets for debt and equity. Markets for debt and equity, in turn require more sophisticated forms of market-augmenting government—such as the provision of good collateral and corporate laws that protect investors in debt and equity, respectively, and competent enforcement of these laws (Olson 1997).

In this paper, using a measure of market-mobilized capital that aggregates stocks of debt and equity, we investigate both the importance of market-augmenting government as a determinant of market-mobilized capital and the impact of market-mobilized capital on economic growth. We use an econometric technique, instrumental variable estimation, to follow the causal chain from good statutory commercial (collateral and corporate) law through market-mobilized capital to economic growth. Our finding that good commercial law, which reflects the rights of investors in debt and equity, influences economic growth provides evidence for the causal link between market-mobilized capital and economic growth.

We have aggregated debt and equity into one measure, because we feel the distinction between capital that is allocated via the market and capital that is allocated by non-market means is more important than the distinction between debt and equity. In the classic article on finance, Modigliani and Miller (1958) showed that a firm's financial structure has no effect on its cost of capital. While subsequent work has suggested ways in which financial structure may improve firm performance (e.g. Hart 1995), few of these effects seem strong enough to cause a perceptible impact of financial structure on economic growth. Debt and equity both perform essentially similar functions by channeling finance to projects where, to an approximation, they find their most productive use.

We are not arguing that the distinction between debt and equity is uninteresting, indeed it may even be important, but it is not an issue on which cross-country growth regressions can reasonably adjudicate. It is equally interesting and important to learn about whether educating boys or girls is a better investment, or whether tariffs are less harmful than quotas, but we do not use cross-country regressions to investigate these questions. We use broad indicators of education and openness, and generally find these things matter, but were we to decompose education or openness into their components we would seldom find any reliable results.[1] Following this argument we construct an aggregate measure market-mobilized capital, the sum of debt and equity, and examine its effect on economic performance. This variable, market-mobilized capital, allows us to identify, more clearly than previous work, the causal links between finance and growth, and to show clear links between statutory law and economic performance.

2. A Review of the Literature

Financial intermediaries such as banks, and informed investors in equity, might channel funds to productive projects. In his excellent review article on "Financial Development and Economic Growth," Levine (1997, 691) lists five mechanisms by which financial development improves economic performance.

> Specifically, financial systems
> Facilitate the trading, hedging, diversifying, and pooling of risk
> Allocate resources
> Monitor managers and exert corporate control
> Mobilize savings, and
> Facilitate the exchange of goods and services

Both debt and equity perform these functions in an essentially similar manner. Shareholders and banks monitor managers and exert corporate control, allocate resources to more productive projects, and mobilize savings. Both debt and equity finance serve to diversify risk, though perhaps in different ways, but we conjecture that these differences rarely affect aggregate economic performance. Economies where entrepreneurs have access to either source of funding would grow faster than others because of the

[1] This has in fact been tried. In their classic on economic growth Barro and Sala-i-Martin (1995) find a positive coefficient on male education and a negative coefficient on female education. They are understandably reluctant to interpret the results in the standard way.

differential growth of high and low productivity projects, better monitoring, and more rapid adoption of new technologies.

Over a century ago Walter Bagehot (1873) identified the primacy of finance in igniting the industrial revolution through the financing of "immense works," and in a later analysis, Sir John Hicks (1969) argued that finance led to the unprecedented increase in productivity in the industrial revolution. The industrialization of America was probably hastened by investors' access to market-mobilized capital, as documented by John Wallis (1999) and others.

Goldsmith (1969), in an analysis of 35 developed and developing countries, finds that the amount and composition of financial intermediation changes with income. He states, however, "there is no possibility of establishing with confidence the direction of the causal mechanism" (pg. 48). Detailed country analyses offer little more. In a descriptive analysis of the literature on the German and British growth experiences in the 19th and early 20th century, he again concludes there is no evidence of the effect of the form of financial intermediation on economic performance.

King and Levine (1993) showed that the level of financial development measured by the size of the banking sector affects both contemporaneous and subsequent economic growth. But there are serious problems in inferring causality in such a regression. It is quite plausible that economic growth has an effect on financial development, and these concerns cannot be persuasively resolved by using initial values of financial development. Anticipated growth can have possibly large effects on investors' and entrepreneurs' propensity to lend, borrow and invest, which renders Granger causality arguments unpersuasive.

These concerns about causality can be addressed if we can find good instruments for financial market development, and a recently created data set on statutory collateral and corporate law by La Porta, Lopez de Silanez, Shleifer and Vishny (1998) provides us with such instruments. La Porta et al. introduce this data set in their paper "Law and Finance," in which they argue persuasively for the impact of legal origin on a country's commercial (corporate and collateral) laws, and in a subsequent paper entitled "Legal Determinants of External Finance" (1997), they show the importance of these laws on financial market development.

Perhaps to resolve the earlier concerns about the endogeneity of finance, Levine (1998) uses measures of statutory law and law enforcement as instruments for financial development, while continuing to use the size of the banking sector as the measure for financial development. Levine finds a large and significant effect of financial market development on economic growth, but the use of law enforcement as an instrument makes the instrumental variable analysis unpersuasive.[2] Law enforcement probably has additional effects on economic performance other than increasing the propensity to mobilize capital, as we find in our analysis. Providing the social peace that is necessary for even production and exchange, and at a more developed level allowing private agents to write contracts for goods and factors other than capital, would each affect economic performance. Growth regressions without law enforcement variables on the right-hand side may be misspecified, and through omitted variable bias, result in significant effects wrongly attributed to capital mobilization.

In another paper, Levine and Zervos (1998) examine the links between "Stock Markets, Banks and Economic Growth." They show the size of both stock markets and banks is correlated with future economic growth. But the problems with endogeneity are perhaps even more severe with stock market variables. Market capitalization represents the present value of future earnings, so that there is perhaps a positive correlation between market capitalization and future economic performance. This concern, which Levine and Zervos acknowledge, is not satisfactorily resolved by using other measures of stock market development such as turnover ratios. (Imagine two similar economies both of which have been growing at 3% in the past and an exogenous shock changes the expected growth rate in one of them to 6%. Where would we expect more stock market activity?).

In another paper Levine (1999) argues that stock markets have a causal impact on economic growth, using statutory corporate law and accounting standards as instruments.

[2] In a separate regression, Levine (1998) uses legal origins as an instrument. These results, too, are unpersuasive, because the growth regression omits law enforcement, and colonial origins can have other effects on economic performance (Treisman 1998 finds British colonies are less corrupt than others, and Mauro 1995 that corruption reduces economic growth.) Furthermore, the results may be sensitive to the inclusion in the data set of South Korea, which has very high economic growth, and whose colonial origin predicts a large banking sector. Korea does not, in fact, have an overly large banking sector, and at least in retrospect, it seems unpersuasive to argue that Korea's impressive growth rate is due to the efficiency of its banking sector or to its collateral law.

Again this analysis is unpersuasive, because the growth regression does not include law enforcement, and accounting standards are correlated with law enforcement (correlation coefficient=0.52). Thus, this result too, could be due to omitted variable bias.

In both papers where he uses instrumental variables (1997, 1999), Levine appeals to the test of over-identifying restrictions. But this only tests the *joint* null hypothesis that the first-stage regression (which in our view should include law enforcement[3]) is correctly specified and that the chosen instruments are valid (Davidson and MacKinnon, 1993). Furthermore, experience suggests that poorly specified equations often pass the test of over-identifying restrictions in small samples. In other words, if the specification of the equations and the choice of instruments is not presumptively valid, passing the test of over-identifying restrictions does not provide a persuasive argument for the validity of the instruments. We feel our paper represents an important advance in finding the effects of financial development on economic growth, because of the presumptive validity of our specification and instruments.

Thus, the literature shows links between financial development and economic growth, as well as between law variables (statutory law, the rule of law) and financial market development. It does not, however, persuasively show that the direction of causality runs from financial development to economic development. Initial values do not persuasively show an impact of financial development on growth, as anticipated growth may create variations in financial variables. Instrumental variable estimations have been tried to resolve these concerns, but these regressions may have been misspecified.

Perhaps the reason for this is that the measure for financial market development used so far, the size of the banking sector, did not allow a persuasive analysis of the direction of causality. We believe debt and equity are close enough substitutes that they should be aggregated into one measure, "market-mobilized capital," and in the next few sections we show that by using this measure for financial market development, we can more persuasively argue for the effect of financial development on economic growth.

[3] Our results also suggest that law enforcement has a large direct effect on economic growth.

3. The Data Set

Our measure of market-mobilized capital is derived from the measures of banking sector development and stock market development used by Levine and Zervos (1998). The stock market measure is the average value of listed domestic shares on domestic exchanges in a year, divided by GDP, and the measure of the banking sector is the stock of credit by commercial and deposit-taking banks to the private sector, divided by GDP. The Levine-Zervos data set also includes measures on secondary school enrollment, trade intensity, and revolutions and coups; we use these variables as controls in our growth regression. Table 1 presents the summary statistics of the data set and the variables are described in the Appendix.

We merged the data set with measures of law enforcement and statutory law. The law enforcement measure we use is from Levine (1998). It is the average of the risk of repudiation of contracts and the rule of law, created by the International Country Risk Guide, and introduced to the growth literature by Knack and Keefer (1995).

The measures of statutory law are from La Porta et al. (1996), which contains an extensive discussion of these laws. As persuasively argued by La Porta et al., the corporate law variables we use protect minority shareholders and encourage them to participate in stock markets, and the collateral laws provide creditors with rights that encourage them to lend to others. As measures of good corporate law, and therefore determinants of the size of the equity market, we use laws mandating one-share-one-vote, allowing voting by proxy, protecting the rights of minority shareholders and requiring mandatory dividends. La Porta et al. also provide data on other laws, but these did not seem important to us *a priori* and we did not include them in our analysis.

The rights given by law to shareholders provide an important reassurance that induces them to lend money to firms in the form of equity. Without these rights there is little reassurance that a firm's managers will not dispossess them, or otherwise squander their investment. Managers and large shareholders do sometimes have an interest in expropriating the investments of minority shareholders. Providing a legal recourse may provide minority shareholders with a defense against such expropriation and may encourage more investment. Similarly, laws requiring one-share-one-vote may prevent large controlling shareholders from diluting the interests of minority shareholders by

selling them non-voting stock. It may not be in the interest of any individual small shareholder to pay the premium for voting stock, but it may be in their collective interest for them all to do so. Laws requiring one-share-one-vote may help resolve this collective action problem and improve the security of small shareholders. Voting by proxy can significantly reduce the cost of voting, which would affect the individually rational amount of corporate control exerted by small shareholders, and in turn their willingness to invest in equity. La Porta et al. consider mandatory dividends a remedial right that legal systems bestow upon shareholders if corporate law is otherwise poor. Nevertheless, it seems for our present purposes that mandating a firm to give dividends would reduce possible expansion by firms through reinvesting retained earnings, and thereby would further reduce the size of market capitalization. We therefore define the corporate law variable as

CORPLAW=One share +Proxy+Legal Recourse-Mandatory Dividend.

For creditor's rights, we use the same three collateral laws as Levine (1998), that is, whether secured lenders are paid first, whether management stays in reorganization and whether there is an automatic stay on assets in reorganization.[4] Whether or not secured lenders are paid first is perhaps the most important of these laws. This law forms the basis for secured transactions, and while the measure does not contain information on important details of how security is established (perfected) and competing claims are resolved, it does effectively measure an important component of good collateral law (Summers 1999). In some countries, the law places an automatic stay on assets if the firm files for bankruptcy. This, too, interferes with secured lenders being able to take possession of collateral, and perhaps therefore makes them reluctant to lend. Finally, if a firm's management continues to manage the firm during a reorganization, this may reduce management's aversion to bankruptcy, and therefore a prospective creditor's desire to lend. We therefore define the collateral law variable as

COLLAW=Secured Lenders -Management Stays-Automatic Stay.

Merging the two data sets leaves us with 39 countries. La Porta et al. have data on 46 countries (their data set of 49 doesn't have data on collateral law for Sri Lanka, Jordan and Venezuela). Ecuador, Uruguay, Ireland, Switzerland and South Africa, and market capitalization data for Peru, are missing from the Levine-Zervos data set, bringing the total down to 39.

4. The Determinants of Market-Mobilized Capital

In this section we present some results on the determinants of market-mobilized capital. These consist of measures of statutory law and measures of law enforcement. We subsequently control for other exogenous variables used in the growth regression such as education and trade openness, which may also have an effect on financial market development. These "first stage" results essentially replicate the findings of La Porta et al. (1997) with slightly different data (we use 1976-93 averages of the financial market measures rather than the 1996-97 averages, and have a slightly different set of countries).

The regressions in Table 2 show that laws which protect lenders and the quality of law enforcement influence the size of private lending in an economy. Regression 2.1 shows that both statutory collateral law, and more importantly, the quality of law enforcement, affect the size of the debt market (banking sector). It is difficult to say exactly which collateral laws matter, but the aggregate measure created by Levine (1998) does predict the size of the banking sector.

The collateral law variable omits other potentially important laws, such as the ability to conduct secured lending on assets without establishing possession. Continental commercial codes do not allow for "non-possessory finance," which means lenders must physically possess assets used as collateral, and this provision of the code tends to interfere with the market for credit.[5] In addition, the data set does not include information on legal provisions in the event of default short of bankruptcy. This is another potentially important omission. Bankruptcy is often a tedious and complicated procedure and a creditor's willingness to lend may be significantly influenced by the ease

[4] A secured lender is a creditor who has lent money secured by an asset owned by the debtor, like a mortgage on a house.

[5] In Germany, France and several other civil code countries these laws are circumvented and in practice collateralized loans can be made without establishing possession, but other civil code countries like Egypt that have adopted continental codes do not allow for non-possessory finance in practice.

with which the law allows enforcing repayment or repossessing collateral without forcing bankruptcy. Perhaps including these variables would improve the performance of statutory law variables in predicting the size of the debt market.

Market capitalization, in contrast, appears to be much more strongly predicted by statutory law than does credit. Laws mandating one-share-one-vote and legal recourse for minority shareholders, by encouraging small investors to invest in equity, increase the size of equity markets.[6] As mentioned earlier, laws mandating that dividends be paid to shareholders are intended to be remedial in the sense that they promote some security for investors, but their net effect on market capitalization appears to be negative, perhaps because it reduces the reinvestment profits.

Do these results provide any prescriptions for corporate law reform in developing and especially transitional economies? As we argued earlier, there are presumptive reasons to expect that the mobilization of capital through equity markets will be enhanced by improving the rights of minority shareholders. As our empirical findings reinforce our theoretical arguments, and show large[7] and significant effects of measures of statutory corporate law on market capitalization, we conjecture that there could be economically significant changes from adopting better corporate law in developing and transitional economies. Indeed, as we show in regression 4.3, changes in statutory commercial law may have a significant effect on economic growth.

In Table 3, we examine the effects of statutory law and law enforcement on the market mobilization of capital. Law enforcement, and both corporate and collateral law, predict the size of market-mobilized capital, and the effect of corporate law and law enforcement remains significant after controlling for secondary education, trade intensity, initial GDP, and revolutions and coups. Adding these variables, however, improves the fit of the regression (the adjusted R^2 rises from 0.58 to 0.70). Trade intensity has the expected significant sign: if imports are complementary with capital in production, we may expect higher capital mobilization in countries which traded more. Secondary enrollment and initial GDP seem to have no effect on capital mobilization and the sign on

[6] La Porta et al. 1997 show that corporate ownership is more diversified in countries where corporate laws offer better protections to small shareowners.

[7] Countries with one-share-one-vote have stock markets that are higher by 35% of GDP, more than the average of market capitalization. A simple comparison of means shows that stock markets are twice as large in countries which require one-share-one-vote than others (La Porta et al. 1997).

the revolutions and coups variable appears to be wrong. The equation is perhaps misspecified because of the omission of economic growth, but an equation that included growth would also be misspecified because of the effect of market-mobilized capital on growth. It is instructive to see the effect of statutory commercial law on market-mobilized capital, which we will use in the second stage growth regression.

5. Market-Mobilized Capital and Economic Growth

We now turn to the examination of the effects of the market mobilization of capital on economic growth. There are good theoretical reasons to expect a causal relationship between financial development and economic performance. Financial intermediation, which allocates capital by market mechanisms following principles of value maximization, directs these resources where, to an approximation, they find their best use. In addition, the oversight exerted by investors, through such market mechanisms as shareholders and bank managers, may improve the efficiency of firms.

However, there are also presumptive links between economic development and the level of financial intermediation. Both the demand for market-mobilized capital, and the technological infrastructure that augments the supply of financial intermediation may be higher in more productive societies.[8] Thus, any persuasive account of the effects of financial market development on economic development must address these concerns about causation.

In our analysis of the relationship between financial development and growth, we use indices of statutory commercial law that measure the rights of investors in debt and equity (which we found predicts the size of debt and equity markets) as instruments for market-mobilized capital. Unlike law enforcement, which may well have an independent effect on economic performance, these measures of statutory collateral and corporate law are unlikely to have a direct effect on economic growth, but operate through the market mobilization of capital, and so are presumptively valid instruments for market-mobilized capital in growth regressions.

[8] Higher income increases the demand for financial channels for saving. More tentatively, one might also hypothesize that richer countries have better educated central bank and banking staffs, and thus better run banking policies and banks.

Equation 4.1 is a simple OLS regression of per-capita growth on market-mobilized capital, law enforcement, secondary education, trade intensity, initial GDP, and revolutions and coups. Market-mobilized capital has an economically large, though only marginally significant effect on economic growth. A two-standard-deviation change in market-mobilized capital increases the rate of economic growth by 1.3%. Such an increase, from say 1% to 2.3%, reduces the time for doubling per capita income in a developing country from 70 to 30 years.

We find that law enforcement has a significant effect on economic growth after controlling for the size of market-mobilized capital, which suggests it is an inappropriate instrument for market-mobilized capital. The coefficient is large and suggests a two-standard-deviation change in law enforcement would change economic growth by 2% per annum, e.g., the difference between India's lackluster growth and Malaysia's impressive performance. This is no surprise. Law enforcement, as stated earlier, can have independent effects on economic performance by providing the social peace necessary for production and exchange, and allowing private agents to write contracts for goods other than capital. The collapse of social peace and state failure can have large and conspicuous effects on economic performance. Long-term contracts between suppliers of intermediate products and producers of final goods can significantly enhance economic efficiency, and are found to be widely used in countries where commercial codes are reliably enforced. Our findings confirm that law enforcement has a direct effect on economic growth, after controlling for financial development, which suggests that Levine's results may be based on misspecified equations.

All other variables have their expected signs. Governments can augment markets by actions other than providing good commercial law and law enforcement. Governments that allow international trade, provide broad access to education, and refrain from actions that lead to revolutions and coups, encourage economic growth. The magnitude of all these effects is large and suggests that a two-standard-deviation change in the independent variables would change the rate of growth by 1% or more.

The growth regression has one significant outlier, South Korea. South Korea's growth rate is exceptionally high at 9.7% in the sample period and 6% above the rate predicted by the regression! Besides being an outlier, it is unclear that South Korea's

measured market-mobilized capital reflects capital mobilized by market mechanisms following principles of value maximization (Lanyi and Lee, 1999). Thus, it seems prudent to conduct the analysis without South Korea. Dropping Korea improves the fit of the regression considerably, making both market-mobilized capital and law enforcement significant at the 1% level.

To address the serious concerns about endogeneity of financial market development, we run instrumental variable regressions using measures of commercial law as instruments for market-mobilized capital. The regression is different from many instrumental variable regressions in the sense that we are following a causal relationship from statutory corporate and collateral law through market-mobilized capital to economic growth. While instrumental variable analyses are often treated with skepticism, in this case there seems to be a strong presumptive argument that statutory commercial law, which protects the rights of investors in debt and equity, would only affect economic growth through the growth of debt and equity markets.

In the full sample IV regression, we find a stronger relationship between market-mobilized capital and economic growth than in the OLS regression, but this difference is not significant and seems to be caused mostly by South Korea. The IV regression without South Korea has a coefficient significantly different from zero and of a similar magnitude to the OLS regression. This finding—that an instrumental variable analysis using only statutory law as an instrument for financial development, shows a large and significant effect on economic growth—provides persuasive evidence for the impact of financial development on economic performance.[9] Unlike previous work, we control for law enforcement, which may have an independent effect on economic growth, and the omission of which could bias results in favor of finding an effect of financial development on economic growth.

We also quote results of a growth regression (4.3) with commercial law (corporate law + collateral law) as an independent variable. This regression shows a significant effect of commercial law on economic growth and is intuitively similar to the second-stage regression in our instrumental variable estimation. Such a regression is not

[9] For what its worth our instrumental variable regressions easily pass the test of over identifying restrictions. However, this is quite a weak test for small samples and we prefer to rely on the presumptive validity of our instruments.

often quoted, but here it is of independent interest. Policy reform increasingly includes reform of commercial codes and we can show that even controlling for the quality of law enforcement, the effect of better commercial law on economic performance is both statistically and economically significant. (A two-standard-deviation change in commercial law changes economic growth by 1%). The result is robust if Korea is excluded from the sample, and the commercial law variable remains significant at 6%.

Does financial structure matter? We tried using the difference between debt and equity as a measure of financial structure in the economic growth regressions. The coefficient was never close to significant and the adjusted R^2 fell. Thus, there is no real evidence that financial structure matters. Of course, there is very little information in not finding a detectable effect of financial structure on economic performance in such a small sample, and we remain agnostic on this question. We would like to return to this question when data is available for a much larger sample of countries.

In summary, market-mobilized capital appears to have a statistically and economically significant impact on economic growth. This relationship remains significant when we conduct instrumental variable regressions, using only measures of statutory corporate and collateral law as instruments for market-mobilized capital. As it seems implausible that statutory collateral and corporate law would have an independent impact on economic growth, or economic growth on statutory law, we feel we have shown, more persuasively than earlier work, that financial development causes economic development.

6. Conclusion

In this paper we showed that a country's collateral and corporate laws, which protect investors in debt and equity respectively, have significant effects on economic growth through the development of markets for debt and equity. Our findings improve on earlier work by showing that statutory commercial law has an effect on economic growth even after controlling for law enforcement. This is a finding of great policy relevance. Much of second-generation reform has concentrated on the reform of commercial laws. Our findings suggest that, if done well, this will have a large economic payoff. Table 5 shows for each country in our sample, the possible improvement in

growth rates that could be achieved by a reform of statutory laws using the coefficient on commercial laws in equation (4.3). The coefficient suggests that Argentina could have had a per-capita income $317 higher in 1995 if commercial laws had been reformed in 1987. This represents a foregone $11 billion in 1995 alone for Argentina. Given that commercial law reform costs around $10 million, it seems that reforming commercial laws in Argentina would be a very good investment. What is perhaps even more surprising is the much larger foregone income in developed countries. A similar calculation suggests that the $1,845 per capita shortfall in U.S. GDP represents $ 424 billion in foregone income in 1995 alone! This appears to be a very large bill lying on the sidewalk. Why haven't these bills been picked up? Or in other words "Why don't countries have better commercial laws?" (Olson, 1996)

The answer may be that our knowledge of these questions is still imperfect, the reform of laws is a collective action problem, and in the presence of uncertainty collective action often fails to achieve efficient outcomes (Azfar 1999). Despite the growing findings on the subject presented here and elsewhere, the state of knowledge about the links of commercial law to financial development and economic growth are still in a primitive state.

Most persuasive arguments in economics, whether on the virtues of international trade, or the design of incentives within firms, are based on theoretical as well as empirical reasoning. The state of theoretical research on the links between commercial laws and financial development is perhaps even more primitive than empirical research. Take for example the variable "one-share-one-vote." This variable takes the value 1 if the law *requires* (rather than allows) that the votes of all shareholders carry an equal weight per share. Almost all countries *allow* shareholders equal rights. Why would *requiring* such a law have a significant effect on shareholder values? After all, if firms found it easier to raise capital by reassuring shareholders that each share would carry an equal weight they could write it into their corporate charter. With the possible exception of "whether secured lenders are paid first," we could be similarly skeptical about our presumptions regarding which of all the other commercial laws were good. A persuasive argument for the possible benefits of commercial law reform requires serious theoretical

research on which of these commercial laws would improve financial market development.

We need to do much more empirical research on this question. We need to gather data on commercial laws and financial market development for a much larger sample of countries. We need to understand the differences in how laws are interpreted in different countries. We need to do an impact analysis of commercial law reform in individual countries, and we need to understand through a rich historical investigation whether it was in fact the reform of laws that led to financial market development.

We cannot in our present state of knowledge persuasively argue, either empirically or theoretically, that reforming any one law will improve economic performance. It is only by continuing to produce good scientific research on this question that we might be able to understand exactly which commercial laws are important for financial development and economic performance. And it is only with such an understanding that we will be able to convince legislators, and the citizens that elect them, that the reform of commercial law is in their best interests.

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DATA DESCRIPTION AND SOURCES

Data compiled by Ross Levine and Sara Zervos, "Stock Markets, Banks and Economic Growth", American Economic Review, 88 (June 1998): 537-58. (The data covers the years 1976-1993).

BANKCRED: Stock of credit by commercial and deposit-taking banks to the private sector divided by GDP (Source: International Monetary Fund's (IMF's) International Financial Statistics)

MKTCAP: Average value of listed domestic shares on domestic exchanges in a year divided by GDP that year (Source: IFC's Emerging Markets Data Base (electronic version) and the IMF's International Financial Statistics).

MARKET-MOBILIZED CAPITAL: Sum of BANKCRED and MKTCAP.

GDP76: Logarithm of real per capita GDP in 1976 (Source: IMF's International Financial Statistics and World Bank's World Development Indicators)

SECED: Logarithm of the secondary school enrollment rate in 1976 (Source: IMF's International Financial Statistics and World Bank's World Development Indicators)

GDPGROW: Growth of real per capita gross domestic product (Source: IMF's International Financial Statistics)

REVCOUP: Number of revolutions and coups per year, averaged over the 1980s (Source: Arthur S. Banks, 1994)

TRADE: Exports plus imports divided by GDP (Source: IMF's International Financial Statistics and World Bank's World Development Indicators)

ENFORCE: Average of "Risk of Repudiation of Contracts" (which indicates the "risk of a modification in a contract taking the form of a repudiation, postponement or scaling down" due to "budget cutbacks, indigenization pressure or a change in government economic and social priorities") and "Rule of law" which reflects the degree to which he citizens of a country are willing to accept the established institutions to make and implement laws and adjudicate disputes: Higher scores indicate "sound political institutions, a strong court system, and provisions for an orderly succession of power". Lower scores indicate "a tradition of depending on physical force or illegal means to settle claims". Original variable name in ICRG is "law and order tradition" (Source Levine 1998, derived from Knack and Keefer 1995).

Data Compiled by Rafael La Porta, Florencio Lopez-de-Silanez, Andrei Shleifer and Robert Vishny, "Law and Finance", J.P.E. 1998.

ONE SHARE-ONE VOTE: Equals 1 if the Company Law or Commercial Code of a country require that ordinary shares carry one vote per share, 0 otherwise.

PROXY: Equals 1 if the Company Law or Commercial Code allows shareholders to mail their proxy vote, 0 otherwise.

OPPRESSED MINORITY: Equals 1 if the Company Law or Commercial Code allows shareholders either a judicial venue to challenge the management's 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 like mergers, asset dispositions and changes in the articles of incorporation. 0 otherwise.

MANDATORY DIVIDEND: The percentage of net income that the Company law or Commercial Code requires the firms to distribute to their shareholders.

SECURED LENDERS PAID FIRST: Equals 1 if secured lenders are ranked first in the distribution of the proceeds from the sale of a bankrupt firm. Equals 0 if non-secured creditors like the government or workers are paid first.

AUTOMATIC STAY ON ASSETS: Equals 1 if the reorganization procedure imposes an automatic stay on the assets of the firm upon filing for reorganization. This restriction may prevent secured creditors from gaining possession of their security. Equals 0 if there is no such restriction in the law.

MANAGEMENT STAYS IN REORGANIZATION: Equals 1 if the debtor retains the administration of the property pending the resolution of the reorganization process, and 0 otherwise. This variable equals 0 when an official appointed by the court, or by the creditors, is responsible for the operation of the business during reorganization.

CORPORATE LAW: =One share +Proxy + Oppressed Minority-Mandatory Dividend

COLLATERAL LAW: =Secured Lenders -Management Stays-Automatic Stay

COMMERCIAL LAW: =Corporate law + Collateral Law

Table 1

Variable	Mean	Std. Dev.	Min.	Max.
Bank credit/GDP	0.821	0.453	0.139	1.955
Stock market capitalization/GDP	0.292	0.301	0.029	1.291
Market-mobilized capital/GDP	1.113	0.655	0.271	2.794
GDP growth rate	2.545	2.043	0.106	9.670
Log real 1976 GDP	8.107	1.396	5.426	9.691
Log mean yrs. secondary education	3.960	0.616	2.197	4.521
Exports+Imports/GDP	0.544	0.512	0.124	3.037
Number revolutions and coups	0.131	0.268	0	1.500
Law enforcement (ICRG)	7.528	2.090	3.550	9.860
One-share-one-vote	0.230	0.426	0	1
Proxy voting	0.256	0.442	0	1
Oppressed minority	0.538	0.505	0	1
Mandatory dividend	0.055	0.149	0	0.500
Secured lenders paid first	0.820	0.388	0	1
Automatic stay on assets	0.487	0.506	0	1
Management stays in reorganization	0.589	0.498	0	1
Corporate law index	0.970	0.878	-0.50	3.00
Collateral law index	-0.256	1.069	-2.0	1.0
Commercial law index	0.714	1.543	-2.0	4

Countries: Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, Colombia, Denmark, Egypt, Finland, France, Germany, Greece, Hong Kong, India, Indonesia, Israel, Italy, Japan, Malaysia, Mexico, Netherlands, New Zealand, Nigeria, Norway, Pakistan, Philippines, Portugal, Singapore, South Korea, Spain, Sweden, Taiwan, Thailand, Turkey, United Kingdom, United States, Zimbabwe.

Table 2

Dependant variable:	Bank Lending		Market Capitalization	
	2.1	2.2	2.3	2.4
Intercept	-0.339	-0.37	-0.22	-0.31
Law enforcement	0.157* (0.025)	0.161* (0.028)	0.040* (0.016)	0.056* (0.017)
Collateral law	0.095* (0.048)			
Corporate Law			0.212* (0.040)	
Secured lenders paid first		0.118 (0.151)		
Automatic stay on assets		-0.011 (0.139)		
Management stays In reorganization		-0.180 (0.143)		
One Share-One Vote				0.356* (0.083)
Proxy voting				0.032 (0.085)
Oppressed minority				0.225* (0.069)
Mandatory Dividend				-0.429 (0.231)
Adjusted R^2	0.50	0.48	0.46	0.56

* Significant at 5%
N=39

Table 3

Dependant variable:	Market-mobilized capital (Bank Lending + Market Cap.)			
	3.1	3.2	3.3	3.4
Intercept	-0.57	-0.79	-1.07	-1.23
Law enforcement	0.201* (0.034)	0.237* (0.042)	0.175* (0.081)	0.264* (0.088)
Corporate Law	0.217* (0.083)		0.147* (0.075)	
Collateral law	0.148* (0.068)		0.109 (0.069)	
One Share-One Vote		0.457* (0.206)		0.406 (0.214)
Proxy voting		-0.102 (0.193)		-0.145 (0.163)
Oppressed minority		0.253 (0.156)		0.164 (0.148)
Mandatory Dividend		-0.472 (0.602)		-0.831 (0.560)
Secured lenders paid first		0.085 (0.211)		0.059 (0.184)
Automatic stay on assets		0.010 (0.197)		0.117 (0.177)
Management stays In reorganization		-0.237 (0.219)		-0.241 (0.185)
Log secondary Enrollment			0.275 (0.202)	0.015 (0.217)
Trade intensity			0.485* (0.132)	0.390* (0.135)
Log(Real GDP 76)			-0.078 (0.116)	-0.074 (0.120)
Revolutions and Coups			0.184 (0.294)	0.613 (0.369)
Adjusted R^2	0.56	0.58	0.68	0.70
* Significant at 5% N=39				

Table 4

Dependant Variable: Per Capita Growth 1976-93

	OLS Full Sample 4.1	OLS Without Korea 4.2	OLS Full Sample 4.3	IV Full Sample 4.4	IV Without Korea 4.5
Intercept	7.41	7.237	5.58	8.41	7.44
Market mobilized Capital (Debt+Equity)	0.968 (0.591)	1.057* (0.393)		2.383* (1.035)	1.346* (0.605)
Commercial law			0.350* (0.161)		
Law enforcement ICRG	0.507 (0.313)	0.508* (0.208)	0.611* (0.284)	0.219 (0.378)	0.449* (0.230)
Log secondary Enrollment	1.655* (0.732)	0.890 (0.501)	2.151* (0.723)	1.431 (0.805)	0.841 (0.512)
Trade intensity	0.968 (0.585)	0.863* (0.389)	1.166* (0.474)	0.061 (0.819)	0.678 (0.489)
Log(Real GDP 76)	-2.045* (0.414)	-1.681* (0.281)	-2.070* (0.400)	-1.919* (0.455)	-1.654* (0.287)
Revolutions and Coups	-2.103* (1.096)	-1.652* (0.733)	-1.950 (1.060)	-2.389* (1.202)	-1.708* (0.745)
Adj R^2	0.55	0.71	0.58		

Instruments are the seven statutory law variables and all right hand side variables of the growth regression except market-mobilized capital.
* Significant at 5%

Table 5

Country	Corporate Laws				Collateral Laws							
	One Share	Vote by Proxy	Oppr. Minority	Mand. Div.	Aut. Stay	Secured Lenders	Manag. Stays	Collat.* Law	Corp.* Law	Com.* Law	Foregone Growth %	Foregone Growth $/PC 87-95
Argentina	0	1	1	0	1	1	1	-1	2	1	1.05	317
Australia	0	1	1	0	1	1	1	-1	2	1	1.05	1276
Austria	0	1	0	0	0	1	1	0	1	1	1.05	1626
Belgium	0	0	0	0	0	1	1	0	0	0	1.4	1979
Brazil	1	0	1	0.5	1	0	1	-2	1.5	-0.5	1.57	295
Canada	0	1	1	0	1	1	1	-1	2	1	1.05	1522
Chile	1	0	1	0.3	1	1	1	-1	1.7	0.7	1.15	213
Colombia	0	0	0	0	1	0	1	-2	0	-2	2.1	244
Denmark	0	0	1	0	0	1	1	0	1	1	1.05	2035
Egypt	0	0	0	0	0	1	0	1	0	1	1.05	84
Finland	0	0	0	0	1	1	1	-1	0	-1	1.75	2988
France	0	1	0	0	1	0	1	-2	1	-1	1.75	2800
Germany	0	0	0	0	0	1	1	0	0	0	1.4	2635
Greece	1	0	0	0.35	1	0	0	-1	0.65	-0.35	1.52	674
H. Kong	1	1	1	0	0	1	0	1	3	4	0	0
India	0	0	0	0	0	1	0	1	0	1	1.05	34
Indonesia	0	0	0	0	0	1	0	1	0	1	1.05	54
Israel	0	0	1	0	0	1	0	1	1	2	0.7	583
Italy	0	0	0	0	1	1	1	-1	0	-1	1.75	2496
Japan	1	0	1	0	1	1	0	0	2	2	0.7	1499
Korea	1	0	0	0	0	1	0	1	1	2	0.7	409
Malaysia	1	0	1	0	0	1	0	1	2	3	0.35	76
Mexico	0	0	0	0	1	0	1	-2	0	-2	2.1	350
Netherl	0	0	0	0	1	1	1	-1	0	-1	1.75	2499
New Zeal.	0	1	1	0	0	0	0	0	2	2	0.7	682
Nigeria	0	0	1	0	0	1	0	1	1	2	0.7	17
Norway	0	1	0	0	1	1	1	-1	1	0	1.4	3153
Pakistan	1	0	1	0	0	1	0	1	2	3	0.35	11
Philippin	0	0	1	0.5	1	0	1	-2	0.5	-1.5	1.92	97
Portugal	0	0	0	0.5	1	1	1	-1	-0.5	-1.5	1.92	875
Singapore	1	0	1	0	0	1	0	1	2	3	0.35	368
Spain	0	0	1	0	0	1	1	0	1	1	1.05	763
Sweden	0	0	0	0	1	1	1	-1	0	-1	1.75	3086
Taiwan	0	0	1	0	0	1	1	0	1	1	1.05	766
Thailand	0	0	1	0	0	1	0	1	1	2	0.7	87
Turkey	0	0	0	0	1	1	1	-1	0	-1	1.75	299
UK	0	1	1	0	0	1	0	1	2	3	0.35	395
US	0	1	1	0	1	1	1	-1	2	1	1.05	1845
Zimbabwe	0	0	1	0	0	1	0	1	1	2	0.7	37

Statutory Law data from La Porta et al. Law and Finance, Journal of Political Economy 1998.

* CORPORATE LAW: =One share +Proxy + Oppressed Minority-Mandatory Dividend
COLLATERAL LAW: =Secured Lenders -Management Stays-Automatic Stay
COMMERCIAL LAW: =Corporate law + Collateral Law