Financial structure, corporate finance, and economic growth

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Abstract

This paper examines how a country's organization of its financial activities - its financial structure - affects how corporations invest and raise funds. We provide an analysis of how financial structure affects economic growth for a given degree of financial and economic development. Differences in the organization of financial activities are shown to affect the creation of new businesses as well as the efficiency of investment in existing firms. Though existing research supports some of our conclusions, we identify issues on which further empirical research is required.

1. Introduction.

This paper examines how the organization of financial activities within a country affects economic growth through its impact on how corporations raise and manage funds. In principle, how well a financial system performs any of its functions can affect economic growth.[1] For instance, the organization of a country's payment system affects growth by making it easier for economic agents to trade. Often, policymakers and academics take it as given that savings will be invested efficiently, so that firms do not matter. This view rests on traditional neoclassical principles. In a simple world of perfect capital markets and risk-neutral agents, the interest rate determines which investment opportunities are valuable and all investment opportunities that are valuable are exploited.[2] This is not the world we live in. Even though a country has savings, its growth can be stunted because its financial system fails to direct these savings where they can be invested most efficiently. In this paper, we therefore examine how the organization of financial activities affects the efficiency with which corporations invest savings and take advantage of valuable investment opportunities.

The fact that savings can be invested inefficiently because of how financial activities are organized has been at the core of the intense debate on the comparative benefits and costs of the "Anglo-Saxon" model and the "bank-centered" model. When the U.S. economy's performance seemed poor in contrast to the performance of the Japanese economy in the 1980s, the "bank-centered" model was viewed as a key determinant of why the performance of the two economies differed. A typical view of that period is represented by Thurow's argument that "the United States

[1] See Levine (1997) for a review of how finance affects growth.

[2] We define perfect capital markets to be markets with no transaction costs, no contracting costs, no taxes, no information asymmetries, and no restrictions to trades in financial assets.

has organized a system that is the exact opposite of that of Germany and Japan. Those countries have organized a system (business groups) to minimize the influence of impatient shareholders, while the United States has organized a system (fund dominance) to maximize the influence of impatient shareholders."[3] According to this view, Japanese firms could invest in long-term projects because of their long-term shareholders, while American firms could not afford to do so. The poor performance of the Japanese economy in the 1990s has led many to reassess the evidence on the benefits of the Japanese system. In particular, evidence has been produced showing that bank-dependence can lead to a higher cost of funds for firms because banks extract rents from their corporate customers.[4]

What we have learned from the debate contrasting the "Anglo-Saxon" and the "bank-centered" models is that how financial activities are organized affects the type of projects firms undertake. If firms in a country cannot or do not invest in valuable projects that firms in another country invest in, the country with more efficient investment is the one that grows more. The argument that Thurow (1992) makes is that when a U.S. manager evaluates a project, he reaches a different conclusion about its value than a manager in Japan because of different corporate governance arrangements. When deciding on whether to take a project or not, a manager has to evaluate the present value of the project, which amounts to discounting the expected cash flows of the project at the cost of capital of the project. If two firms located in different countries make different decisions on the same project, it has to be because the cost of capital differs or because the incentives and monitoring of management differ. The differences in incentives and monitoring of management might lead management in one country to take on bad projects or not to take on good

[3]Thurow (1992)

[4] See Weinstein and Yafeh (1998).

projects either because it is not sufficiently rewarded for making the right decisions or not sufficiently punished for making the wrong ones.

Differences in the cost of capital across economies mean that the same project will have a different value in different economies. If economies are not integrated internationally, the cost of capital can differ simply because each economy is an island and the cost of capital has to balance investment and savings within that economy. However, if economies are integrated internationally, capital flows will equalize the expected rate of return on securities with identical risk across countries. One might therefore be tempted to argue that if capital markets are integrated, cost of capital differences do not matter. This is not right, however. In perfectly integrated financial markets, the present value of the same cash flows to capital providers will be the same across countries. Nevertheless, projects that appear to be the same can produce different cash flows to capital providers because of differences in how financial activities are organized. To make the point in the most extreme way, consider two identical plants in the U.S. One plant belongs to a Japanese company and the other one belongs to a U.S. company. The plants are managed in exactly the same way and their level of activity is exactly the same. Hence, the cash flows produced by the plants are the same. Despite this, the value of the plants to the shareholders could be very different. The reason is that this value depends on how the cash flows of the plants are used. If one company pays out the cash flows as dividends to the shareholders whereas the other one uses them to finance bad projects, the plants will have different values. The company that wastes the cash flows may not be able to raise enough funds to finance the project because it may not be able to commit enough cash flows to the capital providers.

In this paper, we examine how the organization of financial activities affects growth through

its effect on the funds firms can raise and on how firms are managed. We call the first issue the financing problem and the second one the governance problem. As our above example shows, the two problems are closely related. If management always exactly maximizes the value of the firm for capital providers, it can raise more funds for a project than management that pursues its own goals. The way the firm finances its activities affects how the governance problem is resolved. For instance, debtholders can intervene in the firm only if the firm is in default while shareholders can affect the actions of management when the firm is not in default. The organization of financial activities affects how the financing and governance problems are resolved, but these problems are not resolved once and for all. As firms and countries evolve, solutions to these problems become obsolete. An organization of financial activities that solves both problems efficiently in a closed economy can become hopelessly inefficient as an economy becomes open. For instance, a system that monitors managers through banks works much better if firms cannot easily find alternate sources of financing when banks refuse to finance the firm. Banks lose their influence if alternate sources of financing become available and this generally happens if an economy gives access to its firms to world capital markets. Throughout the paper, we therefore pay attention both to the issues that arise in open economies and to the dynamic aspects of the impact of financial structure on how the financing and the governance problem are resolved.

The paper is organized as follows. In section 2, we first define what we mean by organization of financial activities and discuss the relation between the organization of financial activities and the development of the financial sector. We then define a perfect markets benchmark for how firms invest and raise funds and discuss how capital market imperfections make the cost of capital differ from its perfect markets benchmark and why this wedge offers a useful measure of how the organization of

financial activities affects economic growth. In section 3, we examine how financial structure affects the cost of capital for an entrepreneur who wants to start a new firm. In section 4, we examine how the organization of financial activities affects the cost of capital for an existing firm. In section 5, we discuss the implications of our analysis for past and future work examining the impact of the organization of financial activities on economic growth.

Section 2. Perfect markets and financial structure.

In this section, we first define what we call financial structure. We then proceed to define a perfect markets benchmark for how the financial system performs its functions. In later sections, we then show how characteristics of financial structure make countries deviate from this benchmark, but we first discuss in the last part of this section how to interpret deviations from this benchmark.

Section 2.A. Defining financial structure.

Merton's functional analysis has focused on the functions that a financial system performs.[5] He argues that a financial system provides: (1) a payment system; (2) a mechanism for pooling funds; (3) a way to transfer resources across space and time; (4) a way to manage uncertainty and control risk; (5) price information to allow the economy to implement a decentralized allocation of investment; (6) a way to deal with the problems that arise when one party to a financial transaction has information that the other party does not have. One can debate whether this list of functions is the right one, but the important point is that these functions can be performed in different ways in different economies. For instance, large corporations primarily raise funds through banks in bank-

[5] See Merton (1991).

centered economies and through public markets in Anglo-saxon economies.

We define a country's financial structure to consist of the institutions, financial technology, and rules of the game that define how financial activity is organized at a point in time. The same function of a financial system can be performed by different institutions or according to different rules. As a result, there is no one-to-one relation between a country's economic development and its financial structure. Hence, no case can be made the financial structure is completely endogenously determined. However, since different institutions can perform the same function, it could be the case that financial structure is a matter of indifference, in that different financial structures could perform the functions of the financial system equally well. By showing how financial structure affects growth, we provide evidence against this financial structure neutrality hypothesis.

It is important to distinguish financial structure from financial development. Research has focused on the relationship between financial development and economic growth.[6] Indicators of financial development that have been used in the literature consist of measures like the turnover of the stock market, stock market trading relative GDP, stock market capitalization relative to GDP, the proportion of funds raised externally by firms, and so on. All these measures of financial development can be dramatically different for the same financial structure. Hence, there is no one-to-one relationship between financial development and financial structure. For instance, reliance on external funding might be the same in an economy where the stock market plays an important role and in an economy where banks play an important role. Financial structure can hinder or promote financial development, however. Policies can have a direct impact on financial structure, but they can only have an indirect impact on financial development. Policymakers cannot legislate changes in the

[6] See Levine (1997) for a review.

degree of financial development but they can legislate changes in the financial structure. This makes it especially important to understand how financial structure affects economic growth.

Section 2.B. A perfect markets benchmark.

Many results in financial economics require the assumption that markets are perfect. If markets are perfect, contracting is costless, and the Coase theorem applies.[7] This means that whenever there is a reallocation of resources that creates value, it can be implemented at no cost. In a world of perfect markets, contracting can be complete. In other words, the actions of an economic agent or the payoffs of individual securities can be specified for each state of the world at no cost. The actions of the agent are observable and contracts specifying actions in each state of the world can be enforced costlessly. With perfect markets, a firm specifies in each state of the world what the providers of capital will receive. The value of a firm for the providers of capital is the present value of the cash flows the firm will pay out to them.

If capital markets are perfect and there are no restrictions to capital flows, it does not matter where investors in a project are located. All investors value a project in the same way. There are no differences in the cost of capital across countries. A project is funded if it is expected to earn at least its cost of capital. This means that the present value of the cash flows of the project is positive. All projects that are valuable get funded irrespective of where they are located.

It is important to note that with the perfect capital markets model, capital is allocated efficiently in the sense that all projects that have a positive present value are undertaken. At the same time, however, growth rates can differ across countries substantially. It is perfectly possible for a

[7] See Fama (1978).

country not to have valuable new projects in this model. There is therefore no reason for worldwide economic efficiency to translate into acceptable growth rates for each country. Hence, if markets were perfect, one might observe countries wanting to influence the outcomes of these markets so that they can redirect resources to accelerate growth.

An economy where the functions of the financial system are not performed is at the other end of the spectrum of the economy with perfect financial markets. In such an economy, there are no financial claims. Consequently, all saving and investment takes place within households. This means that whenever a household has projects available that exceed its ability to pay for them, it cannot undertake them. In such an economy, households underinvest when they have good projects because they cannot raise funds and overinvest when they do not have good projects because they have no other uses for funds than consumption. With the perfect markets economy, there is neither underinvestment nor overinvestment.

Section 2.C. Deviations from the perfect markets benchmark.

One might be tempted to argue that any action that moves the organization of financial activities of an economy toward the organization of financial activities with perfect financial markets represents an improvement and that therefore a simple measure of how a financial structure contributes to investment efficiency is to measure how "close" it is to the perfect markets economy. This is not correct, however. It is well-known that the theory of the second-best implies that removing distortions from first-best does not necessarily improve welfare.

A useful way to see this is to look at two important characteristics that differentiate the economy without financial markets from the economy with perfect financial markets. These

characteristics are what we call financial market participation and financing concentration. By participation, we mean the extent to which economic agents participate in financial transactions. In the perfect markets economy with heterogeneous agents, every economic agent who differs from the so-called representative investor participates in financial transactions. In contrast, in the economy with no financial structure, there is no participation in financial transactions. By concentration, we define the extent to which the funding of an economic activity is concentrated among capital providers. In an economy without financial structure, funding is completely concentrated, since the household that invests in a project is also the household that finances the project. In contrast, in an economy with perfect capital markets, financing is completely diffuse because it is a matter of complete indifference as to who finances which activity.

To understand why capital markets imperfections have the implication that less concentration and more participation need not improve investment efficiency, let's consider two examples. First, suppose that some actions of management are not observable to capital market investors but are observable to a bank. The bank might be better able to monitor the actions of management and hence prevent poor investment decisions than capital market investors. In this case, concentration can obviously be valuable. Second, suppose that the capital markets are organized so that they finance only large firms. If all households invest all their funds through financial markets, this complete participation makes it impossible for start-ups to be financed. If start-ups have better investment opportunities than large firms, this means that greater participation leads to less efficient investment.

In perfect financial markets, there is no difference between the distribution of cash flows known to management and the distribution of cash flows known to investors. Consequently, one can compute the value of a project by discounting the project at the appropriate discount rate. The firm

can raise funds for any project which has a positive value. Two key market imperfections destroy this property of perfect financial markets. First, investors do not see all actions management takes. Second, management has information that investors do not have. Arrow (1979) named the first problem the hidden action problem and the second the hidden information problem. These hidden action and hidden information problems create an agency problem between management and investors. If management knows that a project will most likely be a bad project, it may want to raise funds for it anyway. Generally, management benefits from managing a larger firm by having more perks and a higher salary. If the project fails, management does not get all the blame because it could be bad luck. If the project succeeds, management gets the benefit of firm growth. Hidden information and hidden actions give management discretion that it can use to pursue its own objectives.

With hidden information and hidden actions, investors no longer agree with management on the distribution of the cash flows from a project. This is for several reasons. First, investors know that management has incentives to overstate the cash flows and they generally cannot verify management's statements. Second, through hidden actions, management can affect cash flows later on. In particular, management can work less hard, which reduces cash flows, or can alter cash flows in other ways to pursue its own goals. Third, investors generally cannot specify the use of the cash flows from a project. Because of this, management may choose to invest too much in the firm because it gets more benefits from investing than paying out the surplus cash flow to shareholders. In the extreme case, these problems imply that no funds can be raised. For instance, if management can take the funds raised and use them for consumption without penalty, the firm cannot raise funds even though it might have good projects.

In the presence of the hidden information and hidden action problems, management cannot

finance a project based on its assessment of its cash flows. To raise funds, management cannot go to the markets and announce that it has projects with a given cash flow distribution and expect investors to finance it. Consider a firm that requires funds to finance existing activities and grow. The extent to which it can raise these funds depends on the cash flows that the providers of these funds believe will accrue to them. Consequently, the firm could have a project that would be financed in perfect capital markets but would not be in imperfect capital markets because the providers of funds do not believe that they will receive cash flows from the project. In such a situation, the neoclassical capital budgeting approach is no longer useful. This is because the project would be worthwhile at the neoclassical cost of capital, but the firm cannot raise funds at that cost of capital. The existing owners may have to give up part of their stake in the firm to finance the project or may even be in a situation where they cannot finance it at all. Viewed this way, the cost of capital for the firm differs from the cost of capital for investors because of the hidden information and the hidden action problems.

The best way to consider the difference between the cost of capital for investors and the cost of capital for the firm is to focus on an entrepreneur who is seeking funding for a project. The value of the project for investors is the present value of the cash flows they would expect to receive if they owned the right to all the cash flows from the project using the appropriate discount rate given the risk of these cash flows. If the capital asset pricing model holds, the discount rate of investors is equal to the risk-free rate plus the project's beta coefficient times the appropriate risk premium. In internationally integrated capital markets, the risk premium is the expected excess return of the world market portfolio.[8] For the entrepreneur, the cost of capital is the discount rate that equates the present

[8] See Stulz (1995).

value of the expected cash flows from the project in the absence of hidden information and hidden action problems as well as other market imperfections to the value assigned to it by investors. These two costs of capital are identical in perfect capital markets. Market imperfections create a wedge between these two costs of capital. As the wedge increases for the entrepreneur, there is a point where the project is no longer worthwhile and investment does not take place.[9]

A macro economist could argue that savings have to be invested, so that the interest rate will fall to equalize saving and investment. With this view, corporate finance does not affect investment. The problem with this view is that it ignores the efficiency of investment. In closed markets, the wedge means that the productivity of investment falls for at least three reasons. First, management could consume in the form of perquisites funds that otherwise would be invested, so that some of the savings are diverted to consumption rather than investment. Second, management could invest in projects that are less valuable, so that growth is less than it would be otherwise. Third, more resources will be devoted to monitoring activities that otherwise would be used for other purposes. In open markets, the wedge determines the extent to which funds are invested within one country. If two countries have the same investment opportunities but different wedges, the country with the larger wedge invests less.

Consider a project that would be worthwhile in perfect financial markets. In our framework, the entrepreneur cannot undertake this project if his cost of capital is such that the funds that could be raised are not sufficient for the investment required. In such a situation, investors will not provide

[9] See Fazzari, Hubbard, and Petersen (1988) for a discussion of this wedge and its implications for investment equations.

the funds, so that the entrepreneur is rationed.[10] Such a situation will arise if the cash flows generated by the project in perfect markets cannot be contracted to be paid to the investors. In the extreme case, legal enforcement could be so poor that the entrepreneur could steal all the cash flows with impunity, so that the investors would get nothing and the cost of capital to the entrepreneur would be infinite. However, it could simply be that because of hidden information and hidden action problems, the cash flows are lower than in perfect capital markets because the entrepreneur cannot credibly commit to work as hard when his effort is not observable as when it is.

Let's now consider the situation of an established firm trying to raise funds. In this case also, there is a distinction between the discount rate of investors and the cost of capital of the firm. The discount rate of investors is chosen in the same way as in the case of the entrepreneur. The funds raised by the firm are equal to the present value of the cash flows the investors expect to receive. However, the firm's total value does not necessarily increase by the funds raised. The value of the firm is given by the discounted value of the cash flows the providers of capital expect to receive. This value is less than the value of the firm in the absence of the hidden information and hidden action problems if these problems lead management to make investment decisions that would not be optimal if financial markets were perfect. For instance, management could use the funds to invest in projects that have a negative net present value using the neo-classical cost of capital but the providers of capital could not prevent this from happening.

When valuing the firm as a whole, we have to draw again a distinction between the firm's cost of capital and the discount rate of investors. In the same way as with the entrepreneur, we can compute the cost of capital of the firm as the cost of capital that sets the present value of the cash

[10] See Stiglitz and Weiss (1981).

flows of the firm in perfect markets equal to the value that the investors assign to the firm. The cost of capital of the firm can exceed the discount rate of investors for a number of reasons. For instance, if there is a large shareholder that can divert resources from the firm for his own uses, this decreases the value of the firm. Consequently, the possibility of such a diversion of resources means that investors value the firm less because the cash flows they expect to receive are lower. This leads to a wedge between the cost of capital of the firm and the discount rate of investors.

The possibility of overinvestment as well as the possibility of underinvestment create the wedge between the cost of capital of the firm and the discount rate of the capital providers. If the firm overinvests, it means that it takes on projects it should not. These projects reduce the firm's cash flows relative to what they would be with perfect capital markets because these projects do not earn their financing. Consequently, if the firm invested the funds in projects that have zero net present value, its value would be higher. If the firm underinvests, it means that it does not take advantage of investment opportunities that it should exploit. Again, this reduces firm value relative to what it would be in perfect markets where the firm would take these projects. To examine how financial structure affects the possibility of overinvestment and the possibility of underinvestment, we organize our discussion around the life cycle of a firm. We start in the next section by examining the problem of the entrepreneur seeking funding of a new project. We then investigate how financial structure affects the activities of established firms in section 4.

Section 3. Financing the entrepreneur.

In the first part of this section, we argue that the optimal financing of an entrepreneur's project involves staged financing. In the second part of the section, we discuss how financial

intermediaries can provide this staged financing. The last part of the section summarizes how financial structure affects entrepreneurial activity.

Section 3.A. The importance of staged financing.

We consider an entrepreneur who has an idea for a project. This project has a positive net present value if the cash flows of the project in the absence of the hidden information and the hidden action problems are discounted using the discount rate of investors. The entrepreneur cannot finance the project on his own. He therefore has to find investors who will provide the necessary funds. This means that he has to be able to convince investors that they can expect a return on their investment equal to their required discount rate. Investors will only finance the project if they expect to earn the opportunity cost of their funds.

Suppose first that there is no information asymmetry between the entrepreneur and the investors concerning the cash flows of the project. In this case, the project could be funded if investors believe that they will receive those cash flows from the project promised to them. This means that investors have to be confident that there are no other claims on these cash flows. This requires that property rights are well-defined and enforceable. In other words, it has to be that the investors can protect their rights to the cash flows in such a way that the entrepreneur or third parties cannot try to take these cash flows away from investors.

Countries differ in the extent to which investors can be assured to receive the cash flows promised to them. In countries with the worst legal enforcement, domestic investors have little chance of receiving what is promised to them if the entrepreneur does not want to pay. In other countries, domestic investors have greater expectations of receiving the promised cash flows than foreign

investors. As financial engineering has become more important, there is growing evidence that the degree to which the financial system protects rights to cash flows differs across types of financial instruments. If the rights to cash flows of plain vanilla securities are strictly enforced but the rights to cash flows of derivative securities are not, one expects derivative securities to be unavailable to the entrepreneur. This limits his ability to use future cash flows to raise funds.

In general, however, the entrepreneur's problem is that he has more information about the project than investors. Consequently, there is a hidden information problem. There is no reason for investors to believe that the entrepreneur is telling the truth when he describes the project. This is because the entrepreneur can benefit from undertaking the project even if the project has little chance to succeed. If he does not raise funds to undertake the project, the entrepreneur's equity is worthless. As long as the entrepreneur has an equity claim in the project, he benefits if the project does well but if the project does poorly, the investors lose more than the entrepreneur. The information asymmetry between investors and the entrepreneur makes it difficult for the entrepreneur to fund the project because investors do not take at face value the statements of the entrepreneur. In general, therefore, the entrepreneur cannot raise the funds for the project by simply describing the project and asking the investors to believe that the project is profitable. Even if the project has a high value and would be funded in perfect financial markets, it will not be funded when the hidden information problem is sufficiently important.

For the entrepreneur to be able to start his project, it has to be that it can start on a scale where investors can learn about the project and stop funding it if they discover that it will not be profitable. Generally, therefore, the method of financing involves financing in stages, where future

financing depends on how the project is evolving.[11] Capital markets are generally ill-suited to staged financing. There are at least two reasons for this. First, staged financing requires an investor to provide new funds under some conditions. This means that a security that provides staged financing does not have the property of limited liability. Historically, there have been securities without limited liability. In particular, bank equity in the U.S. often did not have limited liability before the 1930s. Consequently, if a bank's capital fell, the shareholders could be called upon to invest more funds. However, securities without limited liability have essentially disappeared from the capital markets.[12] This is because if a security requires its owner to make payments in the future, its value depends on whether the payments will be made if the conditions of the security are met. To insure this requires limitations on trading. Otherwise, the securities have most value for those individuals with the least amount of wealth who cannot make the subsequent payments. Second, even if it were possible to have traded securities without limited liability, it is generally not possible to specify all the conditions under which the additional financing would be provided. Success in a project has many dimensions. However, with publicly traded securities, it will generally not be possible to set up a mechanism where the owners of the securities act collectively to figure out whether funds should be provided. This is because the costs of collective action for investors in publicly-traded securities are generally high.[13]

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[11] See Admati and Pfleiderer (1994). Gompers (1995) provides empirical evidence on staged financing.

[12] See Winton (1993) for a theory of limited liability and a discussion of how it evolved over time.

[13] See Roe (1987).

Section 3.B. The role of financial intermediaries in financing the entrepreneur.

The solution to finance the entrepreneur's project generally involves staged financing that cannot be obtained from public markets. Consequently, the entrepreneur has to resort to intermediated finance. He can therefore turn to banks, bank substitutes, and possibly venture capitalists. Banks effectively provide staged financing. They do so in the form of loans that they renew and expand as the entrepreneur makes his case for financing more compelling. Generally, with banks the funds are provided in the form of debt. Debt is often an efficient solution because it economizes on monitoring costs. If the entrepreneur repays the debt, there is no reason for the bank to expend resources on figuring out the true value of the entrepreneur's assets.[14] With such a financing mechanism, the bank provides funds in the form of debt and the entrepreneur, his friends, and possibly venture capitalists own the equity.

Competition among potential providers of funds has the effect of reducing the interest rate charged to the entrepreneur. This would seem to be good for economic growth, but things are not this simple. Remember that for the entrepreneur to be able to finance his project, financing has to be staged. As one learns about the project, new financing decisions are taken. This feature of financing has an important implication for the financial intermediary. At each stage of the project, the financial intermediary has to assess whether the project should be pursued and under which conditions. At that point, the financial intermediary can contribute value to the project by having specialized skills that it can apply to evaluate the project and increase its probability of success. This amounts to relationship lending. Banks can also provide lending without monitoring. Boot and Thakor (1998) discuss how the supply of relationship lending by banks depends on competition within the banking

[14] See Townsend (1979).

sector as well as from the capital markets.

The extent to which a financial intermediary expends resources on a project depends on the extent to which the intermediary can benefit from expending these resources. The financial intermediary cannot make profits when projects fail and must therefore make profits when projects succeed. This means that if a project succeeds the financial intermediary has to be able to extract rents.[15] Lack of competition among financial intermediaries increases the ability of a financial intermediary to extract rents from successful projects, thereby justifying the expenditure of resources on projects to increase their probability of success. Some ability to extract rents is therefore necessary for relationship lending.

With too much competition among financial intermediaries, there is little incentive for financial intermediaries to invest resources in projects when they can only be compensated for doing so through a relationship with the firm. In such a situation, the financial intermediaries do not develop expertise, so that they cannot assess projects and hence do not finance them. Further, projects that get started but do not benefit from relationship financing are less likely to succeed. Without relationship financing, therefore, fewer projects get started. The projects that get started are those where the financial intermediary can finance investments that are not project-specific and can be used as collateral. In other words, if relationship financing is not available, the entrepreneur can borrow to buy a building but not to finance improvements in machinery that are project-specific. At the same time, however, with too little competition, financial intermediaries can expropriate the entrepreneur if the project is successful by increasing the cost of finance when the project turns out to be successful. As the ability to extract rents increases, however, the payoff to the entrepreneur from his

[15] See Sharpe (1990) and Rajan (1992).

idea falls. As banks become too powerful, the entrepreneur finds that the project is no longer worthwhile.

The relationship between the entrepreneur and the financial intermediary is complicated by the fact that the financial intermediary has private information about the project's entrepreneur. The existence of this private information means that if the financial intermediary withholds funds from the entrepreneur, other financial intermediaries will infer from this decision that there is adverse information about the project. Consequently, it may be difficult for the entrepreneur to seek other sources of funds if the financial intermediary increases the cost of its financing irrespective of the degree of competition among financial intermediaries.

Another area where the financial intermediary may impose costs on the entrepreneur has to do with the continuation and expansion decision. With debt claims, financial intermediaries have incentives to push the entrepreneur to avoid risks since the value of debt claims falls as risk increases. Consequently, the financial intermediary evaluates the continuation decision differently from the entrepreneur. If continuation involves an increase in risk, the financial intermediary may choose to discontinue the project if the proceeds from liquidation are high enough. The possibility that the financial intermediary may prevent continuation of the project when it would be optimal for the entrepreneur to continue means that the entrepreneur's payoff is decreased and his incentives to work hard fall.

The extent to which the financial intermediary makes suboptimal continuation decisions is affected by whether the financial intermediary holds equity. If the financial intermediary holds a share of firm value by having both debt and equity in the same proportions, its incentives are to maximize firm value. The problem of suboptimal continuation can be resolved also by having different financial

intermediaries for debt and equity. By providing the entrepreneur with more equity, it becomes less likely that he will not be able to pay interest to the bank and the influence of the bank becomes less important.

The provision of private equity plays a crucial role in financing entrepreneurs for another reason. The use of debt requires the availability of collateral. Debt that does not have a specific collateral, such as a building, is collateralized by the whole firm. Some activities of a firm do not yield collateral that can be used to raise debt. For instance, with R&D investments, the bank that seizes the firm faces the problem that it has no assets that it can sell or even evaluate. Equity enables firms to raise funds by pledging a share of random future cash flows.

The problem of suboptimal continuation is exacerbated by funding risks. Staged financing requires that the implicit commitment to continue financing will be honored. This implicit commitment cannot be honored if the financial intermediary is bankrupt or is unable to lend money when the entrepreneur expects to receive additional funds. Instability in the banking sector therefore reduces the expected payoff from entrepreneurship. As the entrepreneur invests his sweat equity, he has to believe that funds will be available when he reaches a point where he can demonstrate the value of the project better. However, if capital constraints on banks prevent them from lending, the project will have to be discontinued even though it is a valuable project. If this possibility is high enough, the entrepreneur will not undertake the project in the first place.

Access to public markets for the entrepreneur is expensive unless the value of the project can be established by public investors with sufficient precision so that the project can be funded. Public investors do not have access to the same information as financial intermediaries because the firm cannot communicate some types of information publicly without reducing its value. This might

suggest that public capital markets are therefore not important. Yet, they play a role in three ways. First, public capital markets allow the entrepreneur to escape the bank.[16] They make it possible for the entrepreneur to have an alternative source of financing if the bank tries to expropriate too much of the profits from the project. Consequently, even though entrepreneurs are financed initially through bank finance, the availability of public markets can play a crucial role in promoting entrepreneurship by limiting the ability of financial intermediaries to extract rents. Second, public markets make it possible for the entrepreneur to realize profits from a successful project. Without public markets, the entrepreneur's stake is illiquid. If the entrepreneur sells his stake, he will face a limited market and hence get a low price. With public markets, the payoff from the project for the entrepreneur increases. Third, the existence of public equity markets makes possible the emergence of financial intermediaries who provide funds in exchange of equity and can therefore share the entrepreneur's risks. A country can have public markets, yet these markets might not be easily available to new firms. From our discussion, having public markets available to new firms plays a key role in encouraging entrepreneurial activity. Public equity markets may be difficult to access for firms because of, among other reasons, high costs of going public, restrictions on listings, and poor liquidity.

In open economies, it is important to note that the staged financing is informationally intensive. It cannot take place at too much of a distance.[17] It is not clear, however, that the public capital markets have to be local. Firms that access capital markets generally have an established reputation. This reputation can be what makes it possible for them to access the capital markets.

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[16] Myers (1998) discusses the role of the public markets as a way for the entrepreneur to prevent his efforts from being destroy through rent-seeking.

[17] See Lerner (1995) for evidence of the proximity of venture capitalists to the firm they help finance within the U.S.

Diamond (1991) shows that this reputation leads firms to avoid opportunistic actions reducing the value of the securities they have issued that they would not avoid otherwise. They can be better off choosing a better organized foreign market than listing on a domestic market.

Section 3.C. Financial structure and entrepreneurial finance.

In this section, we have seen that the following characteristics of a country's financial structure are important for the creation and growth of new firms:

1. Well-defined property rights so that entrepreneurs can sell rights to future cash flows.

2. Availability of staged financing.

3. Stability of the financial sector so that implicit commitments of stage financing can be honored by financial intermediaries.

4. Availability of private equity financing.

5. Availability of uncollateralized debt.

6. Availability of an exit option of public equity markets for young firms.

Without these characteristics, a financial structure does not make possible the emergence of firms where the hidden information and hidden action problems are important. If a country's financial structure is such that such firms cannot be financed, that country's growth suffers. In the previous section, we contrasted financial structure and financial development. The requirements for entrepreneurial finance discussed here make it possible to emphasize the importance of this difference. If one were to summarize the key requirement of a financial structure from the perspective of entrepreneurial finance, it is that it must support sophisticated private explicit and implicit contracting. For such contracting to take place, a country needs stability and an effective legal system. These

requirements facilitate financial development, but financial development is not a condition for these requirements to be met. Some of these requirements may be met because of events that took place a long time ago. For instance, the type of law that a country has might be the result of colonization and other past events. At the same time, however, all these requirements are susceptible to policy interventions. Further, laws themselves are not enough. It matters how they are enforced. A legal system that protects the rights of the creditors is useless if it takes ten years to enforce a claim.

4. Monitoring established firms.

We saw in the previous section that as firms grow and become better established, they rely more on public markets. Their equity becomes publicly traded and they can issue public debt. Rather than being controlled by the entrepreneur, the firm is in the hands of managers. Berle and Means (1932) emphasized the governance problem resulting from having dispersed shareholders. In a firm with a large body of atomistic shareholders, costs of collective action among shareholders are too high for the shareholders to cooperate effectively. As a result, management can pursue its own objectives with more freedom than if the firm is controlled by large shareholders.

Managerial discretion means both that an incompetent manager can keep his job and that a competent manager can use the firm's resources to pursue his own goals. If the firm has valuable investment opportunities, there is little reason in general for management to work against the interests of shareholders. In this case, if management fails to take properly advantage of these investment opportunities, it is because it is misinformed or incompetent. However, firms do not always have valuable investment opportunities. In this case, well-informed and competent management could

prefer to invest the firm's cash flow in poor projects rather than return it to the shareholders.[18] This implies that large firms held by atomistic shareholders are likely to overinvest and consume excessive perquisites. Faced by poor investment opportunities, management in such firms is reluctant to repurchase shares or increase dividends. The other side of the coin is, however, that precisely because management is reluctant to return cash flow to shareholders, the firm is limited in its ability to raise funds.[19] This is because capital providers, knowing that management pursues its own goals, cannot be assured that the funds it provides will be put to good use. Management that always wants to invest cannot raise funds by claiming that it has good projects. As a result, management might not be able to invest when it has good projects because of an inability to raise funds.

The extent to which management in large firms has incentives to maximize firm value is crucial for economic growth. As management becomes more likely to pursue its own objectives, it becomes less able to raise funds and the funds it raises have a higher cost. The mechanisms used to monitor management and provide it with incentives to maximize shareholders wealth differ across economies. The main devices used to discipline management and provide it with incentives are the composition of equity ownership, the market for corporate control, the role of the board of directors of the firm, its capital structure, and the compensation of managers. The usefulness of these devices depends crucially on the role the capital markets play in an economy. Without capital markets, there is no market for corporate control in that unsolicited bids for a firm are not possible and managers cannot be compensated directly as a function of their impact on shareholder wealth. Hence, having an

[18] Jensen (1986) argues that free cash flow, i.e., cash flow that is not required to finance valuable projects, creates agency costs.

[19] See Stulz (1990) for an analysis of this problem.

unrestricted market for corporate control which means that management can easily be removed has no value in an economy where most firms have no traded equity. In the rest of this section, we focus successively on the role of ownership, of the market for corporate control, and of debt in monitoring management before providing a more general perspective on how financial structure affects established firms.

Section 4.A. Ownership, managerial discretion, and managerial incentives.

Though diffuse ownership is common for large companies in the U.S., it is not so in the rest of the world.[20] Based on the difficulty of collective action for dispersed shareholders, one might be tempted to believe that concentrated ownership is necessarily better and that having firms with large shareholders leads to greater economic growth. The difficulty is that concentrated ownership does not necessarily lead to better investment decisions. It may simply lead to a situation where decisions are made to the benefit of the large shareholder and of management. For instance, the large shareholder can insure that the firm buys from other companies the shareholder owns at favorable prices. Control of a corporation can be achieved with substantially less than majority ownership. Consequently, large shareholders can extract benefits from the corporation that reduce the value of the firm at the expense of the other shareholders. Barclay and Holderness (1989) show that these benefits can be considerable even in the U.S. Zingales (1994) provides evidence that these benefits are extremely large in Italy. As smaller shareholders become disenfranchised, the cost of capital for the corporation increases because shareholders who buy shares expect to receive a smaller fraction of the firm's cash flows.

[20] See LaPorta, Lopez-Silanes, and Shleifer (1999).

To the extent that small shareholders cannot be expropriated, however, there is a benefit to the firm from having large shareholders. These shareholders have stronger incentives to monitor the firm because they capture more of the benefit from gathering information that can be used profitably by the firm. A small shareholder cannot gain substantially from finding out that the firm could invest more efficiently and does not have the influence over the firm that would allow him to change the firm's investment policy. Large shareholders can further play a useful role also in making a takeover possible. Grossman and Hart (1980) document the problem that shareholders have little incentive to tender their shares if a bid is made for them because they can capture the benefits from a takeover by holding onto their shares. Since no atomistic shareholder views himself as pivotal to the outcome of the takeover attempt, each atomistic shareholder refrains from tendering. A large shareholder knows that a takeover is much less likely to succeed if he does not tender. Consequently, as demonstrated by Shleifer and Vishny (1986), takeovers that might not be possible in the absence of large shareholders might be possible in the presence of large shareholders. In the presence of private benefits of control for large shareholders, however, the large shareholder may prevent a takeover from taking place to preserve the benefits from control.

It follows from this analysis that no case can be made that either diffuse ownership or control by large shareholders is necessarily better for economic growth. Whether having a large shareholder control a firm increases firm value depends critically on the extent to which the large shareholder can expropriate other capital providers, including minority shareholders, to increase his private benefits from control. If the large shareholder is unable to increase his private benefits from control by expropriating other capital providers, he can increase his wealth only by increasing the value of the firm. However, otherwise, he may choose to focus on generating private benefits even when he could

increase substantially the value of the firm through his actions. This is because he gets all the private benefits but only a share of the value-increasing actions he takes. To the extent that non-controlling shareholders are well-protected, having a large shareholder is advantageous. As the large shareholder's stake in the firm increases, he cares more about the value of his stake than he does about the value of private benefits of control. Unfortunately, as La Porta, Lopez-Silanes and Shleifer (1999) show, large shareholders are less important in countries where the rights of non-controlling shareholders are well-protected. One interpretation of this result is that it makes sense to acquire large stakes only to the extent that they provide large private benefits.

The liquidity of the stock market plays a key role in allowing investors to build large stakes and enabling them to sell large stakes. In an illiquid stock market, investors cannot build large stakes without paying a substantial premium to induce investors to sell their shares. As a result, they might have to give up to selling shareholders much of the benefits that they expect to get from their stake. Similarly, investors with a large stake may find themselves in a situation where they cannot sell it without discounting the shares substantially to attract buyers. An illiquid stock market can therefore both prevent large blocks from being created and large blocks from being dissolved.[21] Bhide (1993) and others have therefore argued that making the stock market less liquid could make large shareholders more active because in a more liquid market, if they feel that the firm is poorly managed, they might just sell their shares. Making the stock market less liquid seems to require ownership to be concentrated already since otherwise it may be too expensive for investors to build large blocks. Further, if existing large block holders cannot sell, they might promote more conservative investment policies.

[21] See Maug (1998).

In the U.S., it is extremely rare to observe a hostile takeover of a firm where management owns more than 10% of the value of the firm. It is generally the case throughout the world that to exert effective control of a firm a shareholder does not require a majority stake. Depending on the country, however, it is easier to exert control with a small stake using pyramids and/or shares with differential voting rights. For instance, in some countries, exchanges allow firms to list many types of shares but in others they do not. Shares with differential voting rights enable a large shareholder to exert control when he owns only a small claim to cash flows. In this case, the shareholder has less of an incentive to use his votes to maximize firm value. Pyramids have the same impact.[22] If it was costless to establish firms, a five cent investment would make it possible to have working control of General Motors. One could use this five cent investment to float a firm with capital of nine cents, which could then borrow some. This firm would then have assets of say 15 cents that it could use to buy 51% of the shares of a company with equity worth 30 cents. This company itself could borrow and then buy a 51% stake in a company which then could be worth 80 cents. This could go on until the final company owns half the shares of GM.

The problem with establishing a pyramid or creating shares with differential voting rights is that such devices to capture private benefits of control generally require control to start with. Otherwise, the cost of these devices may be too high irrespective of the magnitude of the private benefits from control. To see this, consider the situation of an individual who has no shares in a corporation and wants to acquire control through a pyramid. The problem with this is that he has to buy shares. Those who sell the shares know that eventually the buyer can obtain large private benefits from control. They will therefore require a high price for their shares. There is no reason, however,

[22] See Wolfenzon (1999) for an analysis of pyramids.

for only one individual to try to start a pyramid if building pyramids is profitable. Consequently, all the rents from having a pyramid will be expropriated and no pyramid will exist. In contrast, if a shareholder has control, he can decrease his capital invested in the firm by creating a pyramid. Since he has control of the firm, his private benefits will stay constant. However, by selling shares, he increases his resources. The same arguments work for the case where a shareholder wants the firm to have differential voting rights.

Having votes proportional to ownership of cash flows is a powerful device to insure that the controlling shareholder maximizes firm value. This solution does not prevent pyramids, however. With a pyramid, a large shareholder could exert control over a majority of the shares even though his own financial stake might be small. It is interesting to note, however, that differential voting rights and pyramids could lead to greater firm value if the private benefits from control for the large shareholder are fixed and cannot be increased. In this case, the benefit from controlling more voting rights comes only from the ability of the shareholder to increase firm value. It would then be better for management to be monitored by a shareholder that has control than not being monitored. For instance, incompetent management could stay in place if shareholders are atomistic but not if there is a large shareholder in charge. The problem is that it may not be possible to insure that a large shareholder cannot extract private benefits from control that decrease firm value relative to what it would be in the absence of the large shareholder.

Not much attention has been paid in the corporate finance literature to the issue of why managers and large shareholders acquire their stakes in the firm. This issue is reasonably well-understood for an entrepreneur who seeks to raise public funds.[23] For such an entrepreneur, selling

[23] See, for instance, Leland and Pyle (1977).

all the equity he owns to the public would lead potential investors to be skeptical both about the value of the shares and about the incentives of the entrepreneur to maximize the value of the firm. Consequently, the entrepreneur keeps a fraction of the shares to insure that he can sell the rest at an acceptable price. This motivation for the entrepreneur to hold a large block of shares leads to the existence of large shareholders. For instance, the heirs of the entrepreneurs may have large blocks. As shown by La Porta, Lopez-Silanes and Shleifer (1999), families are often large block holders. Because of the private benefits from control, a block is worth more held together than dispersed, so that owners of blocks will attempt to sell them whole.

What is not well understood is why, in a large public firm, management or other investors would acquire shares in large amounts. One can think of a number of reasons for an investor or management to build a large stake, but we do not have evidence on which reasons are empirically important. First, management or a large shareholder may acquire shares to get private benefits from control. Second, management or a large shareholder may have private information that indicates that the shares are undervalued. One would not expect undervaluation to lead investors to hold a large block of shares for a long period of time. Third, management can acquire shares to commit to a policy of maximizing firm value and hence increase the value of the firm. Doing so can prevent a takeover by increasing firm value. Fourth, management may build a stake to preserve private benefits from control. Fifth, a large shareholder may acquire a stake because of its ability to alter the actions of management in a way that increases value. In all these cases, the acquisition of shares has benefits that the sellers of the shares would try to capture. In many cases, however, large blocks are built through direct acquisition of shares from the firm. For instance, the firm may issue stock that it gives to managers or sells to investors. Interestingly, the empirical evidence both for Japan and the U.S.

is that firms that sell a large block of equity to an investor (or organized group of investors) increase in value.

Some of the motivations to build a large stake increase firm value and decrease the cost of capital. Other motivations may have the opposite effect. If management has a small stake or no stake at all, it may have little incentive to worry about the wealth of shareholders. Hence, an increase in management's stake would be a positive development in aligning management's incentives more with those of the shareholders. It might also prevent takeovers with too low a premium from succeeding.[24] However, as management's stake increases, management can effectively prevent the firm from being taken over and can pursue its own objectives without having to worry about discipline from the market for corporate control. Based on these considerations, one would expect firm value to be a concave function of managerial ownership. Morck, Shleifer and Vishny (1988) provide evidence supportive of this prediction for the U.S.

It is often argued that the concentration of ownership in the Japanese or German system are valuable. Based on our discussion, it is not clear that this is correct. In Japan, companies generally have corporate shareholders (banks and non-banks) which hold together a controlling stake. These holdings are generally reciprocal, so that company A holds shares of company B, and reciprocally. Such a structure can lead to monitoring of management (see Berglof and Perotti, 1994). It can force management to pay attention to the other firms in the group. It is also possible, however, that such a structure makes it impossible for a firm to be taken over. Morck and Nakamura (1999) argue that the motivation for corporate cross-holding was to prevent firms from being taken over. In other words, the same structure can lead to firm value maximization because managers across firms monitor

[24] See Stulz (1988) for a model of this effect.

each other or it can lead to a loss of value because managers collude to protect their firms from the pressures of the market for corporate control.

Section 4.B. The market for corporate control and managerial incentives.

If the market for corporate control forces management to take actions that reduce firm value in the long run, then having large shareholders which prevent the firm from being taken over against the wishes of management can increase firm value in the long run. This raises the question of how an active market for corporate control affects economic growth. On the one hand, such a market leads to the removal of inefficient management. On the other hand, though, it can lead management to reject investments that would be profitable. This is because outside investors and potential bidders may not have information that allows them to assess the profitability of such investments. As a result, the value of the firm may fall when such investments are undertaken even though such investments are profitable when evaluated with the information that management has. A concern has been, therefore, that investments for which information asymmetries are more important may be postponed or avoided altogether by management when it believes that potential bidders are monitoring its actions actively. Viewed from this perspective, Stein (1989) argues that insulating management from takeover pressure can be valuable. Much attention has been paid to R&D investments from this perspective. R&D investments are hard to evaluate because the firm cannot communicate much about such investments. One would therefore think that takeover pressure would lead firms to decrease R&D investment. Though this argument seems intuitively convincing, it lacks empirical support. For instance, Meulbroek, Mitchell, Mulherin, Netter and Poulsen (1990) examine R&D expenditures by firms that adopt antitakeover amendments and find no evidence that the adoption of such amendments

leads to an increase in R&D expenditures. Recent research also shows Japanese firms are as quick to cut R&D investment in downturns as American firms.[25] This suggests that the Japanese economy may not be that different from the U.S. economy with respect to R&D investment.

There is some evidence indicating that management's possible preoccupation with short-term investors may affect the cost of capital within the American economy. If management puts a lot of weight on short-term investors, it is less likely to issue equity when the firm is underpriced. The reason for this is that issuing equity under such circumstances is costly for shareholders who plan to sell equity in the short-run. These investors lose because of the dilution of their stake as equity is issued. Since they will be gone when the market learns the true value of the firm, having the firm issue equity does not help them by allowing the firm to take on valuable projects.

The deadweight loss of projects not financed is therefore the cost of short-termism. The evidence that the stock price falls in the U.S. when a firm announces an equity issue is consistent with the existence of such a cost. If management always issues equity to finance new positive net present value projects and maximizes firm value based on its information, an equity issue does not convey information that the firm is undervalued. Interestingly, the stock price does not fall in Japan when an equity issue is announced. In Japan during the 1980s, the stock price actually increased when a firm announced that it would issue equity.[26] One could therefore argue that a bank-centered economy leads to more efficient investment because firms issue equity when they would not in the U.S. economy, so that firms do not give up valuable projects when firms in the U.S. would give up such projects. Based on the existing evidence, this is a plausible explanation.

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[25] See Hall and Weinstein (1996).

[26] See Kang and Stulz (1996).

If the evidence on security issues in Japan can be interpreted as evidence of a focus of managers on the long-term, the question that arises is whether this is due to a lack of hostile takeovers. Another way to put the question is whether Japanese firms would behave the same way if they could be taken over. This seems unlikely. In an economy where hostile takeovers cannot take place but alternative governance mechanisms are non-existent, short-termism would seem to be the price to pay for having management monitored. In this case, there would be no alternative to having management removed through a takeover if it is inefficient and firm value is too low relative to what it could be with better decisions from management. Unfortunately, besides having the effect of forcing management to put more weight on the short-term, the corporate control market has the defect of being a very costly device that leaves much inefficiency unchecked. To gain control of a corporation is expensive, so that bidders attempt to do so to change management only when the gains are extremely large. In the U.S., irrespective of how one measures hostile takeovers, they were extremely rare and are rarer now. This raises the issue of alternative monitoring devices for management that help improve managerial performance when management does not perform poorly enough to justify a takeover.

An important consideration that affects the efficiency of the takeover market in insuring better performance from management is that management can influence the probability that the firm will be taken over. Management can put in place anti-takeover measures. However, management can also hoard resources so that if a takeover bid is made, it can use these resources to defeat it. Hence, a bidder could identify an inefficiently managed firm and yet be unable to take that firm over because management has the resources to fight off the bid. In this case, the bid may force management to sell poor investments, disgorge excess cash, and even issue debt to commit to maximizing firm value in

the future. Hence, the bid will make the firm more efficient. Unfortunately, the fact that management might repel the bid may decrease the probability that the bid will take place. This may lead to a situation where there are too few takeover bids.

Takeovers are rare and expensive. This does not mean that they have little impact on firms in general, however. Suppose that bidders cannot fully tell whether firm value is low because of poor decisions or bad luck. There is therefore a risk of a takeover if value falls. In such a situation, it becomes valuable for management to find ways to make commitments to maximize firm value. If there is no takeover market, management would not make such commitments. Management can make such commitments in a number of different ways. It can recruit a board that is more independent and more active. It can change its compensation so that it is tied more closely to changes in the value of the firm. It can repurchase shares to signal that firm value is higher than reflected in the share price.

Management can be removed because shareholders decide that doing so will increase firm value. This can take place when the firm is healthy because management misses opportunities to create wealth for shareholders. Such a situation is rare, however. This is because, in the presence of information asymmetries, it is difficult for outsiders to know about investments management could have made but did not because of lack of ability or foresight. In contrast, it is much more likely that management will be removed because the firm is doing poorly. In that case, the governance role of shareholders is often secondary. As the firm does poorly, the creditors play a large role because they can put the firm into bankruptcy. This means that when shareholders do not perform their role, possibly because they face excessive costs of collective action, creditors may end up monitoring management.

Section 4.C. Debt and managerial incentives.

Debt exerts discipline on management by preventing management from overinvesting and monitoring management when poor outcomes occur. As a result, however, management would rather lead a firm that has low leverage. Berger, Ofek and Yermack (1997) provide evidence to this effect. Management therefore generally promotes conservative capital structures. There is evidence, however, that management departs from policies of low leverage when doing so allows it to prevent the firm from being taken over. By issuing debt, management can commit to a policy of asset sales to get the firm more focused or can finance a share repurchase. In either case, firm value may increase sufficiently to make a hostile bid no longer possible.[27] Conservative capital structures give more discretion to management, since it can choose riskier projects without having to worry about losing its position or its power through default. Managerial discretion can be valuable, however, when the firm has good investment opportunities. A firm that is too highly levered may not be able to invest in new projects because shareholders do not want to raise new funds.[28] Raising new funds for such a firm can decrease shareholder wealth because the new funds increase the value of the debt.

Leverage differs across countries, but some of the differences seem overstated. Though the bank-centered systems are often viewed as having greater leverage than the Anglo-saxon economies, most measures of leverage indicate that Japanese firms do not have systematically higher leverage than comparable American firms.[29] What is true, however, is that the Japanese firms before the mid-

[27] See Safieddine and Titman (1999) for evidence that firms that increase their leverage to fight off a takeover perform well subsequently.

[28] See Myers (1978).

[29] See Rajan and Zingales (1995) for a study of leverage across countries.

1980s had mostly bank debt and only a trivial amount of public debt. The composition of a firm's debt is as important as the amount of a firm's debt, but much more effort has been focused in the finance literature on explaining the amount of debt a firm has than the composition of its debt. The extreme view on leverage is that bankruptcy and financial distress have a very low cost.[30] In this case, high leverage works as an incentive and monitoring device. Management that makes mistakes ends up not being able to repay the debt. Consequently, the firm defaults and the creditors get to decide what steps should be taken. It could be that management is removed, but alternatively, management could be kept and the firm could be provided with more resources. As bankruptcy and distress become costly, these benefits still exist, but optimal leverage falls. The key in these arguments for the benefit of leverage is, however, that creditors can intervene efficiently and make choices that maximize firm value. This requires the layers of a firm's debt that trigger default if things go poorly to be provided in funds where the costs of collective action for creditors are low.

The costs of collective action for creditors are high when debt is public. In this case, any changes in the debt covenants require an agreement of the debtholders. In contrast, with non-public debt, ownership is generally concentrated. This means that non-public debtholders can negotiate directly with management. Debtholders can influence management only if the firm faces difficulties in making debt payments. Otherwise, debtholders have no legal rights and management can safely ignore them. As a result of this feature of debt, the type of debt the firm issues plays a crucial role in the extent to which creditors can monitor management. At one extreme, the firm could have long-term zero coupon debt. Such debt would lead to no monitoring of management through debt. This is because management will not have trouble in making debt payments until the debt matures.

[30] See Andrade and Kaplan (1998) for estimates of costs of financial distress.

Suppose alternatively that the firm has substantial short-term debt that can be rolled over. In this case, each possible rollover becomes an opportunity for the debtholders to monitor management.

The extent to which a rollover creates an opportunity for the debtholders to monitor management depends crucially on financial structure. To see this, consider one extreme case where non-public debtholders face intense competition from the capital markets. In this case, as long as the firm is not in default, if the non-public debtholders do not roll the debt over, the managers can issue public debt provided that its value is not too low. This means that non-public debtholders have little ability to monitor management at loan renewals. At the other extreme, if there are no alternative sources of funds, debtholders exert considerable control over the firm. The costs of bankruptcy and distress also play an extremely important role in the ability of debtholders to monitor the firm. If the costs of default and bankruptcy are very large, debtholders have no bargaining power and cannot monitor. This is because they cannot withhold funds.

It follows from this discussion that short-term debt can be an extremely powerful tool to monitor management. This assumes, however, that the creditors are able to renew loans if doing so creates value. If there is some chance that banks, which are the main providers of non-public debt, may not have the resources to renew loans, then the value of short-term debt falls. It can lead firms to have to abandon valuable projects because of lack of financing. In this case, long-term debt becomes more valuable, but firm value is less than it would be if reliable short-term debt was available. In this perspective, a strong banking sector is important not because of the funding that it makes available but because of the monitoring of management that it makes possible. U.S. evidence of this monitoring role is that the announcement of the renewal of bank loans has a significant positive effect on firm value, while the announcement of the first public debt offering of a firm has a significant

negative impact on its stock price.[31] Kang (1993) provides evidence on the monitoring role of banks for Japanese firms by showing that firms make better acquisitions in the U.S. when they have a main bank, in that the market reacts more favorably to their acquisition announcement. Stulz and Kang (1999) provide evidence for Japan that a firm's bank dependence is costly when banks are doing poorly. They find that Japanese firms that were more bank-dependent at the end of the 1980s experienced a sharper stock-price downfall in the early 1990s and invested less than firms that were less bank-dependent.

Banks are important, but they care about being repaid more than they care about firm value unless they hold equity. In other words, intermediated finance can insure that management cannot reduce firm value too much, but cannot insure that management increases firm value as much as is possible.[32] Countries differ in the extent to which banks can hold equity. Having banks hold equity has advantages as well as disadvantages. On the one hand, a bank that holds equity cares more about firm value than one that does not. On the other hand, having banks hold equity makes banks more vulnerable.

There is a paradox about asking banks to monitor management that needs to be explained. If management of a non-financial company has to be monitored, why is it that the management of a bank will do so and who monitors the bank's management? The answer here is straightforward for two reasons. First, banks diversify across loans. Diamond (1984) showed that it therefore possible for bank investors to assess management's performance more easily than to assess the performance

[31] See James (1987) and Lummer and McConnell (1989) for stock-price reactions to bank loans and Datta, Iskandar-Datta, and Patel (1999) for the evidence on initial public offerings of debt.

[32] See Macey and Miller (1997) for an analysis of this point.

of management in an undiversified firm. Banks have considerable short-term financing. Consequently, if the management of banks makes poor decisions, in principle punishment is swift since the providers of short-term funds - the depositors - withdraw their funds. Viewed from this perspective, bank bailouts have a pervasive cost: They make bank management less efficient and consequently decrease the efficiency of the economy as a whole. At the same time, however, if banks are short of capital, projects have to be interrupted.

There is evidence that distress and default have different implications in the Japanese system than in the U.S. system. Japanese banks seem to intervene more quickly than U.S. banks and firms within a keiretsu seem to obtain more funds to remedy the distress.[33] There is evidence that U.S. banks are reluctant to renegotiate the terms of loans, so that the flexibility of bank loans relative to public debt is not taken advantage of.[34] In principle, bank debt should be easier to renegotiate, so that financial distress for firms with substantial bank debt could be remedied more effectively through renegotiation. However, banks that are constrained by capital requirements may have little room to negotiate. It could even be the case that banks allow firms to continue activities that have negative value by funding these activities to prevent default. All this means that relying on banks to monitor management requires critically that banks be able to perform that role and have the incentives to do so.

Large established firms can access international capital markets, so that intermediated finance is less important for such firms. If these firms have large shareholders, access to international capital markets also allows these large shareholders to sell shares that otherwise they would have to hold.

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[33] See Kaplan and Minton (1994) and Kang and Shivdasani (1997).

[34] See Asquith, Gertner, and Scharfstein (1994).

This suggests that firms may avoid dependence on intermediated finance. Viewed from this perspective, access to global markets has the cost that banks lose valuable customers. This may reduce the extent of relationship banking. It may also weaken banks.

Section 4.D. Financial structure and established firms.

In this section, we have shown that for established firms, the financial structure has to insure that management is monitored and that large shareholders cannot expropriate the other capital providers. The following characteristics of the financial structure help to achieve this:

1) A market for corporate control puts a limit to management's use of its discretion to pursue its own goals.

2) Because of the existence of information asymmetries, firms have to have some ability to protect themselves from cheap hostile takeovers. Otherwise, management will shy away from investments for which information asymmetries are important.

3) Large shareholders can play an important role in monitoring management. Laws should therefore not attempt to prevent the existence of such shareholders or to prevent coordination among large shareholders.

4) The temptation of large shareholders is to run the corporation for their own benefit. Protection of small shareholders is therefore important. At the same time, however, this protection cannot be such that large shareholders are disenfranchised.

5) Leverage is an important monitoring tool. Though management generally prefers low leverage, the discipline of debt is advantageous. One would therefore expect financial structures that do not penalize debt to be more favorable to growth.

6) In principle, bank debt is especially valuable because it has low costs of collective action and is flexible.

7) For leverage to play its role, bankruptcy has to be cheap and the rights of creditors have to be well-defined.

8) Financial stability is critical if bank financing plays its appropriate role in an economy. In the absence of such stability, activities where flexible financing is important cannot take place.

9) Firms have to be able to place equity with private investors.

It should be clear from this section that the relation between economic growth and the public capital markets is ambiguous. A firm financed only through atomistic investors is likely to be a firm with higher distress and bankruptcy costs, and its management is likely to be less monitored than if the firm has other sources of financing and possibly has some large shareholders. If takeovers are difficult or impossible, the management of a firm financed through atomistic investors becomes largely unmonitored as long as the firm is not in default. Further, public funding is likely to be too expensive when information asymmetries are important. As a result, an economy that relies too much on funding from the capital markets would be one specialized in industries where information asymmetries are not important. Though protection of minority shareholders is important, one also has to worry about who will monitor management. If management is insufficiently monitored, large firms may end up investing too much.

Section 5. The impact of financial structure on growth.

How can we assess the impact of financial structure on growth through the linkages described so far? This is not a straightforward matter. One would like to have a quantitative measure of that

impact, but it is much easier to find evidence showing that different financial structures have different impacts on how firms raise funds and are monitored. We first review some of this evidence and then discuss how one could obtain additional evidence.

There are few cross-country studies that relate corporate finance to characteristics of countries or relate growth to some aspects of financial structure. Demirgüç-Kunt and Maksimovic (1998) provide evidence that relate the use of external financing to characteristics of a country's financial markets. They find that greater respect for law leads to greater use of external finance for firms. They also show that existence of a well-functioning stock market leads to greater external financing of firms. King and Levine (1993) and Levine and Zervos (1998) argue that greater financial development increases economic growth. Levine and Zervos show that growth is related to stock market activity, among other variables. Levine (1998) shows that there is a relation between measures of the development of the financial intermediation sector and measures of creditors rights and contract enforcement. He then proceeds to test for an impact of these determinants of financial intermediation development on economic growth and finds a significant effect.

Based on our analysis, it is important to learn more about how financial structure affects growth controlling for the level of financial development. First, existing indicators of financial structure used in the literature focus much more on formal laws than on how laws are enforced. While these indicators have turned out to be useful, the literature has to turn more to measures of how laws are enforced. For instance, it would be important to understand the impact of the efficiency of the bankruptcy process on growth. While studies have controlled for bankruptcy laws, they have not controlled for the speed with which bankruptcy is resolved. For instance, typical measures of creditor rights give similar scores to the UK and India, but in India bankruptcies take forever to get resolved

while they do not in the UK. Second, existing studies have not addressed the issue of whether financial structure matters more at early stages of economic and financial development. It may well be that financial structure becomes less important as development takes place because institutions can adapt. Third, studies have not focused on the impact of financial structure on the creation of firms and on the efficiency of firm-level investment. Jensen (1993) and Fama and French (1999) provide techniques that make it possible to evaluate the efficiency of investment that could be applied across countries.

In contrast to the limited cross-country evidence, there is a lot of evidence at the country level. In particular, there is much evidence at this point permitting a comparison of Japanese firms and U.S. firms. There is less evidence on German firms, but there is some. The traditional view of this comparison, mentioned in the introduction, is that Japanese firms have a sizable fraction of their shares held by stable corporate shareholders, high leverage, bank finance, and no hostile takeovers. In contrast, U.S. firms have atomistic shareholders, lower leverage, less bank finance, and hostile takeovers. This sharp contrast was correct at one point. However, it is less so now. Japanese firms still have substantial holdings by corporate shareholders. Despite all the difficulties the Japanese economy has had since 1990, these holdings have decreased only slowly in the aggregate.[35] Japan still does not have hostile takeovers. However, the role of banks and bank finance has decreased steadily for the last fifteen years. There are three reasons for this decrease. First, banks are most influential when firms are credit-constrained. As Japanese firms generated large cash flows, they became independent of banks because their financing was less important. Second, deregulation made it possible for Japanese firms to obtain funds from other sources than Japanese banks. Third, since the

[35] See Suzuki (1997).

early 1990s, Japanese banks have suffered from a lack of capital which has decreased their ability to lend new funds.

The decrease in the importance of banks in Japan shows that the bank-centered system of Japan at its peak may simply not have been stable for two reasons. First, managers want to be independent of banks if they can, so that they try to escape their influence. Banks can prevent managers from acquiring independence from them when firms have trouble paying off their bank loans, but not otherwise.[36] Second, as a country's transactions with foreigners become liberalized, firms can turn to foreign sources of funds.[37] This limits bank influence. The evolution of the Japanese bank-centered system therefore suggests that contrasting the Japanese system to the U.S. system, while useful conceptually, should not be interpreted as indicating that one could actually choose to recreate the Japanese system if one wanted to.

There is considerable evidence that the Japanese system had benefits for firms that led to a lowering of the cost of capital. First, Hoshi, Kashyap and Scharfstein (1991) show that Japanese firms belonging to keiretsus had investment which was less sensitive to liquidity. The sensitivity of investment to liquidity has often been described as the direct implication of the cost of capital wedge we have discussed in this paper. For instance, Fazzari, Hubbard and Petersen (1988) argue that the dependence of investment on liquidity increases as firms face greater difficulties and cost in obtaining external funds and provide supportive evidence for the U.S. The evidence of Hoshi, Kashyap and Scharfstein seems to imply that the determinants of investment differ between the U.S. and Japan. From our analysis, one would expect this to be the case if funds are more easily provided in periods

[36] See Hoshi, Kashyap, and Scharfstein (1991).

[37] See Kang, Kim, Park, and Stulz (1995).

of distress and if the use of funds is more efficiently monitored. Some authors, for instance Kaplan and Minton (1994) and Kang and Shivdasani (1997), demonstrate that banks are active when a firm faces difficulties. They provide funds, change management, and provide expertise. This interpretation of the evidence is not without controversy, however. Morck and Nakamura(1999) argue that what is going is simply that keiretsus prop up their sick members.

A second area in which evidence has been developed shows that information asymmetries are less important in Japan. We explained earlier that information asymmetries increase the cost of capital. The evidence on information asymmetries is somewhat indirect, however. From the U.S. evidence, we know that information asymmetries lead to negative stock-price reactions to issues of information-sensitive securities. These negative stock-price reactions are not observed in Japan. Further, Dewenter and Warther (1998) show recently that Japanese firms do not set their dividend policies in the same way as U.S. firms. It seems that U.S. firms are much more concerned about the information conveyed by changes in dividends than Japanese firms.

The evidence we have just surveyed tells us nothing about whether firms invest too much or not at all. The largest investments firms typically make are acquisitions of other firms. There is considerable evidence for the U.S. that since the early 1980s the market reacts unfavorably when a firm announces that it is making a bid for another firm. A possible interpretation of this evidence is that these bids are not in the interest of shareholders. Another possible interpretation, however, is that bids reveal that the firm does not have valuable investment opportunities. It is interesting to note that the evidence for Japan is different. On average, Japanese bidders experience positive abnormal returns when they announce acquisitions. Further, these positive abnormal returns seem to be closely associated to the influence of main banks, suggesting therefore that bank relationships lead firms to

make better investment decisions. Much recent research has focused on investment within diversified firms. Evidence that diversified firms sell at a discount in the U.S. relative to matched portfolios of specialized firms is viewed as evidence that diversified firms invest inefficiently. Interestingly, Lins and Servaes (1997) indicate that there is no diversification discount in Germany and that the diversification discount in Japan is about half what it is in the U.S. One might conclude from this that investment is less inefficient in Japan and Germany. However, a well-known argument for diversification at the firm level is that it creates an internal capital market that enables firms to invest efficiently when information asymmetries would make it difficult to raise funds externally. It could therefore be the case that diversification has more value in Japan and Germany because external capital markets are not as well-developed. In a recent paper, Fauver, Houston and Naranjo (1998) show that the diversification discount is closely related to financial structure across a large number of countries. More specifically, the value of diversification seems to be negatively related to the level of capital market development and to the degree of shareholder protection.

From the existing evidence, differences in financial structure have wide-ranging implications for how firms invest and are managed. None of this evidence focuses directly on the cost of capital or on the creation of value, however. It seems important to obtain such information at this point for at least two reasons. First, financial structures could differ widely but firms might have adapted and evolved so as to reduce the importance of differences in financial structure. If financial structure differences do not translate ultimately into differences in the cost of capital, it is much less clear that they are important. Second, the existing evidence is often not conclusive on the relative benefits of alternate financial structures. As we saw in our discussion, characteristics of existing financial structures often have mixed effects. For instance, large shareholders can improve investment

efficiency under some conditions and hurt it under other conditions. Ultimately, characteristics that decrease the cost of capital increase firm value and permit more investment.

This suggests the following approach to evaluating the impact of financial structure on firms. What one would like to know is whether firms in different countries are at an advantage because of their financial structure. Ideally, if one could find firms that have identical cash flows in the absence of the hidden action and hidden information problems, then one could simply compare the value of these firms. The firm in the country whose financial structure is less conducive to investment efficiency would have lower value. Unfortunately, such clean experiments are not possible. One cannot find matched firms that have the same cash flows before taking into account the hidden action and hidden information problems. This means that one has to resort to comparing firms in same industries across countries. Such an approach would seem to have problems too. The fact that two firms are in the same industry does not mean that they have the same investment opportunities. Accounting differences across countries could make such comparisons misleading. Trade barriers could affect these comparisons also. Nevertheless, one could control for many of these factors.

Comparing the value of firms may just mean comparing their investment opportunities. This creates a major problem in evaluating the impact of financial structure on growth. Everything else equal, equity capitalization will be higher in countries with greater investment opportunities. Greater investment opportunities mean greater growth, however. One way to cope with this problem is to look at determinants of financial structure that would appear to be exogenous. LaPorta, Lopez-de-Silanes, Shleifer, and Vishny (1997) have gone in that direction emphasizing the importance of the distinction between common law countries and other countries. Another approach is to focus on relative valuation. From our analysis, financial structure has different impacts on firms with different

characteristics. In particular, in open economies, firms with riskless cash flows should be valued in the same way across countries and financial structure should not matter for these firms. However, as the hidden action and hidden information problems become more important for firms, financial structure increases in importance. Hence, comparing across countries, one would expect firms where these problems are more important to be valued less in countries with weaker financial structures. Firms in industries where agency costs and information asymmetries are particularly important might end up not being traded publicly in countries with weak financial structures because the cost of capital for these firms would be too high. Consequently, financial structure can affect directly the industry composition of a country, as more primitive financial structures make it impossible for entrepreneurs to take advantage of investment opportunities where the hidden information and hidden action problems are important.

Throughout the paper, we paid little attention to the issue of how a country's openness affects its financial structure. Further research should pay substantially more attention to this issue for two important reasons. First, the financial structure of a country whose markets are open is in competition with other financial structures. Hence, it might well be that a financial structure cannot survive intact when a country's financial markets are open. Evidence of this is the extent to which Japan has deregulated banks over time as banks would not have been able to be profitable otherwise. Second, firms in a country that has a deficiency in its financial structure might in some cases be able to take advantage of financial structures in other countries. For instance, a firm in a country that does not have a well-organized financial market because of local impediments might be able to take advantage of the existence of well-organized markets abroad in the U.S. through an ADR program. At the same time, however, if legal rights are not enforceable in a country, openness will not change that.

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