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### A framework for financial market development

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## A framework for financial market development

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A framework for examining the process of financial market development is proposed. The framework is anchored in studying the incentives facing the key players in financial markets – borrowers, lenders, liquidity providers, and regulators – whose actions determine whether and how markets develop. While different financial instruments embody different concessions by borrowers and lenders, the framework emphasizes two main compromises: the tradeoffs between maturity and collateral, and between seniority and control in the sequencing of market development.

**Keywords:** financial market development; financial instruments and contracts; maturity and collateral; seniority and control

**JEL Classification:** O16, G10, G18, D02, D82, B52

Humans attempt to use their perceptions about the world to structure their environment in order to reduce uncertainty in human interaction. But whose perceptions matter and how they get translated into transforming the human environment are consequences of the institutional structure, which is a combination of formal rules, informal constraints, and their enforcement characteristics. (Douglass North, 2005)

### 1. Introduction

Financial markets facilitate the transfer of resources from savers to investors. At certain times, financial markets also play a key role in providing the conditions necessary for innovations in technology and economic organization to occur (see, for example, Baskin and Miranti 1997). At other times, financial market development is a by-product of economic expansion, which creates wealth and opportunities that in turn provide an impetus to enlarge and further develop the financial system. When functioning properly, financial systems allocate risks appropriately and contribute to making economies more resilient to shocks. In a review of the literature on financial markets and growth, Levine (2005) concludes that there is a robust positive correlation between the two.<sup>1</sup>

Thus, there is considerable interest among countries to develop financial markets – loan, bond, equity, asset-backed, and derivative markets. Three practical questions are asked by policymakers: what financial instruments can improve the transfer of resources, how should they be introduced, and in what order should the different types of markets and related institutions be developed.

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Despite an abundance of research into the factors that influence financial market development, much less has been done on examining the process of financial market development *per se*.<sup>2</sup> This paper proposes a framework for analyzing the process of financial development and shows how it can be useful for formulating responses to the three questions raised above. Our methodology can be characterized as New Institutional (Williamson 2000, North 2005). It is similar in spirit to the Functional and Structural Finance (FSF) approach put forward by Merton and Bodie (2005), which synthesizes neoclassical, new institutional, and behavioral perspectives to analyze the design of financial systems.

The Merton–Bodie analytical framework takes the functions of the financial system as its conceptual anchor.<sup>3</sup> The key insight of the FSF framework is that the functions performed by financial markets are well defined and constant. The instruments and institutions that perform these functions change over time, and are endogenously determined by prevailing conditions, including transactions costs, social factors, and behavioral considerations. Our approach is consistent with the FSF view of financial system design in that the specific identities of the agents and institutions performing financial functions may vary over time.

At the same time, however, our approach is based on the belief that development ultimately depends on the presence and actions of market participants, and can only be properly understood in terms of their incentives, constraints, and opportunities. Thus, our framework is based on analyzing four players whose activities are essential for well-functioning financial markets. The actions taken by these four types of agents – borrowers, lenders, liquidity providers, and regulators – determine whether and how markets develop in a particular environment.

Financial contracts (instruments) are the means through which the financial system carries out its functions. The nature of the contracts depends on the preferences of each agent as well as the economic, legal, social, and technical constraints that prevail at a particular time. While different financial instruments embody different concessions by borrowers and lenders, we focus on two key compromises that determine the nature of many financial instruments: the maturity-collateral compromise and the seniority-control compromise. The process of financial market development is therefore embodied in the creation, execution, and enforcement of contracts. This defines a set of interactions among the four players that can be described and analyzed. And critical interactions can be examined to see whether they advance or retard market development.

The view of financial market dynamics underlying our framework can be expressed as follows: if borrowers and lenders are willing and able to contract, and liquidity providers find conditions conducive to trading the instruments that are created, then financial markets will develop. The regulatory structure can support this process by removing obstacles that make potential borrowers, lenders, and liquidity providers unwilling or unable to play their roles, and by creating the right incentives for each agent to fulfill their end of the bargain.

The paper is organized as follows. Section 2 considers the four key players involved in the building of modern financial markets, including their actions, incentives, and constraints. Section 3 examines the fundamental compromises among the players that influence the evolution of instruments and markets. Section 4 uses the framework to address sequencing issues in financial market development. Section 5 concludes.

## 2. The framework: key players and their incentives

Financial instruments are contracts between borrowers and lenders that govern the transfer, use, and repayment of funds. And financial markets are the “arena” where potential borrowers and lenders “meet” and agree on the terms of these contracts. This implies that the most

fundamental building blocks of financial markets are the two parties to the contract: the borrower and the lender. As in most contracting situations, the two parties generally have opposing goals and must necessarily make compromises in order to reach an agreement. Financial widening takes place when borrowers and lenders forge new types of compromises as embodied in new instruments, and financial deepening when they increase the use of existing instruments. Therefore, any analysis of the process of financial market development should start by discussing the goals of borrowers and lenders, as well as the difficulties they face in designing, entering, and enforcing contracts.<sup>4</sup>

### **2.1. Borrowers**

The demand for funds is motivated by one of three purposes: purchase of a good, service or asset; funding an investment project; or substituting a new financing arrangement for an existing one. Regardless of purpose, most borrowers have a common set of preferences with respect to the terms of their borrowing. First, they prefer to pay the lowest cost for the funds. Second, they want to pursue their interests in the best way they see fit, without outside interference – that is, they prefer to retain control over the use of funds (choice of project, risk-return combination) with minimal conditions attached. Third, they prefer not to pledge collateral because it is costly to accumulate eligible assets, and because they dislike the possibility of having to forfeit such assets. Fourth, they may prefer longer maturities and infrequent intermediate payments (of interest, for example), so that the projects have adequate time to become successful. In addition, each borrower will have preferences and demands specific to her situation, and she must decide how to trade off particular preferences against each other, in order to achieve the most favorable compromises possible.

The theory of capital structure from corporate finance illustrates how borrower preferences and constraints can be used to analyze financial market structure. The corporation's objective is to fund investment projects in such a way as to maximize the value of the firm, given the menu of financing alternatives – internal finance, debt, or equity. Firms accomplish this goal by choosing the least-cost combination of financing instruments. The Pecking Order theory introduces transactional, informational and regulatory costs, as well as taxes, into the firm's problem. It finds that internal finance is the cheapest source of funds, followed by debt. Further, both of these will be strongly preferred to equity financing, which is so costly that it is only used as a last resort. These predictions are clearly validated in aggregate data on the financing of new capital expenditures.

### **2.2. Lenders**

Lenders, who constitute the second building block of financial markets, have preferences over risk-return combinations for their loans. Although it is unlikely that a given lender's preferences match a given borrower's preferences, there may be room for compromise over the terms of a loan that would be acceptable to both parties.

In order to achieve a desired combination of risk and return, lenders try to monitor the use of loaned funds with the purpose of maintaining some control over how the funds are deployed. They generally place specific covenants in the lending contracts stating what the borrower may do with the funds, and require the disclosure of information that will enable the lender to verify that the funds are being used properly. Short maturities are preferred, both in order to limit the risk of the loan as well as to provide a lever to control the behavior of the borrower: the loans will be rolled over only if the borrower behaves according to the terms of the contract. Finally, for insurance, the lender prefers that the

loan be backed by a pledge of collateral – and the more stable the value of the pledged asset, the better.

Based on this simple discussion of borrowers and lenders, we can make several observations about financial market development. The first is that financial markets will arise spontaneously whenever borrowers and lenders for a particular instrument are plentiful, and willing and able to contract with each other. For example, in Thailand from 1955–1998, the government limited the number of banking licenses it granted. But because there existed plenty of business opportunities, and households were willing to lend, nonbank finance companies arose to intermediate between borrowers and lenders. These nonbank institutions issued interest-bearing promissory notes to finance the loans they made to businesses and households. In fact, many banks in Thailand established finance companies in order to evade the restrictions that prevented them from taking advantage of these lending opportunities.

In general, when markets fail to develop, it is because borrowers or lenders are not present, or they are not willing to contract. The development of the commercial paper market in the US is an excellent case in point. Although short-term, unsecured corporate debt, known as “commercial paper”, had been in existence since the early 19th century, the market remained small and unimportant until the 1970s, when issuance began to grow rapidly. Corporates wishing to issue commercial paper were always plentiful, but until the 1970s there were few lenders for such an instrument. This shortage was resolved by the creation of money-market mutual funds (MMFs). These funds were themselves created in order to avoid deposit interest rate ceilings imposed on banks. MMFs accepted deposits from firms and households and invested them in high quality, short-term debt instruments. Commercial paper was a natural instrument for the MMFs to hold, and they formed a critical link between households and the money market – a market that few households had been able to participate in earlier because of the minimum investment size. With the lenders in place, the commercial paper market grew rapidly and now accounts for over \$1 trillion in outstanding debt.<sup>5</sup> The development of this market also facilitated the growth of US nonbank finance companies, institutions that funded themselves through issuance of commercial paper.

The above analysis suggests four major obstacles to developing financial markets. First, sufficient borrowers or lenders for an instrument may not be present. Second, the lenders and borrowers may have opposing goals in many dimensions, and arriving at a mutually beneficial contract may be difficult. Third, borrowers and lenders must achieve their goals in an environment characterized by a fundamental asymmetry in information: the lender always has less information than the borrower about the latter’s opportunities, actions and intentions. Finally, continuous monitoring of the borrower and of collateral values may be expensive or simply not possible. These last two obstacles mean that direct verification and enforcement of contracts may be difficult if not impossible. Either new, possibly more complex, contracts must be constructed – which is demanding and expensive – or the contracting process fails because of insufficient assurance of performance.

### 2.3. *Liquidity providers*

The provision of liquidity is essential for financial deepening, and liquidity in certain instruments can also catalyze the development of other markets. There are many markets in which borrowers and lenders are present, the instruments used are agreeable to both parties, and yet the market has little activity beyond primary issuance and redemption. For example, many of the nascent government bond markets around the world are simple “buy and hold”

markets. While such markets help achieve the fiscal objectives of the government, they do not lead to financial market development. This is because there is little trading in the instruments, and in particular no agents making a secondary market in the securities.

The need for liquidity stems from the needs of the lender. In many cases, the lender's investment horizon will be shorter than the maturity of the instrument. And there always exists the possibility that the lender will have a sudden need for cash and will therefore wish to sell the financial instrument. If the lender can be confident of selling the instrument at a fair price at any time after purchasing it, then she will be more willing to purchase the instrument. Indeed, a key aspect of making a financial instrument of any kind attractive is to make sure that there is an exit strategy for the lender: an easy way to exchange the instrument for cash. The recent financial crisis was particularly severe because the drying up of liquidity made it difficult for lenders to exit and discouraged new ones from committing funds.

Strictly speaking, it is not necessary to have a specialized agent supply liquidity. However, because they do not face the same constraints as borrowers or lenders in the particular instrument, specialized liquidity providers distinct from borrowers and lenders can be useful in many markets. These agents include brokers and dealers.

An obvious way to assure lenders that they can exchange their instruments for cash is to have dealers, who make it their business to buy and sell the instrument at posted prices. Therefore, a major step in the development of most financial markets is the emergence of dealers. If a dealer accumulates an inventory of a newly introduced instrument and stands willing to make a market, this serves as an indication to lenders that the instrument is relatively liquid. For example, when a financial institution creates a new instrument, it also serves as a dealer for this instrument, often guaranteeing to repurchase the instrument from the buyers at predetermined prices for an introductory period.

The accumulation of inventory in a new and relatively unknown instrument exposes the firm to significant risks. But the innovating institution has a strong incentive to act as a dealer: the successful introduction of a new financial instrument leads to temporary market power. Before other firms mimic the security, the innovator is able to command a premium in terms of both underwriting fees and secondary market prices for the instrument. An example of this discussed by Stigum (1990) was the successful introduction in the 1980s of synthetic Treasury strips, or zero-coupon bonds. These were special trust receipts issued by intermediaries, who purchased Treasury securities and issued claims against individual cash flows from the underlying Treasury bonds. The first dealer to offer the product named it a "TIGR," and soon the market was filled with similar products, with names such as "LYONs," "CATs" and so on.

While dealers provide liquidity by seeking to profit from the bid-ask spread on their inventory, traders who wish to profit from short-term fluctuations in financial market prices also provide liquidity to the market. These agents, who typically close out their positions daily or carry minimal inventory, provide a steady source of turnover for dealer inventories and hence revenues for the dealer. They effectively serve as counterparties who increase the number of agents with whom borrowers and lenders can contract. But they are distinct from borrowers and lenders, in that their trades are motivated by views about the relative values of different instruments and the future trends in these values.

To attract liquidity providers, market conditions and instrument characteristics must be conducive to trading. Three market conditions are critical. First is a critical mass of borrowers and lenders. A large number of borrowers and lenders implies more opportunities for liquidity providers to serve as counterparties. Second is the set of rules governing trading, such as whether securities borrowing and lending are allowed, and whether there exist impediments to short selling. Unduly restrictive rules may reduce the liquidity providers'

potential profits and hence drive them away. Third is the trading mechanism itself, as well as the clearing and settlement system that supports it. High transactions costs, including the opportunity cost of slow trade execution or settlement, can make it difficult if not impossible for brokers and dealers to make reasonable profits.

Several characteristics of instruments are essential for supporting liquidity providers. First, the size of the issue must be large enough to satisfy both those who wish to buy and hold to maturity and those who wish to buy for the purpose of market making or trading. Often, a “buy and hold” market comes about because a shortage of investment-quality paper makes lenders hold the paper they obtain to maturity. In order to support liquidity providers, the supply must be sufficient for dealers to build and maintain an inventory.

Another desirable characteristic is that the instruments have a sufficiently long trading life – the time over which an instrument remains essentially unchanged. It is important for liquidity providers to work with similar or identical instruments over time, because this is the way that they learn how to manage their positions and make profits as market conditions change. Learning these skills has a cost, and if an instrument changes significantly in response to market conditions or the passage of time, the cost must be incurred again. For example, a five-year note reacts very differently to market conditions when it is issued, versus when it has only three months remaining to maturity. Thus, fixed-income securities can be viewed as sequences of securities with fairly short trading lives, which require significant investments on the part of liquidity providers to manage efficiently.

There are two main ways in which instruments can have a long enough trading life to be attractive for dealers and traders. First, the instruments can have a very long maturity. For example, even though firms issue equity infrequently, the infinite maturity provides ample time to learn how equities react to economic conditions. A second strategy is to have recurring issues of an instrument with finite maturity. Multiple issuance effectively reintroduces an identical security into the market, which enables liquidity providers to use what they learned about the behavior of the security from previous issues to find profitable opportunities and manage the trading risks in on-the-run securities.

If multiple issuance is regular, or otherwise predictable, then this further enhances the instrument’s appeal to liquidity providers. Dealers can alert their customers, assess the potential demand for the issue, and be ready to absorb it. Traders can model the impact on the market for future issues and adjust their trading strategies accordingly. From this perspective, the regularization of Treasury security issuance that took place in the US in the 1970s, and in many other countries subsequently, greatly facilitated the development of bond markets. The introduction of an issuance schedule lengthened the trading lives of securities, and enabled market participants to plan their investment and trading strategies, which in turn enabled liquidity providers to manage the risk of their business much more effectively. This ultimately made the business of dealing in government securities much more attractive, which enhanced the liquidity of the market.

A high turnover rate for the instrument among lenders and traders increases its attractiveness to potential liquidity providers. High turnover increases the revenues from market-making per period, effectively shortening the minimum trading life necessary to provide sufficient profit to the dealer. A simple way to increase the turnover rate of an instrument is for it to have many uses that generate strong and recurring demand. For example, government securities are often posted as collateral, used in repurchase agreements, and held as temporary investments by firms with excess cash. All of these different uses imply that there will be high turnover in government securities.

A final characteristic is that instruments have a risk profile conducive to dealing and trading, especially when the market is new. Liquidity providers attempt to isolate and

manage a particular risk in order to earn profits, essentially transforming liquidity risk into some other type of risk. In nascent markets, this other risk is generally market risk. Since risk-management tools are not widely available, the instrument itself must have limited exposure to credit and other risks, so that liquidity providers have a relatively pure play on market risk. Therefore, in countries where many borrowers are perceived to have low creditworthiness, it will be extremely difficult to get dealers interested in carrying costly inventories of financial instruments issued by these borrowers. For example, governments in high inflation countries index their debt obligations to inflation or foreign currencies. Such instruments partially assuage the fear of investors that fiscal and monetary discipline will not be maintained. But if policy is not disciplined eventually, even indexation may not be sufficient to generate a demand for government debt.

#### **2.4. Regulators**

Contract design and enforcement are central to the functioning and development of financial markets. If participants in financial transactions can be confident that contracts will be enforced, and in the case of a dispute, the legal system will adjudicate fairly, they will be more willing to write significant compromises into their contracts. Borrower–lender compromise makes it easy to see why issues such as transparency and governance of institutions are important. These features mitigate the obstacles to contracting by increasing the confidence of borrowers and lenders in the contracts they write.

An important job of the regulator is to establish a supportive infrastructure for contract enforcement and dispute resolution. This infrastructure has many concrete as well as abstract features, but collectively these aspects have come to be known as the “rule of law.” Luis Rubio (2001) argues that the rule of law in financial markets has three essential features. First, it includes both political and legal guarantees of civil liberties and property rights. Second, it presumes an efficient judicial system that cuts transaction costs and limits predatory behavior. Third, it provides legal security, which means that agents can plan toward their goals in the context of well-known rules that will not be changed arbitrarily. When taken together, these three elements serve to give borrowers and lenders the confidence they need to modify existing instruments and design new ones.

Beyond establishing the rule of law, governments must also support market development through regulation (making rules) and supervision (monitoring). Asymmetries in information, expertise, resources and power between market participants, and the externalities stemming from the failure of financial agents to live up to their contractual obligations create a need for public regulation and supervision of markets and financial institutions. Based on these considerations, there are three reasons for public regulation: (i) providing retail customers with protection; (ii) ensuring systemic stability; and (iii) protecting the taxpayer who ultimately provides many of the formal and informal guarantees that shore up the financial system.<sup>6</sup>

Regulators can also play an active role in accelerating the process of financial market development, especially when the conditions necessary for trading certain contracts are not present and the conditions cannot be effectively created by borrowers and lenders themselves. However, it is important to realize that regulation and supervision play a supplementary role in market development. Regulators cannot develop the markets directly; only borrowers and lenders can do this. This distinction is not always appreciated, and governments at times go too far in their efforts to facilitate financial market development. This is apparent in the most common strategy for government-led financial market development – the “Build It and They Will Come” approach. In this approach, the government introduces

not only the legal infrastructure but also particular instruments and exchange mechanisms, in the expectation that private players will rush into the ready-made markets. The problem in many cases is that few agents actually come to play.

The above discussion shows that a variety of regulatory services are needed to support financial market development. This raises two questions. First, who will provide the regulatory services? And second, will the agencies providing them have sufficient resources and, more importantly, the proper incentives to do so.

The job of regulation may be performed by the borrowers and lenders themselves, and indeed self-regulation was important in the early development of financial markets. In most countries today, although the government provides the bulk of regulatory services, a significant portion is still provided by market players acting through self-regulating organizations (SROs). The advantage of self-regulation is that the people making the rules are those with specialized knowledge and an interest in maintaining product quality and market integrity.

But there is an obvious drawback: self-regulation leaves the fox in charge of the hen house. Self-regulation may prove inadequate because inherent conflicts of interest may lead the SRO to put the welfare of its members ahead of the welfare of customers and the general public.<sup>7</sup> Hence, SROs may be slow to correct problems, taking necessary action only after significant damage has been done. The second problem is lax enforcement of rules. An SRO may give preferential treatment to the larger firms that account for the bulk of SRO revenues, or generally exercise forbearance toward members. Further, internal conflicts within SROs (stemming from the fact that the members compete against each other in the market) may make it difficult for the SRO to penalize one or a few members, even when it is for the good of all. Rules then provide assurance without actually providing protection. Hence, there is a role for public oversight of SROs to ensure that the stated rules are upheld.<sup>8</sup>

Because of the shortcomings of self-regulation, countries create government agencies to oversee the markets and the SROs: securities and exchange commissions, financial services regulators, and central banks. However, the creation of government regulatory agencies is no guarantee of effective regulation. They too face a variety of challenges that can limit their ability to provide the regulatory services that markets need in order to develop and function properly.

Government regulators are party to two major principal-agent problems. In the first, the politicians and legislators are principals who hold their agents, the regulators, accountable for providing appropriate regulatory and supervisory services. In the second, the regulators are principals who devise the rules and supervisory framework for private players and institutions to act in certain socially desirable ways – following conduct of business rules, maintaining solvency, and minimizing systemic risk. As a result of this dual agency problem, regulators are subject to a variety of incentives and constraints.<sup>9</sup> Like other principals, the regulators are thwarted in achieving their goals by information asymmetries coupled with resource constraints. On the other hand, like other agents, they may also have their own personal interests in mind when deciding on policy and enforcement actions.

For example, regulators are always vulnerable to capture: the process through which special interests and market players influence – or in extreme cases, dictate – regulation and regulatory interventions. Private gifts or benefits given to regulators such as future employment can be used to influence their conduct. In addition, the possibility that firms may target individual regulators and cause reputational damage may be a disincentive to truth telling, especially when employment durations for regulators are short or there are term limits. Regulators who are captured by private interests may prevent new intermediaries or instruments from entering financial markets because entrenched firms do not want to face

the competition. Alternatively, the regulators may allow intermediaries to introduce profitable new instruments without holding them to adequate risk-management standards.

To make a difficult situation worse, these agency and related incentive problems have to be dealt with in the context of what Kane (1988) calls the regulatory dialectic of regulation, avoidance, and re-regulation. Regulated entities continually attempt to reduce their regulatory burden (or enhance subsidies) through adopting new ways of doing business, redefining their turf, and lobbying in response to existing regulation. Regulators therefore have to continually respond to maintain the effectiveness and intent of the original regulation or mitigate problems caused by the actions of the regulated entities. Market development, therefore, often involves dealing with the unforeseen consequences of regulation.

These challenges make it difficult for governments to provide the helping hand that is often necessary for development. In practice, regulation and supervision of financial markets is likely to be perpetually demanding: information asymmetries cannot be fully removed, accounting standards have shortcomings and are open to interpretation, legal authority is accompanied by operational constraints, and the public support needed may not always be available. And self-interest and self-preservation, combined with the temptations of power, influence, and money may distort the incentives of politicians and government officials to work for the public good.

### **3. The framework: compromises that define financial instruments**

Having studied the objectives and preferences of the four essential players in financial markets, we examine how players with differing incentives forge compromises that essentially define the characteristics of various financial instruments and the markets in which they are traded. We discuss what the main compromises are, and we show how they affect the nature and functions of the financial instruments. Then we turn to the process of financial market evolution, examining what compromises are possible at different stages of development, as well as how new agreements between borrowers and lenders can be created.

#### **3.1. The space of financial contracts**

Since a financial instrument is a contract that specifies the parameters governing the transfer, use, and repayment of funds, there must exist parameter values that are acceptable to both borrower and lender if an instrument is to exist. The boundary of the set of acceptable parameters is shaped by many factors. Foremost among them are the objectives, constraints, and abilities of market players. In addition, there is the influence of technologies for gathering and using information, the existing financial infrastructure, and the regulatory framework. Of course, the boundary changes with market conditions and the evolution of the financial system.

If the actions of borrowers and lenders were perfectly observable, contracting would be vastly simplified. Negotiation between borrower and lender would settle on the amount and types of risks that the borrower would be allowed to undertake, and the rate of compensation that the lender would earn. In other words, contracts would focus on simple risk-return tradeoffs. But in the presence of information asymmetries between borrowers and lenders, and the related adverse selection and moral hazard issues, such tradeoffs are harder to deal with. For example, the price mechanism may fail because of the adverse selection problem: as the lender charges higher and higher interest rates on the loan, only riskier and riskier agents are willing to borrow. As Akerlof (1970) and Stiglitz and Weiss (1981) show, lenders

know this and respond by rationing credit and/or using non-price mechanisms to screen potential borrowers. In addition, future states of nature are unknown, so that contracts cannot include all possible contingencies.

In the presence of asymmetric information, lenders and borrowers use many mechanisms to facilitate compromises. To prevent the misuse of funds and to increase the probability of repayment, lenders generally require some oversight and control. This is done through specific characteristics of the financial instrument (maturity, seniority, covenants, contingent clauses) and various norms and practices by which lenders exert influence over the actions of borrowers. For example, when the maturity of a loan is short, the borrower is likely to need the lender to roll over the loan at intermediate stages of a long-term project. The threat of cutting off funds can be used as a device to discipline the borrower. Covenants written into the contract may specify conditions that the borrower must fulfill. For example, in many debt contracts the borrower is required to furnish periodic financial statements to the lender and to satisfy certain measurable standards of financial performance. Control mechanisms may also grant certain rights to the holders of a financial instrument. For example, the equity contract gives the shareholders the right to elect the Board of Directors, which in turn selects the managers of the firm.

While each financial instrument embodies a different set of concessions by borrowers and lenders over control mechanisms and other characteristics, two “grand compromises” are worth focusing on because they are common to many financial instruments, and responsible for some of the major differences between them.

### **3.2. *The maturity-collateral compromise***

The first is what we call the maturity-collateral compromise. The terms of this compromise are that both the borrowers and lenders are willing to accept relatively short-maturity instruments which are uncollateralized or backed with little collateral, while longer-maturity securities generally require greater provision of collateral. Such a compromise is acceptable because a shorter maturity gives the lender control (through the rollover threat) and helps compensate for the increased risk stemming from the unsecured nature of the debt. On the borrower side, avoiding the obligation to pledge collateral is a significant benefit, but it comes at the cost of having to demonstrate creditworthiness to the lender repeatedly. Another explanation for this compromise is that it is a risk sharing arrangement – some of the default risk faced by the lender is transformed into a risk to the borrower that, under certain circumstances, the funding may not be renewed.

It is important to realize that the various control mechanisms are not perfect substitutes for one another, and hence there are limits to which different tradeoffs can be pursued. In particular, at the very short end of the maturity spectrum, reputational capital or a successful repayment record is generally needed to achieve a compromise. For example, in the money market, where maturities are less than one year and the instruments can be unsecured or partially secured, only the largest and most reputable players participate. This occurs because the short maturity may not be enough of an assurance against default. The issuing firm must also use its reputation for financial strength as collateral for securing a loan. Even in the most developed markets, for example, there are only two categories of commercial paper (CP) – the prime or A1-P1 paper, which is as close to default free as private bonds get, and A2-P2 paper, which is still high-quality paper comparable roughly to AA-rated bonds. The issuers of A1-P1 commercial paper are the bluest of blue-chip firms in the economy. The lack of lower-rated CP categories is evidence that only a credible reputation for financial strength is sufficient to count as reputational collateral. In addition, one slip-up

is sufficient to destroy this collateral and drive the issuer from the market for extended periods, if not permanently.

Reputational collateral is used by all borrowers to extend the maturity of an unsecured security. That is, a borrower who behaves well and pays off short-term debt on time builds up a reputation for repayment. As this reputation grows, lenders become more willing to lend to this borrower for longer periods. Reputational collateral has a finite value, however. A borrower who has successfully borrowed and repaid (rolled over) a 3-month unsecured obligation for several years may find that lenders are willing to make a 6-month unsecured loan, but perhaps not a 1-year or 2-year unsecured loan. As the borrower's track record develops, greater extensions in maturity are more likely to take place.

The maturity-collateral compromise also explains the distinction between money market and capital market instruments. While the one-year maturity cutoff separating the markets may at first appear to be arbitrarily drawn, it reflects the terms and limits of the maturity-collateral tradeoff. Debt with a low rate of collateralization will have a short maturity, and completely unsecured debt will have an even shorter maturity and be backed by substantial reputational capital. Therefore, the money market requires a special type of borrower and has a particular set of rules. This is not to say that the one-year maturity is a universal and permanent boundary between the markets. For the very best credits, the money-capital market frontier can move to longer maturities. The emergence of medium-term notes (MTNs), which are essentially longer-maturity commercial paper, illustrates how reputation can be used to extend maturity without a significant increase in collateral.

### 3.3. *The seniority-control compromise*

We call the second grand compromise the seniority-control compromise. This compromise is based on a tradeoff between seniority of claims and explicit control rights. Securities with high seniority generally assign few explicit control rights to the lender, while securities lower down the seniority ladder assign more such rights. Money market debt is, in effect, a very senior claim because of its short maturity – it must be paid off when due or the firm could be forced into bankruptcy. But money market debt grants no explicit control over the firm to the lender, except in case of bankruptcy. Bank loans and bonds represent claims that are effectively junior to money-market claims, but may often include clauses that establish relatively higher seniority. In particular, many bank loans and bonds require future borrowings of the firm to be subordinated to them. In compensation for a lower seniority position, banks and bondholders demand some control rights over the firm. These are passive control rights, in the sense that they stipulate rules about the use of the firm's assets, or place other restrictions on the actions of the borrowers. They are enforced by acceleration clauses that require repayment of the entire outstanding debt in case of any covenant violation. And as in the case of money market debt, bonds and bank loans have significant contingent control rights that can be exercised if the firm comes close to or enters into bankruptcy. Finally, common stock holders are the last in line as "residual claimants" on the firm's assets and cash flows, but have explicit control rights over the election of the Board of Directors and hence over the firm's managers.

From a lender's perspective, the seniority-control compromise works as follows: seniority reduces default risk by increasing the chances of being paid in full, and/or by increasing the amount that the lender expects to recover in the case of default. Short maturity debt (especially a bank loan) is the most senior. But lenders will accept control rights over the use of the firm's assets as a substitute for seniority. Control also reduces default risk, but through a different mechanism. Explicit control rights enable lenders to force the borrower

to take actions to decrease the probability of default. Another way to view such tradeoffs is that high-seniority and high-control securities represent different investment strategies that lenders can choose. Investors in high-seniority securities earn high returns by lending to firms that promise payments that are large relative to the probability of default. Investors in high-control securities earn high returns by influencing the firm's operations.

On the other side of the transaction, the borrower views the assignment of seniority and control rights to the lender as costs associated with financing. High seniority claims are costly to the borrower because she must use cash flows to make interest and principal payments rather than pay the cash out to herself or invest it in profitable projects. While the borrower (assuming she is at least a partial owner of the firm) desires to maximize the firm's value, the main concern of high-seniority lenders is repayment in full regardless of the value of the firm. Giving up control rights and allowing outsiders to dictate the firm's actions is costly to the borrower. Hence the borrower must choose a position on the seniority-control continuum. High-seniority securities attract lenders by promising fixed cash flows or "almost certain" returns. High-control securities attract lenders by giving them an appropriate return combined with some input into the management of the firm.

Differences in seniority and control are the key to distinguishing between debt and equity, and defining the roles played by these instruments in corporate finance. Consider a high-seniority instrument such as a money-market loan. Both lender and borrower expect full repayment. Control mechanisms are not used to influence the rate of return on this instrument. The relatively low rate of interest on these instruments makes them attractive to the borrowers and helps to offset the implicit cost imposed by seniority. In addition, borrowers have adapted to the high seniority position of money-market debt by rolling over these debts when they come due. Thus, money-market loans play an important role in the ongoing financing of firms that have the capacity to borrow in this market.

In the case of bonds, borrower and lender are less certain of repayment in full because of the longer maturity and lower seniority of the claim (say, relative to a money-market loan). The promised payments on the loan represent the maximum return the lender can expect to receive. In order to ensure that the lender receives the maximum return, restrictive covenants are included in the bond indenture that both prescribe and proscribe specific borrower actions. With appropriate covenants in place, bonds can be issued with a variety of maturity and seniority characteristics, and by borrowers of various credit quality.

In the case of equity, lenders agree to accept explicit (although indirect) control over the use of the assets in exchange for holding the most junior of claims against the firm's cash flows. This assignment of control completely changes how borrowers and lenders view the transaction and the resulting instrument. The purchasers of equity or stock do not consider themselves lenders, but owners of the firm. Likewise, the firm views an equity issue as a means of obtaining funds by selling an ownership stake in the firm. The firm is expected to provide a return to equity holders, but is not obligated to provide a particular set of cash flows. If the stock holders believe that the firm has not acted in ways that create sufficient value, they can exercise their control rights to change the utilization of the firm's assets. And if that fails, they can sell their equity rights. Because the issuance of equity affects control over the firm, it is not taken lightly by its existing shareholders and, as a consequence, it is not used as an everyday source of finance. These reasons reinforce the implication of the Pecking Order theory of capital structure that equity is used only as a last-resort financing tool. In many cases, especially for mature firms, equity may not be a primary source of financing, but an instrument for allocating control rights.

It should be noted, however, that equity issuance is not last-resort funding for those firms issuing shares for the first time through initial public offerings (IPOs). The special

circumstances surrounding an IPO make the issuance of equity attractive to both lenders and borrowers, in this case. Going public conveys a positive signal about a firm's recent accomplishments and future growth prospects, which attracts lenders. This stands in direct contrast to the negative signal associated with seasoned equity issuance. From the borrower's perspective, an IPO is attractive because it is a partial exit strategy that enables the borrower to realize some cash returns from her investment while preserving both control and additional future returns. The borrowers are able to retain control after the IPO despite the sale of a large (perhaps majority) ownership stake because the buyers are a diversified and dispersed group of investors. This means that the founders of the firm effectively retain control because their remaining equity stakes are still large, relative to those held by other investors. Therefore, the equity market is an important financing source at least once during a public firm's lifetime. After the IPO, the primary function of equity is to serve as the means to exert control over the firm's assets in the so-called "market for corporate control."

#### 4. Applying the framework: sequencing financial market development

Sequencing refers to the order in which instruments, markets, and intermediaries should be developed – deciding the order in which primary and secondary markets for bonds, equities, and derivative securities should be introduced and encouraged. For financial regulators, given limited resources, the sequencing problem is quite often an important issue. If an instrument is introduced at the right time, not only will the market for the particular instrument flourish, but this success may spur the development of other instruments and markets. A failure not only reduces momentum, but may also create obstacles for further market development.

The sequencing problem can be illustrated by an example. The introduction of primary dealers and regular government bond issuance to develop the primary bond market also facilitates the development of the secondary bond market. However, "develop the primary market first" need not be a good principle. Indeed, for the example on medium-term notes mentioned earlier, the success of the primary market depended on the creation of a secondary market for providing liquidity. Venture capital offers a similar example from the equity market. Venture capitalists (VCs) provide funding and management skills to companies with the goal of making an initial public offering of shares. In order to have an active venture capital market, there must first exist a liquid secondary market for shares. VCs are not generally interested in long-duration, illiquid investments. Rather, their objective is to profit from taking companies public within a reasonable amount of time, obtain cash from that transaction, reinvest the resources in another firm, and repeat the process. A liquid secondary market for shares provides the VC with the desired "exit strategy." This suggests that development of reasonably deep and liquid secondary equity markets may be necessary for the emergence of venture capital, a primary market instrument.

This example shows the fundamental challenge of sequencing: the interdependence of markets makes it difficult to specify an order in which particular instruments and markets should appear and develop. Indeed, the example may be interpreted as saying that financial markets need to develop more or less simultaneously. This places a tremendous burden on the policymaker, and explains why financial markets have been slow to develop even in countries that make considerable efforts to promote them.

Instruments that meet the current needs of market players can be successfully introduced right away. The problem is that the feasible set of financial instruments – that is, possible contracts that reflect the condition of the financial infrastructure and the capabilities of the key players – may not meet the needs of the borrowers *and* the lenders. The policy challenge

is to support the creation of an intersection between the set of desired instruments and the set of feasible instruments, and to enlarge it over time. Often, this intersection must be created by eliminating or overcoming obstacles that prevent an instrument from being introduced or used.

#### 4.1. *Nascent financial markets*

What kinds of instruments are likely to emerge first in nascent financial markets? In such markets the lender's greatest concern is credit risk – the likelihood the borrower will not repay the loan – since default arguably represents the largest potential loss to the lender. If credit risk were precisely measurable, lenders and borrowers could negotiate contracts with appropriate covenants to reach a mutually acceptable price for the funds. In such a setting, it is difficult to predict the order in which instruments would appear.

But the situation in a new financial market is characterized not only by risk, but by a high degree of uncertainty, in the sense that neither the individual default probabilities nor the overall distribution of default risk can be measured very well. Credit reporting agencies may not exist, and even if they do there may not be sufficient historical information to make reliable assessments. Until information on payment performance accumulates, lenders must rely on less accurate measures of credit risk, such as the borrowers' financial characteristics. Even banks, who arguably have the most information on the corporate sector, may have been lending based on considerations other than the credit risk of the borrowers, and hence lending *per se* may not be a good surrogate signal of creditworthiness.

A key implication of these informational problems is that compromises, such as the maturity-collateral compromise, are difficult to strike in nascent markets. In response to the high level of uncertainty, lenders provide funding only to borrowers with very low credit risk. In a market where credit risk is hard to measure, lenders realize that use of a price mechanism to screen borrowers leads to an adverse selection problem. Most lenders thus screen borrowers on their perceived credit risk, and offer credit at similar prices to all potential borrowers who appear to have lower credit risk than some predetermined threshold.

The implication of the above discussion is that lenders can be induced to lend if the perceived credit risk of the borrower is sufficiently low. Borrowers may exist whose external financing needs are so immediate that they prefer not to wait for internally generated funds to accumulate. As a consequence, there may exist some potential for borrowing and lending to take place. But only one type of borrower is likely to satisfy both criteria – the government. Firms in financial distress and firms with high-yielding projects will be too risky to satisfy lenders' desire for low credit risk. Thus, the most likely candidate for borrowing will be the government, which implies that the most likely security to appear first in nascent markets is the government bond.

#### 4.2. *The bond market*

##### 4.2.1. *Introducing a low risk asset*

Uncertainty with regard to creditworthiness in nascent markets implies that the development of a low risk asset is a key first step in financial market development. The government is often thought of as the entity with the lowest credit risk in an economy, because it can credibly guarantee repayment based on its ability to levy taxes. Government paper is perceived as the least risky asset and the government debt market is generally the first security market to develop.

The development of financial markets in many countries is hindered by the fact that the government is perceived to be a highly risky borrower, and few, if any, relatively safe borrowers exist. In some countries, the leaders in developing the domestic debt market have been subsidiaries of foreign firms. For example, in Hungary, one of the earliest corporate borrowers was the local subsidiary of McDonald's Corporation, which was widely perceived to have a better credit rating than the government.

If a government is perceived to be of sufficiently low risk, chances are that it can successfully issue securities, although the maturities may be shorter than those desired by policymakers. But if the government is not very creditworthy, there are two possibilities to pursue. An obvious one is that the government must improve its creditworthiness. This will probably entail reforming the fiscal institutions, increasing the tax base and changing the fiscal practices of the government to reduce its borrowing needs and enhance its ability to pay. Typically, this is a difficult process, and politicians and policymakers have to learn from experience about the adverse consequences of crowding out the private sector and repressing the development of private markets.

An alternative candidate for the initial risk-free asset is the municipal bond, since it is typically associated with public utilities that have dependable cash flows from providing water or electricity. General obligation bonds may have the same problem as federal government securities. Indeed, it is unlikely that state and local governments are good general obligation borrowers in countries where the central government is not creditworthy. Thus, revenue bonds represent the most probable alternative risk-free asset. Even for such bonds the government's ability to collect tariffs may be an issue.

While municipal revenue bonds may satisfy investor desire for low-risk securities, this may not lead to bond market development for reasons that have to do with satisfying the needs of lenders and liquidity providers. The foremost of these is the size of the issues. These may not be sufficiently large to satisfy the market demand for risk-free assets, let alone provide liquidity to support trading in these instruments. Further, such bonds cannot be issued regularly, since the issuance would depend on the existence of multiple revenue-generating projects. In general, public works are also characterized by decreasing marginal returns like other investment projects. Hence, repeated issuance of revenue bonds will eventually raise questions of creditworthiness. However, as a first step toward financial market development, the issuance of a standardized short-maturity bond backed by municipal revenues may be feasible given a large number of projects. Eventually, the central government will have to make itself more attractive to investors by becoming one of the least risky issuers in the economy.

#### *4.2.2. Developing the benchmark yield curve*

The history of financial markets suggests that, given some experience with a low risk security, lenders proceed incrementally to riskier instruments that better meet their desire for higher yield. But this process is not necessarily smooth or automatic. In the initial stages of market development, lending to riskier borrowers may not be attractive to investors. Instead, risk is increased by lengthening the maturity of low risk government paper and developing the yield curve. This process can be gradual, requiring a long period of time during which the government "earns" its low risk designation for progressively longer maturities. A common failure in the sequencing process is the attempt to rush the development of the government securities yield curve. If the longest current maturity is, say, six months, then even moving to a two-year note represents a quantum leap in the amount of risk the lenders have to bear. Most lenders are not prepared to make this leap

and the attempt to introduce the two-year note (often the jump is even larger, say 3 to 5-year bonds) is not successful.

In order to address this failure, we must ask why lenders are currently willing to lend only for short periods to governments. The answer may point to fiscal problems: perhaps the government's revenue base cannot sustain the current and planned expenditures; perhaps it has defaulted in the past, or repeatedly resorted to inflationary finance. This situation highlights an important reality: financial market development cannot make up or compensate for deficiencies in other policy areas. In fact, the demands of financial markets are such that an attempt to develop them focuses attention on existing economic and structural weaknesses, and occasionally exposes new ones as well. In the long run, the underlying problems will have to be addressed before robust financial markets emerge.

Governments should be able to lengthen the yield curve by increasing maturities in small but standard increments, such as three months for money market instruments and six months for notes. The underlying process is an example of the maturity-collateral tradeoff discussed above: the government builds up reputational capital for repayment that the lender accepts as collateral for riskier, longer-term loans. The initial accumulation of reputational capital is often slow. But once confidence is established, the government can probably extend maturities by larger increments.

Sometimes other mechanisms can also be used to extend maturity. In Hungary, for example, government bonds of longer maturity were introduced successfully when they contained the following provisions: the bonds were redeemable at predetermined prices well before maturity, and the return on the bond was higher the longer the investor held it. These provisions gave lenders two things they desired: an assurance that the government would redeem the bonds at the "usual" maturity; and an incentive to hold the bonds for a longer period. Such a mechanism has an important signaling role in a developing market. The government is making a public commitment to the lenders, much in the same way that private dealers do to their customers when they introduce a new instrument.

The above discussion on building the yield curve illustrates the fundamental difficulty that underlies most sequencing problems and also suggests a general solution. Market development comes to a halt whenever the incremental risk of moving from one type of borrower to another, or from one type of instrument to another, is too large, relative to the risk tolerance of the lenders. Let us call this difference between the increment in borrower risk and the increment in lender's risk tolerance the "risk gap." The general solution lies in finding a way to shrink the effective size of the risk gap. There are many possible ways to do this, and the choice will depend on circumstances. Securities can be designed to bridge the risk gap. Sometimes the redesign is quite simple, as in incrementally lengthening the maturity of government bonds by weeks or months rather than years. At other times, the design of the security must be more creative, as illustrated by the Hungarian example where embedded options were used to attract investors to longer-term securities.<sup>10</sup>

#### 4.2.3. *Repurchase agreements*

One instrument that can bridge the risk gap mentioned above while contributing to bond market development in other ways is the repurchase agreement, or repo. The repurchase agreement is legally a sale and matched forward purchase. In its economic essence, it is a short-term loan collateralized by an underlying security. The borrower in a repo transaction agrees to sell to the lender a security today and then to repurchase the security at a fixed price at some future date. The maturity could be as short as the next day or a much longer term, including an open repo, which has an indefinite maturity.

Repos bridge the risk gap by basing the loan on collateral whose value is generally recognized, easily calculated, and hence readily accepted by lenders. While any security can potentially be used as the underlying security in a repo agreement, the most commonly used security is government debt. Thus, a repo is doubly attractive as a candidate for early introduction into financial markets, since development of this market can help facilitate development of other markets.<sup>11</sup>

Repos have many uses for the borrower and lender, including short-term liquidity management and low-cost funding. But from the perspective of financial market development, repos have two significant effects on the government securities market. The first is that they increase demand for government securities by nonfinancial firms who may use such securities for liquidity management purposes. If it has access to repos, a company can store its extra cash in government securities earning a nonzero return and turn to the repo market whenever it has an unexpectedly high demand for cash. As long as the repo market is available, any holder of a long-maturity security can go to the repo market to meet temporary liquidity shortfalls while retaining control of the underlying security. This mitigates the liquidity risk of holding long-term securities, making them more attractive.

The second effect of having a repo market is that it provides an incentive for financial institutions to maintain portfolios of government bonds for the purpose of trading. Repos thus also open up opportunities for liquidity providers to emerge. Institutions may find it profitable to become dealers and run “repo books” in which they lend via repos at a relatively high rate and borrow from other lenders via repos at a relatively low rate. Such an institution earns a spread on this “matched book,” or it can profit by taking a view on the direction of interest rates by running a mismatched book.

In addition, a bank may accumulate a portfolio of government bonds by serving as a custodial bank participating in so-called “tri-party repos.” In these transactions, an intermediary, generally a custodian bank or international clearing organization interjects itself into the usual repo transaction. The repo borrower leaves the collateral at all times with the custodian and simply assigns the collateral to the lender. This can increase the speed and security of repo transactions, and create further volume and liquidity in government bond and repo markets. As a custodian, the intermediary accumulates a portfolio of government bonds that can be used as a basis for a trading portfolio. Of course, as the recent crisis illustrates, tri-party repo users should take account of the risks posed by the use of custodian banks and other intermediaries (see Krishnamurthy 2009).

It is the accumulation of securities by market players for the purpose of trading that is the key step in developing a secondary market. Even when the primary market is arguably quite successful, many developing economies find it difficult to make the transition from a “buy and hold” market into a trading market. Repurchase agreements give holders of a security an incentive to trade, in the sense of temporarily surrendering their securities to repo lenders. More importantly, banks that are repo dealers or offer custodial services have the incentive to trade in order to put otherwise idle securities to work in earning profits for the bank. Banks, therefore, are candidates for becoming important liquidity providers in the government securities market.

Introducing repurchase agreements also has an effect on the conduct of monetary policy, and through that, on market development. Conducting monetary policy through indirect instruments, particularly open market operations, is an important goal for central banks in developing economies. Repurchase agreements enable a central bank to conduct open market operations without losing control over the composition of its portfolio of government securities, a considerable advantage over outright bond purchases and sales. In addition, repos are tailor-made for temporary injections and withdrawals of liquidity. The

main impact in terms of market development comes from the presence of the government as a sizable repo counterparty. Higher trading volumes further encourage banks and other liquidity providers to hold portfolios of government securities. This has been the experience in the UK since 1996, when the Bank of England first began to conduct open market operations using repos.

The introduction of repos appears to be a useful early step in the development of the bond market. The secured nature of the transaction avoids the main problem in many developing markets – high credit (or counterparty) risk. The availability of repo facilities increases the demand for longer-maturity securities, thus contributing to the development of the yield curve. The development of the repo market also leads to the accumulation of portfolios of government securities and the emergence of liquidity providers (in this case, dealers). In turn, this leads to enhanced trading opportunities in the securities themselves. This has been a common pattern in government bond markets, even in those that were relatively developed before the introduction of repos.

### 4.3. *Asset-backed securities*

Repos partially bridge the risk gap between low risk and higher risk commercial lending, in that borrowers who hold high-grade securities can post them as collateral for short-term financing. But this is likely to satisfy only a small portion of borrower needs. There remain large risk gaps between repo and other private debt instruments that may be particularly difficult to bridge. Other instruments are needed to help bridge these gaps.

In order to gain insight into fixed income instruments that can accomplish this, it is useful to review how banks overcome this obstacle. Banks face the same fundamental problems as other potential lenders, but they are able to mitigate the problem of credit risk assessment in two ways. First, they have better information on borrower quality because they can observe the activity in client transaction accounts. Second, banks reduce risk through pooling and asset diversification.

A possible strategy for successful bond market development, therefore, is to focus development on instruments that replicate, as closely as possible, these successful bank lending strategies. The instrument that comes closest to mimicking the bank's risk-management strategies is the securitized cash flow, or asset-backed security (ABS). An ABS represents a claim on the cash flows generated by an underlying pool of assets. The assets in the pool can be cash flows from other financial transactions or revenue-generating activities. For example, the assets can be home or commercial mortgages, which generate monthly payments of principal and interest. They can also be accounts receivable from individuals or businesses, or revenues from toll roads or bridges. Theoretically, any set of regular and reasonably homogeneous cash flows can be pooled and repackaged into an ABS.

Asset-backed securities can overcome the information problem by carefully selecting the types of cash flows that can be securitized, and by standardizing the cash flows or the underlying assets generating the cash flows. The more predictable and dependable the cash flow, the more willing lenders are to purchase bonds that represent bundles of these cash flows. For example, it was no accident that the first asset-backed bonds were based on the cash flows from US home mortgages. Home mortgage payments in the US had a predictable pattern and a low default rate – a long-run average of under 4%, at least up to the overexpansion in subprime lending during 2002–2006. Potential lenders in the bond market with no direct experience in mortgage lending were convinced that the underlying cash flows carried low risk of default, and were therefore willing to hold these securities.

Asset-backed securities mimic a bank's diversification strategy rather directly. This diversification enables investors to be confident that the behavior of the cash flows that make up the bonds they hold will conform to the documented average behavior of the assets. In addition, securitization offers an additional risk-reduction tool: overcollateralization. This is the practice of including more cash-flow producing assets in the pool than there are total claims against cash flows. This provides extra insurance against unusual default experience within the particular pool of assets. This insurance, however, cannot adequately protect against deteriorations in lending standards that go undetected in the mortgage underwriting process, as was seen in the subprime crisis.

The introduction of asset-backed bonds has the potential to serve as an intermediate step in the sequence between repo borrowing and issuing traditional corporate bonds. In addition to bridging the risk gap, the securitization process benefits bond markets in two specific ways. First, it creates assets with new risk-return profiles, which may better suit investors' needs. It also improves the liquidity of the assets that are securitized, which leads to more reliable valuation of these assets.

But the development of securitization, and structured products more broadly, requires the simultaneous development of a large set of supporting institutions and capabilities. These include legal, accounting and regulatory elements – a legal framework for defining, creating and operating special purpose vehicles (SPVs), contractual flexibility in the terms and irrevocable/non-recourse transfer of financial assets, and appropriate accounting and balance sheet treatment of securitized assets (see, for example, Ghosh 2006, Kothari 2006). ABS also requires a chain of players – brokers, originators, SPVs, rating agencies – with financial and legal expertise to construct, structure, and issue the ABS.

The ABS market has proven to be especially vulnerable to incentive problems, due to the large number of participants involved in the lending process. The ABS process can go awry because of information-linked failures (Bank of England 2007, Crouhy *et al.* 2008, Gorton 2008, Acharya and Richardson 2009). Starting with the lending and origination procedures, each player must have sufficient incentive to conduct proper due diligence. Problems can occur at every step, as the crisis in the US subprime sector has demonstrated. Despite the presence of seemingly good institutions, the “originate-to-distribute” model in the US failed to contain and manage risks in the ABS market.

Because of fewer legal and technical hurdles that must be overcome, a related instrument known as a covered bond may be more feasible and desirable, especially in bank-dominated developing countries. For a covered bond, the assets being securitized remain on the balance sheet of the original lender and, unlike an ABS, do not have to be sold to an SPV. Thus, the covered bond obviates the need for much of the legal structures and support services associated with ABS.

In order to create a covered bond, a lender, such as a bank, legally segregates a pool of its assets (say, for example, home mortgages) from the rest of its balance sheet and issues bonds that are claims against this particular pool. Although other creditors of the covered bond issuer (CBI) cannot make claims against these assets, the investors in the covered bonds do have recourse to the CBI's other unpledged assets if it goes bankrupt or if the cash flows from the cover pool prove insufficient to meet the terms of the bonds issued. This is unlikely, however, for two reasons. First, it is normal (often required by law) to overcollateralize the bonds. Second, the covered bond pool is dynamic in the sense that the CBI may substitute assets within the pool or augment the pool if the assets decline in value. This is another significant difference between covered bonds and asset-backed securities, which generally use a static pool of assets.

The creation of a covered bond market depends first on the existence of high-quality lenders who are able to issue bonds based on their own reputations. Banks are the obvious choice in most developing markets. In addition, a legal framework must be in place to enable the segregation of assets and to require the issuers of covered bonds to maintain asset quality over the life of the series of covered bonds issued. In practice, covered bonds can be issued without specific legislation, provided that the basic commercial code enables CBIs to segregate and pledge assets in the manner described above. For example, CBIs in the UK, Netherlands, the US and Canada issued covered bonds on this basis between 2003 and 2007.<sup>12</sup> However, most countries with vibrant covered bond markets eventually create a legal framework that specifies (i) the institutions that are allowed to issue covered bonds; (ii) the assets that may be securitized; (iii) the standards for collateralization; and (iv) the rights of claimants and the procedures to be followed in case of issuer default.

Other features of covered bonds may also make them more desirable than ABS. For lenders, covered bonds provide greater assurance based on the CBI's reputation and recourse to the assets in the cover pool as well as the issuer's other unpledged assets. For borrowers, especially banks, covered bonds represent an attractive means of funding new loans without having to compete for deposits, which incur both resource and regulatory costs. They also enable banks, at least temporarily, to maintain their leading role in financial markets while still participating in the development of an asset-backed market.

The sequencing program for bond markets implied by this discussion can be summarized as follows. First, low-risk bond markets should be encouraged. Instruments with shorter maturities will develop earlier and maturity extensions will probably be gradual in the initial phases, but accelerate as confidence is established. Collateralized bonds such as repo and covered bonds could be introduced fairly early in the process of development. Only after sufficient information about borrowers accumulates will they be able to issue "traditional" fixed income instruments such as corporate bonds and commercial paper.

#### **4.4. The equity market**

Many countries established stock exchanges very early in their development process and experienced the failure of the "Build It and They Will Come" approach, such as Thailand in the 1970s and the UAE in the 2000s. Having built the infrastructure and defined the rules, they found that firms shun the equity market – the number of publicly traded and exchange-listed firms is typically quite low, relative to the number of firms in the economy. In addition, the market became a forum for speculative activity. The two problems are related and caused by a small number of listed firms who also generally have low floats – the number of shares available for trading.

The lack of equity issuance is primarily due to the presence of more attractive forms of financing. Firms generally prefer to fund themselves internally, and when internal funds are exhausted, they turn to debt, especially bank loans. If banks are already meeting their external financing needs, firms will have little interest in issuing equity. It is important to note, for example, that part of the reason why the capital markets developed in the United States is because of the country's peculiar history of bank regulation (see Calomiris 1993). The US states had imposed branching restrictions on the banks that severely limited their size. Eventually, nonfinancial firms became larger than the banks and their credit needs could not be met by loans from the relatively small banks. Thus, the firms turned to bond and equity markets out of necessity.

In many developing economies, there are a few banks and these banks are large relative to the firms in the economy. Therefore, the credit needs of the business sector can be met by the banks, and there is no compelling reason for firms to turn to alternative sources of financing. This should not be construed to imply that bank credit is necessarily easy to obtain, even by well established firms. Small firms, especially startup firms, are significantly more risky than large firms and they generally have a very difficult time obtaining external funds of any kind. Nonetheless, banks are better at resolving this problem for small firms than the capital markets, because they have access to the information derived from the firm's transaction accounts held at the bank.

An additional reason why borrowers avoid equity is that it is costly for borrowers to take on the duties and responsibilities of a public company. In order to raise money in the equity markets, firms must satisfy the listing requirements of stock exchanges for publicly traded companies, as well as the financial reporting and control requirements imposed by securities market regulators. In addition, the actions of the firm's managers become much more visible as the firm's financial data are disclosed through financial statements and other required filings. Another layer of management is imposed on the firm, in the form of a board of directors. And finally, the firm must devote time and effort to managing its relationship with the shareholders. All of these responsibilities imply a nontrivial cost and a loss of control for the owners and managers of the firm.

#### *4.4.1. Family businesses and equity market development*

The magnitude of the nonpecuniary costs to the borrower is especially large in the case of family firms – which represent the vast majority of firms in developing economies. In most economies, small firms tend to be family owned and operated, and in many countries even the large firms may be family controlled. Business families generally prize control and privacy. Loss of family control dramatically raises the total cost of borrowing on the equity market and this makes family firms resist going public. Therefore, incentives to encourage listings on the stock markets may prove ineffective unless they are quite large. For example, at one time the Thai government offered a lower income tax rate to firms that listed on the Stock Exchange of Thailand (SET). This did not prove very successful in attracting new listings. The above analysis suggests that when the family firms' owner-managers compared the tax savings to the permanent loss of control they would experience, the tax compensation seemed inadequate.

In many instances, the large family-owned firms in an economy enjoy substantial market power, which further reduces their incentive to list. Such firms consider listing only when other funding sources have been exhausted, and they perceive that they could fall behind competitors who can take advantage of stock issuance. If increasing the number and quality of listed firms is a government priority, leveling the playing field and opening up the doors to competition may be the best way to induce these firms to list. Privatization of state-owned enterprises, for example, may be a means of raising the level of competition while also directly increasing the number of publicly traded firms in the economy.

#### *4.4.2. Preferred shares as a transitional equity instrument*

Given the importance of control to a family business, equity will be issued by these firms only if it becomes absolutely necessary, or if an equity instrument can be issued that preserves the family's control. One such instrument is the nonvoting or so-called "B" share, which enables the family firm to raise equity without giving up control. The sole reason to

issue these shares, from the firm's perspective, is to obtain a one-time flow of financing. The lack of control rights attached to nonvoting shares may make them attractive when compared with bank loans or bond indentures, which include covenants.

The possibility of capital gains can be strong enough to attract investors to nonvoting shares, even when they pay little or no dividend. The initial public offering of Google in 2005 is an illustration of this. Google's shares promised no dividend and vastly diminished voting rights relative to the shares held by founders of the company, which constituted a different class of shares. The perceived likelihood of capital gains attracted more than enough investors to fully subscribe the offering.

But nonvoting shares present two significant problems, from a regulatory perspective. First, if they do not pay dividends, it is easy for them to become tools of speculation, particularly since they do not convey any control rights over the firm. In addition, the lack of control rights means that B-shares will not place any meaningful pressure on firms to improve their corporate governance practices or be responsive to shareholder concerns.

History suggests that the nonvoting share can be modified to make it attractive to firms and investors while mitigating its troublesome properties. Before the rise of the common share, the preferred share was the most important equity instrument. For example, the Dow Jones Industrial Average was originally an index of preferred shares. Preferred shares pay a set dividend (or yield) and their claim on the firm's cash flows takes a higher precedence than common equity. The corporation must meet its dividend obligations to the preferred shareholders, including any arrears, before it pays a dividend on common stock. Preferred shares generally do not have the same voting rights as common shares but typically carry some voting power.

One strategy to sequence the development of the equity market, therefore, may be to encourage the issuance of nonvoting preferred shares that are convertible to common shares. Such shares can be attractive to investors because they offer the possibility of future capital gains but pay income in the meantime. The stated dividend rate makes it easier to discern when the price of these shares has diverged from fundamentals and hence may limit speculative excess. Issuers obtain financing that is more flexible than bonds, since the dividend may be deferred if the firm experiences financial difficulty. The conversion option attached to the shares reduces the dividend rate that the firm must pay. The transfer of contingent control rights to outside investors will help discipline the firm, even if these rights are not exercised.

The development of the equity market can be sequenced in parallel with the development of the bond market. Indeed, there may be beneficial spillovers and feedback between the markets. Firms that pay regular dividends to shareholders build up reputational capital that will make it easier for them to issue bonds to the public. Disclosure of information to shareholders through financial statements and annual reports also releases information to the market that benefits bond investors. On the other hand, there is a well documented "tombstone effect" in which the announcement of the extension of a loan or the issuance of a bond leads to an increase in the value of the borrowing firm's equity. This is due to the release of positive information to the market about the creditworthiness of the borrower, which is correlated with profitability and other measures of firm performance.

#### **4.5. Derivatives**

Historically, derivatives have been introduced well after the markets for the underlying securities have been developed. But the development of markets for simple derivatives can be sequenced in parallel with the bond and equity markets. Derivatives markets rely on the

existence of underlying assets, so it is reasonable to initiate derivatives market development after the markets for the underlying cash securities exist and are reasonably liquid. However, waiting until the markets for the underlying assets are “fully” developed may not be optimal. First, derivatives often increase lenders’ willingness to buy and hold a bond, stock, or other lending instrument. For example, the availability of options enables equity holders to write covered calls on their equity holdings, generating additional income from their equity portfolios at minimal risk. This increases the attractiveness to lenders of making long-term investments in equities. Similarly, when fixed-income derivatives, such as bond futures and options, were introduced in the 1970s and 1980s, one of the consequences was an increase in the liquidity of the secondary market. The reason for this was that the availability of derivatives allowed dealers and other holders of bond portfolios to hedge their exposures much more easily and efficiently. In addition, derivatives facilitated the pricing of instruments by making it easier to repackage risks and exploit arbitrage opportunities.

Derivatives can also contribute to the development of securities markets through financial engineering. In both bond and equity markets, embedded options can make bonds and preferred shares more attractive to lenders. This may seem surprising, if we consider the complexity of pricing the embedded options, but it makes sense if we consider the flexibility and insurance features that embedded options can give to a financially engineered product. Including financially engineered products as part of the sequencing strategy may hasten the development of the market for the underlying security, and hence it may be desirable to introduce options markets early in the development process.

It is not strictly necessary that the underlying product be present in a country’s market. For example, derivatives on the Nikkei 225 stock index are actively traded on the SGX exchange in Singapore. These derivatives got their start in the Singapore market because at the time of their introduction, they were not available in Japan. A similar case is the development of the Eurodollar derivatives market in Chicago. The key seems to be that the derivatives market serves the needs of the borrowers and lenders in the underlying asset. If local borrowers and lenders are using a financial product that is offered in another country, then it is reasonable to have a local derivatives market to meet the risk management needs of the local players. Seen in this light, it is understandable why foreign exchange derivatives are often the first financial derivatives to arise in the process of development and liberalization.

Derivative markets are useful for institutional and individual risk management since, in principle, they allow the re-allocation of risks to those most able and willing to bear them. Recent experience has shown that two issues are critical for the development of derivative markets and the maintenance of financial stability. First, since derivatives allow agents to hedge exposures by either fixing prices for future transactions or providing financial insurance, it is imperative that the writers of the derivative contracts be creditworthy and there is little counterparty risk. Second, since most derivative instruments have payoffs that are contingent on certain events, the design of the contracts should minimize legal uncertainty associated with the definition of expected payoffs and the events that trigger their payments. Further, efficient contract enforcement requires that the documentation associated with these relatively new instruments be properly done, and that procedures are in place for minimizing risk in the clearing and settlement process.

As in the case of asset backed securities, the development of derivatives requires significant institutional infrastructure. Currently, however, there is a global effort underway to improve the infrastructure supporting these markets. This includes the standardization of contracts wherever possible, and directing all trades through centralized counterparties (CCPs). Emerging markets can prepare for the introduction and development of derivatives by participating in these efforts.

#### 4.6. *The loan market and the role of banks*

Generally, banks dominate the financial system in most developing countries, and the early stages of financial development take place through them. Banks are in many ways ideally positioned to lead the development of securities markets. Since they are the primary lenders, they possess both the financial resources and the expertise necessary to create, fund, and trade new financial instruments, as well as play the role of liquidity providers. As important borrowers, they are the key intermediaries for channeling household savings into the securities markets. This means that banks can provide the distribution network for financial products. One way to take advantage of this position is to create and manage mutual funds that can be offered to the banks' depositors.

But the success of the banks also provides them benefits that they are loath to give up. By facilitating financial market development, banks create competition for their deposits and loans. Thus, a key problem in the initial stages of development is that banks may not be convinced that participating in securities market development is in their interest. In fact, the recent experience of the most highly developed financial markets, such as the US and UK, suggests that financial market development since the mid-1970s may be harmful to commercial bank profitability. For example, the returns to traditional lending activities have fallen in the US over time and banks have moved into riskier activities to maintain profits.<sup>13</sup> In these countries, banks remain important but no longer play the dominant role they once did. As the bond and equity markets developed and competition from other intermediaries intensified, banks lost their comparative advantage in many types of commercial loans and saw an erosion of profitability. Hence, banks had to increase non-interest, fee-based income through making OTC markets and providing services in securities markets. This can be a difficult transition, and banks in emerging markets can use their political and economic clout to delay or stifle certain changes.

Financial regulators need to use moral suasion and other incentives to persuade banks that even though they may lose their dominant position in lending, the development of the financial markets will lead to increased opportunities for those banks that can adapt to the new environment. One possibility is to become an underwriter in the securities markets. Underwriting security issuance is a lucrative business in itself that is very similar to bank lending. Another possibility is that banks become liquidity providers, especially dealers, and earn fee income. Yet another opportunity is wealth management for individuals and families, which includes investing household savings in a wide spectrum of asset markets.

The expansion of the scope of bank activities of course must take place in the context of proper regulation and supervision aimed at keeping opportunistic behavior in check. In any new financial market, the new possibilities for profit combined with untested regulatory boundaries, may lead to imprudent behavior as the limits of the system are probed. This phenomenon seemed to be at work in the subprime lending and structured product markets whose subsequent failures sparked the recent financial crisis. Before banks enter new fields of activity, regulators must make sure that they are prepared to provide a heightened level of oversight.

Nonetheless, regulators can offer banks certain concessions that both facilitate financial market development and strengthen banks' safety and soundness. For example, in many developing countries, banks are still subject to directed lending that has low returns and higher than average defaults. The burden of these requirements could be reduced or eliminated in exchange for cooperation, such as becoming a primary dealer in government bonds. Another strategy is to allow participation in the securities markets as a reward for banks that are well capitalized and follow sound risk management practices. This is the

approach used in the US, where only the elite money-center banks are allowed to operate securities subsidiaries.

Foreign competition in the banking and securities markets can also be used to facilitate market development. In some small, open economies such as the Baltic nations, most domestic banks have been purchased by foreign banks, primarily Swedish and Finnish, but have retained their identities as local banks. This step has not been regarded as a negative outcome by the regulators or the citizens in these countries, but as an outcome of market forces. The foreign owners transfer technology, expertise, and a willingness to pursue opportunities in the financial markets. Thus, the introduction of foreign ownership and competition can catalyze changes in the attitudes and activities of domestic institutions.

Banks can also arrest financial market development at an early stage, in the following way. There are many cases in which a shortage of bank credit for the private sector develops and persists for years, despite attractive lending opportunities, and a tradition of commercial and industrial lending by banks. This occurs when banks abandon private lending and choose to purchase high-yielding government bonds instead. Typically, the high interest rates on government paper are due to large borrowing requirements that stem from recurrent deficits. The size and dominance of banks in the economy also gives them the market power to keep the risk premium on government bonds relatively high. The result is a risk-return profile for government bonds that is preferable to what can be achieved through lending to the private sector. In essence, banks begin to operate as bond mutual funds that take customer deposits and invest them in government securities. This is profitable since banks can earn a large income without the expense of credit analysis and credit risk management. In addition, until recently, Basel capital standards (Basel I) provided an incentive for banks to shift their assets into government securities, since these had a zero risk-weighting.

In these situations, a combination of strategies may work. First, the high rates on government paper will need to be reduced by lowering the government's borrowing requirement. Second, the banks that have near monopolies in both borrowing and lending could be exposed to competition: (i) providing retail investors with direct access to government securities; (ii) introducing mutual funds that invest in government paper; and (iii) allowing the entry of nonbank financial intermediaries and foreign banks. Competition from other intermediaries should reduce bank spreads and force banks to return to their original mission of private lending.

## **5. Concluding remarks**

Financial market development is both the wider use of existing financial instruments and the process of creating and adopting new financial contracts for intermediating funds and managing risk. Development occurs when market players are able to reach mutually acceptable compromises regarding the terms of financial transactions. Agents strike grand compromises, such as those between maturity and collateral, and between seniority and control, as well as myriad smaller ones. Failure of a financial market to develop is generally because the instrument may not meet the requirements of some of the players – borrowers, lenders, liquidity providers, and regulators.

The framework presented makes clear that instruments that require simpler and more easily verifiable compromises will probably appear first. It also suggests that market reform may require parallel changes in interrelated markets and policies, and partial reforms may not get the desired results. While clearly the path of development that emerges will depend on economic, legal, political, institutional, and cultural factors, the framework prompts policymakers to ask the right questions in diagnosing the deficiencies and hurdles. It also

provides guidance for designing suitable policies for the development and functioning of financial markets.

Modern markets are complex structures that must be supported and maintained. To function well, they need institutional mechanisms for lowering and containing the frictions associated with information and enforcement costs.<sup>14</sup> Moving from simple to more complex contracts adds complications: length of contracts increases, regular information provision becomes important, monitoring is essential, penalties for breaching contractual terms have to be worked out, and dispute settlement mechanisms put in place. Policies that are not market specific are needed to establish complementary conditions for sustaining markets – financial stability, corporate reforms, various forms of insurance and institutions for risk reduction, and levels of security and transparency that lead players to accept market outcomes. In addition, private and public institutions have to cultivate norms of trust, efficacy, and legitimacy.

Market development is in many ways a creative process. The transition to a reasonably robust market system requires the building and nurturing of market institutions, and a recalibration of rules and regulations as the system evolves.<sup>15</sup> Effective policies not only need to be well crafted, but they also have to evolve as markets change with technology and innovation. Hence, the goal is to increase competition, openness and innovation while maintaining adequate oversight, appropriate incentives and needed constraints. As the financial sector evolves, it is necessary to have oversight mechanisms in place that continuously monitor the evolution of markets, examine the incentives faced by the players, and analyze the implications for financial stability.<sup>16</sup>

Experience has shown that financial liberalization and the emergence of new markets and institutions in the absence of adequate oversight and regulation can lead to the malfunctioning of financial systems. Also, in this context, the regulation versus competition dichotomy can be misleading, if not inaccurate. Often, fostering competition may require more regulation rather than less.<sup>17</sup> This is especially the case in the initial stages of development, when the government has to create the basic infrastructure to support markets. Nascent markets may require the strengthening of rules that foster competition and the removal of rules and practices that impede it.

Recent scandals and financial crises have re-emphasized that the doctrine of self-interest, which is central to the functioning of markets, does not always encourage playing by the rules (Landy and Levin 2007). A neutral set of competitive rules does not necessarily mean that self-interested players will rest content to play by them. Contractual incompleteness and opportunism give rise to a host of difficulties: adverse selection, moral hazard, and other incentive problems. Hence, contracts need to be supported by credible commitments, monitoring, and verification. Liberalization, development, and innovation lead to the emergence of critical gaps in information available to different market players and distort incentive structures. The approach adopted in the paper, with its focus on the motivation and needs of market participants, can assist in rethinking the design of contracts, regulations, and the institutions that support the functioning of financial markets.

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## Notes

1. For a more general examination of the relationship between institutions and growth see, for example, North (1990, 2005), Lin and Nugent (1995), IMF (2003), Acemoglu *et al.* (2005), Eicher and García-Peñalosa (2006), and Rodrik (2007). See also the discussion and references in Chami *et al.* (2009).
2. The research literature does provide insights into the determinants of financial market development. See, for example, Baskin and Miranti (1997), LaPorta *et al.* (1997), Sylla (1998), Allen and Gale (2000), Rajan and Zingales (2001), Beck *et al.* (2003), and Galindo and Micco (2004).
3. The core functions performed by the financial system are the following: (i) transferring resources through time and across space; (ii) clearing and settling payments; (iii) pooling resources and subdividing firm ownership; (iv) price discovery and price information for decentralized decision making; (v) managing risk; and (vi) dealing with incentive problems stemming from asymmetric information. See, Crane *et al.* (1995).
4. Cross-border financial transactions follow the same logic as domestic financial transactions, possibly with additional risks arising from the use of different currencies and institutional mechanisms. We do not examine currency (foreign exchange) markets because these are essentially “derived markets” in that their development depends on the development of a country’s commercial and financial sectors, and its trade in goods, services, and assets.
5. See Federal Reserve (2007).
6. For a more detailed account of the rationale for regulation and supervision of financial markets see, for example, Goodhart *et al.* (1998) and Llewellyn (1999).
7. For a somewhat pessimistic verdict on self-regulation of markets based on the UK experience, see Davies and Green (2008).
8. It is worth noting the awkward position SROs have in the legal system. For example in Canada, although their authority is bestowed by provincial commissions, they are not bound by the same rules as government bodies. In the US, SROs are not subject to the same constitutional constraints as government agencies, while at the same time courts make it difficult to sue the SROs, providing them with effective immunity. In the UK, SROs enjoy statutory immunity.
9. See, for example, Stigler (1971), Laffont and Tirole (1993), Hardy (2006), and the recent overviews by Dal Bò (2006) and Helm (2006).
10. See Neftci and Santos (2003) for the use of puttable and extendible bonds.
11. On establishing a framework for governing repo transactions see World Bank & International Monetary Fund (2001).
12. See Fitch Ratings (2008). For the Euro area legislative framework, see the 1988 Directive on Undertakings for Collective Investments in Transferable Securities (UCITS) and the new 2006 Capital Requirement Directive (CRD).
13. See, for example, Streeter (2006).
14. In his Nobel lecture, Coase (1992) argues that “without the appropriate institutions no market economy of any significance is possible.” The New Institutional Economics sees the institutions of governance as an attempt to craft order, mitigate conflict and realize mutual gain. Besides ex ante incentive alignment in the design of contracts, what is needed is ex post monitoring and contract enforcement (Williamson 2000). See Shiller (2008) for a recent discussion on ways to improve the information infrastructure.
15. To understand the operation and efficiency of capital markets, Gilson and Kraakman (2003) argue for drilling more deeply into the agency and incentive structures that characterize market institutions through which arbitrage is carried out and the market value of a financial asset is determined. See also Langevoort (2003).
16. See, for example, Rajan (2005).
17. See, for example, Stiglitz (2001) and Vogel (2007).

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