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**Fixed-Income Markets in the United States, Europe, and Japan:  
Some Lessons for Emerging Markets**

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**Abstract**

This paper identifies factors that contributed to the development and effectiveness of debt securities markets in the major advanced economies. Government securities markets have benefited from their international orientation—debt management is most effective when it is independent of monetary and exchange rate policies; and financial infrastructures should be patterned on the standards of liquidity, transparency, issuing and trading efficiency, and tax treatment. The same degree of consensus does not exist for corporate debt securities markets. The paper identifies six regulatory and market-created factors that help explain why the U.S. corporate debt market has flourished, while corporate debt securities markets elsewhere have only recently begun to develop.

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## Summary

This paper identifies factors that contributed to the development and effectiveness of public and private debt securities markets in the advanced economies. Three conclusions on ways to minimize the cost of government debt securities are discussed. First, issuing debt at low cost is facilitated by tapping the pool of global capital. Second, cost minimization is facilitated by granting greater independence to debt management—in particular, greater independence from monetary and exchange rate policies. Third, minimizing the cost of debt is facilitated by reforming primary and secondary market infrastructures to appeal to institutional investors. In primary markets for government securities, these reforms have been reflected in the move away from issuing at fixed prices through syndicates, in favor of auctions with preannounced issue calendars and new issues concentrated in benchmark securities. In secondary markets, countries have introduced primary dealer systems to enhance price discovery and market liquidity. Money markets must be allowed to develop in order for secondary markets for government securities to function well.

Cross-country differences in the development of private debt markets are more apparent than for government securities markets. U.S. debt securities markets historically have financed a diverse cross-section of U.S. businesses; by contrast, European and Japanese domestic debt securities markets predominately have been used as a source of funding by financial institutions. The paper identifies factors that help explain why U.S. corporate debt markets flourished but markets in most other advanced economies have recently begun to develop: a well-functioning money market, the supervisory and regulatory system, market power in the financial industry, infrastructure in primary markets and in secondary markets, and the investor base. This list is not exhaustive, and the paper barely scratches the surface on the more fundamental determinants such as legal structures, cultures, and histories. Accordingly, the identified factors should be seen as necessary but not sufficient characteristics of effective securities markets.

## I. INTRODUCTION

The objective of this paper is to identify factors in the experiences of advanced countries that might have contributed to the development and effectiveness of debt securities markets. International portfolio diversification and yield-seeking behavior of investors has increased the cost of both bank capital and deposit liabilities, and this has been associated with bank disintermediation and a broadening of securities markets in many advanced countries. For example, the market value of assets managed by U.S. mutual funds (roughly \$5 trillion) and invested in securities markets now exceeds the total value of funds on deposit in the U.S. banking system. Although this process has taken more time to evolve in Europe and Japan, it has accelerated recently, and is likely to accelerate further. In Europe, financial systems have been liberalized in many countries, and the introduction of the euro in 1999 has the potential to accelerate the securitization of European finance.<sup>2</sup> The Japanese authorities also have been chipping away since the early 1980s at a relatively stringent system of financial regulations, and “Big Bang” reforms hold considerable promise for fostering the further development of Japanese financial markets.

In addition to this general trend, there also has been an increasing recognition that bank disintermediation may be desirable to some extent, especially in emerging financial systems where bank intermediated finance makes up the bulk of financial activity. This perceived desirability originates, in part, from perceptions that effective securities markets are capable of pricing financial risks at least as well as bank credit officers. There are also reasons to believe that securities markets are capable of distributing financial risks more widely, at least initially, if not also more efficiently. An additional perceived benefit is that the greater role of securities markets means that there may be a smaller concentration of financial risks and potential losses in local emerging banking and payments systems, which typically are heavily supported by public safety nets and which are vulnerable, therefore, to the ill-effects of moral hazard.

By drawing on the specific experiences of Europe, Japan, and the United States this paper tries to identify legal, supervisory, and market-created factors that appear to have fostered or impeded the development of debt securities markets in these countries. Although all of the major advanced economies have relatively large government bond markets, there are important differences across countries in the degree of sophistication of these markets. For example, short-term government securities markets—including for repurchase agreements—are large, liquid, and highly sophisticated in the United States on the one hand, but are virtually non-existent in Germany. Cross-country differences in the degree of development of private debt markets are even more apparent: the U.S. corporate debt securities market has roughly \$5 trillion in outstanding securities, which is on the order of 50

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<sup>2</sup>For an analysis of how the introduction of the euro might affect the development of European-wide securities markets see Prati and Schinasi (1997).

percent larger than the combined corporate debt markets of Japan and the major European countries, and is about twice as large as the international market for corporate debt securities. In addition, U.S. debt securities markets historically have been a source of financing for a diverse cross-section of U.S. businesses; by contrast, European and Japanese domestic debt securities markets predominately have been used as a source of funding by financial institutions. Two explanations are often heard for the relatively smaller private debt securities markets in Europe and Japan: investors in these countries have little, if any, experience in evaluating credit risk; and stock markets are a more appropriate way of taking risky positions in firms. An alternative, and perhaps more plausible explanation is that the development of debt securities markets has been inhibited in various ways.

Identifying the factors that have contributed to the development of effective securities markets in some advanced countries, and inhibited their development in other advanced countries, is by no means a clear cut exercise. Immeasurable factors such as the impact of legal structures (including commercial codes), business traditions and cultures, and economic, financial, and regulatory histories all play an important role (which this paper examines only tangentially). Even when a quantifiable element of good securities markets can be identified, it is not always easy to provide a simple formula for encouraging its development. For example, a key ingredient in well-functioning securities markets is market liquidity in secondary markets. But liquidity is closely tied to trading volume, which itself can be a function of the degree of market liquidity. In addition, market liquidity depends on investor perceptions of intangibles such as market integrity, the safety of financial infrastructures, and the enforcement capabilities of securities markets regulators. Even if all of these elements are de facto in place, investor confidence is a key factor. Accordingly, although the paper identifies a number of key characteristics and building blocks of effective debt securities markets, the identified list is by no means exhaustive. Moreover, even if all of the identified factors are introduced and effectively implemented it can take a good deal of time for effective markets to develop.

The paper is organized as follows. Section II examines the degree of development of fixed-income markets in the advanced economies. Section III synthesizes the experiences in government securities markets in the advanced economies. Section IV takes a similar approach with corporate debt securities markets and identifies six broadly defined factors that appear to have played an important role in the development of these markets. Section V makes some concluding remarks.

## **II. DEBT SECURITIES MARKETS IN THE UNITED STATES, EUROPE, AND JAPAN**

Central *government debt securities* typically receive the highest possible credit rating in local debt markets because of the government's taxation authority and the central bank's exclusive right to print local currency. Government securities therefore establish a natural benchmark for pricing private sector debt securities: one needs only to ascertain the appropriate credit risk premium of private sector debt securities relative to the government security with the same maturity. Because of this critical role for local-currency government debt securities in the functioning of private sector debt securities markets, this section of the

paper studies first whether there are important differences in government securities markets across the major advanced economies.

Sustained budget deficits in the 1980s and much of the 1990s are an important recent factor behind large government securities markets in Japan, the United States, and most of the advanced economies in Europe (Table 1). Indeed, these government securities markets are among the largest of domestic securities markets. They are the most internationalized, and secondary-market turnover generally far surpasses turnover in other securities markets. In contrast to the private sector of most advanced countries, central governments rarely tap foreign or international fixed-income markets, and they rarely issue debt securities denominated in foreign currencies (Table 2).<sup>3</sup> These countries have access to substantial pools of domestic wealth and they do not in general need to issue foreign currency denominated debt to appeal to investors.

Despite the large sizes of government securities markets in all the advanced economies, there are important differences in the degree of sophistication and thus the degree of development of these markets. One important difference is that government securities markets in some of the advanced economies have important gaps along the yield curve, and in particular, at the short-end of the yield curve—the “money market.” Among the G7 countries, France, the United Kingdom, and Germany have historically all not issued large volumes of short-term debt securities for deficit financing, although short-term instruments have sometimes been issued for monetary policy purposes. The most extreme instance of this is Germany, where, until recently, a policy of not issuing liquid short-term securities, has been the norm, in part reflecting the concern that a developed money market would affect the ability to implement monetary policy. As discussed below, markets for short-term private debt securities in most countries outside North America have also been small until recently, in large part because of financial policies. The potential costs of an underdeveloped money market stem from the special functions of short-term fixed income markets for cash management by firms, governments, and financial institutions.

Differences in the sophistication of markets for government debt securities are also apparent in the relative importance of liquidity management products—primarily repurchase agreements or other forms of securities lending—across the major advanced economies. In late 1997, the volume of outstanding securities borrowing activity reported by U.S. government securities dealers (including reverse repos, outright borrowing of securities, and collateralized loans) was on the order of \$1.3 trillion, or almost 40 percent of the total

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<sup>3</sup>Some central governments in the advanced economies do tap foreign fixed-income markets and do issue foreign currency debt securities. Italy, for example, has historically had an active foreign currency debt portfolio for general funding purposes, and Canada issues foreign currency debt for foreign exchange reserve management. Regional governments in some countries (e.g. Canada) are large issuers of foreign currency debt securities; this is largely what underlies the figures on public-sector international debt securities reported in Table 2.

Table 1. Selected Industrial Countries: Domestic Debt Securities by Nationality of Issuers

	Amount Outstanding (1997) In billions of U.S. dollars	In percent of GDP	Net Issues															
			In billions of U.S. dollars						In percent of total for all countries									
			1994	1995	1996	1997	Q1	Q2	Q3	Q4	1994	1995	1996	1997	Q1	Q2	Q3	Q4
<b>Public sector</b>																		
France	647.4	46.4	69.3	74.4	61.0	45.6	14.2	31.7	2.8	-3.1	5.4	6.7	5.5	6.0	5.2	15.5	2.8	-1.8
Germany	777.5	37.3	89.9	13.1	40.8	38.3	15.6	17.0	-0.3	8.7	7.0	1.2	3.7	5.1	5.7	8.3	-2.9	5.0
Italy	1,123.4	98.1	145.9	61.1	69.9	12.2	13.9	1.6	6.2	-9.6	11.4	5.5	6.2	1.6	5.1	0.8	6.1	-5.5
Japan	3,116.8	74.3	277.9	309.9	257.8	203.8	99.4	83.2	-5.5	26.6	21.7	27.9	23.2	27.0	36.3	40.7	-5.4	15.3
Netherlands	177.5	49.2	9.8	22.7	13.4	5.0	2.4	4.1	0.4	-1.8	0.8	2.0	1.2	0.7	0.9	2.0	0.4	-1.0
United Kingdom	465.4	36.1	31.2	61.3	15.2	11.2	5.3	7.0	1.6	-2.7	2.4	5.5	1.4	1.5	1.9	3.4	1.6	-1.5
United States	7,337.1	90.8	389.8	342.6	378.7	264.6	80.5	20.0	52.6	111.5	30.4	30.8	34.0	35.1	29.4	9.8	51.7	63.9
Total	15,993.9	...	1,281.0	1,112.6	1,112.4	754.4	273.8	204.3	101.8	174.4	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Private sector</b>																		
France	465.8	33.4	-23.3	-19.3	-14.0	-17.3	0.2	-12.2	5.0	-10.3	-5.3	-2.7	-1.7	-2.5	0.1	-7.0	2.8	-4.9
Germany	932.5	45.7	40.1	95.5	79.1	67.5	35.0	9.9	23.0	-0.3	9.1	13.4	9.6	9.6	25.2	5.7	12.8	-0.1
Italy	348.3	30.4	12.3	21.0	42.1	-9.9	0.9	-0.3	-6.2	-4.3	2.8	2.9	5.1	-1.4	0.6	-0.2	-3.5	-2.0
Japan	1,316.9	31.4	11.4	80.0	116.0	0.2	-4.3	-44.5	-5.5	54.5	2.6	11.2	14.0	0.0	-3.1	-25.7	-3.1	25.9
Netherlands	50.3	13.9	2.0	5.0	-2.4	-0.1	-0.3	1.5	-1.9	0.6	0.5	0.7	-0.3	0.0	-0.2	0.9	-1.1	0.3
United Kingdom	302.4	23.5	27.5	18.0	52.8	47.6	10.2	14.8	20.3	2.3	6.3	2.5	6.4	6.8	7.3	8.5	11.3	1.1
United States	5,077.5	62.8	241.5	417.7	461.4	529.7	96.3	154.6	113.8	165.0	55.1	58.6	55.7	75.5	69.4	89.3	63.5	78.5
Total	9,738.3	...	438.3	712.7	828.0	701.3	138.8	173.1	179.3	210.1	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Sources: Bank for International Settlements, *International Banking and Financial Market Developments* (various issues); and International Monetary Fund, *World Economic Outlook* database.

Table 2. Selected Industrial Countries: International Debt Securities by Nationality of Issuers

	Amount Outstanding (1997) In billions of U.S. dollars	In percent of GDP	Net Issues														
			In billions of U.S. dollars						In percent of total for all countries								
			1994	1995	1996	1997	Q1	Q2	Q3	Q4	1994	1995	1996	1997	Q1	Q2	Q3
Public sector	750.6	...	100.0	78.0	96.4	71.4	23.8	29.7	26.0	-8.1	100.0	100.0	100.0	100.0	100.0	100.0	100.0
France	18.9	1.4	2.0	1.0	7.3	5.6	1.2	0.9	0.0	3.4	2.0	1.3	7.6	7.8	3.0	0.0	-42.0
Germany	8.6	0.4	3.8	1.0	-2.6	1.9	0.3	0.3	2.9	-1.6	3.8	1.3	-2.7	2.7	1.3	11.2	19.8
Italy	54.8	4.8	9.6	8.1	5.0	3.7	0.8	1.4	1.9	-0.4	9.6	10.4	5.2	5.2	3.4	7.3	4.9
Japan	23.9	0.6	1.3	1.6	2.0	1.9	0.3	0.7	0.7	0.1	1.3	2.1	2.1	2.7	1.3	2.4	-1.2
Netherlands	0.5	0.1	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.0
United Kingdom	12.8	1.0	-0.5	-0.5	0.0	-3.2	-0.1	0.0	0.0	-3.1	-0.5	-0.6	0.0	-4.5	-0.4	0.0	38.3
United States	49.4	0.6	3.0	12.1	15.8	15.2	4.1	7.1	4.6	-0.6	3.0	15.5	16.4	21.3	17.2	23.9	7.4
Private sector	2,475.2	...	175.5	218.3	421.9	494.1	120.7	125.0	149.4	98.9	100.0	100.0	100.0	100.0	100.0	100.0	100.0
France	201.1	14.4	18.5	9.9	12.9	19.0	5.6	0.3	7.9	5.1	10.5	4.5	3.1	3.8	4.6	0.2	5.2
Germany	383.6	18.4	54.1	71.5	95.3	85.4	31.8	24.5	14.5	14.6	30.8	32.8	22.6	17.3	26.3	19.6	14.8
Italy	42.7	3.7	2.2	-0.9	0.5	6.1	0.2	2.5	0.6	2.8	1.3	-0.4	0.1	1.2	0.2	2.0	0.4
Japan	295.8	7.1	-1.1	6.6	14.2	-1.1	2.6	-2.2	7.6	-9.1	-0.6	3.0	3.4	-0.2	2.2	-1.8	-9.2
Netherlands	139.9	38.8	22.0	19.8	24.6	34.2	8.2	9.2	10.1	6.7	12.5	9.1	5.8	6.9	6.8	7.4	6.8
United Kingdom	294.3	22.9	17.3	14.4	38.5	47.7	11.4	7.2	13.4	15.6	9.9	6.6	9.1	9.7	9.4	5.8	9.0
United States	506.0	6.3	23.6	47.2	116.1	162.9	29.2	38.8	50.3	44.7	13.4	21.6	27.5	33.0	24.2	31.0	33.7

Sources: Bank for International Settlements, *International Banking and Financial Market Developments* (various issues); and International Monetary Fund, *World Economic Outlook* database.



marketable debt of the U.S. Treasury. In comparison, prior to January 1, 1997, much of the market in private repurchase agreements on German government securities took place in London because of the existence of reserve requirements on repos in Germany.<sup>4</sup> Repos on Japanese government securities (Gensaki) stood, in late 1997, at about five percent of the stock of government debt. In many countries other than the United States, repo and securities lending markets were long inhibited by regulatory policy (e.g. reserve requirements in Germany), taxation (e.g. the transactions tax in Japan), or legal uncertainty (e.g. in France).<sup>5</sup>

Turning next to markets for *private debt securities*, Tables 1-2 present the size of private debt securities markets and recent issuance volumes in some advanced economies in Europe, in Japan, in the United States, and in the international markets.<sup>6</sup> These data mask some important facts, but before delving into these figures more deeply, there are three noteworthy features of these markets. First, the size of domestic private debt markets increases with the size of the economy. Second, the U.S. corporate debt securities market is very large, in both absolute and relative terms to almost any other comparator: *Currently the U.S. corporate debt securities market is on the order of 50 percent larger than the combined markets in Japan and the major European countries.* Further, the volume of new issues in recent years, rather than the stock of outstanding securities, leads to the same conclusion: specifically, U.S. firms have raised more funds in domestic debt securities markets in recent years than firms in all the other countries in Table 1 put together. Although the U.S. market for private debt securities is very large relative to markets in the other advanced economies, the magnitudes of corporate debt securities outstanding in some other countries (notably Japan and Germany) are substantial. Third, U.S. firms rely on international securities issuance to a relatively lesser degree than do firms based in other major countries.<sup>7</sup> German firms, in particular, have a stock of debt securities outstanding in the international markets that rivals that of U.S. firms, and as a percentage of GDP, it is three times as large. Japanese firms too have historically relied heavily on the international market for issuing debt securities, although in recent years some retrenchment of Japanese financial institutions from overseas operations has decreased issuance activity markedly.

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<sup>4</sup>As of January 1, 1997, repurchase agreements with a maturity of up to one year are exempted from reserve requirements (see Bundesbank Press Release 26/02/98).

<sup>5</sup>Since 1993, a legal basis for repos has been defined.

<sup>6</sup>The U.K. domestic market for private debt securities has largely become integrated with the Euromarket. Thus, one ought to exercise caution when interpreting statistics on the size or importance of the U.K. domestic market.

<sup>7</sup>International issues are debt securities other than those issued by residents in domestic currency: this includes non-home-currency debt issued by residents, and all debt issued by nonresidents (whether home-currency or not).

Tables 1-2 mask some interesting characteristics of domestic debt securities markets in the advanced economies. Most importantly, debt securities markets in most of the advanced economies other than the United States have not been a viable source of funds for the vast majority of (even the largest) firms. Moreover, issuance in most domestic markets outside the United States has overwhelmingly been by large financial institutions. Since 1980, of the total volume of funds raised in financial markets (including bank loans, equity issues, bond and short-term paper issues, trade credits, etc.) by all U.S. non-financial enterprises, an average of 28 percent per year is accounted for by issues of corporate debt securities (Table 3). In comparison, Japanese non-financial firms raised about six percent by issues of corporate debt securities, and issues by firms in European countries were even lower—2-3 percent on average in Italy and the Netherlands, and a negligible amount for German non-financial firms. A similar picture emerges from studying balance sheets of non-financial enterprises (Table 4). Debt securities account for one-third of non-equity liabilities of U.S. non-financial firms, whereas the corresponding number for Japanese non-financial firms has averaged only three percent since 1980, and in Europe this percentage ranges from 0.2 percent in Germany to about 10 percent in France.

The main implication of the preceding discussion is that much of the activity in domestic private debt securities markets outside the United States is attributable to financial institutions raising funds in wholesale markets, rather than traditional (non-financial) corporate financing activities. This fact is illustrated for the three largest economies in Table 5. Domestic debt securities issued by U.S. non-financial enterprises have been of the same order of magnitude as financial firms over the past decade, but debt securities issued by German non-financial firms are negligible in comparison to issues by financial firms, and in Japan they have ranged between 28 percent and 41 percent of issues by financial firms. In Japan, however, historically the vast majority of issuance activity has been accounted for by electric utilities and by Nippon Telephone and Telegraph (NTT).<sup>8</sup>

The U.S. corporate debt securities market has for a long time been an important arena for raising funds, whereas it has only been in the past decade or two that Japan and most European countries have seen corporate debt securities markets develop. In 1880 there was \$2 billion (about 16.5 percent of GNP) of domestic corporate bonds outstanding issued by U.S. non-financial corporations, and this increased steadily to \$32 billion in 1932 (55 percent of GNP).<sup>9</sup> As of the third quarter of 1997, there was \$2.86 trillion dollars of outstanding corporate bonds in the United States, split roughly evenly between the financial and non-financial corporate sector.<sup>10</sup> Further, new issues of domestic debt securities by U.S. firms in recent years have been on the order of 10 percent of GDP (Table 6). In comparison, corporate

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<sup>8</sup>Karp and Koike (1990).

<sup>9</sup>Hickman (1953).

<sup>10</sup>These figures are from the Federal Reserve Bulletin (March 1998).

Table 3. Debt Securities Financing by Non-Financial Firms in Selected Industrial Countries 1/

(As a percentage of total funds raised in financial markets)

	Japan	Italy	Netherlands	United States	Germany
1980	6.0	...	...	35.3	0.0
1981	2.5	...	...	29.8	0.0
1982	6.4	11.2	...	26.1	0.0
1983	3.2	9.0	-4.3	16.1	0.0
1984	2.5	4.0	-2.9	18.0	0.0
1985	1.7	8.5	4.1	13.0	0.0
1986	2.2	7.7	-7.2	31.1	-0.2
1987	5.5	5.4	6.9	51.5	0.0
1988	6.1	-0.1	9.1	28.8	0.0
1989	4.4	1.2	1.8	23.6	0.0
1990	14.2	0.2	3.4	48.6	0.0
1991	10.4	1.0	-2.5	33.5	0.0
1992	4.6	0.2	-0.1	18.2	0.1
1993	7.1	-6.5	12.0	10.6	0.0
1994	11.5	-2.9	...	27.7	0.0

Sources: Organization for Economic Cooperation and Development (OECD), *Financial Statistics: Non-Financial Enterprises Financial Statements (Part III)*, Smith (1995), and Deutsche Bundesbank, *KapitalMarkt Statistik*.

1/ For Germany, does not include international issues of bonds. For Italy and the Netherlands does not include commercial paper.

Table 4. Debt Securities Financing by Non-Financial Firms in Selected Industrial Countries

(Outstanding debt securities as a percentage of non-equity liabilities)

	France	Italy	Japan	Netherlands	United States	Germany 1/
1980	...	...	2.0	...	33.8	0.4
1981	...	...	2.2	...	34.0	0.3
1982	...	8.9	2.3	...	33.6	0.2
1983	...	9.2	2.4	2.0	32.2	0.2
1984	...	8.4	2.5	1.7	31.3	0.2
1985	...	8.4	2.5	1.8	29.4	0.2
1986	...	8.4	2.5	2.1	29.6	0.2
1987	...	8.1	2.5	2.2	31.5	0.2
1988	...	7.2	2.6	2.9	31.2	0.2
1989	11.1	6.4	2.8	2.4	30.6	0.2
1990	10.9	5.9	2.9	2.7	32.5	0.2
1991	2.0	5.4	3.8	5.3	33.3	0.2
1992	16.0	5.0	4.2	5.4	32.1	0.2
1993	13.8	4.5	4.3	5.5	29.2	0.2
1994	9.3	4.2	4.7	...	32.7	0.2

Sources: Organization for Economic Cooperation and Development (OECD), *Financial Statistics: Non-Financial Enterprises Financial Statements (Part III)*, Smith (1995), and Deutsche Bundesbank, *KapitalMarkt Statistik*.

1/ For Germany, does not include international issues of bonds. For France and the Netherlands includes only long-term bonds.

Table 5. Debt Securities of Non-Financial Corporate Sector Relative to Financial Sector:  
United States, Germany, and Japan

(Ratio of outstanding amounts as a percentage)

	United States	Germany	Japan
1985	134.6	0.4	27.6
1990	121.0	0.3	28.5
1991	117.9	0.3	32.2
1992	119.0	0.3	34.7
1993	107.0	0.2	33.9
1994	97.7	0.2	37.1
1995	89.4	0.2	40.1
1996	81.5	0.2	41.3

Source: Federal Reserve Bulletin, various issues; Deutsche Bundesbank Monthly Report, various issues; and Bank of Japan, Economic Statistics Monthly, various issues.

Notes: Non-financial sector debt securities includes corporate bonds and commercial paper outstanding, and financial sector debt securities includes bonds and short-term paper.

Table 6. Bond Market Financing by U.S. Firms

(In billions of U.S. dollars)

	1985	1990	1991	1992	1993	1994	1995	1996
Total issues	165.7	299.9	389.8	471.1	646.6	498.0	573.2	n.a.
By type of offering:								
Public, domestic	119.6	189.3	286.9	378.1	486.9	365.2	408.8	386.3
Private placement, domestic	46.2	87.0	74.9	65.9	116.2	76.1	87.5	n.a.
Foreign sales and other issues	...	23.6	28.0	27.1	43.5	56.7	76.9	74.8 1/
By industry:								
Manufacturing	52.1	53.1	86.6	82.1	88.0	43.4	61.1	42.0
Commercial and miscellaneous	15.1	40.0	36.7	43.1	60.4	40.7	50.7	34.1
Transportation	5.7	12.7	13.6	9.8	10.8	6.9	8.4	5.1
Public utility	13.0	17.5	23.9	48.1	56.3	13.3	13.8	8.2
Communication	10.5	6.7	9.4	15.4	32.0	13.3	23.0	13.3
Real estate and financial	69.3	169.3	219.6	272.9	394.1	380.4	416.3	358.5

Source: Federal Reserve Bulletin.

1/ Includes foreign sales only.

Note: Includes all debt security issues with a maturity greater than one year.

bonds markets in Germany and Japan (and most other countries) were virtually non-existent in 1980. Indeed, in surveys of corporate bond markets, a major international investment bank recently stated: “The most notable gap in the Japanese bond market is the absence of a corporate market” and “[t]here is little or no German corporate bond market....”<sup>11</sup>

The same is true of markets for short-term corporate debt instruments. In the 1980s, commercial paper (CP) markets simply did not exist in most countries outside of North America.<sup>12</sup> In the mid-1980s, the U.S. commercial paper market accounted for 90 percent of outstanding commercial paper globally.<sup>13</sup> The U.S. market was highly developed by the late 19<sup>th</sup> century, and at end-1922—the first date for which data is available—there were 2200 issuers of commercial paper with \$700 million outstanding. In 1997, there was just short of \$1 trillion outstanding (Table 7). In contrast, there were no issues in France and the United Kingdom until 1986, Japan until 1987, Germany until 1991, and in most other European countries there has been no CP issued until very recently. Financial deregulation beginning in the late 1970s or early 1980s, apparently designed in large part to foster increased competition among banks,<sup>14</sup> has stimulated corporate bond and note markets in many countries, but they are still less developed than U.S. markets.

Much of the issuance activity in the United States is accounted for by public issues rather than private placements (see Table 6). This is important because private issues do not change hands in secondary markets nearly as often as public issues, and as such are often fairly close substitutes for (syndicated) bank loans. Thus, public securities issues have beneficial spillover effects on secondary market liquidity. In comparison, corporate bond issues in some of the larger advanced economies are more heavily tilted toward private placements than is the case in the United States. For instance, turnover ratios of corporate bonds in the United States in the 1990s have been roughly five times as large as in Japan, and about 50 percent larger than the Euromarket.<sup>15</sup>

### III. LESSONS FROM GOVERNMENT SECURITIES MARKETS

The build-up of large debt-to-GDP ratios in the advanced economies has encouraged authorities in recent years to think about how to minimize the cost of placing and servicing

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<sup>11</sup>The respective references are Morgan Stanley (1991a, p.1) and Morgan Stanley (1991, p.1).

<sup>12</sup>Alworth and Borio (1993).

<sup>13</sup>Alworth and Borio (1993).

<sup>14</sup>See OECD (1989).

<sup>15</sup>These figures refer to the dollar value of purchases on the secondary market as a ratio to the outstanding volume of corporate bonds. The source is Smith (1995).

Table 7. The U.S. Commercial Paper Market

(In billions of U.S. dollars)

	1985	1990	1991	1992	1993	1994	1995	1996	1997
All Issuers	300.9	562.7	528.8	545.6	555.1	595.4	674.9	775.4	966.7
Financial firms	213.9	414.7	395.5	398.1	399.3	430.7	486.6	590.8	765.8
Dealer-placed	78.4	214.7	213.0	226.5	218.9	223.0	275.8	361.1	513.3
Directly-placed	135.5	200.0	182.5	171.6	180.4	207.7	210.8	229.7	252.5
Non-financial firms	87.0	147.9	133.4	147.6	155.7	164.6	188.3	184.6	200.9

Source: Federal Reserve Bulletin.



government debt. There appear to be three conclusions that summarize current views on ways to minimize the cost of placing and servicing government debt.<sup>16</sup>

First, selling debt at low cost is facilitated by tapping the pool of global capital. The share of public debt in the advanced economies held by non-residents has been on the increase since the early 1980s (Table 8). For example, foreigners owned 40 percent of the stock of U.S. government debt in 1997, compared with 15 percent in 1983. The share of foreign-held debt is not as high for other advanced economies, but it is significant and it has been increasing. The fact that the U.S. dollar is a reserve currency is undoubtedly an important factor behind the internationalization of the U.S. government securities market.

Second, cost minimization is facilitated by granting greater independence to the authority responsible for debt management, and in particular by greater independence from monetary and exchange rate policies. While much has been made in recent years of the trend toward increasing independence of central banks, this trend toward increasing independence of debt management has been just, if not more, in evidence. Where this has been done, the underlying assumption is that there are sufficient monetary policy instruments available to sterilize the impact of debt management operations on the monetary base. Under this approach, management of the maturity and currency composition of debt also ceases to send signals about future monetary and exchange rate policy.<sup>17</sup>

Third, minimizing the costs of debt is facilitated by reforming government securities markets to appeal to institutional investors. The trend in institutional holdings of debt securities in most of the advanced economies has risen substantially, and typically at the expense of the share held by households. U.S. data indicate this trend most clearly: private and public fixed income securities held by institutional investors amounted to 27.5 percent of GDP in 1980 (equivalent to 72 percent of central government debt), but rose to 63 percent in 1995 (or 95 percent of central government debt).<sup>18</sup>

Reforms to government securities markets for which there appears to be considerable consensus are patterned on the standards of liquidity, transparency, issuing and trading efficiency, and tax treatment. The remainder of this section discusses specific structural reforms to primary and secondary markets for government securities that have been

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<sup>16</sup>The following discussion draws heavily from "Government Securities Markets in Industrial Countries", Chapter V in Goldstein and Folkerts-Landau (1994).

<sup>17</sup>See Cassard and Folkerts-Landau (1997) for a discussion of the management of sovereign assets and liabilities.

<sup>18</sup>These figures were calculated from data obtained from the OECD and from the IMF's *World Economic Outlook* databank.

Table 8. Non-Residents' Holdings of Public Debt

	United States	Japan	Canada	Italy
1983	14.9	...	10.7	...
1984	15.4	...	11.3	...
1985	15.2	3.7	12.4	...
1986	16.1	3.3	16.1	...
1987	16.6	3.3	15.5	...
1988	18.4	2.0	15.7	...
1989	20.8	3.0	16.3	...
1990	20.1	4.4	17.4	4.4
1991	20.1	5.8	19.0	5.2
1992	20.4	5.5	20.2	6.2
1993	22.2	5.4	21.8	10.1
1994	22.8	5.9	22.6	12.2
1995	28.3	4.3	23.3	13.2
1996	35.0	4.3	23.8	15.9
1997	40.1	...	23.1	...

Source: Bank for International Settlements.

implemented in many countries to achieve these objectives. Most of these returns are reflected in Table 9 which compares government securities markets in France and Germany.

### A. Primary Markets

The main change to methods of issuing government securities in recent years is the move away from issuing at fixed prices through syndicates, in favor of *auctions*. Auctions are now used to issue the bulk of domestic government debt; in contrast, in markets for corporate debt securities, underwriting by syndicates is the norm. The gathering consensus seems to be that auctions, by opening up the bidding to a wider base of investors, produce greater revenues to the government. A priori it is not obvious how uniform price auctions compare with auctions that charge different prices to different bidders. Price-discriminating auctions have the potential to produce a lower average yield at issue, but they can also produce a “winners’ curse” phenomenon that works in the opposite direction.<sup>19</sup> Nevertheless, on balance, empirical and theoretical evidence suggests that uniform price auctions outperform discriminatory price auctions.<sup>20</sup> One possible reason for using the discriminatory format, particularly in the context of initial market development in developing countries, is the incentives it provides for information gathering.<sup>21</sup>

In response to demands from market participants, many countries have adopted a firm *preannounced issue calendar*. Increased certainty about issue dates and about amounts of government securities to be issued enables institutional investors to structure the maturity of their investment portfolios in line with the issuing calendar. It is often maintained that greater predictability lowers the cost of issues.

Larger issues tend to have more liquid secondary markets. By concentrating on a few *benchmark* issues in primary markets, liquidity in secondary markets can be increased substantially.<sup>22</sup> Benchmarks in the major advanced economies typically have yields that are lower than yields on nearby issues by 5-15 basis points. Issue size is particularly relevant for smaller government bond markets where there may not be enough investor demand to spread across a wide spectrum of issues. Some countries have increased the size of issues by reopening the issue of an existing security instead of issuing a different security.

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<sup>19</sup>See the Glossary for a definition of the winners’ curse.

<sup>20</sup>See, for example, Feldman and Reinhart (1995).

<sup>21</sup>See Feldman (1993) and Bartolini and Cottarelli (1994).

<sup>22</sup>A benchmark establishes a reference price or yield for a given maturity that is useful for pricing or evaluating yields on other fixed income securities with similar maturities.



From the investor's point of view, benchmark issues are usually high in volume, extremely liquid, and associated with various hedging instruments, with the added advantage of low bid-ask spreads. Benchmark issues are also used widely in repo markets and are typically usable as collateral for a wide range of other financial contracts. From the issuer's point of view, the key advantage is that the yield is the lowest possible for that particular market segment; the added liquidity also provides easy access to a wide investor base for issuance.

One final consideration for structuring primary markets for government securities is that the debt management authority be cognizant of the preferences of investors. Stripped government securities have become very popular in the United States, for example, because different investors have different requirements for the timing of interest and principal revenues. Insurance companies, mutual funds, dealers, and banks may, in turn, each have their own preferences for maturity profile, coupon, tax status, etc. The investor base also carries implications for liquidity in secondary markets. For example, because retail investors tend to be less active in trading than institutional investors, issuers in some smaller markets may be reluctant to reserve too high a share for them in view of the adverse effect on liquidity. In other circumstances, when the desire may be to increase long-term holding, retail investors could be the target group. Finally, withholding taxes, turnover taxes, and stamp duties are an anathema to institutional investors and traders alike. In smaller markets, such taxes often substantially reduce foreign interest in local securities. The trend in the advanced economies has been to eliminate these taxes altogether, or if this cannot be done for equity or political reasons, to reduce them and rebate them to foreigners as quickly and as smoothly as possible.

## **B. Secondary Markets**

Authorities in many countries have designated a group of securities firms or banks as "*primary dealers*" in the government securities market. These firms obtain privileges in exchange for accepting certain obligations. The privileges may include the right to submit noncompetitive bids at auctions, access to inter-dealer broker screens, designation as counterparties for the central banks' open market operations, access to repo financing, and bond borrowing/lending facilities with the central bank. The obligations typically involve requirement to place reasonable bids in primary markets, to ensure a fair and orderly secondary market in a range of issues, and to provide the central bank's trading desk with market information.

*Short-term fixed income markets* are a catalyst to the development of longer-term fixed-income markets in part because there is a fundamental difference in the motivation underlying much of the issuance activity in short-term fixed-income markets versus longer-term fixed-income markets. In particular, a key function of short-term fixed-income markets is cash management and position financing by both non-financial enterprises and, more importantly from the perspective of developing fixed-income markets, by banks, brokers, dealers, and institutional investors. This unique role of money markets implies that if they are

underdeveloped then this will impact negatively on the development of markets for longer-term fixed-income markets.

An efficient mechanism in money markets for financing positions is *repurchase agreements* or, more generally, securities lending and borrowing. Repurchase agreements (and reverse repurchase agreements) enable dealers to take long and short positions in a flexible manner, buying and selling according to customer demand on a relatively small capital base. They enable dealers to acquire securities demanded by customers without having to find another customer willing to sell the securities. The ability to execute repos is particularly important to foreign firms who do not have access to a domestic deposit base. Where there are no repo markets, funding has to be in the form of uncollateralized lines of credit from the banking system. For these reasons, markets for repos and securities lending are often cited as a key element in a liquid bond market. For instance, writing on the prospects for the development of repo markets in Japan, Fabozzi (1990, p.3) writes: "The growth of satellite markets is also important to the functioning of the Japanese bond market. It would be difficult to conceive of a well-functioning U.S. bond market without the repurchase ("repo") agreement market."

In the United States, repo markets are an important alternative money market instrument. By providing ready access to secured borrowing, and by enhancing liquidity in the securities markets, repos facilitate portfolio financing and the ability to short the market. Banks also can use repurchase agreements for extending credits to securities dealers collateralized by a zero-risk-weighted central government bond. In Europe, France has a transparent and liquid repo market (20 primary dealers are required to post prices on Reuters). The United Kingdom recently introduced a gilt repo market, while other countries, notably Germany, discouraged them until the end of 1996 by subjecting repo transactions with nonbanks to reserve requirements, with the result that a large share of the German repo business migrated to London. Removal of reserve requirements on repos in Germany in January 1997 has resulted in some of the repo market returning to Germany. In Italy, legal, taxation, and settlement obstacles have prevented the development of a liquid repo market.

*Liquidity* and efficient *price discovery* in secondary markets are also fostered by the development of organized futures markets (offering interest rate futures and options on government securities, for a few benchmark maturities). Dealers and other participants will be more inclined to hold trading portfolios if they can hedge interest rate risk. In addition, futures markets often have lower transactions costs than underlying cash markets; as such, trading volume tends to be far greater in some of the successful futures contracts than in the underlying cash markets. The when-issued market—a market in securities that have not yet been issued, with trades being settled on issue day—also allows the hedging of auction bids. Such markets now exist in most of the seven major industrial countries.

Finally, an *efficient clearance and settlement system* promotes liquidity in secondary markets. A book-entry system for government securities that is closely tied to the wholesale payments system is almost indispensable in this regard. A trade netting system can also

contribute to efficiency by reducing the number of payments that brokers and dealers need to make. Links between domestic clearing systems and international clearing systems, are likewise regarded as facilitating international transactions in a government securities.

#### IV. LESSONS FROM CORPORATE DEBT SECURITIES MARKETS

This section of the paper identifies a number of factors that appear to have been important for explaining the development (or lack of development) of corporate debt securities markets in various advanced economies. The discussion is centered on six broad principles relating to infrastructure and public policy in corporate debt securities markets that appear to be important for developing these markets.

##### A. Money Markets: A Prerequisite for Corporate Bond Markets

The first principle is that *well-functioning money markets* appear to be a critical first step in developing corporate fixed-income markets. The discussion in section II showed that the United States was unique among the countries considered in having highly developed money markets more than one or two decades ago. This may be one reason for the relative stages of development of corporate debt securities markets.

In addition to the importance of money markets for *financing positions* (discussed above in section III), money markets are important for the development of fixed-income markets because money markets *price liquidity*, which is a benchmark for pricing any fixed-income instrument. The price of liquidity *anchors* the short-end of yield curves, and thereby serves as a benchmark for pricing other fixed-income securities that differ in terms of liquidity, credit quality, and maturity.

This anchoring role for money markets is sufficiently important that the developed corporate money markets are dominated by large, highly-rated firms. Although there are over 1000 corporate issuers in the largest money markets, less than 15 percent of issuers in nearly all of the advanced economies account for over half of total issues.<sup>23</sup> In the United States where there are close to 2000 issuers of short-term paper (including financial and non-financial firms), five percent of issuers account for over half the outstanding commercial paper (CP). Further, almost all CP in the United States, Canada, the United Kingdom, and Japan is rated for credit quality, the share of CP rated below the top two categories is negligible, and the preponderance of paper in all of the advanced economies receives the highest possible credit rating.<sup>24</sup> For example, in the United States well over 95 percent of all issues are rated in the top two categories, and 80-90 percent of CP has the highest rating. In the market for medium term notes (MTN's)—which effectively provides a bridge between money market

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<sup>23</sup>Alworth and Borio (1993).

<sup>24</sup>See Alworth and Borio (1993).

instruments and corporate bond issues—less than one percent of issues in the United States since 1983 have been rated below investment grade at the time of issue.<sup>25</sup>

In the United States, there are various exemptions in the Securities Act of 1933 that permit lower-rated issuers to tap money markets. It might appear puzzling, therefore, that there is such a high concentration of paper in the top rating category. The explanation appears to be the tastes of investors as well as the influence of regulation. Because of the nature of money market activity—position financing and cash management—market participants have little appetite for assuming credit risk on money market positions. Regulation has influenced credit quality in money markets historically via restrictions on the grade of corporate paper that has been eligible for central bank discounting and, more recently, via restrictions on permissible investments of money market funds. Rule 2a-7 of the Investment Company Act<sup>26</sup> was amended in April 1991 to limit the amount of Tier 1 and Tier 2 paper that can be purchased by a money market mutual fund. The amended Rule 2a-7 requires that money market funds cannot have more than five percent of assets in Tier 2 paper and only one percent of assets in any one issuer rated Tier 2.<sup>27</sup> Since money market mutual funds are currently the largest investors in the domestic money market in the United States (as discussed below), this amendment heavily influences the demand for lower-quality money market instruments.

## **B. Regulatory Policies**

Regulatory policies in primary markets have been an important influence historically in either encouraging or inhibiting the development of corporate debt securities markets. Likewise, weak regulation and supervision of securities markets has stunted the development and growth of securities markets.

Strict financial regulations in the advanced countries have at one time or another encouraged and fostered the development and success of supranational, or “offshore” markets. The most glaring examples are the rapid development of the Euromarkets in London, and the widespread use of offshore markets such as Singapore and Hong Kong for trading financial products from many Asian countries. The development of the Euromarkets are clearly linked to regulatory policies in advanced countries. For example, in the late 1960s, U.S. money market rates rose above the rates affected by Regulation Q. The consequence was

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<sup>25</sup>Crabbe (1993).

<sup>26</sup>The Investment Company Act provides the U.S. Securities and Exchange Commission with the mandate to govern mutual funds.

<sup>27</sup>Tier 1 paper is defined as having the top short-term ratings from two recognized rating agencies, whereas Tier 2 paper is all other paper.



that U.S. banks circumvented Regulation Q by routing wholesale deposits through branches in London, thereby fostering the development of the Eurodollar market.<sup>28</sup>

In addition, U.S. capital controls imposed during the 1960s were an important factor behind the development of the Eurodollar market. The Interest Equalization Tax of 1964, for example, raised the cost of bond issuance by foreigners in the U.S. bond market. This tax and other capital controls during the 1960s and early 1970s created large incentives to develop U.S. dollar bond markets outside the United States.<sup>29</sup> As discussed below, various regulations affecting the cost of issuing fixed income securities in a variety of other advanced economies were also instrumental in the development of Deutsche mark, yen, French franc, and other segments of the Euro fixed income markets. Of course, there are a variety of other reasons why an issuer might choose to tap the Euromarket, including the range of currencies, the investor base, and the choice of underwriters. Polls of firms that issue securities in the Euromarket indicate, however, that about half of all corporate issuers emphasize the desirability of the relatively lower regulatory burden in the Euromarket.<sup>30</sup>

Among the largest economies, France, Germany, Japan, and Italy all appear to have had strict regulation (including taxation) in corporate securities markets. Historically, the underdevelopment of *money markets* in many European countries is attributable to the fact that CP issues have simply been precluded until very recently, either by regulation or prohibitive taxation.<sup>31</sup> In France, prior to 1985 the money market was closed to non-financial enterprises and, on the investor side, it was closed to individuals. In Germany, commercial

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<sup>28</sup>See Stigum (1990) for a history of the development of the Euromarket.

<sup>29</sup>These regulations were eliminated in 1974 (see Stigum (1990)).

<sup>30</sup>See, for example, International Financial Law Review (1993). Issuers in the Euromarket must comply with regulations specific to issuance in the Euromarket as well as the regulatory requirements of all countries in which the securities are to be sold. The primary market in Eurobonds is governed by a set of rules established by the International Primary Markets Association (IPMA), a Self Regulating Organization (SRO) established in 1984 as a voluntary organization of some 50 issuing houses to promote standards in the primary market in Eurobonds in documentation, communication, information disclosure and syndication practice (for further details see Clarke (1990)). The oversight and regulation of Eurobond secondary markets is also done by an SRO, the International Securities Market Association (ISMA)—formerly the Association of International Bond Dealers (AIDB)—established in 1969 by 150 banks active in the market. This organization has recently acquired status as an investment exchange under the U.K.'s Financial Services Act (FSA); prior to recognition as a regulatory authority under the FSA, ISMA regulated the secondary Eurobond markets purely on a voluntary basis.

<sup>31</sup>Alworth and Borio (1993).

paper issuance prior to 1991 appears to have been inhibited by the regulatory burden of the requirements contained in the Civil Code. In addition, turnover and withholding taxes in Germany may have also had an impact; for instance, a turnover tax of six percent on securities, regardless of maturity was not removed until December 1990. While this tax was detrimental to issuing all securities in Germany, it would appear to have weighed especially heavily on short-maturity securities. The German experience with transaction taxes in securities markets is illustrative of most experiences with these types of taxes: transaction taxes have historically proven to be not very effective revenue generators, but they have proven to be effective in limiting the size of securities markets.

Japanese regulatory policy has also been restrictive. CP was prohibited in Japan prior to November 1987, and there have been significant restrictions on money market investments by mutual funds.<sup>32</sup> In addition, and as in Germany, there was a tax—the stamp duty—on commercial paper. In both Germany and Japan, repo markets appear also to have been discouraged by public policy—by reserve requirements prior to 1997 in Germany and by a transactions tax in Japan.<sup>33</sup>

Regulatory policies have also affected the development of *corporate bond markets*. In Germany, historically the legal requirements for a private sector bond issue appear to have made this option a more expensive method of raising funds than a bank loan. These regulations (contained in sections 795 and 808a of the German Civil Code) included a minimum maturity of 5 years prior to 1984 (lowered to 2 years in 1984), and advance permission from the Ministry of Finance for each bond issue. This permission process appears to have taken a sufficient amount of time that it impeded the ability to issue when market developments might be considered favorable. The regulatory burden to issue corporate debt securities in Germany has been lightened in the 1990s, but the immediate impact of these reforms may be slow to take hold now that much of the Deutsche mark corporate bond market is established in London.

In France, some similarities in regulatory policy with Germany appear to have had similar effects. First, the minimum permitted maturity for corporate bond issues was seven years prior to 1992.<sup>34</sup> Second, historically the French Treasury tightly regulated bond issues by controlling the timing of new issues, imposing prior authorization requirements, and commissions and brokerage fees were administratively set.<sup>35</sup> As Serre and Cobham (1990, p.87) state: "...since 1946 the minister of Finance has had a general power to authorize new

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<sup>32</sup>See Dickson, Fuchida, and Nishizawa (1990).

<sup>33</sup>Indeed, in Japan, bond lending was not authorized until 1989.

<sup>34</sup>This requirement has subsequently been reduced in a series of steps.

<sup>35</sup>Serre and Cobham (1990).

issues, which was used to suspend the issue of private-sector securities during the issue of a government loan or when the authorities wished to regulate interest rates.”

Regulations in securities markets are normally justified by one or more of the following objectives: (1) fair and equal treatment of investors (investor protection), (2) market integrity, and (3) containing systemic risk. From this standpoint, Table 10 lists 30 broad principles of securities market supervision and regulation that have recently been proposed by IOSCO (1998). These principles are quite general, so they do not provide much guidance on the details of specific regulations or supervisory procedures for individual countries. However, IOSCO (and others) has separately studied the details of most of these 30 principles.<sup>36</sup>

As mentioned above, an effective supervisory and regulatory system is critical for the development of securities markets. The experiences in various countries discussed above offer three additional insights for designing the supervisory and regulatory system. First, the regulatory process must be efficient: market-timing is of the utmost importance to both issuers and investors in securities markets; significant regulatory delay is tantamount to prohibitive regulation.

Second, transactions taxes and withholding taxes can, and often do, have the effect of driving issuance and trading activity offshore. Countering such incentives by making it more difficult for domestic residents to participate in offshore securities markets will do little for the domestic securities markets—it will most often just promote intermediated financing over securities markets.

Third, the terms of securities issues are best decided between the issuer and investment banks. Regulations governing issuance of securities must ensure a level playing field for all market participants, but regulatory interference with the terms of issues (coupons, maturity, pricing, timing, etc.) will raise the perceived cost of issuing securities and stifle securities market activity. Similarly, subject to ensuring market integrity and containing systemic risk, brokerage, trustee, and investment banking fees should be determined competitively, without regulatory influence. However, as discussed next, regulators ought to be aware that imperfect competition in the financial industry can disrupt market forces in much the same way as a dysfunctional regulatory system can.

### **C. Concentration of Market Power in the Financial Industry**

Impediments to developing markets for corporate debt securities might emanate from within the financial industry itself, rather than simply due to excessive government regulation or regulatory delay. Indeed, in several countries (the Netherlands, Japan, Germany, France, Italy) in which banks are widely viewed as having significant market power, the market power

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<sup>36</sup>Annexes A and B to IOSCO (1998) contain a list of IOSCO publications dealing with specific topics in supervision and regulation of securities markets.

Table 10. IOSCO Principles of Supervision and Regulation

I. The Regulator	1. Responsibilities clear and objectively stated.
	2. Operationally independent and accountable.
	3. Adequate powers and proper resources.
	4. Clear and consistent regulatory processes.
	5. Professional conduct (confidentiality).
II. Self Regulating Organizations	6. Make appropriate use of SROs.
	7. SROs subject to oversight of regulator.
III. Enforcement	8. Comprehensive inspection, investigation, and surveillance powers.
	9. Comprehensive enforcement powers.
	10. Effective compliance program.
IV. Regulator Cooperation	11. Authority to share information with domestic and foreign counterparts.
	12. Establish information sharing mechanisms.
	13. Assist foreign regulators in their inquiries.
V. Issuers	14. Full, timely, and accurate disclosure.
	15. Fair and equitable treatment of investors.
	16. Internationally accepted accounting standards.
VI. Collective Investment Schemes	17. Licensing standards.
	18. Segregation and protection of client assets.
	19. Full, timely, and accurate disclosure.
	20. Proper and disclosed basis for asset valuation and unit redemptions.
VII. Brokers, Dealers, and Other Intermediaries	21. Minimum entry standards.
	22. Capital requirements.
	23. Organizational and operational standards to protect clients.
	24. Procedures for dealing with failed institutions.
VIII. Secondary Market	25. Trading system subject to regulatory authorization and oversight.
	26. Ongoing supervision.
	27. Transparency of trading.
	28. Mechanism for detecting/deterring manipulation/unfair trading practices.
	29. Large exposure monitoring/management.
	30. Efficient clearance and settlement.

Source: Objectives and Principles of Securities Regulation (Consultation Draft), IOSCO, April 1, 1998.

of banks has been suggested as a factor that has impeded securities markets.<sup>37</sup> There are at least two possible ways in which these impediments to securities markets could arise from within the financial system.<sup>38</sup> First, banks may be able to impede securities markets by strategically setting loan and deposit rates.<sup>39</sup> Second, banks may exercise direct control over securities markets (e.g. distribution networks, access to the payment system), and thus banks might simply dissuade firms (or make it very costly for them) to fund themselves in securities markets.<sup>40</sup> The large banks in Japan and Germany, for example, have historically dominated the primary market for corporate bonds, and in the case of Japan the issuance criteria established by banks appear to have been unfavorable to the development of a corporate bond market. The fact that banks in Japan and in many European countries have historically held large equity stakes in non-financial firms may also be a source of bank market power that can impede securities market financing.<sup>41</sup> The deregulation of capital markets and the dismantling of capital controls starting in the 1970s has increased the number of market participants in many countries with concentrated banking systems, and that may have eroded the direct control that banks may have had over securities markets.

In the United States, a historical emphasis on ensuring that market power in the financial industry was limited<sup>42</sup> may have contributed to the growth of U.S. securities markets. In contrast, it is not at all clear that historically the emphasis in financial regulation in many European countries and in Japan was conducive to the development of investment banking expertise and the securities industry. In France, the terms of a corporate bond issue have traditionally been negotiated between the lead financial institution and the Treasury, rather than between the issuer and investment banks: "In a normal period, that is when there is no rationing of issues, it is up to the Issues Committee to fix the timetable of new issues. This committee, which includes the main banks of the primary markets and the Caisse des Depots et Consignations as well as the Treasury, ... [set the timetable until recently] around the needs

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<sup>37</sup>See Benston (1994) for a survey, and The Economist (1995) and Covill (1995) for recent views to this effect for Italy and Germany.

<sup>38</sup>Smith (1998).

<sup>39</sup>Smith (1998) presents a formal model with this implication.

<sup>40</sup>This idea is expressed in, for example, Covill (1995), Fisher (1996), and The Economist (1995).

<sup>41</sup>Karp and Koike (1990) make this argument for Japan.

<sup>42</sup>Benston (1994) and Borio and Filosa (1994).

of the public sector.” (Serre and Cobham (1990, p.87-88)). In Germany, the market power of banks has also been linked with comparatively small securities markets.<sup>43</sup>

Stringent regulations governing the issuance of bonds by Japanese firms in the domestic market appear to have played a role in bond issuance, but at least some of the reportedly onerous regulatory requirements were developed *within the financial industry* rather than by a governmental regulatory authority: “Until recently, corporate bonds have not been very popular because the bond market is not a free market. The issues are tightly regulated by the Japanese government and the large security houses. For example, the coupon rates on corporate bonds are fixed and linked to those on long-term government bonds. Also, straight bond issues are regulated by... a committee composed mainly of city banks.” (Karp and Koike (1990, p. 361).

Until 1987, the chief regulating body for straight bonds was the Bond Issue Arrangement Committee (BIAC) that developed in the 1930s with the support of the Japanese Ministry of Finance. The heart of the BIAC was eight private banks, headed by the Industrial Bank of Japan. The BIAC appears to have developed a set of bond issuance conditions that were unfavorable for the development of the domestic corporate bond market.<sup>44</sup> A similar internal regulatory system existed for equity-linked bonds, with securities firms playing the role that banks played (in the BIAC) in the straight bond market. Again, issuance conditions have been widely regarded as very strict.

The “commission bank system” in Japan, whereby fixed trustee fees earned by banks for securities issues, appear to have made domestic issues of debt securities costly. Specifically, while underwriting fees seem to be competitive relative to the Euromarket,<sup>45</sup> trustee fees in the domestic market appear to have been sufficiently high that total issuing costs in Japan

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<sup>43</sup>Covill (1998) discusses the control banks exert over some aspects of securities markets.

<sup>44</sup>See Karp and Koike (1990) for example. A cornerstone of bond issuance criteria in Japan was collateralization: the first uncollateralized bond was not issued in Japan until 1979. The bond issuance regulations required that only fully secured bonds could be issued, and even then only up to a stringent maximum amount (essentially determined by a firm’s equity capital). Further, only “trustee banks” were permitted to manage the relevant collateral (in exchange for a handsome fee). The consequence of these regulations was that bank loans provided the only financially viable source of external debt finance for most Japanese firms. Indeed, issuers of bonds were for the most part electric utilities and Nippon Telegraph and Telephone (NTT). As recently as the late 1980s, for example, this small group of firms accounted for more than 99 percent of all corporate bond issues.

<sup>45</sup>See, for example, Takeda and Turner (1992).

exceeded those in the Euromarket.<sup>46</sup> Karp and Koike (1990) calculate total issuance costs in Japan to be on the order of 2.5 percent for ten-year corporate bonds, whereas Fabozzi, Modigliani, and Ferri (1994) place fees associated with issuing ten-year corporate bonds in the United States at 0.7-1.3 percent, depending on the size of the issue.

A further possible indication of market power in the Japanese financial industry having an effect on corporate bond markets is that, until very recently, there was reportedly little variation in underwriting syndicates in the domestic market: the “Big Four” securities firms (along with some smaller firms) provided underwriting services for all issues in Japan.<sup>47</sup> The experience of Japanese firms in this regard is shared by firms in other countries: more than half of all issuers in the Euromarket report that their decision to issue there rather than locally was because of the choice of underwriters.<sup>48 49</sup>

#### **D. Primary Market Infrastructure**

Issuing corporate securities typically involves investment banking expertise in one or both of the following activities: (1) advising the issuer on the terms and timing of the offering and (2) underwriting the issue either on a “firm commitment basis”—the price is guaranteed by the underwriter—or a “best efforts” arrangement—roughly put, the securities are sold at

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<sup>46</sup>The Economist (1994).

<sup>47</sup>Nikkei Weekly (1994b).

<sup>48</sup>International Financial Law Review (1993).

<sup>49</sup>Stimulus to bond issuance as a financing tool for Japanese enterprises has been provided by a large number of regulatory changes over the past decade or so. Some of the key regulatory changes to the corporate bond markets include the permission to issue bonds in foreign markets without explicit government approval, the issuance of unsecured bonds, the lifting of ceilings on bond issues by any firm, the lowering of the minimum required credit ratings, and the deregulation of commission fees. Deregulation of foreign exchange transactions including derivative instruments such as forward rate agreements and swaps have also contributed to the growth of securitized debt markets in Japan (see Osugi (1990), Takeda and Turner (1992), and Risk (1994) for additional discussion). The implementation of the “proposal method” to replace the BIAC's practice of dictating the terms and conditions of a prospective bond issue has also been instrumental to the development of the Japanese corporate bond market. The proposal method allows firms to solicit proposals from underwriters on the terms and conditions and the associated fees rather than having these dictated by the bond issuance committee.

the price which the market will bear.<sup>50</sup> Investment banking expertise is time consuming to develop, and expensive to purchase from outside a firm or a country. From the perspective of a country seeking to develop the necessary expertise locally, arguably an efficient way to do so is to include in local underwriting syndicates, foreign institutions that have expertise in pricing and bringing issues to market. For instance, in Japan, both municipalities and corporate bond issuers have recently included foreign underwriters in underwriting syndicates on the condition that they make markets in the bonds, and this is purported to have boosted secondary market liquidity. This mirrors the structure of bond syndicates in the Euromarket, which typically include both major international investment banks and financial institutions from the country whose currency the issue is denominated in (to market the issue locally).

The way that an issue is brought to market is important because investors need to be confident that an issue is properly priced. Underwriting syndicates usually have several institutions, and as a result there can be a lack of discipline over the price at which members of the syndicate market the issue.<sup>51</sup> As Davis (p. 116, 1992) points out, “As a result of intense competition, bonds are often sold at a discount to attract investors (the “reallowance”) or else banks would sell their bonds in the grey market (a market for bonds on which the issue price or syndicate allocations has not been determined, where quotes are set in relation to the unknown final price), which may oblige the lead manager to buy the bonds back in order to support the price.” This possibility can reduce the incentives by investment banks to participate in underwriting securities to begin with, and can therefore have adverse effects on the availability or cost of investment banking services.

These potential sources of market failure led to the development in the U.S. corporate bond market of the “fixed-price reoffer” technique for bringing securities to market. This technique is effectively a collusion device that prevents sellers in the primary market from undercutting each other: banks in the syndicate have a contractual obligation not to sell for

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<sup>50</sup>There may be up to three layers between the issuer and the final investors. The first layer is the managing group, comprised of a syndicate of firms with one (or more) being the lead manager (the “book runner”). The second layer is the underwriters, who perform an insurance function to the managing group by agreeing to buy the issues at a set price if they cannot be sold for a higher price in the market at the time of issue. The third layer is the selling group that markets the securities. Often the same firms perform more than one of these three functions. The price is only fixed at the end of the selling period, which generates some uncertainty for the issuer.

<sup>51</sup>A much less-widely used method of issuing corporate debt securities, is to auction them. The advantage of an auction is that it eliminates the costs of underwriting, but on the other side of the ledger there is no obligation by some investment banks to make a secondary market in the issue. Moreover, this form of issuing securities is likely only practical for issuers that issue frequently and in large amounts—hence its widespread use for the issuance of government debt obligations.



less than an agreed-upon price during a specified period of time, and the price in the grey market is generally supported by a continuous bid (at the reoffer price) by the lead manager of the issue. Because of the appeal of this technique from the perspective of the investment banks, it has been adopted in the corporate bond markets in some European countries, it is now widely used in the Euromarket, and has very recently been introduced (by U.S. investment banks) in the Japanese domestic corporate bond market.

Because the fixed-price reoffer device introduces an element of collusive behavior into primary securities markets, one might be tempted to conclude that it is therefore a source of inefficiency. There can be little doubt that the fixed-price reoffer does reduce price competition by sellers in primary markets, and can therefore have an adverse effect on the issue price from investors' perspectives. But, if the issue is marketed by reputable investment banking firms and the issue is therefore properly priced at issue, too much competition may not be desirable because it could produce an under-provision of investment banking services. These issues have been viewed by the U.S. Securities and Exchange Commission as potentially serious enough that the fixed-price reoffer system is in fact the only form of market manipulation that is condoned by the Securities and Exchange Commission.

Price discovery in primary markets for corporate debt securities is facilitated by the existence of a liquid benchmark yield curve from which to price new issues and credible credit ratings of issuers.<sup>52</sup> Benchmark securities were discussed in section III. Credit ratings have been prevalent historically in many bond markets, but has certainly been used most widely, and for the longest period of time, in North America. The predominant rating agencies, Moody's Investor Services and Standard and Poor's, rate all taxable securities sold in the U.S. domestic market that are registered with the SEC, whether or not they are compensated by the issuer for the rating. Japan has utilized ratings since 1959, but they have historically relied on domestic rating agencies. Questions about the credibility of these domestic rating agencies has reportedly led more recently to wider use in Japan of the rating services of Moody's and Standard and Poor's.<sup>53</sup> Credibility of the rating process and thus the integrity of primary debt

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<sup>52</sup>Indeed, the pricing of corporate debt securities is often expressed in terms of the yield spread over the relevant government bond (i.e. same currency, same maturity) or possibly over (or under) an interbank funds rate (e.g. LIBOR). The convention in Eurodollar markets, for example, is to quote Eurobonds versus "on-the-run" Treasuries. If the benchmark bond does not exist in the relevant maturity, the practice is to quote versus the "interpolated" yield curve—an average of the yields on the two on-the-run Treasuries flanking the Eurobond's maturity. This same methodology is used for Eurobonds in other currencies.

<sup>53</sup>In particular, there has historically been inconsistencies between the ratings assigned to Japanese firms by Japanese rating agencies and some foreign rating agencies. Japanese rating agencies have apparently assigned consistently higher ratings than non-Japanese ratings (International Financing Review (1994)).

securities markets can be established by complementing domestic rating agencies with ratings from credible foreign rating agencies.

### **E. Secondary Market Infrastructure**

In the Euromarket and in local bond markets in the advanced economies, even though many debt securities are listed on an exchange, by far the most common platform for trading debt securities is over-the-counter (OTC). For instance, Eurobonds are typically listed in London or Luxembourg but virtually all trading occurs in the OTC market. In the United States, there are several thousand bond issues listed on the NYSE, but trading in the OTC market dwarfs exchange-trading of bonds. This is also true of the domestic bond markets in Japan, the United Kingdom, and Germany.<sup>54</sup> The chief reason that bond market trading is concentrated in OTC markets is that the diversity of debt securities (maturity, duration, coupons, credit risk) tends to result in limited trading of most corporate debt issues, and thus a dealership trading system can improve liquidity.<sup>55</sup> Nonetheless, secondary markets in the largest corporate bond markets—the United States and the Euromarket—are quite illiquid for the majority of bond issues, just as liquidity in government securities markets is typically limited to a few benchmark issues.

A stock exchange listing can serve a useful function in secondary markets for bonds, even if most trading occurs OTC. In the United States, for example, listing bonds on the NYSE serves two important purposes for the secondary bond market. First, the NYSE requires that member firms execute small customer orders on the floor of the exchange unless a better price can be obtained off the floor. Exchange listing therefore provides an important safeguard for small investors, and therefore contributes positively to liquidity of the overall market. Second, the Automated Bond System provides quotes on all listed issues to broker-dealer firms that subscribe to the service, and thus facilitates information flow and the price-discovery process.

As discussed in section III, a lesson from the developed bond markets is that liquidity in secondary markets is often promoted by conferring privileges on some market participants in return for an obligation by those institutions to make markets in securities. Recall that primary dealer systems in government securities markets confer privileged access to new issues or to information in exchange for the obligation to make secondary markets in securities. In equity

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<sup>54</sup>A key reason for listing bonds on an exchange is that some institutional investors may only invest in exchange-traded securities.

<sup>55</sup>In the developed corporate debt securities markets, trading OTC may have a number of dealers in any single bond issue, but in practice the number of dealers of an issue is roughly proportional to the trading volume of the issue. The most liquid corporate bond issues in the United States, for example have about ten dealers, whereas illiquid bonds may have a single dealer.

markets, a similar arrangement has been instituted in some countries by conferring exclusive rights (such as a specialist's exclusive access to order book information on the New York Stock Exchange or access to inter-dealer brokers' screens in OTC markets) in exchange for a contractual obligation to ensure a fair and orderly secondary market. In corporate debt securities markets, this tying of monopoly power with obligations in secondary markets is more complicated because there is not a monopoly issuer of corporate debt securities—in contrast to government securities. Nonetheless, exclusive access to inter-dealer brokers' (IDBs) screens is a common privilege given to market makers in corporate bond markets. In the Euromarket, for example, access to the IDB's screens is one of the chief privileges of being recognized as a reporting dealer by the ISMA, and Section 900 of ISMA's rulebook sets out the market-making and other obligations of reporting dealers.

One further factor that is important to secondary market liquidity is the clearance and settlement system. In Japan, for example, the clearance and settlement system appears to have limited interest in corporate bonds, because it was a decentralized, paper-based system.<sup>56</sup> Problems with bond settlement systems have plagued other corporate bond markets, including the United Kingdom's paper-based system which has only recently been modernized. The standard reference for appropriate minimum standards in clearance and settlement systems is the Group of 30's *Clearance and Settlement in the World's Securities Markets*. Those standards are most appropriate for relatively sophisticated payments system as they are largely concerned with enhancing efficiency. More comprehensive lists of minimum standards for clearance and settlement of securities transactions are contained in IOSCO (1992) and the more recent work by National Securities Clearing Corporation (1997).

#### **F. The Investor Base**

The sixth principle is developing an investor base for corporate securities. In section III, it was noted that the investor base in government securities markets in the advanced economies has become international and increasingly dominated by institutions. The trends are similar in markets for corporate debt securities in the advanced economies. In a number of commercial paper markets (e.g. the U.K., French, and Japanese markets), banks and non-financial firms have traditionally been the key investors in these markets. As in the United States and the Euromarket, however, institutional investors have recently become larger players in these countries. In the U.S. domestic money market, money market mutual funds have become by far the single most important investor in this market. Currently (in early 1998) there are more than 1000 money market mutual funds in the United States with net assets in excess of \$1.1 trillion. To put this in perspective, assets of U.S. money market mutual funds are roughly 50 percent larger than the entire stock of U.S. Treasury bill securities, and equal to about one-quarter of the total assets of all mutual funds in the United

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<sup>56</sup>In effect, bonds traded had to be hand delivered to one of the over 100 banks that act as registration agents and payment occurred well before delivery, thus introducing significant settlement risk (see Nikkei Weekly (1993, 1994a) and The Economist (1994)).

States.<sup>57</sup> Money market mutual funds are less significant in other countries, but they have begun to grow in importance, in part because of financial deregulation—for instance, money market funds were prohibited in Germany prior to August 1994.

The increasing importance of institutional investors is also apparent in corporate bond markets. In Japanese and European corporate bond markets: Institutional investors have steadily displaced banks, individuals, and non-financial firms as investors.<sup>58</sup> In the United States, the share held by households and banks together has not declined much in recent years, and currently accounts for only about 20 percent of the market (Table 11). In contrast, the share held by mutual funds has steadily increased, though less dramatically than in money markets. Currently, dedicated bond funds in the U.S. (Taxable and non-taxable) hold in excess of \$700 billion in assets, and hybrid (i.e. bond and stock) funds represent roughly half as much as of early 1998.<sup>59</sup>

## V. CONCLUDING REMARKS

The objective of this paper is to identify factors in the experiences of the advanced countries that might have contributed to the development and effectiveness of debt securities markets. The factors that have been identified clearly do not constitute an exhaustive list of influences on the development, or lack thereof, of debt securities markets, and the paper has barely scratched the surface on the more fundamental determinants such as legal structures (including commercial codes), cultures, and histories. Accordingly, the identified factors should not be viewed as a complete recipe for “how to” foster the development of securities markets. Instead, they can be seen as necessary but not sufficient characteristics of effective securities markets, or at a minimum as useful for avoiding some historical obstacles to the development of debt securities markets. They also offer some guidance on valuable market practices.

There are characteristics of markets that have not been discussed at length in this paper that are key determinants of the development of effective securities markets. Market liquidity, for example, is a key characteristic of highly developed securities markets. Investors must feel confident that they can buy and sell securities of relatively large quantities without significantly affecting prices and that they can liquidate their holdings in a reasonable period of time, if not immediately. As such, market liquidity cannot be dictated by regulations; it must be promoted and nurtured by instilling investor confidence, in part by fostering market integrity, investor protection, and an effective market infrastructure. Each of these factors

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<sup>57</sup>These figures are from the Investment Company Institute and the Treasury Bulletin (U.S. Department of the Treasury).

<sup>58</sup>European Bond Commission (1993), and Smith (1995).

<sup>59</sup>Investment Company Institute.

Table 11. Holders of U.S. Corporate and Yankee Bonds

(In percent of total)

	Households	Foreign	Banks	Insurance	Private Pensions	Public Pensions	Mutual Funds	Brokers Dealers	Others
1985	9.4	14.3	11.7	35.6	11.3	12.2	2.9	2.6	0.0
1990	12.6	12.8	11.3	38.5	8.8	9.9	4.5	1.7	0.0
1991	16.2	12.5	10.7	37.1	8.8	6.9	5.7	2.2	0.0
1992	14.5	12.3	10.4	36.9	9.2	7.2	6.9	2.5	0.0
1993	14.6	11.8	9.6	35.5	9.1	6.8	8.7	3.2	0.7
1994	13.7	12.7	9.0	36.1	9.5	6.6	8.2	2.6	1.5
1995	15.1	13.3	8.0	35.2	9.7	5.8	8.3	2.8	1.8
1996	14.4	13.7	7.7	35.2	9.8	6.0	8.6	2.7	1.9

Source: Flow of Funds, Board of Governors of the Federal Reserve Board.

Notes: The 1996 number relates to the first quarter. Mutual Funds includes open-end and closed-end funds. Banks includes commercial banks, savings institutions, and bank personal trusts. Public pension is state and local government pension funds.

underlying liquidity can take a considerable time to develop. Similarly, an essential element of a debt securities market is an investor base with an appetite for evaluating and trading in credit risk. It is relatively straightforward to describe the characteristics of an active and sophisticated investor base, but again it cannot be decreed, and in practice investor bases have developed only gradually as the above characteristics of markets evolve. The advantage of developing securities markets in the current global financial environment is that there is a ready made international investor base eager to invest in countries with sound fundamentals, reasonable returns, and relatively efficient markets and financial infrastructures. While the paper has touched on some of the factors that comprise a developed corporate debt securities market, there are a host of additional factors that we have not addressed.

There are also somewhat more fundamental, deeper characteristics of financial architecture and economic structure that influence how the art of finance develops in a particular nation, and this paper has barely touched upon them. Historically, U.S. corporate debt securities markets flourished for periods of time in environments characterized by extreme segmentation in the financial system, financial crises and panics, often confusing and overlapping systems of financial supervision and regulation, and a lengthy list of distortion-prone financial sector policies. The strict separation of commercial banking and securities markets, for example, may have encouraged the development of a competitive and efficient set of investment banks and securities firms. Moreover, the more fundamental legal structure of the commercial code and bankruptcy laws, and the systems and patterns of corporate governance that emerged through time also played an important role. Thus, taken together all of these factors might have worked together to encourage finance in the United States to focus to a larger extent than in other countries on tradable and marketable securities rather than closely held, nontraded loan agreements between two counterparties. By contrast, the underlying legal infrastructures, commercial codes, and governance mechanisms through time encouraged the development of the universal banking concept in European countries, which by encouraging bilateral loan agreements might have discouraged, or at least not encouraged, the more active use and development of tradeable and marketable securities and the market structures to price and allocate them. These more fundamental influences are in some ways more important than the factors identified in the paper because they heavily influence the evolution of economic and financial relationships over long periods of time. As such, they may be difficult to change quickly even if there is the desire to do so.

## Auction

**Discriminatory:** Auction in which each successful bidder pays the price bid. Also known as a **multiple-price** auction.

**Uniform-price:** Auction in which all successful bidders pay the same price, usually the price of the lowest successful bid. Sometimes called a **Dutch** auction.

**Sealed-bid:** Auction in which all bids are submitted secretly, before some deadline, with no opportunity for revision.

**Benchmark:** Security used as the basis for interest rate calculations and for pricing other securities. Also denotes the most heavily traded and liquid security of a particular class.

**Broker:** Financial intermediary that solicits orders from buyers and sellers and then orchestrates trades, either by passing the identity of each party to the other or by making offsetting, simultaneous trades with each party. Brokers typically maintain computer screens with anonymous bid and offer quotes from dealers.

**Cash market:** Market for sale of a security against immediate delivery, as opposed to the futures market.

**Dealer:** A financial intermediary that buys and sells securities or other instruments, by setting bid and offer quotes. Unlike brokers, dealers take positions in the instruments.

**Margin:** Amount of cash that must be provided when borrowing to purchase a security. For example, U.S. regulations limit margin to 50 percent for equity purchases, so that a customer may only borrow half the value of a stock purchased. Margin also refers to the amount by which value of a security in a repurchase agreement exceeds cash lent.

**Market-maker:** A dealer that posts ongoing quotes in a particular instrument.

**On-the-run:** Term used in the United States for the most recently issued Treasury security of a particular maturity class, which is also the most liquid and heavily traded (see **benchmark**). On-the-run status begins with when-issued trading.

**Par:** The principal of a bond.

**Primary dealers:** Group of dealers in the United States with a formal, ongoing trading relationship with the Federal Reserve Bank of New York and with certain obligations in the primary and secondary market for Treasury securities. Term also applies to similar entities in other countries.

**Primary market:** Market in which a security is first sold by issuer.

**Price discovery:** A general term for the process by which financial markets attain an equilibrium price, especially in the primary market. Usually refers to the incorporation of information into the price.

**Repurchase agreement (repo):** An agreement to sell a security and then repurchase it at a particular time and price.

**Secondary market:** Market in which a security is sold by one investor to another, as opposed to the primary market.

**Settlement risk:** Risk that one party or another in a securities trade will fail to deliver, especially when the other party has already delivered.

**Strip:** A pure-discount security created by the decomposition of a bond into separate securities for each coupon payment and for the final principal payment. The term strip comes from the U.S. Treasury acronym for “separate trading of registered interest and principal.”

**Syndicate:** Group of intermediaries that purchase prearranged shares of a security in the primary market and sell the security to other investors.

**Tap sales:** Sales by a central bank of a new issue of government securities, usually on a gradual basis.

**When-issued:** The market for a security before it is sold on the primary market.

**Winners’ curse:** Losses incurred by successful bidders at an auction, due to those bidders’ having inaccurate, overoptimistic information on the value of the item auctioned.

**Yield to maturity:** Interest rate that makes a bond’s present value equal to its market price. If the price of a bond is below par, the yield to maturity is greater than the bond’s coupon rate, and the bond is said to trade at a discount.



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