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# Examining the US Corporate Bond Market and the Changing Environment for Japan's Corporate Bond Market

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## I. Introduction

After the financial crisis deepened from September 2008, large US corporations temporarily had difficulty getting funding, but conditions have gradually improved since the beginning of 2009, in step with growth in corporate bond issuance. In the US, although nonperforming loans have hampered the ability of banks and other financial institutions to provide credit, this has only had a limited impact on corporate fund procurement. This is because large US corporations fund the majority of their debt with corporate bonds rather than with the bank loans, and there is a diverse investor base willing to invest in those corporate bonds, including overseas investors, mutual funds, and households. In this paper, we look at signs of growth in Japan's corporate bond market, first by examining the important role played by corporate bonds within US capital markets, and then by surveying changes in the environment surrounding Japan's corporates market.

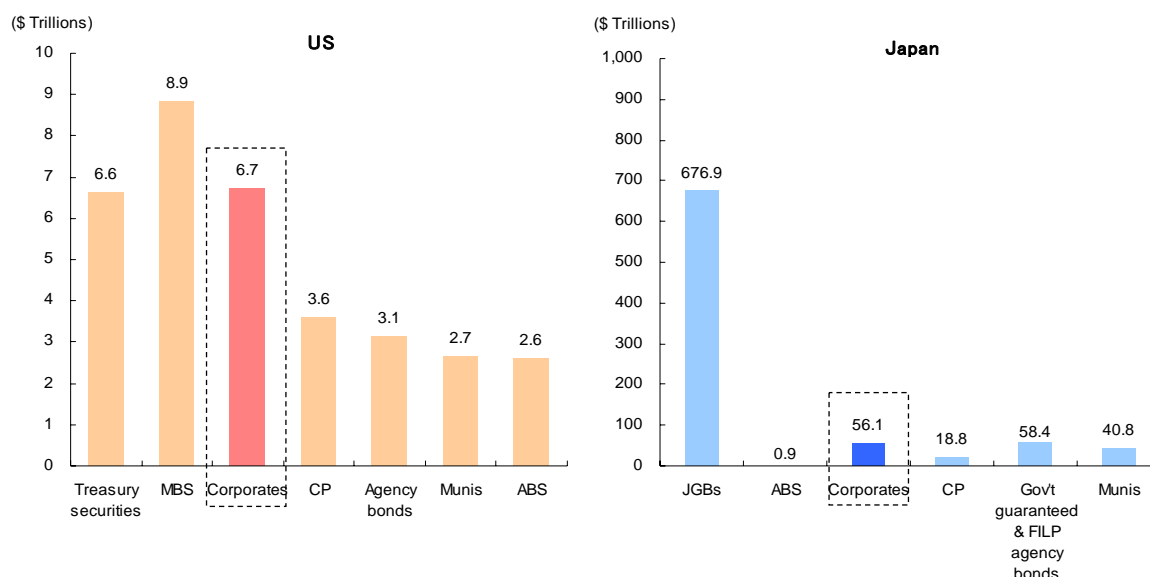
## II. Overview of the issuance and secondary markets for US corporate bonds

### 1. Why the US corporate bond market is so large

The US corporate bond market measured \$6.7 trillion at end-March 2009 (Figure 1). The corporate bond category with the largest amount of issuance outstanding is the MBS (mortgage backed securities) at \$8.9 trillion. Note that this figure is higher than the amount of US Treasury bonds outstanding, which is \$6.6 trillion. This presents a sharp contrast with Japan, where corporate bond issuance outstanding of ¥56.1 trillion

is only 1/12 the ¥676.9 trillion of outstanding issuance of Japanese government bonds (JGBs).

**Figure 1: Issuance outstanding by type for Japan and US bond markets  
(as of end-March 2009)**



Source: Nomura Institute of Capital Markets Research, based on data from SIFMA, Japan Securities Dealers Association, and JASDEC.

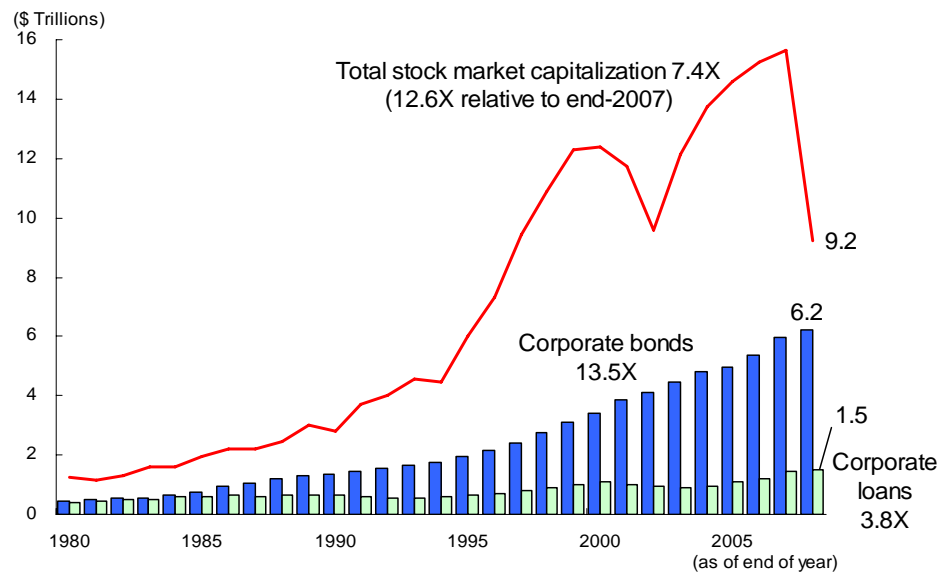
It is only been in the last quarter-century, since the mid-1980s, that the corporate bond market has commanded such heights within US capital markets. In the early 1980s, the amount of corporate bonds issued was roughly even with the amount of corporate lending by the banks, but since then corporate bonds have grown at a considerably faster pace than has bank lending to firms (Figure 2). The US corporate bond market grew from \$458.6 billion in bonds outstanding at end-1980 to \$6.2 trillion at end-2008, a growth factor of 13.5X. During this same period, corporate lending by the banks only grew by a factor of 3.8X, from \$391.0 billion to \$1.5 trillion.

US corporations started adopting considerably higher leveraged financing strategies in the 1980s, and this fueled growth in the US corporate bond market rather than in corporate loans. One of the biggest reasons for this may have been the decline in the financial intermediation function of US banks that occurred from the mid-1970s until the mid-1990s.

From the mid-1970s until the early 1980s, inflation pushed interest rates sharply higher, but banks were unable to raise the interest rates paid on deposits because of regulatory caps on those rates. This made bank deposits relatively less attractive as an investment. In addition, the banks were constrained in their ability to provide credit

because they had their credit ratings lowered<sup>1</sup> as a result of their nonperforming loans (to agribusiness and to Latin America) and because of capital ratio requirements implemented by bank regulators in 1981. Meanwhile, corporations were increasingly turning to the corporate bond market for funding, while the exploding popularity of money market funds raised investors' awareness of bond funds.

**Figure 2: Comparing corporate bonds with other means of funds procurement in the US**



Note: ABS are not included in corporate bond figures.  
 Source: Nomura Institute of Capital Markets Research, based on data from NYSE, WFE, FDIC, and FRB's Flow of Funds Accounts report.

From the mid-1980s until the mid-1990s, corporate lending failed to grow because the banks were again saddled with nonperforming loans, causing regulators to raise capital adequacy ratios and the credit rating agencies to further downgrade their ratings of the banks. To improve their profit margins, the banks stopped competing for deposits (by emphasizing ALM) and began selling their own mutual funds, which initially consisted primarily of money market funds and bond funds.

## 2. Characteristics of the US corporate bond market

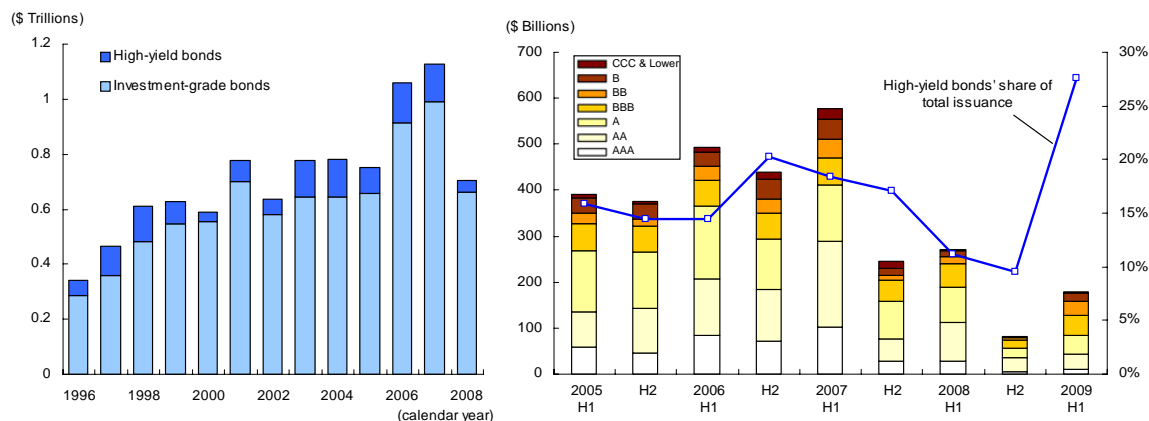
### 1) Stable issuance amounts and maturities

Stable issuance amounts have supported the large size of the US corporate bond market. From 2000 until the financial crisis began in 2008, the annual amount of corporate bond issuance ranged from about \$0.6 trillion to \$1.2 trillion, or ¥60 trillion

<sup>1</sup> In 1985, Moody's rated Citicorp (now Citigroup) Baa and rated Bank of America A, lower than the Aaa ratings of Proctor & Gamble and IBM, and the Aa rating of General Motors.

to ¥120 trillion (Figure 3). This is a roughly 10 times the ¥6 to ¥12 trillion of annual corporate bond issuance in Japan.

**Figure 3: Corporate bonds issuance amounts in the US**



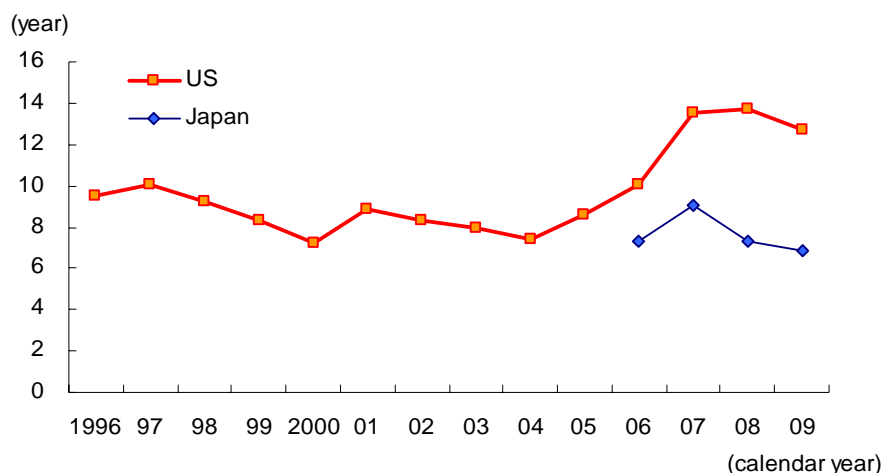
Source: Nomura Institute of Capital Markets Research, based on data from SIFMA and Thomson One Banker.

One characteristic of the corporate bonds issued in the US is the ongoing issuance of high-yield bonds, which are bonds rated BB and below. High-yield bonds accounted for an average of about 17% of corporate bond issuance in each six-month period from 2005 until H1 2009. Although it momentarily contracted as a result of the subprime loan problem and the financial crisis, the amount of issuance, including of high yield bonds, began recovering in early 2009. In H1 2009, high yield bonds had a 28% share of the market, its highest in several years.

High-yield bonds were at one time referred to as "junk bonds." Until the 1970s, most junk bonds were investment grade bonds trading on the secondary market that had been downgraded to junk status, a category also known as fallen angels. Michael Milken, then a boy wonder at Drexel Burnham Lambert, noticed the attractive risk-return characteristics of a diversified junk-bond portfolio, and almost single-handedly built the market for newly issued junk bonds. The junk bond market was initially used to fund the leveraged buyouts (LBOs) of that era. Although Milken was later arrested for insider trading and Drexel Burnham Lambert went bankrupt, this mechanism for companies with a low credit rating to issue publicly offered corporate bonds has survived to this day, and has enabled high-growth companies, like the high-tech and biotech firms that drove the US economic recovery in the 1990s, to obtain financing.

Another important characteristic of the corporate bond market besides issuance amount is maturity length. The average maturity length of corporate bonds issued in the US market ranged between eight years and over 10 years until 2006 (Figure 4), and has lengthened slightly to over 12 years since 2007. In addition, ultra-long-term corporate bonds with maturities of 30 to 50 years are widely used by a large number of companies. In Japan, meanwhile, the longest maturity corporate bonds are about 20 years, and the primary issuers are electric power companies and railroad operators.

**Figure 4: Average maturity of issuance**



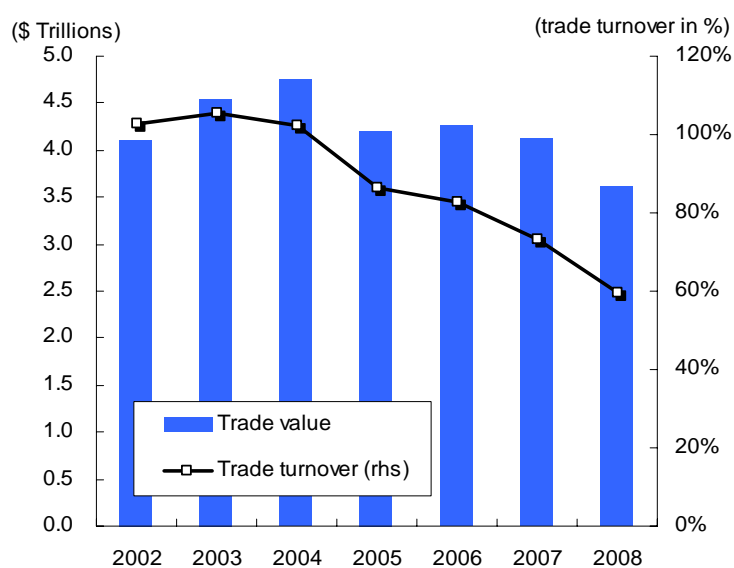
Note: 1. For Japan, numbers are a weighted average of issuance in each fiscal year.  
 2. For the US in 2009, numbers are a simple average of monthly data released by SIFMA.

Source: Nomura Institute of Capital Markets Research, based on data from SIFMA and Japan Securities Dealers Association.

## 2) Secondary market points to a large number of buy-and-hold investors

Since 2002, when the data first became available, the annual trade value of the secondary market for corporate bonds in the US has ranged between ¥3.5 trillion and ¥5 trillion (Figure 5). Although trade value has been declining since peaking in 2004, total issuance outstanding has been increasing, and the result has been a decline in trade turnover (trade value/issuance outstanding) from 102% in 2004 to 59% in 2008. In light of the trade turnover of 2000-3000% for US Treasury notes and 700-900% for

**Figure 5: Corporate bond market trading value and trade turnover**



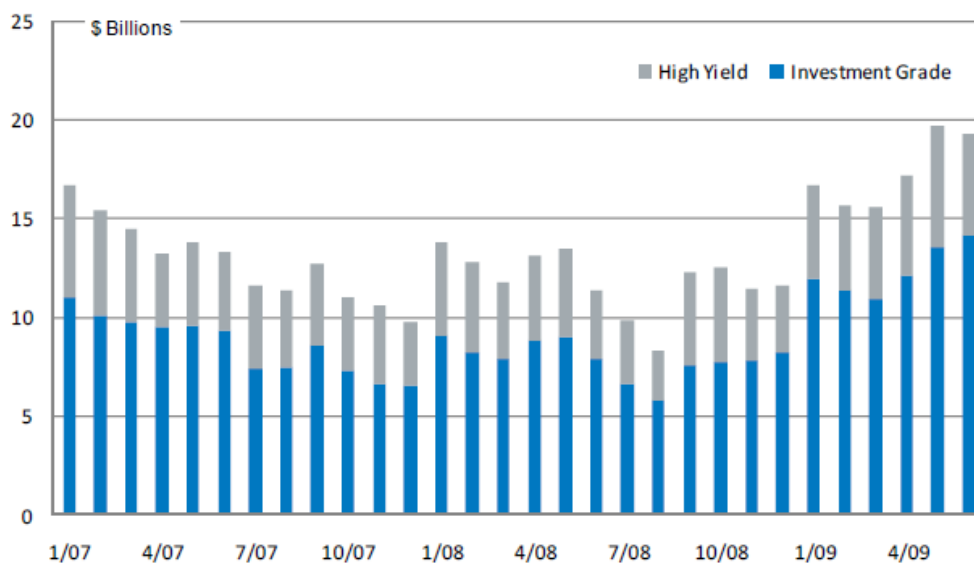
Note: Based on 252 trading days per year, we estimate annual trade value from daily trade value.

Source: Nomura Institute of Capital Markets Research, based on data from SIFMA.

agency bonds, the corporate bond market appears to be dominated by buy-and-hold investors. The average holding period in years, which is the inverse of trade turnover, was 1.7 years in 2008, which means that the average bond investor holds the same bond for over a year.

Average daily trade value in corporate bonds per month declined around September 2008, but has been recovering since (Figure 6). Because high yield bonds account for a larger percentage of trade value than they do of issuance outstanding, there are apparently many investors who trade high yield bonds relatively frequently.

**Figure 6: Corporate bond trade value (daily average)**



Source: The SIFMA Quarterly Report for August 2009, which is based on FINRA data.

The transparency of the secondary corporate bond market in the US came under fire as a result of some unfair trading in high yield bonds in the late 1980s<sup>2</sup>. This resulted in the implementation of the Fixed Income Pricing System (FIPS) in 1994, as a way to ensure fairness in the trading of high yield bonds. Under FIPS, there was a requirement to disclose trading information on the 50 high-yield bonds designated by the NASD as having the highest liquidity to broker-dealers, who are NASD members.

Subsequently, to fill the need for a mechanism, like that for the US Treasury bond and municipal bond markets, to disseminate pricing information in the corporate bond market quickly and broadly, the Trade Reporting and Compliance Engine (TRACE) began operating in 2002. TRACE requires disclosure of trading information related to the secondary OTC trading of corporate bonds, generally in real time.

<sup>2</sup> For more on price transparency in the US corporate bond market, see Kei Kodachi, *Shasai shijou no Toumeisei wo meguru Beikoku no Giron -- TRACE no Dounyuu to sonoato no Hyouka* (The US debate over corporate bond market transparency -- TRACE's implementation and subsequent assessment), *Capital Market Quarterly*, Summer 2008 issue (in Japanese).

### 3. The US corporate bond market is used by a broad range of firms

All issuers of corporate bonds with over \$100 billion in issuance outstanding are financial institutions (Figure 7). Of nonfinancial companies, the two largest issuers are telecom providers with strong demand for capital spending. AT&T has \$74.1 billion of issuance outstanding, followed by Verizon with \$56.8 billion. The rest of the list does not favor any particular industry, however. In third place is Southwest Airlines, followed by Ford Motor Company, and then Wal-Mart, the world's largest retailer, in the No. 5 spot. Furthermore, the majority (15 of 20) of the top issuers of corporate bonds in each category (the top 10 financials and the top 10 nonfinancials) do not even have the highest credit rating, but rather have ratings between A and BBB.

**Figure 7: Top ten issuers of corporates in the US market, based on issuance outstanding**

(\$ Billions)				(\$ Billions)				
	Company	Rating (S&P)	Issuance outstanding		Company	Sector	Rating (S&P)	Issuance outstanding
1	Citigroup	A	417.0	1	AT&T	Telecom	A	74.1
2	Bank of America	A	414.8	2	Verizon	Telecom	A	56.8
3	JPMorgan	A+	326.7	3	Southwest Airlines	Airlines	BBB+	47.6
4	Goldman Sachs	A	259.4	4	Ford	Auto	CCC+	47.0
5	Morgan Stanley	A	230.3	5	Wal-Mart	Retail	AA	33.4
6	Wells Fargo	AA-	166.0	6	Pfizer	Pharma	AAA	30.9
7	AIG	A-	87.6	7	P&G	Consumer goods	AA-	28.3
8	American Express	BBB+	48.8	8	Comcast	Media	BBB+	26.8
9	SLM	BBB-	38.3	9	Caterpillar	Machinery	A	25.4
10	MetLife	A-	36.2	10	ConocoPhillips	Energy	A	25.3

Note: 1. GE Capital and the government-affiliated mortgage institutions (Fannie Mae and Freddie Mac) are excluded.  
 2. Figures show issuance outstanding for each company as of 14 September 2009, including bonds with less than one year to maturity.

Source: Nomura Institute of Capital Markets Research, based on Bloomberg data.

Financials institutions also dominate when measuring cumulative corporate bond issuance from January 2005 until July 2009. Bank of America leads the pack at \$25.3 billion, while 10th place American Express had cumulative issuance during that period of \$38.6 billion (Figure 8). Among nonfinancial corporations, the top two are both Japanese automakers, Toyota Motor and Honda Motor. Their cumulative issuance is high because both companies issue on a regular basis relatively shorter-maturity bonds in the form of medium-term notes (MTN). Many of the bonds issued by Toyota Motor, for example, mature in less than five years, and the average amount of issuance is fairly small at about \$150 million. Although the two leaders are automotive companies, as with the top outstanding issuers, the remaining list of top cumulative issuers does not favor any particular industry. In third place is Verizon, followed by the Swiss pharmaceutical manufacturer Roche and the energy company Energy Future Holdings.

**Figure 8: Top ten issuers of corporates in the US market, based on cumulative issuance (by rating)**

Financials		All ratings		Nonfinancials		
(\$ Billions)		(\$ Billions)			(\$ Billions)	
Company	Issuance outstanding	Company	Sector	Issuance outstanding	Company	Issuance outstanding
1	Bank of America	55.3	1	Toyota Motor	Auto	27.1
2	Wachovia	50.2	2	Honda Motor	Auto	23.1
3	Credit Agricole	49.1	3	Verizon	Telecom	20.0
4	Barclays	46.0	4	Roche	Pharma	18.3
5	RBS	45.9	5	Energy Future	Energy	15.5
6	Credit Suisse	45.5	6	Ford	Auto	13.0
7	Sigma Finance	45.3	7	Southern Company	Energy	9.0
8	AIG	43.0	8	Anheuser-Busch Inbev	Food	8.0
9	Svenska Handelsbanken	42.0	9	Daimler	Auto	7.7
10	American Express	38.6	10	Edison International	Electric power	7.6

AAA-rated		(\$ Billions)				
Company	Issuance outstanding	Company	Sector	Issuance outstanding		
1	Sigma Finance	45.3	1	Toyota Motor	Auto	22.8
2	Rabobank	33.7	2	Pfizer	Pharma	2.3
3	Cullinan Finance	21.8	3	Southern Company	Energy	2.0
4	Beta Finance	21.0	4	Harvard University	Education	1.5
5	Centauri	20.2				
6	Allianz AG	17.5				
7	Linx Finance	16.8				
8	Credit Suisse	14.5				
9	Stanfield Victoria Finance	11.3				
10	Allianz SE	10.9				

AA-rated		(\$ Billions)				
Company	Issuance outstanding	Company	Sector	Issuance outstanding		
1	Credit Agricole	46.7	1	Roche	Pharma	16.3
2	RBS	36.5	2	Siemens	Multiple	5.0
3	Barclays	33.8	3	P&G	Consumer	4.0
4	Bank of America	33.5	4	Eli Lilly	Pharma	3.0
5	Wachovia	33.5	5	Computer Science	IT software	1.7
6	Royal Bank of Canada	31.3	6	BP	Resources	1.4
7	BNP Paribas	30.2	7	Medtronic	Medical devices	1.4
8	Societe Generale	29.3	8	BASF	Chemicals	1.4
9	AIG	25.8				
10	SunTrust Bank	21.1				

A-rated		(\$ Billions)				
Company	Issuance outstanding	Company	Sector	Issuance outstanding		
1	Lehman Brothers	36.8	1	Honda Motor	Auto	21.0
2	American Express	36.8	2	Verizon	Telecom	15.7
3	Merrill Lynch	29.0	3	Caterpillar	Construction machinery	8.3
4	JPMorgan	23.8	4	Southern Company	Energy	6.0
5	HSBC	17.4	5	Oracle	IT software	5.7
6	Goldman Sachs	17.2	6	IBM	IT software	5.0
7	Svenska Handelsbanken	16.8	7	Cargill	Food	4.3
8	Wachovia	16.7	8	Amgen	Pharma	4.0
9	Banco Popolare	16.5	9	ConocoPhillips	Energy	3.6
10	Bank of America	13.8	10	United Health	Healthcare	3.6

BBB-rated		(\$ Billions)				
Company	Issuance outstanding	Company	Sector	Issuance outstanding		
1	Capital One Financial	5.8	1	Anheuser-Busch Inbev	Food	8.0
2	Sumitomo Mitsui Financial Group	5.2	2	GM	Auto	6.5
3	Washington Mutual	4.5	3	Daimler	Auto	5.7
4	MetLife	3.9	4	AEP	Energy	5.6
5	iStar Financial	3.6	5	Viacom	Media	5.5
6	Shinsei Bank	3.4	6	XTO Energy	Resources	5.4
7	Zurich Financial Services	3.2	7	Time Warner	Media	5.0
8	Scandinaviska Enskilda Banken	3.1	8	Kinder Morgan Energy	Resources	4.9
9	PEMEX Project Funding	3.0	9	Dominion Resources	Energy	4.9
10	Resona Bank	2.4	10	Comcast	Media	4.7

BB-rated		(\$ Billions)				
Company	Issuance outstanding	Company	Sector	Issuance outstanding		
1	ICICI Bank	2.8	1	Ford	Auto	6.5
2	Liberty Mutual	2.2	2	HCA	Hospital mgt	5.7
3	AIG	2.1	3	BP	Resources	4.5
4	FIM (GMAC)	2.0	4	NXP Semiconductors	Semiconductors	3.8
5	Halyk Savings Bank	2.0	5	Tersinda	Entertainment	3.8
6	BTA Bank	1.8	6	Window Streams	Telecom	3.0
7	Kazkommerts Internationall	1.1	7	Chesapeake Energy	Resources	2.8
			8	Dish Network	Telecom	2.7
			9	Edison International	Energy	2.7
			10	Fresenius	Pharma	2.7

Note: 1. Total issuance from January 2005 to July 2009. Only companies with at least \$1 billion of cumulative issuance are listed (including nonresident issuers).  
 2. ABS not included. GE is excluded.

Source: Nomura Institute of Capital Markets Research, based on data from Thomson ONE Banker.



There are a number of major financial institutions, primarily US-based, with an AAA rating, but only four nonfinancial companies with at least \$1 billion of cumulative issuance are rated AAA. The same is true of AA-rated firms, which among the non-financials include Switzerland's Roche and Germany's chemicals firm BASF. This is evidence that the US subsidiaries of foreign-capitalized firms are actively using the US corporate bond market for their funding needs.

The leading A-rated issuers are the IT software firm Oracle and the biomedical company Amgen, an indication that even sectors with few tangible assets but large intangible assets created through R&D are also able to issue corporate bonds. Oracle issued a 10-year note in 2006, and Amgen issued a 30-year note in 2007, apparently for use not only as working capital but for longer-term funding of R&D. Even companies rated BBB and lower, which issue little in Japan, have had success issuing corporate bonds in the US market. This includes the US subsidiaries of such global corporations as Anheuser-Busch Inbev, the world's largest brewer, and UK-based energy firm BP. Thus lower-rated companies that are not fallen angels are getting considerable use of the bond market.

#### 4. Large US firms issue bonds for the majority of their debt financing

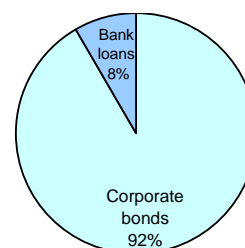
For the top 10 Fortune 500 US firms based on net income, corporate bonds account for on average 92%, and loans from banks 8%, of long-term interest-bearing debt (Figure 9). Some companies, such as Microsoft and Chevron, rely exclusively on bond issuance, and have no bank loans at all. These companies have established credit facilities with their corporate bond issuance, and view bank loans as a safe haven in the event of a credit crunch or other emergency situation.

**Figure 9: Structure of interest-bearing debt at large US firms**

Top ten Fortune 500 companies based on FY2008 net profits

Aggregate for top ten companies

Company	Sector	Long-term interest-bearing debt			Credit facilities
		Total	Corporate bonds	Bank loans	
Exxon Mobile	Resources	7.0	6.0	1.0	5.3
Chevron	Resources	0.8	0.8	0.0	5.0
Microsoft	IT software	3.7	3.7	0.0	2.0
GE	Multiple	9.8	9.2	0.6	12.6
Wal-Mart	Retail	31.3	30.6	0.7	10.2
Johnson and Johnson	Pharma	8.1	8.0	0.1	7.7
AT&T	Telecom	60.9	58.9	2.0	12.0
IBM	IT services	22.7	16.1	6.6	9.9
P&G	Consumer	20.7	17.7	2.9	10.8
Hewlett Packard	IT services	7.7	7.0	0.7	1.2
<b>Total</b>		<b>172.7</b>	<b>158.1</b>	<b>14.6</b>	<b>76.7</b>

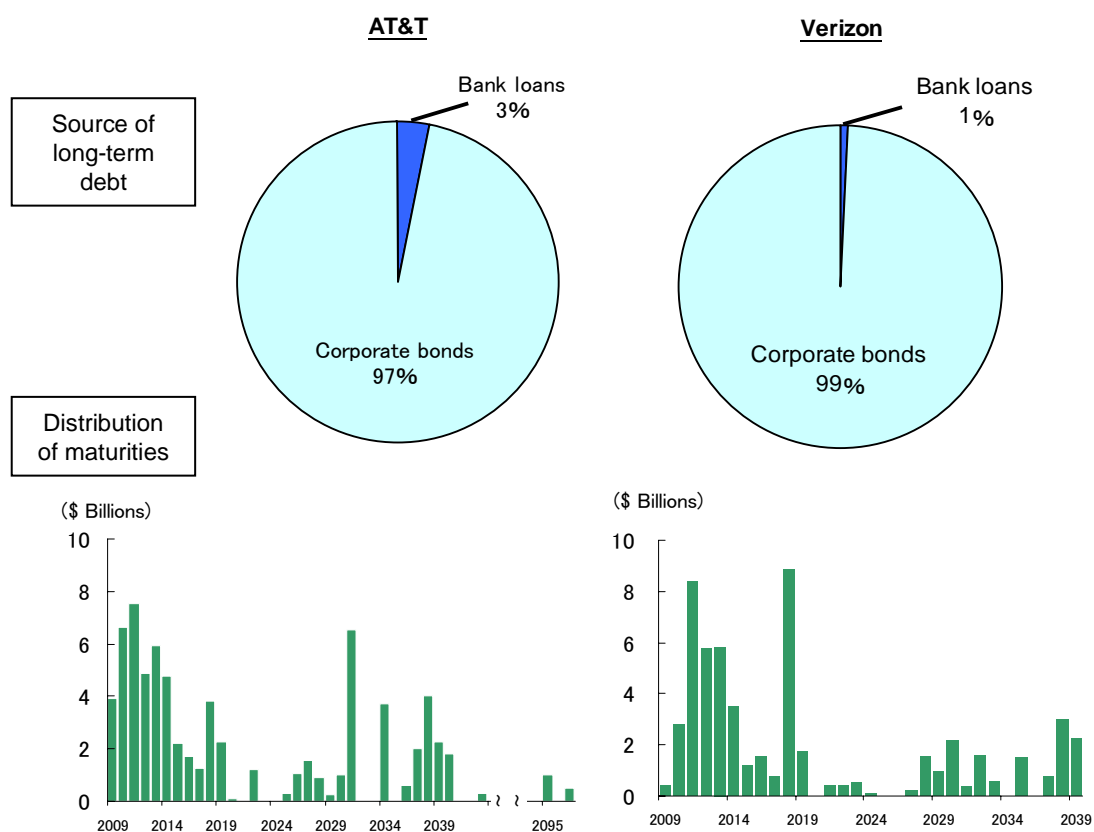


- Note: 1. As of end-FY2008.  
 2. Corporate bonds do not include bonds with less than one year remaining to maturity or CP classified as long-term debt.  
 3. Bank loans includes other interest-bearing debt.  
 4. GE's total excludes its financing subsidiary. AT&T's bank loans include lease obligations as well as loans.  
 5. P&G classifies floating rate bonds as short-term interest-bearing debt on its balance sheet.

Source: Nomura Institute of Capital Markets Research, based on data from Thomson ONE Banker.

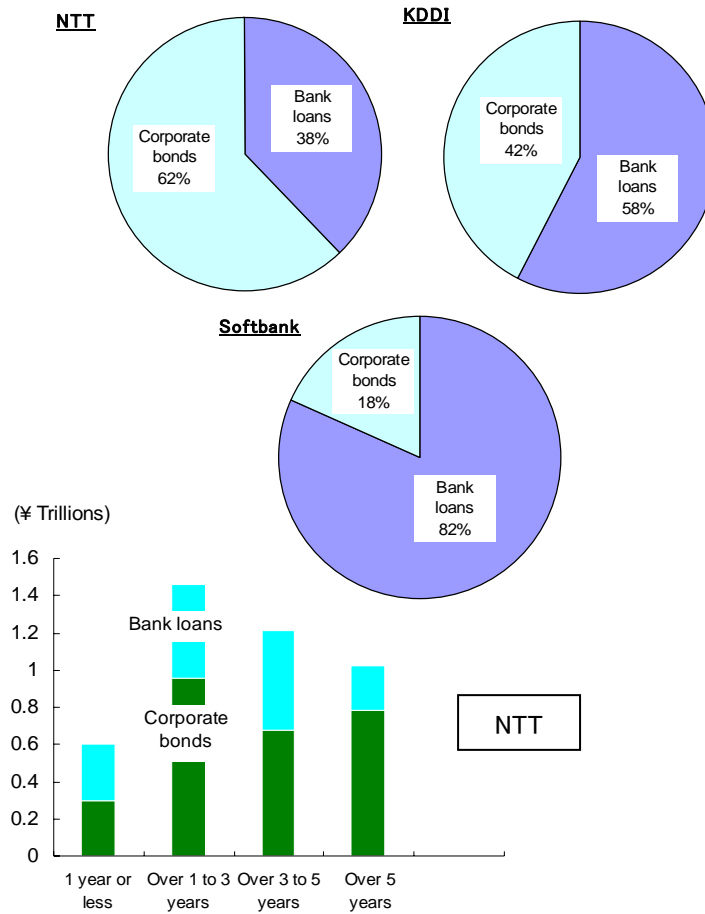
For a more detailed examination of the use of corporate bonds by individual companies, we'll look at three that have a large amount of corporate bonds outstanding, the telecom giants AT&T and Verizon, and the largest retailer, Wal-Mart. Both AT&T and Verizon rely almost exclusively on corporate bonds for their long-term interest-bearing debt (Figure 10). The distribution of bond maturities shows that both companies have focused on funding that requires repayment either by 2019 (within 10 years) or after 2029 (more than 20 years). AT&T's longest maturing bond is a \$500 million issue not due until 2097. At NTT, the largest user of corporate bonds among Japan's major telecom providers, corporate bonds only account for 62% of long-term interest-bearing debt (Figure 11), and the longest maturity of its ongoing series is only 10 years.

**Figure 10: Interest-bearing debt structure of major US telecom companies (end-FY2008)**



Note: Bank loans includes other interest-bearing debt.  
 Source: Nomura Institute of Capital Markets Research, based on disclosures from each company and Bloomberg data.

**Figure 11: Interest-bearing debt structure of major Japanese telecom companies (end-FY2008)**

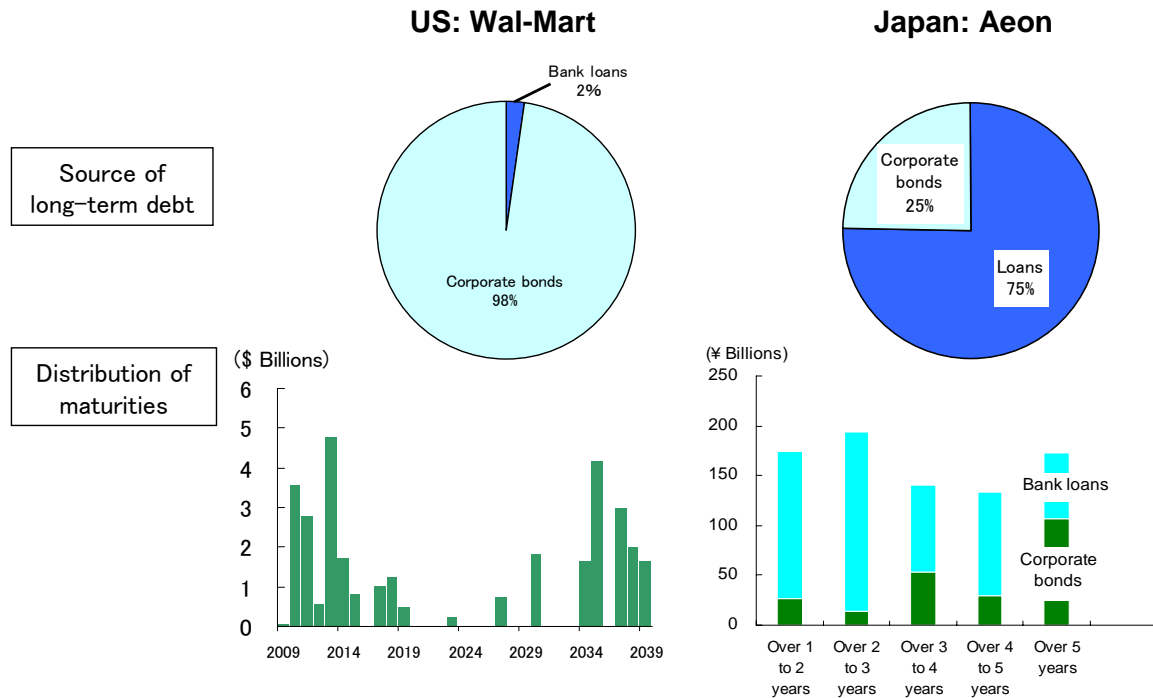


Source: Nomura Institute of Capital Markets Research, based on each company's securities filings.

Wal-Mart, like the large telecoms, relies on corporate bonds for 98% of its long-term interest-bearing debt needs, and uses bank loans very sparingly (Figure 12). The distribution of its bond maturities shows a concentration on debt that is either repaid by 2019 (within 10 years) or in 2034 or later (at least 25 years), and Wal-Mart's longest maturity bond comes due in 2039. In contrast, corporate bonds only supply 25% of the long-term interest-bearing debt of Aeon, a major retailer in Japan, while the majority comes from bank loans. It has issued a hybrid unsecured (subordinated) bond that matures in 2056, however.

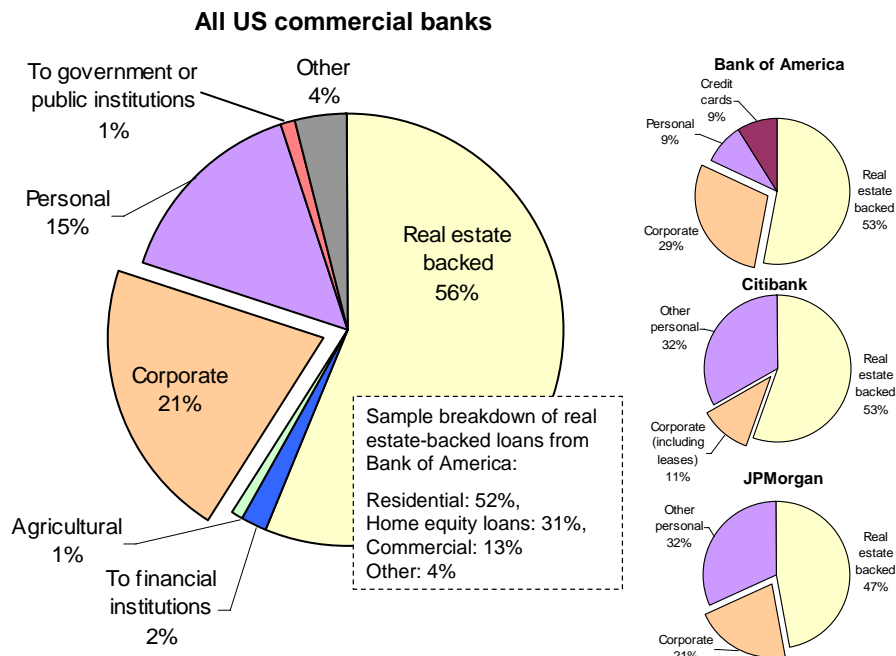
Looking at corporate loans from the bank's standpoint, the minimal reliance on lending to large corporations in the US implies that the loan portfolios of US banks differ substantially from those of Japanese banks (Figure 13). Over half of all loans are secured by real estate and, in the case of Bank of America, 80% of real estate-backed loans are made to households and individuals. Corporate lending only accounts for 20% of the total, a number that rises to 30-40% when including lending on commercial real estate.

**Figure 12: Interest-bearing debt structure of major retailers in Japan and the US (end-FY2008)**



Note: Wal-Mart's bank loans include other interest-bearing debt.  
 Source: Nomura Institute of Capital Markets Research, based on disclosures from each company and Bloomberg data.

**Figure 13: Commercial bank loan customers in the US**



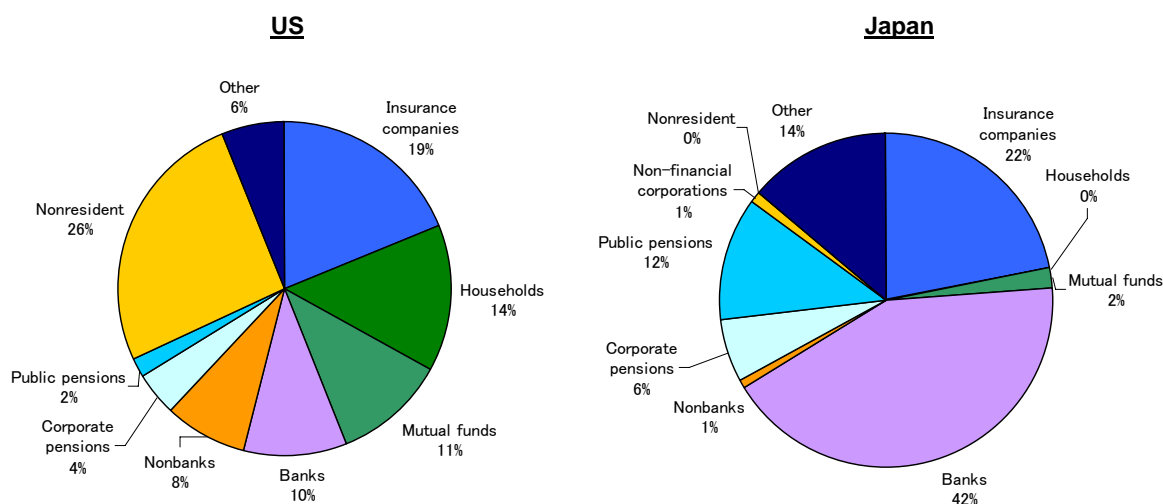
Note: Loan breakdowns for each bank only cover their domestic businesses.  
 Source: Nomura Institute of Capital Markets Research, based on data from the FDIC and each company's annual report.

### III. Overview of investors in the US corporate bond market

#### 1. Japan-US comparison of investor mix

In the US, overseas investors hold 26%, households 14%, and mutual funds 11% of the corporate bonds outstanding, much higher than in Japan, where the ownership rates are 0%, 0%, and 2%, respectively (Figure 14). The reason that overseas investors are the single largest investor class in the US corporate bond market is probably because they were increasing their holdings from 2002 until 2007, when the ABS market was growing from \$2.0 trillion to \$4.5 trillion. In Japan, the banks own 42% of corporate bonds outstanding.

Figure 14: Corporate bond market investors in Japan and the US



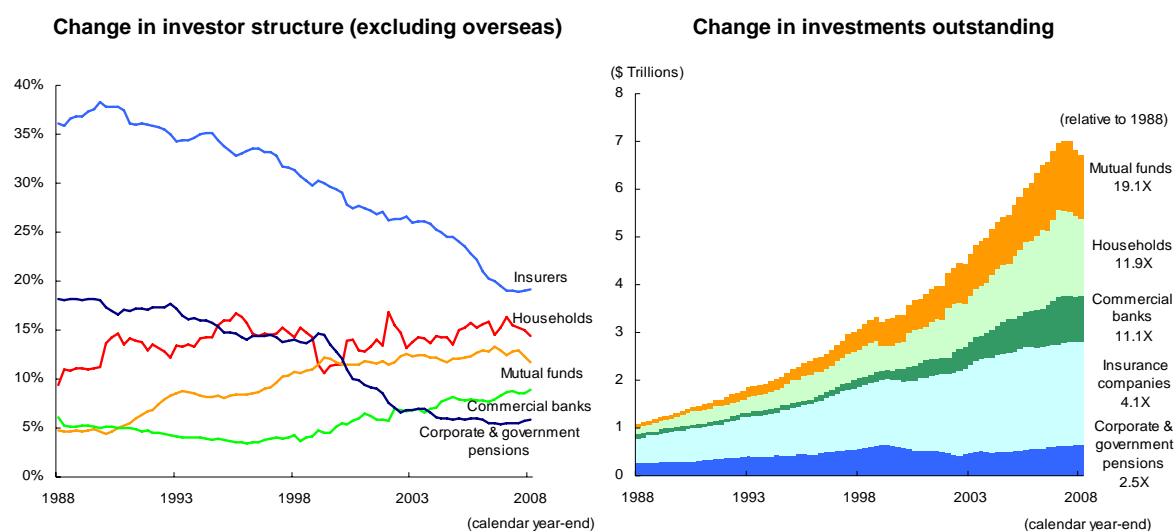
Note: Based on the categories in the US Flow of Funds Accounts, corporate bonds include ABS and overseas bonds.

Source: Bank of Japan's Flow of Funds statistics and FRB's Flow of Funds Accounts.

#### 2. Mutual funds have had the largest increase in their corporate bond holdings

Over the past 20 years, mutual funds have been the domestic investor in US corporate bonds with the steadiest increase in ownership (Figure 15). Mutual funds went from being the smallest investor class in the US corporate bond market in the late 1980s, with less than a 5% share, to ranking third behind only insurance companies and households with over a 10% share today, owing to consistent growth since 1990. Total investor ownership of corporate bonds has increased by a factor of 19X over the two decades since 1988.

**Figure 15: Investors in US corporate bond market**



Note: Based on the categories in the US Flow of Funds Accounts, corporate bonds include ABS and overseas bonds.

Source: FRB's Flow of Funds Accounts.

The second fastest growing investor class in the corporate bond market is households, which went from roughly a 10% share in the late 1980s to around a 15% share from the mid-1990s. Households' corporate bond holdings have increased by a factor of 12X over the past two decades. In contrast, the share held by banks was either flat or declining from 1980 until 1999, although it has been in a rising trend since 2000.

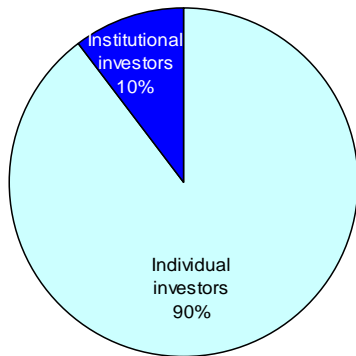
According to a survey by the Investment Company Institute (ICI), 90% of bond funds in the US are owned by individuals (Figure 16). This means that, as of end-2008, nearly a quarter of US corporate bonds outstanding were held by either households or individuals, based on adding together the household share of 14% and the 90% of the mutual fund share of 11% owned by households, which is 10%, for a total share of 24%.

In the US, 40-50% of the mutual funds bought and held by households and individuals are done so through defined contribution (DC) pension plans, which have played a major role in encouraging greater ownership of mutual funds by households and individuals in the US.

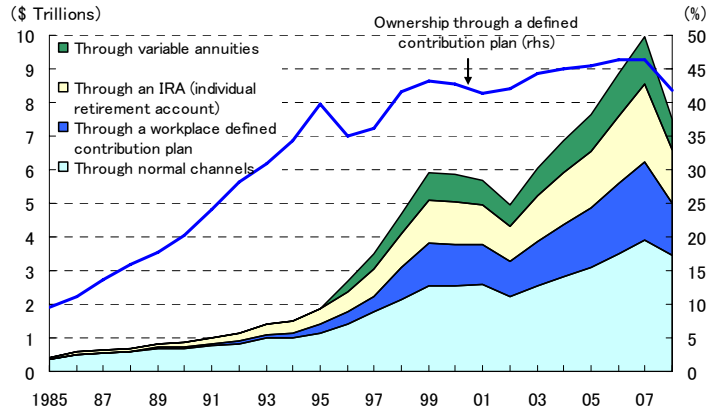
And that role has not only been evident in quantitative terms. From the perspective of the fiduciary responsibility of those managing the pension plans, we think that the requirement to offer employees an ample choice of investments, namely a continuous range of products across the entire risk-return spectrum, has also helped to raise awareness of corporate bond funds.

**Figure 16: Ownership of bond funds by households and individuals**

**Ownership of bond funds (end-2008)**



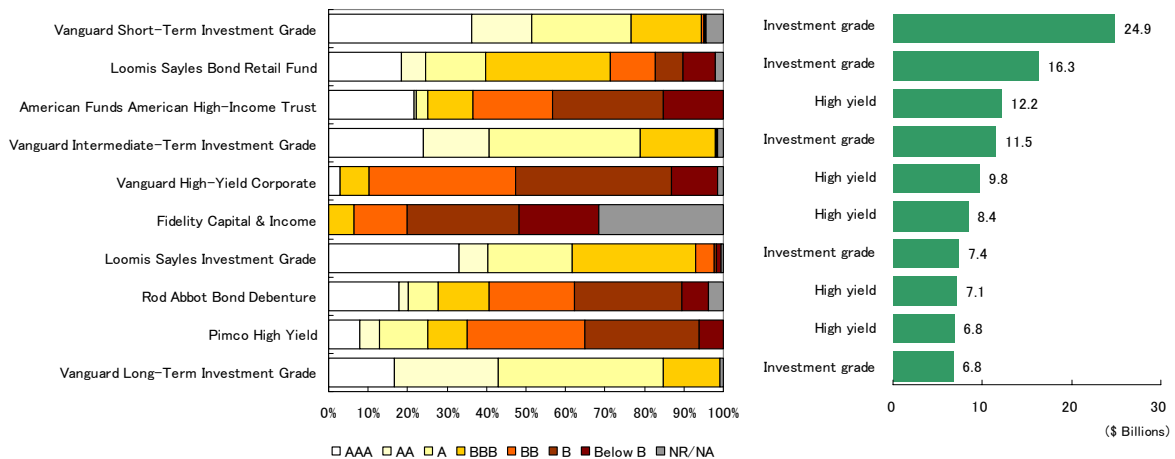
**Ownership by US households through mutual funds, by channel**



Note: Data on the variable annuity channel starts from 1996.  
 Source: Nomura Institute of Capital Markets Research, based on data from the ICI, and FRB's Flow of Funds Accounts.

The largest, based on total assets, of the mutual funds that are focused on corporate bonds is the Vanguard Short-Term Investment Grade (at \$24.9 billion), followed by the Loomis Sayles Bond Retail Fund (at \$16.3 billion). Both are investment-grade funds that invest over half of their net assets in investment-grade corporate bonds. Of the next eight largest, however, five are high-yield funds that invest over half of their net assets in high-yield bonds. Households and individuals are the dominant investors in bond funds in the US, but they are not investing only in the investment-grade market (Figure 17).

**Figure 17: Allocations of large corporate bond funds by rating of issuer**



Note: 1. Values as of end-June 2009.  
 2. The top ten funds based on total assets of those funds classified by Morningstar as corporate bond funds (general/high quality/high yield), which are primarily invested in domestic bonds and Yankee bonds. Excludes funds with more than a 30% weighting in MBS, government bonds, and agency bonds.

Source: Nomura Institute of Capital Markets Research, based on data from Morningstar Principia.

The largest of these high-yield funds is the American High-Income Trust from American Funds, which invest in bonds rated BB and lower to earn high income and capital gains. According to its prospectus, it invests in attractively priced bonds with a focus on long-term investment results, and thus relies heavily on fundamental analysis, fed by meetings with the bond issuer's executives and employees, suppliers, and customers.

As is also the case with the Fidelity Capital & Income, which invests in bonds rated BBB and lower, bonds are chosen based on a fundamental analysis that includes the financial condition of the issuer, the company's position within its industry, and market conditions.

Although high-yield bonds have a higher default rate than investments-grade bonds, in the US it is possible for investors with only a small amount to invest to achieve diversification, the *raison d'être* of a mutual fund, when investing in corporate bonds.

### 3. Ample infrastructure for corporate bond investing by households and individuals

As already noted, direct investment into corporate bonds by households and individuals has also been growing, and this can be attributed in part to the corporate bond investment platforms geared toward individuals that are now available online (Figure 18)<sup>3</sup>.

**Figure 18: Corporate bond investment platforms in the US for individuals (in 2004)**

Platform	Operator	Service launch	Issuers
DANs	LaSalle Bank	September 1996	GMAC (BBB), Caterpillar Financial Service (A), UPS (AAA), Freddie Mac (AAA), TVA (AAA), LaSalle Bank (AA-), IBM (A+), John Hancock (AA), SLM Cove(A), AGF (A+), ILFC (AA-), a total of 11 issuers
InterNotes	Bank of America Securities and Incapital	January 2001	Bank of America (A), Boeing Capital (A), CIT Group (A), Daimler Chrysler (BBB), Dow Chemical (A-), GE Capital (AAA), HFC (A), Protective Life (AA), and Prudential Financial (A-), a total of nine issuers
CoreNotes	Merrill Lynch	2001	Principal Life (AA), Ford Credit (BBB-), Fannie Mae (AAA), Wells Fargo (AA-), Gillette (AA-), and General Mills (BBB+), a total of nine issuers

Note: Credit ratings in parentheses from S&P.

Source: Nomura Institute of Capital Markets Research, based on data from each platform's website.

<sup>3</sup> For more on corporate bond investment platforms for individuals, see Masanobu Iwatani, *Oobei de Hirogaru Koujinmuke Shasai Tousei Purattofoumu* (Corporate bond investment platforms for individuals gain traction in Europe and the US), *Capital Market Quarterly*, Summer 2004 issue (in Japanese).



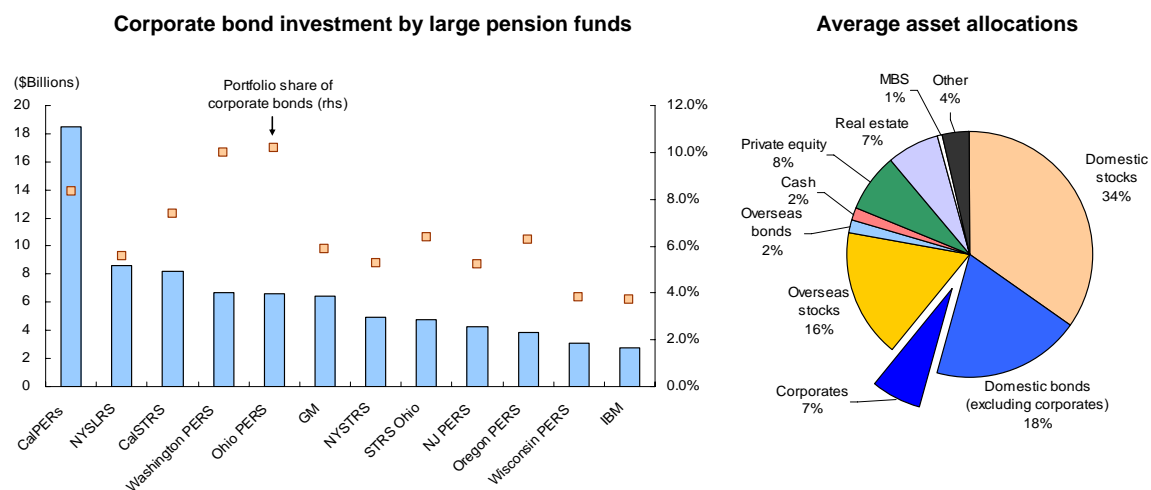
For example, in 2004, individual investors in the US were able to view on these platforms' website every Monday the issuance terms of bonds scheduled for issuance that week, and to purchase the corporate bonds of their choice at the same terms announced on Monday by Friday of that week. DANs began operating in 1996, and InterNotes and CoreNotes in 2001.

Both InterNotes and CoreNotes still publish information on corporate bonds. During the week of 7 September 2009, for example, it was possible to view prospectuses and issuance terms from 21 companies on the InterNotes site. The issuers that week included such financial institutions as the Bank of America and Goldman Sachs, Financial Subsidiaries like GE Capital and Caterpillar Financial, and nonfinancial companies like Dow Chemical. That same week, CoreNotes listed information on 11 companies, including Wells Fargo and Toyota Motor Credit Corporation, a subsidiary of the Japan-affiliated automaker.

#### 4. Pension funds also invest in high yield bonds

Although their share of corporate bond holdings has dropped to below 10%, pension funds were an important player in the corporate bond market well before either mutual funds or households were. For the 12 pension funds out of the 20 largest in the US that disclose details on their investment activity, portfolio weightings in corporate bonds range from 3.7% to 10.2%, with a simple average of 7% (Figure 19).

**Figure 19: Portfolios of large pension funds**

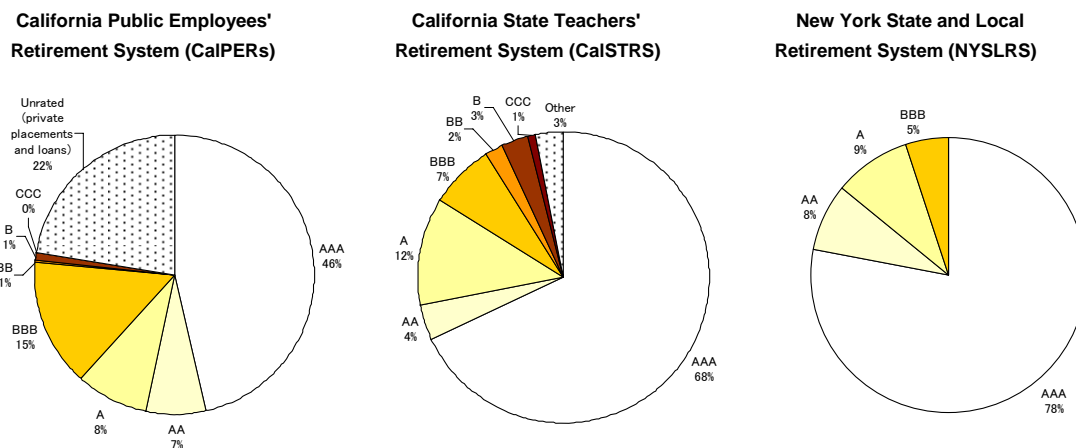


- Note:
1. Corporate bond weightings are only calculated for funds that have disclosed this.
  2. Most recently announced data is included in aggregates.
  3. Average asset allocations are from the top 200 funds based on assets under management.
  4. Average asset allocations to corporate bonds are the average for the 12 of the top 20 funds for which allocations are known.

Source: Nomura Institute of Capital Markets Research, based on each fund's annual report, the Nelson's Directory of Plan Sponsors, and Pensions & Investments dated 26 January 2009.

The credit portfolios of the large US pension funds are heavily weighted toward AAA-rated bonds, but also have a relatively balanced mix of bonds rated between AA and BBB (Figure 20).

**Figure 20: Credit investments of large pension funds by credit rating**



Note: Data is as of end-June 2008 for CalPERS, and as of end-2008 for the others.  
 Source: Nomura Institute of Capital Markets Research, based on each pension fund's investment reports and annual reports.

When it comes to high-yield bonds, however, investment guidelines appear to differ widely depending on the pension fund. At the California Public Employees' Retirement System (CalPERS), for example, holdings of bonds rated BB and lower must be kept to no more than 15% of the domestic corporate bond portfolio, and bonds rated BB to CCC currently comprise 2% of its total credit portfolio. One of the benchmarks used by the California State Teachers' Retirement System (CalSTRS) is a high-yield bond index, and 6% of its credit portfolio is invested in bonds rated BB or lower. There are also pensions, such as the New York State and Local Retirement System (NYSLRS), that do not invest any of their assets in high yield bonds. The NYSLRS is prohibited, both by state law and by the system's own investment policies, from owning bonds that were not investment grade at the time of purchase.

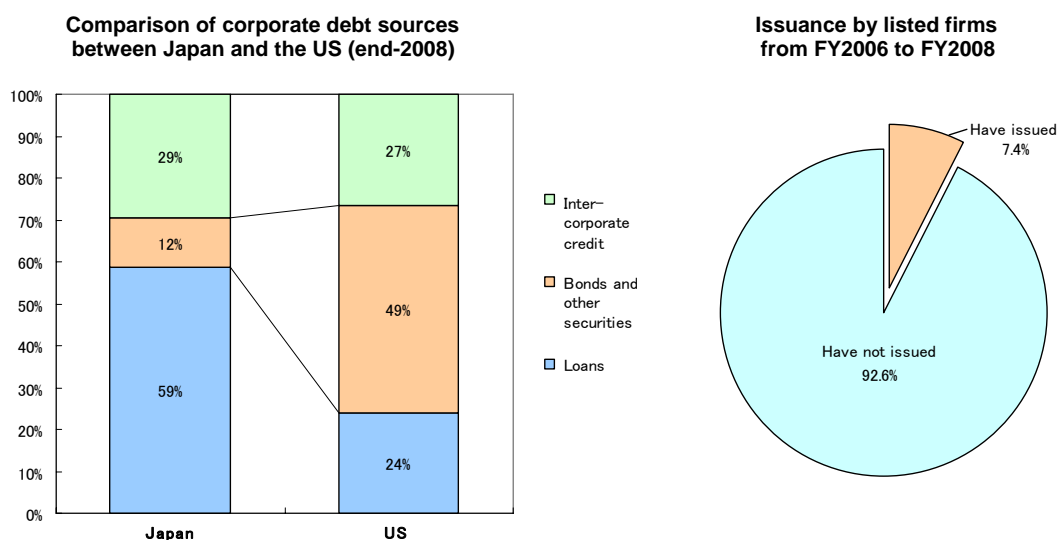
## IV. The changing environment for Japan's corporate bond market

### 1. Trends in the usage of Japan's corporate bond market

Japan also has companies, primarily in infrastructure-related industries, that fund more of their long-term interest-bearing debt with corporate bonds than with bank loans. Most Japanese firms, however, use corporate bonds much differently than typically do large US corporations, however. In terms of the loan-bond mix, the funds

procurement structures of nonfinancial corporations, including small businesses, are mirror opposites in Japan and the US (Figure 21).

**Figure 21: Use of corporate bonds by Japanese firms**



Note: Figures include issuance of investment trust bonds.

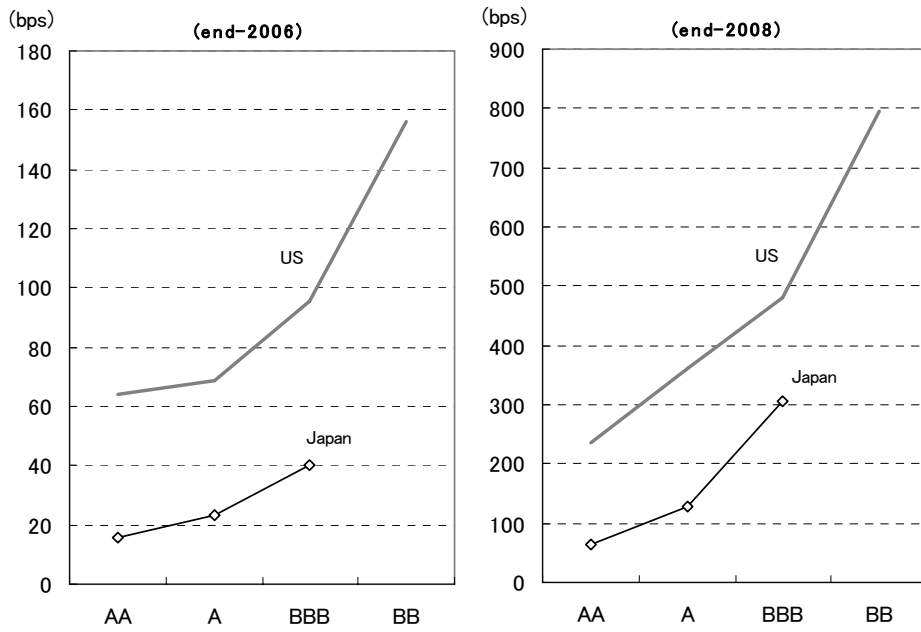
Source: Nomura Institute of Capital Markets Research, based on data from Bank of Japan's Flow of Funds statistics, FRB's Flow of Funds Accounts, Japan Securities Dealers Association, and the Tokyo Stock Exchange.

In Japan, only 282 companies issued straight corporate bonds in FY2006-08, which amounts 7% of the total number of listed corporations, which stood at 3,820 at end-March 2009. In other words, an extremely small proportion of companies that already have the disclosure infrastructure required for listing their shares have ever actually issued a corporate bond.

In addition, spreads are considerably lower in Japan's corporate bond market than they are in the US, possibly owing to the competition with bank loans in what could be termed as "over banking" in Japan (Figure 22). A comparison of spreads by rating for the Japan and US markets shows that the spread on bonds issued by Japanese companies is only one fourth as large as on bonds issued by US companies when both are AA-rated, and only half as large in the case of companies rated A. The absolute level of spreads has risen in Japan since the financial crisis began, but the Japan-US gap remains.

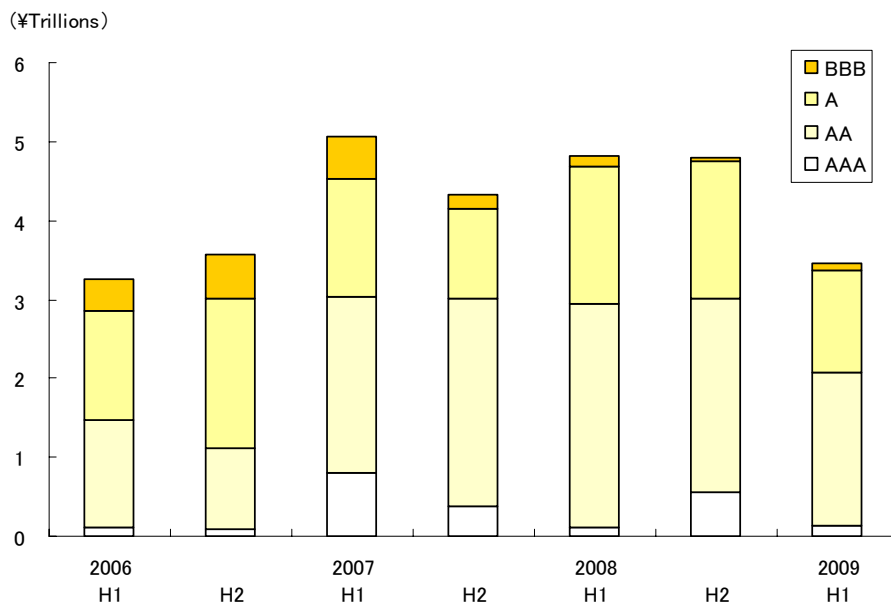
Furthermore, Japan does not have a publicly offered market for high-yield bonds (Figure 23). From FY2006 until H1 FY2009, not a single BB-rated straight corporate bond was issued in Japan. Even the amount of issuance of BBB-related corporate bonds is quite small relative to that of bonds rated AA to A.

**Figure 22: Spreads by rating in Japan and the US**



Source: Nomura Institute of Capital Markets Research, based on Bloomberg data.

**Figure 23: Corporate bond issuance amounts by rating**



Source: Nomura Institute of Capital Markets Research, based on data from the Japan Securities Dealers Association.

## 2. Problems faced by Japan's corporate bond market

A variety of factors hindering the growth of Japan's corporate bond market have been identified as reasons why the corporate bond market is not being used as much in Japan as in the US, including in a panel report by the Financial Supervisory Agency's Financial Research and Training Center, and also in a proposal and growth outlook for the corporate bond market published by the Corporate Finance and Treasury Association of Japan. Figure 24 summarizes the factors identified as problems for Japan's corporate bond market.

**Figure 24: The problems faced by Japan's corporate bond market**

<p><b>I. Characteristics of corporate bonds as an investment product</b></p> <ul style="list-style-type: none"><li>• Spreads are narrow because of low loan rates</li><li>• Corporates have a low weighting in bond indices</li><li>• The underwriting fees of sales companies are low</li></ul> <p><b>II. Structure of the corporate bond market</b></p> <ul style="list-style-type: none"><li>• The markets are small for both privately placed bonds and high-yield bonds</li><li>• Most issuers are in the electric power &amp; gas, transportation, telecom, or financial sectors</li><li>• The banks hold about half of corporate bonds, and the investor base is not diverse</li></ul> <p><b>III. Issuance process</b></p> <ul style="list-style-type: none"><li>• Often there is no <i>pari passu</i> (equal rights to repayment) established between corporate bonds and other debt, including loans</li><li>• Many questions arise during the disclosure examination, resulting in a long examination period</li><li>• Market research prior to submission of securities filings is not allowed, and investors cannot access sufficient information</li></ul>	<p><b>IV. Trading system and rules</b></p> <ul style="list-style-type: none"><li>• Electronic trading systems are not common</li><li>• The provision of pricing information to investors is insufficient and has low transparency</li><li>• The lack of a clearing agency makes settlement risk high and means repo transactions are not possible</li><li>• Fails are not recognized</li><li>• Corporate bond organizers are limited to banks and trust companies, and there is a conflict of interest between bondholders and lenders</li><li>• There is no requirement to disclose bank loan covenants</li></ul> <p><b>V. Taxes</b></p> <ul style="list-style-type: none"><li>• Losses from defaults cannot be deducted (In the US, transfer gains are taxable and default losses are deductible)</li><li>• There is unequal taxation between individuals and corporations and between taxable corporations and non-taxable corporations</li><li>• Interest on book-entry corporate bonds received by non-residents is taxed (interest on JGBs and munis is tax-free)</li></ul>
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Source: Nomura Institute of Capital Markets Research, based on materials from the Corporate Finance and Treasury Association of Japan and on an article (in Japanese) included in a panel report published in July 2009 by the Financial Supervisory Agency's Financial Research and Training Center, titled *Kurejitto Shijou ni okeru Kentoukadai* (Issues in the credit market to consider), written by Kazuhiro Yoshii, General Manager, Legal and Tax Research Department, Daiwa Institute of Research.

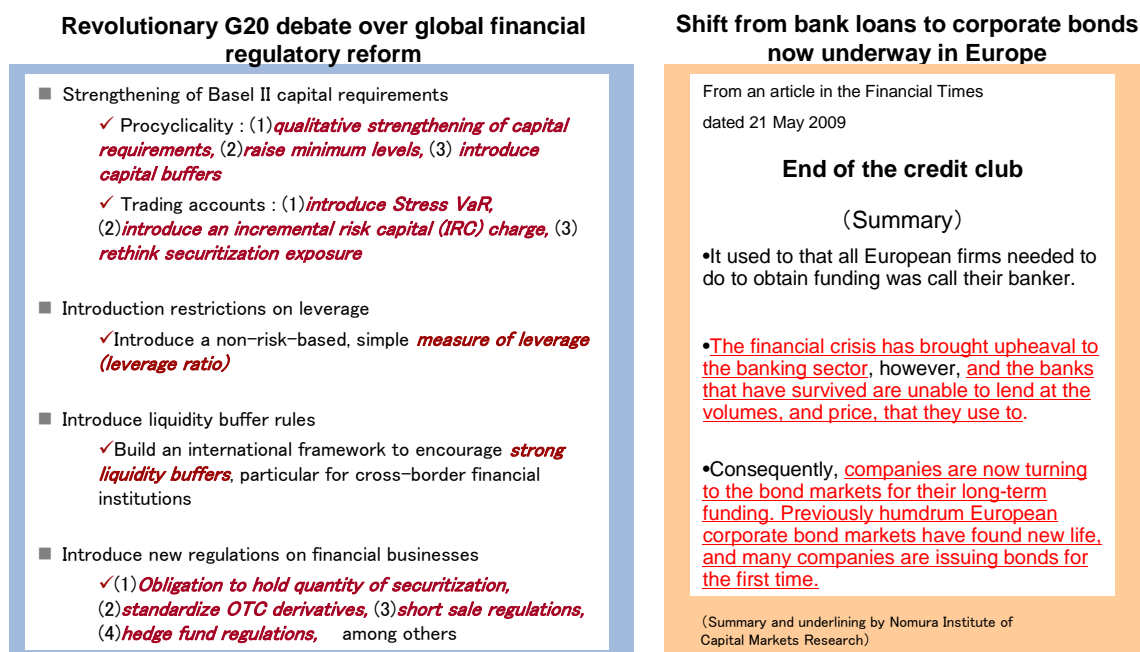
## 3. The changing environment for Japan's corporate bond market

In response to the financial crisis, attempts are being made to substantially change the environment in which Japan's corporate bond market must operate, and a quick resolution of the problems faced by Japan's corporate bond market, as well as the expansion that market, has become an urgent issue. We list below the major initiatives with the potential of achieving such substantial change.

## 1) Moves to reform global financial regulations

Under the auspices of the G20, talks on achieving major reforms of the global financial regulatory regime are moving at a rapid pace<sup>4</sup>. The focus has been on strengthening capital adequacy ratios and implementing restrictions on leverage ratios, changes that will inevitably have a major impact on how financial institutions operate and on the financial intermediary function of banks (Figure it 25). This has already led to moves in anticipation of such a regime in Europe. With many banks having become unable to lend as a result of the financial crisis, there are many corporations experiencing the flotation of a bond issue for the first time.

**Figure 25: The debate over financial regulatory reform and the shift in corporate finance toward corporate bonds**



Source: Nomura Institute of Capital Markets Research, based on materials from the US Department of the Treasury and on media reports.

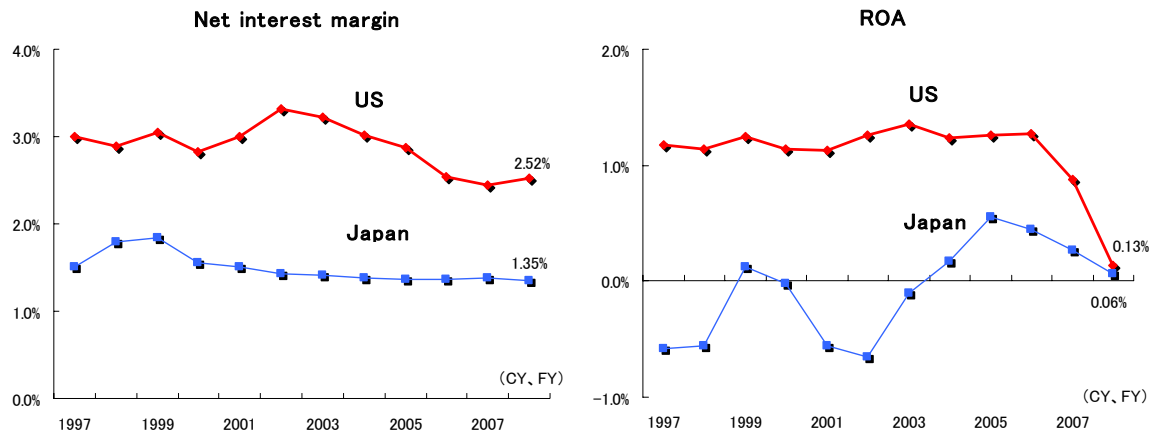
## 2) Rising pressure on bank profit margins

The interest rate spread (investment yield minus the cost of funding) for Japanese banks has remained at least 1 percentage point lower than that for US banks (Figure 26). The return on assets (ROA) of Japanese banks has also averaged about 1.2 percentage points less than that for US banks over the past decade, although Japan and US bank ROAs were about the same in 2008. Although the need for Japan's banks to improve their profitability was recognized well before the latest financial crisis, the increased importance of retained earnings at a time when regulations are becoming

<sup>4</sup> For more on financial regulatory reform, see Kei Kodachi, *Puruudensu Seisaku no Aratana Kadai wo Kangaeru* (Considering new problems with prudential policies), Capital Market Quarterly, Summer 2004 issue (in Japanese).

heavier is likely to further amplify the pressure coming from both shareholders and regulatory agencies.

**Figure 26: Japan-US differences in banks' profitability**



- Note: 1. US data is for commercial banks. Net interest margin = (interest income/interest bearing assets – interest expense/interest-bearing liabilities). Calendar year basis.  
 2. Japan data is for all banks. Net interest margin = (yield on funds invested – yield on deposited funds). Fiscal year basis (H1 only for FY2008).

Source: Nomura Institute of Capital Markets Research, based on materials from the FDIC and on *Zenkoku Genkou Zaiumushohyō Bunseki* (Analysis of financial statements of all banks), by the Japanese Bankers Association (in Japanese).

If banks will have no choice but to raise loan interest rates and pull out of unprofitable lending businesses, Japan is also likely to see an increase in the number of companies looking to procure funds on the corporate bond market, and thereby follow the pattern of corporate bond market growth set in the US.

### 3) A shift to immediate recognition of liabilities in pension benefit accounting

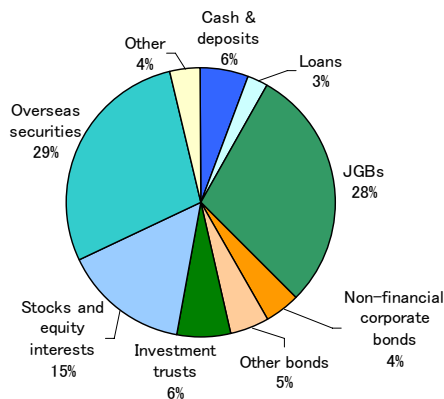
Consideration is now being given to changing pension benefit accounting rules so that any underfunding of corporate pensions must be immediately recognized. We think such a rule change would be likely to encourage pension funds to invest in corporate bonds. Although the use of asset-liability management (ALM) has also advanced within the pension management industry, in Europe, where a similar tightening of accounting rules occurred, there was a fairly large leap forward in the use of liability driven investment built around long-term bonds. A similar trend was observed in the US with the passage of the Pension Protection Act in 2006.

In Japan, for example, no public pension allows investment in bonds rated BB or lower, and some funds have set the bar even higher (Figure 27). Although it is a “chicken or egg” dilemma, these pension funds need to think more in terms of overall credit investment, separating out the interest rate risk from the credit risk, and of managing overall portfolio risk and return through investment diversification, rather

than questioning the appropriateness and bankruptcy likelihood of each bond. We also see a need for a greater number of credit analysts for high-yield bonds.

**Figure 27: Corporate bond investment criteria for corporate pension fund portfolios and public pensions in Japan**

**Corporate pension fund balance sheet composition (end-FY2008)**



**Corporate bond investment criteria for each public pension fund**

Pension fund	Assets	Criteria for investment in corporates
Government Pension Investment Fund (GPIF)	¥121.9 trillion (end-March 2009)	BBB or higher
Pension Fund Association for Local Government Officials (Chikyoren)	¥14.5 trillion (end-March 2009)	A or higher
Federation of National Public Service Personnel Mutual Aid Associations (KKR)	¥8.8 trillion (end-March 2009)	A or higher

Source: Nomura Institute of Capital Markets Research, based on the BOJ's Flow of Funds Statistics and disclosures from each fund/association.

#### 4) The spread of defined contribution pension plans

There is also the possibility that defined contribution (DC) pension plans will increasingly replace defined benefit (DB) plans. One reason for this is that companies have become more aware of the costs of providing a DB pension because of rules changes, including the shift to immediate recognition of underfunding in pension benefit accounting and the elimination of tax qualified pension plans (TQPPs), and owing also to the increase in the level of underfunding (Figure 28). Under a DC plan, the employees must take responsibility for investing their own funds.

In addition, there is a possibility that investment trusts and corporate bond funds can play an important role by making diversified investments in corporate bonds issued by Japanese companies. This will allow them to broadly provide to regular investors a financial product with medium levels of both risk and return, thereby filling the gap between deposit savings, government bonds, and money market funds on one end of the spectrum and overseas bonds and stocks on the other, and should increase awareness of corporate bond funds through the spread of DC plans.



**Figure 28: Corporate pension reform and the shift to DC plans**

**Elimination of Tax Qualified Pension Plans (TQPP)**

- Decided with corporate pension reforms of 2001
- To be eliminated in March 2012 after a transition period

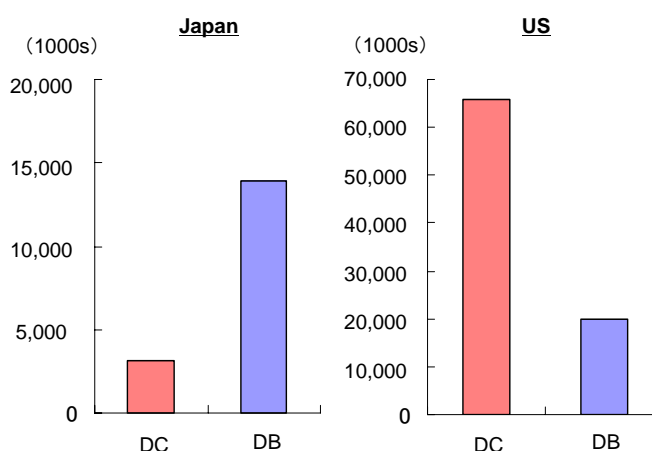
**Shift to immediate recognition under pension benefit accounting**

- US has required immediate balance sheet recognition since 2006.
- The International Accounting Standards Board (IASB) is now debating abolishing late recognition and targeting a change in standards by 2011.
- Japan is also revising its standards as part of its convergence with IAS, as well as debating making application of IAS compulsory.

**Increasing pension shortfalls brought by deteriorating investment environment**

- The aggregate pension underfunding of 3,315 Japanese corporations in FY2008 was ¥30.6 trillion, and pensions were only 59.8% funded.

**Corporate pension participation in Japan and the US  
—Defined contribution versus defined benefit—**



- Note: 1. Numbers, as of March 2009 for Japan and for 2006 for the US, show number of currently working participants.  
 2. People participating in multiple types of Japan's DB plans are counted more than once.

Source: Nomura Institute of Capital Markets Research, based on data from the Ministry of Health, Labor, and Welfare, the Pension Fund Association, and the US Department of Labor.

**5) Overseas institutional investors are becoming more important**

In addition to domestic institutional investors and individuals, investment funds from overseas institutional investors are becoming increasingly important. As explained above, overseas investors owned only an insignificant share of Japan's corporate bond market as of end-2008. Such overseas institutional investors as pension funds and sovereign wealth funds are quite large, however. The 10 largest overseas pension funds based on assets control assets totaling \$1.9 trillion in aggregate, while the top 10 sovereign wealth funds control \$2.7 trillion (Figure 29) of assets. A look at their portfolios shows that their investments also include bonds issued outside of the home country. For example, the aggregated portfolios of the top 200 public DB pension funds have a 2% weighting in overseas bonds, while that weighting drops to 1% for the top 200 corporate DB pension funds (Figure 30). These large overseas institutional investors should not be overlooked during the process of trying to invigorate and expand Japan's corporate bond market.

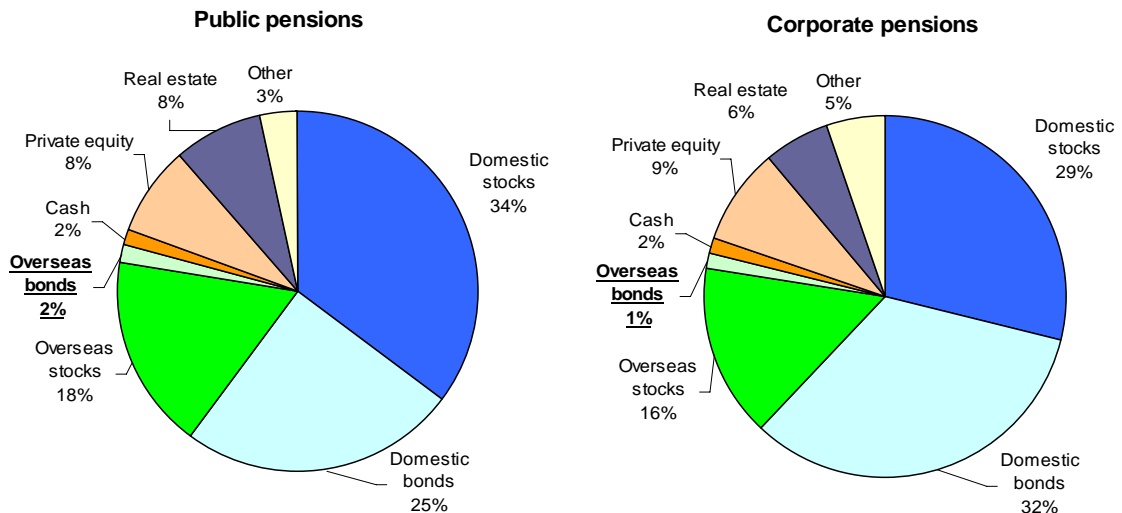
**Figure 29: Major institutional investors overseas**

Pension funds				Sovereign wealth funds			
Rank	Fund or company name	Country	Assets (\$ Billions)	Rank	Fund or company name	Country	Assets (\$ Billions)
1	Government Pension Fund of Norway	Norway	339.1	1	Abu Dhabi Investment Authority	UAE - Abu Dhabi	627.0
2	ABP	Netherlands	243.1	2	SAMA Foreign Holdings	Saudi Arabia	431.0
3	CalPERS	US	214.6	3	SAFE Investment Company	China	347.1
4	Federal Employees Retirement System	US	210.6	4	China Investment Corporation	China	288.8
5	National Pension Scheme	Korea	190.4	5	Government of Singapore Investment Corporation	Singapore	247.5
6	Postal Savings Fund	Taiwan	154.2	6	Kuwait Investment Authority	Kuwait	202.8
7	CalSTRS	US	147.2	7	National Welfare Fund	Russia	178.5
8	NYPERS	US	138.4	8	Hong Kong Monetary Authority Investment Portfolio	China - Hong Kong	139.7
9	Florida Retirement System	US	118.7	9	Temasek Holdings	Singapore	122.0
10	General Motors	US	110.3	10	National Social Security Fund	China	82.4

Note: 1. Pension fund assets are as of end-2008.  
 2. Sovereign wealth fund assets are the most recent figures when the data was compiled in August 2009.

Source: Nomura Institute of Capital Markets Research, based on data from Pension & Investments and the Sovereign Wealth fund Institute.

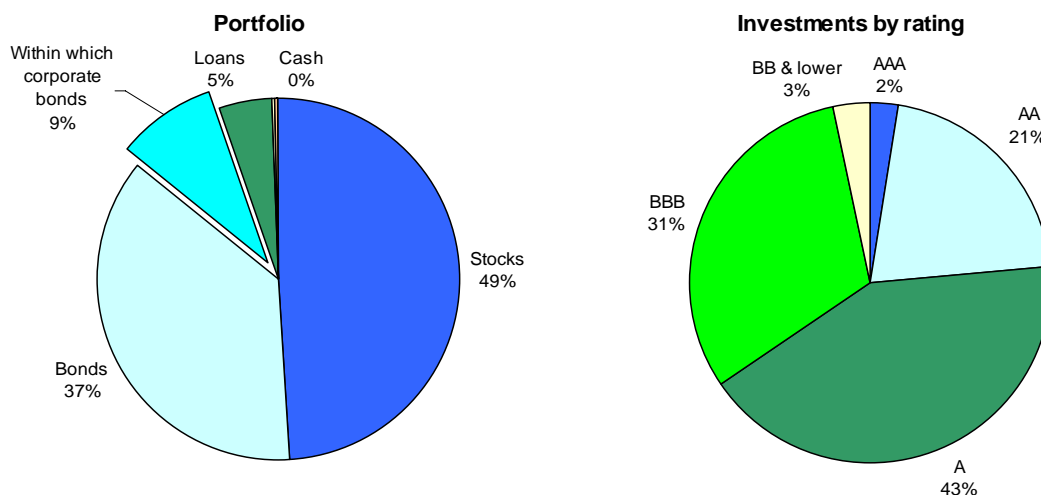
**Figure 30: US pension fund portfolios**



Note: Percentages are aggregates of the top 200 funds based on assets.  
 Source: Nomura Institute of Capital Markets Research, based on data from Pension & Investments.

Moreover, the bond holdings of these institutional investors appear to be broadly dispersed across investment grade and high yield bonds, and indicate a high level of expertise in credit investing. For example, 9% of the Government Pension Fund of Norway's assets are invested in corporate bonds, and 3% of its corporate bond investments are in high-yield bonds (Figure 31). The ATP Fund of Denmark discloses the details of its risk budgeting, which determines the allocation of each asset class based on risk. In addition to allocations of 35% to equity risk and 20% to interest rate risk, it has a 10% allocation to credit risk.

**Figure 31: Norges Bank Investment Management's portfolio and corporate bond investment by rating**



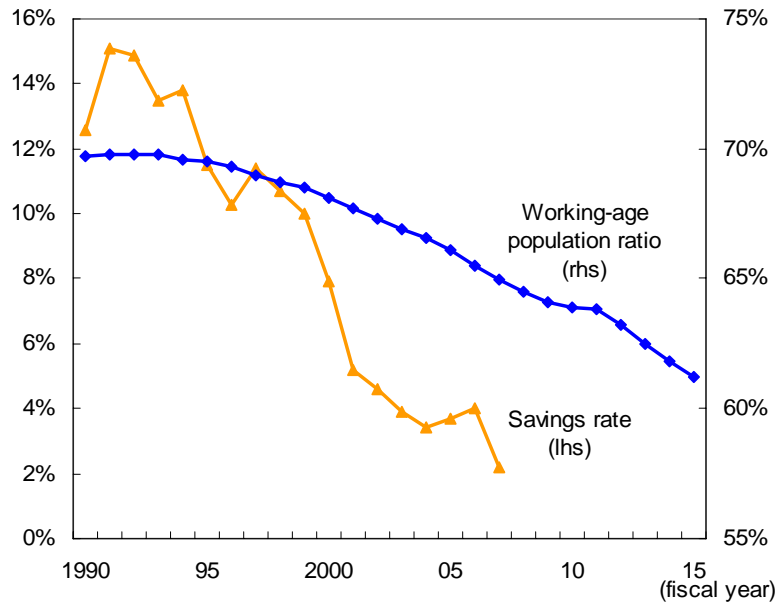
Source: Nomura Institute of Capital Markets Research, based on data from NBIM.

Although government-affiliated funds have generally given the impression that they make strategic equity investments, their portfolios actually consist of a combination of equities, bonds, and alternative investments. The publicly disclosed portfolio of Singapore's Government Investment Corporation (GIC) has a 24% weighting in bonds. By region, 24% of those bond investments are in Asia, and 11%, nearly half of the Asia allocation, are in Japan. We still see plenty of room for further inflows into Japan's corporate bond market from pension funds and sovereign wealth funds.

Another reason why investments from overseas institutional investors are becoming more important, and this is true for all of Japan's capital markets, is that there is a risk that the supply of funds from domestic investors will decline. As noted previously, although the banks and insurance companies own a large share of Japan's corporate bond market, those funds come from individuals, and individuals are thus the ultimate suppliers of funds. Accordingly, a decline in individual financial assets will lead to a decline in investment inflows from domestic investors.

Japan's working-age population ratio (the number of individuals aged 15 to 64 as a percentage of the total population) has continued to decline; it fell below 65% in FY2008, and is expected to decline further (Figure 32). This decline in the working-age population ratio is expected to pull down the savings rate, and with Japan's population continuing to age, we think there is a strong possibility that the amount of individual financial assets will not only not increase, but actually start to decrease, over the long-term. With the supply of funds from the domestic market declining, an increase of funds inflows from overseas will be needed to sustain growth in both the corporate bond market and the economy. As shown in Figure 14, funds from overseas have been compensating for the shortfall of domestic funds in the US corporate bond market.

**Figure 32: Changes in Japan's savings rate and working-age population ratio**



Note: Working-age population ratios from FY2006 are forecasts by the National Institute of Population and Social Security Research.

Source: Nomura Institute of Capital Markets Research, based on data from the Cabinet Office and the National Institute of Population and Social Security Research.

For these reasons, it is becoming increasingly important to receive investment funds from overseas institutional investors, and this will require improvements in Japan's corporate bond market infrastructure. We have already outlined a number of different challenges, including the need to expand the size of the issuance market and improve the secondary bond market's infrastructure, but what is probably the area of greatest need from the perspective of attracting overseas investors is an overhaul of tax laws. Currently, although coupon income on Japan's central government and municipal bonds that is received by nonresidents is tax free, the income from corporate bonds is taxed. None of the other major industrialized countries, including the US, the UK, Germany, and France, levies such a tax. To encourage investment in corporate bonds by overseas investors, we think the first step toward improving Japan's corporate bond market infrastructure should be to eliminate taxation on interest income paid to nonresidents<sup>5</sup>.

5 The need to exempt from taxation the interest income from corporate bonds paid to nonresident investors has also been pointed out by the Corporate Finance and Treasury Association of Japan in its report, *Shasai Shijou Kakudai no tame no Youbou/Teigen* (An outlook and proposal for growth in the corporate bond market), as well as by Yasushi Hoshi of the Daiwa Institute of Research in a 3 September 2009 report entitled *Shasai Shijou Kasseika ni muketa* (Policies to invigorate the corporate bond market) (both in Japanese).

## V. Conclusion

The large size of the US corporate bond market is mostly owing to the growth in that market achieved over the past quarter-century. This growth can be explained by companies having turned to corporate bond issuance for their funding needs in response to constraints on bank credit, as well as by the growth in corporate bond investing by life insurers, pension funds, mutual funds, households and individuals. This has been enabled by a shift toward DC pension plans as well as the implementation of corporate bond investment platforms and the consequent improvements in price transparency.

In contrast, Japanese corporations still rely on bank loans for the majority of their funding needs, and Japan's corporate bond market remains small relative to that of the US. There is evidence, however, that the latest financial crisis is triggering the sorts of changes that can promote growth in the corporate bond market, as occurred in the US. Japan's corporate bond market should grow as corporations turn to bond issuance for their funding needs and as households, individuals, and overseas investors start investing more of their assets in corporate bonds. The growing popularity among household and individual investors of the medium-term JGB funds and money market funds introduced in the past wound up fueling growth in the issuance markets for JGBs and commercial paper. We see no reason why the same cannot happen with corporate bonds, as Japan's investment trusts seek to take advantage of diversification. We also think the government should move quickly to exempt from taxation the interest income from corporate bonds paid to nonresidents.

This report is based largely on a presentation given to the Japan Security Dealers Association's Roundtable on Invigorating the Corporate Bond Market on 9 September 2009.