Research Quarterly

THE BOND MARKET ASSOCIATION

August 2003

U.S. Bond Issuance On Record Pace; Higher Rates Pose Second Half Challenge

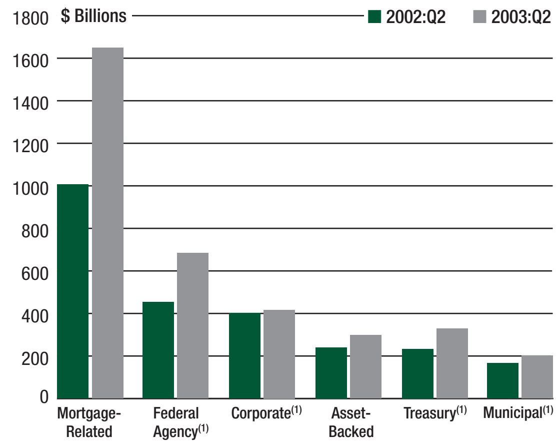
New issue activity surged in the U.S. bond market during the first half of the year and is on pace to break the record set last year. Issuance totaled $3.6 trillion, up 43.3 percent from the $2.5 trillion issued during the same period in 2002. Debt issuance grew with the support of a favorable market environment—historically low interest rates, a slow growing economy and state and local governments' need to finance budget deficits. Issuance volumes were significantly higher across all sectors in the first half of the year, with the exception of the corporate market, which showed modest growth compared to the first half of 2002. The mortgage-related market was especially strong due to high levels of refinancing and purchase loan originations, and accounted for over 46 percent of total U.S. bond issuance. Secondary market trading volume was up across all markets in the first half of the year.

Rising interest rates associated with stimulative fiscal policy and accelerated economic growth set the stage for a challenging second half of the year. Refinancing driven non-Treasury issuance will be more affected than new money issuance.

Highlights

- Treasury gross coupon issuance totaled $328.4 billion in the first half of 2003, up from the $233.1 billion issued during the same period last year. Total marketable Treasury debt outstanding, including bills and coupons, increased to $3.38 trillion as of June 30, 2003.
- Federal agencies increased long-term new issue volume to $683.6 billion in the first two quarters of the year.
- New municipal issuance volume—including long- and short-term issues—totaled $236.8 billion in the first half of the year.
- Corporate bond issuance increased 4.0 percent, to $417.0 billion in the first half of 2003.
- Asset-backed issuance increased to $297.6 billion, up 23.6 percent from the $240.8 billion issued in the first half of 2002.
- Mortgage-related securities issuance increased 64.6 percent, to $1.66 trillion in the first two quarters of the year.
- The outstanding volume of money market instruments, including commercial paper, large time deposits and bankers' acceptances, totaled an estimated $2.56 trillion outstanding as of the end of June.
- Special—Prepayment Report

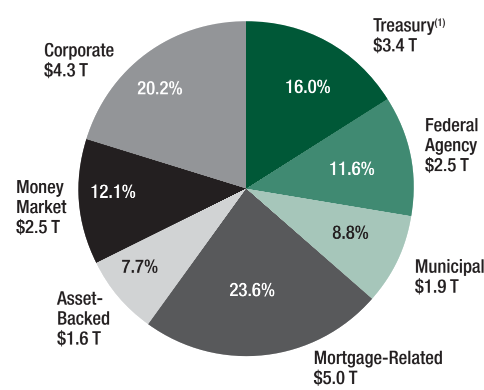
Issuance in the U.S. Bond Markets
2002:Q2 vs. 2003:Q2



(1) Includes long-term issuance only

Sources: Thomson Financial Sec., U.S. Treas., U.S. Fed. Agencies, Inside MBS & ABS

Outstanding Bond Market Debt
As of June 30, 2003*



Total: $21.1 Trillion(2)

(1) Includes marketable public debt
(2) Figures may not add due to rounding
* The Bond Market Association estimates

Sources: Fed. Reserve System, U.S. Treasury, U.S. Fed. Agencies and Inside MBS & ABS

Michael Decker, Senior Vice President
Research and Policy Analysis
Steven Davidson, Director of Research
Marcelo Vieira, Manager, Market Statistics
Tiffany Coln, Research Analyst
Matthew Giammarinaro, Research Analyst
Christine Munroe, Policy Analyst

Headquarters: 646.637.9200
360 Madison Avenue, New York, NY 10017-7111

Washington Office: 202.434.8400
1399 New York Avenue, NW, Washington, DC 20005-4711

European Office: 44.20.77 43 93 00
St. Michael's House, 1 George Yard, London EC3V 9DH

www.bondmarkets.com

Treasury Coupon Issuance Continues to Soar

Gross coupon issuance in the U.S. Treasury market totaled $328.4 billion in the first half of 2003, up 40.9 percent from the $233.1 billion issued in the same period of 2002. Coupon issuance in the second quarter was 8.7 percent higher than issuance in the first quarter. Issuance is expected to grow further through the balance of the year and into next year based on higher deficit projections. Treasury announced it would borrow $104 billion during the third quarter primarily to retire maturing debt.

Issuance of government securities through June increased in response to deficit conditions caused by lower-than-expected corporate and individual income tax receipts, the continuation of slow economic growth, and costs related to domestic programs. Spending associated with homeland security and operations in Iraq also contributed to the federal government's fiscal position. The effect of anticipated costs of legislation, including the Jobs and Growth Tax Relief and Reconciliation Act (JGTRR), and policy changes adds to the near-term deficit. The Office of Management and Budget currently projects a federal budget deficit of $455 billion in FY 2003, compared to the $158 billion in FY 2002. As the stimulative fiscal policy enhances prospects for economic growth, it is anticipated that deficit growth should slow in later years and moderate the rate of Treasury issuance absent additional changes in fiscal policy.

Debt Supply Grows, Debt Ceiling Increased

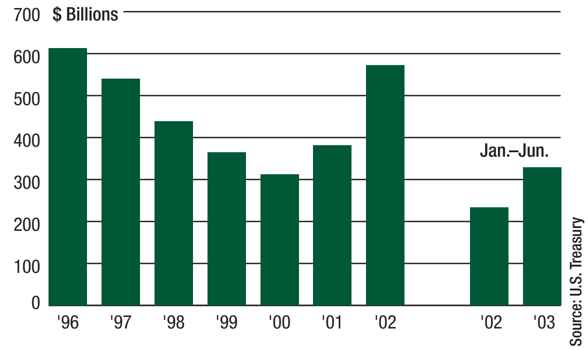
Total marketable Treasury debt outstanding, including bills and coupons, increased to $3.38 trillion as of June 30, 2003, an 11.3 percent increase from the $3.04 trillion outstanding at the end of the second quarter of 2002. The outstanding level of Treasury coupon securities totaled $2.45 trillion at the end of the second quarter, compared to $2.21 trillion outstanding at the end of the first half of 2002. Gross retirements of coupon securities totaled $195.7 billion in the first half of 2003. There were no buyback operations in the second quarter.

In May, Congress approved a $984 billion increase in the debt ceiling, increasing the government's flexibility in meeting spending needs. Issuance of State and Local Government Series (SLGS) nonmarketable Treasury securities resumed in early June after suspension began in February of this year. At the end of the second quarter, there were $140.5 billion in SLGS held by states and localities.

Trading Volume Strong in Second Quarter

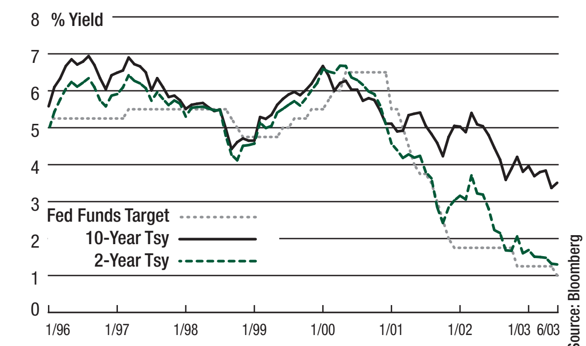
Daily trading volume by primary dealers averaged $416.1 billion during the first half of 2003, up 19.9 percent from the daily average of $346.9 billion in the same period of 2002. On a linked quarter basis, average daily trading volume increased to $446.9 billion in the second quarter, compared to $387.7 billion in the first quarter of 2003. Along with declining rates through much of the second quarter, risk management objectives continued to drive trading volume. Based on sharply rising interest rates at the end of the second quarter, the Treasury trading environment will become more challenging as we enter the second half of the year. Treasury Inflation-Indexed Securities (TIIS) continued to gain popularity and market acceptance. Daily trading volume of TIIS averaged $3.4 billion in the first half of 2003, compared to $1.9 billion in the same period of 2002, as inflationary pressure receded.

Issuance of U.S. Treasury Securities[1]
1996–2003:Q2

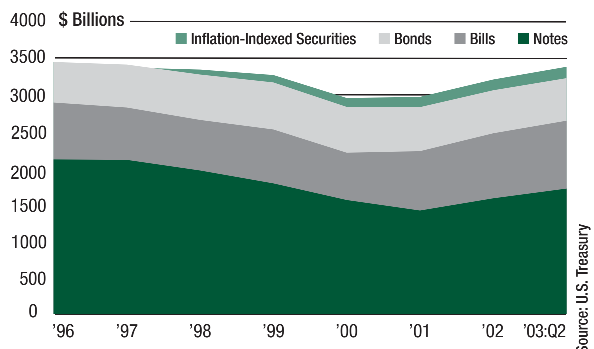


(1) Includes only marketable coupon securities

Treasury Yields and Fed Fund Rate
Jan. 1996–Jun. 2003

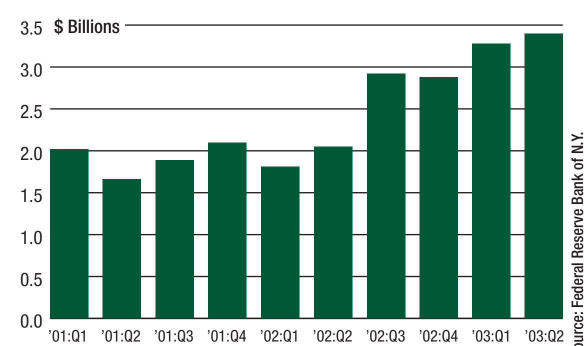


U.S. Treasury Securities Outstanding*
1996–2003:Q2



*Includes Marketable Public Debt

Average Daily Trading Volume of U.S. Treasury Inflation-Indexed Securities[1] 2001:Q1–2003:Q2



(1) Primary dealer activity

Federal Agency Debt Takes Off

Long-term debt issuance by federal agencies grew significantly during the first half of 2003, totaling $683.6 billion, up 50.7 percent from the $453.7 billion issued during the same period in 2002. A continued high level of conforming residential home mortgage originations and sales, supported by the low-interest-rate environment through the first half of the year, contributed to a sharp rise in issuance. The Federal Home Loan Bank System led the surge in long-term debt issuance during the first half of 2003, with $353.5 billion in new sales, up 108.3 percent from the $169.7 billion issued during the first half of 2002. The Farm Credit System also experienced significant growth in long-term debt issuance; new sales volume rose 79.6 percent, to $32.5 billion in the first half of 2003. In contrast, long-term debt issuance from Freddie Mac and the Tennessee Valley Authority decreased during the same period. In early June, Freddie Mac announced it would replace members of its executive team over an investigation of an earnings restatement. As a result, some regulators and lawmakers called for a change in the regulatory scheme of the housing-related government sponsored enterprises. The issue could influence the federal agency sector in future quarters.

Long-Term Federal Agency Debt Issuance

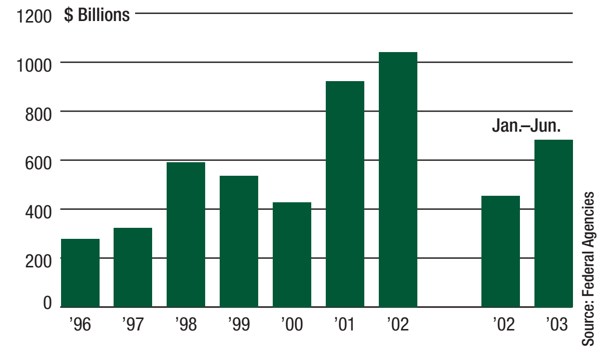
$ Billions	2002	2002:Q2	2003:Q2	YTD-to-YTD % Change	YTD-to-YTD $ Change
FHLB[1]	435.4	169.7	353.5	108.3%	183.8
Freddie Mac	295.5	141.3	129.5	-8.4%	(11.8)
Fannie Mae	238.5	112.0	155.1	38.5%	43.1
Sallie Mae	20.5	11.3	12.0	6.1%	0.7
FCS[2]	50.1	18.1	32.5	79.6%	14.4
TVA[3]	1.5	1.3	1.0	-23.1%	(0.3)
Totals	1041.5	453.7	683.6	50.7%	229.9

Short-Term Federal Agency Debt Outstanding

$ Billions	6/30/02	3/31/03	6/30/03	% Change*	$ Change*
FHLB[1]	134.3	143.0	156.4	9.4%	13.4
Freddie Mac	180.3	174.0	218.5	25.6%	44.5
Fannie Mae	274.8	318.0	340.4	7.0%	22.4
Sallie Mae	29.2	23.8	24.6	3.4%	0.8
FCS[2]	31.1	16.1	15.3	-5.0%	(0.8)
TVA[3]	2.2	3.3	2.5	-24.2%	(0.8)
Totals	651.9	678.2	757.7	11.7%	79.5

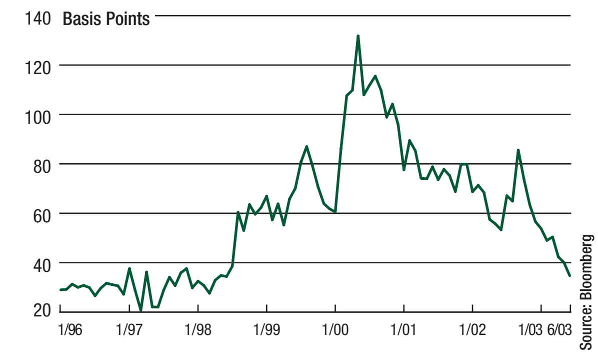
*Percentage and amount change between 06/30/03 and 03/31/03
[1] Federal Home Loan Bank System
[2] Farm Credit System
[3] Tennessee Valley Authority

Long-Term Federal Agency Debt Issuance(1)
1996–2003:Q2

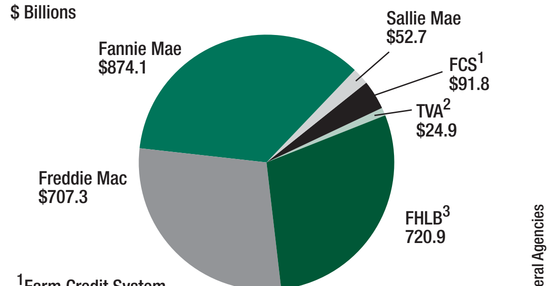


(1) Excludes maturities of one year or less

U.S. Agency Spreads to U.S. Treasury—10-Year
1996–2003:Q2



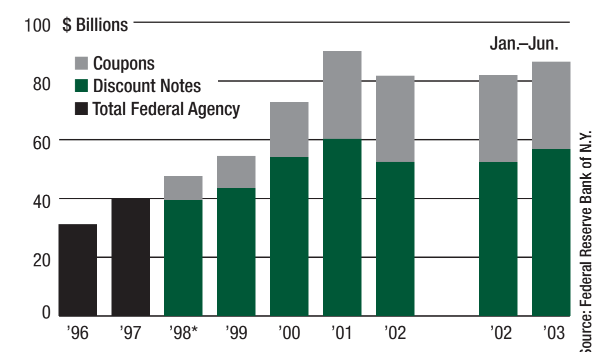
Total Federal Agency Debt Outstanding
As of June 30, 2003
$ Billions



[1] Farm Credit System
[2] Tennessee Valley Authority
[3] Federal Home Loan Bank System

Total: $2,471.7 Billion

Average Daily Trading Volume of Federal Agency Securities(1) 1996–2003:Q2



(1) Primary dealer activity
*First year in which specified maturity levels were reported

Municipal Issuance Sets New Record

Municipal bond issuance reached a record $236.8 billion in the first half of 2003, exceeding the previous half-year record of $197.6 billion set in the first half of 2002. Issuance in the second quarter totaled a record $144.3 billion, an increase from the previous quarterly record set in the fourth quarter of 2002. The continued strength of municipal bond issuance reflects the growing need of state and local governments to rely on the capital markets to address budget deficits and meet spending needs associated with infrastructure development and public programs. In addition, the low-interest-rate environment through the second quarter of the year has created opportunities to refinance outstanding debt and thus reduce capital costs.

Long-term new issuance, those with original maturities of 13 months or more, increased to an unprecedented $201.3 billion, up 21.1 percent from the $166.2 billion issued in the first half of 2002. Short-term issuance increased 13.3 percent to $35.5 billion in the first six months of the year. Outstanding municipal volume reached an estimated volume of $1.86 trillion at the end of the second quarter, 2.7 percent higher than the $1.82 trillion outstanding at the end of the first quarter.

New Capital Issuance Continues to Climb

New capital issues accounted for most of the issuance increase, totaling $136.9 billion, 24.2 percent above the $110.3 billion in new money issues in the same period of 2002. New capital issuance was higher across most use of proceeds sectors with bonds used to finance education and general government operations accounting for over half of the new issuance volume. Issuance volume in the education sector increased 6.1 percent to total $31.7 billion in the first half of the year. Issuance volume in the general government sector increased 50.0 percent to total $52.6 billion in the first half of the year.

Refunding Volume Remains Strong

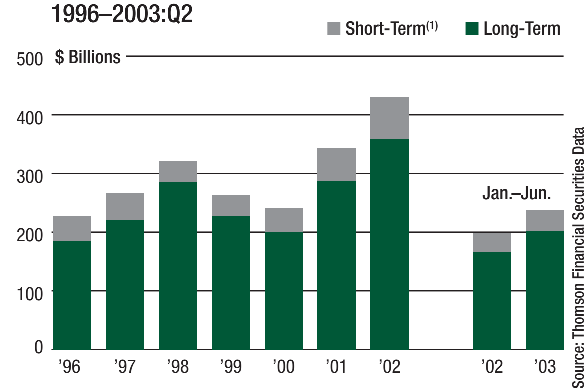
Refunding volume totaled $64.4 billion in the first half of 2003, up from $56.0 billion issued in the same period of 2002, as the low-interest-rate environment through midyear supported refinancing of outstanding debt. Refunding volume in the general government sector increased to $15.5 billion in the first half of the year, compared to $10.9 billion in the same period of 2002. Education refunding issuance increased 9.3 percent, totaling $11.9 billion in the first two quarters of the year.

Growing budget deficits and the investment requirements in infrastructure, operations and services will create an increasing demand for bond financing by state and local governments. At the same time, rising interest rates will open up the possibility of increasing cost of funds.

Trading Volume Steady

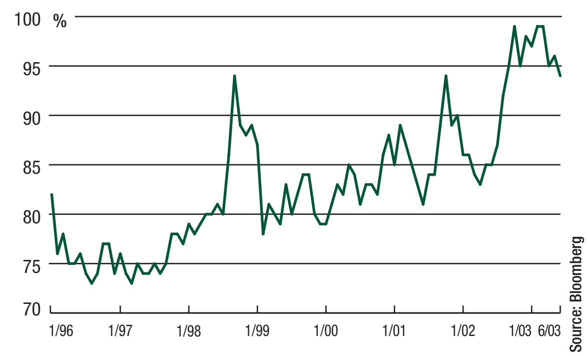
Average daily trading volume of municipal securities totaled $12.4 billion in the first two quarters of 2003, up from $10.2 billion in the same period of 2002. Trading remained steady through the second quarter, peaking at $13.8 billion in June, to average $12.9 billion for the second quarter. Municipal spreads to Treasury improved during the second quarter.

Short- and Long-Term Municipal Issuance 1996–2003:Q2

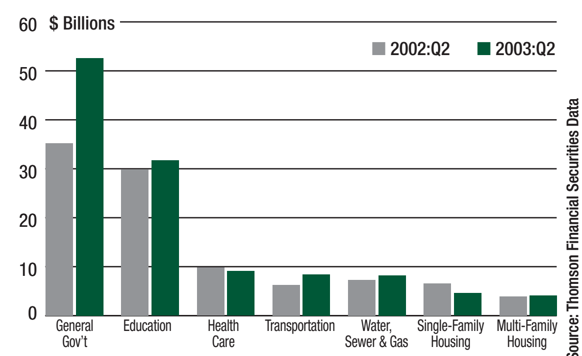


(1) Includes maturities of 13 months or less

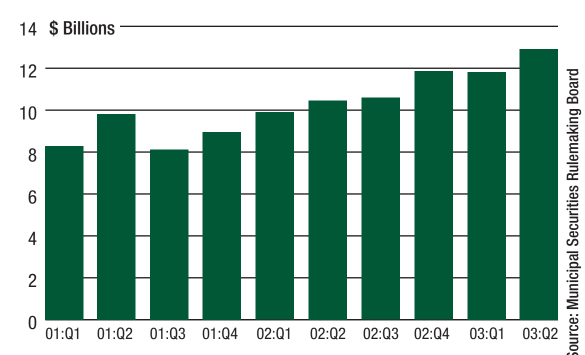
10-Yr Municipal G.O. AAA to 10-Yr Treasury Ratio 1996–2003:Q2



Municipal New Capital—Use of Proceeds 2002:Q2 vs. 2003:Q2



Average Daily Trading Volume of Municipal Securities* 2001:Q1–2003:Q2



*Includes both dealer-to-dealer and dealer-to-customer transactions

Improving Credit Outlook Leads to Corporate Issuance Growth

New issue volume in the corporate bond market rose modestly during the first half of 2003. The total new issue dollar volume increased by 4.0 percent, to $417.0 billion, compared to the $400.9 billion issued during the same period of 2002. Corporate bond issuance totaled $203.7 billion in the second quarter, a 4.5 percent decline from the first quarter of 2003, but 4.1 percent higher than the second quarter of 2002. First quarter issuance was high as corporations accessed the market in anticipation of the war and concern about the potentially destabilizing effect on market conditions.

Credit quality, as measured by investment credit rating trends, improved during the quarter. Despite the improvement, credit quality was still a concern. According to Stone & McCarthy Research Associates' (SMRA) analysis of rating trends at the three major credit rating agencies, there were 13 bond rating upgrades and 49 downgrades during the second quarter of 2003. The downgrade/upgrade ratio was the lowest of any quarter during the last year. Companies, still affected by the fallout from the corporate governance and accounting scandals of the last few years, are focused on improving their balance sheets and cost-cutting measures. Many have taken advantage of low interest rates by refinancing or retiring outstanding higher priced debt. Issuers will continue to look for opportunities to refinance debt in order to lower their cost of funds during the second half. However, considering the interest rate environment as we enter the second half of the year, a continued increasing trend in issuance will depend on an increase in capital spending and renewed M&A activity.

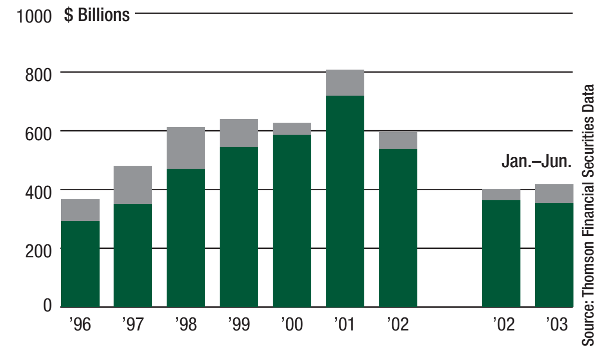
Tighter corporate bond spreads are another indication of the improving credit conditions in the corporate bond markets during the first half of 2003. The low-interest-rate environment and an improving corporate earnings picture has generated some of the tightest spreads between corporate bonds and Treasury securities in the last two years, with average spreads narrowing nearly 50 basis points during the first half of the year, according to SMRA.

The tighter corporate spreads to Treasuries through the second quarter highlight a tightening trend that began in mid-2001. During that period, the BBB1 rated industrial to Treasury spreads narrowed by approximately 100 basis points. The widest spreads during this credit cycle coincided with the onset of the bear market in equities. The narrowing spreads since then were aided by investors seeking higher returns in the low-rate environment through the end of the second quarter.

The improved corporate earnings in the first half of 2003 and the stronger performance of equities led to growth in the convertible bond market during the second quarter. Issuance of convertible bonds—including investment-grade and high-yield issues—totaled $50.3 billion in the first two quarters of 2003, more than twice the issuance volume during the same period last year.

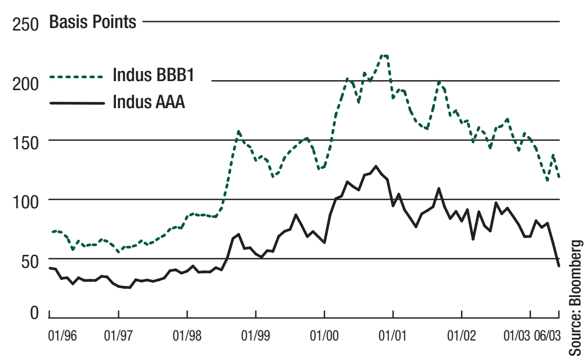
Corporate Bond Market continued on page 10

Corporate Bond Issuance[1]
1996–2003:Q2

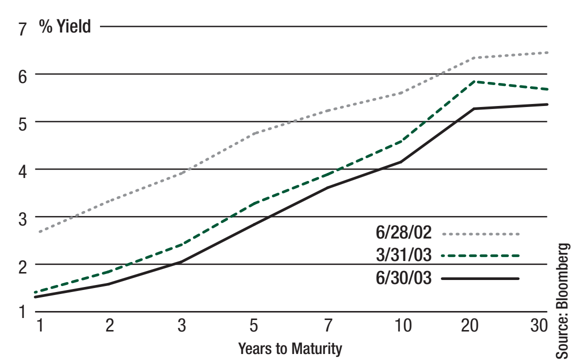


[1] Includes all non-convertible corporate debt, MTNs, and Yankee bonds, but excludes all issues with maturities of one year or less, CDs and federal agency debt.

U.S. Corporate Spreads to U.S. Treasury—10-Year
1996–2003:Q2



U.S. Corporate: AA Industrial Yield Curves
June 2002–June 2003



ABS Issuance on Pace to Break Record

Issuance in the asset-backed securities (ABS) market is on pace to break the record of $485.4 billion set last year. New issue activity totaled $297.6 billion in the first half of the year, up 23.6 percent from the $240.8 billion issued during the same period last year. The market conditions in the first half of the year, including uncertainties in the corporate market and low interest rates, continued to create a favorable environment for ABS issuers and investors. Issuance was driven by record activity volume in the home equity sector, which accounted for over 40 percent of overall ABS issuance. Rising interest rates and a possible improvement in the corporate sector could curtail the issuance surge in the ABS market.

Top ABS Sectors

Home equity issuance totaled $120.3 billion in the first half of the year, up 74.5 percent from the $69.0 billion issued during the same period one year ago and 33.6 percent higher than the first quarter of 2003. The strong housing market along with record lows in mortgage rates buoyed the home equity sector with a record number of originations and refinancings during the first half of the year. Yield spreads on three-year home equity securities narrowed nearly 50 basis points since the end of 2002. However, yield spreads increased slightly in the month of June.

Issuance in the credit card sector was virtually unchanged at $40.2 billion during the first two quarters of the year, up slightly from the $40.0 billion issued in the first half of 2002, but down 13.4 percent when compared to the first quarter of 2003. The sector may be feeling the effects of some industry consolidation and a large number of personal bankruptcies and credit card delinquencies. However, the sector benefited from refinancing opportunities due to the low interest rates.

New issue activity in the student loan sector continued to increase in the first half of the year. The sector benefited from an increasing demand to consolidate loans and rising college tuition costs. Also, Sallie Mae continued to use the securitization market as a tool to fund loan originations. Issuance increased to $21.4 billion in the first half of the year, up 21.0 percent from the $17.7 billion issued during the same period last year.

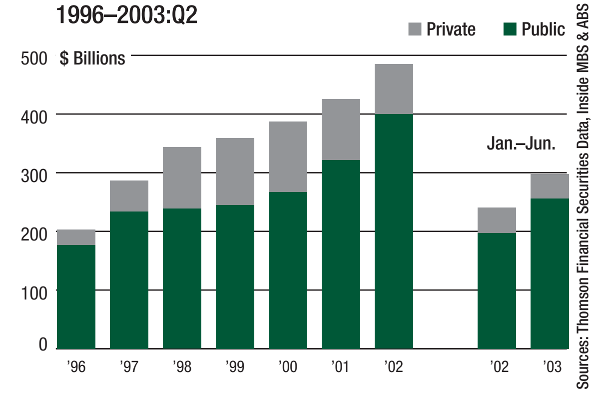
Auto loan issuance decreased 10.9 percent, to $39.9 billion in the first part of 2003, down from $44.8 billion issued in the same period in 2002. However, issuance increased in the second quarter and totaled $21.0 billion, up from $18.9 billion issued in the first quarter of 2003. The decrease in issuance during the first half of 2003 can be attributed to lower auto unit sales and the use of other financing sources by the Big Three. Yield spreads for two-year prime auto ABS narrowed more than 20 basis points since the end of 2002.

The difficulties in the manufactured housing market continued, and issuance decreased nearly 80 percent from levels seen in the first two quarters of 2002, totaling $714 million in the first half of 2003. The bankruptcy of Conseco Finance—the largest lender in the manufactured housing industry—last December hurt an already ailing sector.

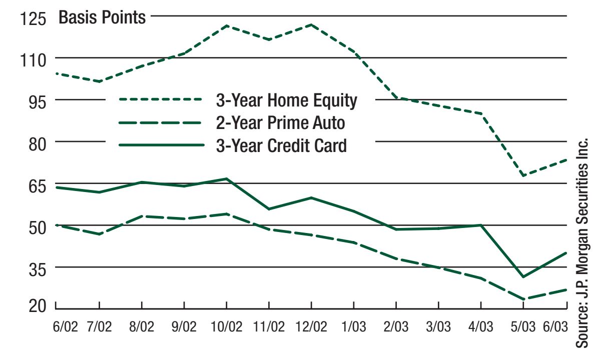
ABCP

Outstanding asset-backed commercial paper (ABCP) continues to decrease in 2003. ABCP decreased 1.2 percent, to $719.8 billion at the end of June, down from the $728.3 billion level at the end of March.

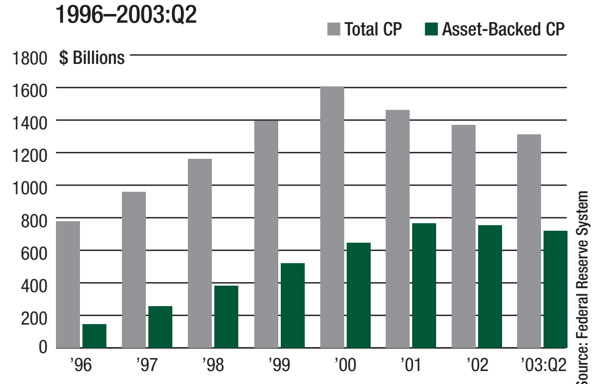
Issuance of Asset-Backed Securities
1996–2003:Q2



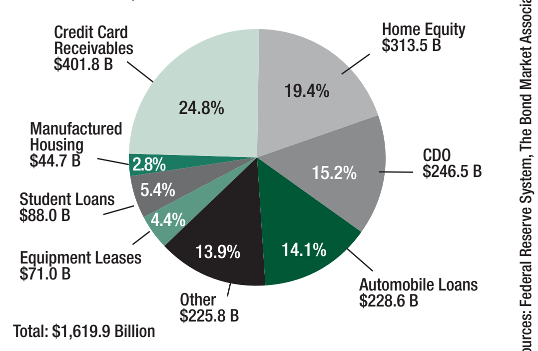
Asset-Backed Spreads to U.S. Treasury
June 2002–June 2003



Commercial Paper Outstanding
1996–2003:Q2



ABS Outstanding by Major Types of Credit
As of June 30, 2003



Mortgage-Related Securities Surge

Mortgage-related securities issuance, which includes agency and non-agency pass-throughs and CMOs, is on pace to surpass last year's record issuance volumes. New issue activity totaled $1.66 trillion in the first half of the year, up 64.6 percent from the $1.01 trillion issued during the same period in 2002. Issuance increased 7.5 percent, to $858.4 billion in the second quarter compared to the first quarter of 2003. The prevailing factor in the volume increase has been the historically low mortgage interest rates through midyear, which have led to record-level mortgage origination and refinancing volumes. Mortgage originations increased nearly 30 percent in the second quarter, compared to the first quarter of 2003. As we begin the third quarter, the significant increase in interest rates will likely slow the origination and refinancing wave that drove the markets in the first part of the year.

Agency MBS and CMO

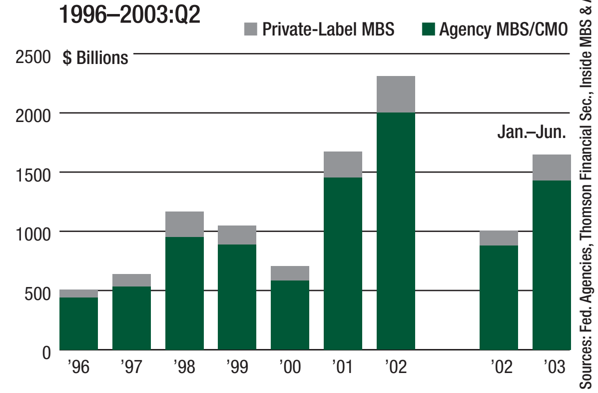
Low mortgage rates and continuing housing price appreciation have led to record-level conforming residential mortgage originations. Conforming agency mortgage-backed securities (MBS) issuance increased to $1.08 trillion in the first half of the year, up 68.7 percent from the $637.6 billion issued during the same period last year. Fannie Mae's issuance increased to $645.6 billion in the first two quarters of the year, more than double the $311.0 issued in the same period one year ago. New issue volume of Freddie Mac MBS totaled $325.1 billion in the first half of 2003, up 35.2 percent from the $240.4 billion issued during the first half of 2002. Ginnie Mae's guaranteed mortgage securities issuance volume increased 21.8 percent in the first half of the year, totaling $105.0 billion.

Issuance in the agency collateralized mortgage obligation (CMO) market also posted a dramatic increase, to $360.3 billion in the first two quarters of the year, up 49.5 percent from the $158.8 billion issued during the same period last year. However, on a quarterly basis, CMO issuance decreased 21.2 percent when compared to the first quarter of 2003, and all three agencies experienced a decline in their quarterly CMO issuance volumes.

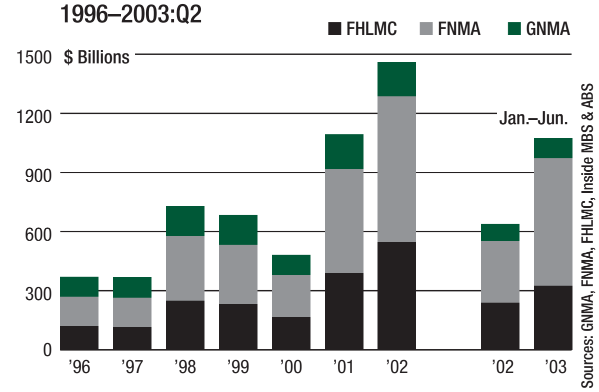
Non-Agency MBS

The non-agency sector of the market also benefited from the low-interest-rate environment and experienced an unprecedented boom through the first half of the year. Low interest rates and housing price appreciation have led to origination growth in the non-conforming jumbo mortgage market. New issuance of non-agency MBS increased 72.4 percent, to $220.9 billion, up from the $128.1 billion issued during the same period last year. Issuance increased 11.4 percent in the second quarter from the $104.5 billion issued in the first quarter. Commercial mortgage-backed securities (CMBS) totaled $35.4 billion in the first half of 2003, up 7.6 percent from the $32.9 billion issued in the first two quarters of 2002, according to *Inside MBS & ABS*. New issue activity totaled $18.5 billion in the second quarter of 2003, up from the $16.9 billion issued in the first quarter. Multifamily accounted for 18% percent of all the CMBS issued in the first half of the year.

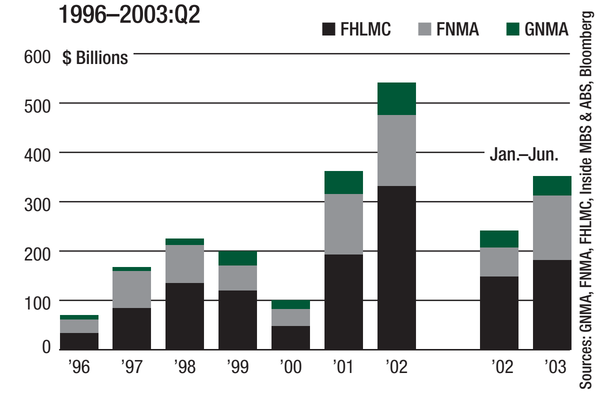
Issuance of Mortgage-Related Securities
1996–2003:Q2



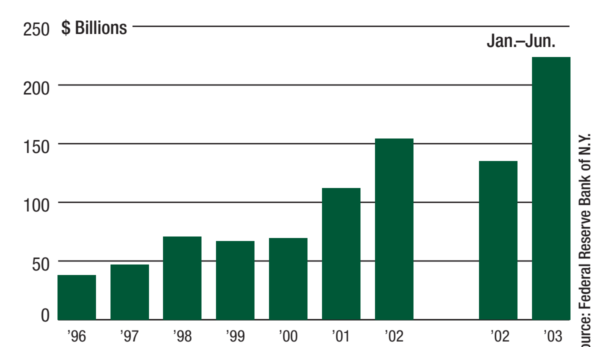
Issuance of Agency Mortgage-Backed Securities
1996–2003:Q2



Issuance of Agency CMOs
1996–2003:Q2



Average Daily Trading Volume of Agency Mortgage-Backed Securities[1] 1996–2003:Q2



(1) Primary dealer activity

Outstanding Repo Agreements Increase to $3.87 Trillion

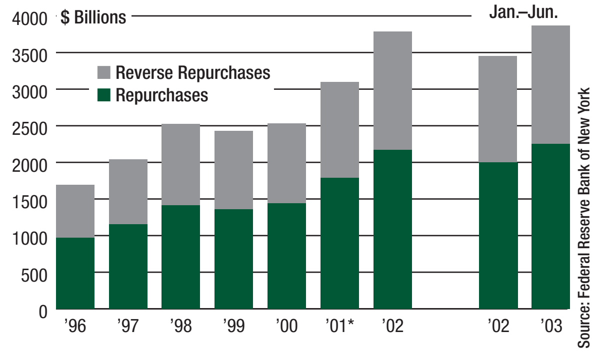
The average volume of total outstanding repurchase (repo) and reverse repo agreement contracts totaled $3.87 trillion for the first half of 2003, an increase of 12.2 percent from the average volume of $3.45 trillion during the same period of 2002. Outstanding repurchase agreements averaged $2.25 trillion through June 2003, an increase of 12.6 percent from the $2.0 trillion volume during the same period of 2002. Outstanding reverse repurchase contracts grew to $1.61 trillion during the first two quarters of 2003, a gain of 11.5 percent over the $1.45 trillion during the first half of 2002. The data represent financing activities of the primary dealers reporting to the Federal Reserve Bank of New York and include repurchase and reverse repurchase agreements involving U.S. government, federal agency, agency mortgage-backed, and corporate securities.

The Government Securities Division of the Fixed Income Clearing Corporation (an SEC registered clearing agency) facilitates orderly settlements in the U.S. government securities market and tracks repo trades settled through its system by product type. In the first half of 2003, over $122.2 trillion in repo trades were submitted by Government Securities Division participants, with an average daily volume of approximately $985 billion. Repo transactions involving Treasury notes accounted for the largest share of Government Securities Division repo activity, representing $82.0 trillion or 67.1 percent of total volume. Repos involving Treasury bills accounted for an estimated $10.1 trillion, or 8.3 percent of the total and Treasury bonds accounted for $7.5 trillion, or 6.1 percent of the activity for the year. Transactions involving federal agency securities continued to increase, second in volume to Treasury notes, accounting for $17.2 trillion or 14.1 percent of 2003's volume.

Commercial Paper Outstanding Decreases, Money Market Supply Totals $2.56 Trillion

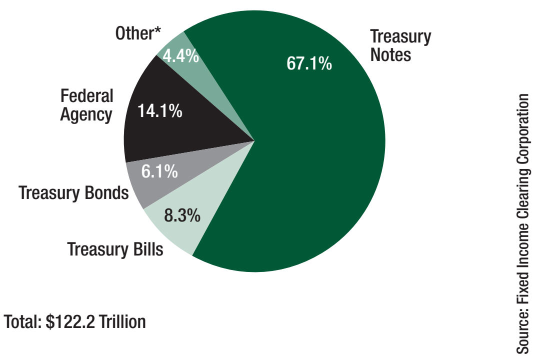
Outstanding volume of money market instruments, including commercial paper (CP), large time deposits and bankers' acceptances, totaled just over an estimated $2.56 trillion as of June 30, 2003, a less than one percent decrease from the $2.57 trillion outstanding as of March 31. CP outstanding declined 3.1 percent, to $1.31 trillion as of the end of June, from $1.35 trillion as of the end of the first quarter. Outstanding non-financial CP dropped by 12.2 percent, to $127.8 billion at the end of the second quarter, from $145.6 billion outstanding at the end of March. Financial CP outstanding also decreased, totaling $1.18 trillion at the end of the second-quarter 2003, a 2.1 percent decrease from the $1.21 trillion outstanding at the end of March. The use of CP has declined in recent quarters due to market concerns over issuer credit quality as well as balance sheet restructuring. The outstanding level of large time deposits rose to an estimated $1.25 trillion as of June 30, 2003, a 3.0 percent increase over the $1.21 trillion outstanding at the end of the first quarter. Bankers' acceptances continued to increase, to an estimated $4.9 billion in June 2003, up 2.2 percent from the $4.8 billion outstanding as of March 2003.

Financing by U.S. Government Securities Dealers Average Amount Outstanding 1996–2003:Q2



*Beginning in July 2001 corporate securities are included

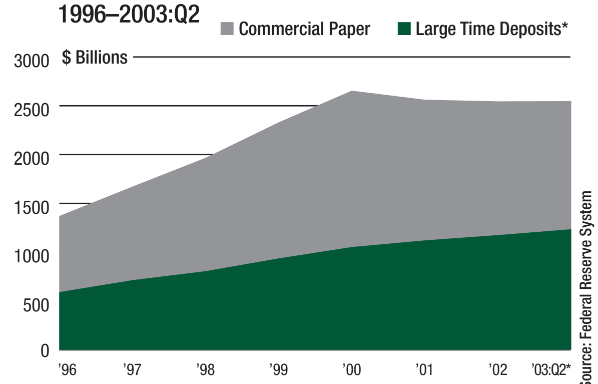
Repo Trades Submitted to the FICC
2003:Q2



Total: $122.2 Trillion

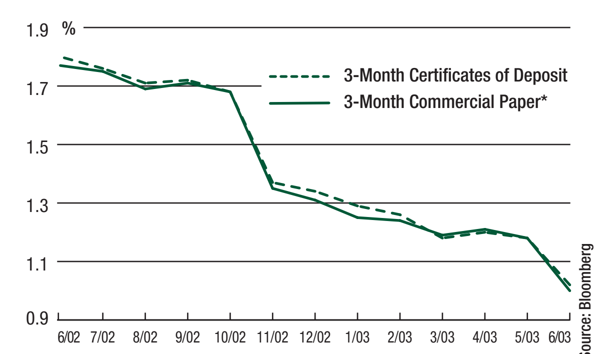
* Includes Discount Agency, Forward Starting Generic Repo Trades, STRIPs, TIPS Bonds, TIPS Notes

Outstanding Money Market Instruments
1996–2003:Q2



*The Bond Market Association estimates

Domestic Money Markets Interest Rates Monthly Average Jun. 2002–Jun. 2003



*Discount basis

Mortgage Prepayment & MBS

As the mortgage-related sector's influence has grown in the bond market, prepayment speeds now broadly influence the entire fixed-income universe. The rate at which the underlying residential mortgage pool collateral prepays has a significant effect on the timing and certainty of cash flows and thus the price and yield of residential mortgage-backed securities (MBS). Similar to a callable bond but unlike most fixed-income securities, prepayments limit MBS price appreciation in a falling interest rate environment. Unfortunately for the MBS investor, mortgages prepay when interest rates are declining. Conversely, prepayment rates slow when market interest rates rise. The rate of mortgage prepayment, known as the prepayment speed, is a function of a number of variables incorporated in MBS valuation models, including market rates, coupon, year of origination of the loan, and the agency backing the loan.

Two Measures of Mortgage Prepayment Activity

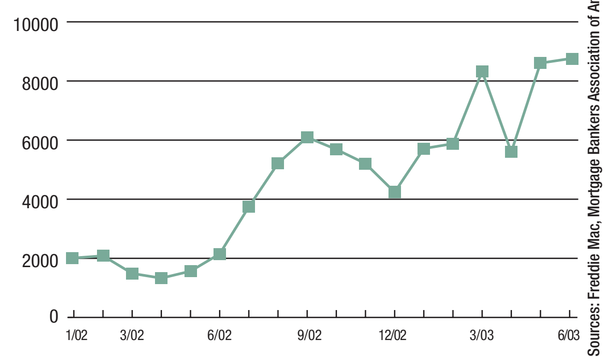
Monthly average commitment rates (including points and fees) on 30-year fixed-rate mortgages averaged 5.83 percent in June of 2003, compared to 7.25 percent in June of 2002. With the decreasing rates came a surge in prepayments. Mortgage refinancing and prepayment are closely linked. The Mortgage Bankers Association's Refinancing Index is the frequently cited source of prepayment trends. In June 2003, the monthly average of the Refinancing Index stood at 8753.3, compared to 4237.8 in December of 2002 and 1967.9 in December of 2001. Mortgage rates have moved up since the end of June. As rates backed up, the MBA Refinancing Index as of early August had retreated to the December 2002 levels.

Analysts look at the gap between the current mortgage rates and the average coupon rate of outstanding mortgages. At the end of June, for instance, the average rate was more than 100 basis points higher than the commitment rate on 30-year Fannie Mae mortgages. Since the current rate has risen relative to the average rate, there is a presumption that refinancing candidates have fallen dramatically.

In addition to comparing market rates to the average mortgage rate, another important data point in projecting prepayment speed is the volume of outstanding mortgages by coupon. Those mortgage pools of higher coupons are more likely to be refinanced. A large number of high-coupon mortgages have already been refinanced. While the volume of higher-coupon mortgages has been declining, lower coupons have been rising, which would suggest that refinancing activity might have been reaching a peak, even if mortgage rates had not risen. In fact, the early July MBA index showed such a slow-down taking place even before the spike in interest rates. Prepayment forecasting is difficult even under stable market conditions. Our view, as well as the consensus view, is that the higher rates will certainly slow prepayment, though we cannot discount the short-term effect of borrowers' psychology. Some borrowers may feel that they should refinance now rather than wait for rates to go up further.

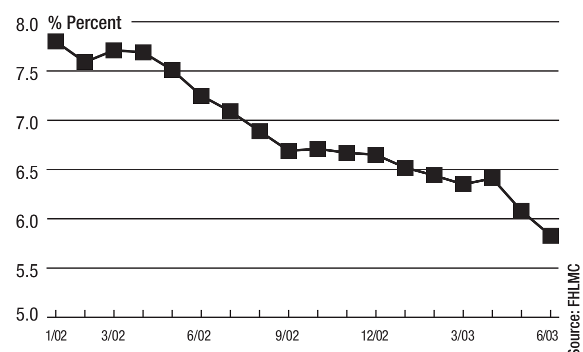
Prepayment continued on page 11

MBA Refinance Index
Jan. 2002–Jun. 2003



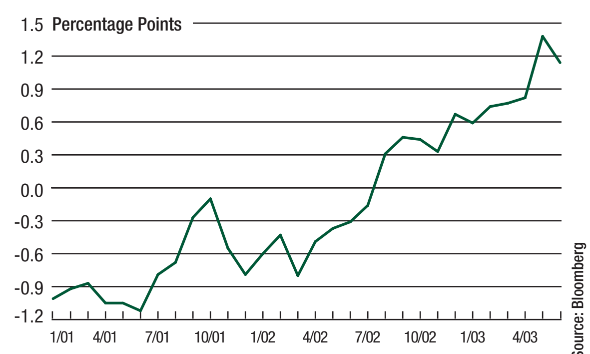
*Includes fees and points

Freddie Mac 30-Year Commitment Rate
Jan. 2002–Jun. 2003



*Monthly average commitment rate, including fees and points

Fannie Mae 30-Year Average Coupon Minus Commitment Rate* Jan. 2001–Jun. 2003



*Assumes an average coupon of 6.08 for outstanding Fannie Mae mortgages

Corporate Bonds continued from page 5

Convertible bond issuance of $36.3 billion represented an increase of 161.2 percent in the second quarter over the first quarter. Issuance of medium-term notes (MTN) decreased to $114.2 billion in the first half of 2003, or by 11.7 percent from the $129.2 billion issued in the same period the year before.

High-Yield Issuance Increases Significantly

The high-yield sector accounted for the growth in corporate issuance during the second quarter. Non-convertible high-yield issuance increased 62.7 percent, to $62.6 billion in the first half of the year, up from the $38.5 billion issued during the same period of 2002. Issuance increased to $44.2 billion in the second quarter of 2003, an increase of 140.2 percent from the $18.4 billion issued in the first quarter of 2003, and 107.2 percent from the $21.3 billion issued in the second quarter of 2002. Issuance increased in most high-yield sectors during the first half of 2003. Narrower credit spreads and an improving economy contributed to the higher issuance.

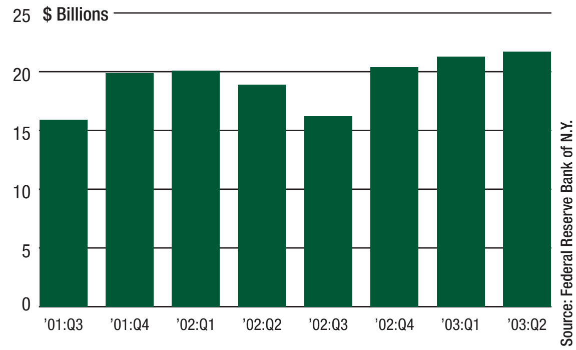
Investment-Grade Issuance Volume Declines Modestly

New issue volume of non-convertible, investment-grade bonds declined slightly between the first half of 2002 and the first half of 2003. Total issuance decreased 2.2 percent from the $362.5 billion issued in the first half of 2002, to $354.4 billion issued during the first half of 2003. On a linked quarter basis, issuance dropped in the second quarter by 18.2 percent and by 8.6 percent compared to the second quarter of 2002. Driven by the commercial banking industry asset growth and consolidation, issuance in the commercial bank sector rose 37.8 percent during the first half of 2003, to $90.2 billion, up from $65.5 billion during the same period of 2002. In contrast, the non-bank credit institution sector decreased to $54.5 billion in the first half of 2003, a decrease of 40.3 percent from the $91.4 billion issued over the same period in 2002.

Trading Volume Grows Slowly

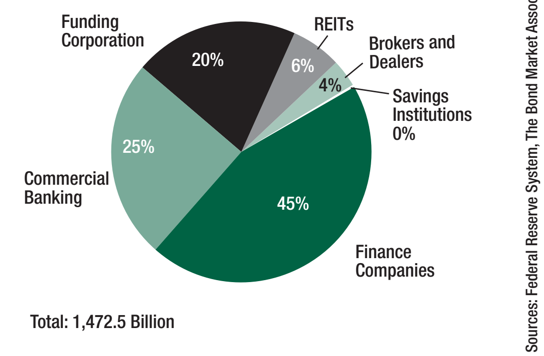
The average daily corporate bond trading volume by primary dealers for bonds with maturities of greater than one year was $21.8 billion in the second quarter of 2003, an increase of 2.8 percent over the $21.2 billion during the first quarter of 2003. The increase reflects a return of liquidity in the corporate bond marketplace over the last year. This was the third consecutive quarter of increased corporate bond trading volume.

Average Daily Trading Volume for Corporate Bonds[1]
2001:Q3–2003:Q2



[1] Primary dealer activity; excludes all issues with maturities of one year or less

Corporate Debt Outstanding—Financial Sectors
As of June 30, 2003*



* The Bond Market Association estimates

Prepayment continued from page 9

Prepayments Affect Portfolio Management

Prepayment risk and the resulting MBS cash flow volatility arise from unexpected changes in interest rates, but are also affected by forecasting model misspecifications, changes in market expectations, and changes in the housing or mortgage finance market. Such shifts in mortgage market conditions make accurate predictions of cash flow (determined by the timing of mortgage payments) and price and yield analysis of MBS pools especially difficult.

Prepayment speeds are also important for the investor who wants to maintain a certain MBS "maturity" through the management of weighted average life (WAL) or duration. Increased rates of prepayment shorten the WAL of a portfolio, making it necessary to adjust the securities that are held in order to maintain set WAL targets and as part of asset-liability risk management. Slower mortgage prepayment rates added to the sharp decline in Treasury prices early in the third quarter, as MBS investors sold Treasury securities when prepayment speeds slowed to achieve desired "longness" or duration in their portfolios.

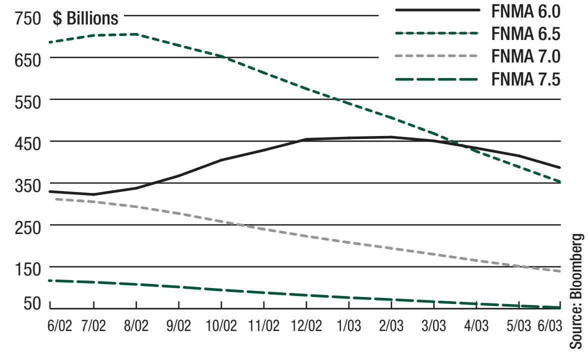
Predicting Mortgage Prepayments

The investor cares more about prepayment expectations than historical trends, because prepayment expectations are what drive the market. An important industry standard for measuring prepayment speed expectations is TBMA Mortgage Prepayment Projection Survey. The survey asks leading MBS dealers to project prepayment speeds of different maturity and coupon mortgage products under varying parallel shifts in the yield curve on a bi-weekly basis. The survey covers 95 mortgage types of various agencies and originations ranging from 4.5 to 7.5 percent. The prepayment rates are quoted as a percentage of Prepayment Standard Assumption (PSA), with 100 percent PSA indicating a starting rate of .2 percent constant prepayment rate (CPR), increasing .2 percent per month for the first 30 months.

As an example of how TBMA survey works, as of July 15, an increase of 300 basis points would slow the prepayment speed of a 5.5 percent conventional mortgage originated in 2002 from a 577 PSA to a 129 PSA. The survey shows that a rise in rates will certainly slow the prepayment speeds, but the degree of change is sensitive to the rate environment. For instance, compared to an assumption of a 100 basis point rise at the end of June, an assumed 100 basis point increase in rates at the end of July would be projected to have less of an effect on prepayment speeds at lower coupons but none of an impact at higher coupons. The survey model assumes that, in addition to the direction of interest rates, the probability of prepayment increases as the mortgage "seasons," or ages, eventually reaching a constant prepayment rate at 30 months.

For more information on becoming a subscriber to the Prepayment Projection Survey, contact Tiffany Coln at 202.434.8400 or Erik Ehinger at 646.637.9226.

FNMA 30-Year Mortgages Outstanding by Coupon
June 2002–June 2003



Sample Prepayment Projections in PSA*
Projections as of July 15, 2003

	-300	-100	Base	+100	+300
Conv 30yr 5.5 2002	1667	1524	577	204	129
Conv 30yr 6.5 2002	1376	1335	1066	375	163
Conv 30yr 7.0 2002	1145	1117	1029	574	176
Conv 15yr 5.0 2002	1496	1197	519	214	135
Conv 15yr 5.5 2001	1173	990	594	280	163
Conv 15yr 6.0 2001	1072	938	703	371	179
GNMAI 30yr 5.5 2002	1400	1210	446	163	111
GNMAI 30yr 6.5 2002	1285	1211	813	355	156
GNMAI 30yr 7.0 2002	1176	1136	871	505	180
GNMAI 15yr 5.0 2002	1185	730	360	198	122
GNMAI 15yr 5.5 2001	1030	805	475	247	144
GNMAI 15yr 6.0 2001	976	875	565	300	174
GNMAII 30yr 6.0 2001	1107	1063	703	280	152

*Median PSA Dealer Forecast