

Peak HEL speeds could exceed 40% CPR.

Monthly Variation in HEL Prepayment Speeds

Most fixed-rate HEL ABS investors will be watching closely as actual prepayment speeds for February and March become available. As we have said in several recent reports, we believe that home equity prepayment speeds will remain fairly stable. In most cases, sustained speeds should remain between approximately 30% CPR and 40% CPR. However, it is certainly possible, indeed likely, that *peak* speeds could exceed 40% CPR on selected higher WAC pools.

The limited data available so far support this view but exhibit another illuminating property as well. Figure 1 shows historical prepayments for fixed-rate Contimortgage Home Equity Loan Trust transactions for December through February. Although speeds on some of the higher-coupon pools did approach 40% CPR in February, others speeds remained at more moderate levels, and some actually declined to somewhat mystifying rates at or below 30% CPR. Given the rapid pace of development in the home equity industry, it is possible that we will experience trends (such as declining CPRs in the current low-rate environment) that defy the most current conventional wisdom. It is perhaps more likely, however, that simple prepayment speed *noise* has played, and will continue to play, a substantial but often overlooked role in actual experience.

Figure 1. Historical Prepayment Speeds for Selected Contimortgage HEL Trust Transactions, Dec 97-Feb 98

| Transaction | Current WAC (%) | Prepayment Speeds (% CPR) | | |
|-------------|--------------------|---------------------------|------|------|
| | | Dec | Jan | Feb |
| CONHE 94.1 | 9.715 | 22.4 | 17.3 | 21.7 |
| CONHE 94.3 | 10.192 | 18.6 | 19.0 | 23.0 |
| CONHE 94.4 | 11.207 | 31.7 | 18.1 | 25.9 |
| CONHE 94.5 | 11.737 | 30.3 | 19.2 | 30.1 |
| CONHE 95.1 | 12.568 | 32.0 | 31.5 | 26.1 |
| CONHE 95.2 | 12.179 | 31.3 | 21.5 | 38.9 |
| CONHE 95.3 | 11.675 | 37.2 | 27.3 | 27.9 |
| CONHE 95.4 | 11.297 | 29.7 | 23.8 | 28.7 |
| CONHE 96.1 | 10.93 | 33.5 | 23.9 | 28.7 |
| CONHE 96.2 | 11.045 | 33.6 | 28.0 | 32.0 |
| CONHE 96.3 | 11.704 | 33.8 | 26.8 | 32.9 |
| CONHE 96.4 | 11.719 | 41.2 | 33.3 | 37.4 |
| CONHE 97.1 | 11.421 | 45.9 | 34.7 | 35.5 |
| CONHE 97.2 | 11.404 | 38.5 | 28.4 | 36.3 |
| CONHE 97.3 | 11.495 | 26.6 | 23.7 | 26.6 |

Source: Bloomberg.

Prepayment speeds on HEL deals can exhibit significant random variation from month to month.

Prepayment speeds on HEL deals can exhibit significant random variation from month to month, even in an idealized setting in which interest rates and all other variables that affect prepayments are held fixed. The source of this randomness (sampling error)⁹ is the finite (as opposed to infinite) number of loans in any deal. Since prepayment models predict *expected* prepayment speeds, even a perfect model will inevitably deviate from actual prepayments in any given month. In the case where all the loans in a deal are identical, the standard deviation of the SMM due to sampling error is given by

$$\text{SQRT}[\text{SMM}*(1-\text{SMM})/N],$$

where SMM is the expected value of single monthly mortality, and N is the number of loans in the pool. With about 95% probability, the actual speeds will lie within two standard deviations of the expected value.

Given the relatively high values of expected prepayment speeds for HEL deals and the relatively small number of loans in a deal, especially in the seasoned ones, the 95% confidence interval can be wide. For example, for a deal consisting of 1,000 loans which prepay with an expected speed of 30% CPR¹⁰, the 95% confidence interval for a monthly prepayment speed is 20.2-38.7% CPR.¹¹

The sampling error can be reduced by averaging the observations over several months, approximately by a square root of the number of months. Thus the sampling error of prepayment speeds averaged over a quarter is lower by about $\text{SQRT}[3]=1.73$. For a well-specified model, the deviation between averaged projected and observed prepayment speeds is therefore smaller.

As pools season, higher expected speeds and declining numbers of loans imply growing month-to-month random variation.

This analysis has some important implications. For example, pools with fewer loans will exhibit more sampling error -- and therefore more random variation -- than pools with a larger number of loans. Likewise, holding all other factors constant, the sampling error on a pool will increase as the pool ages and the number of surviving loans declines. As Figure 2 shows, the seasoning effect can be quite dramatic.¹² Recently originated pools obviously have the lowest expected prepayment speeds and the largest number of loans, factors that suppress sampling error. As pools season, higher expected speeds and declining numbers of loans facilitate growth in this error. For a pool starting with 6,000 loans and a sample expected seasoning ramp as depicted in Figure 2, the range of speeds within two standard deviations of the expected speed grows from 3.9-8.1 %CPR in month six to 24.9-34.8 % CPR in month 24.

In reality, many other factors (some as simple as seasonal variations) are also important. These factors can include burnout, the media effect, the future degree of competition in the industry, and interest rate movements. Therefore, as a strategy, it will likely be far more productive to look at changes in three- and six-month experience, especially for older transactions. It will also be important to distinguish specific HEL alternatives, not just by expected speed, but also by estimated sampling error.

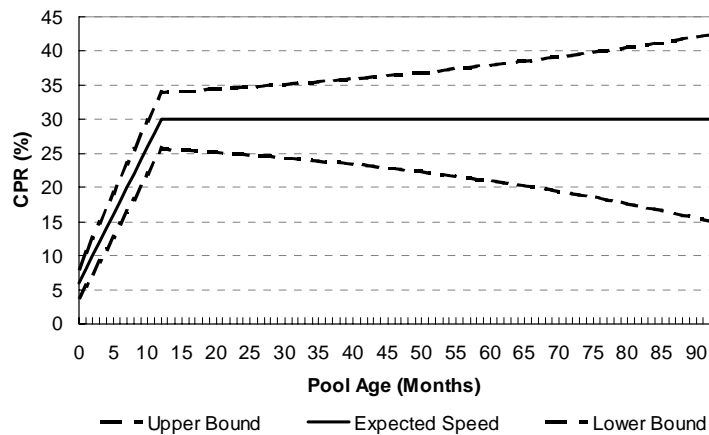
⁹ See Lakhbir Hayre in *Bond Market Roundup: Strategy*, April 12, 1996 and in *Prepayment Model Risk 1*, Salomon Brothers, July 1996, and "Fact and Fantasy About Collateral Speeds", Michael Bykhovskiy and Lakhbir Hayre, *Journal of Fixed Income*, Summer 1992.

¹⁰ And hence the perfect model would predict 30 %CPR.

¹¹ The asymmetry between the upper and lower limits about the mean is due to the SMM to CPR conversion.

¹² The number of loans at months 1, 2, 3, etc. is computed from the expected prepayment speed, not from the distribution of speeds that result from the sampling error (and, therefore, a distribution of the number of loans at earlier times). In the current context the difference is small.

Figure 2. Two-Standard-Deviation Range Around Expected Prepayment Speed by Month of Seasoning for a Pool of 6,000 Initial Loans



Note: Seasoning curve is for illustrative purposes only.

Source: Smith Barney Inc./Salomon Brothers Inc

Figure 3. Percentage of ABS Floating-Rate and Fixed-Rate Issuance, 1996 to Year-to-Date

| | 1996-97 | 1998 |
|---------------|---------|-------|
| Floating-Rate | 48.8% | 38.8% |
| Fixed-Rate | 51.2 | 61.2 |

ABS Asset-backed security.

Source: Salomon Brothers Inc/Smith Barney Inc.

Figure 4. Year-to-Date ABS Issuance by Sector, 1997-1998 (Dollars in Billions)

| | 1997 | % | 1998 | % |
|----------------------|--------|------|--------|------|
| Auto Loans | \$6.0 | 19.6 | \$5.7 | 16.9 |
| Credit Cards | 8.7 | 28.3 | 7.4 | 21.9 |
| Home Equity Loans | 8.3 | 27.0 | 10.3 | 30.5 |
| Manufactured Housing | 1.4 | 4.6 | 2.0 | 5.9 |
| Student Loans | 2.1 | 6.8 | 3.7 | 10.9 |
| Other | 4.2 | 13.7 | 4.7 | 13.9 |
| Total | \$30.7 | | \$33.8 | |

N/A Not Applicable. Source: MCM "Corporatewatch"

Figure 5. Comparison of Quoted Spreads and Static Spreads

| | Avg. Life (Yrs.) | Quoted Spread (bp/Curve) | Static Spreads (bp) | Difference (bp) |
|-------------------------------|------------------|--------------------------|---------------------|-----------------|
| 3-Year Bullet | 3.00 | 33 | 29 | 4 |
| 5-Year Bullet | 5.00 | 42 | 40 | 2 |
| Wide Window Auto ^a | 1.81 | 40 | 38 | 2 |
| Short Auto ^b | 1.06 | 34 | 34 | 0 |
| Wide Window HEL ^c | 3.63 | 90 | 84 | 6 |
| Short HEL ^d | 1.16 | 65 | 65 | 0 |

^a Assumes collateral original WAM of 60 months and remaining WAM of 54 months, 9% coupon, 1.3% ABS prepayment speed. ^b Assumes collateral original WAM of 60 months and remaining WAM of 30 months, 9% coupon, 1.3% ABS prepayment speed. ^c Assumes collateral remaining WAM of 174 months, 11% coupon, 20% CPR prepayment speed. ^d Assumes collateral remaining WAM of 120 months, 11% coupon, 20% CPR prepayment speed, security maturity in 30 months. ^e Static spread of bullets incorporates the richness or cheapness of the on-the-run Treasury benchmarks. bp Basis points. CPR Constant prepayment rate. HEL Home equity loan-backed securities. WAM Weighted average maturity.

Source: Salomon Brothers Inc/Smith Barney Inc.

Figure 6. Fixed-Rate ABS Secondary Market Spreads to Benchmark Treasuries

| | | AAA | | | A | | |
|--------|----------------|---------|--------|----------------|---------|--------|----------------|
| | | 3/20/98 | 1 Week | 1 Year | 3/20/98 | 1 Week | 1 Year |
| | | Spread | Change | SD of 1 Week | Spread | Change | SD of 1 Week |
| | | | | Spread Changes | | | Spread Changes |
| 2-Yr. | Auto | 34bp | 0bp | 1.6bp | 60bp | 0bp | 1.2bp |
| | Credit Card | 30 | -2 | 1.3 | 52 | 0 | 0.9 |
| | Home Equity | 65 | 0 | 1.3 | N/A | | |
| | Man. Housing | 60 | 0 | 1.6 | N/A | | |
| 3-Yr. | Wholesale Auto | 33 | -3 | 1.2 | 54 | 0 | 1.1 |
| | Credit Card | 33 | -3 | 1.3 | 54 | 0 | 1.1 |
| | Home Equity | 70 | 0 | 1.5 | N/A | | |
| | Man. Housing | 63 | 0 | 2.0 | N/A | | |
| 5 Yr | Wholesale Auto | 42 | 0 | N/A | N/A | | |
| | Credit Card | 42 | 0 | 1.8 | 67 | 0 | 1.8 |
| | Home Equity | 90 | 0 | 1.5 | N/A | | |
| | Man. Housing | 75 | 0 | 1.8 | N/A | | |
| 7 Yr | Wholesale Auto | 46 | 0 | N/A | N/A | | |
| | Credit Card | 46 | 0 | N/A | 70 | 0 | N/A |
| | Home Equity | 100 | 0 | N/A | N/A | | |
| | Man. Housing | 90 | 0 | N/A | N/A | | |
| 10-Yr. | Wholesale Auto | 58 | 0 | N/A | 78 | 0 | |
| | Credit Card | 58 | 0 | 1.7 | 78 | 0 | 1.6 |
| | Home Equity | 120 | 0 | 1.9 | N/A | | |
| | Man. Housing | 105 | 0 | 1.6 | N/A | | |

bp Basis points. SD Standard deviation.

Source: Salomon Brothers Inc/Smith Barney Inc.

Figure 7. Floating-Rate ABS Secondary Market Discount Margins (Over One-Month LIBOR)

| | | AAA | | | A | | |
|--------|----------------|---------|--------|----------------|---------|--------|----------------|
| | | 3/20/98 | 1 Week | 1 Year | 3/20/98 | 1 Week | 1 Year |
| | | DM | Change | SD of 1 Week | Spread | Change | SD of 1 Week |
| | | | | Spread Changes | | | Spread Changes |
| 2-Yr. | Auto | 6bp | 0bp | 0.4bp | 24bp | 0bp | 0.7bp |
| | Credit Card | 6 | 0 | 0.4 | 24 | 0 | 0.7 |
| | Home Equity | 13 | 0 | 0.4 | 35 | 0 | 0.4 |
| 3-Yr. | Wholesale Auto | 7 | -0.5 | 0.5 | 26 | 0 | 0.6 |
| | Credit Card | 7 | -0.5 | 0.5 | 26 | 0 | 0.6 |
| | Home Equity | 14 | 0 | 0.5 | 37 | 0 | 0.4 |
| 5-Yr. | Wholesale Auto | 11 | 0 | N/A | 32 | 0 | N/A |
| | Credit Card | 11 | 0 | 0.6 | 32 | 0 | 0.7 |
| | Home Equity | 16 | 0 | 0.4 | 36 | 0 | 0.4 |
| 7-Yr. | Wholesale Auto | 14 | 0 | N/A | 35 | 0 | N/A |
| | Credit Card | 14 | 0 | 0.6 | 35 | 0 | 0.7 |
| 10-Yr. | Wholesale Auto | 18 | 0 | N/A | 39 | 0 | N/A |
| | Credit Card | 18 | 0 | N/A | 39 | 0 | N/A |

bp Basis points. LIBOR London Interbank Offered Rate. SD Standard deviation.

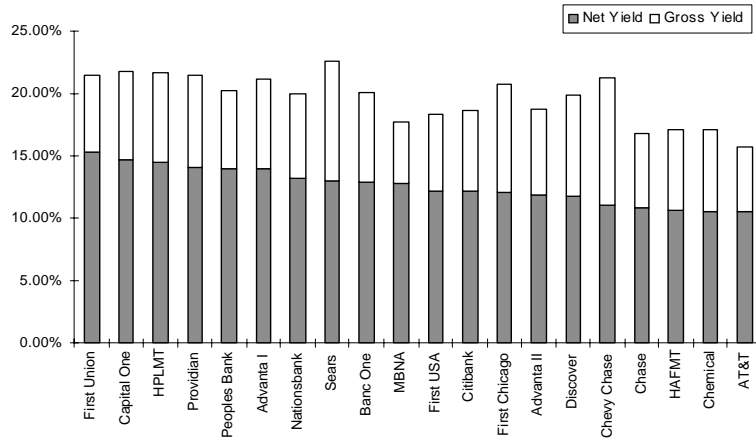
Source: Salomon Brothers Inc/Smith Barney Inc.

Figure 8. ABSs -- Representative Secondary Trading Levels

| Floating-Rate | | | | | | |
|---------------|-----------|-----------------|---------|---------|-----------|---------------|
| Issue | Avg. Life | DM | Price | Cap. | | |
| FUSAM 95-1 A | 1.0Yrs | 3 | 100-03+ | None | | |
| ADVCC 95-A A | 2.0 | 8 | 100-06 | None | | |
| FUSAM 95-2 A | 4.0 | 10 | 100-16 | None | | |
| CCIMT 96-5 A | 5.5 | 9 | 100-02 | None | | |
| MBNA 96-B A | 8.0 | 16 | 100-20+ | None | | |
| Fixed-Rate | | | | | | |
| Issue | Coupon | Avg.-Life | Spread | Price | Yield | Static Spread |
| FORD 95-B A | 5.900 | 0.7@ 1.5 ABSYrs | 40bp | 100-02+ | 5.862@YTC | 38bp |
| UAC 96-B A | 6.450 | 1.3@ 1.6 ABS | 52 | 100-14+ | 6.036 | 52 |
| PRAT 96-4 A4 | 6.400 | 1.5@1.6 ABS | 34 | 100-28 | 5.859 | 34 |
| CCIMT 94-3 A | 6.800 | 1.0 | 32 | 100-30+ | 5.828 | 32 |
| MBNA 95-D A | 6.050 | 2.2 | 33 | 100-17 | 5.862 | 33 |
| CHEMT 95-3 A | 6.230 | 4.4 | 47 | 101-00 | 6.046 | 46 |
| CCIMT 94-2 A | 7.250 | 8.1 | 55 | 106-10 | 6.239 | 55 |

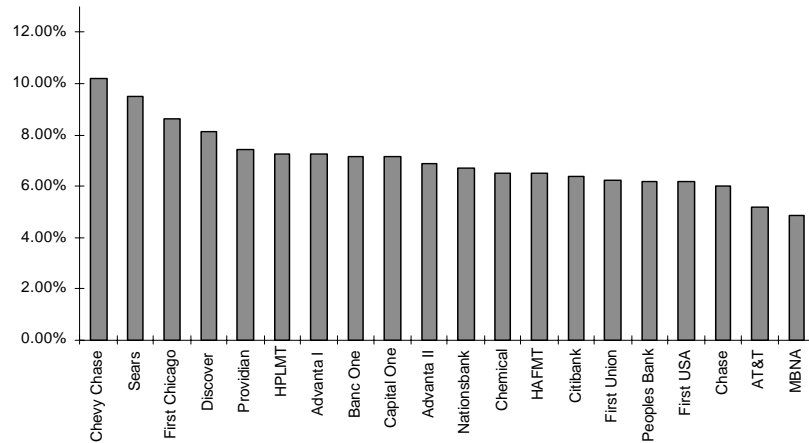
Source: Salomon Brothers Inc/Smith Barney Inc.

Figure 9. Credit Card Master Trust Gross and Net Portfolio Yields Reported for February 97



Source: Master Trust 8ks, Bloomberg, Bloomberg Credit Card Reports

Figure 10. Credit Card Master Trust Defaults Reported for February 97



Source: Master Trust 8ks, Bloomberg, Bloomberg Credit Card Reports

Figure 11. Credit Card Master Trust Excess Spreads Reported for February 97

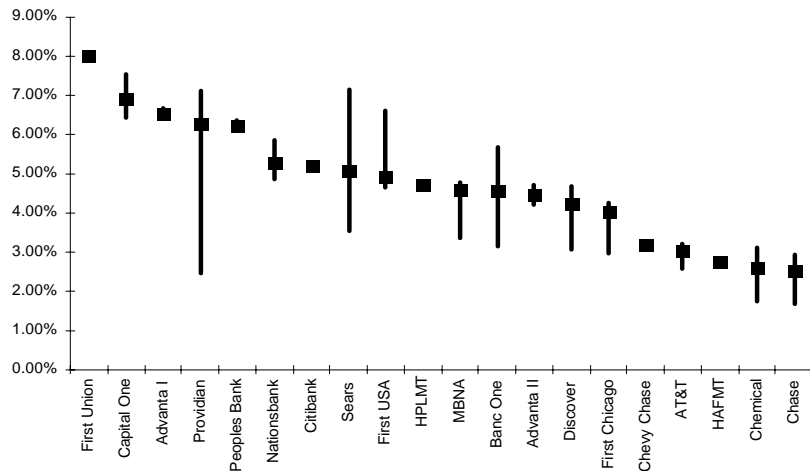


Figure 12. Recent Issuance

| Date | Issuer | Asset Type | Class | Size Mils. | Credit Enhancement | WAL | Pricing Speed | Spread |
|---------|---|------------|---------|---------------------------------------|--------------------|-------|---------------------|------------------|
| 3/19/98 | AFC Home Equity Loan Trust 1998-1 | HE | 1-A1 | 100.00 | 100% FGIC | 3.50 | N/A | 1ML+26 |
| | | | 1-A2 | 150.00 | | 3.30 | | 1ML+27 |
| | | | 2-A1 | 55.00 | | 2.70 | | 1ML+19 |
| | | | 2-A2 | 145.00 | | 2.80 | | 1ML+20 |
| 3/19/98 | BA Master Credit Card Trust 1998-A | CC | A | 648.75 | Sr/Sub | 4.97 | 14% MPR | 1ML+11 (11.5 DM) |
| | | | B | 41.25 | | 5.05 | | 1ML+27 |
| 3/19/98 | Delta Funding Home Equity Loan Trust 1998-1 | HE | A-1F | 116.61 | Sr/Mezz/Sub | 1.00 | N/A | 1ML+11 |
| | | | A-2F | 15.44 | | 2.00 | | 64/2yr |
| | | | A-3F | 65.28 | | 3.00 | | 75/3yr |
| | | | A-4F | 10.22 | | 5.00 | | 98/5yr |
| | | | A-5F | 13.44 | | 10.70 | | 148/Curve |
| | | | A-6F | 46.20 | | 6.85 | | 87.5/Curve |
| | | | M-1F | 17.71 | | 6.03 | | 1ML+55 |
| | | | M-2F | 10.01 | | 5.97 | | 1ML+72 |
| | | | B-1F | 13.09 | | 5.82 | | 1ML+145 |
| | | | A-1A | 19.05 | | 2.32 | | 64/2yr |
| | | | A-2A | 56.62 | | 2.68 | | 1ML+21 |
| | | | M-1A | 4.23 | | 6.02 | | 1ML+45 |
| | | | M-2A | 4.09 | | 5.99 | | 1ML+59 |
| B-1A | 8.00 | 5.84 | 1ML+126 | | | | | |
| 3/19/98 | Pacific America Home Equity Loan 1998-1 | HE | A | 130.00 | 100% FSA | 3.00 | N/A | 1ML+22 |
| 3/19/98 | Southern Pacific Secured Asset Corp 1998-1 | HE | A-1 | 300.00 | 100% MBIA | 2.55 | N/A | 1ML+20 |
| | | | A-2 | 113.00 | | 3.01 | | 70/3yr |
| | | | A-3 | 29.00 | | 6.69 | | 90/7.875 11/04 |
| | | | A-4 | 43.60 | | 1.00 | | 63/5.875 3/99 |
| | | | A-5 | 40.00 | | 3.31 | | 90/3yr |
| | | | A-6 | 18.10 | | 7.33 | | 145/6.50 11/05 |
| | | | A-7 | 11.30 | | 6.38 | | 90/7.25 8/04 |
| 3/19/98 | WFS Financial Owners Trust 1998-A | AL | A-1 | 100.00 | Sr/Sub | 0.38 | 1.8% ABS | 5ML-7 |
| | | | A-2 | 120.00 | | 1.00 | | 12ML+10 |
| | | | A-3 | 180.00 | | 1.98 | | 45/2yr |
| | | | A-4 | 67.25 | | 3.01 | | 50/3yr |
| | | | B | 57.75 | | 3.73 | | 56/6.25 1/02 |
| 3/18/98 | Discover Card Master Trust 1998-3 | CC | A | 750.00 | Sr/Sub | 4.97 | 14.5% MPR | 1ML+12.5 |
| | | | B | 39.47 | | 5.05 | | 1ML+29 |
| 3/18/98 | Freddie Mac Structured Pass-Throughs T010 | HE | A-1 | 69.58 | FHLMC Wrap | 1.01 | N/A | 1ML+8 |
| | | | A-2 | 66.00 | | 3.05 | | 74/3yr |
| | | | A-3 | 15.00 | | 5.49 | | 97/5yr |
| | | | A-4 | 20.42 | | 9.99 | | 130/10yr |
| | | | A-5 | 19.00 | | 6.45 | | 82/7.25 8/04 |
| | | | A-6 | 19.00 | | 10 | | N/A |
| 3/18/98 | Headlands HEQ Loan Trust 1998-1 | HE | A | 191.58 | 100% AMBAC | 4.30 | 35% CPR 18% Draw | 1ML+19 |
| 3/17/98 | Residential Asset Securities Corp 1998-1 | HE | A-11 | 70.00 | 100% AMBAC | 0.50 | 24% HEP | 55/6.00 9/98 |
| | | | A-12 | 35.00 | | 1.05 | | 60/6.25 3/99 |
| | | | A-13 | 100.00 | | 1.98 | | 65/2YR |
| | | | A-14 | 31.00 | | 3.16 | | 79/6.625 3/01 |
| | | | A-15 | 31.00 | | 4.03 | | 92/6.625 3/02 |
| | | | A-16 | 30.00 | | 5.21 | | 105/5YR |
| | | | A-17 | 20.00 | | 7.12 | | 120/7.50 2/05 |
| | | | A-18 | 25.45 | | 8.16 | | 140/6.125 8/07 |
| | | | A-19 | 38.00 | | 6.33 | | 87/7.25 5/04 |
| | | | A-111 | 150.00 | | 2.80 | | 1ML+19.5 |
| | | | A-112 | 325.00 | | 2.80 | | 1ML+22 |
| | | | 3/17/98 | The Money Store SBA Loan Trust 1998-1 | | BA | | A |
| B | 6.30 | 7.50 | | | Prime -190 | | | |
| 3/16/98 | Emergent Home Equity Loan Trust 1998-1 | HE | A-1 | 22.00 | 100% FSA | 1.03 | 18% HEP | 1ML+12 |
| | | | A-2 | 16.00 | | 3.00 | | 83/6.375 3/01 |
| | | | A-3 | 11.00 | | 5.20 | | 103/5yr |
| | | | A-4 | 14.02 | | 8.90 | | 140/6.125 8/07 |

ABS Asset-backed securities. AD Auto dealer floorplan. AIR Airplane leases. AL Auto loan. ALE Automobile lease. BL Boat Loan. CA Controlled amortization. CC Credit card. CCA Cash collateral account. CHC Charge card. CIA Collateral invested amount. CON Consumer loans. DF Dealer floorplan. EL Equipment loan. FEL Farm equipment loan. FF Fed funds. Whole 1st & 2nd liens. HE Home equity. HIL Home Improvement loan. MB Mortgage backed. Mezz. Mezzanine. MH Manufactured housing. N/A Not available. O Other. OC Overcollateralized. RIC Retail installment contracts. RV Recreational vehicle. BA Small business association loans. SL Student loan. TL Truck loan. Sub. Subordinate. UBA Utility bill allocations. WAL Weighted average life. WHL Wholesale inventory. WI When issued.

Source: MCM "Corporatetwatch."