

BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

DIVISION OF RESEARCH AND STATISTICS

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From: James O'Brien and Matthew Chesnes

Subject: Written Interest Rate Options and Mortgage Commitments

In previous memos (April 7, 2004, April 15, 2004), we presented data showing that, over the past few years, there has been significant growth in the number of non-trading banks using derivatives. In examining this data, an issue arose concerning the large jump in the number of non-trading banks with written interest rate options in December 2003 compared to that for December 2002. Jim Embersit suggested that this may reflect a recent clarification of FASB 133 on derivative instruments and hedge accounting stating that firms should report commitments on mortgage originations to be held for sale as OTC written options (FASB Statement 149, April 30, 2003). While the Amendment was applicable to mortgage originations after June 30, 2003, the SEC later indicated it expected compliance for originations no later than March 15, 2004. This memo explains the application of FASB 149 to bank derivatives reporting and takes a closer, and updated, look at written interest options positions for non-trading banks in light of this explanation.

To summarize principal results, the frequency of non-trading banks reporting OTC written interest rate options increased from 38 in Dec. 2002 to 108 in Dec. 2003 and to 132 in March 2004. Smaller institutions account for the majority of the increases in written interest rate options (references here and below to written options will refer to OTC contracts only). Between Dec. 2002 and March 2004, median asset values for non-trading banks with written interest rate options declined by about 50 percent. Also, median notional amounts for written options declined by over 80 percent. The decline in median notional amounts primarily reflects the small amounts being reported by banks that began reporting written options after Dec. 2002. Further, for many of these banks, this was their only interest rate derivative. Overall, these results are consistent with smaller institutions reporting mortgage commitments as derivatives for the first time.

Our results also raise several reporting issues. One concerns the measurement of fair values for mortgage commitments. As described below, normally (but not always) mortgage commitments would be expected to have a negative fair value and be a liability to the issuing bank. However, based on call report information for a limited set of banks, written options in Dec. 2003 and March 2004 were far more likely to be reported as having a positive fair value than a negative fair value, i.e., to be a bank asset rather than a liability.

A second issue is the number of banks now reporting written options. While the number increased substantially in 2003 and 2004, the total number reporting written interest rate options would seem much smaller than the number of banks that sell originated mortgage loans (and make rate commitments). About two-thirds of originated home mortgage loans are securitized and it is our understanding that many banks sell mortgages that they originate.¹ Thus it may be that many banks are still not reporting mortgage commitments on mortgages originated and sold.

1. Application of FASB 149 to Bank Derivatives Reporting

In clarifying FASB 133, FASB 149 explicitly identifies when mortgage loan commitments should be accounted for as derivatives. As interpreted by the FFIEC for call report purposes, FASB 149 requires that banks report loan commitments related to the origination of mortgage loans to be held for sale as OTC written interest rate options (FFIEC Special Instructions, June 2003). Commitments to originate mortgage loans to be held for investment and commitments to originate other types of loans are not considered to be derivatives. For mortgage commitments reported as derivatives, notional amounts equal loan par values and fair values are reported on the balance sheet.

Precisely when banks began to apply the rules in FASB 149 in their call reports is unclear. As noted, FASB 149 applies to originations after June 30, 2003 but the SEC has allowed for a delay in discontinuing inappropriate reporting up through commitments made before March 15, 2004. However, FASB had issued similar guidance on reporting commitments as derivatives as early as October 2000 that was largely incorporated into FASB 149 (FASB Issue No. C13, October 2000). Also, the FFIEC had issued supplemental call report instructions based on FASB Issue C13 prior to 2003. Apparently, financial institutions have been uncertain about how to report mortgage commitments.

¹ While not done for this memo, bank sales of originated mortgages could be obtained from HMDA data. Call report data is limited to residential mortgages sold and securitized where the bank maintains a continuing interest in the mortgage through recourse or servicing rights. Since 2002, less than 40 banks have reported having such sales.

2. Written Interest Rate Options for Non-Trading Banks

Because of our interest in derivatives held for non-trading purposes, only non-trading banks are considered. Also, the focus is on positions in interest rate derivatives, primarily OTC written options. Among non-trading banks that hold derivatives, about 80 percent hold interest rate derivatives. In Table 1, the frequencies with which non-trading banks hold different types of interest rate derivatives are reported since December 2002. Notional amounts are reported in Table 2. While historically relatively few banks held OTC written interest rate options, Table 1 shows that the number jumped substantially in 2003 (to 108) and continued to increase in March 2004 (to 132). Smaller increases occurred for other types of interest rate contracts. Also notable is that the number of banks holding purchased options declined to about one-third of that reporting written options.

While the frequency of banks reporting written interest rate options has increased, Dec. 2003 and March 2004 notional amounts for the median bank are less than 20 percent of median notional amounts reported in Dec. 2002. This is shown in Table 3. Also shown are median asset values for banks reporting written interest rate options, which have declined by about 50 percent since Dec. 2002. These declines in median notional amounts and bank asset values largely reflect the fact that the banks accounting for the increased frequency of positions in written options are typically smaller banks with much smaller notional amounts for their written options.

Banks are required to determine fair values for all derivatives positions, with positive fair values and negative fair values separately reported at the market category level (but not for individual types of derivatives). Table 4 shows the gross positive and negative fair values for interest rate derivatives for non-trading banks. Despite the increase in written interest rate options between Dec. 2002 and March 2004, there has been little change in either gross positive or gross negative fair values for interest rate derivatives.

Since written options in principal represent a liability to the bank, increases in written options might be expected to increase gross negative fair values for interest rate derivatives. The lack of an increase in negative fair values could be due to offsetting changes in values for other types of interest rate derivatives or, alternatively, how banks are valuing mortgage commitments. Below some direct evidence is presented on bank valuations of written interest rate options. Before presenting this evidence, we briefly consider the possibility of bank loan commitments having positive fair values.

A mortgage commitment is analogous to writing a put option to deliver an asset (a mortgage) to the writer at a stipulated date. Assuming no costs in failing to exercise the option, exercise will be optimal only if the market price at the delivery date does not exceed the exercise price. For a mortgage commitment to be exercised, this means that the market rate on mortgages as settlement approaches cannot be less than the mortgage commitment rate.² In reality, borrowers frequently go to settlement and accept the commitment rate when it is above currently prevailing market rates. If the borrower's decision is not sensitive to the market rate, the mortgage commitment effectively becomes a forward interest rate contract. In this case, the mortgage commitment would have a positive value when market (forward) rates are below the commitment rate. While the bank cannot be certain of the borrower's decision in the event market rates fall below the commitment rate, the mortgage commitment might still have positive value if the probability of accepting the loan is high. The SEC requires mortgage commitments to be treated as a liability at inception but permits subsequent positive fair values to be reported.

In a final exercise, we selected banks whose total notional position in interest rate derivatives equaled that for OTC written options. For these banks, reported fair values for interest rate derivatives should equal those for written interest rate options. The banks accounted for more than a third of those reporting written interest rate options in Dec 2003 and March 2004.

Table 5 presents some statistics on these banks and the fair values of their written interest rate options. In Dec. 2002, 9 banks had interest rate derivatives solely in written options, 38 banks in Dec. 2003 and 54 in March 2004. As shown in the second row, in December 2003 and March 2004, about 15 percent of the banks reported a negative fair value for their written options. However, about 50 percent reported a positive fair value and the rest reported a zero fair value (several banks reported both a positive and a negative fair value).³ The frequency of positive fair values seems surprising. As described above, mortgage commitments may have positive fair values but our impression from discussions of the treatment of mortgage commitments is that normally they are regarded as a liability to the bank. The last two rows in the Table show that median notional and fair values are small for these banks, with fair values close to zero.

² Other mortgage contingencies, such as the borrower passing a credit evaluation, are ignored.

³ Since values below \$500 are rounded to zero, there is some ambiguity in interpreting reported values of zero.

Table 1: Non-Trading Banks Reporting Interest Rate Derivatives: Frequency

	Dec 02	Dec 03	Mar 04
Futures	4	8	10
Forward	54	93	107
Exchange Traded			
Written	3	3	6
Purchased	7	4	6
Over the Counter			
Written	38	108	132
Purchased	56	44	42
Swaps	143	182	183
Total	223	312	337

Table 2: Non-Trading Banks Reporting Interest Rate Derivatives: Notional Amounts (Thousands)

	Dec 02	Dec 03	Mar 04
Futures	8,261,000	10,299,635	1,345,780
Forward	13,988,447	6,537,592	14,270,653
Exchange Traded			
Written	90,500	43,978	100,545
Purchased	1,333,433	26,015	60,892
Over the Counter			
Written	9,729,360	14,008,056	21,319,981
Purchased	4,844,333	7,356,664	9,808,940
Swaps	80,283,172	107,438,333	112,551,467
Total	118,530,246	145,710,271	159,458,254

Table 3: Median Notional Amounts and Total Assets for Non-Trading Banks Reporting OTC Written Options (Thousands)

	OTC Written Options	Bank Assets
Dec 02	43,343	1,135,513
Dec 03	5,065	547,131
Dec 04	7,271	497,417

**Table 4: Non-Trading Banks Reporting Interest Rate Derivatives:
Fair Values (Thousands)**

	Dec 02	Dec 03	Mar 04
Gross Positive Fair Value	1,922,980	1,450,892	1,929,491
Gross Negative Fair Value	1,759,762	1,423,119	1,680,979

**Table 5: Banks with Interest Rate Derivatives Consisting Entirely of OTC
Written Options**

	Dec 02	Dec 03	Mar 04
No. of Banks	9	38	54
No. Reporting Fair Value < 0¹	4	5	9
No. Reporting Fair Value = 0	3	15	25
No. Reporting Fair Value > 0	3	20	25
Fair Value not Reported	1	0	0
Median Pos Fair Value^{2,3}	0	2	0
Median Neg Fair Value³	1	0	0
Median Notional Fair Value³	8,000	1,178	2,278

1. Several banks reported both positive and negative fair values.
2. Excludes one bank who reported positive fair value equal to notional amount.
3. Thousands of dollars.