

## Homework #2 – Brief Solution

1. You are seeking a 30 year ARM loan of \$250,000 which will charge 2 points. You will also incur \$1500 in other third party closing costs related to this loan. Assuming you keep this loan for 4 years, what are your CF's, the yield to lender and cost to borrower (expressed as APR's)? What do you pay each year in interest?

- Initial rate 2.75%
- Annual adjustments – Tbill + 2.0% (rounded to 1/8%)
- No payment or interest rate caps
- Tbill Index, now at 2.21, then changes annually to: 3.23, 6.12, 7.76

Is this loan teased? Explain. Yes. Index plus margin is  $2.21 + 2.0 = 4.21$ , but the start rate is lower at 2.75% illustrating this loan is teased.

Year	Index	Int. Rate Charged	Monthly Payment	Amount Paid to Interest	EOY Balance
1	2.21	2.750	1020.60	6806.77	244559.57
2	3.23	5.250	1369.78	12751.53	240873.74
3	6.12	8.125	1819.38	19484.85	238526.03
4	7.76	9.750	2089.89	23172.60	236619.95

t	CFj	Nj
0	-245000.00	--
1-12	1020.60	12
13-24	1369.78	12
25-36	1819.38	12
37-47	2089.89	11
48	238709.84	--

■ IRR/YR = 6.82% Lender's Yield

t	CFj	Nj
0	-243500.00	--
1-12	1020.60	12
13-24	1369.78	12
25-36	1819.38	12
37-47	2089.89	11
48	238709.84	--

■ IRR/YR = 6.99% Effective Borrower Cost

2. You are seeking a (30-year) ARM loan of \$250,000 which will charge 3 points. Assuming you keep this loan for 4 years, what are your CF's and the yield to lender (expressed as APR)? What do you pay each year in interest?

- Initial rate 3.25%
- Annual adjustments – Tbill + 2.25% (rounded to 1/8%)
- Max change of 2% per year interest rate
- Max interest of 5% above initial rate
- Tbill Index, now at 2.21, then changes annually to: 3.23, 6.12, 7.76

Year	Index	Int. Rate Charged	Monthly Payment	Amount Paid to Interest	EOY Balance
1	2.21	3.250	1088.02	8050.87	244994.63
2	3.23	5.250	1372.22	12774.22	241302.21
3	6.12	7.250	1679.84	17404.10	238548.23
4	7.76	8.250	1839.87	19587.45	236057.24

t	CFj	Nj
0	-242500.00	--
1-12	1088.02	12
13-24	1372.22	12
25-36	1679.84	12
37-47	1839.87	11
48	237897.11	--

■ IRR/YR = 6.71% Lender's Yield

3. You are seeking a (30-year) ARM loan of \$250,000 which will charge 2 points. Assuming you keep this loan for 4 years, what are your CF's and the yield to lender (expressed as APR)? What do you pay each year in interest?

- Initial rate 3.000%
- Annual adjustments – Tbill + 2.50% (rounded to 1/8%)
- Max payment change of 10% per year (negative amortization allowed)
- Max interest of 6% above initial rate
- Tbill Index, now at 2.21, then changes annually to: 3.23, 6.12, 7.76

Year	Index	Int. Rate Charged	Monthly Payment	Amount Paid to Interest	EOY Balance
1	2.21	3.000	1054.01	7428.60	244780.48
2	3.23	5.750	1159.41	13912.92	244946.79
3	6.12	8.625	1275.35	15304.20	251005.03
4	7.76	9.000	1402.89	29058.47	257004.27

t	CFj	Nj
0	-245000.00	--
1-12	1054.01	12
13-24	1159.41	12
25-36	1275.35	12
37-47	1402.89	11
48	258407.16	--

■ IRR/YR = 7.01% Lender's Yield