

Interest Rate Cap Pricing

Cap pricing is driven by multiple factors, most notably:

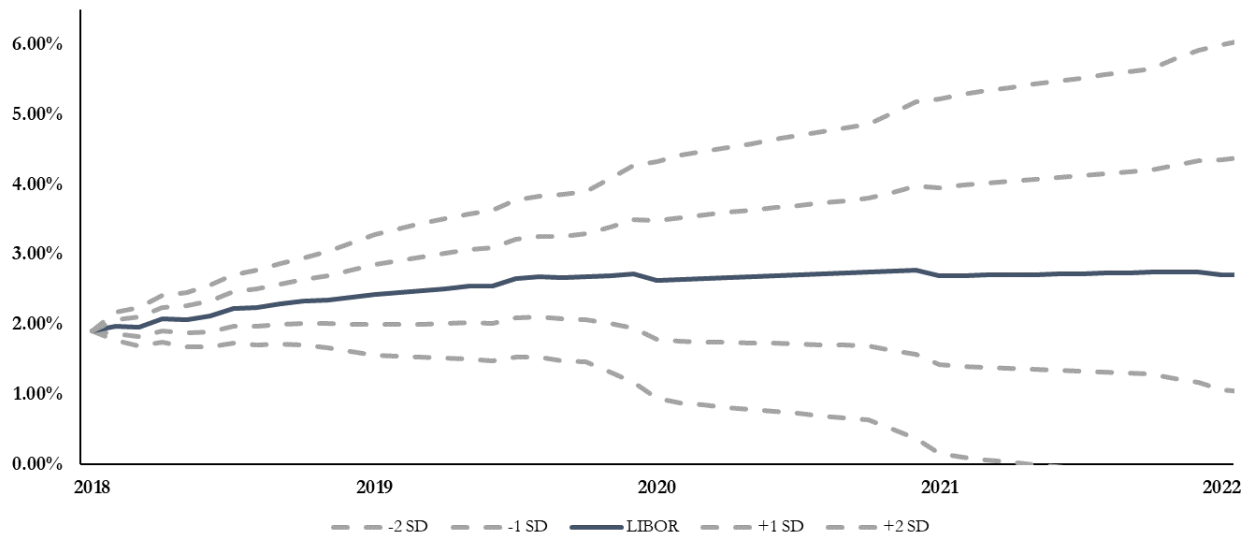
- Term
- Strike
- Notional
- Market Volatility
- Rating requirements

The cost of a cap in today's environment is driven more by time than by the strike. A four year cap costs substantially more than a three year cap, while a three year cap costs substantially more than a two year cap.

This is true even if the strike is above the peak LIBOR reset over the full term. In other words, even if the market never projects LIBOR exceeding the strike, it will charge substantially more for a longer term cap.

Simplistically, this is because of variance. The longer the term, the greater the variance of potential outcomes for LIBOR. Even if the market doesn't expect LIBOR to exceed a certain level, it feels less confident in that projection in month 48 than in month 12.

Future LIBOR Projections



Time Value on Cap Pricing

Here is a month by month breakdown of a \$100mm 3 year cap at 3.50%. Note how the last 6 months comprise 58.2% of the cap cost.

Period Begin	Period End	LIBOR	Caplet Cost	Anticipated Protection	Caplet Cost Percent of Total
1/4/2017	2/4/2017	0.77%	\$0	\$0	0.0%
2/4/2017	3/4/2017	0.80%	\$0	\$0	0.0%
3/4/2017	4/4/2017	0.80%	\$0	\$0	0.0%
4/4/2017	5/4/2017	0.84%	\$0	\$0	0.0%
5/4/2017	6/4/2017	0.87%	\$0	\$0	0.0%
6/4/2017	7/4/2017	0.92%	\$0	\$0	0.0%
7/4/2017	8/4/2017	1.01%	\$0	\$0	0.0%
8/4/2017	9/4/2017	1.06%	\$0	\$0	0.0%
9/4/2017	10/4/2017	1.11%	\$2	\$0	0.0%
10/4/2017	11/4/2017	1.17%	\$9	\$0	0.0%
11/4/2017	12/4/2017	1.22%	\$23	\$0	0.0%
12/4/2017	1/4/2018	1.27%	\$57	\$0	0.0%
1/4/2018	2/4/2018	1.35%	\$136	\$0	0.1%
2/4/2018	3/4/2018	1.40%	\$218	\$0	0.1%
3/4/2018	4/4/2018	1.43%	\$370	\$0	0.2%
4/4/2018	5/4/2018	1.47%	\$551	\$0	0.3%
5/4/2018	6/4/2018	1.51%	\$863	\$0	0.4%
6/4/2018	7/4/2018	1.55%	\$1,193	\$0	0.6%
7/4/2018	8/4/2018	1.58%	\$1,662	\$0	0.8%
8/4/2018	9/4/2018	1.63%	\$1,896	\$0	0.9%
9/4/2018	10/4/2018	1.61%	\$2,207	\$0	1.1%
10/4/2018	11/4/2018	1.60%	\$2,586	\$0	1.3%
11/4/2018	12/4/2018	1.63%	\$3,431	\$0	1.7%
12/4/2018	1/4/2019	1.66%	\$5,167	\$0	2.6%
1/4/2019	2/4/2019	1.73%	\$7,521	\$0	3.8%
2/4/2019	3/4/2019	1.77%	\$7,941	\$0	4.0%
3/4/2019	4/4/2019	1.80%	\$9,940	\$0	5.0%
4/4/2019	5/4/2019	1.84%	\$12,088	\$0	6.0%
5/4/2019	6/4/2019	1.87%	\$11,530	\$0	5.8%
6/4/2019	7/4/2019	1.90%	\$14,117	\$0	7.1%
7/4/2019	8/4/2019	1.94%	\$15,714	\$0	7.9%
8/4/2019	9/4/2019	1.97%	\$16,711	\$0	8.4%
9/4/2019	10/4/2019	2.00%	\$18,286	\$0	9.1%
10/4/2019	11/4/2019	2.03%	\$20,571	\$0	10.3%
11/4/2019	12/4/2019	2.07%	\$20,970	\$0	10.5%
12/4/2019	1/4/2020	2.10%	\$24,242	\$0	12.1%
Total Cost			\$200,000		

Case Study

This client was trying to decide whether or not to buy a cap at closing. Even though LIBOR and the At the Money (ATM) strike climbed substantially over the year since closing, the cost dropped by \$173,000.

In other words, the savings from the time value eroding exceeded the increased cost from higher rates.

Date	Cost	1 Month LIBOR	ATM	Notes
1/4/2017	\$200,000	0.77%	1.48%	
1/11/2017	\$181,000	0.76%	1.46%	
1/18/2017	\$185,000	0.77%	1.50%	
1/25/2017	\$173,000	0.77%	1.49%	
2/1/2017	\$140,000	0.77%	1.48%	Same ATM as the day of closing, \$60k less cost
2/8/2017	\$123,000	0.78%	1.40%	
2/15/2017	\$133,000	0.77%	1.55%	17bps higher ATM than day of closing, \$77k less cost
2/22/2017	\$135,500	0.78%	1.50%	
3/1/2017	\$141,000	0.81%	1.57%	
3/8/2017	\$139,000	0.86%	1.65%	
3/15/2017	\$127,000	0.94%	1.61%	
3/22/2017	\$109,000	0.98%	1.57%	
3/29/2017	\$106,500	0.99%	1.58%	
4/5/2017	\$93,000	0.99%	1.55%	
4/12/2017	\$83,000	0.99%	1.49%	
4/19/2017	\$81,000	1.00%	1.46%	
4/26/2017	\$86,000	1.00%	1.56%	
5/4/2017	\$60,000	1.00%	1.59%	11bps higher ATM than day of closing, \$140k less cost
5/11/2017	\$48,000	0.99%	1.58%	
5/18/2017	\$45,000	1.01%	1.47%	
5/25/2017	\$48,500	1.04%	1.52%	
6/1/2017	\$37,500	1.08%	1.50%	
6/8/2017	\$40,000	1.12%	1.50%	
6/15/2017	\$38,000	1.21%	1.50%	
6/22/2017	\$32,000	1.22%	1.48%	
6/29/2017	\$36,000	1.23%	1.55%	LIBOR up 0.46%
7/6/2017	\$36,000	1.23%	1.62%	
7/13/2017	\$33,000	1.23%	1.56%	
7/20/2017	\$33,000	1.23%	1.54%	
7/27/2017	\$33,000	1.23%	1.54%	6bps higher ATM than day of closing, \$177k less cost
8/3/2017	\$53,000	1.23%	1.50%	
8/10/2017	\$32,000	1.23%	1.50%	
8/17/2017	\$26,500	1.23%	1.48%	
8/24/2017	\$29,000	1.23%	1.48%	
8/31/2017	\$25,000	1.23%	1.43%	
9/7/2017	\$25,000	1.24%	1.41%	
9/14/2017	\$24,000	1.23%	1.52%	
9/21/2017	\$26,000	1.24%	1.62%	
9/28/2017	\$24,000	1.24%	1.60%	
10/5/2017	\$26,000	1.24%	1.66%	
10/12/2017	\$26,000	1.24%	1.67%	
10/19/2017	\$26,000	1.24%	1.68%	
10/26/2017	\$30,000	1.24%	1.72%	
11/2/2017	\$27,500	1.24%	1.70%	22 bps higher ATM than day of closing, \$172.5k less cost
11/9/2017	\$28,000	1.24%	1.73%	
11/16/2017	\$28,000	1.26%	1.78%	
11/23/2017	\$23,000	1.33%	1.78%	
11/30/2017	\$23,000	1.35%	1.84%	
12/7/2017	\$22,000	1.40%	1.86%	
12/13/2017	\$20,000	1.48%	1.86%	38 bps higher ATM than day of closing, \$180k less cost
12/20/2018	\$23,000	1.53%	1.93%	
12/27/2018	\$21,000	1.57%	1.92%	
1/3/2018	\$23,000	1.56%	1.99%	
1/10/2018	\$22,000	1.55%	2.02%	
1/17/2018	\$26,000	1.56%	2.09%	
1/24/2018	\$25,000	1.56%	2.10%	
1/31/2018	\$27,000	1.57%	2.15%	67 bps higher ATM than day of closing, \$173k less cost

Conclusion

A large percentage of the cap cost is attributable to the tail months, even when the market doesn't expect the cap to provide any protection.

Even as rates climb, the time value savings usually exceeds the higher rates. Generally, rates must climb much faster than expected in order to offset these savings.

Some borrowers elect to buy a shorter-term cap initially, then monitor the future cap cost monthly/quarterly.

- A cap buyer may buy a 24 month cap on a 36 month loan
- In six months, the borrower purchases a cap on the final 12 months
- Even if rates climb as expected, the borrower could buy the third year at a savings of \$175,000

Generally, this material is for informational purposes only and is not intended as an offer or solicitation for the purchase or sale of any financial instrument or as an official confirmation of any transaction. Your receipt of this material does not create a client relationship with us and we are not acting as fiduciary or advisory capacity to you by providing the information herein. All market prices, data and other information are not warranted as to completeness or accuracy and are subject to change without notice. This material may contain information that is privileged, confidential, legally privileged, and/or exempt from disclosure under applicable law. Though the information herein may discuss certain legal and tax aspects of financial instruments, Pensford, LLC does not provide legal or tax advice. The contents herein are the copyright material of Pensford, LLC and shall not be copied, reproduced, or redistributed without the express written permission of Pensford, LLC.