Select type of Interest Rate Data

Daily Treasury Yield Curve Rates | Go

Select Time Period

Current Month | Go

Date	1 Mo	3 Mo	6 Mo	1 Yr	2 Yr	3 Yr	5 Yr	7 Yr	10 Yr	20 Yr	30 Yr
11/01/16	0.24	0.35	0.50	0.65	0.83	0.99	1.30	1.61	1.83	2.24	2.58
11/02/16	0.24	0.37	0.51	0.64	0.81	0.98	1.26	1.57	1.81	2.22	2.56
11/03/16	0.24	0.38	0.52	0.64	0.81	0.98	1.26	1.58	1.82	2.25	2.60
11/04/16	0.25	0.38	0.52	0.62	0.80	0.95	1.24	1.55	1.79	2.22	2.56
11/07/16	0.28	0.41	0.54	0.63	0.82	0.99	1.29	1.60	1.83	2.26	2.60
11/08/16	0.28	0.43	0.56	0.71	0.87	1.04	1.34	1.65	1.88	2.29	2.63
11/09/16	0.30	0.45	0.56	0.72	0.90	1.12	1.49	1.84	2.07	2.52	2.88
11/10/16	0.30	0.48	0.59	0.72	0.92	1.17	1.56	1.92	2.15	2.58	2.94
11/14/16	0.32	0.55	0.65	0.77	1.00	1.27	1.66	2.01	2.23	2.65	2.99
11/15/16	0.30	0.51	0.61	0.78	1.02	1.28	1.68	2.03	2.23	2.64	2.97
11/16/16	0.32	0.47	0.62	0.76	1.00	1.28	1.68	2.03	2.22	2.61	2.92

Wednesday Nov 16, 2016

XOM Stock Dividend Data

Add XOM to Watchlist

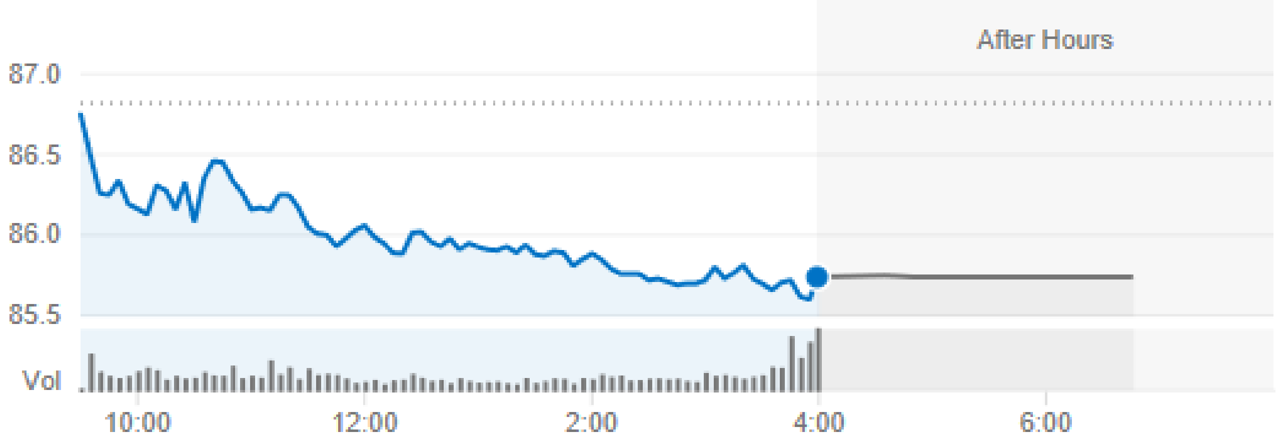
Dividend Yield	Annualized Payout	Payout Ratio	Dividend Growth	DARS™ Rating
3.50%	$3.00	136.4%	33 yrs	
Basic Materials Average 2.56%	Paid Quarterly	EPS $2.20	Since 1983	Get **XOM** DARS™ Rating

Exxon Mobil Corp

NYSE: XOM · November 16, 6:45 PM EST

85.75 ▼ 1.07 (1.23%)

After Hours 85.74 ▼ 0.01 (0.01%)



The prices of gap options are:

$$\mathrm{GapCall}(S, K_1, K_2, T) = Se^{-\delta T}N(d_1) - K_1 e^{-rT}N(d_2)$$

$$\mathrm{GapPut}(S, K_1, K_2, T) = K_1 e^{-rT}N(-d_2) - Se^{-\delta T}N(-d_1)$$

where:

$$d_1 = \frac{\ln\left(\frac{Se^{-\delta T}}{K_2 e^{-rT}}\right) + \frac{\sigma^2}{2}T}{\sigma\sqrt{T}} \qquad d_2 = d_1 - \sigma\sqrt{T}$$

and:

K_1 = Strike price $\qquad K_2$ = Trigger price

XOM=85.75

Group project MF 770

In this group project your task is to analyze the **Gap option** and prepare the report of 6-10 pages. Please submit the report by 12 pm 9 December to *yerkin@bu.edu*.

Payoff of the gap option: $(S_T - K_1)I(S_T \geq K_2)$ where $K_1 < K_2$. There should be three main parts of the final report:

1. *Introduction*. In this section address the following issues:
   - rationale for buying this option, what benefits does it give to a buyer;
   - who are the consumers (buyers);
   - some interesting features;
   - where this option is traded;
   - provide comprehensive literature review on this option.

2. *European option*. Consider Black-Scholes model and derive the pricing formula for the European gap option:
   - explain hedging strategy in Black-Scholes model;
   - plot the option price function with respect to the underlyings;
   - explore the option price sensitivity with respect to different parameters of the model;
   - run Monte-Carlo simulations for Black-Scholes model and verify that the estimated price converges to the true one;
   - discuss how to hedge this option in reality and what are the main practical concerns;
   - consider plain vanilla options on **XOM** and plot the implied volatility as the function of K for three different maturities;
   - recover the implied risk-neutral distribution for some T from market vanilla option prices.

3. *American option*. Consider Black-Scholes model and analyze the American gap option:
   - formulate the pricing problem;
   - describe the optimal exercise region;
   - derive an early exercise premium representation formula for the option price and an integral equation for the exercise boundaries;
   - solve them numerically and plot the option price and boundaries.