

Options Pricing & Trading System

PRESENTED BY ARTEM ILIN



Ticker	Short Name	Price	Earnings	Ratio	PE
AGA	ALGOMA STEEL INC	\$1.57	\$0.00	0.00	N/A
GNA	GERMANIUM STEELS	\$0.00	\$0.00	0.00	N/A
HBD	HORNBY LTD	\$0.00	\$0.00	0.00	N/A
IPS	INTELICO HOLDINGS LTD	\$0.00	\$0.00	0.00	N/A
DII/SV	DELTA INDUSTRIES INC	\$0.00	\$0.00	0.00	N/A
DII/MV	DELTA INDUSTRIES INC	\$0.00	\$0.00	0.00	N/A
CBF-U	CONNORS BROS INC	\$0.00	\$0.00	0.00	N/A
IIC/LV	INDUS CANADA INC	\$0.00	\$0.00	0.00	N/A
TRE	STING FOREST CORP	\$0.00	\$0.00	0.00	N/A
AUR	AUR RESOURCES	\$0.00	\$0.00	0.00	N/A
NB	NORTHBRIDGE FINANCIAL CORP	\$0.00	\$0.00	0.00	N/A
KFS	CALIFORNIA POWER INC	\$0.00	\$0.00	0.00	N/A
LHR	RUSSEL METALS	\$0.72	\$0.00	24.65	N/A
CF-U	CALIFORNIA POWER INC	\$0.00	\$0.00	0.00	N/A
RUS	RUSSEL METALS	\$0.74	\$0.00	19.38	N/A
IOW/SV	QUEBECOR WORLD INC	\$0.74	\$0.00	19.38	N/A
MG/SV/R	MAGNA INTL-A	\$0.75	\$0.00	16.36	N/A
MX	METHANEX CORP	\$0.88	\$0.00	21.63	N/A

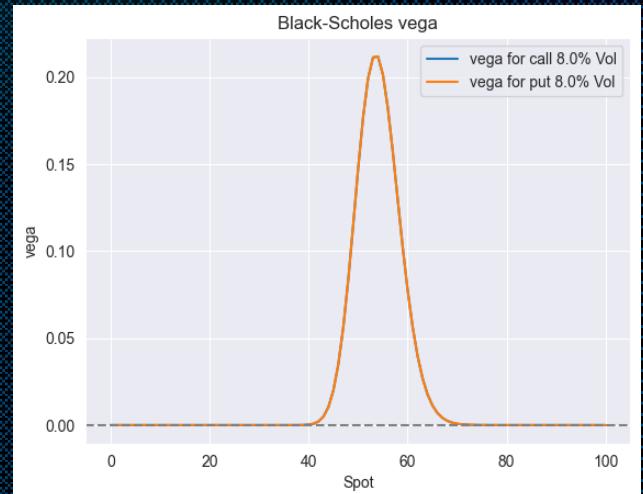
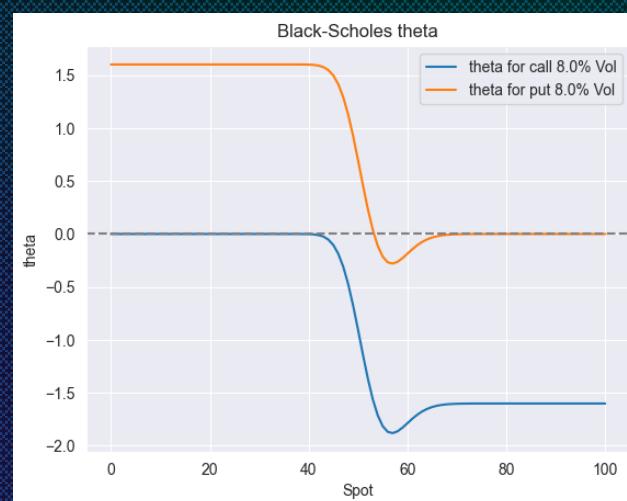
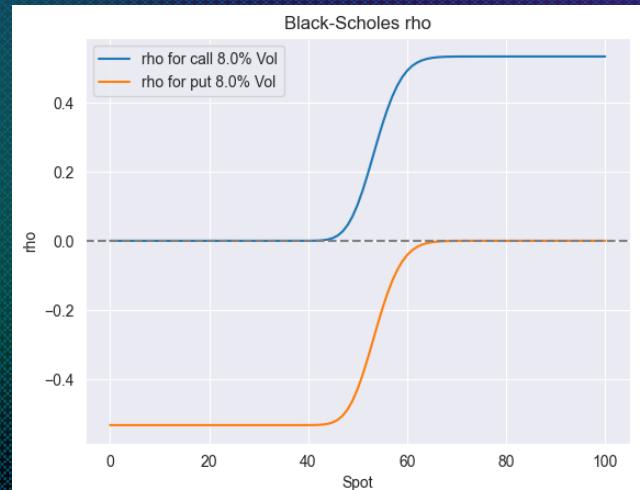
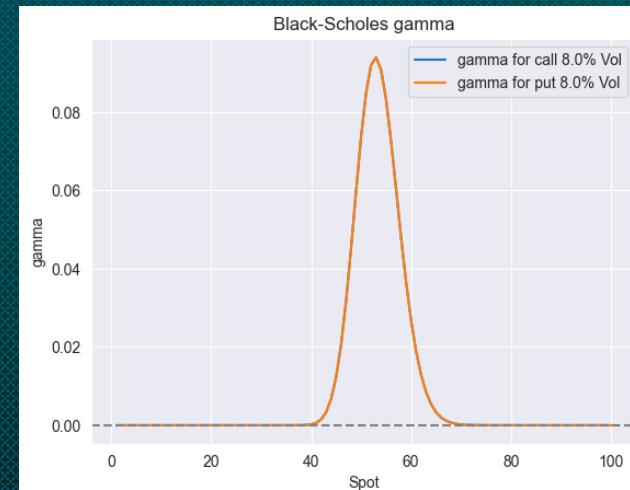
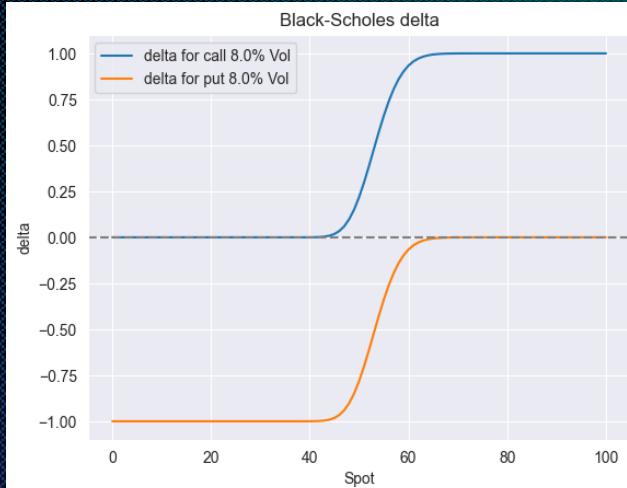
Yahoo Finance Data Parser

```
ticker = 'JPM'

jpm_yf = yf_get_chains(ticker)
jpm_yf.head()
```

	contractSymbol	lastTradeDate	strike	lastPrice	bid	ask	change	percentChange	volume	openInterest	impliedVolatility	inTheMoney	contractSize	currency	optionType	expDate	daysToExp
0	JPM230203C00100000	2023-01-03 19:38:02+00:00	100.0	34.05	38.80	39.00	0.0	0.0	100.0	0	2.718753	True	REGULAR	USD	call	2023-02-03 23:59:59	1
1	JPM230203C00105000	2023-01-03 18:15:30+00:00	105.0	29.37	33.60	34.25	0.0	0.0	1.0	0	3.054690	True	REGULAR	USD	call	2023-02-03 23:59:59	1
2	JPM230203C00110000	2023-02-02 16:27:29+00:00	110.0	29.74	0.00	0.00	0.0	0.0	10.0	0	0.000010	True	REGULAR	USD	call	2023-02-03 23:59:59	1
3	JPM230203C00115000	2022-12-30 17:53:27+00:00	115.0	19.00	25.15	25.60	0.0	0.0	6.0	0	3.248049	True	REGULAR	USD	call	2023-02-03 23:59:59	1
4	JPM230203C00117000	2023-01-27 16:08:18+00:00	117.0	22.90	0.00	0.00	0.0	0.0	7.0	0	0.000010	True	REGULAR	USD	call	2023-02-03 23:59:59	1

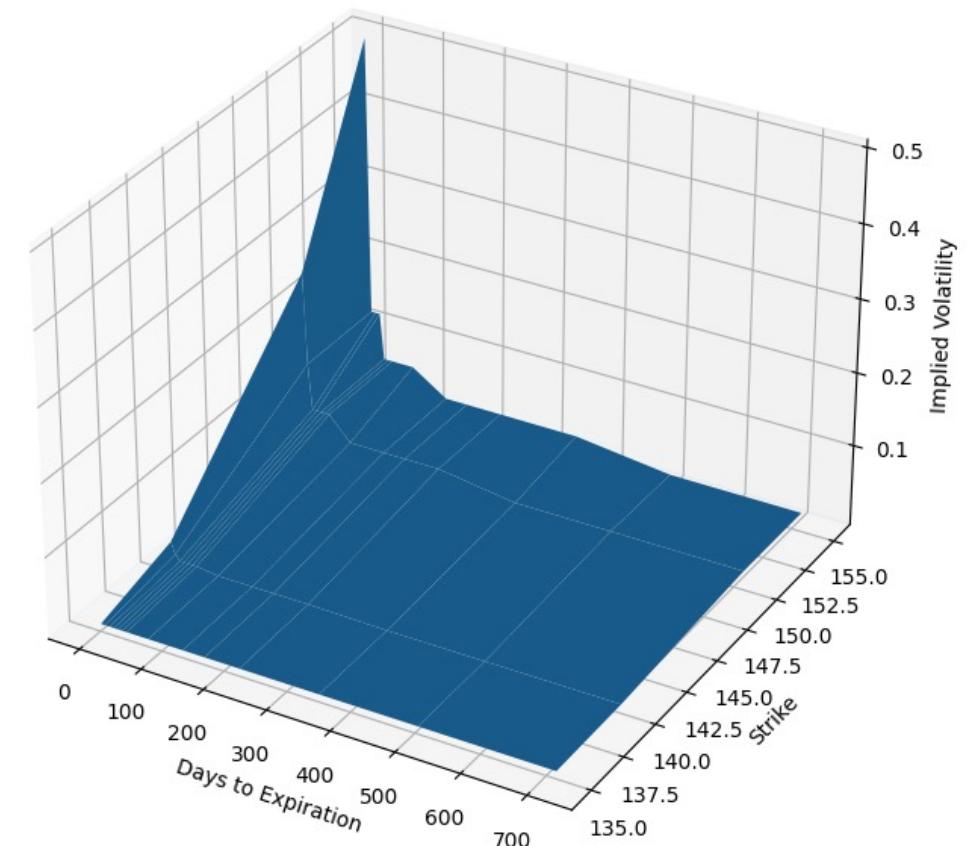
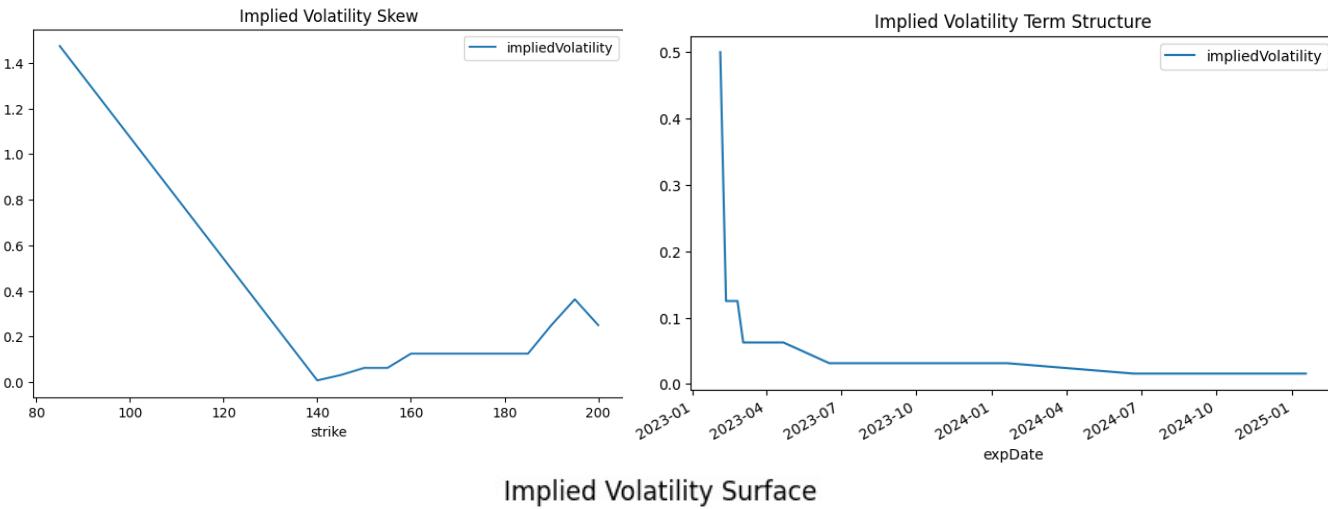
BSM & Greeks



Volatility

- Skew
- Term Structure
- Surface

Feb 2023



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$$dS_t = \mu S_t dt + \sqrt{v(t)} S_t dW_t^{(1)}$$

$$d\sqrt{v(t)} = -\beta \sqrt{v(t)} dt + \sigma dW_t^{(2)}$$

Heston Model

The correlation between the two Wiener processes is given by:

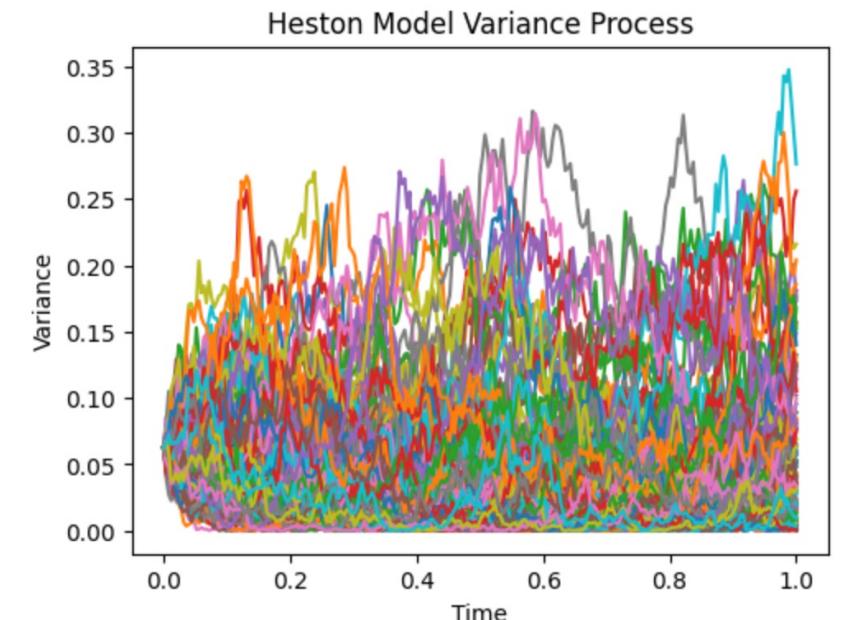
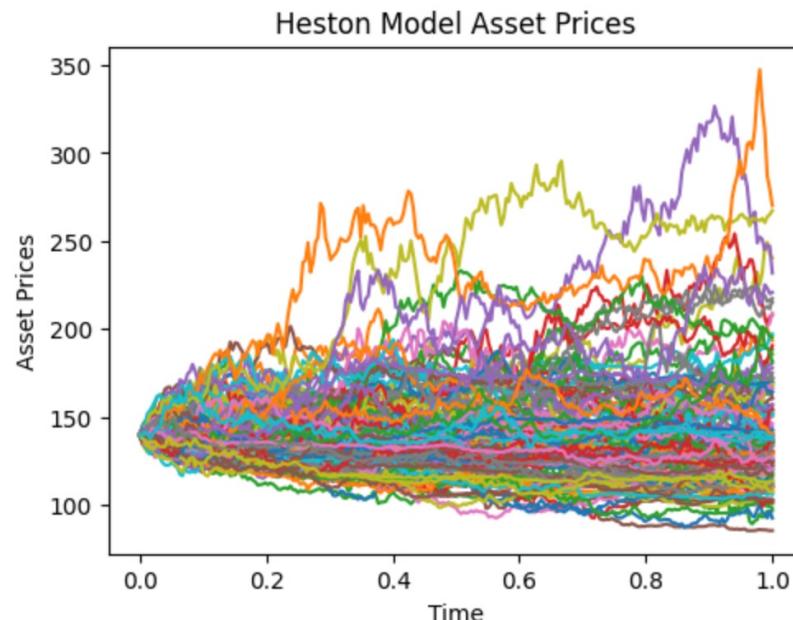
$$dW_t^{(1)} dW_t^{(2)} = \rho dt$$

S_t = spot price

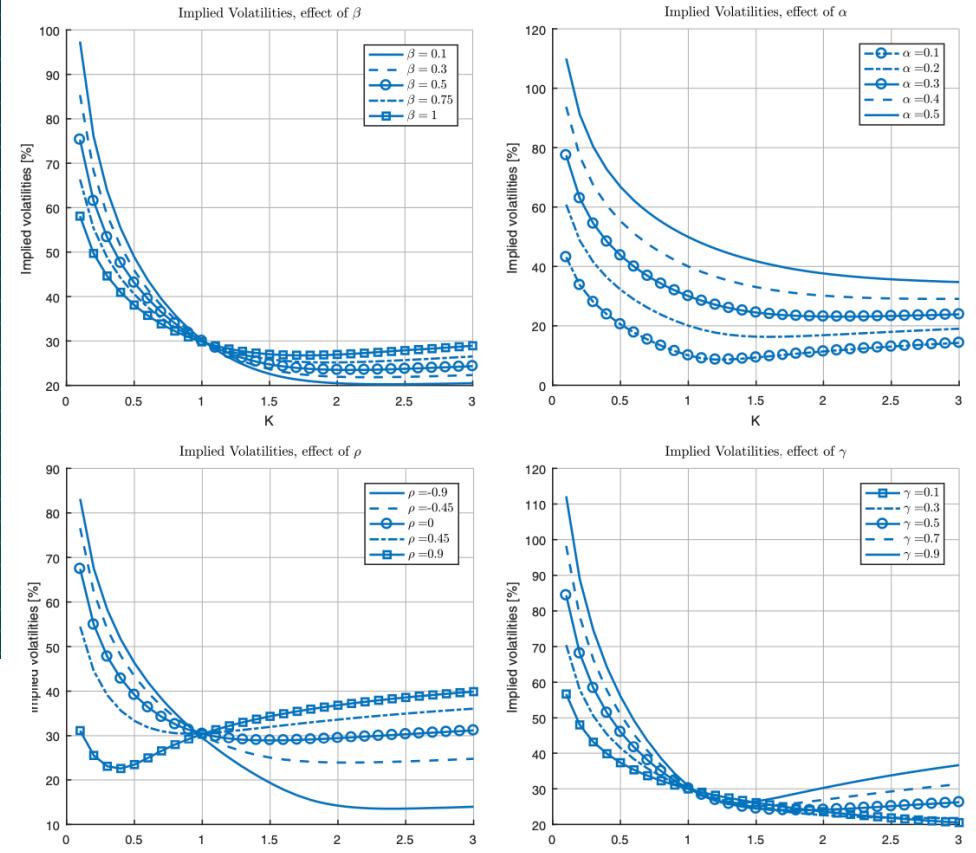
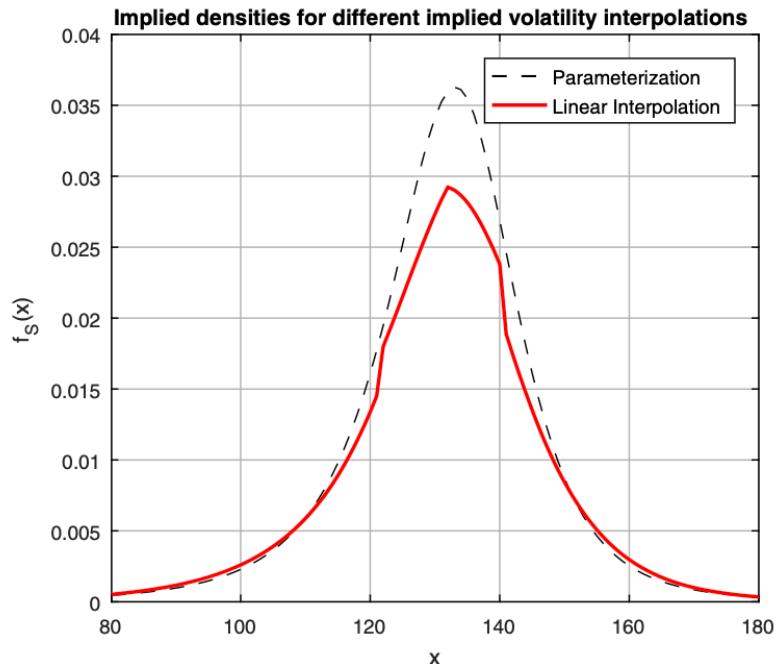
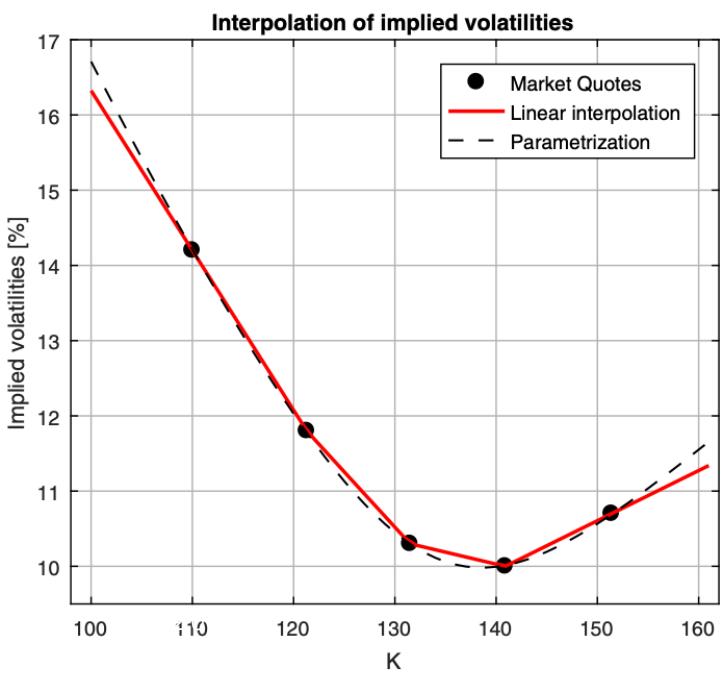
$W_t^{(1)}$ = a Wiener process

$v(t)$ = variance

μ = (risk neutral) drift.



SABR Model



Future plans:

- Models calibrations
- MOEX Data Parser
- Bifurcation analysis
- Hedging

