

QUANTUM CAPITAL LLC

ENERGY FUND PROSPECTUS

"DRIVING CAPITAL MARKETS THROUGH ALGORITHMIC DESIGN"

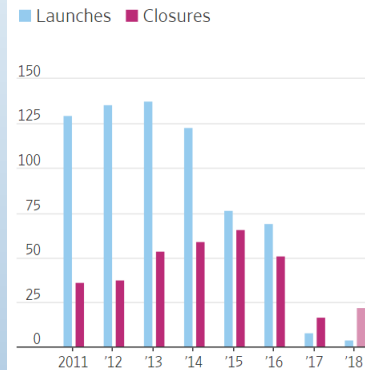


BACKGROUND

Quantum Capital Management LLC is new private fund management company in fundamental commodity strategies with a specialization in the oil and energy complex. Quantum Capital is led by a team of data scientists. The investment strategy targets absolute returns with an asymmetric upside, via detailed supply and demand forecasting, fundamental, macro economic and physical market information combined with various technical market indicators to generate fair values, forecasts and trading signals for energy and commodities.

Shrinking

Commodity hedge funds closures have outpaced launches as traders have struggled to profit.



Note: 2018 numbers are through June 21
Source: Eurekahedge

The Opportunity

In 2017, closures of commodities hedge funds outnumbered launches for the first time in data going back to 2000, according to data provider Eurekahedge—a trend that has continued into this year. *The reason?* Investors who were burned by the severe two-year market rout that started in 2014 aren't rushing back, fund managers and traders say, despite prices of commodities, including oil, copper, lumber and cotton, all rebounding to multiyear highs.



~ 5 Years
of Data



4000+
Variables

The Challenge

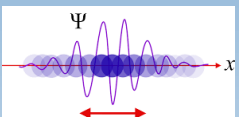
Extract insights from over a 1000 separate data sources consisting of 5 years of data and over 4000 variables. Data sources include: Department of Energy, Chicago Mercantile Exchange and various Global Indexes

The data is both unstructured and structured to fit into a data warehouse.



KEY CHARACTERISTICS OF OUR STRATEGY.

- **Story:** Identify key signals in scenarios that correlate strongly with the probability that the market has continuously mispriced futures prices in these situations, creating opportunities to earn market returns but with significantly less risk.
- **Process:**
 - Download, track and store activity in an energy sector
 - Apply various data munging and feature extraction techniques
 - Fit various algorithms and machine learning techniques on the data sets.
 - Back test strategy and forecast result
- **Returns:** Working in a team of 4 using two portfolio strategies with \$20 million in capital, we would like to averaged 11% annual returns, always in a relatively narrow band from 8% to 15% in any given year.



SOLUTION OVERVIEW

Explore

- Explored multiple data sources from exchanges to government web sites.
- Download data from paid and unpaid sources.



- Evaluate different platforms and technologies.
- Understand Energy Market Sector and more importantly the volatility associated with it.



Prepare

Consolidated data sources , imputed missing values, transformed outliers and skewed variables, created derived variables.

Analyze

Analyzed important predictors and extracted key features to predict loan default



Final DataSet:

_5 Years of Data and 89 Predictors

Top Model: Mean Reversion Strategies using GARCH



Model

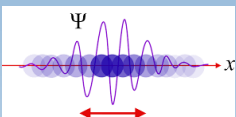
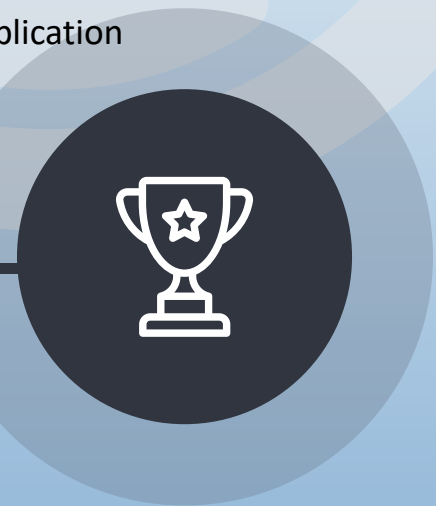
- Built several models: Linear Regression(Polynomial, Ridge and Lasso)
- Gaussian Mixed Mixture
- ARIMA
- GARCH
- Random Forest
- XGBOOST
- Deep Learning(RNN-Tensor)

Deploy

C# Application for Pattern Search
Dashboard CEO Mobile Application



Dashboard and Mobile App



STRATEGY SUMMARY PERFORMANCE

Data pre-processing,
normalization and
augmentation.

Risk profiles for each of
the various assets &
corresponding
parametric model
estimates.

Preliminary time series
analysis & statistical
correlations for **Crude
products**

A predictive model for
WTI, Brent, Gasoline
and corresponding
trading strategy (**mean-
revision**).

Initial backtest
results **yield net positive
PnL and returns** for the
testing period (2019).

WTI mean revision
strategy performance
is **26.11%** year to date.

The trade execution /
PnL **dashboard** is
functional locally.

Periodic

Annualized

Crude Oil WTI – 1/1/19 – 10/30/19

Commodity	Strategy	Benchmark
23.1%	26.11%	3.74%
30.8%	34.81%	4.99%

Periodic

Annualized

Crude Oil Brent – 1/1/19 – 10/30/19

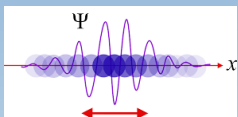
Commodity	Strategy	Benchmark
13.45%	16.8%	3.74%
17.94%	22.4%	4.99%

Periodic

Annualized

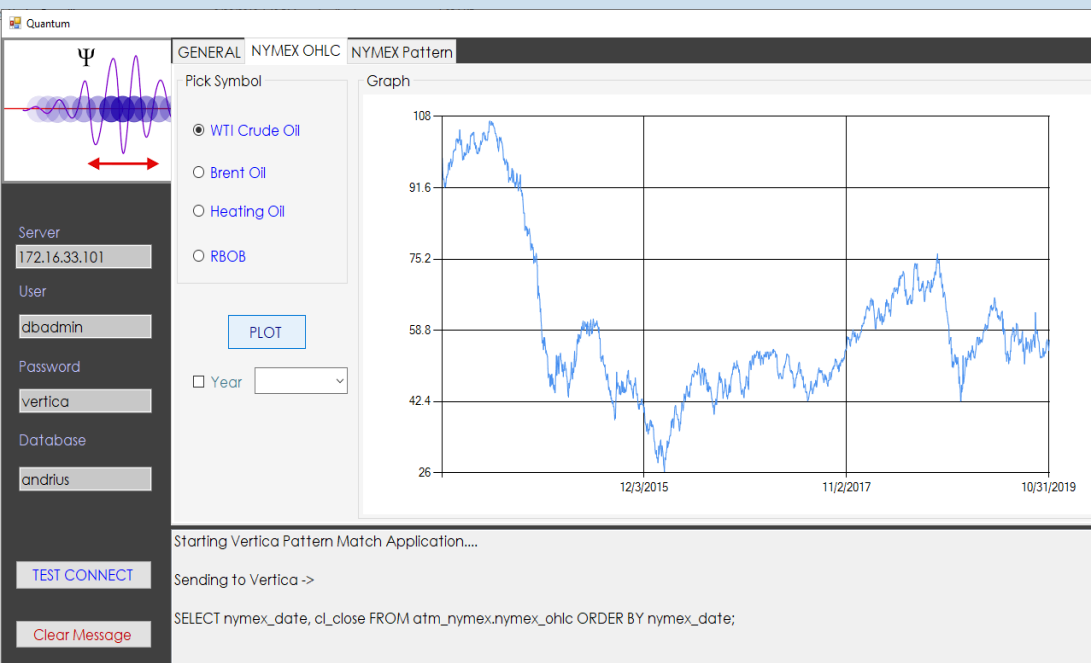
Gasoline – 1/1/19 – 10/30/19

Commodity	Strategy	Benchmark
23.8%	43.85%	3.74%
31.8%	58.45%	4.99%

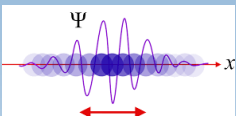


DASHBOARD & MOBILE APP

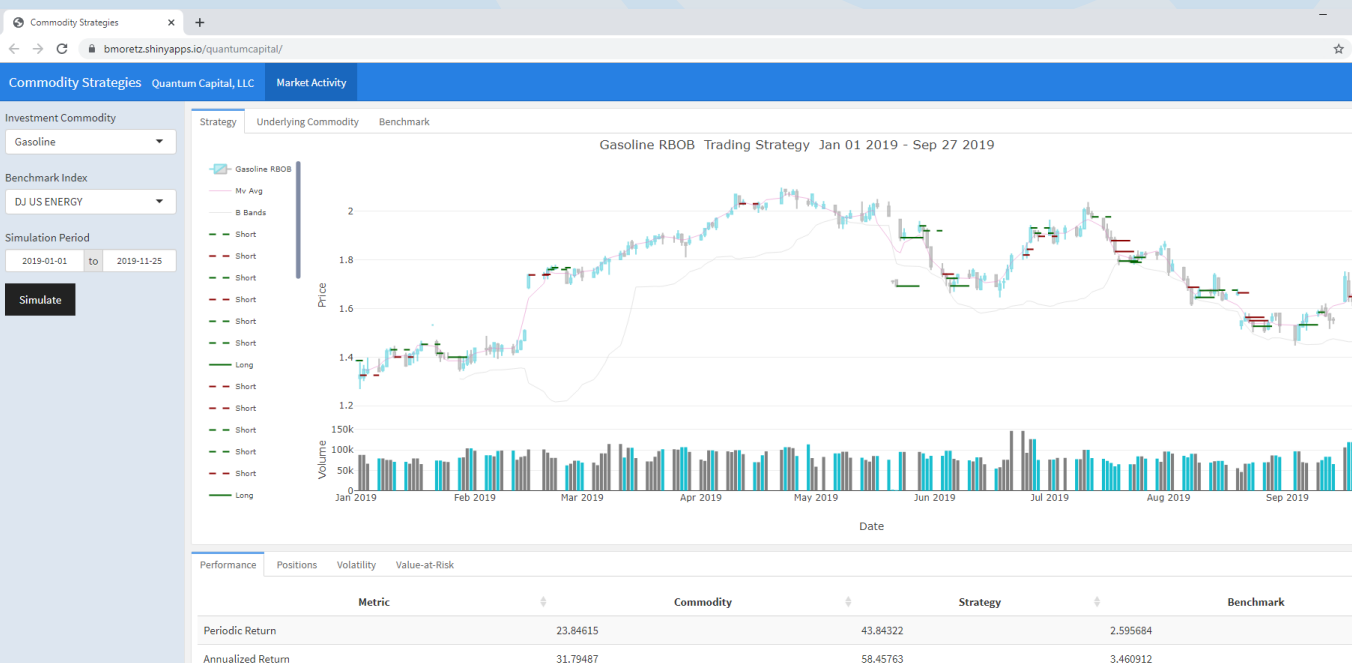
C# Windows Form Application



A C# Windows application to search for patterns in the data and a GUI to plot energy symbols.

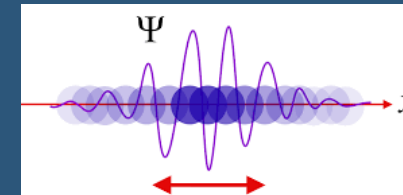


Mobile App



A browser centric application designed to provide a quick simulation of various strategies and back testing frameworks. Can work from any device via a browser and is live.





THANK YOU!



Feel free to contact any one of us.....