

EQRC

Oxbridge Capital Partners: Long/Short Systematic Commodities

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Context

This document was produced as a means to present Oxbridge Capital Partners (OCP) market neutral commodities systematic trading methodologies. Please consult your OCP contact more information. This document summarizes one of our pure medium frequency commodities strategies. Note that historically our research has been tailored to our clients need and constraints. This strategy is for illustration purposes only. It can be made bespoke to your needs and constraints.

EQRC

EQRC is Dr. Mahdavi-Damghani’s limited company officially launched in 2014 in order to create a legal platform initially and primarily focused on consultancy assignments in the Quantitative Finance industry. We strive to re-invest part of my earnings in Research & Development for activities associated to the cross between AI and Finance.

About Oxbridge Capital Partners

Oxbridge Capital Partners (OCP) is the tentative name for a fund headed by an alumni of the OMI. It is composed of 1 Quantitative Analyst and one portfolio manager. We wish to collaborate with fund incubators and diversify with multiple strategies. We only work with established incubators with impeccable reputation and significant AUM. Though OCP has strategies in Equities, Commodities and Cryptocurrencies, its objectives are to diversify in all asset classes.

Overall strategy philosophy

Many assets, especially from different sectors or classes seem to have independent risk factors especially when daily correlation is used to assess these relationships. However their true co-movements become apparent in all the crisis. Being long only anything captures more a macro event than the alpha generated by that specific underlier. The subprime crisis of 2008 is one example out of many that has exposed that particular point. During the subprime crisis even commodities became strongly related to the equities market. The below presentation we had at the CQF illustrates our understanding of the market as well as motivation to only deploy L/S strategies.

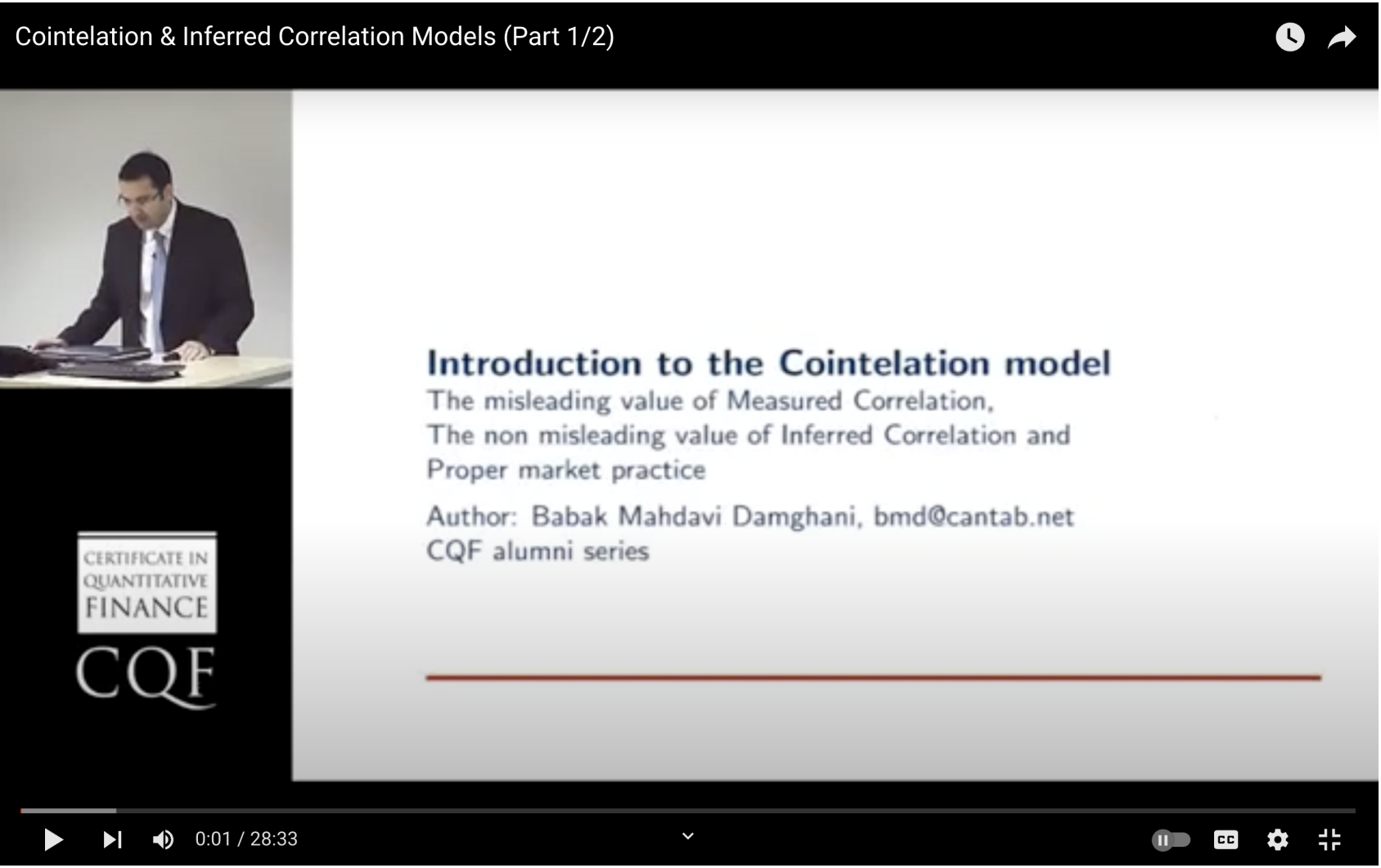


Figure 1: Clickable YouTube link (1 of 2) detailing our general understanding of the markets when it comes to their long term co-movement.

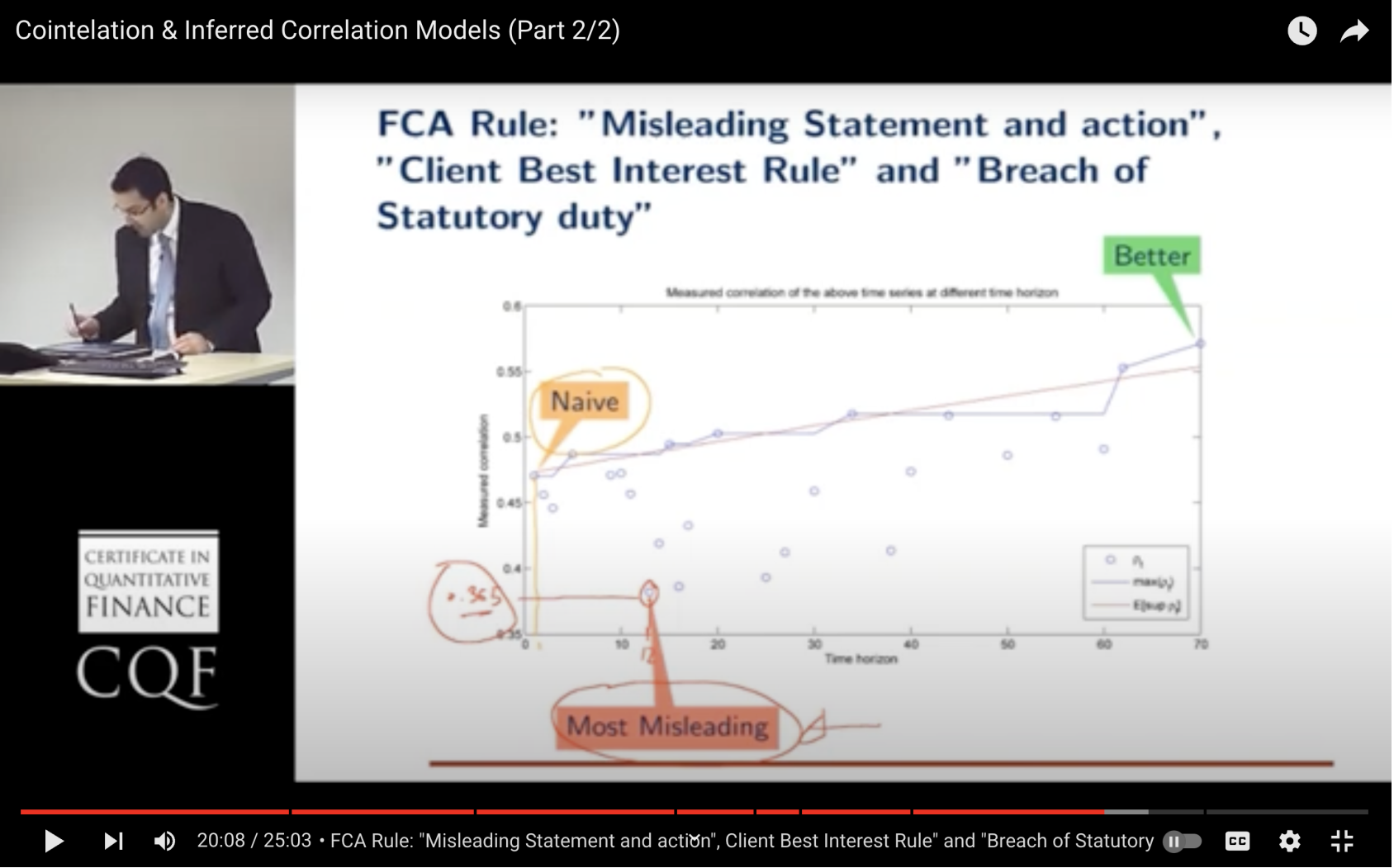


Figure 2: Clickable YouTube link (2 of 2) detailing our general understanding of the markets when it comes to their long term co-movement.

Our bespoke cointelation model can be thought, intuitive as, a portmanteau neologism in finance, designed to signify a hybrid method between **cointegration** and **correlation** models. Studying the correlation term structure of time series can allow us to understand better the long term relationship of assets.

Strategy decomposition

We constantly do research in order to add to our portfolio of LS strategies. Below we give a couple of examples.

Strategy 1: Crude Oil Quantamentals

Crude oil products are driven by fundamentals. It is often the case that analysts classify oil products using three metrics:

- Heavy vs light: heavy oil evaporation speed is slower than lighter oil. It is usually used for products like asphalt. Lighter oil processing cost and speed is usually lower and produces more gasoline and diesel than heavy oil.
- Sweet vs sour: these terms refer to the amount of sulfur the oil contains. Sweet means low sulfur and sour high sulfur.
- Total Acid Number (TAN) concentration measure how corrosive the oil is. If TAN is high, more robust metallurgy is needed to secure the crude in the pipelines.

Typically light and sweet products are cheaper than heavy and sour products. Note that it is possible to add value to sour and heavy oil through chemical processes in exchange of costs. Figure 3 gives and overview of few of the crude oil products available in the markets. Because the energy sector is both driven by fundamentals and speculation, we believe that our bespoke Cointelation model is an ideal tool to study the co-movement of assets within this sector.

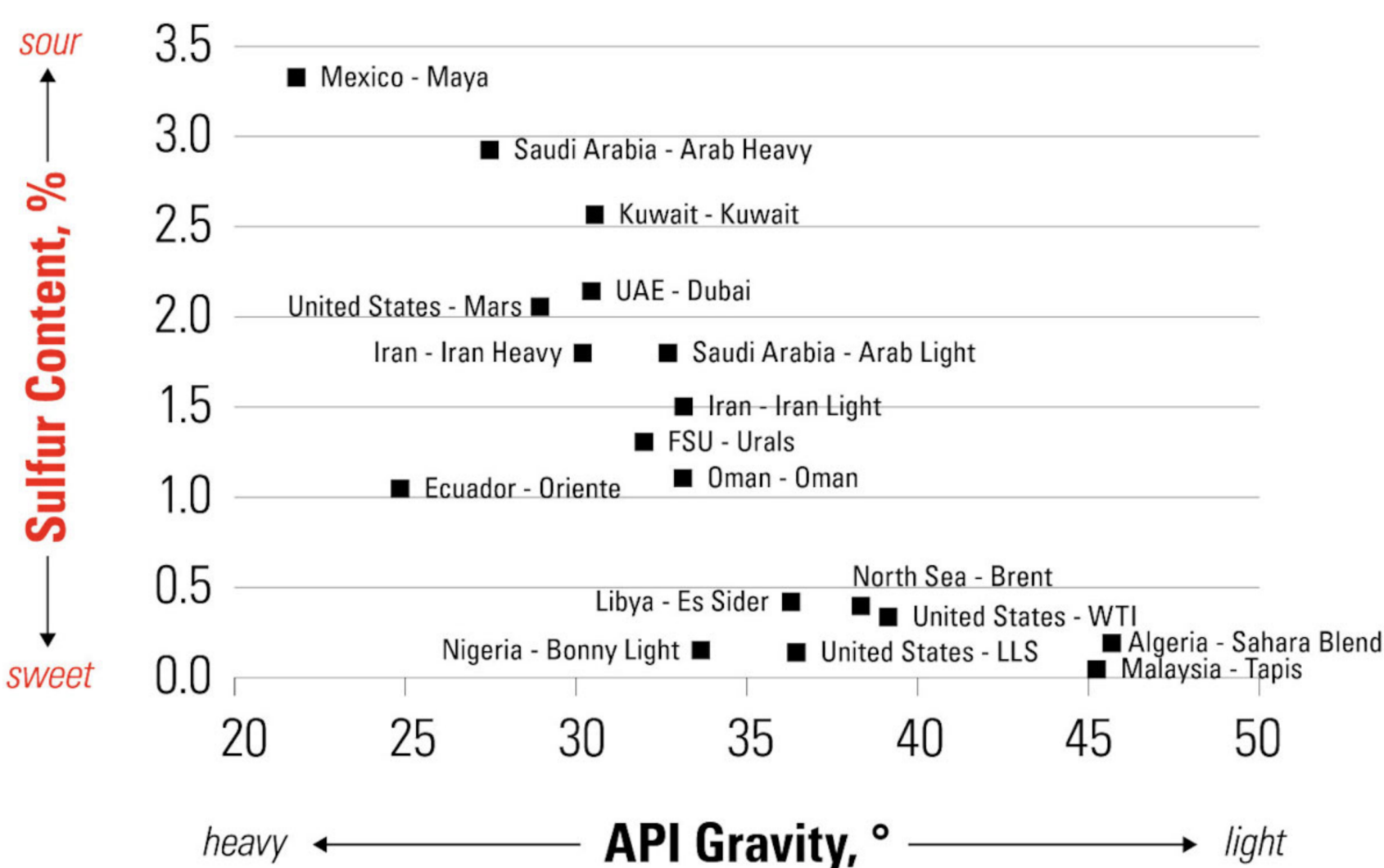


Figure 3: Density and Sulfur content of selected crude oils according to the U.S. Energy Information Administration, based on Energy Intelligence Group - International Crude Oil Market Handbook.

Strategy 2: Index providers re-balancing timing

Many large asset managers want to have a long only exposure to specific asset classes. The GSCI for instance is a simple macro strategy many asset managers have. The construction of the GSCI is transparent and sold through simple ETFs. Often these products are re-balanced on a daily basis subject to a pre-determined methodologies. Knowing what the methodology is and also using ML techniques to find the timing where these re-balancing opportunities occur can present a great opportunity for alpha associated to short term mean reversion. For example, going short the commodities that were overbought during the day and going long the ones that were oversold can generate orthogonal alpha.

Overall performance

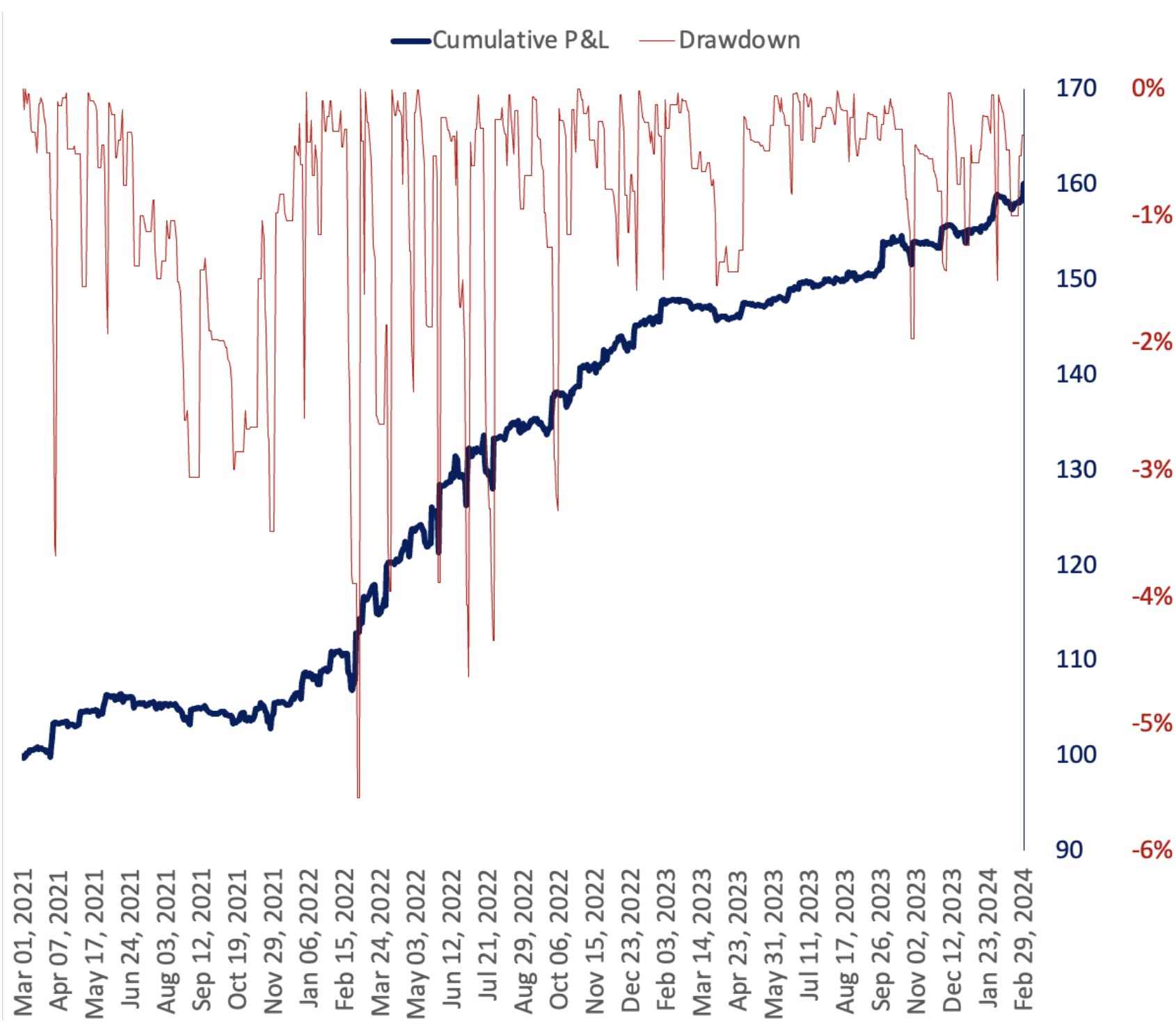


Figure 4: Our Commodities L/S P&L (blue) and its rolling drawdown (red)

In Figure 4 we can see in blue the historical performance of our L/S portfolio for our commodities strategies as well as its rolling drawdown in red. As one may notice the P&L is consistent in its behaviour and the drawdowns are within very reasonable risk limits. The following table summarizes the above points. The latter indicates an average SR of 2.1 with 17% returns and a maximum draw-down under 10%.

Start	End	Returns	Sharpe Ratio	Drawdown
2021/01/03	2022/01/03	14.4%	1.9	-5.6%
2022/01/03	2023/01/03	28.6%	2.1	-4.6%
2023/01/03	2024/01/03	7.6%	2.2	-2.0%
Yearly Averages		16.9%	2.1	-4.1%

Note that these are backtested statistics. However, the year we worked at Andurand Capital, an energy hedge fund, the fund returned 109% and the subsequent year (we had left), the fund lost more than 50%. Our strategies were absorbed into a centralised signal aggregator so we are unable to provide and independent track record. However we like to think that such a drastic change in the return profile is not a coincidence. Though all the gains were not thanks to our strategies, we believe that our approach to risk management was healthier when trading clients money. Indeed our L/S approach took a more responsible angle to investing which we hope have been demonstrated by our overall strategy philosophy. If we come to an agreement trading will start with a small AUM and will increase slowly to reassure us that the backtests are inline with live trading.

Fees and rationale to invest

At OCP, we believe that we have the right mix of technical expertise and experience which we hope can be seen in our senior management. We require a minimum of \$20M AUM and consider a minimum of 50% of the profit generated by the fund through our collaboration. More specifically, if the fund is on a 2-20 fees model, we would take 1% of the management fees and 10% of the performance fees. We believe that we bring with us a wealth of experience and we look forward to demonstrating our abilities as we continue to strive for excellence and continued commitment to generating superior, risk-adjusted returns.

More about OCP’s Quant team



Dr. Babak Mahdavi-Damghani (BMD) completed his PhD in Machine Learning for Quantitative Finance at the University of Oxford. He has a broad range of work experiences in the financial industry notably having worked for Citigroup, Socgen, GAM Systematic (previously Cantab Capital Partners), Credit Suisse, LCH, the Oxford Algorithmic Trading Programme and Andurand Capital Management. He has experience through all the major asset classes in both the buy & sell sides. He is the founder of EQRC and an alumni of the Oxford Man Institute of Quantitative Finance. He is also the author of numerous publications, including cover stories of Wilmott magazine and mathematical models currently taught at the CQF (eg: Cointelation, IVP, UTOPE & HFTE models).

The quant team (QT), is composed of an exceptional group of professional talents selected through a rigorous process involving, technical expertise, creativity and integrity. All the members of the QT have postgraduate diplomas from top tier Universities. The requirements are a specialised MSc in Quantitative Finance (or strongly related fields) or a PhD in a Quantitative field (Machine Learning, Mathematics, Physics, Computer Science, Engineering, Statistics) with relevant work experience.

Disclaimer

In order to abide by the regulations laid out by the SEC & FCA, we take this opportunity to remind the reader, that although done in good faith, this documents cannot be interpreted as financial advice and that historical returns are not a reliable measure of future performance.