

Last Update:

09/17/2012

Amundi Alternative Investments

Managed Account Synopsis: Amundi Alternatives CFM Discus Master Fund

Trading Manager

Company Name:	Capital Fund Management
Incorporation Date:	1991
Principal Place of Business:	France
Main Office Address:	23 rue de l'Université , 75007, Paris, France
Assets Under Management:	\$5,900m as of 07/31/2012
Product Offering:	Discus - Systematic Managed Futures Strategy - \$3,300m (\$900m in fund format) Stratus - Multi-Strategy that invest in CFM strategies (Directional, Equity Statistical Arbitrage, Volatility Arbitrage) - \$4,200m (fund format)

Team Breakdown:	Portfolio Management:	4
	Research:	35
	Trading:	6
	Risk Management:	7
	Operations:	11
	Compliance:	4
	Total:	123

Key Individuals:

- Jean-Philippe Bouchaud – Chairman / Chief Scientist

Dr. Bouchaud was appointed Chairman and Chief Scientist of CFM in October 2001. At CFM, Dr. Bouchaud supervises, together with Dr. Potters, the research team of CFM, and contributes by maintaining strong links between CFM's research and the academic world. After studying at the French Lycée in London, Dr. Bouchaud graduated from the École Normale Supérieure in Paris, France, where he obtained his Ph.D. in theoretical physics. He was then appointed as a researcher by the Centre National de la Recherche Scientifique ("CNRS") until 1992. After a year at the Cavendish Laboratory in Cambridge (UK), he joined the Service de Physique de l'État Condensé at the Commissariat à l'Energie Atomique ("CEA") in Saclay (France). Dr. Bouchaud became interested in theoretical and empirical finance in 1991. His research in quantitative finance led him to found the research company Science & Finance SA ("S&F") in 1994 together with Mr. Jean-Pierre Aguilar. S&F merged with CFM in July 2000. Dr. Bouchaud is today a well-known authority within the field of Econophysics. His work, summarized in the book Theory of Financial Risks and Derivative Pricing (Cambridge University Press), includes new statistical models of returns and correlations, extreme risk control and option pricing beyond Black-Scholes. Dr. Bouchaud was awarded the IBM Young Scientist prize and the CNRS Silver Medal. He is also the Editor in Chief of Quantitative Finance.

- Marc Potters – CoCEO / Head of Research

Dr. Potters joined CFM in October 1995 as a researcher in quantitative finance. Today he heads the research team at CFM comprising mainly Ph.D.s. He directs fundamental and applied research and supervises the implementation of automated trading strategies and risk control models. With his team, he has published numerous articles in the new field of statistical finance while continuing to develop concrete applications of financial forecasting, option pricing and risk control. Dr. Potters obtained his Ph.D. in physics from Princeton University (United States). Prior to joining CFM, he was a postdoctoral fellow at the University of Rome La Sapienza (Italy). Dr. Potters is the author, with Dr. Bouchaud, of the book *Theory of Financial Risk and Derivative Pricing* (Cambridge University Press).

- Jacques Saulière – CoCEO / COO equivalent

Mr. Saulière joined CFM in October 2001 and was appointed COO of CFM in February 2006. In addition to managing administrative, legal and compliance, Mr. Saulière is responsible for information technology at CFM. Prior to joining CFM, Mr. Saulière worked from February 1993 as Head of Sales at Ubitrade SA. He has in-depth knowledge of the development of state of the art software solutions for risk management within the financial industry. From 1988 to 1992, he worked as a research consultant for major aerospace groups of the Defense sector in France. He graduated from the École Centrale of Paris (France) in 1985. He also holds a M.Sc. in Electrical Engineering from the University of Southern California (United States) and a MBA from INSEAD at Fontainebleau (France).

- Philippe Jordan – President / Head of Sales

Mr. Jordan heads CFM's Investor Relations, its New York office and also serves on the Board of Directors of CFM S.A. France. He joined CFM in 2005. Prior to joining CFM, Mr. Jordan was a Founding Member of Indeman Capital Management, LLC ("IDM"), a start-up focused on hedge-fund incubation. Mr. Jordan joined IDM from Credit Suisse First Boston ("CSFB"), where he was a Director and the Global Head of Capital Introduction in the Prime Banking Group. He also worked in CSFB's Hedge Fund Development Group, where he was the head of hedge fund origination and distribution for the Americas. Prior to this, Mr. Jordan was a Senior Vice President in Hedge Fund Coverage and later the Co-Head of Alternative Investments at Daiwa Securities, America and a Senior Vice President in International Sales at Oppenheimer & Co. Mr. Jordan began his career as an account executive at Refco Group Limited in London. He served on the Board of Directors of FINEX from 1993 to 1999.

Trading Strategy

Reference Fund Details:

Fund Name:	Discus Feeder Limited - USD Standard Leverage Class B
Fund Inception Date:	12/01/2006
Fund Assets:	\$900m as of 07/31/2012
Strategy Inception Date:	01/01/1991
Strategy Assets:	\$3,300m as of 07/31/2012
Strategy:	Systematic Futures Trading

Investment Strategy Description:

Hedge Fund Manager Relations & Selection

Risk/Return Objective:	The Trading Manager aims at generating an annual net performance of 12%-18% with a long-term yearly gross standard deviation of 14%.
Investment Philosophy:	<p>The Trading Manager has developed various quantitative trading programs on futures, equities, options and currencies since inception of the firm that are all statistical, quantitative and systematic in nature. Discus follows a quantitative managed futures strategy that target a 14% volatility. The model is composed of 30 clusters that can be categorised in two types:</p> <ul style="list-style-type: none"> - Technical models that are composed of trend following and mean reversion approaches applied across all markets (10 clusters), - Fundamental models that aim at forecasting price movements as a function of fundamental data, and as such are generally applied to a subset of markets as applicable (20 clusters).
Idea Generation & Research Process:	<p>The Research Department is headed by two management board members: Jean Philippe Bouchaud as Chief Scientist and Marc Potters as Head of Research. On a day to day basis they co-head the research team that is composed of 35 people and is organised in sub teams as follows:</p> <ul style="list-style-type: none"> - Transversal Research (3 people) - Directional Research (8 people) - Equity Statistical Arbitrage Research (7 people) - Volatility Research (9 people) - Execution Research (6 people) <p>Directional and Execution research team are mainly involved in the Discus strategy; it is important to keep in mind that the strategy also benefit from the work done by other research teams. Philip Seager is responsible for the 'Directional Team' which is in charge of the research for directional strategies and also High Frequency strategies (only available through Stratus). This team will spend their time working on new models/approach that may complement the existing set of active models, monitor and review existing models and follow potential new markets that may be added to the universe of investment. This team will also work closely with the 'Execution Research' team for the implementation of models in real trading. Julien Kockelkoren is responsible of this last team that will focus on the development of automated algorithm protocols that will allow strategies to be executed efficiently based on their own characteristics.</p>
Decision Making Process:	<p>The Research department holds weekly sub-strategy research meeting where each researcher will be able to present any new project (or update) he is working on. Each new trading model developed by one researcher must be rewritten by another researcher to make sure that it has been independently verified; then a peer review is performed (including back-test simulations and stress tests) before being presented to this committee. They also hold monthly sub-strategy meeting that will formally validate the implementation of a new trading model in the production environment; in certain cases, the Investment Committee will have to validate too.</p> <p>The Investment Committee is responsible for any addition, update, removal of any new models along with adjustment of risk allocation to any models with the relevant supportive documentation produced by the Research Department through their various meetings. Decisions made by the Investment Committee are based on consensus, and the decision makers are not the authors of the models being considered. A new model is initially put into production with a low risk budget; once the model has been proven in the production environment the model may be put in full-scale production with a true risk weight. The Investment Committee is composed of the Board of Directors along with Senior Researchers that are the head of the sub-research teams.</p>
Portfolio Construction & Monitoring Process:	The main objective of the portfolio construction process is to find the most efficient mix of markets (96) and models (30 clusters within two families) to achieve the target risk adjusted return. For every asset in the Discus universe, a maximum position size is defined, based on various factors (including liquidity, risk, etc.). The trading system computes an aggregate

target position, which is a continuous variable from -1 to +1, representing the target position size relative to the maximum. The average risk allocation by family of models is 60% for 'universal' (which on average is split 75% for trend approach and 25% for contrarian) and 40% for 'fundamental'.

Trading Protocols:

Trade execution is automated and conducted via algorithmic protocols which are designed by the execution research team. Orders are generated (potentially every five minutes) by the trading models, and are passed electronically to the execution system. Both market and limit orders are used by the execution system. The trade capture and position management system is built and maintained internally. All orders are processed automatically, and human interaction is limited to handling exceptions. These are monitored by the relevant business unit and a risk manager independent from the business unit; teams based in New York, Tokyo and Paris are responsible for monitoring trade executions on a 24/6 basis. Periodically intraday and at close of markets, CFM reconciles executed trades with the prime broker's execution desks and send the trade files to the prime brokers' back offices on a daily basis; at the end of the day they also send trade files to the administrator for them to perform their duties; all reconciliations are automated.

Portfolio Composition:

Traded Asset Classes:

The Trading Strategy allocates across equity (21 markets), bonds (14 markets), rates (7 markets), currencies (17 markets) and commodities (37 markets spread across energy, metals and agriculturals).

Traded Instruments:

The Trading Strategy currently trades futures and currency forwards. The management of the excess cash is done by Amundi AI via investments in money market funds for the Amundi Alternatives CFM Discus Master Fund.

Traded Geographical Markets:

Global (96 markets across asset classes as detailed in the 'Traded Asset Class' section).

Portfolio Turnover:

The average holding period is 5/6 days with a range of 2/3 days to 2/3 months. Consequently the average round turn per million per year stands at 3,500 which is in line with the short term nature of the strategy (even if we observed shorter term strategy in the space); this number is to compare to 1,000 for a medium long term strategy.

Risk Management

Risk Management Professionals:

- Mr. Philip - Risk Manager

He joined CFM in September 2008.

Prior to joining CFM, Mr. Philip worked at JPMorgan, Credit Agricole AM and he also worked in software development companies.

Mr. Philip graduated from Ecole Polytechnique (France), Ecole Nationale Supérieure des Télécommunications (France) and Princeton (United States).

Team Size:

7

Leverage:

Soft Guidelines:

Portfolio risk is monitored using various indicators: volatility (target 14%), typical worst drawdown over 12 months (-21% with a 95% confidence level), daily VaR (2.5% with a 99% confidence level and 4% with a 99.9% confidence level).

Hedge Fund Manager Relations & Selection

Hard Guidelines: Leverage is determined by targeting a long-term yearly standard deviation of 14%. Risk utilisation changes dynamically over time depending on what signals are triggered by models; during extreme periods the Board of Director may take the decision to reduce the risk if need be. Since January 2008, the average annualised 12 month volatility stood 11.57% oscillating between 8% and 16.11%; the average annualised volatility over the latest 12 month (as of the end of July 2012) stood at 12.97%.

Historical Measures: The Trading Strategy's realised gross exposure by asset class was as follows (as measured by the average monthly gross exposure over the latest 12 month):

- Fixed Income: 346%
- Currencies: 99%
- Equity: 34%
- Commodities: 41%

Margin to Equity (MtE) is also another proxy of the leverage; this measure has historically varied between 1% and 30% with an average around 16%; as of the end of July 2012, MtE stood at about 15.5%.

Other Leverage Policies: n/a

Portfolio Concentration & Diversification:

Soft Guidelines: Even if they tend to apply an equi-risk allocation method, they also take into account the liquidity of the underlying market to adjust the maximum weight to each market within each sector (ie. the more liquid is a market, the highest the weight can be); a very liquid instrument may represent a substantial fraction of the total risk allocated to his sector (ex. S&P 500 for equity).

Hard Guidelines: As noted before, diversification is one key principle in the Trading Strategy which is applied at market (96 markets) and model (30 clusters within two families) levels.

Historical Measures: The Trading Strategy's realised risk by asset class is as follows (as measured by the average monthly VaR contribution over the latest 12 month):

- Fixed Income: 29.4%
- Currencies: 30.2%
- Equity: 23.0%
- Commodities: 17.4%

Other: n/a

Portfolio Liquidity: The Trading Strategy only trades a select list of liquid markets via futures and currency forwards which gives the portfolio a high level of liquidity.

Stop-Loss Policy: The Trading Strategy do not use stop loss methodology.

Risk Management Protocols:

Procedures: The CFM Management Board has primary responsibility in relation to market risk management oversight. A monthly IC meeting, which brings together the Management Board, the strategy heads, three senior researchers and the Independent Risk Manager (from the Risk & Operations Technology team) is responsible for setting and monitoring the risk of the individual trading programs.

The Research teams monitor market risk on a real-time basis and on a system-by-system basis. In addition, the Risk & Operations Technology team independently monitors market and operational risks.

Preservation of capital is a key mission at CFM. Consequently, the Management Board

has the ability to modify the global risk of the Discus portfolio when it is perceived that the measured risk does not reflect the actual risk. This may arise, for example, as a result of extreme events creating market dislocations (such as 9/11) which may not be reflected in historical data. The Management Board may thus, on a discretionary basis, act globally (or locally) on the portfolio for a given period of time (to lower the leverage) to avoid relying on statistical approaches, when statistics based on historical market conditions are likely to be no longer relevant.

Other Key Risk Measures: n/a

Systems & Tools: All the tools used for risk management purposes, both integrated within models and followed by the independent risk manager, has been developed internally.

Investment Edge

- ♦ CFM was founded in 1991, first as a traditional CTA and then evolved as a short term CTA which provided them with a name, a reputation and a sizeable experience in the industry. Discus strategy has been able to deliver an interesting risk adjusted performance over the years.
- ♦ CFM has been managing a large amount of assets for a number of years (more than \$1b steadily since 01/2006 at firm level and since 04/2006 at strategy level) across multiple vehicles (FCIMT - ie. daily liquidity, funds and managed accounts) which shows their experience as an institutional manager. This substantial asset base also allowed them to develop their balance sheet and finance the enhancement in research and development.
- ♦ CFM Research and IT infrastructure has been developed along the years which is now one of the most efficient set ups in the street; Discus also benefits from cross synergy between Research groups (statistical arbitrage, volatility, etc.) which is currently composed of 35 people.
- ♦ Discus strategy bias toward short term trading frequency using a mix of trend/ fundamental approaches allow this strategy to maintain a low level of correlation with other CTAs; the average 24 month correlation over the latest 36 month with comparable indices evolve between 0.4 and 0.5.



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