

# **DISCUS**

# **Quantitative Managed Futures Program**

All Data as of May 1st, 2012



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# **Philosophy**



## Introduction

#### **CFM Invests in Research, Technology and Risk Management**

CFM's business model is based on in-depth research, state-of-the-art IT infrastructure and experienced risk management.

We invest in applied scientific research and sophisticated information technology systems to extract value across global securities, futures, foreign exchange and options markets. We believe that trading models decay over time and that persistence in building value is only achieved through innovation.

Data - including prices, fundamentals and other metrics - is the raw material for our trading models. We are constantly looking for sources of new data. We invest in IT infrastructure to manage large data streams and systematically implement our trading strategies.

However, human intervention may be necessary. Our Management Board's extensive market experience enables CFM to navigate volatile markets. We have and we will continue to intervene if we deem market conditions unstable. We may reduce overall risk to allow our trading systems to acclimate to regime shifts.



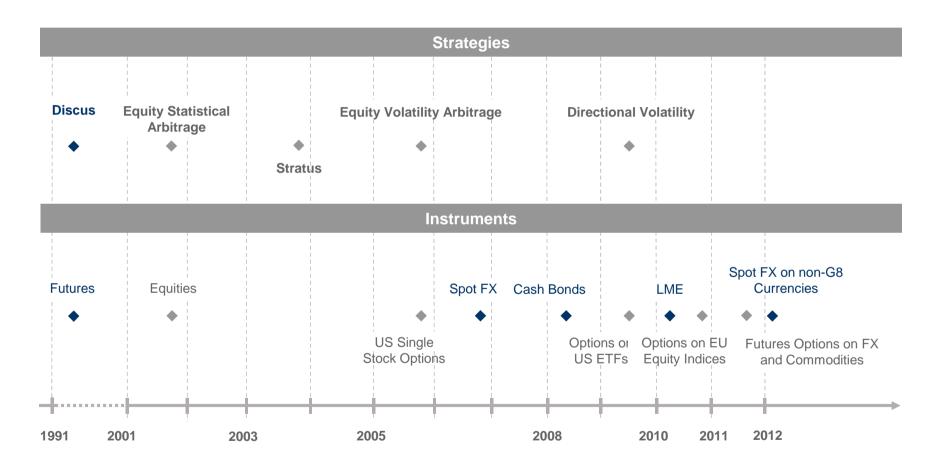
## **CFM**

- Founded in 1991
- US\$ 5.7 billion of notional AUM firm-wide, from institutional investors
   Pension Funds, Endowments, Foundations, Funds of Funds, Insurance Companies, Family Offices
- International team of 123 people from 18 countries
- Headquarters in Paris with offices in New York and Tokyo
- Industrial strength Straight-Through-Processing infrastructure
- Top-tier trading counterparties
- Registered with the CFTC, the SEC in the US, the AMF in France
- A member of the group is registered with the Japanese FSA
- Member of the Alternative Investment Management Association (AIMA) and the Hedge Fund Standards Board (HFSB)



# **Timeline of Strategy Launches**

## **Experienced Implementation of Quantitative and Systematic Research**



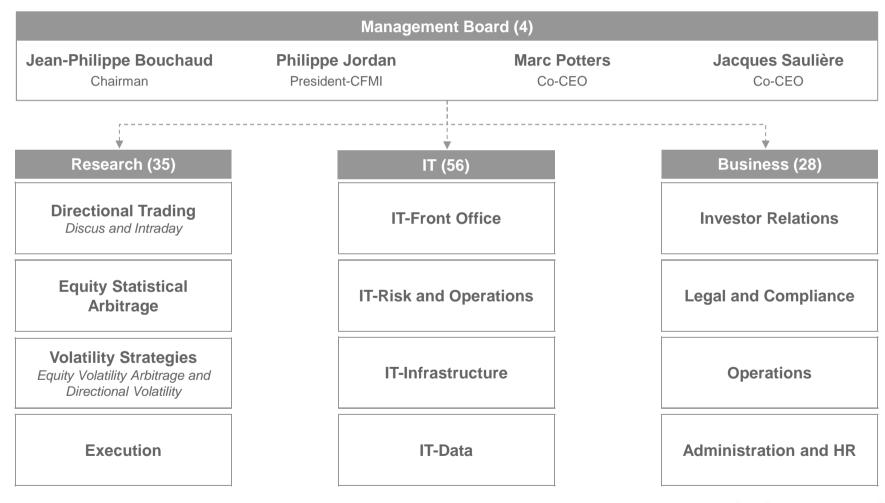


# People



## **Organizational Chart**

### Structured Team with a Wide Range of Expertise and Know-how





## **Management Board Biographies**

#### Jean-Philippe Bouchaud - Chairman

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 founding 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 – Co-CEO**

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).

#### Philippe Jordan - President

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.

#### Jacques Saulière - Co-CEO

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).



## **Strategy Heads Biographies**

#### Philip Seager – Head of Directional Strategies

Dr. Seager leads the Directional Trading group, having a global overview of the Discus program and the directional intraday portfolio within Stratus.

He joined CFM in August 2000.

Prior to joining CFM, Dr. Seager obtained a two-year European Fellowship to work at the Commissariat à l'Energie Atomique ("CEA") in Saclay (France), working on a search for the charged Higgs boson with the ALEPH detector using the LEP collider at the European Centre for Nuclear Research ("CERN") in Geneva (Switzerland). It is through his work at the CEA that Dr. Seager became acquainted with Dr. Bouchaud and subsequently joined CFM to start a high frequency trading program. Dr. Seager obtained his Ph.D. in 1998 from Lancaster University (UK).

#### Olivier Guedj – Deputy Portfolio Manager

Mr. Guedj is Deputy Portfolio Manager for the Discus program.

He joined CFM in July 2005.

Mr. Guedj is a graduate in Scientific Management from the Ecole des Mines de Paris (France). During his studies, Mr. Guedj worked on an array of subjects ranging from bio-organic fertilization technology in China to statistical research on fundamental equity models.

#### Julien Kockelkoren – Head of Execution

Dr. Kockelkoren leads the Execution group, overseeing a team of researchers responsible for executing the trades generated by CFM's proprietary trading models. The team is transversal in nature and seeks to minimize cost for instruments such as futures, FX, fixed income, equity and options.

Dr. Kockelkoren joined CFM in September 2003.

Prior to joining CFM, Dr. Kockelkoren obtained a Post-Doctoral position at the University of California San Diego working on theoretical biophysics. He obtained his Ph.D. in Theoretical Physics at the Commissariat à l'Energie Atomique ("CEA") in Saclay (France) working in the field of out-of-equilibrium statistical physics.



## **Process**



## **Overview**

Discus, launched in 1991, is a short-term CTA that is statistical, quantitative and systematic in nature.

The trading and risk models are developed, tested and validated using CFM's extensive proprietary tools. Discus operates on a short-term trading cycle during which systems are fed with up-to-date historical data; signals are generated, aggregated and transformed into what Discus' models determine is the optimal portfolio, given risk constraints.

Risk and predictive signals are therefore continuously re-assessed and positions are taken in order to deliver a targeted volatility at the portfolio level. Trades are executed throughout the day using proprietary algorithms that take into account slippage, market impact and order book information to detect effects related to microstructure.

A dedicated team monitors processes and limits.

All trading activity is conducted electronically, using CFM's proprietary Straight-Through-Processing platform.



## **IT Platform**

## A Team of Senior and Experienced Engineers from Leading IT Companies

#### **Industrial Strength STP Network**

- 7 redundant data centers: Paris New York Frankfurt Tokyo (3 main centers in Paris and 4 satellite)
- 500 kW of total power capacity
- All key data centers are ANSI/TIA-942 Tier 3+/4:
  - ✓ Cooling equipment independently dual powered
  - ✓ Fault tolerant infrastructure 99.995% availability (i.e. 26 min/year)
- Dark fibers (for network independence and low latency)
- 1,000+ servers
- Redundancy measures implemented at all levels (power/cooling/network...)
- 24/7 monitoring

#### **Data Processing**

- Extensive historical dataset
- Broad range of data types
- Multi-source for reliability, quality and to limit third party risk
- Library of about 600,000 instruments and order books
- Apx. 3.5 terabytes of data stored per day

## Key Focus

- Handling of massive dataflow
- Performance of simulation environment
- Network independence
- Mitigation of operational risks
- Redundancy issues
- Lower time-to-production





## **IT Platform**

## **High Performance IT Platform from Execution to Research**

# CFM's Latency Profile for Execution Latency Insensitive 100 ms Moderate Latency <10 ms Low Latency <5 ms Extreme Low Latency <1 ms High-Frequency Broker/Dealers Ultimate Low Latency <100 μs

#### **HPC\*** Cluster for Research

- "Cloud" model
- Distributed file system
- Infiniband
- Number of orders sent to each simulation: 10+ million/sec
- Fully scalable



<sup>\*</sup> High Performance Computing

## **Model Construction**

## A Rational Process that Promotes Robust Trading Algorithms

#### **IDEA GENERATION**

#### **PRODUCTION**

#### **MONITORING**

- Data-based statistical research
- Simulation of alpha/cost
- New model proposal (rational, heuristic and statistical validation)
- Correlation analysis to existing models
- Evaluated by Strategy Head (accept/reject)
- Rewritten and thus independently verified by another researcher

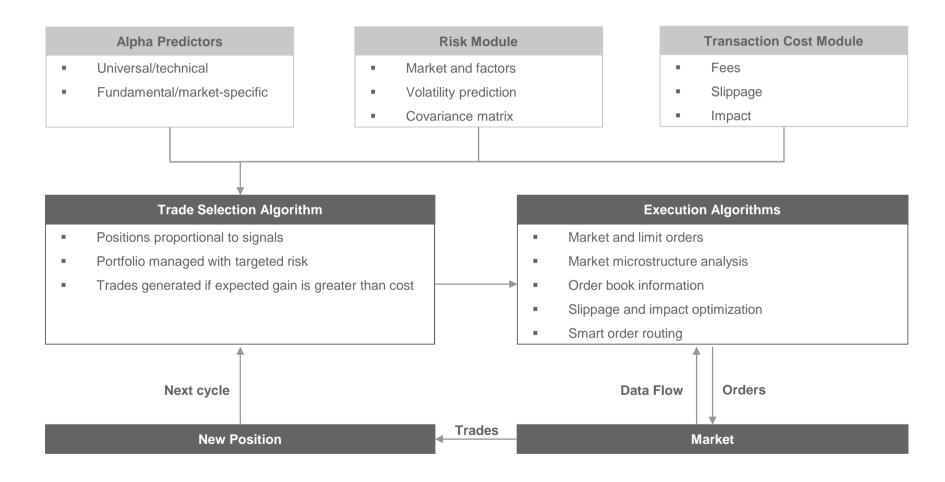
- Presented to Research Committee (accept/reject)
- Presented to Investment Committee
   for risk contribution (accept/reject)
- Coded for production
- Small initial allocation

- Full allocation set on equi-VaR basis adjusted for capacity/frequency
- Monthly review of performance, behaviour and environmental dynamics



# **Trading Cycle**

## A 5-Minute Systematic Feedback Loop: Signals – Risk – Execution



# **Monitoring**

### Real-Time Data Shared across the Firm, which Promotes a Healthy Risk Culture



By clicking: breakdown by contract

Global ( <u>details</u> )										
	Net Exp		Gross Exp	Buy	Sell	Long Pos	Short Pos	Perf	MTD (gross)	YTD (gros:
■ Bonds	2.70		2.98	7,566	-10,049	37,123	-1,373	-0.18 %	-0.18 %	-0.29 %
	close		last							
10USNOTE (Mar-2012)	132.25	4	131.97	627	0	7,292	0	-0.11 %	-0.11 %	0.19 %
10YCAN (Mar-2012)	134.57	~	134.32	10	-15	100	O	-0.00 %	-0.00 %	0.00 %
2USNOTES (Mar-2012)	110.38	-	110.38	97	0	1,136	0	-0.00 %	-0.00 %	0.00 %
5USNOTES (Mar-2012)	124.05	7	124.00	314	-3,544	107	0	-0.01 %	-0.01 %	0.06 %
AUS10YR (Mar-2012)	96.23	7	96.27	0	-765	905	0	0.04 %	0.04 %	0.04 %
AUS3YR (Mar-2012)	96.86	7	96.89	0	-36	8,964	0	0.05 %	0.05 %	-0.08 %
BOBL (Mar-2012)	125.62	~	125.37	1,301	0	2,256	0	-0.03 %	-0.03 %	0.03 %
BUND (Mar-2012)	139 72		139.00	2 156	0	3 737	0	-0 14 %	-0 14 %	-0.05 %



## **Risk Framework**

## **Multi-Level Comprehensive Risk Framework**

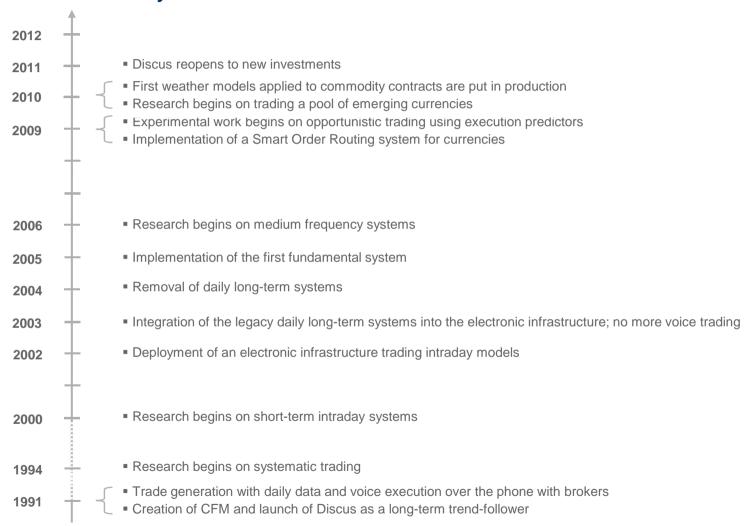
- Algorithmic risk control constrains exposure at the portfolio and sector level
- Operational risk systems monitor the 150+ processes that control our trading books
- The risk team, which reports directly to the Management Board, develops independent risk tools and statistical estimates
- The Management Board has discretionary authority to reduce portfolio risk. A few examples of this were: 9/11, London bombings, Quant Crunch and Lehman Brothers' bankruptcy
- Our efforts to identify and control risk are an on-going and evolving process



# **Portfolio**



## **Research History**



#### **Overview**

Discus benefits from CFM's market experience, research and execution knowledge in directional trading accumulated over the past 20 years.

Discus' investment philosophy is to systematically apply a wide collection of orthogonal statistical modeling approaches to a broad range of liquid and electronically tradable global financial and commodity futures, currencies and LME forward contracts.

Discus' investment objective is to achieve consistent positive returns, in multiple market conditions, whilst seeking to generate diversified alpha. However there are significant challenges and risks associated with this objective and we continue to invest in our infrastructure in order to address these as best as we can.



## **Strategy**

- Short-term directional trades on a large pool of electronically tradable futures and foreign exchange
- Multiple time scales from 2 days to 3 months
- 6-day average turnover, resulting in about 3,500 round turns per year per US\$ 1 million
- 30 model clusters broken down into 2 types:
  - ✓ Technical/universal, including trend following and mean reversion (10)
  - ✓ Fundamental/market-specific (20)



#### **Instruments**

- Connections to major international futures exchanges and electronic trading platforms:
  - ✓ Discus benefits from memberships of CME, Eurex and NYSE Euronext markets
- Universe of 200 individual futures contracts including back months
- Exposure to price delta on:
  - √ Government bonds
  - ✓ Short Term Interest Rates
  - ✓ Currencies: 17 FX pairs spot, forward, or futures
  - √ Stock indices
  - ✓ Commodities: grains, base metals, precious metals, energies, softs, meats
- Dynamic addition of new contracts:
  - √ 15% increase in traded contracts over the last 2 years
  - √ 20% expected increase to 250+ contracts by Q4 2012: expansion of currencies to G25, addition of new stock indices and new commodities



## **Algorithmic Risk Management**

- Portfolio managed to a volatility target
- Real-time portfolio risk estimate based on fast volatility prediction per market and slow covariance matrix estimator
- Automatic cut-off to reject trades that exceed the maximum risk allowed per sector and/or at the portfolio level
- Portfolio leverage adjusted dynamically to constrain the average risk level



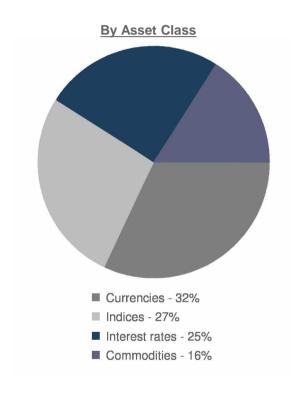
## **Trading Activity**

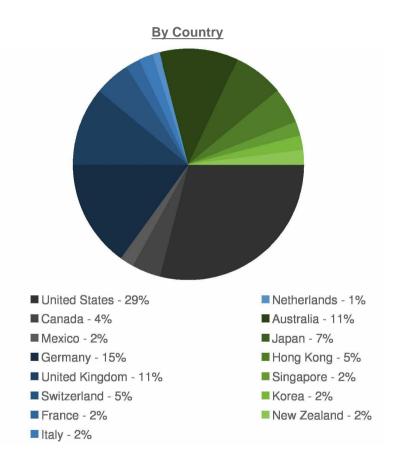
- Dynamic positions evolve due to signals, market volatility and other risk constraints
- Continuously in position on any given contract
- Apx. gross daily volumes:
  - √ 50,000 futures contracts
  - ✓ US\$ 1 billion of spot FX



**Realized Risk** 

Average over a 12-month period







#### **Discus' Historical Returns**

#### **Yearly Returns Since Inception**

Monthly Returns for the Last 10 Years
---------------------------------------

1991	64.7
1992	-0.9
1993	26.8
1994	-2.5
1995	-19.8
1996	25.0
1997	44.8
1998	28.7
1999	10.1
2000	17.6
2001	-5.4

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
2002	-4.47	-0.38	-1.72	-1.91	2.59	4.22	13.40	-1.96	2.54	-5.08	-0.85	5.45	10.98
2003	3.09	3.29	1.73	5.51	7.28	1.87	-3.81	-3.04	-2.25	-1.01	-0.53	1.79	14.13
2004	-0.92	0.79	-1.63	-3.63	0.25	-1.02	-1.01	3.67	-0.73	0.89	2.50	1.10	0.04
2005	-3.31	4.22	-2.09	3.53	1.68	5.91	0.82	5.00	4.45	4.98	5.54	-1.66	32.54
2006	3.57	-0.45	3.54	1.40	-0.03	2.44	-2.16	-2.03	0.37	2.99	-0.63	0.89	10.12
2007	1.38	-1.89	0.12	2.51	1.57	2.23	-1.14	1.41	3.30	5.68	6.49	-1.06	22.01
2008	1.10	1.62	0.42	1.72	2.62	1.89	-1.42	-4.71	-2.44	8.63	4.06	-0.89	12.66
2009	1.82	0.46	1.27	-7.24	6.62	-0.91	5.26	-0.31	2.01	-0.29	-0.03	-5.04	2.86
2010	-2.10	-0.70	4.23	1.94	3.50	-3.18	-3.08	-3.64	-0.94	-0.08	-2.56	0.09	-6.68
2011	1.99	0.96	1.29	6.94	0.15	-4.57	6.69	4.23	4.17	-2.12	1.21	-0.31	21.95
2012	1.84	0.71	-7.97	-4.00									-9.39

Prior to December 2007, all Discus figures are based on the Discus Composite program in single leverage, which includes the funds and managed accounts traded according to the Discus program. The composite is calculated net of fees and includes pro-forma interest income. The composite excludes the performance of Discus Master Limited for the months of August and September 2007, as this fund was affected by the bankruptcy of Sentinel Management Group, Inc. Neither the AUM nor the composite performance of the Discus Program include the directional trading component of the Stratus program, which follows a similar strategy to that of Discus.

Since December 2007, all Discus performance figures are based on the official NAV of Discus Feeder Ltd – Class B US\$ Standard Leverage.

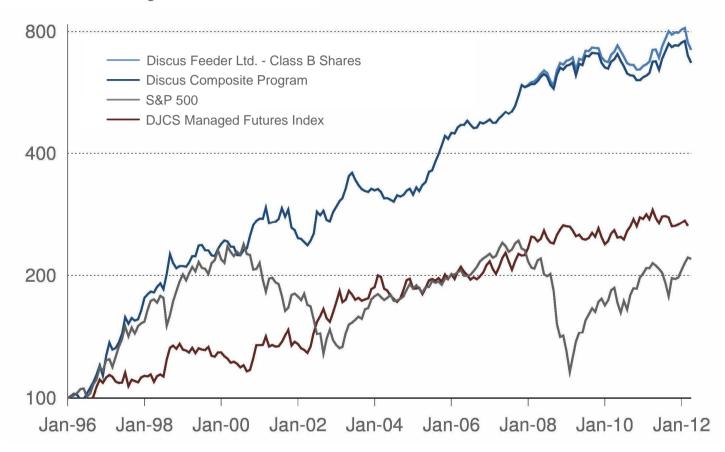
As CFM is a 4.7 exempt CTA and as all Discus funds are CPO exempt, performance figures are not required to be calculated in accordance with the NFA rule 2-34 and related guidelines.

Past performance is not a guarantee of future results.



## Discus' Cumulative Returns (January 1996 – April 2012)

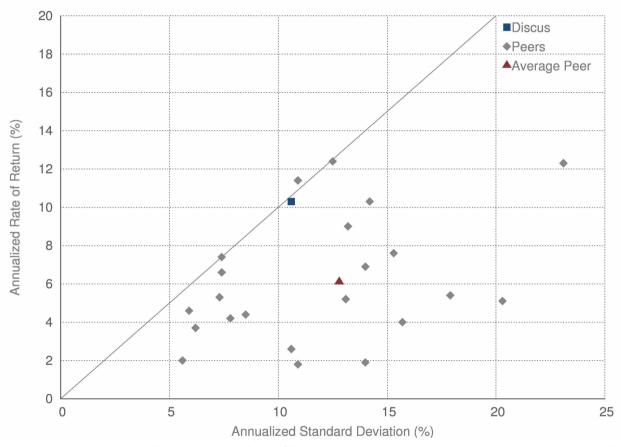
Correlation with DJCS Managed Futures Index ~ 50 %



Past performance is not a guarantee of future results.



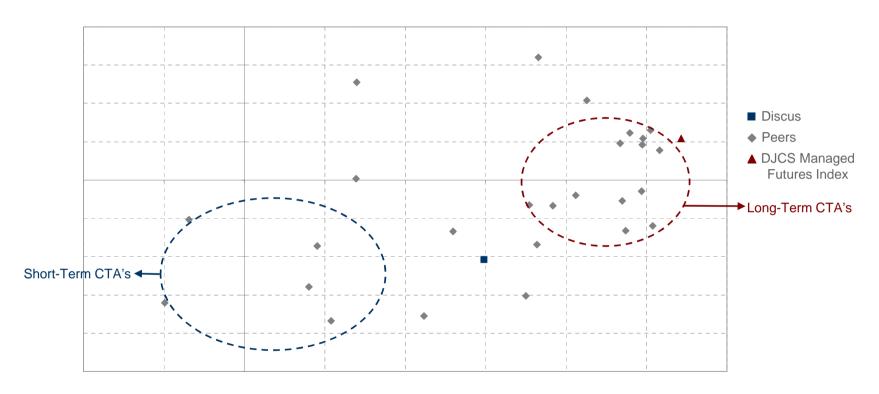
## Risk-Adjusted Performance Compared to Peers (January 2004 – April 2012)



The peer group is composed of the flagship funds of 20+ CTAs that we believe are relevant and representative. This group is not meant to be exhaustive and is not a representation of the entire industry.



## Discus Peer Group Principal Component Analysis (January 2004 – November 2011)



We took a selection of the flagship funds of 20+ Discus peers, the DJCS Managed futures Index and Discus and built the corresponding correlation matrix. These 20+ peers were chosen to be representative of the industry but the list is not meant to be exhaustive.

We diagonalized the matrix, took the largest two eigenvectors and projected the corresponding eigenvectors into a plane. The largest two eigenvalues explain 50% of the total variance. Each point corresponds to a separate manager or product and the technique is used to show the existence of clusters.

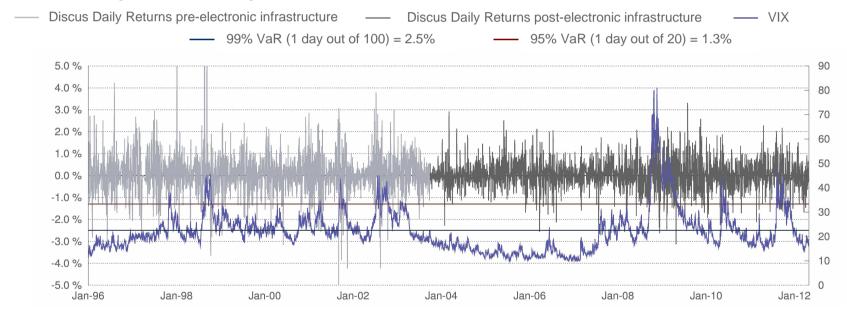


## Risk Profile

#### Discus' Risk & Return

	Objectives	Realized*	•	1-yea	r Horizon Drawdown with Daily Data
Annualized Return:	14.0%	13.0%		$\checkmark$	Worst, Most Probable: 8%
Sharpe Ratio:	1.0	0.8		$\checkmark$	Worst, 95% Confidence: 21%
Volatility:	14.0%	12.9%		1-yea	r Horizon Drawdown with Monthly Data
Daily 99% VaR:	2.5%			$\checkmark$	Worst, 95% Confidence: 18%

## **Discus' Daily Returns Analysis\*\***



<sup>\*</sup> Discus Composite since January 1996; \*\* based on estimated gross daily returns of the Discus Composite program since January 1996.

#### Past performance is not a guarantee of future results.



# **Partnership**



## **Investment Vehicles**

#### **BVI Fund**

Incorporated: British Virgin Islands

Trading Advisor: Capital Fund Management S.A.

Administrator: HSBC Securities Services (Ireland) Limited

Auditor: KPMG, Dublin

• Liquidity: Monthly

Notice period: 3 business days for subscriptions, by the 15<sup>th</sup> day of the month for redemptions

Share classes: Standard or double leverage, US\$ or EUR or JPY

Min. subscription: US\$ 1 million

Managed Accounts: Available upon request

#### **Fees**

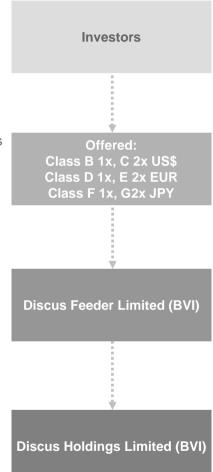
Management Fees: 2% p.a. of the Trading Level

Incentive Fees: 25% quarterly

Carry Forward Loss: Yes

#### Reporting

NAV Report: Monthly
 Management Report: Monthly
 Track Record: Monthly
 Quarterly Report: Quarterly
 Audited Financials: Yearly

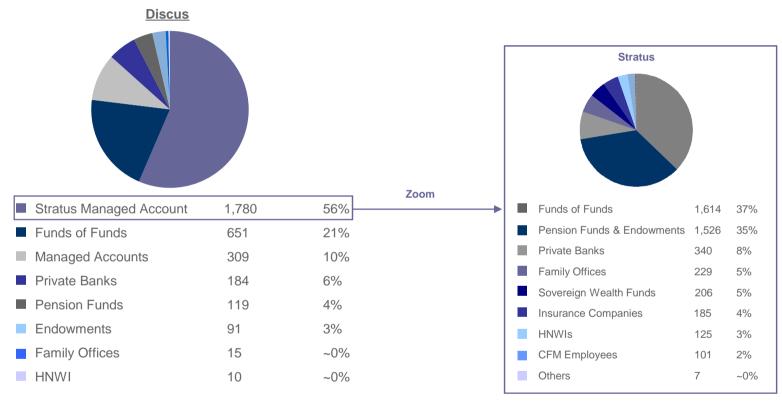




# **Investor Base by Investor Type**

## Discus currently manages US\$ 3.2 billion of assets

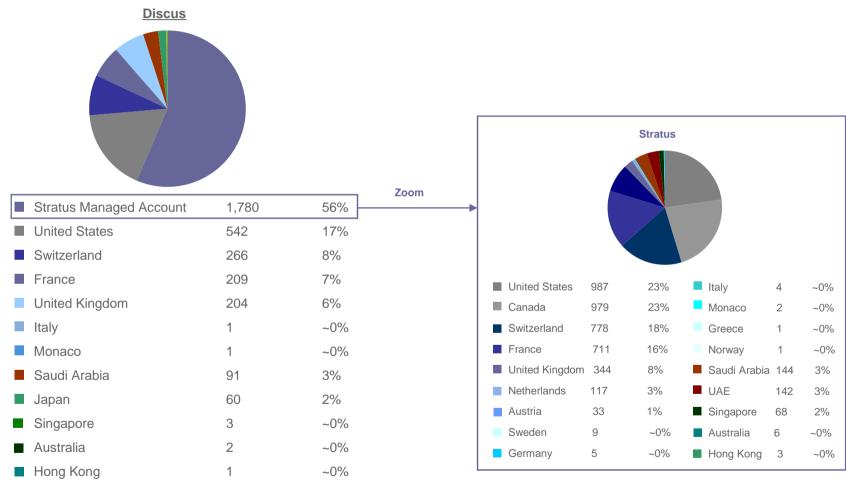
CFM manages US\$ 5.7 billion of assets firm-wide



## **Decision Makers by Country\***

## Discus currently manages US\$ 3.2 billion of assets

CFM manages US\$ 5.7 billion of assets firm-wide



All AUM figures in US\$ million. \* Country of the contracting investor may be different from that of the decision maker



## **Contact Details**

**Paris** 

Capital Fund Management S.A.

6-8, boulevard Haussmann

75009 Paris, France

Tel: +33 1 49 49 59 49

Fax: +33 1 47 70 17 40

Web: www.cfm.fr

**New York** 

CFM International Inc.

The Chrysler Building

405 Lexington Avenue – 55<sup>th</sup> Floor

New York, NY, 10174, USA

Tel: +1 646 957 8018

Fax: +1 646 957 8019

**Tokyo** 

CFM Asia K.K.

9F Marunouchi Building

2-4-1, Marunouchi, Chiyoda-Ku

100-6309 Tokyo, Japan

Tel: +81 3 5219 6180

Fax: +81 3 5219 6185

#### **Investor Relations**

Tel: +33 1 49 49 59 02

Fax: +33 1 47 70 17 40

E-Mail: cfm@cfm.fr

## Recruiting

Tel: +33 1 49 49 59 04

Fax: +33 1 47 70 17 40

E-Mail: recrut@cfm.fr



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