

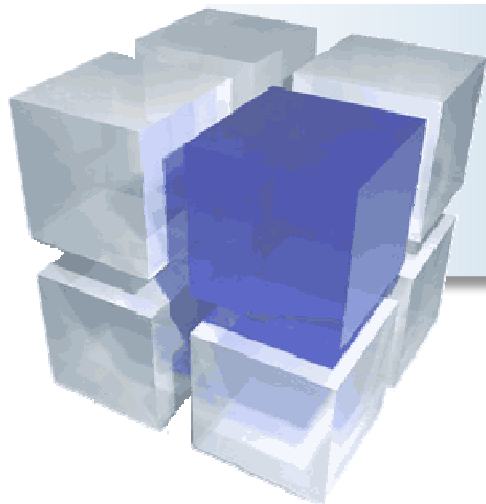


**Single Strategy**  
*Statistical Arbitrage*

# **AlphaSquare**

**Systematic Equity Trading**

General Presentation



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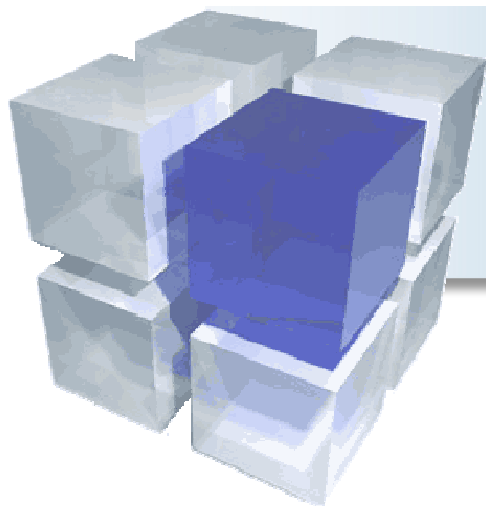
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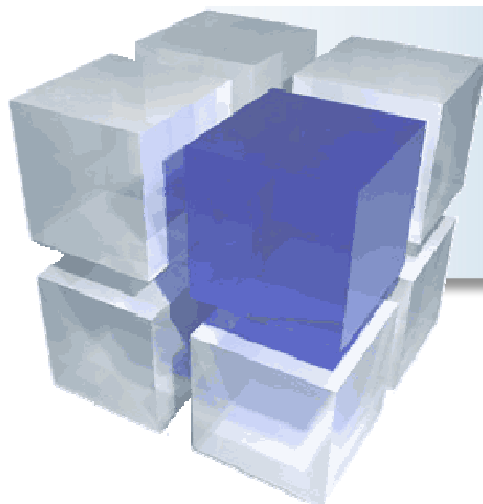
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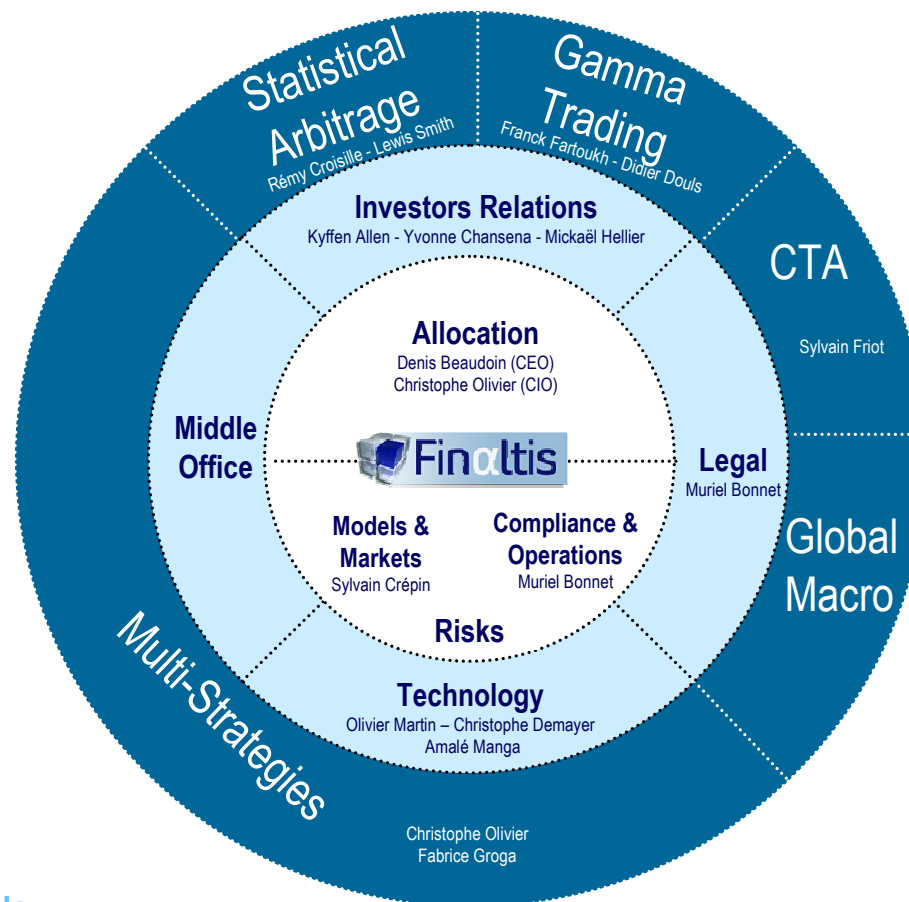
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# I. The Fund Within Finaltis

*Finaltis: an independent asset manager, organised around a central control platform*

- 1. Finaltis
- 2. AlphaSquare's Fund Managers



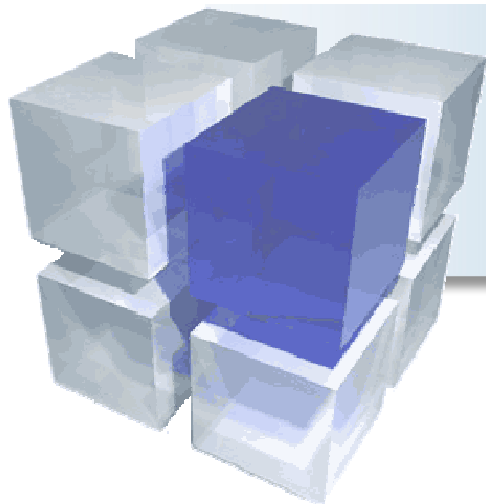
## Finaltis

- ▶ Established in June 2001
- ▶ Regulated by the *Autorité des Marchés Financiers*
- ▶ 16 investment professionals, including 7 fund managers

**Finaltis**

## Assets & Funds

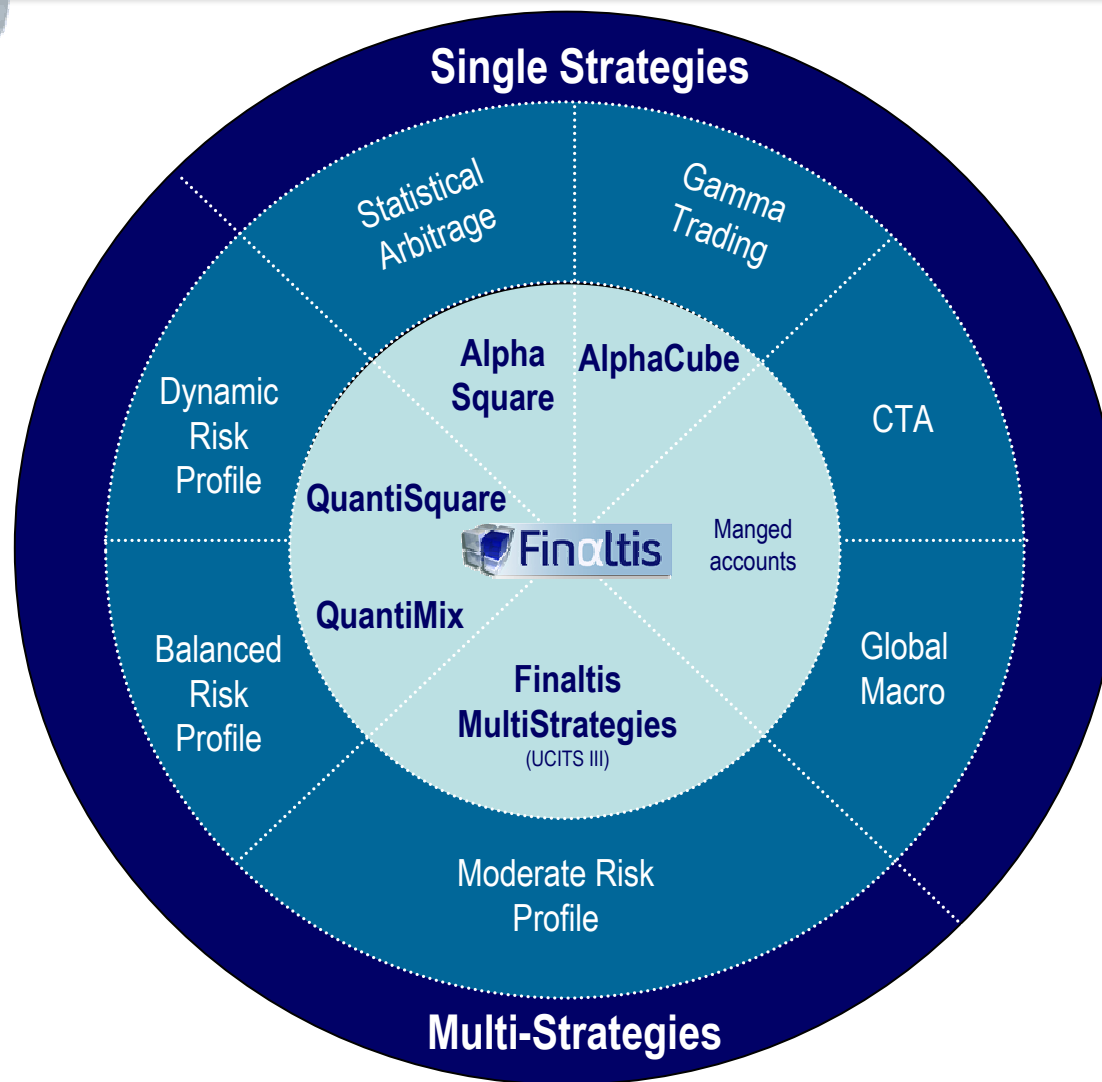
- ▶ AuM of € 300 million
- ▶ Inhouse trading and research + selection of outsourced resources

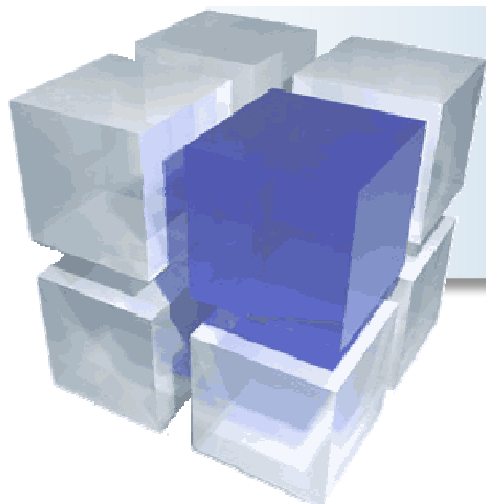


# I. The Fund Within Finaltis

*A range of 2 specialised and 3 diversified funds with daily or weekly liquidity*

- 1. Finaltis
- 2. AlphaSquare's Fund Managers





# I. The Fund Within Finaltis

## *AlphaSquare's Fund Managers*

- 1. Finaltis
- 2. AlphaSquare's Fund Managers

### ▶ A Quantitative Analyst with trading experience

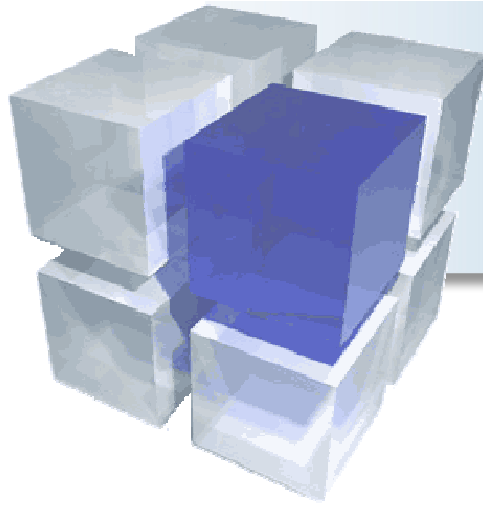


Rémy Croisille (dob: 24/02/64): Rémy has a strong mathematical background. He is a graduate in mathematics from the Ecole Normale Supérieure d'Ulm (among top academic institutions in France) and holds post graduate degrees in mathematics and financial statistics (DEA). He also taught mathematics for over 10 years at various universities. Before joining Finaltis in May 2005, Rémy created a statistical arbitrage fund and developed a credit equity model for Equalt (Calyon). Previously, he was head of Alternative Risk Transfer at Banque C.P.R and worked in the fixed income research teams of BNP Paribas.

### ▶ A Trader with modelling experience



Lewis Smith (dob: 29/12/69): Lewis has a strong trading background (since 1994) at Bank of America (formerly Nations Bank), and Banque C.P.R in convertible bonds, equities derivative products (listed rights and options), both as a market maker and a proprietary trader. He also worked at Equalt (Calyon), where he managed a statistical arbitrage European Equity Fund. He coordinated the trading and risk management systems and implemented STP (Straight Through Processing). Lewis holds a BSc Honours degree in Economics and Statistics from Bristol University.



## II. Investment Universe

### *Building a Market Neutral Portfolio*

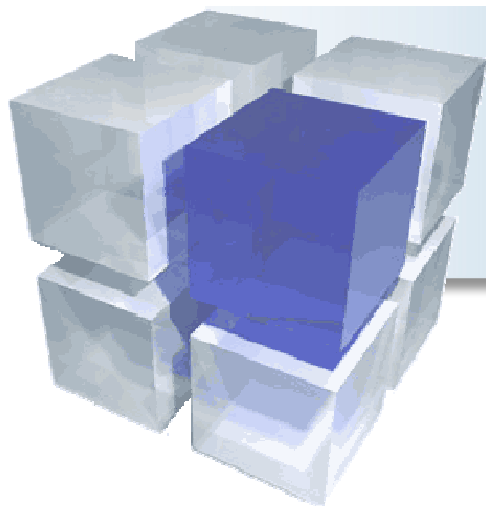
- 1. Managing a market neutral portfolio
- 2. Regional exposure
- 3. Market cap & liquidity

#### ▶ From Qualitative Inputs to Back-testing

- A universe of approximately 1000 eligible stocks is built on the basis of liquidity, market cap, borrow availability and debt to market cap ratio.
- Stocks are grouped into around 250 pertinent baskets manually by their sector classification, company description, market cap, currency, regional exposure, historical volatility and company website. Holdings and conglomerates are generally excluded.
- Baskets are then evaluated via back-testing on the basis of risk/reward to produce around 125 “active” baskets. This evaluation is reviewed quarterly.

#### ▶ Systematic Position Taking & Execution

- Positions are then taken in strict accordance to the mean-reversion model. Only special situations and M&A justify deviating from the model.
- The resulting portfolio is:
  - Diversified (around 300 positions)
  - Around 125 \$-neutral & un-correlated baskets
  - Beta & market cap neutral due to basket construction
  - Maximum position per stock < 4.5% (of NAV) minimises specific risk
- Execution is 100% automated using DMA\* and in-house algorithms

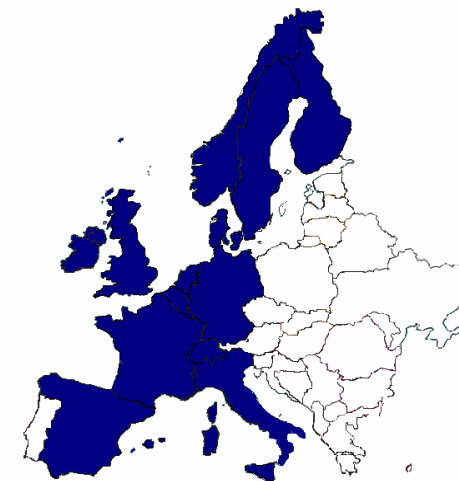


## II. Investment Universe

### *Regional Exposure*

- 1. Managing a market neutral portfolio
- 2. Regional exposure
- 3. Market cap & liquidity

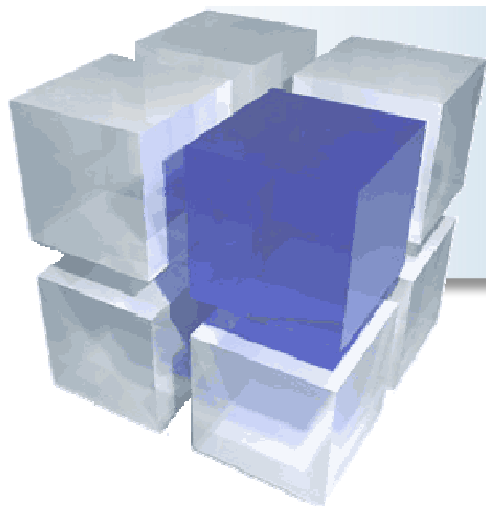
Country	Typical Breakdown
UK	35%
France	10%
Germany	10%
Italy	10%
Switzerland	8%
Sweden	6%
Holland	5%
Norway	5%
Denmark	3%
Belgium	2%
Finland	2%
Ireland	2%
Spain	2%



#### ▶ Selection criteria for stocks:

- Minimum 400 M € Market Cap.
- Minimum 2.5 M € average daily volume
- Stock borrow availability
- Debt / Market Cap ratio & rating





## II. Investment Universe

### Market Cap & Liquidity

- 1. Managing a market neutral portfolio
- 2. Regional Exposure
- 3. Market cap & liquidity

Market Cap Breakdown of Portfolio		
	N° of Stocks	% of Total
< 400 M €	4	2%
400 M - 1 Bn €	25	10%
1 Bn - 3 Bn €	84	33%
> 3 Bn €	144	55%
<b>Total</b>	<b>257</b>	<b>100%</b>

#### Market Cap

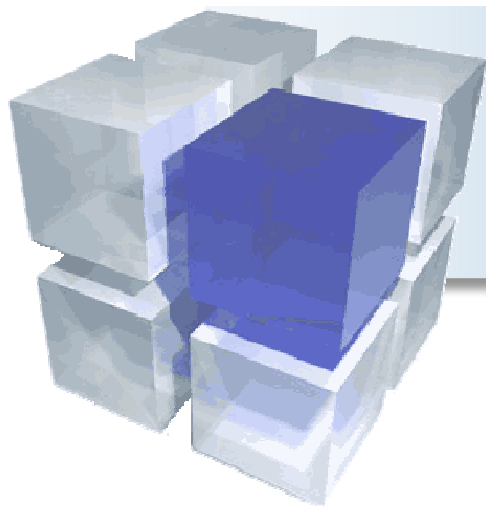
**> 1 Bn € for 88% of stocks in the Fund**

Liquidity Breakdown of Portfolio		
3 Month Average	N° of Stocks	% of Total
< 5 M€	25	10%
5 - 10 M€	25	10%
10 - 50 M€	67	26%
> 50 M€	140	54%
<b>Total</b>	<b>257</b>	<b>100%</b>

#### Average Liquidity

**> 10 M € per day for 80% of stocks in the Fund**

(\*) as of end of May 2008

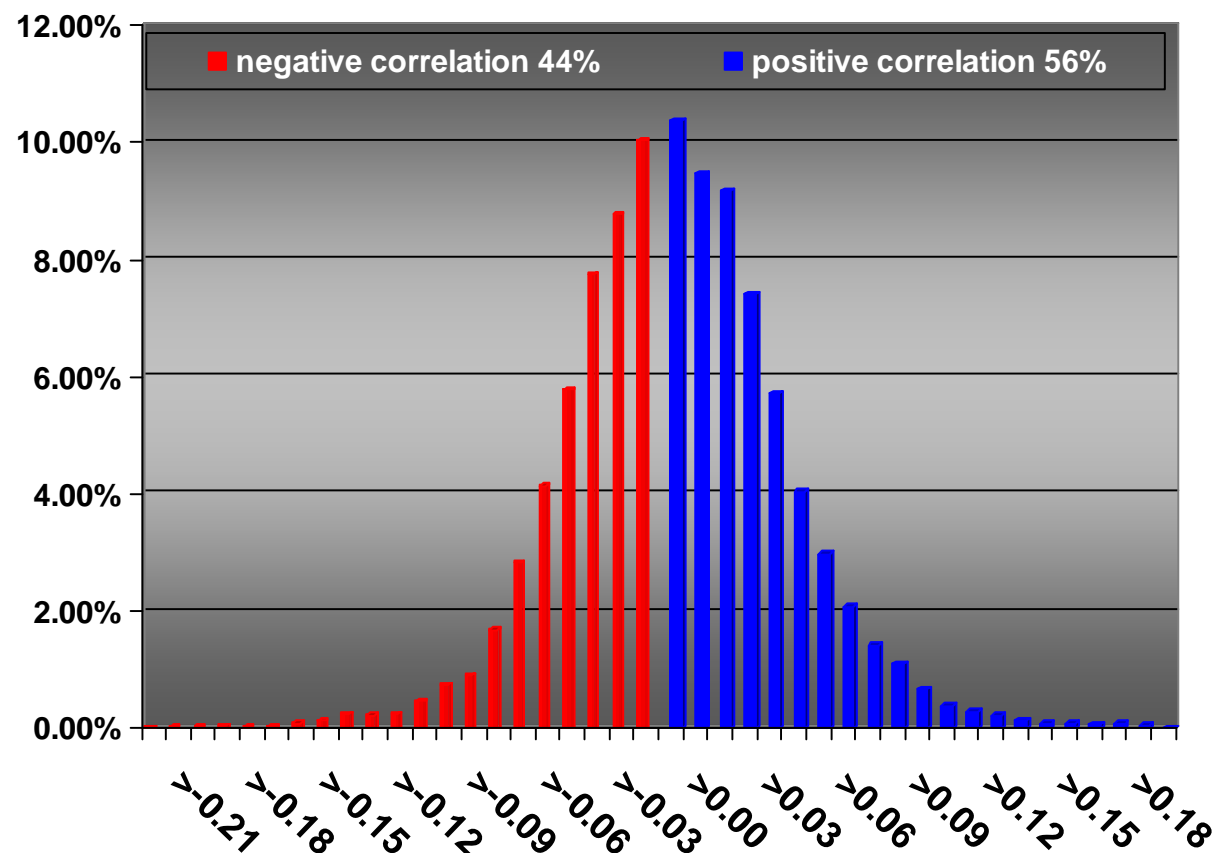


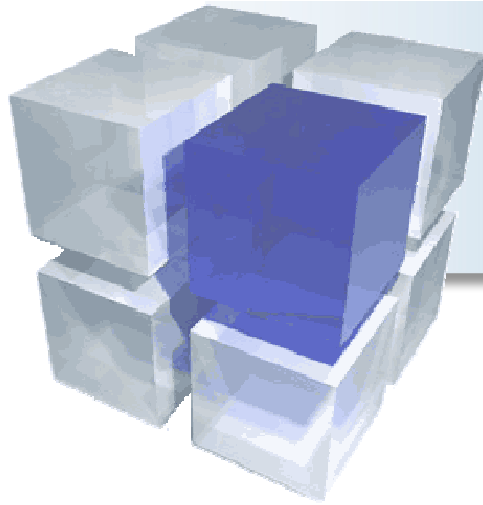
### III. Modelling

#### *Successful Diversification & Correlation*

- ▶ 97.5% of inter-basket P&L correlations fall between -0.10 and 0.10 (current portfolio = 126 baskets, 6 year period, 7875 combinations)

- 1. Successful diversification & correlation
- 2. Back-testing: key to vital improvements
- 3. Vital improvements achieved via quality back-testing





## III. Modelling

### *Back-testing: Key to Vital Improvements*

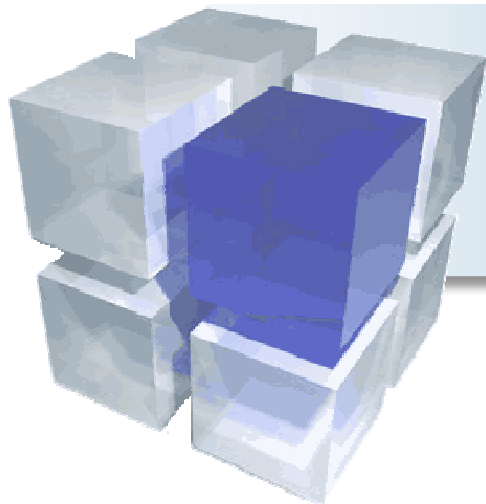
- 1. Successful diversification & correlation
- 2. Back-testing: key to vital improvements
- 3. Vital improvements achieved via quality back-testing

#### ▶ The pitfalls of back-testing

- Unadjusted or poorly adjusted data disturbs back-testing results
- Closing prices are not easily tradable and can incorporate intrinsic mean-reversion (non-synchronised closing time + auction factor)
- The search for profitability inevitably leads to a bias, which disables the predictive capacity of the back-test (“post-optimisation” danger)
- M&A Activity creates a “survivors only” bias: In reality the fund may liquidate a position which is subsequently delisted and removed from its basket

#### ▶ The benefits of back-testing

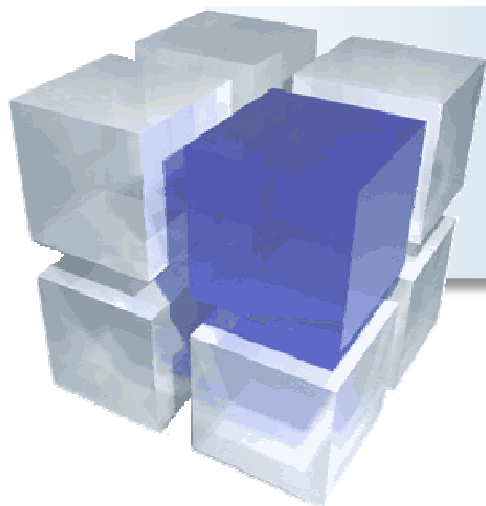
- Measuring slippage and improving execution
- Calibration of risk management (leverage, targeted volatility, ...)
- Basket selection and its allocation
- Blind P&L simulation



### III. Modelling

#### *Vital Improvements Achieved Via Quality Back-Testing*

- 1. Successful diversification & correlation
  - 2. Back-testing: key to vital improvements
  - 3. Vital improvements achieved via quality back-testing
- ▶ Research leads to constant improvements
    - Execution
      - Slippage has been reduced from > 30 bps (2002) to around 9 bps due to an in-house trading engine (100% Direct Market Access)
    - Price Data used for Back-testing
      - First back-tests in 2002 used external data
      - Back-tests now use closing prices adjusted by in-house software
    - A Wider universe of baskets
      - The basket building process has been improved in 2006 enabling us to produce a universe of 250 eligible baskets
      - Although the actual allocation decision is discretionary, systematic allocation methods are used to produce blind back-tests
  - ▶ The heart of the model and its key parameters have never been altered



## IV. Trading

### *Measuring Friction*

- ▶ High turnover levels and use of leverage combined with poor slippage control can easily eradicate profits from a potentially healthy back-test
- ▶ Empirical slippage measurement:

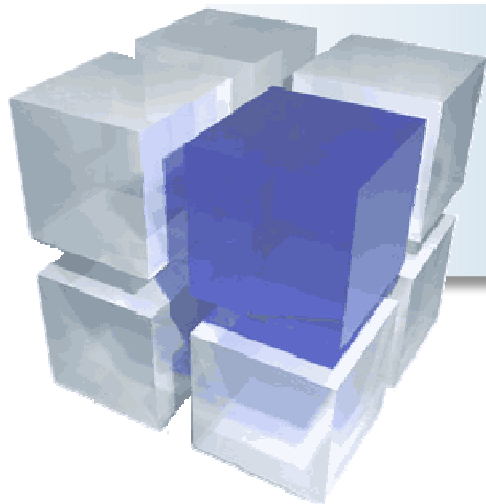
➤ 1. Measuring friction

➤ 2. A virtual trading room

➤ 3. From trading experience to automation

$$\text{slippage (bps)} = \underbrace{(\text{back-tested P\&L} - \text{realised P\&L}) \text{ €}}_{\text{shortfall}} / \underbrace{\text{volume (€)}}_{\text{per € traded}}$$

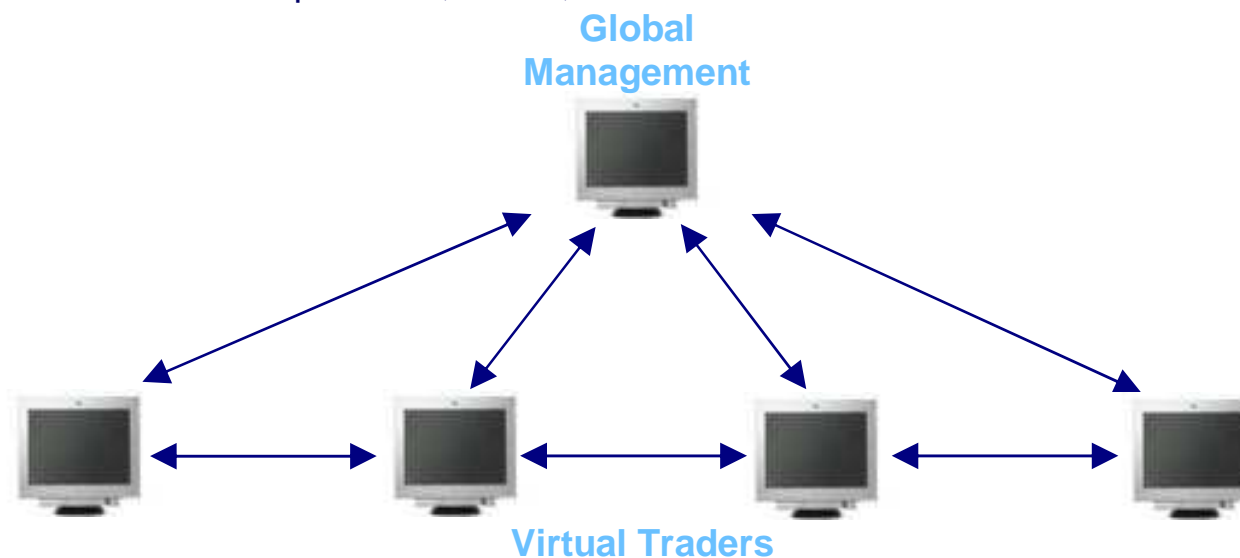
- The result of this calculation over a 12 month period around 10 bps as measured against a close-price back-test
- Translating the per € transaction costs into per NAV costs
- per NAV monthly cost = (per € cost) X daily turnover X leverage X 20 days
- Example: 10bps X 15% X 4 X 20 = 1.20% per month
- A net performance target of 15% p.a. implies average monthly gross returns of 1.58%

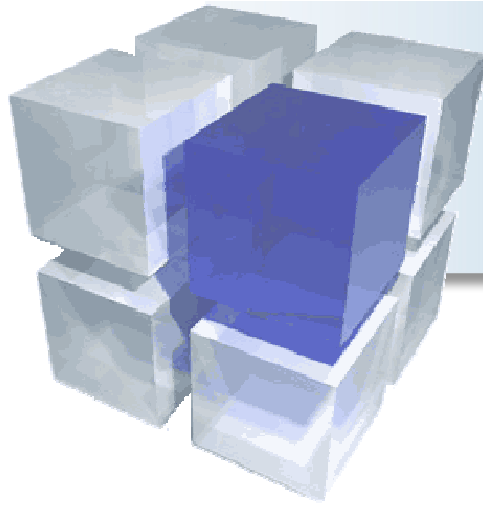


## IV. Trading

### *A Virtual Trading Room*

- 1. Measuring friction
  - 2. A virtual trading room
  - 3. From trading experience to automation
- ▶ Virtual trading room composed of > 50 traders enables slippage to be minimized. Orders are sent in small amounts and frequent intervals
    - Orders sent by virtual traders take into account all previous executions
    - On-going position adjustment to maintain the market neutral position
    - A virtual position manager gives an overall real time summary of all positions, deltas, P&L and execution data



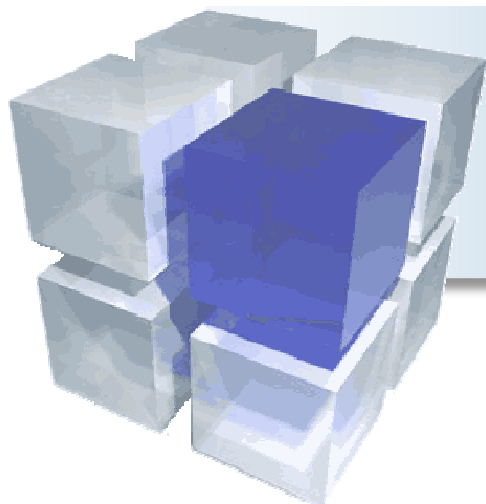


## IV. Trading

### *From Trading Experience to Automation*

#### ► Automated trading rules imitate the behaviour of experienced traders

- 1. Measuring friction
- 2. A virtual trading room
- 3. From trading experience to automation
  - The trading engine takes into account the important events of a trading day (earnings announcements, economic numbers etc.)
  - Systematization of experience supplemented by automation combines the best of both worlds
  - STP (Straight Through Processing) reduces operational risk to a minimum
  - Automatic trading style combined with in-house trading algorithms and Direct Market Access leads to very low brokerage fees



## V. Since Inception: The Story So Far

### *Sensitivity to Market Volatility & Momentum*

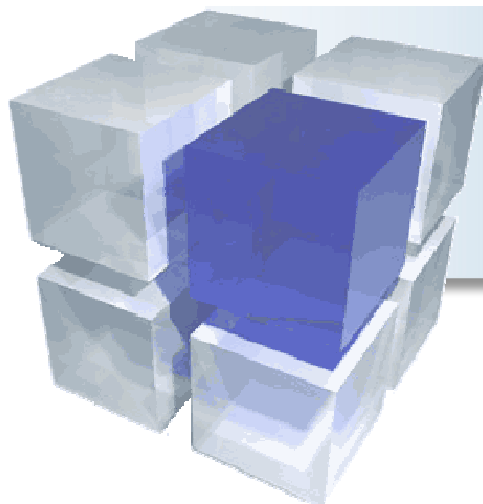
Due to systematic risk control, mean-reversion opportunities are reduced when strong momentum is combined with low volatility

- 1. Sensitivity to market volatility & momentum
- 2. Track record
- 3. 2007: the quant tsunami
- 4. Measuring directional exposure

		Momentum	
		strong	weak
Volatility	weak	Unfavourable	Favourable
	strong	Favourable	Very Favourable

Due to its contrarian nature and its high turnover, the model out-performs its objectives in volatile conditions

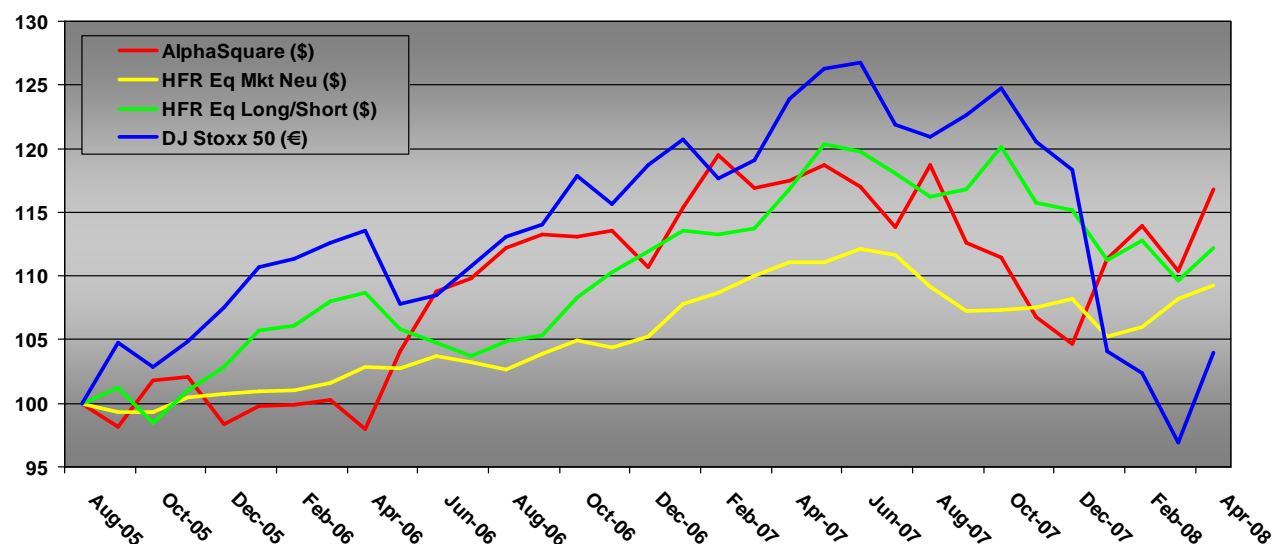




## V. Since Inception: The Story So Far

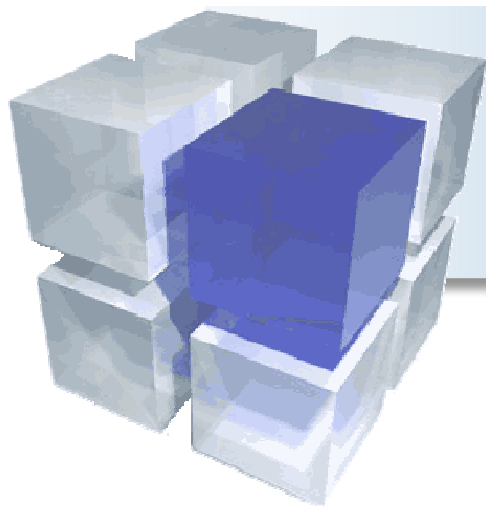
### Track Record: an overview

- 1. Sensitivity to market volatility & momentum
- 2. Track record
- 3. 2007: the quant tsunami
- 4. Measuring directional exposure



	Ann Return	Volatility	Sharpe ( rf: 4.5%)	Correlation to AS
<b>AlphaSquare</b>	<b>6.19%</b>	<b>10.82%</b>	<b>+0.15</b>	
HFR Eq Mkt Neutral	3.34%	3.83%	-0.30	-0.13
HFR Eq Long/Short	5.17%	6.88%	+0.10	-0.11
DJ Stoxx 50	0.79%	12.40%	-0.30	-0.18
S&P 500	5.13%	8.96%	0.07	-0.10

- ▶ Since inception, AlphaSquare has outperformed industry benchmarks in terms of absolute and risk-adjusted returns with zero to negative correlation



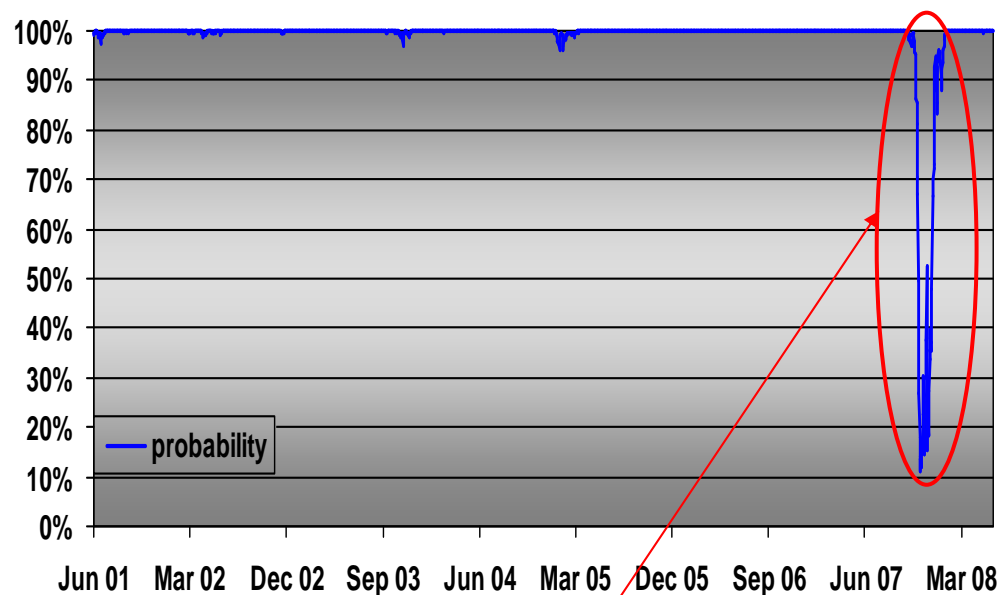
## V. Since Inception: The Story So Far

### 2007: the Quant Tsunami

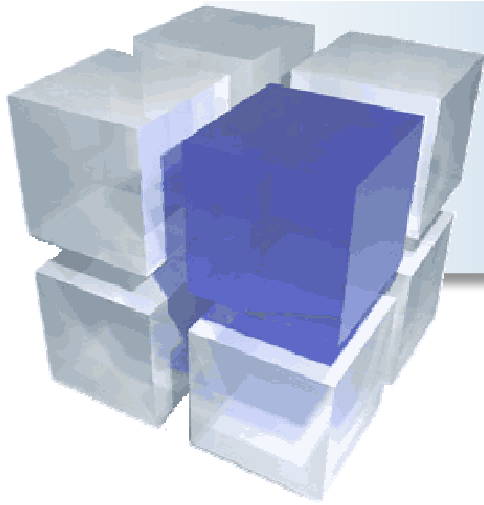
#### ► Constructing a “de-leveraging detection” system

Based on a theoretical back-test, using 180 baskets, where positions are equal to the change in AlphaSquare’s daily position, we calculate the probability with which trades taken randomly using a fair coin (heads => buy, tails => sell) would have been less profitable than the afore-mentioned high frequency model. Each probability is based on a three month period and 180 baskets, which leads to around 10,000 observations. The trade is considered to be profitable or not on a T+1 basis.

- 1. Sensitivity to market volatility & momentum
- 2. Track record
- 3. 2007: the quant tsunami
- 4. Measuring directional exposure



**Mass de-leveraging caused spreads to widen repeatedly across an abnormally large cross-section of baskets (sustained positive auto-correlation)**

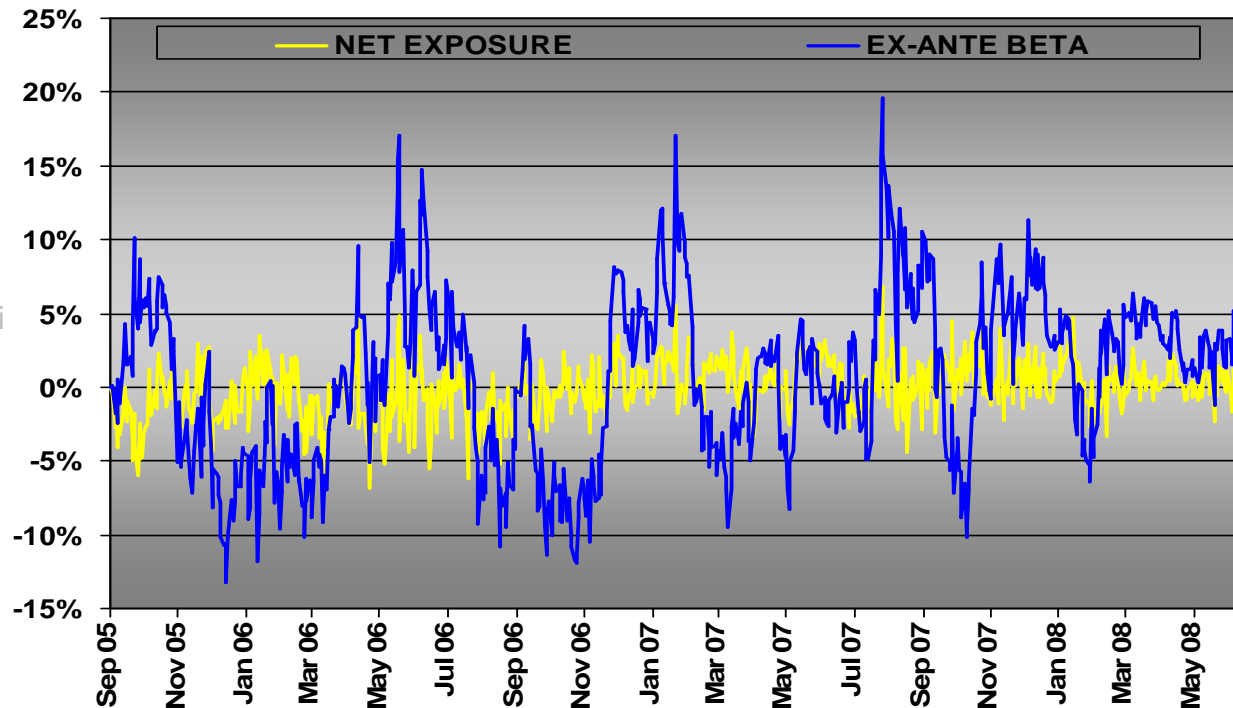


## V. Since Inception: The Story So Far

### *Measuring Directional Exposure*

- ▶ Net Exposure within risk limits + / - 5%
- ▶ Ex-Ante Beta + / -20% (250 day: vs DJ Stoxx 50)

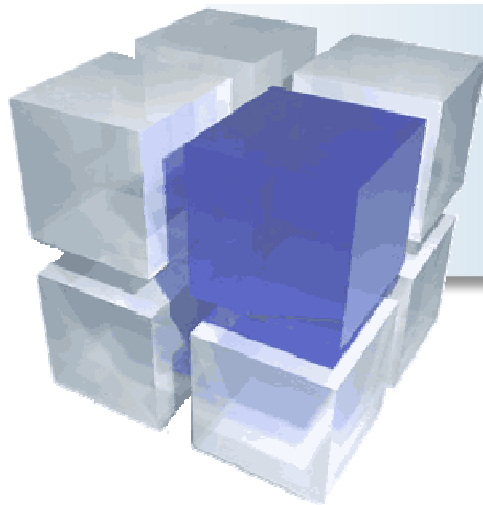
- 1. Track record
- 2. Track record
- 3. 2007: the quant tsunami
- 4. Measuring directional exposure



Source: Finaltis, actual performance data (Sept '05 – May '08)

$$\text{Ex-Ante Beta} = \sum (\text{positions} \times \text{adjusted beta})$$

$$\text{adjusted beta} = \text{raw beta} \times 0.67 + 0.33$$

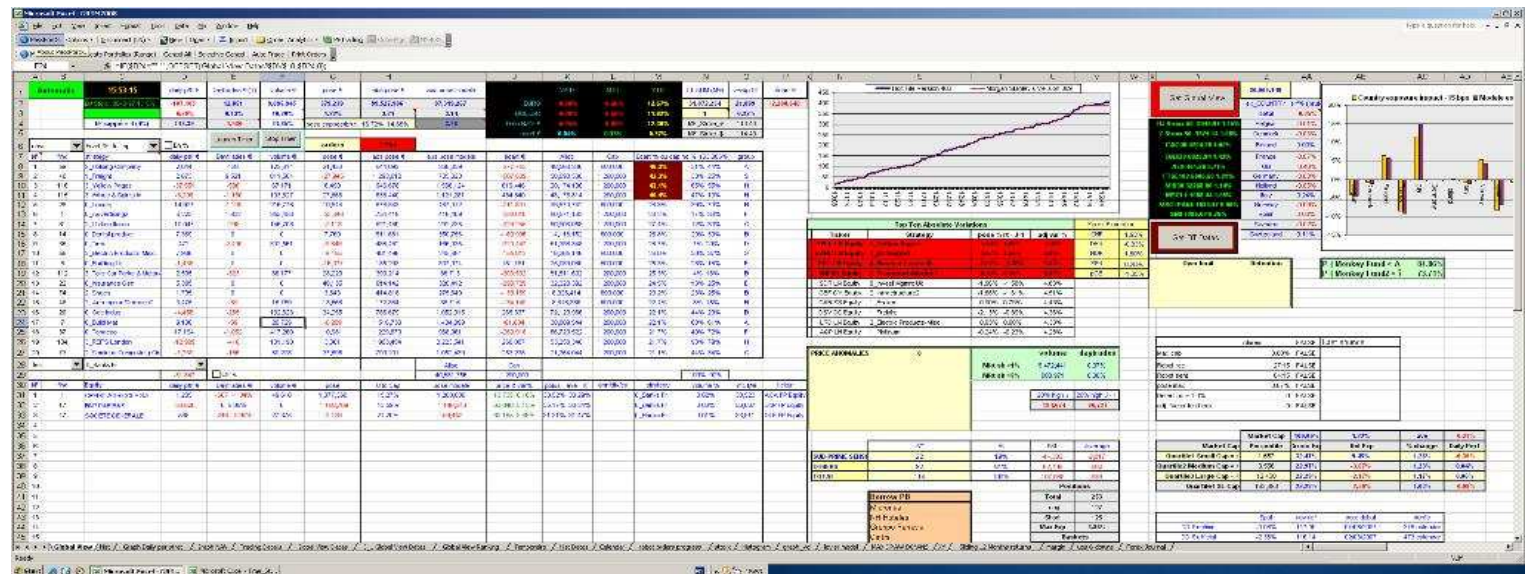


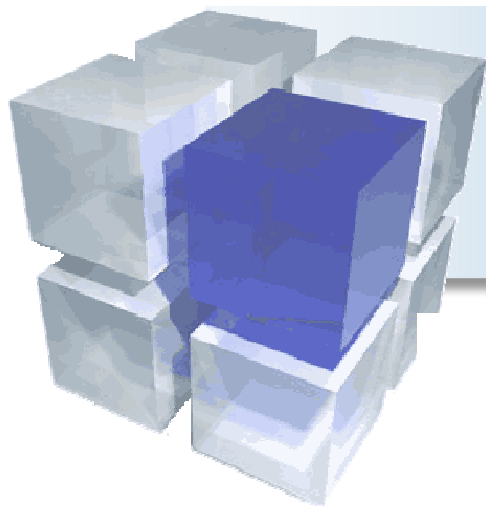
## VI. Risk Management & Control

### At the Fund Management Level

#### ► Real time control by the virtual head of desk of the model

- 1. At the fund management level
  - Real time executions are fed directly into the global monitoring system
  - Problems will be instantly detected by the fund managers via visual and audible alarms from the global monitor
  - A functional model: it eliminates human emotion in risk control while remaining flexible despite its automation by allowing the fund managers to take informed decisions
  - Daily comparisons between the realised and the back-tested P&L
- 2. Independent risk control





## VI. Risk Management & Control

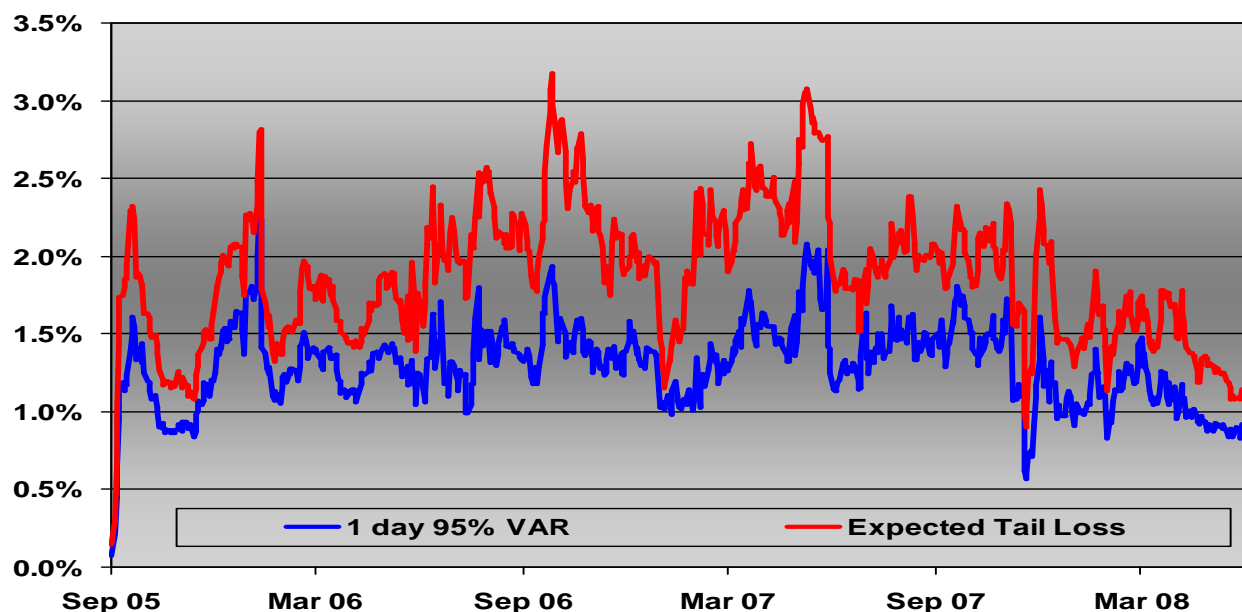
### *Independent Risk Control*

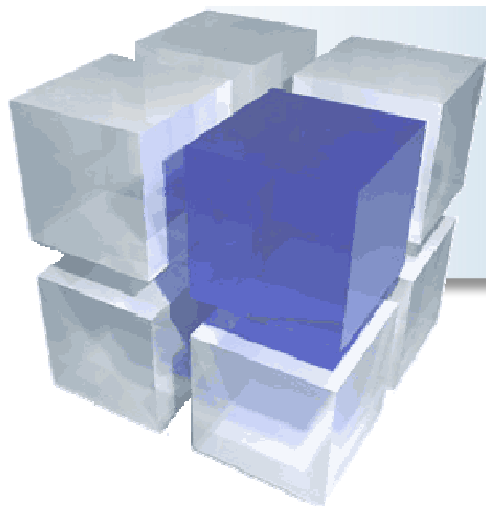
- 1. At the fund management level
- 2. Independent risk control

#### ► Risk control by Finaltis using proprietary and prime broker's tools

- Daily reconciliation with prime broker (principally positions)
- Daily risk reporting is done internally by the risk department (once all positions are validated)
- Implementation of independent real time monitoring: VaR, leverage, exposure and the necessary liquidity to cover the positions are based on real time positions and prices

#### ► Example of internal reporting



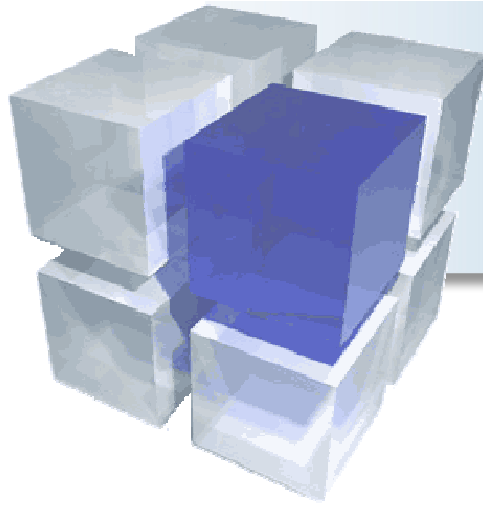


## VII. Conclusion

### *Key Figures*

- 1. Key Figures
- 2. Generating Alpha
- 3. Formalities
- 4. Contacts

▶ Total N° of stocks eligible after filtering	~1000
▶ Total N° of stocks currently in portfolio	~300
▶ Minimum Market Cap for eligibility	400 M€
▶ Minimum liquidity for eligibility	2.5 M€ per day
▶ N° of eligible baskets	~250
▶ N° of baskets currently in portfolio	~130
▶ Maximum position per NAV	4.5%
▶ Maximum operational leverage	8 (long = short = 4)
▶ Average Leverage 2008	3.5 (long = short = 1.75)

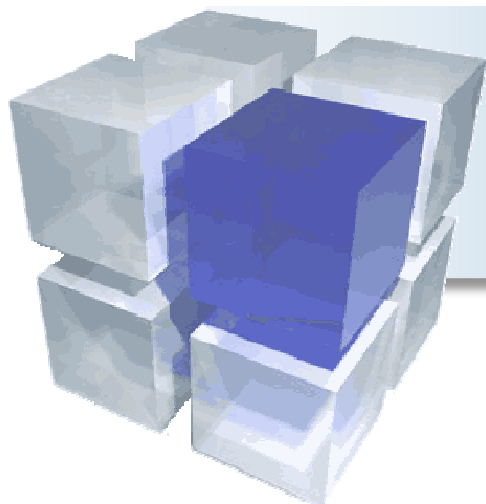


## VII. Conclusion

### *Generating Alpha*

- 1. Key Figures
- 2. Generating Alpha
- 3. Formalities
- 4. Contacts

- ▶ A complementary team cumulating 25 years experience in trading and modelling
  - An extensive knowledge of the markets
  - In depth modelling skills
- ▶ A pure contrarian but self-adjusting model
  - Improved mean reversion model
  - Self-adjusting risk control
- ▶ An automated and efficient trading system
  - Creation of a virtual trading desk
  - Efficient trading and successful reduction of slippage
- ▶ Multi level efficient risk management
  - Sophisticated risk management included in the model
  - Daily monitoring by the managers
  - Independent controls by the Risk Control team and the prime broker



## VII. Conclusion

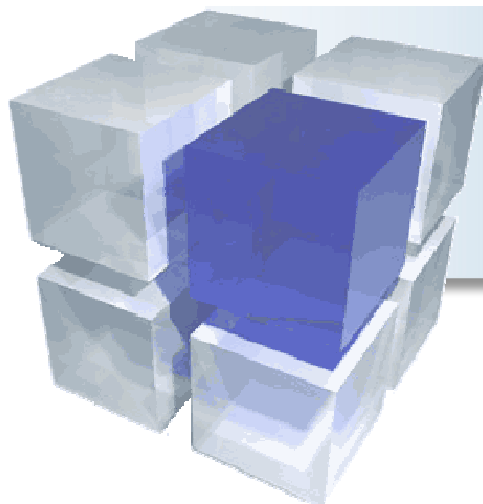
### Formalities

- 1. Key Figures
- 2. Generating Alpha
- 3. Formalities
- 4. Contacts

▶ <b>Structure</b>	<b>Irish QIF (Qualifying Investor Fund)</b>
▶ <b>Investment Manager</b>	<b>Finaltis</b>
▶ <b>Administrator</b>	<b>PNC Global Investment Servicing</b>
▶ <b>Prime Broker</b>	<b>Morgan Stanley</b>
▶ <b>Auditor</b>	<b>KPMG</b>
▶ <b>Targeted annual return</b>	<b>&gt; 15%</b>
▶ <b>Targeted annual volatility</b>	<b>~ 10%</b>
▶ <b>Valuation</b>	<b>Weekly</b>
▶ <b>Management fees</b>	<b>2% per annum</b>
▶ <b>Incentive fees</b>	<b>20% of the performance (high water mark)</b>

		<b>ISIN</b>	<b>Bloomberg</b>	<b>Sedol</b>
<b>ALPHASQUARE SYSTEMATIC EQUITY TRADING FUND</b>	<b>EUR Class</b>	<b>IE00B0JJYK53</b>	<b>FASETU ID</b>	<b>B0JJYK5</b>
	<b>USD Class</b>	<b>IE00B0JJYL60</b>	<b>FASETUS ID</b>	<b>B0JJYL6</b>





## VII. Conclusion

### Contacts

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- 2. Generating Alpha
- 3. Formalities
- 4. Contacts