

# QuantApps

Quant Algorithmic Trading Software Platform  
and Investment Strategy Advisory Services

*Quant Finance Technologies LLP*

*(A subsidiary of HPC Links Pvt. Ltd.)*

[www.quantfintech.com](http://www.quantfintech.com)

# Quant Finance Technologies (QFT)

- QFT is a subsidiary of HPC Links

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# HPC Links

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# What is QuantApps

QuantApps Proprietary  
Strategies

Custom Strategy  
Enablement

Trading  
Analytics

Quantitative Algorithm Platform  
(algorithms, libraries, tools)

- QuantApps is a trading software platform based on Quantitative Finance Algorithms.
- It provides the following capabilities:
  - QuantFinTech proprietary quant strategies
  - Libraries and tools for user-defined quant strategies
  - A suite of pre and post trade analytics

# First Open Market Product in India

- QuantWare SA1 is First algorithmic trading product available to investors in India in the open market, for *derivatives trading using Quantitative Finance Technologies and Algorithms*
- Derivatives trading using Quant algorithms forms the backbone of investment banks and broking houses in the US and Europe
- Algorithmic trading recently made legal in India
- Unique opportunity for investors to adopt the trend early and get big returns before others move in

# QuantApps version 1.0

- Provides a set of pre-built Stat-Arb strategies and algo-execution capabilities.
- Provides a set of pure Arb Strategies algo-execution capabilities.
- The current version is enabled for Indian Equity/Equity Indices Futures and Options.
- Currently seamlessly integrates with Omnesys OMS.
- Can be easily integrated with other OMS as needed.



# QuantApps v1.0 Offerings

- Offering 1: Quant Investment Strategy Advisory Service
  - Service: Trading strategy
  - Service Delivery: Through the trading signals generated and trades executed by the QuantApps application.
  - Service charges: AMC and share of profit generated by the strategy

# QuantApps v1.0 Offerings

- Offering 2: QuantApps Platform
  - Product: User can define their own strategy based on quantitative models using the platform
  - License Fee: Annual License Fee

# QuantApps Service for BH

- The QuantApps application runs on the BH server
- Connects with exchange through Omnesys OMS for live data and trade executions
- Connects with our QuantFinTech server for strategies and their parameters
- Generates trading signals and executes trades

# QuantApps Service for HNIs

- The investor has to have a trading account with MasterTrust (broking house) through QuantFinTech (Sub-broker/Investment Advisor)
- The QuantApps application runs on our server
- For each investor the application generates trading signals and executes trades

# QuantApps Differentiators

- Econometrics and Stochastics based models
- Parameter optimization techniques

# QuantApps Proprietary Strategies

- SA1
- SA2

# QuantApps Proprietary Strategy: SA 1

## Performance Example

# First Open Market Product in India

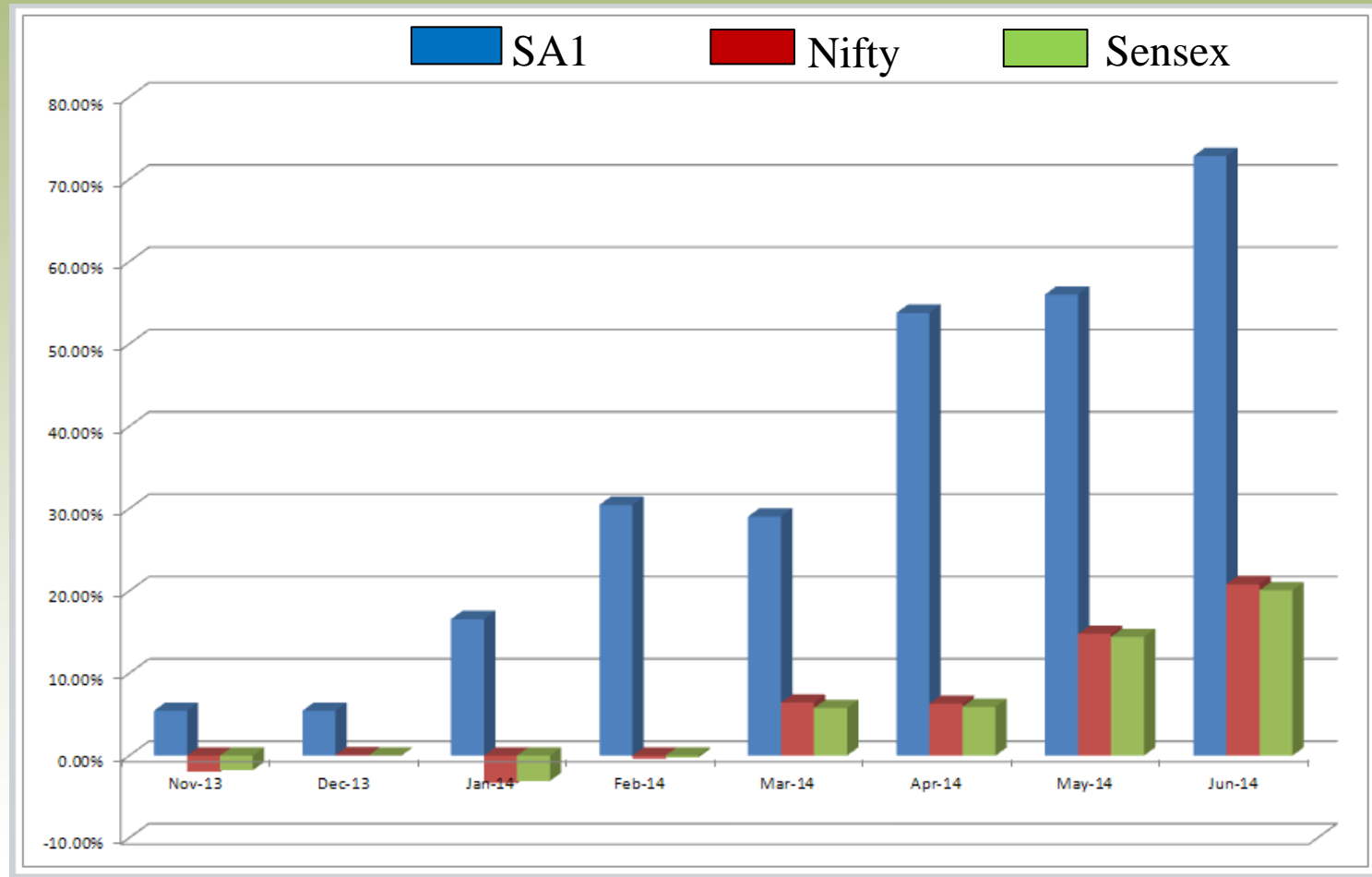
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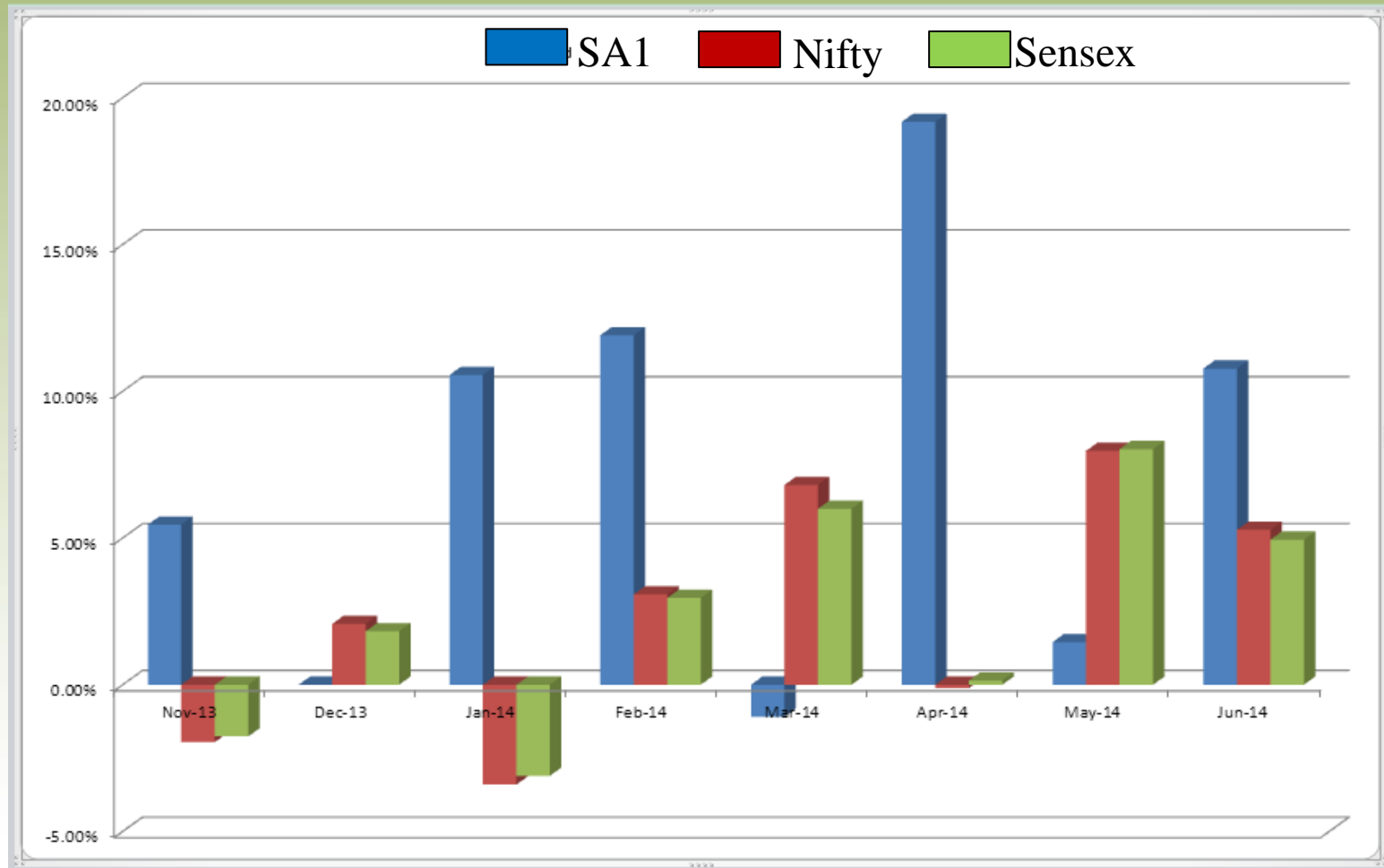
# QuantWare SA1: Introduction

- QuantWare SA1 from HPC Links/IIQF is a highly profitable algorithmic trading platform
- Gives consistently high profits with low risk
- Market Neutral: independent of market directions
- SA1 is used by our customers since Nov. 2013:  
Three broking houses/HNI's as early customers
- SA1 is statistical arbitrage: derivatives trading using 'pair trading' strategies

# SA1 Gives Significantly Better Cumulative Return Compared to Nifty and Sensex



# Month-wise Returns Comparison: SA1 vs Nifty and Sensex



# Risk vs Expected Returns of SA1

- Investor can choose a Low, Medium or High Risk level
- Actual performance of SA1 has been higher than expected
- Draw down numbers are on the margins (not on the exposures)

| Risk level                                     | Draw down  | Expected Annual Return                    |
|--|------------|---|
| Low  | 4%         | 20%                                       |
| Medium   | 10%        | 30%                                       |
| High   | 15%        | 40%                                       |
| Actual Market Performance, Nov 2013 – Jun 2014 | <b>18%</b> | <b>70%</b><br>(actual return in 7 months) |

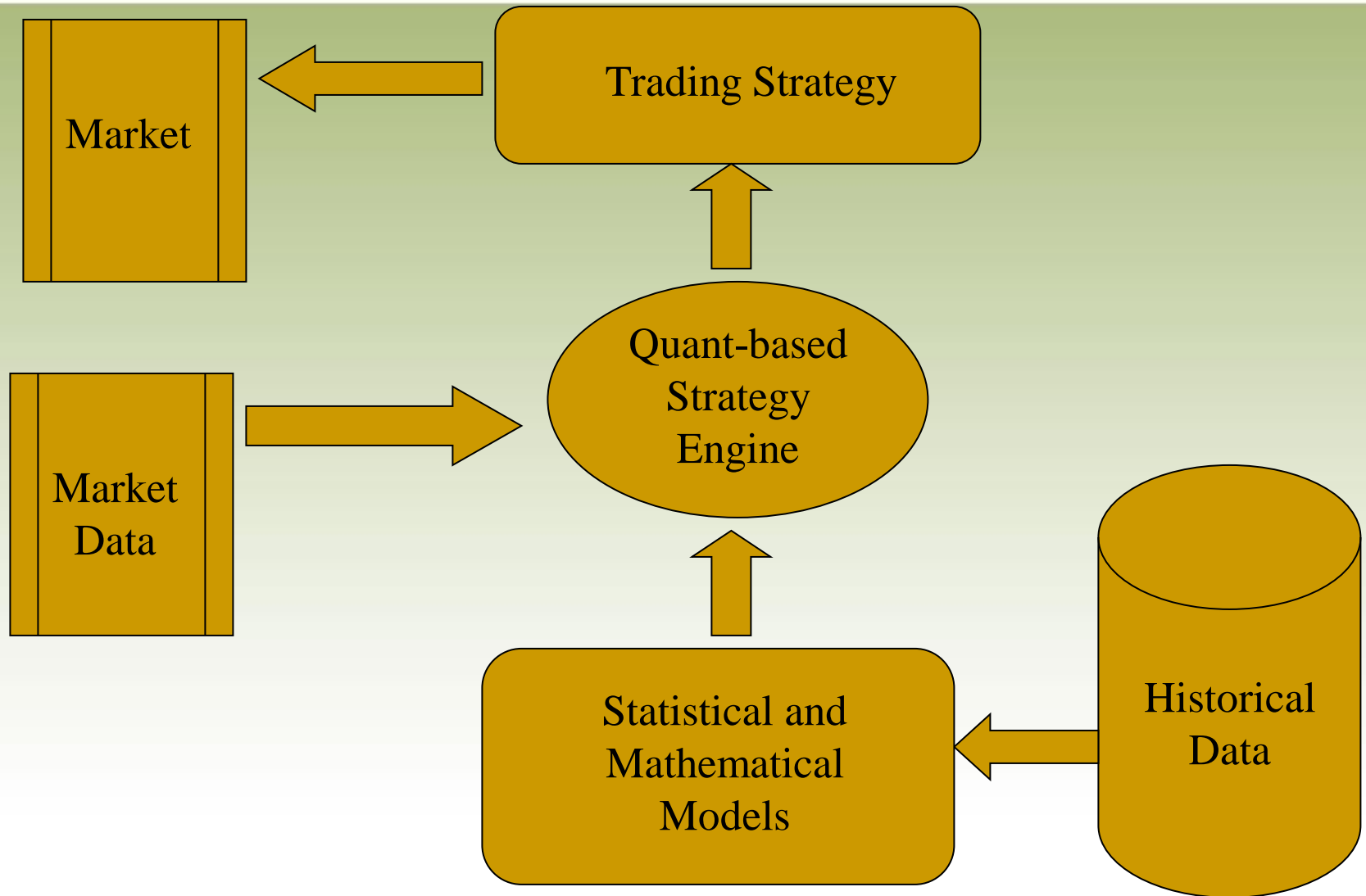
Supplementary Material:  
How the SA1 Strategies Work

*HPC Links Pvt Ltd,*  
[www.hpclinks.com](http://www.hpclinks.com)

# Market Neutral Trading

- Market Neutral trading involves investment strategies that are designed to perform consistently well under all market conditions – bull market or bear market or range-bound market.
- The strategies avoids net exposures to market conditions and hence minimizes general market risk.
- The strategies are targeted to generate consistent profits with low risk.

# Statistical Arbitrage



# Long-Short Statistical Arbitration

- **A market-neutral trading strategy:** its returns are uncorrelated with market movements.
- **A statistical arbitrage trading strategy:** profits from temporal mispricings and aims to profit from the principles of mean-reversion processes.
- **A long/short strategy:** reduces exposure to systematic shocks by simultaneously going long and short in fundamentally related securities.
- **Relative-value trading, convergence trading**

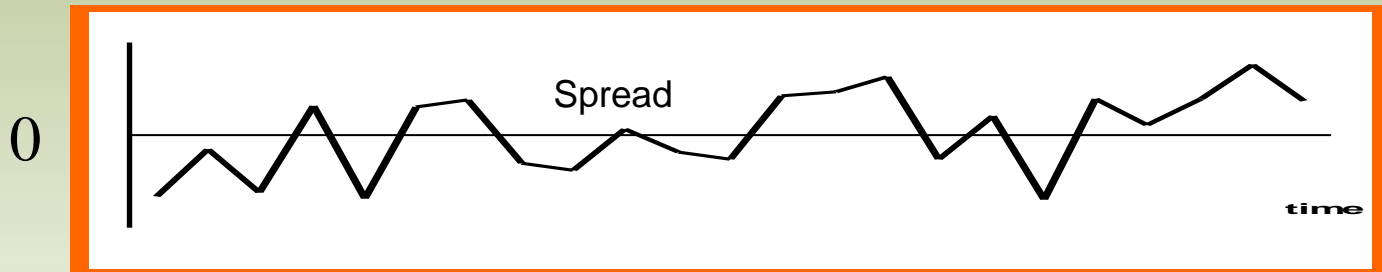


# Long-Short Stat Arb contd...

- Identify securities with identical fundamental and statistical properties (co-integrated), that move together very closely, based on a certain criteria.
- If at some point in time the relative prices (spreads) exceeds some threshold level, simultaneously long the undervalued securities and short the overvalued ones.
- This joint trade generates profits when the spread converges back to the mean.

# Quantitative Approach

- The trades are based on mathematical measure of “Fair Value”. If we have two stocks, X & Y, that are cointegrated in their price movements, then any divergence in the spread from “0” should be temporary and mean-reverting.



- The important issues here are:
  - 1) How to test for Cointegration and Pair selection
  - 2) Estimating the Spread
  - 3) Determining the Threshold Levels
  - 4) Position sizing (finding Hedge ratio)
  - 5) Entry & Exit Strategy

# Quantitative Approach

## **Selection:**

The securities are screened based on **Cointegration of prices** like most other strategies but the difference lies in the use of other proprietary quantitative forecasting models and optimized parameters which gives the model its edge.

# Quantitative Approach

## **Estimating the Optimal Spread:**

- Statistical forecasting models used
- Optimized for every individual security
- Dynamically re-estimated to adapt to changing conditions

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Thank You