IMA Presentation

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Applications of econophysics principles to determine stocks trends and strength

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Generating a new allocation framework

Since 2009, it has become evident that investing according to the standard industry practice, i.e. using Modern Portfolio Management theory (H. Markowitz) is outdated.

Can we generate efficient market exposure using econophysics principles.

Is historic data is misleading?
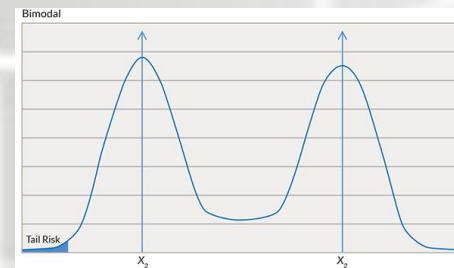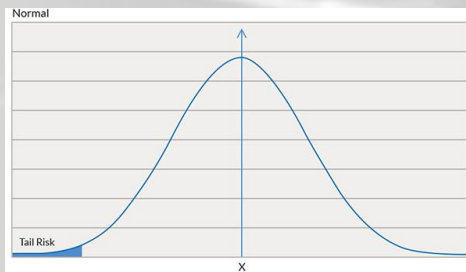
TEVA.N	r	vol	Sharpe (exp)
31.12.2006 to 31.12.2009	78.25%	26.26%	22.71%
31.12.2007 to 31.12.2010	11.96%	27.45%	28.86%
31.12.2008 to 31.12.2011	8.15%	27.45%	20.99%
31.12.2009 to 31.12.2012	-33.53%	33.88%	45.91%

Generating a new allocation framework

Question:

Can we develop a model that identifies stocks that are at the beginning of a new investment trend, so that available funds are invested "just-in-time", i.e. for the period during which the asset is performing?

Hypothesis

Selective investing applying both fundamental and technical analyses will provide the investor with better equity performance than the respective equity index (market)!

Research

Analyze equity price performance when equity selection takes place using econophysics based on company operating metrics, residual risk analysis, and real-time stock prices.

IR= $$IR = r_t^i = \alpha^i + \beta_{MKT}^i MKT_i + \beta_{SMB}^i SMB_i + \beta_{HML}^i HML_i + \varepsilon_t^i$$

Materials

- 1,200 global securities analyzed
- 450 securities retained for investment theme construction
- 27 investment theme baskets built
- Period: 2005 – 2011

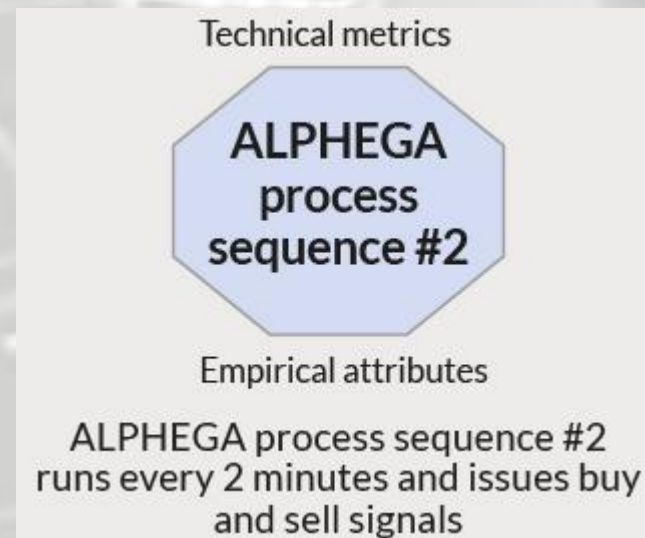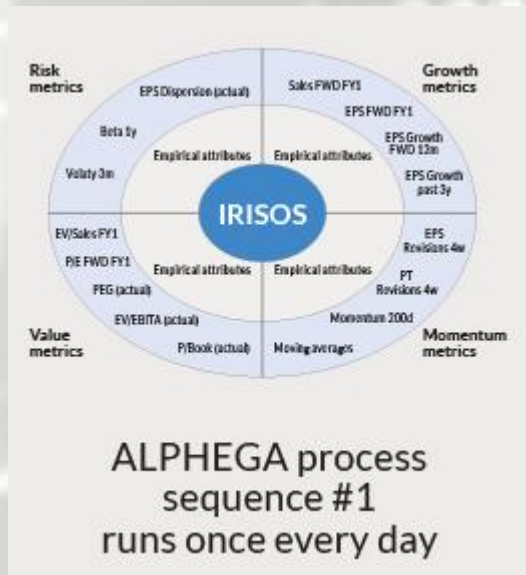# Variables (external)

Controlled variables:

- Value metrics

- Growth metrics

- Momentum metrics

- Risk metrics

- Return metrics

Each investment theme basket contains the top 20 companies

Variables (internal)

Independent variable:

– ALPHEGA Portfolio construction and signal

ALPHEGA process sequence #1 runs once every day

ALPHEGA process sequence #2 runs every 2 minutes and issues buy and sell signals

Variables (internal)

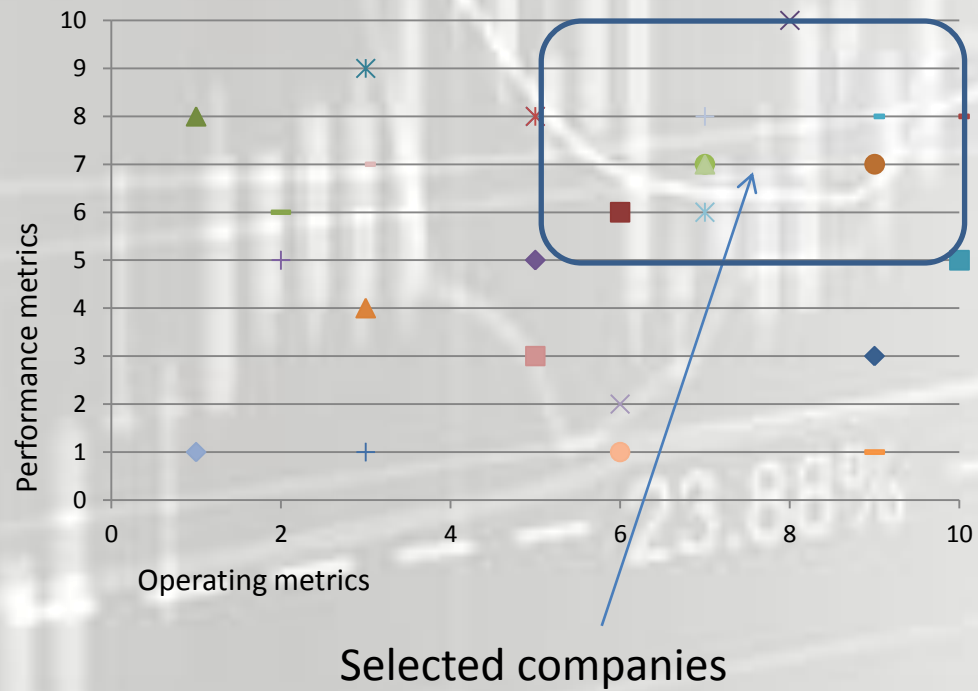Equity classification using IR and company operating metrics:

$$IR = r_t^{i} = \alpha^i + \beta_{MKT}^i MKT_i + \beta_{SMB}^i SMB_i + \beta_{HML}^i HML_i + \varepsilon_t^i$$

$$Op.Metrics = (Cf_n - MKTf_n) + (Cf_n - Sf_n) + (Cf_n - Tf_n)$$

Cf = Company operating metrics
MKTf= Market operating metrics
Sf= Sector operating metrics
Tf = Theme operating metrics

Cf = Company performance metrics
MKTf= Market performance metrics
Sf= Sector performance metrics
Tf = Theme performance metrics

Scatter graph view

Performance metrics vs Operating metrics

Selected companies

Variables (internal)

Global Orientation	Portfolio_Name
Global Strategies and Macro Driven Models	
	Emerging Market Exposure
	Disordered Scenario
	Recovery Scenario
	European Capex Winners
	Recession Scenario
	All-Star Selection
	Healthcare, Education and IT
	Follow Warren Buffett
	ETF Selection
Mathematical Models	
	Price & EPS Momentum
	High Dividend Strategy
	Value Model
	Growth Model
	GARP Model
	Low Beta, High EPS, High Sharpe Exp
Best-in-class satellite strategies	
	Food, Water & Related Services
	Healthcare & Related Services
	Precious Metals & Mining
	Tablets & Smartphones
	American Stars
	Swiss Small and Mid Cap
	Alternative Energy
	Agro-Chemicals
	Energy
	Car Producers and Sub-Contractors
	Swiss Premium Selection
	Technology Basket I
	Technology Basket II
	Next Generation

Procedure
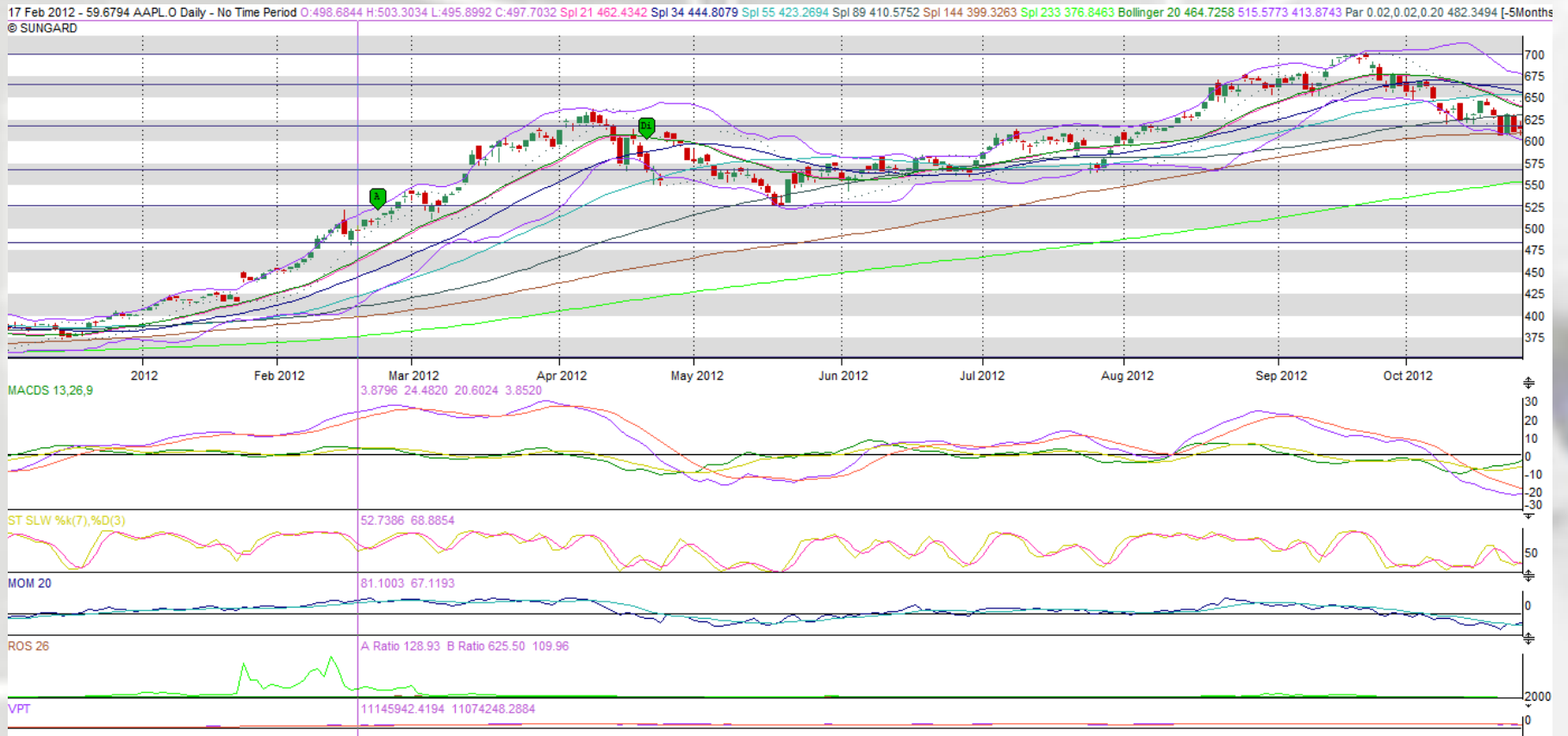
Procedure
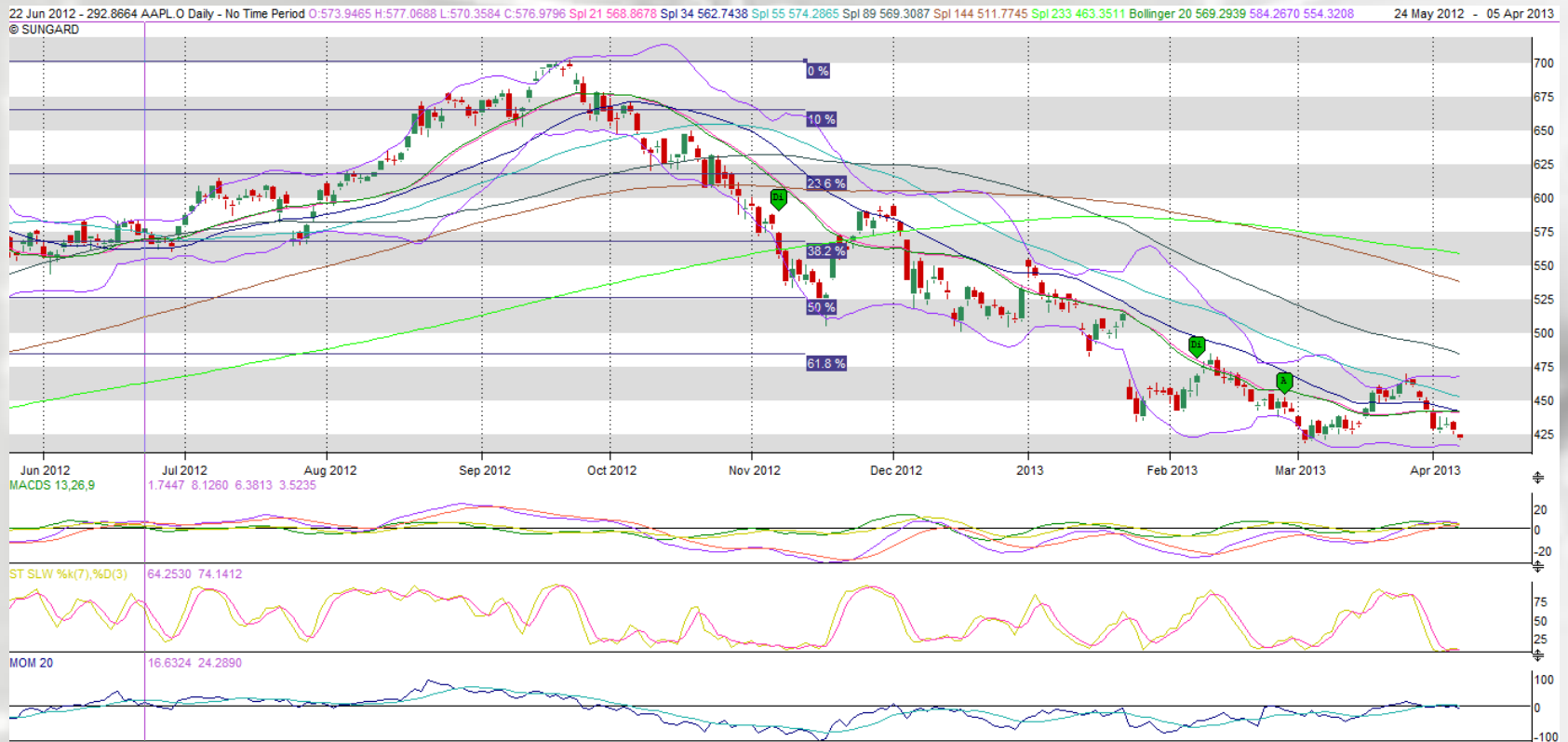
Procedure

- MACD (crossing) to detect start/end of trends
- Slow Stochastic to detect oversold/bought levels
- Fibonnacci to provide support/resistance levels
- Momentum analysis to define Fibonnacci level
- Similarity analysis to search for same positive trading pattern

Results

Performance and Risk Analysis
01.01.05 - 01.01.06 in US Dollar   Portfolio : IRISOS 102
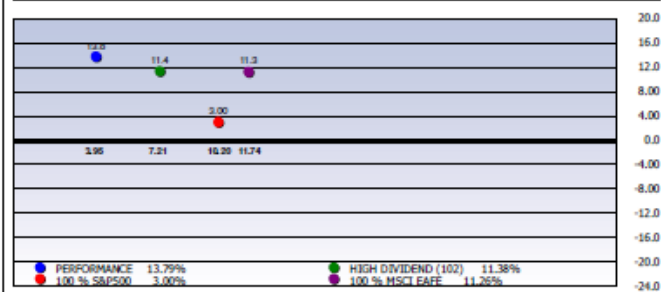
Strategy : High Dividend

RISK ANALYSIS

PORTFOLIO PERFORMANCE	13.79%
MEAN PORTFOLIO RETURN ANNUALIZED	13.62%
RISK FREE RETURN	0.00%
PORTFOLIO VARIANCE	0.16%
STANDARD DEVIATION OF RETURN	3.95%
SHARPE RATIO	3.45
BENCHMARK	11.38%
STANDARD DEVIATION OF BENCHMARK	7.21%
TRACKING ERROR	5.48%
INFORMATION RATIO	2.49
PORTFOLIO BETA	0.35
JENSEN'S ALPHA	9.63%
TREYNOR MEASURE	0.38

RISK ANALYSIS

% OF THE POSITIVE MONTHS	54.75%
% OF THE NEGATIVE MONTHS	45.25%
THE BEST MONTH	0.81%
THE WORST MONTH	-1.12%
MONTHLY VOLATILITY ANNUALIZED	3.95%
SHARPE RATIO (0% RISK FREE RATE)	3.45

S.E.& O.

Results

Results

Performance and Risk Analysis
01.01.07 - 01.01.08 in US Dollar   Portfolio : IRISOS 102

Strategy : High Dividend

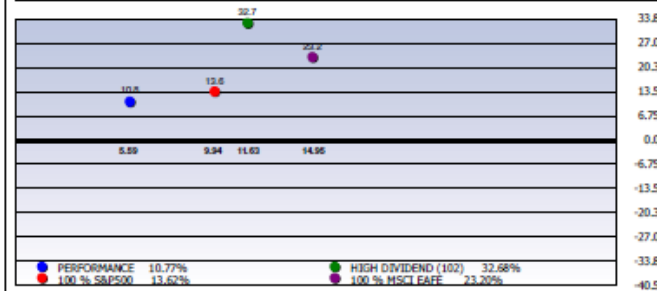| RISK ANALYSIS	
PORTFOLIO PERFORMANCE	6.64%
MEAN PORTFOLIO RETURN ANNUALIZED	6.53%
RISK FREE RETURN	0.00%
PORTFOLIO VARIANCE	0.57%
STANDARD DEVIATION OF RETURN	7.56%
SHARPE RATIO	0.86
BENCHMARK	3.53%
STANDARD DEVIATION OF BENCHMARK	15.80%
TRACKING ERROR	14.77%
INFORMATION RATIO	0.44
PORTFOLIO BETA	0.18
JENSEN'S ALPHA	5.90%
TREYNOR MEASURE	0.36

RISK ANALYSIS	
% OF THE POSITIVE MONTHS	57.95%
% OF THE NEGATIVE MONTHS	42.05%
THE BEST MONTH	2.57%
THE WORST MONTH	-2.62%
MONTHLY VOLATILITY ANNUALIZED	7.56%
SHARPE RATIO (0% RISK FREE RATE)	0.86

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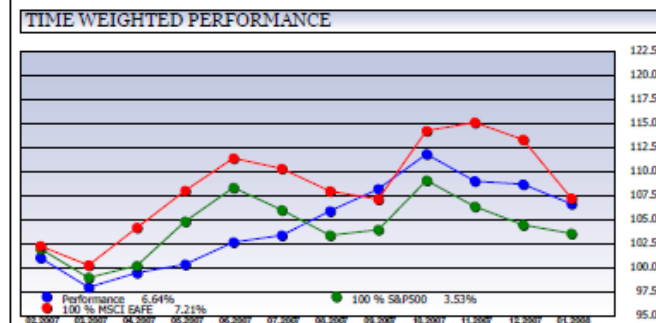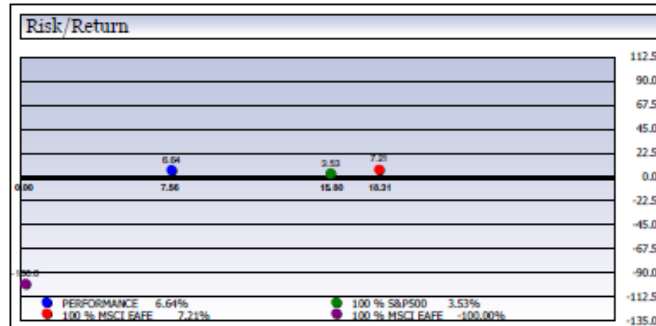
Results

Performance and Risk Analysis
01.01.08 - 01.01.09 in US Dollar   Portfolio : IRISOS 102

Strategy : High Dividend

RISK ANALYSIS

PORTFOLIO PERFORMANCE	-10.19%
MEAN PORTFOLIO RETURN ANNUALIZED	-10.05%
RISK FREE RETURN	0.00%
PORTFOLIO VARIANCE	2.05%
STANDARD DEVIATION OF RETURN	14.33%
SHARPE RATIO	-0.70
BENCHMARK	-37.92%
STANDARD DEVIATION OF BENCHMARK	31.14%
TRACKING ERROR	24.90%
INFORMATION RATIO	-0.40
PORTFOLIO BETA	0.29
JENSEN'S ALPHA	0.75%
TREYNOR MEASURE	-0.35

RISK ANALYSIS

% OF THE POSITIVE MONTHS	45.45%
% OF THE NEGATIVE MONTHS	54.55%
THE BEST MONTH	6.21%
THE WORST MONTH	-2.43%
MONTHLY VOLATILITY ANNUALIZED	14.33%
SHARPE RATIO (0% RISK FREE RATE)	-0.70

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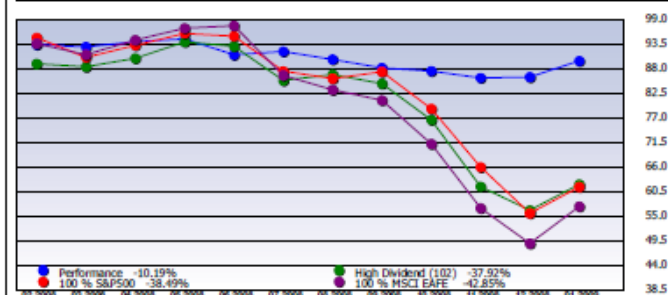
Results

Performance and Risk Analysis
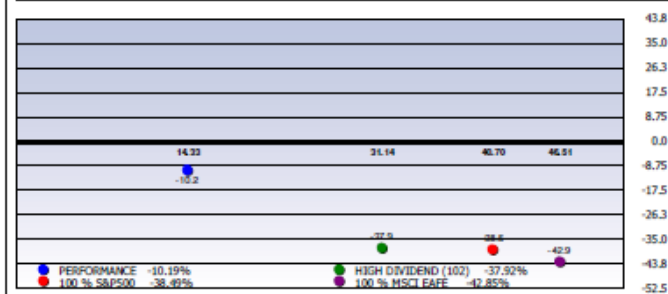01.01.09 - 01.01.10 in US Dollar   Portfolio : IRISOS 102

Strategy : High Dividend

RISK ANALYSIS	
PORTFOLIO PERFORMANCE	11.43%
MEAN PORTFOLIO RETURN ANNUALIZED	11.25%
RISK FREE RETURN	0.30%
PORTFOLIO VARIANCE	2.76%
STANDARD DEVIATION OF RETURN	16.60%
SHARPE RATIO	0.66
BENCHMARK	23.45%
STANDARD DEVIATION OF BENCHMARK	27.03%
TRACKING ERROR	23.38%
INFORMATION RATIO	0.47
PORTFOLIO BETA	0.32
JENSEN'S ALPHA	3.76%
TREYNOR MEASURE	0.35

RISK ANALYSIS	
% OF THE POSITIVE MONTHS	50.76%
% OF THE NEGATIVE MONTHS	49.24%
THE BEST MONTH	4.37%
THE WORST MONTH	-4.78%
MONTHLY VOLATILITY ANNUALIZED	16.60%
SHARPE RATIO (0.3% RISK FREE RATE)	0.66

Risk/Return

TIME WEIGHTED PERFORMANCE

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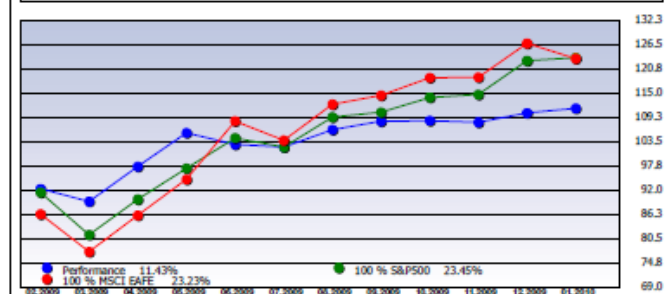
Results

Performance and Risk Analysis
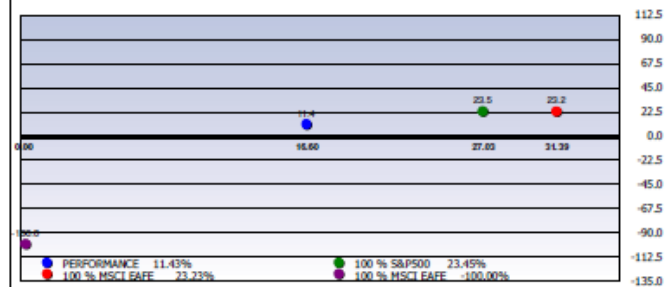01.01.11 - 01.01.12 in US Dollar   Portfolio : IRISOS 102
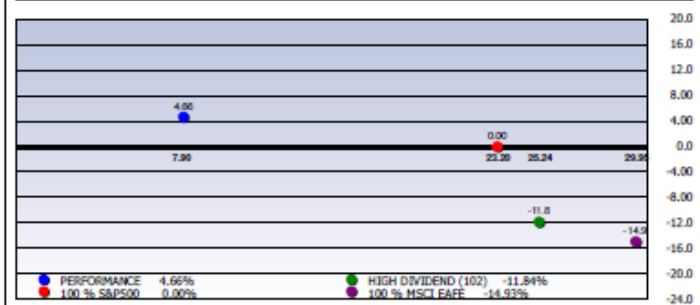
Strategy : High Dividend

RISK ANALYSIS

PORTFOLIO PERFORMANCE	4.66%
MEAN PORTFOLIO RETURN ANNUALIZED	4.61%
RISK FREE RETURN	3.20%
PORTFOLIO VARIANCE	0.62%
STANDARD DEVIATION OF RETURN	7.90%
SHARPE RATIO	0.18
BENCHMARK	-11.84%
STANDARD DEVIATION OF BENCHMARK	25.24%
TRACKING ERROR	22.03%
INFORMATION RATIO	0.06
PORTFOLIO BETA	0.17
JENSEN'S ALPHA	3.90%
TREYNOR MEASURE	0.08

RISK ANALYSIS

% OF THE POSITIVE MONTHS	51.71%
% OF THE NEGATIVE MONTHS	48.29%
THE BEST MONTH	2.68%
THE WORST MONTH	-2.91%
MONTHLY VOLATILITY ANNUALIZED	7.90%
SHARPE RATIO (3.2% RISK FREE RATE)	0.18

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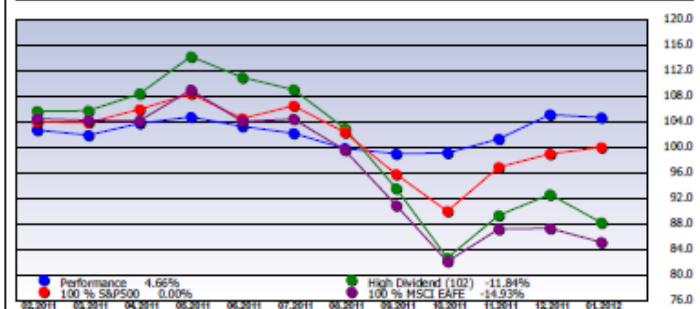
Results

Performance and Risk Analysis
01.01.12 - 01.01.13 in US Dollar   Portfolio : IRISOS 102

Strategy : High Dividend

RISK ANALYSIS

PORTFOLIO PERFORMANCE	25.31%
MEAN PORTFOLIO RETURN ANNUALIZED	24.78%
RISK FREE RETURN	3.20%
PORTFOLIO VARIANCE	1.43%
STANDARD DEVIATION OF RETURN	11.96%
SHARPE RATIO	1.80
BENCHMARK	14.78%
STANDARD DEVIATION OF BENCHMARK	25.80%
TRACKING ERROR	20.47%
INFORMATION RATIO	1.05
PORTFOLIO BETA	0.29
JENSEN'S ALPHA	18.25%
TREYNOR MEASURE	0.73

RISK ANALYSIS

% OF THE POSITIVE MONTHS	56.98%
% OF THE NEGATIVE MONTHS	43.02%
THE BEST MONTH	3.84%
THE WORST MONTH	-3.03%
MONTHLY VOLATILITY ANNUALIZED	11.96%
SHARPE RATIO (3.2% RISK FREE RATE)	1.80

Risk/Return

TIME WEIGHTED PERFORMANCE

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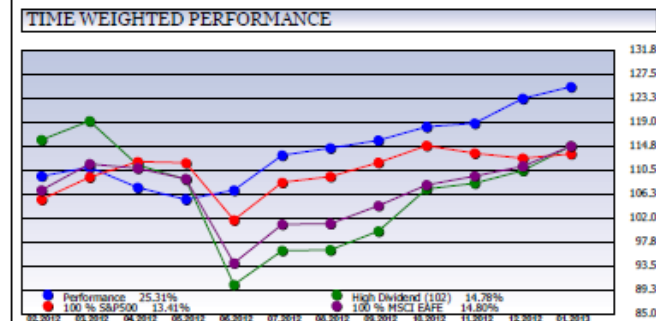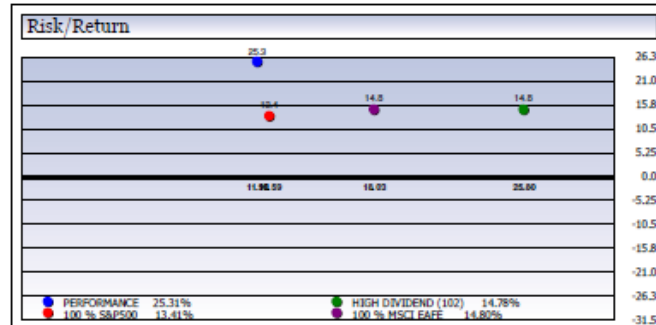
Data/Observations

- Alphega index generates about 3 - 5 buying opportunities per equity, per year, with an average performance in excess of 10% in the 3 months following the signal.

- Success ratio: in excess of 70%

Conclusion

When forward looking company fundamentals are combined with Alphega index data (i.e. technical equity analysis), the investor achieves a higher investment return with lower volatility ratios compared to the traditional investment approach.