



The Style Research Portfolio Analyzer

SRPA

Style Analysis Risk Analysis Performance Attribution

Flexible software incorporating: **Holdings-Based Style Analysis** (Style distributions, factor exposures and risk analysis); multi-currency **Returns-Based Style Analysis** (Top down Style analysis, performance attribution, risk appraisal); and full **Performance Attribution Analysis** (Market, Sector and definable Style attribution with stock level contributions). Designed for the analysis of multi-market, dynamically changeable, international equity portfolios.

An Intuitive Multi-Functional and Easy to Use Analysis Package

Batch Processing

Holdings-Based Style Analysis with Risk and Return Analytics
Funds Analysis and Fund of Funds Optimizations
Performance Attribution Analysis
Hedge Fund Analysis
Create, Manage and Share Batch Records and Batch Files
Portfolio and Benchmark Construction Facilities

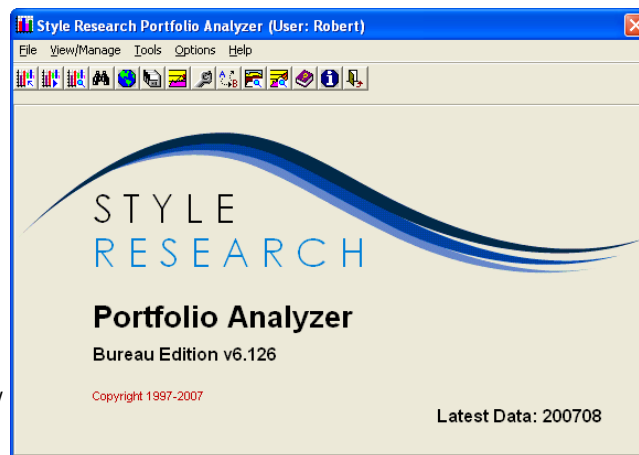
Returns-Based Style Analysis
League Table Construction and Analysis
Interactive Liquidity Analysis
"Snail Trail" Generation and Analysis
Scripting and DLL Facilities
Integrated, Industry Standard, Third Party Benchmarks

Quick Start

Fundamentals-Based Portfolio Style Analysis and Risk Analysis (loading, constructing and analysing funds, benchmarks and funds of funds structures)

Look Up Security Codes (SEDOLs, CUSIPs, ISINs, Tickers, WS Codes)

Define Market Regions (selected from 53 global equity markets)



Managing Portfolio Data

Funds/Benchmarks Files (editing and amending shared portfolio and benchmark data)

Fund Returns (editing fund return series and Style paradigm return series)

Identifier Translation Files (editing and amending security code translation files)

Help and Information (contextual and printable Help and user, version, licensing and system information)

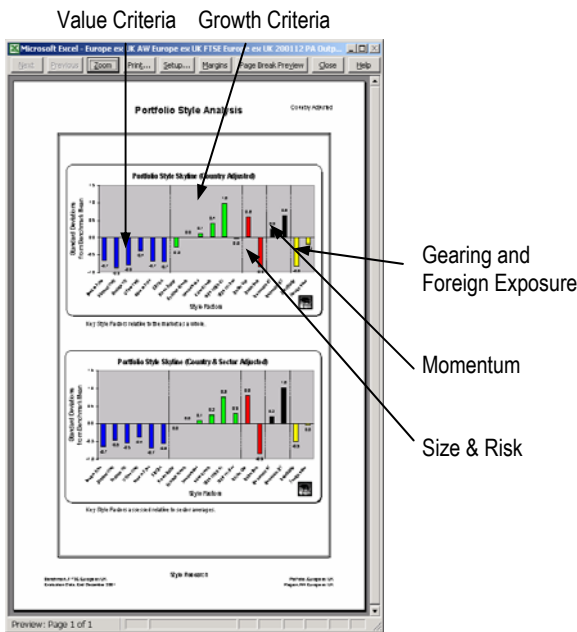
Accurate A comprehensive review of global equity portfolios according to the Style criteria that matter most within the major markets and market regions.

Accessible Based on familiar investment criteria used daily by senior investment professionals, strategists, equity managers, analysts, and client support.

Intelligible Transparent information. The analysis serves both as the basis for internal portfolio review as well as for client communications and reporting.

Interpretable Fully compatible with Style Research's other research services. Portfolio Style, Risk and Performance analyses can be easily interpreted alongside the analysis from Style Research Online and the Global Style Manager.

The Initial Style Profile



A summary **Style Skyline** highlights key Style exposures from both Standard and Sector Adjusted perspectives.

In this Continental European example, Country Adjusted analysis exposes very strong benchmark-relative negative Value, positive Growth and Size tilts within markets, which would have ordinarily been missed.

Portfolios are reviewed in aggregate and according to Sector Adjusted factor measures; multi-market portfolios are also reviewed in Country Adjusted and Country and Sector Adjusted detail. Sector specific analysis is also provided to detect industry by industry differences in Style emphasis.

Further Detail and Analysis

Style must be more than simply industrial sector orientation. Genuine Style analysis requires a closer look, systematically across, and within the major industrial sectors.



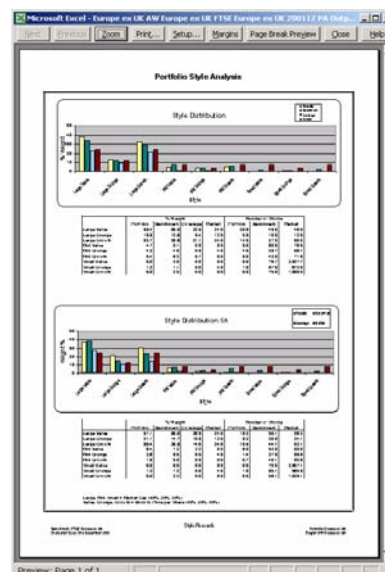
Industrial Sector Skyline, including coverage by Sector as well as coverage of the total benchmark/market(s) in which the portfolio is invested. Coverage provides further evidence of the philosophy being applied in the management of the portfolio and helps in assessing the portfolio's breadth of diversification.

Style Skyline of Individual Sectors

Industrial sector exposures and Style exposures within individual industrial sectors provide a systematic review of a portfolio's industry and Style management strategies.

Style Distribution, identifying the distribution of investments against the factor decomposition of the market and benchmark.

Style Distribution analyses can be defined according to any of 31 fundamental factors and within as many as 12 individual "cells". This example shows an analysis of investments according to user-defined tranches of Size (here: Large, Mid Cap and Small) and secondary tranches of Value (here: Value, "Grunge" and Growth).

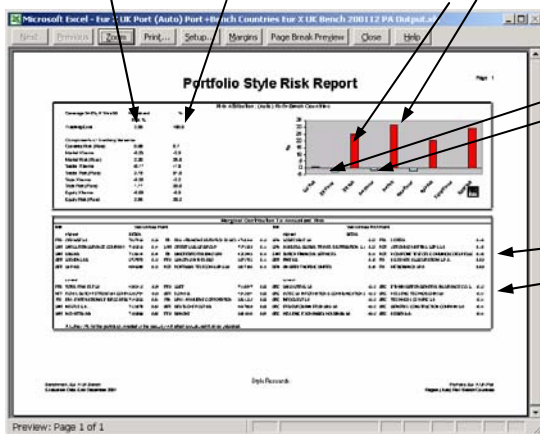


Risk Analysis and Risk Attribution

Security returns are comprised of currency, market, industry, Style and stock specific elements. The risk analysis program assesses portfolio Tracking Error and calculates its constituent risk components in terms corresponding to each of these elements of security return. Tracking Error or, more properly, Tracking Variance can thus be characterized in terms of currency, market, industry, Style and stock specific risk.

Tracking Error and the Components of Tracking Variance (% of total)

Pure components of total benchmark-relative risk: Currency, Market, Industry, Style and Stock Specific risk



Cross Term risks - which explain how the interactions among risk components and those prior to it contribute to overall Tracking Variance. These terms can be very significant, in both directions!

The 10 highest (risk contributors) and the 10 lowest (risk diversifiers) contributors to Tracking Error, including both securities held within the portfolio as well as securities not held! A detailed listing also reveals the risk impact of each individual security within the portfolio.

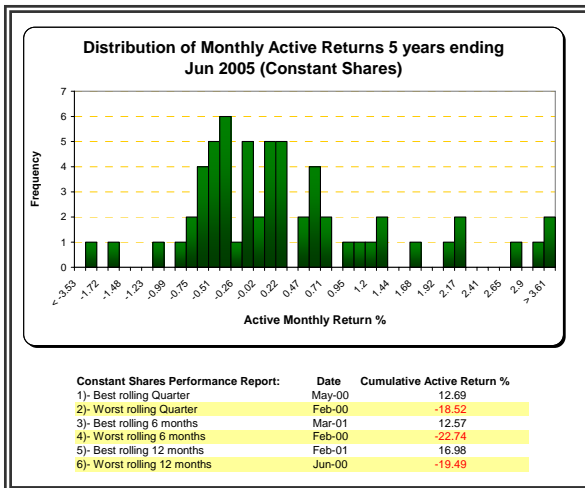
Full decomposition of tracking variance according to Currency, Market, Sector and Style contributions (including Style within Sector within Market) as well as according to the individual contributions from all securities held, and not held.

Contribution to Tracking Variance by Style										
Style	Total	Curr Risk	Market X Terms	Market Risk	Sector X Terms	Sector Risk	Style X Terms	Style Risk	Equity X Terms	Equity Risk
Large Value	7.80	-0.26	0.41	-0.04	0.35	1.27	0.71	1.81	-0.03	3.37
Small Value	10.52	0.07	-0.14	-0.73	-1.20	0.32	-0.66	0.07	0.00	0.02
Large Growth	11.79	0.30	-0.48	1.40	4.29	5.55	8.06	4.97	-0.12	7.83
Small Growth	13.27	0.15	-0.28	3.16	3.32	2.40	4.64	2.34	-0.53	0.27
Total	50.04	0.26	-0.22	3.75	6.63	9.49	12.14	7.05	-0.18	11.50

Contribution to Tracking Variance by Sector										
Sector	Total	Curr Risk	Market X Terms	Market Risk	Sector X Terms	Sector Risk	Style X Terms	Style Risk	Equity X Terms	Equity Risk
Energy	0.08	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Technology	0.17	0.12	-0.23	0.11	-0.07	0.51	-0.06	0.26	0.00	0.03
Health Care	0.08	0.00	-0.14	-0.33	0.00	1.10	-1.25	0.73	0.00	0.02
Industrials	3.07	-0.04	0.15	0.73	0.56	-1.09	0.64	3.34	-0.16	1.95
Consumer	15.54	-0.19	0.29	1.63	2.93	1.91	4.92	13.22	0.47	2.91
Comm Services	0.32	0.10	-0.20	0.18	0.35	0.99	2.56	1.25	-0.08	1.16
Financials	0.90	0.00	-0.11	-1.27	-1.14	1.81	1.46	1.45	-2.17	-0.44
Real Estate	1.87	0.00	-0.09	2.46	-4.92	4.92	4.92	1.91	-0.01	0.28
Utilities	1.38	0.07	-0.13	-0.26	-0.27	0.66	0.61	0.23	0.06	0.23
Total	50.04	0.26	-0.22	3.75	6.63	9.49	12.14	7.05	-0.18	11.50

Contribution to Tracking Variance by Country										
Country	Total	Curr Risk	Market X Terms	Market Risk	Sector X Terms	Sector Risk	Style X Terms	Style Risk	Equity X Terms	Equity Risk
USA	18.00	0.20	-0.42	0.00	0.00	4.20	2.80	0.00	0.00	7.00
UK	12.38	0.00	-0.20	-0.04	-0.19	0.04	4.00	2.18	0.00	0.00
France	1.90	0.00	0.00	0.00	0.00	1.90	0.00	0.00	0.00	0.00
Germany	1.38	0.00	0.00	0.16	-0.29	-0.89	-0.48	0.06	-0.01	0.07
Italy	1.71	0.00	-0.08	-0.84	-0.80	1.60	0.56	1.11	0.02	0.02
Spain	2.70	0.00	0.00	0.83	1.05	-0.29	2.92	0.89	0.06	0.22
Netherlands	2.00	0.01	-0.02	-0.11	1.20	0.86	0.47	-0.06	0.44	0.04
Denmark	-0.26	0.00	0.00	-0.11	-0.14	0.08	-0.05	0.00	0.00	0.00
Sweden	0.00	0.00	0.00	0.00	-0.24	-0.20	0.00	0.00	-0.13	0.00
Norway	-0.46	0.00	-0.20	-0.09	-0.19	0.00	-0.18	0.00	0.00	0.00
Finland	-0.11	0.00	0.00	0.00	-0.09	0.04	0.00	0.00	0.00	0.00
Poland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Czech Republic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Portugal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Greece	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
France	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Spain	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Italy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Germany	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
USA	50.04	0.26	-0.22	3.75	6.63	9.49	12.14	7.05	-0.18	11.50

Value at Risk Analysis



Value at Risk calculations are based on both Constant Shares and Constant Weights assumptions, for historic 5 year simulations, as well as on ex ante analysis based on the current portfolio structure and the estimated variance-covariance matrix.

The Value at Risk report also includes "Best rolling" period analysis and an interactive portfolio size specification option.

Holdings-Based Fund of Funds Analysis

Funds can be combined for composite analysis and may also be reviewed on a fund by fund basis to determine contribution to Style orientation and to total fund risk.

Fund of Funds Risk Contributions are represented across the total fund composite as well for each individual constituent.

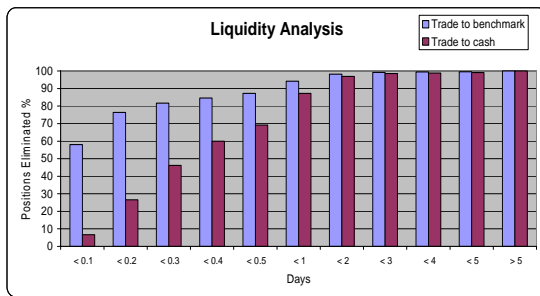
Fund to fund risk is also identified within the funds covariance matrices so that composite constructions can be assembled sensibly and explained systematically.

Fund of Funds Optimization is also available, providing calculated optimal weights, subject to a variety of user definable constraints, within fund of funds composites.

Fund of Funds Tracking Error Report							
Fund	Weight	TE	Marginal Cont. to TE	Cont. To Tracking Variance	Cont. To TV %	Volatility	Beta
Total Fund	-	2.92	-	8.55	-	18.35	0.93
Pan Europe Growth	40.00	5.36	-0.03	1.44	16.83	21.33	1.06
Pan Europe Value	40.00	4.70	0.00	3.59	42.02	17.44	0.87
UK Portfolio	20.00	8.55	0.04	3.52	41.16	17.25	0.80

Correlation Matrix				
	1	2	3	Benchmark
1. Pan Europe Growth	1.00	0.92	0.84	0.97
2. Pan Europe Value	0.92	1.00	0.92	0.97
3. UK Portfolio	0.84	0.92	1.00	0.90
Benchmark	0.97	0.97	0.90	1.00

Benchmark Relative Correlation Matrix				
	1	2	3	Benchmark
1. Pan Europe Growth	1.00	-0.46	-0.36	0.00
2. Pan Europe Value	-0.46	1.00	0.59	0.00
3. UK Portfolio	-0.36	0.59	1.00	0.00
Benchmark	0.00	0.00	0.00	1.00



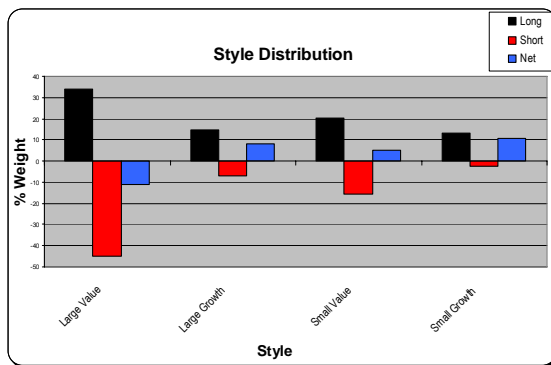
The analysis is based on a portfolio value of : 3,000,000,000 EUR

Liquidity Analysis provides an interactive assessment of a fund's overall liquidity and the trading rigidities buried within it.

The analysis shows, at a glance, the anticipated time required to liquidate a fund or eliminate benchmark relative risk and simulates the impact of fund growth on liquidity. The most illiquid security positions within the portfolio, and the benchmark, are also clearly identified.

Holdings-Based Hedge Fund Analysis

Hedge fund analysis incorporates Style analysis and exposure analysis of both combined and separate long and short positions, as well as a comprehensive analysis of risk. Hedge fund risk assesses and decomposes total risk against a cash return benchmark and also calculates overall market exposure, or β risk.



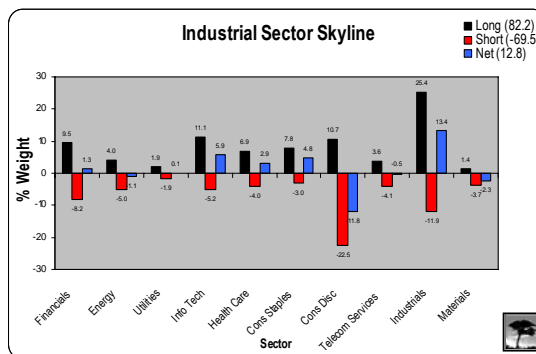
Style and Size Distributions compare the exposures of long and short positions independently to reveal patterns of Style emphasis.

In this example, the portfolio is net positive in all but Large Value, and this is the Style that is receiving the greatest gross investment as well.

Industrial Sector and Country Exposure Skylines reveal further detail about the nature of hedge fund exposures. In this case, the most prominent bets are the net short position in Consumer Discretionary stocks and the net long position in Industrials.

Hedge Fund Risk Analysis identifies and decomposes total risk relative to the base currency cash return according to Currency, Market, Sector and Style contributions as well as according to the individual contributions from individual securities.

Total Fund β provides a further measure of the market independence of a hedge fund's performance.



Returns-Based Style Analysis

The identification of portfolio Style exposures from an analysis of the time series characteristics of the portfolio's history of performance.

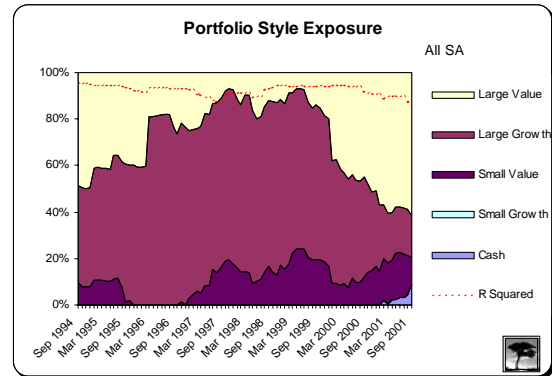
Based on actual portfolio performance history and/or on the aggregate performance of the stocks currently held.

Exposes Style Tilt changes through time, and tests statistical validity, using R^2 , out of sample R^2 and full t-statistics of derived Style tilt coefficients.

Based on 3 Models of Returns-Based Style Analysis: Constrained and Positive; Unconstrained; and, Constrained to sum to 100. Analysis and statistics are suitable for Hedge Fund analysis.

Includes Standard and Sector/Country Adjusted Style Paradigm Portfolio returns data in 53 markets and 9 regions, linked to Style Research Online for further flexibility.

Includes specialized Fund of Funds analysis module with a Fund of Funds construction optimizer.



The screenshot shows a Microsoft Excel spreadsheet titled 'Performance Attribution' for 'Sector Adjusted' returns. It displays three tables for different periods: Last Month's Return (Sep-01 to Sep-01), Return for Quarter to Date (Jul-01 to Sep-01), and Return for Previous Quarter (Apr-01 to Jun-01). Each table compares the actual return with a model return, broken down by style factors: Cash, Small Growth, Small Value, Large Growth, and Large Value. The 'Post Style Return' column shows the difference between the actual and model returns.

Style	Return	Model	Post Style Return
Cash	0.31	0.36	0.00
Small Growth	-15.55	0.00	0.00
Small Value	-14.05	19.75	3.25
Large Growth	-11.55	20.19	-2.33
Large Value	-8.99	65.71	-2.73
			7.28

Returns-Based Performance Analysis

Full historic analyses of returns-based models using user-defined estimation windows and a variety of Style paradigms ensure that the correct model can be identified and that the analyses are relevant to the management practices of the fund managers under review.

All historic performance data, model coefficients and Style returns are displayed so systematic or market phase-related performance characteristics can be easily identified.

For the more comprehensive holdings-based performance attribution analysis, refer to Performance Attribution, page 7.

Returns-Based Fund of Funds Optimization

Funds can be combined using optimization techniques applied relative to benchmark returns, Style composite portfolios or competitor fund performance.

Full data transparency; efficiency ratios and fund performance correlation coefficients are calculated and displayed. The software also offers full "what if" funds construction, simulation and modelling capabilities.

The screenshot shows a Microsoft Excel spreadsheet titled 'Fund of Funds Report' for a 'Specified Combination, 5 year Report' from July 1997 to December 2001. It compares the performance of a 'The Fund' against a 'Benchmark' and a 'Contributed Fund Benchmark'. The report includes columns for 'Style', 'Return', 'Model', and 'Post Style Return'. The 'Contributed Fund Benchmark' shows a total return of 1.11, while 'The Fund' shows a total return of 3.35. The 'Benchmark' shows a total return of 1.00, while 'The Fund' shows a total return of 3.35.

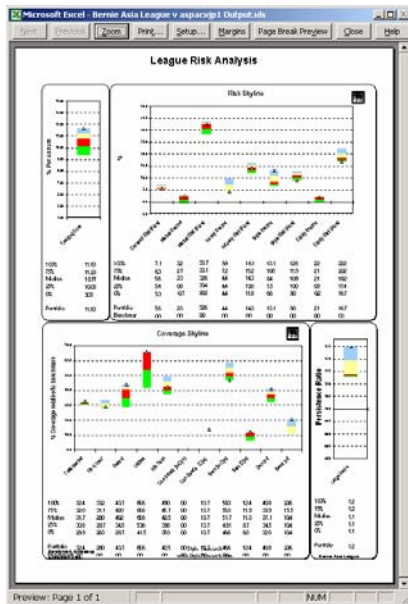
Style	Return	Model	Post Style Return
Small Growth	2.20	0.00	0.00
Small Value	2.28	17.23	1.52
Large Growth	0.41	21.41	0.09
Large Value	1.38	60.75	0.27
			4.14
			2.20

Portfolio/Manager Comparisons, League Tables and “Snail Trails”

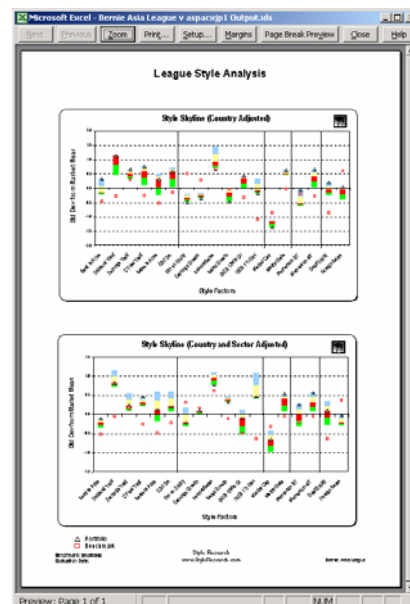
The software includes the flexibility to construct, and batch run, League Tables and Snail Trails of manager portfolios. These facilities compare individual and composite Style factor exposures (and risk profiles) both in cross-section across portfolios as well as through time.

These features highlight Style differences among managers, identifying how the sources of risk also may differ, and plot changes over time to reveal Style shifts and market anticipating/lagging behaviour.

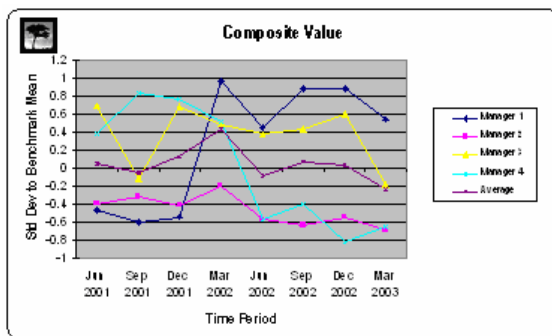
League Table Risk Analysis



League Table Style Analysis



Some Snail Trail Examples

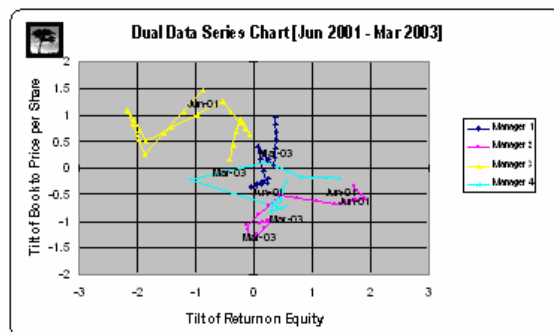


Comparing Value Tilts Through Time across 4 managers and including a fund of funds “average”. The Value measure was taken as a weighted average of specifiable Value criteria; virtually any statistic calculated in the holdings-based analyses could have been “trailed”.

In this example, manager 1 has moved sharply towards Value while manager 4 has drifted progressively away from Value.

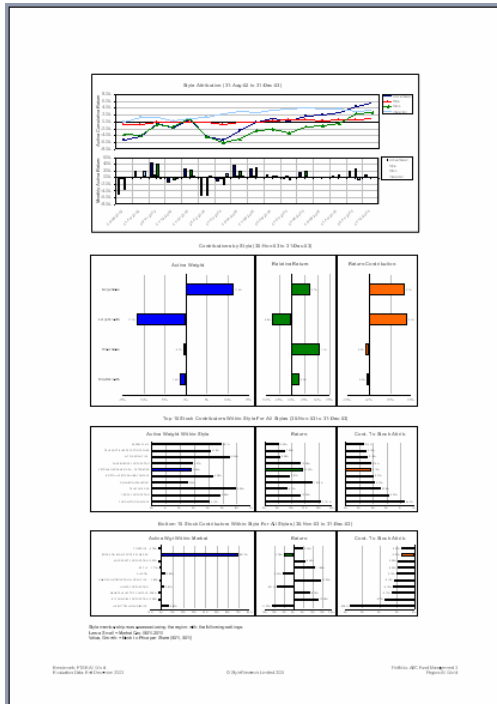
Dual Factor Trails plot 2 individual or composite factors simultaneously through time and reveal further useful information.

In this example, it is clear that manager 1 had not altered the RoE element of his Growth tilt as he moved towards higher Value while manager 4 had significantly adjusted his exposure to Growth (RoE) as he reduced his Value tilt.



Performance Attribution

Performance Attribution analysis incorporating both the industry standard “Brinson” methodology as well as a fully flexible, user defined, hierarchical decomposition; with full supporting data detail provided.



The performance analysis works from monthly, or quarterly, portfolio listings and provides decision analysis of Market, Sector and Style allocations and the Stock Selection choices within each decision category. Sector Selection can be defined according to the popular MSCI (GICS) or FTSE (ICB) classification models; and Style categories can be user defined according to any of Style Criteria described below.

Using the Style Research hierarchical methodology, even the order of decision assessment can be altered. While it is always possible to attribute performance in the traditional order (Currency – Market – Sector – Style – Stock) this does not provide a faithful representation of manager skill where the manager implements a different decision order. In particular, many Eurozone managers currently allocate Styles ahead of Sectors and don't even consider Market selection. To analyze such managers the Style Research attribution hierarchy can be set to Style – Sector – Stock to identify skill in a manner consistent with these managers' investment processes.

The Performance Attribution analysis incorporates both aggregated attribution analysis and detailed stock by stock performance and contribution data. In this way the output can be used both to present summary level performance attribution as well as to delve into the individual stock details of performance analysis calculations.

Breadth of Coverage

Systematic, comprehensive review against a broad range of investment criteria:

5 Basic Styles; 31 Detailed Style Criteria; more than 45,000 securities in 53 equity markets.

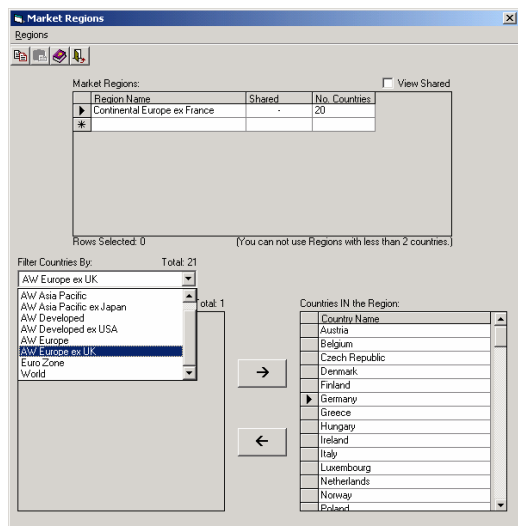
Basic Styles and Style Criteria

<u>Value Criteria</u>	<u>Growth Criteria</u>	<u>Risk Criteria</u>	<u>Momentum</u>	<u>Quality</u>
Book to Price	Return on Equity	Market Capitalization	Short Term Momentum	Earning Growth Stability
Dividend Yield	Historic Earnings Growth	Log Market Cap	Medium Term Momentum	Sales Growth Stability
Earnings Yield	Net Profit Margin	Market Beta		Low Accruals
Cash Flow Yield	Historic Sales Growth			
Sales to Price	I/B/E/S Earnings Forecasts			
Sales to EV	I/B/E/S Sales Forecasts			
EBITDA to Price	I/B/E/S Forecast Revisions			
EBITDA to EV	I/B/E/S Long Earnings Forecasts			
I/B/E/S Forecast Yields	I/B/E/S Long Sales Forecasts			
(Earnings, Dividends and Sales)	Sustainable Growth Rate			
			<u>Other Criteria</u>	
			Gearing Ratio	
			Foreign Sales Exposure	

The breadth of the analysis and the accessible presentation enable a focused review of investment portfolios according to key investment criteria, and from a number of revealing perspectives.

Industry Standard or Customized Benchmarks, and Flexible Regional Analysis

All analysis can be conducted relative to the structure of the total relevant market(s) or relative to industry standard or customized individual market or multi-market investment benchmarks.



Portfolios can be reviewed on a market by market basis or across market regions. In particular, the Analysis Software offers the facility to analyze portfolios, and conduct benchmark-relative analysis across pre-defined or user-defined regions, such as:

Pan Europe, Europe excluding UK, The Eurozone, Asia Pacific, Asia Pacific excluding Japan, The Emerging Markets, Developed Markets excluding US, The World.

In the example shown, the Europe ex UK region is being used to generate a Continental Europe ex France region for client specific analysis.

Delivery and Platform

Initial installation from CD ROM; subsequent software upgrades and data updates via the web.

The Style Research Portfolio Analyzer is a fully network enabled (Client/Server) software package using Microsoft SQL Server® as its Database Server. Client PCs should be installed with one of Windows 2000/XP® operating systems, Excel 2000/XP® and also be able to connect to SQL Server via a LAN network.

Hardware Requirements

- User PCs: Pentium® 4, 2.0GHz processor with 512MB RAM and 200MB free hard drive space or better.
- Server: Pentium® 4, 2.0GHz (Multi-Processor for better performance) with at least 1GB RAM and 5GB free hard drive space or better.

Software Requirements

- User PCs: MS Windows 2000/XP® (all SPs), MS Excel® 2000/XP/2003®
- Server: MS Windows® 2000/2003/XP® (all SPs), MS SQL Server 7.0/2005® (all SPs)

Installation involves two stages: Database Installation on Server; Client Installation on user PCs

Client Support, Help Line and Contacts

Style Research provides subscribers with all future software upgrades and continuing client support.

For further information, assistance, or to arrange a demonstration, please contact:

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