

Style and European Equities

INTRODUCTION

The US experience provides a compelling motivation for the introduction of Style techniques within European equity management. In the US, Style enjoys a 60-year pedigree, dating back to a practical policy debate introduced by Benjamin Graham and David Dodd (for Value), and T Rowe Price (for Growth). And, currently, Style research is abundant, popular and very persuasive. In a recent analysis of the US mutual funds industry, Bill Sharpe demonstrated that over 90% of the longer-term performance differences among these funds can be explained by Style orientation.

Based on this evidence alone, it is clearly sensible to explore the potential for Style within the European markets; but there is more. As we approach European market integration, pressures are building to establish systematic and accurate methodologies to organize and analyze Pan-European securities and investments data efficiently. Style is a very strong candidate for this role.

It's Intelligent and Accessible

Style classifications enable a dramatic reduction in the dimension and apparent complexity of investment decision-making. If Style determines 90% of performance, and Styles basically encompass only Value vs. Growth and Large vs. Small, then investors need only answer to two key questions. The simplification makes investment easier to describe and, so, accessible to a broader audience. A marketer's dream.

It Focuses Effort Efficiently

Styles offer a reduced set of key factors that matter most for performance. Focusing on these criteria, investors can concentrate on those decisions which will have the greatest impact on performance. It stops time-wasting.

An Effective Division Of Responsibility

Style classifications facilitate the separation of manager responsibilities within distinct areas of specialist expertise. If, as with genuine Styles, the performance of securities within each Style cluster together and respond to different specific influences, then not only can we manage each Style against other Styles (Style Rotation), but we must also manage within each Style according to Style-specific investment criteria. Doing what you do best.

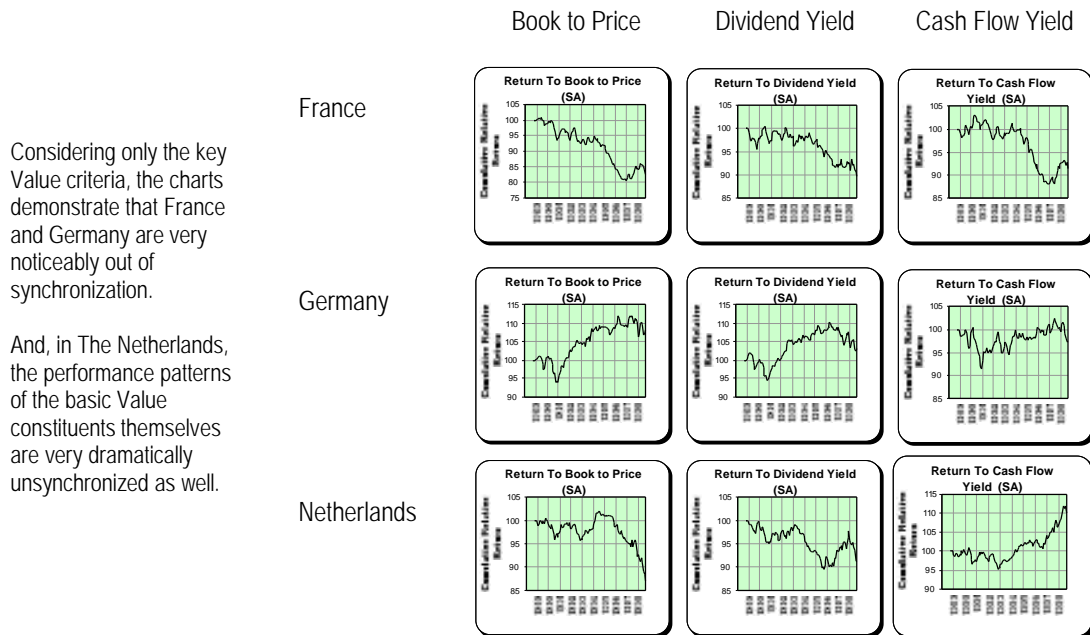
A Multi-Purpose Management Tool

Style offers a set of criteria for monitoring and co-ordinating the activities of managers. Portfolio Style Analysis provides a simple tool for investment directors, consultants and sponsors that enables them to direct and manage investment managers in a consistent and relevant manner. It helps managers manage managers.

However, unless we can be sure that Styles genuinely represent clearly defined investment themes within and across the European markets, and that the performance data from these various themes are characteristically distinct, most anticipated Style benefits might turn out to be only disappointing mirages. And there are sound *a priori* reasons to question the applicability of Style analysis within the European market.

- 1 There is no history of Style-based analysis within European markets. Consequently, despite the intuitive justification of the basic Style classifications, it is improbable that Styles will be as firmly embedded within European market psychology and structure as they are in North America.
- 2 Across Europe, different accounting and reporting standards, fiscal regimes, investor practices and market structures may influence Style structures dramatically. Hence, even the most basic of Styles may be represented by different factors and security criteria from market to market. (See Table 1 and the "Identity" statistics across European markets in Table 2)
- 3 Although European integration may ultimately dampen down many of the country to country differences in broad economic and market cycle timing, regional disparities will most likely continue to result in a lack of market to market synchronization, among even the most similar of Styles. Consequently, it may be impossible to justify taking a Pan European view on Styles and Style rewards, across the European markets. (See Table 1)

**Table 1: The Principal Value Constituents
A Graphic Comparison across France, Germany and The Netherlands**



Considering only the key Value criteria, the charts demonstrate that France and Germany are very noticeably out of synchronization.

And, in The Netherlands, the performance patterns of the basic Value constituents themselves are very dramatically unsynchronized as well.

Notes:

- 1 Based on the relative total returns series of portfolios constructed of the highest scoring securities (50% of the market, by capitalization), ranked by the factor (Sector Adjusted and Country Adjusted, see note below), capitalization weighted and rebalanced every six months. Total stock universes: US: 2550; UK: 1000; France: 360; Germany: 260; The Netherlands: 100; Pan Europe: 2400.
- 2 Analysis in all graphs and tables is conducted using "Sector Adjusted" Style returns series for individual markets, and "Country and Sector Adjusted" Style returns series for the European analyses. These adjustments (based on Sector relative and Country and Sector relative classifications of individual securities) reduce the influence of country or sector imbalances, within the Style portfolios, on the appraisals of the individual Style themes.

ANALYSIS

To address these concerns, we have devised a number of tests to assess the applicability of Style within and across the European markets.

Identity Candidate Styles can easily be defined by a very wide range of criteria, most of which would describe totally irrelevant security characteristics. *Identity* provides a test to identify a true investment Style as distinguished from those resulting from irrelevant criteria.

The statistic is defined from a Monte Carlo simulation comparing the tracking error versus the market of the candidate Style portfolio against the tracking errors of 500 similarly constructed but randomly selected portfolios within each market. Identity measures the percentage of tracking errors, from the randomization process, which are less than the tracking error relating to the candidate Style portfolio.

Identity of 100% indicates that all of the randomly selected portfolios result in tracking errors below that of the candidate Style portfolio. This means that the systematic performance characteristics of the candidate Style portfolio can be regarded as distinct and very significant.

Irrelevant criteria, on the other hand, score closer to 50% and are quickly recognized to be inappropriate as investment Styles.

Regularity Measures the mean averting (cyclicality) / mean reverting (trending) tendencies of the Style reward patterns, and offers insights regarding the information content of the Style returns. The statistic is based on the Variance Ratio (Defined as: $VR(N) = \text{Variance}(N \text{ Month Returns}) / (N * \text{Variance}(\text{One Month Returns}))$), and measures the likelihood that deviations from the long-term trend can persist within a 3, 6 or 12 month period. The statistic also casts light on "semi-strong form market efficiency".

Low figures (between -0.25 and $+0.25$) indicate that over the relevant time period the Style reward pattern is very erratic and unlikely to contain much usable information. Consequently, it would be virtually impossible to characterize the performance pattern of such “Styles” or to forecast them (over the relevant time period) using traditional quantitative methods.

Positive figures indicate the likelihood that short or medium-term trends can deviate from the long-term trend. The larger the number the more likely it is that such deviations might occur and persist.

Negative figures indicate that trends can only deviate from the long-term trend for short periods. The more negative the number, the more likely it is that any deviation will quickly be corrected and that the series will soon return to its long-term trend.

Table 2: Style Characteristics within the Major European Markets

Market	Style Factors	Identity	3m Regularity	6m Regularity	12m Regularity
UK	Book to Price	100	0.32	0.38	0.22
	Dividend Yield	100	0.03	-0.35	-0.41
	Return on Equity	99	0.11	0.22	0.31
	Earnings Growth	97	0.20	0.53	1.08
	Size	100	0.17	-0.01	0.14
France	Book to Price	100	0.40	0.41	0.50
	Dividend Yield	39	-0.17	-0.35	-0.61
	Return on Equity	96	0.20	0.15	0.56
	Earnings Growth	46	0.21	0.30	0.36
	Size	100	-0.24	-0.27	-0.23
Germany	Book to Price	96	0.05	0.01	-0.16
	Dividend Yield	91	0.10	0.05	-0.10
	Return on Equity	67	-0.05	-0.21	-0.43
	Earnings Growth	90	-0.09	-0.10	-0.28
	Size	100	-0.31	-0.35	-0.27
Netherlands	Book to Price	67	0.01	0.04	0.15
	Dividend Yield	78	0.06	-0.11	-0.43
	Return on Equity	79	-0.06	-0.11	-0.10
	Earnings Growth	26	0.14	0.17	0.05
	Size	91	0.01	-0.12	-0.23
Pan Europe	Book to Price	100	0.42	0.49	0.51
	Dividend Yield	98	-0.02	-0.43	-0.67
	Return on Equity	100	0.21	0.18	0.32
	Earnings Growth	95	0.14	0.30	0.62
	Size	100	-0.05	-0.15	-0.05
Europe ex UK	Book to Price	100	0.34	0.45	0.46
	Dividend Yield	67	-0.12	-0.26	-0.46
	Return on Equity	99	0.29	0.26	0.39
	Earnings Growth	90	0.02	0.11	0.24
	Size	100	-0.14	-0.05	0.17
United States	Book to Price	100	-0.15	-0.05	0.15
	Dividend Yield	100	0.04	-0.21	-0.49
	Return on Equity	100	0.19	0.62	1.40
	Earnings Growth	99	0.13	0.27	0.36
	Size	100	-0.05	0.03	0.09

A number of observations are particularly relevant:

- 1 Despite the strong *identity* data in the US and UK, the popular candidate factors do not define well-identified Styles within all major European markets (similar results apply to other European markets not report above). In fact, the *identity* data in Table 2 reveal that in France, Germany and The Netherlands the key Value criteria differ from market to market and no one criteria is clearly identified across all markets. It appears that Value has different meanings from market to market. Nonetheless, aggregation demonstrates that across Europe (including Europe excluding the UK) Styles can be clearly identified using most of the popular candidate factors.

This is very important. Market by market, the major Style reward patterns frequently differ in composition and significance, and are still broadly unsynchronized; however, aggregation across Europe does permit the valid definition of investment Styles.

- 2 *Regularity* does not appear to be a critical issue. In the US and UK, Style has achieved broad popularity even though low *regularity* shows many of the most popular Style rewards to be extremely volatile and very difficult to characterize. The regularity of Book to Price in the US, the most popular Style factor, is among the lowest - over all selected time intervals. Nonetheless, across Europe, the key Style factors record significant regularity and offer potentially usable cyclicity or trending.

This may be related to market efficiency. It should not be surprising that in the well-researched and rather efficient US, the short-term performance of Value, particularly Book to Price, appears random and difficult to characterize and forecast. Perhaps the European markets, not being quite so efficient, offer better opportunities to benefit from the use of Style investment techniques.

- 3 But it is well worth remembering that although Pan European aggregation does submit usefully to regional analysis, the diverse structure and performance characteristics of the basic Styles, market to market, will most likely continue to reward more detailed, market sensitive, analysis within individual markets as well.

APPLICATION

As Style becomes more recognizable as an important aspect of the returns structure within European equity markets, it becomes increasingly important to be able to analyze portfolios according to their Style exposures and Style risks.

Basically, there are two distinct ways to assess a security's, a portfolio's or a manager's Style orientation: by Time Series Analysis; or by Compositional Analysis.

- A Time Series Analysis works by mathematically comparing a portfolio's performance against the time series of returns of a number of Style paradigm portfolios. That combination of candidate Styles that closest approximates the performance of the portfolio is considered to be the portfolio's Style characterization.
- B Compositional Analysis constructs a characterization of a portfolio, at a particular point in time, from a bottom-up analysis of the fundamental data relating to the actual securities held.

Table 3: A Comparison of Portfolio Style Analysis Techniques

<u>Comparison Criteria</u>	<u>Time Series Analysis</u>	<u>Compositional Analysis</u>
<u>Mechanics</u>		
Portfolio Requirements	At least 3 years of monthly returns.	A complete list of holdings.
Data Requirements	At least 3 years of performance data for at least 6 Style Indices in each market covered. Commercially available from a number of suppliers.	Full current (and some historic) fundamental Balance Sheet, Profit and Loss, and trading data on upwards of 15,000 stocks, world-wide. Commercially available, but costly.
Analysis Programme	Commercially available mathematical regression and optimization routines.	Commercially available data analysis software (e.g. SIRA).
Programme Speed	Fast (seconds).	Slower (2-4 minutes); high volume data retrieval and analysis required.
<u>Philosophy / Product Design</u>		
Implicit Assumptions	That the portfolio Style tilts be stable over the minimum 3-year appraisal period.	None. Managers may dynamically shift or rotate their Style orientations. "Time-lapse" analysis accurately assesses dynamically changing portfolios.
Sensitivity	Analysis conducted only at the total portfolio level using a small set of fixed Style characterizations.	Analysis conducted at the total portfolio level, also "Sector Adjusted" and within individual industrial sectors. Standard Style characterizations as well as more detailed, individually sensitive, Style constituents used in the analysis.
Regional Applications	Individual country by country analysis only. Multi-market analysis introduces too many variables and regression/optimization techniques become unstable and unreliable.	Country by country, or fully flexible regional analysis capability.
<u>Client Applications</u>		
For Retail Clients	***** No sophistication needed.	***** Can easily be presented at accessible retail level of simplicity.
For Institutional Clients	*** Limited detail or analysis capability, but does offer "big picture" impression.	***** Accessible detail of manager Style tilts and other relevant investment postures.
For Internal Portfolio Analysis and Review	* Limited management information available.	***** Accessible detail of portfolio Style tilts and other relevant investment postures provided at aggregate portfolio level, at sector level, and at stock level.

A moment's reflection reveals why Time Series Portfolio Style Analysis has quickly become so popular in the US. It's an individual market where, for historical reasons, managers observe strong medium-term Style consistency. The less sophisticated retail sector's needs are dominant; and the Time Series approach is easier (in data management terms), faster and less costly to deliver. Referring to Table 3, it is also easy to see why it is necessary to apply the more demanding Compositional Analysis techniques across Europe. Here, unlike in the US, managers still rotate Styles and factor emphasis dynamically through the economic/market cycle and the more sensitive and dynamically stable analysis is required. Furthermore, while country by country analysis used to be the norm for European equity managers, now, as we move towards European Monetary Union, the broader, regional, perspective is definitely required. And this is available only from the Compositional Style Analysis.

The introduction of the Euro and the Pan European stock exchange(s) are extending the role of the typical investment professional far beyond the familiar territory of local markets and local investment themes. While it is tempting to suggest that soon only the broad global themes will predominate, we all recognize that it will always be a balance; domestic influences will remain important as well. European market integration is compelling equity analysts to digest and interpret ever-increasing volumes of international, local market, and security specific information. And, as the pressures build, it will become increasingly important to establish shortlists of those concentrated investment criteria which matter most in determining portfolio returns, market by market and, where possible, across market regions. And this, we now recognize, is the motivation and the vocabulary of Style. Style analysis offers a systematic, information-based, professional approach to addressing the increasing demands placed upon the 21st century investor.

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Style Investment Research Associates Limited is an independent provider of practical and intelligible Style-based portfolio and market analysis services to international investment professionals.