Style and Style Factors within and across Europe

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Style is the new "hot topic" in global equity analysis and management. It is, however, really nothing more than simply reducing the scale of the problem of securities and portfolio analysis to a reduced set of investment criteria that make sense.

Recently, Style techniques have been applied within many of the individual markets of Europe, with some considerable success; and now, Style techniques are being considered across Europe as a whole.

Style has also become a very appealing approach since, with the creation of the Euro, many managers are looking for ways of investing systematically in neighbouring markets. Equity portfolio managers can no longer be simply local managers, and Style offers the possibility of enabling them to become successful Euro Zone managers, simply by looking at a few common Style features.

In this presentation, I will review the development of the Style concept within Europe, offer the results of our research on Style within and across Europe and also indicate some of the directions which I believe European Style will take over the coming few years.

It is an ambitious undertaking for one hour, and even to get started I have to establish some foundation of common understanding.

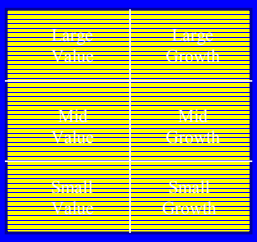
In this presentation I will discuss what I think Style is, how the key ideas behind Style got started (predominantly in the US), how we can determine whether Style is being correctly applied, and how these concerns surface within the individual European markets.

I will then turn to the possibility of a Pan-European Style model, describing various impressions of what that might look like; and I will then present some of our research reviewing the relevance of such models for practical applications, and I will show some of our initial results relating to individual European markets, the Euro Zone, and within individual economic / industrial sectors.

I will close by describing how investment professionals, from many sides of the fence (investment managers, investment consultants, investment sponsors) can incorporate Style and Style concepts in their activities in the European markets. And I will hazard a few guesses on how that might develop in the future.

What is Style?

- Graham & Dodd refine Value Investing (Securities Analysis 1934)
- T Rowe Price on the virtues of Growth ("Picking Growth Stocks"; Barron's 1939)
- Evolution



- Institutional Investor (March 1996)

"…identifiable segments of the market with distinguishable patterns of returns."

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Benjamin Graham and David Dodd first introduced "Value" investing in their groundbreaking book "Security Analysis" in 1934. They identified 3 basic criteria: Intrinsic Value; Future Value; and, Market Factors in their general enquiry. Their intention was to show that there is more to shares than only speculation. Their focus was on company share value; and their ambition was to offer an analytical methodology capable of building a sensible foundation for investments and investment analysis following the disruption of the Crash and the Depression.

On looking back we can see that their analysis included a healthy measure of respect for "Growth" criteria. But as we can generally expect, that did not stop their contributions from being over simplified, caricatured, and vehemently debated by a posturing opposition.

In 1939, five years later, T. Rowe Price Jnr, in "Picking Growth Stocks" (Barron's 1939) focused on "The Fallacy of Investing for High Current Income". The article caricatured Value stocks as mature (at maximum earnings) or even decadent (secular decline in earnings). They pay out earnings because they have to; and the best developments may be already behind them.

Growth stocks offer "favourable underlying long-term growth in earnings" and so can provide the only realistic prospects of outrunning the erosion of inflation.

At the core of all Style work, is a process for the partitioning of market securities into the main Style categories. The usual construction on the left outlines the standard way of looking at Value, Growth, Large and Small; but it is very worthwhile going more deeply into the definitions of what constitutes each of the major Styles.

Value is usually comprised of Book to Price and Dividend Yield, but other measures of Value are sometimes also taken into account. Growth has often been taken as simply low Value (Why else would you hold a low Value stock other than expecting Growth … that's what the simple Dividend Discount Model says.) We don't subscribe to that view and consider also a number of other Growth criteria. We also look at size (and risk), momentum, and some other criteria as well.

The AIMR, however, thinks more abstractly and defines Style in more generic terms. Their definition make no reference to the customary Style categories but offers a framework for considering the Style quality of a number of security criteria.

But, no matter what set of criteria we choose to apply, before we can apply Style in new markets, we have to find a way of verifying that the categories make sense. And for this we need to set up an analysis methodology.

Finding Style Criteria that Matter
- A Conditions Table for Style Factors -

CONDITION	SIGNIFICANCE	IMPORTANCE
Identity	Performance of stocks within each Style must cluster in distinct groups.	*****
Consistency	Securities' membership in Style categories should be relatively stable.	***
Cohesion	Styles should be detectable from a number of perspectives; and the return patterns from each perspective should be similar.	****
Attribution	A portfolio's performance should be describable in terms of its Style tilts.	*****
Regularity	The relative performance of Style categories should be regular and non-random.	****
Universality	All stocks must be classifiable using the selected Style criteria.	***
Symmetry	The key Value and Growth Style factors should display roughly symmetrical performance.	***
Sector Independence	Styles should be more than thinly disguised industrial sector performance patterns.	****

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Aside from the catchy acronym, and it's implicit warning, there is nothing here but some common sense. But it is important to be explicit about what we mean when we say that a Style exists as an important consideration in a market.

Viewing Style as a way of describing a group of stocks, it is important that the performance of a Style group display a distinct characteristic. This is the basic AIMR stipulation, that stocks selected by a Style definition display a distinct "**Identity**" with respect to their performance characteristics. It is clearly a 5 star requirement.

It's also important that membership of a Style group be relatively consistent ("**Consistency**"); but it's not absolutely critical. If the gains are big enough then perhaps turnover and transactions costs are not a serious problem. But it is always important to know in advance what the turnover of a particular Style might be. It's only a 3 star requirement.

If a Style genuinely exists, it should be detectable from a number of similar perspectives and, because of the arbitrage of active investors, the various performance profiles (as viewed from the various perspectives), should be similar. This "**Cohesiveness**" ensures that the Styles identified are not simply statistical quirks.

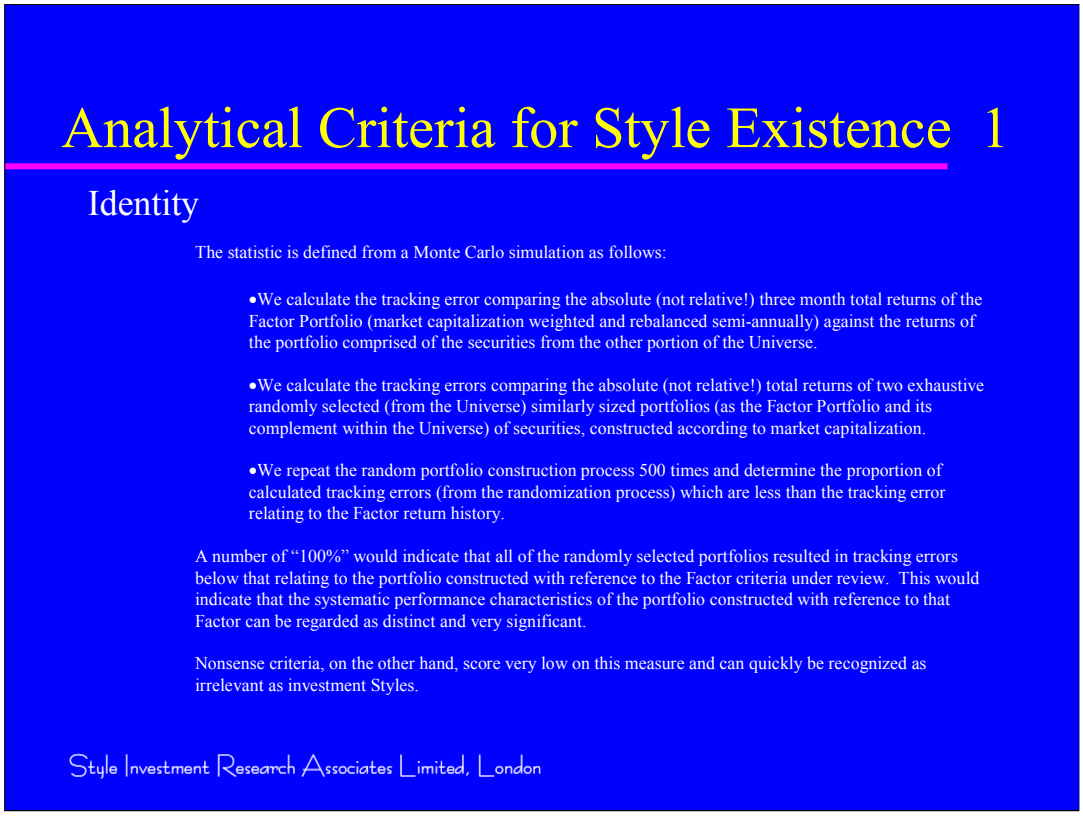
Many use Style as a way of describing the performance characteristics of individual securities and, ultimately, their portfolios ("**Attribution**"). This is clearly related to Style Identity, but it is very worthwhile measuring independently as well. For Style to be practically usable by most managers or analysts this should be a 5 star requirement.

And frequently active managers try to rotate their Styles to anticipate and ride with Style reward trends; for them it is critical that these Style rewards follow reasonably regular and characterizable patterns ("**Regularity**"). For Style to be practically usable by most managers or analysts this should be a 4 star requirement.

"**Universality**" is obvious. Note: Exclusivity is not mentioned. I do not believe it is necessary to stipulate that securities, portfolios or managers fall only into one category.

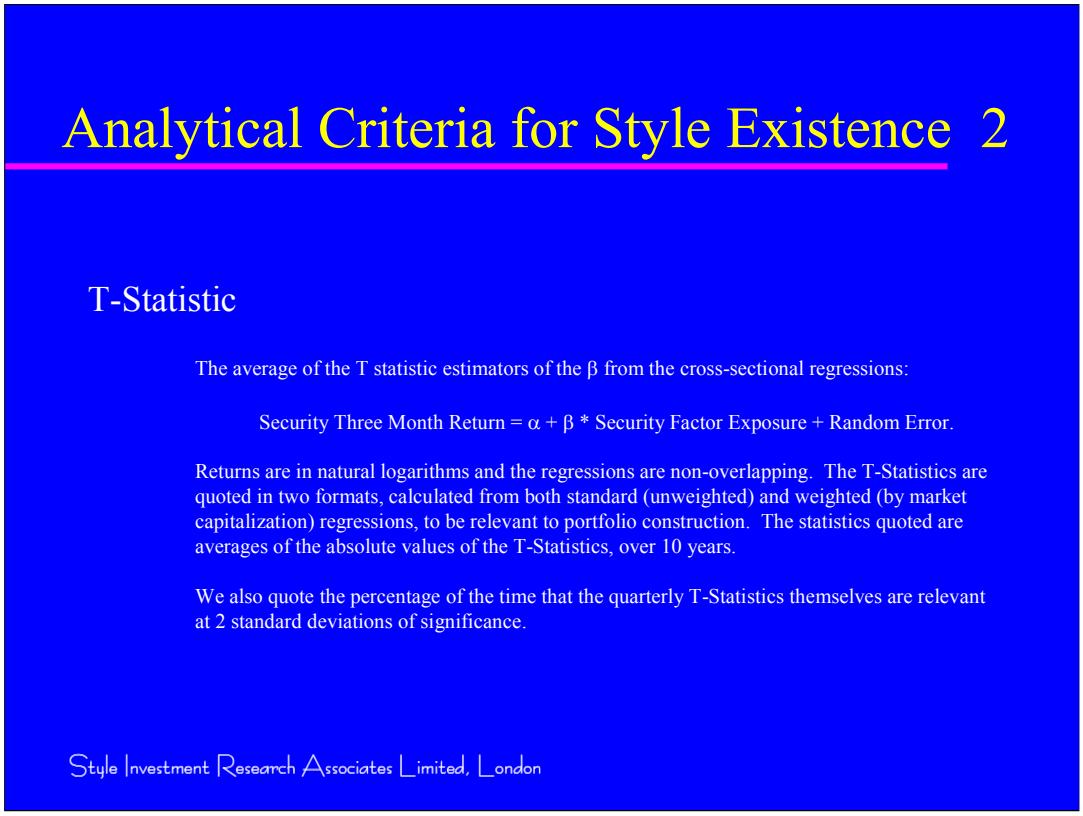
Although they are frequently measured differently, market to market, Value and Growth themes are pretty well universal in their applicability; they are rooted in human nature (fear and greed?). Consequently, in markets where Style is a genuine consequence of investor behaviour and systematic market pricing, we should expect some "**Symmetry**" in the performance of Value versus Growth portfolios. But in some important markets this may be unclear. It's a 3 star requirement.

Critically, for the integrity of the entire framework, Styles and Style reward patterns must be industrial "**Sector Independent**". This means that observed Style reward patterns must result from something more fundamental than simply industrial sector effects. Style based portfolios normally do carry sector imbalances; but the significance and relevance of Styles must persist after having removed the influences of sector performance differences. 4 stars.



The definition of the Identity is in the text.

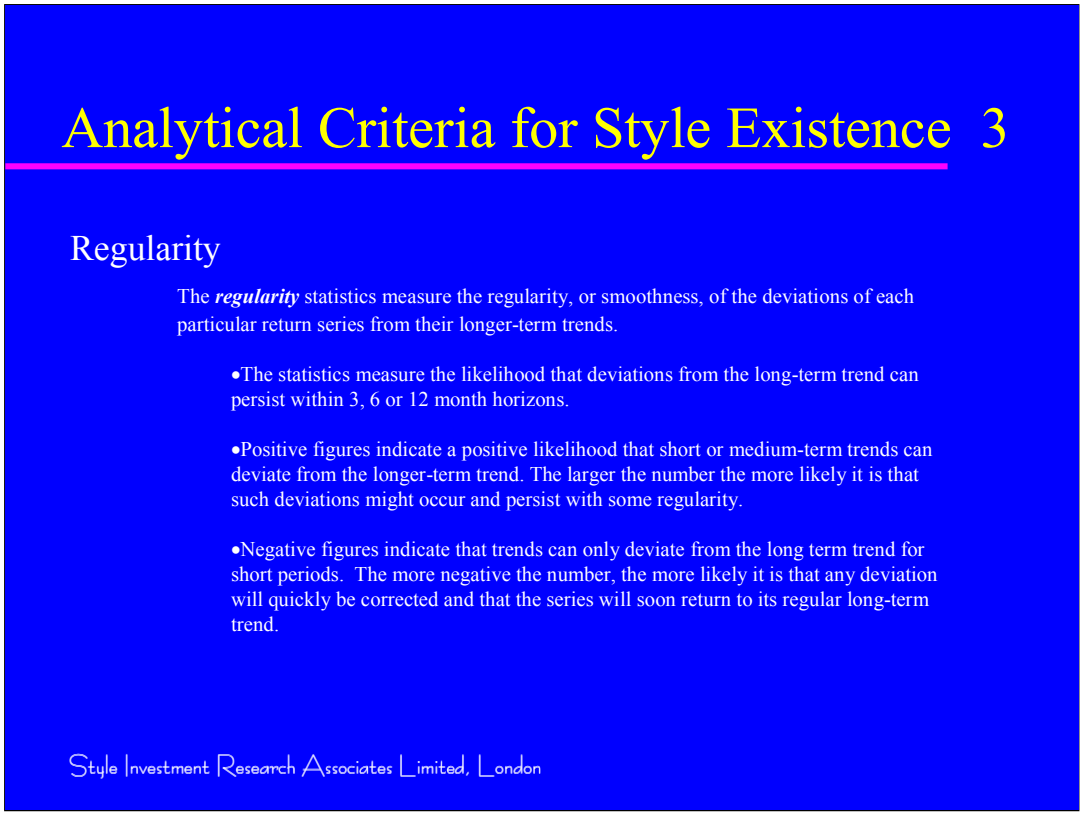
We tried higher numbers of simulations but found little difference.



The T-Statistic measures both the tilt and the clustering around the line of best fit. Since it requires a proportional relationship, it may be too strong a test, and Identity may give a more sensible figure for practical use.

We used both weighted and standard (unweighted) regression analysis for the T-Statistics so that we would have results that would be more closely applicable to portfolio construction (where size is often related to the size of the holding and so it is more important to get the direction right for the larger companies). However, over the recent past we found strong correlations between size and performance and so the weighted T-Statistics carried a lot of baggage. We are looking at ways to correct for this in future research.

We also quote the percentage of the time that the T-Statistic (the unweighted one) is 2 Standard Deviations significant. This is a way of saying something like: "The xxxxx factor is very important yyyy% of the time." And, particularly since we measure using non-overlapping intervals, the number is not prone to distortion from outliers.



This statistic is intended to check for information within the time series, within the frequency of the typical investment committee.

Its primary use is as a time saver. If the information is low and the random noise predominates, then analytical techniques, intended to construct predictive models, are mostly destined to failure.

These statistics offer no guidance on recognizing trends over longer time periods. That is where common sense and human experience come into play, and models (because of inadequate long term data, and because of noise disruption over the short term) become ineffective.

The Regularity Statistic

Definition of the Variance Ratio and Regularity:

$$VR(q) \equiv \frac{Var[r_t(q)]}{qVar[r_t]}$$

Where:
$r_t(k)$ is the series of multiple (k) period compound returns; for example: $r_t(2) \equiv r_t + r_{t-1}$

Then the Regularity statistics are simply defined as $VR(q)$-1.

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Simply definitions. But the intuition is as follows:

Remember that:

Var (a+b) = Var (a) + Var (b) +2 Cov (a,b)

Dividing both sides by Var (a) + Var (b) gives

Var (a+b)/(Var (a) + Var (b)) = 1 + 2 Cov (a,b))/(Var (a) + Var (b))

Then if, as in the slide, “a” and “b” are simply a series and itself with a one period lag, then the above approximates to:

Var (2a)/2 Var (a) = 1 + Cov (a, a(lagged by one))/Var (a).

Which is, according to the definition, VR(2).

If there is no first order autocorrelation, this equals 1.

The Regularity Statistic

Calculating the Variance Ratio:

$$VR(q) = 1 + 2\sum_{k=1}^{q-1}\left(1 - \frac{k}{q}\right)\rho(k)$$

Where:

$\rho(k)$ is the k[th] order autocorrelation coefficient of returns $\{r_t\}$, defined as: $\rho(k) = \frac{Cov[r_t, r_{t-k}]}{Var[r_t]}$

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From Campbell, Low and MacKinley (The Econometrics of Financial Markets).

The Regularity Statistic

Autocorrelation Coefficient Weights in Variance Ratios

	Weight on ρ(1)	Weight on ρ(2)
VR(3)	.67	.33

	Wgt on ρ(1)	Wgt on ρ(2)	Wgt on ρ(3)	Wgt on ρ(4)	Wgt on ρ(5)
VR(6)	.33	.27	.2	.13	.07

	ρ(1)	ρ(2)	ρ(3)	ρ(4)	ρ(5)	ρ(6)	ρ(7)	ρ(8)	ρ(9)	ρ(10)	ρ(11)
VR(12)	.17	.15	.14	.12	.11	.09	.08	.06	.05	.03	.02

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From working with the equation on the previous slide.

Note that the effective time period (or "half life") is quite short. The short data series limits this. Other measures are also possible, but the general results will be the same over the time period indicated.

The Regularity Statistic

Significance Testing of the Variance Ratio Statistic

Following Campbell, Low and MacKinlay (The Econometrics of Financial Markets, 1997), it can be shown that, for a sample of $nq+1$ observations and a very standard formulation of an estimator of $VR(q)$, $\widehat{VR(q)}$, then under the random walk assumption,

$\sqrt{nq}\left(\widehat{VR(q)}-1\right)/\sqrt{2(q-1)}$ is normally distributed with zero mean and standard deviation of 1.

Consequently, with a total of 121 observations, the values of the re-centred Variance Ratio (our $VR(q) - 1$) at 1 and 2 standard deviations from 0 are:

Confidence Ranges for the Regularity Statistic

	1 Standard Deviation	2 Standard Deviations
$VR(3) - 1$	0.183	0.365
$VR(6) - 1$	0.289	0.577
$VR(12) - 1$	0.428	0.856

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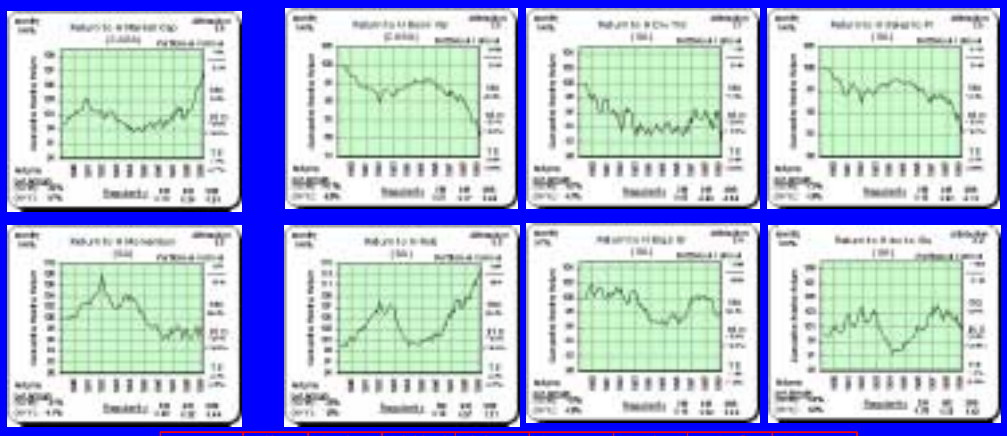
These figures should be used to assess the relevance of the Regularity statistics quoted in the following research.

Note that 2 Standard Deviations may be a more stringent test than we, as practical investors, should apply.

Style Factors in the United States



	Size	Book to Price	Dividend Yield	Sales to Price	Return on Equity	Earnings Growth	Profit Margin	Momentum
Identity	100	100	100	100	100	97	100	100
T-Statistic	2.5	3.2	3.7	3.5	2.8	2.4	3.2	2.2
IR^2	51%	62%	64%	72%	59%	49%	64%	44%
Wtd T-Stat	6.4	4.8	5.6	3.4	4.9	4.9	4.1	3.5
Regularity	20	42	- 58	- 10	1.31	34	42	44

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Data definitions: Worldscope data base, 20,000 securities in 35 markets, strong dead company coverage (about 4,000 companies no longer trading).

Data filters: Sample restricted to companies over $100 million market cap.

Factor Selection: Size is top 80%, all other factors as top 50%.

Appendix: In the Appendix Large is considered as over $700 million and Small is considered as between $100 million and $700 million.

Country and Sector Adjustment: In all cases, adjustment has been introduced to reduce the impact of industrial sector or market specific causes for Style return patterns.

Portfolio Construction: Semi-annual rebalancing January / July. Market Cap weighted, with income continuously compounded.

Return Calculation: Relative to calculated return of selected universe (all stocks above $100 million market cap).

Points of interest:

Identity numbers are high

Cohesion is strong among the main Value and Growth factors.

Consistency probably too small to read, but the numbers are principally to establish a basis for comparison for other market. That is, "Style is popular in the US with turnover figures of these, so how do other market turnover figures compare?"

Attribution figures are all significant.

Regularity Here and in all the following, we quote the 12 month statistic; the 3 and 6 month statistics may be barely readable. The data mainly indicate little information in the time series over the short term. However, both Dividend Yield (which apparently mean reverts) and RoE (which shows dramatic short term trending) show promise. Perhaps there is some evidence here to explain why Growth managers have, over the recent past, found it easier to outperform their benchmarks than Value managers. Growth managers may have been less likely to have been caught wrong footed, and consequently more comfortable extending their portfolios further into "Growth Territory".

Universality - by construction.

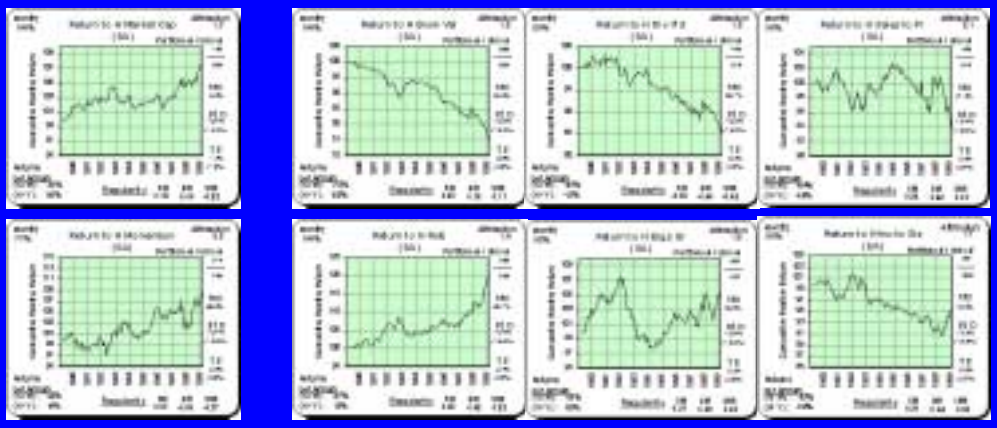
Symmetry - note that the main Value and Growth patterns are symmetric.

Sector Independence - by construction. The data also reveal significant patterns of performance and good statistical significance before Sector Adjustment.

Without a similar financial market history it is very unlikely that markets will resemble one another, so the US experiences may not be exportable and relevant.

Although many of the insights from Graham and Dodd and T Rowe Price undoubtedly apply, differences in accounting standards, reporting practices, payout policies, the structure of the savings industries, and long-lasting cultural differences almost guarantee that Styles and investment practices will be different across markets.

Style Factors in the United Kingdom



	Size	Book to Price	Dividend Yield	Sales to Price	Return on Equity	Earnings Growth	Profit Margin	Momentum
Identity	100	100	89	96	100	98	96	77
T-Statistic	1.3	1.8	1.8	2.1	1.4	1.2	1.7	2.2
IT-2	18%	33%	36%	44%	26%	13%	39%	46%
Wtd T-Stat	4.8	4.3	3.2	2.7	3.0	2.1	2.2	3.7
Regularity	-.23	.11	-.45	.00	.28	.43	.08	-.37

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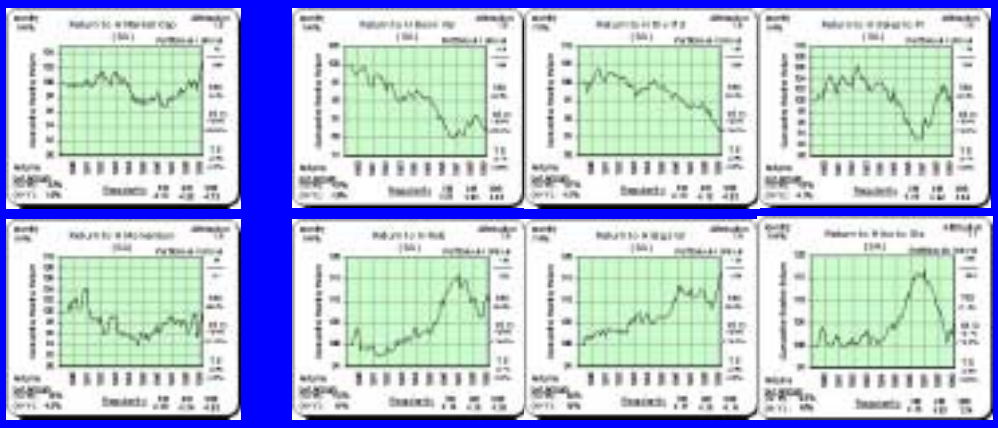
Points of interest:

Identities are lower but still very relevant.

Unweighted T-Statistics (Attribution) are lower, but still very important a large proportion of the time. Note the Weighted T-Statistics are all significant.

The low Regularity statistics indicate that over the short term there is a lot of noise in the return patterns, and that short term analysis is probably doomed to failure. However, simple inspection clearly identifies patterns and trends over a slightly longer time horizon.

Style Factors in France



	Size	Book to Price	Dividend Yield	Sales to Price	Return on Equity	Earnings Growth	Profit Margin	Momentum
Identity	100	100	76	94	100	74	100	90
T-Statistic	1.2	1.2	1.8	1.6	1.6	1.4	1.1	1.6
|T|>2	18%	13%	41%	31%	31%	23%	21%	38%
Wtd T-Stat	2.6	3.2	1.9	2.9	3.3	2.3	2.0	2.6
Regularity	- 32	59	- 28	52	59	- 10	1.34	- 58

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Points of interest:

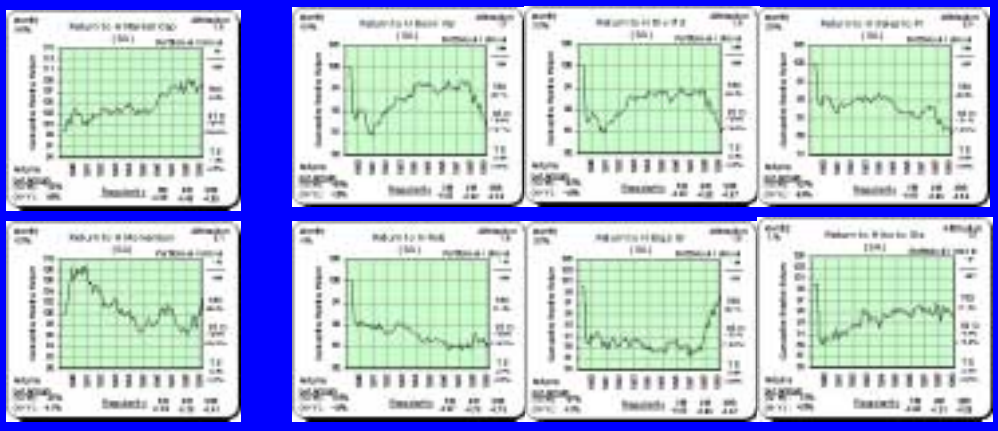
Lower Identities but still very significant - clearly identified Style reward patterns.

Lower T-Statistics but, as in the UK the weighted T-Statistics are all significant and even the unweighted T-Statistics are significant a large proportion of the time.

The Regularity data indicate some historic trending in income to sales but, and this is probably a good warning about the interpretation of all statistics, this clearly is due to the experiences over the past 5 years only.

Note that Cohesion and Symmetry indicate that there are Style patterns operating in France.

Style Factors in Germany



	Size	Book to Price	Dividend Yield	Sales to Price	Return on Equity	Earnings Growth	Profit Margin	Momentum
Identity	96	60	33	29	0	23	1	63
T-Statistic	1.6	1.7	1.6	2.0	1.5	1.2	1.2	2.1
|T|>2	36%	33%	33%	31%	28%	21%	28%	49%
Wtd T-Stat	3.4	2.7	2.0	2.6	2.1	2.5	2.9	2.8
Regularity	-.55	-.38	-.57	-.54	-.76	-.47	-.85	-.41

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Points of interest:

Low Identities

Low unweighted T-Statistics, but the factors do appear to be important a good proportion of the time.

Note the negative Regularity data. These also apply over the 3 and 6 month periods (many at the 2SD level of significance).

Note lack of Cohesion and the poor Symmetry.

Note also that until very recently there was no similarity between the Style patterns observable in France and those observable in Germany.

Style does not appear to work as well in Germany. But the critical T-Statistics indicate that there is still something here to consider.

The previous information regarding the major European markets exposes serious concerns.

- Some Weak Style factor Identities
- Low Cohesion within some Style groups
- Lack of Synchronization across the major European markets
- Occassionally low Attribution (T-Statistics) compared to the US and UK markets

With these concerns, how can we hope to be able to produce something of value simply by jumbling everything together?

And there are also some practical questions about how we should measure individual securities' Style factor attributes, and about how managers might, or should, manage integrated portfolios across integrated (or integrating) economic regions. Should we view a security as high Book to Price (say) simply because it has a high B/P relative to other securities in the region? Or should we be sensitive to the possibility that such a security may simply be in a high Book to Price industrial sector, and/or a high Book to Price market, and make suitable adjustments. (Since, in these cases, one's perception of the Value of a security depends entirely on the perspective one attaches to the measurement.)

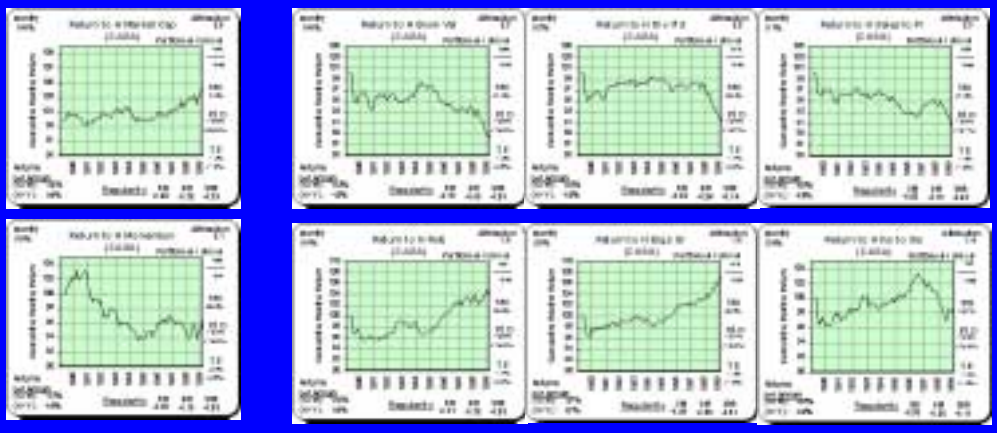
To try to overcome these questions of perspective it is useful to analyse the Euro Zone according to each of 4 different perspectives, as represented in the slide.

It is quite logical to describe the various models as follows:

Country Adjusted / Country Adjusted & Sector Adjusted	the Transitional Model
Standard / Standard & Sector Adjusted	the Integrated Model

Until full European integration occurs, it will still be very important to view and assess individual securities according to the various measures which apply within each market individually. Following full integration, it may then only be necessary to review each security against others across Europe, without country market distinctions.

Style Factors in the Euro Zone



	Size	Book to Price	Dividend Yield	Sales to Price	Return on Equity	Earnings Growth	Profit Margin	Momentum
Identity	100	100	91	91	90	59	84	99
T-Statistic	2.9	2.2	2.2	2.3	1.6	1.6	1.4	2.1
|T|>2	62%	46%	44%	51%	36%	38%	28%	44%
Wtd T-Stat	4.3	2.9	2.5	2.5	2.2	2.5	2.3	2.4
Regularity	-.39	-.20	-.14	-.23	-.26	-.51	-.11	-.26

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Despite the concerns there is a lot here:

Identity data are high.

There appears to be acceptable Cohesion among the factors within the major Styles (Value / Growth).

Value / Growth Symmetry in evident.

Strong average T-Statistics, and high percentage of the time significance as well.

Styles appear to apply with significance across Europe;

It is probably also worthwhile exploring the Non-Sector Adjusted analysis to see how some of the other data providers might view the European markets. Expect the significance levels to be even higher. But this may not accurately reflect the way funds are invested or managers manage.

There is a growing move towards investing across Europe on a sector by sector basis. This section tries to determine whether this makes sense.

The slide mentions those key features that require checking:

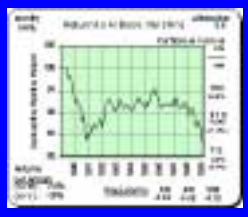
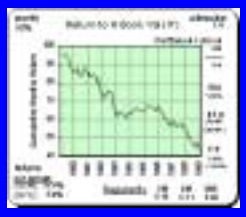
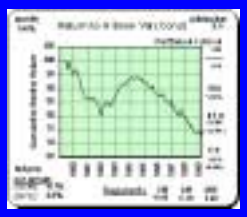
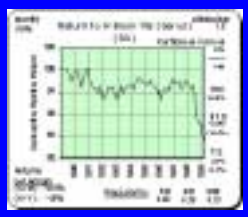
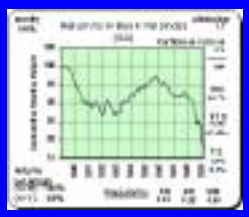
Do Style patterns apply across all sectors and are they synchronized?
Are Style factors equally important from sector to sector?
Do different Styles work better in different economic / industrial sectors?

And each of these features requires checking market by market and across the Euro Zone as a whole.

Style within US Sectors

Value within the Principal Economic Sectors

Financials & Insurance, Information Technology
Consumer (Cyc/Ncyc), Services (Cyc/Ncyc), Industrials (Gen/Basic)

	Value Financials	Value Inf Tech	Value Consumers	Value Services	Value Industries
Identity	100	97	100	99	100
T-Statistic	2.5	1.4	2.0	1.8	1.7
T>2	49%	31%	44%	41%	31%
Wtd T-Stat	4.5	3.3	4.0	2.8	2.6
Regularity	12	08	63	13	50

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Points of interest:

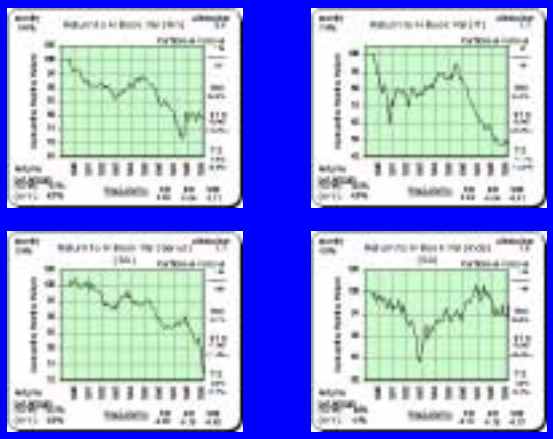
Evident synchronization sector to sector.
High Identity figures (Monte Carlo tests conducted within each sector).
Good T-Statistics.

The simple Value Style patterns apply within US sectors.

Style within UK Sectors

Value within the Principal Economic Sectors

Financials & Insurance, Information Technology
Consumer (Cyc/Ncyc), Services (Cyc/Ncyc), Industrials (Gen/Basic)



	Value Financials	Value Inf Tech	Value Consumers	Value Services	Value Industries
Identity	100	74	99	84	69
T-Statistic	2.0	1.1	1.0	1.1	1.6
(T>2	46%	13%	8%	10%	23%
Wtd T-Stat	6.1	2.0	0.2	2.6	2.3
Regularity	11	-.01	.02	-.02	-.13

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Points of interest.

Styles appear to be clearly Identified (in terms of the distinctive nature of the performance of the Value portfolio within each sector).

There is evidence of commonality of relative performance sector to sector, but the low Regularity data indicate a lot of noise over the short term.

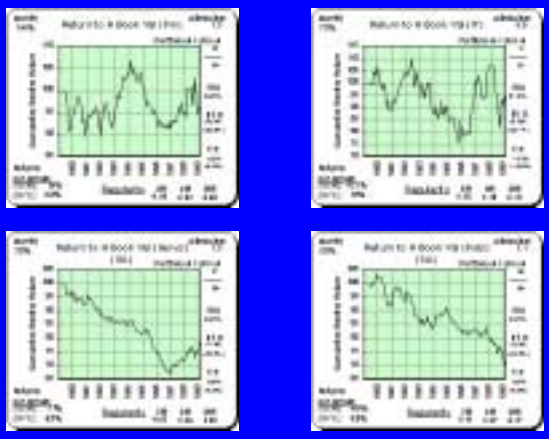
The lower T-Statistics indicate that in most sectors there is usually wide dispersion of performance among Value securities, when considering all securities equally. Even on this “prejudicial” basis Value still appears to be a strongly relevant factor in the Financials and Industrial sectors for a high percentage of the time.

The weighted T-Statistics are considerably higher, indicating that simple Value is a more relevant feature of performance among larger securities.

Style within France Sectors

Value within the Principal Economic Sectors

Financials & Insurance, Information Technology
Consumer (Cyc/Ncyc), Services (Cyc/Ncyc), Industrials (Gen/Basic)



	Value Financials	Value Inf Tech	Value Consumers	Value Services	Value Industries
Identity	100	78	92	72	88
t-Statistic	1.3	0.9	1.1	1.3	1.1
Tr-2	21%	8%	13%	21%	15%
Wtd T-Stat	2.8	1.5	2.8	2.4	1.9
Regularity	.26	.10	.54	.53	.17

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Points of interest:

Very similar to the situation in the United Kingdom.

Strong Identity (distinct performance of the Style portfolios within most sectors); but the low T-Statistics indicate that when, all securities are considered of equal importance, simple Value is a weak feature of performance sector by sector.

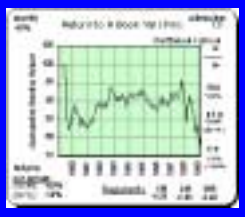
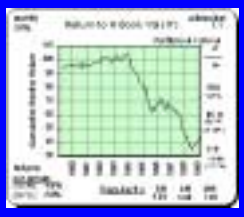
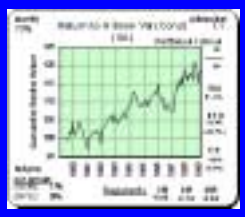
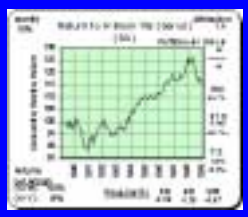
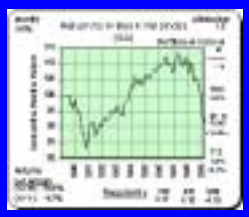
Also the Value reward patterns are not similar among all sectors.

However, as in the United Kingdom, the T-Statistics are higher on a weighted basis, indicating the simple Value is a stronger feature among larger securities.

Style within Germany Sectors

Value within the Principal Economic Sectors

Financials & Insurance, Information Technology
Consumer (Cyc/Ncyc), Services (Cyc/Ncyc), Industrials (Gen/Basic)

	Value Financials	Value Inf Tech	Value Consumers	Value Services	Value Industries
Identity	49	86	73	15	56
t-Statistic	1.3	1.1	1.1	1.0	1.8
(T>2	15%	8%	15%	5%	38%
Wtd T-Stat	2.9	6.8	2.0	1.5	2.8
Regularity	-.62	1.05	-.34	-.07	-.15

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Points of interest:

Lower Identity figures mean simple Value does not provide a so clearly distinct performance pattern.

Also the historic patterns are not synchronized from sector to sector - or compared to France, or the UK. But this appears to have changed over the past few years and the patterns are closer more recently.

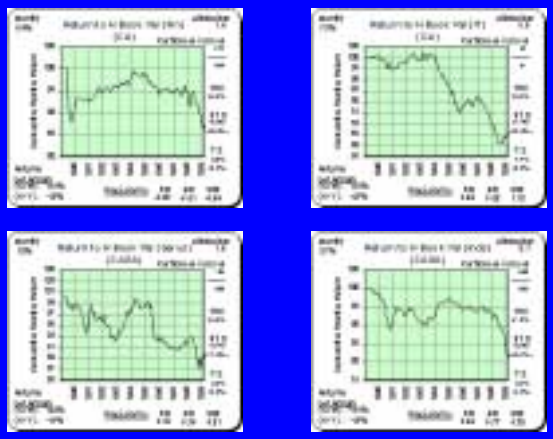
The unweighted T-Statistics are low, as are the percentage of the time that they are significant.

But weighted T-Statistics are mostly significant, indicating the the simple Value Style is more significant among the larger securities.

Style within Euro Zone Sectors

Value within the Principal Economic Sectors

Financials & Insurance, Information Technology
Consumer (Cyc/Ncyc), Services (Cyc/Ncyc), Industrials (Gen/Basic)



	Value Financials	Value Inf Tech	Value Consumers	Value Services	Value Industries
Identity	64	72	62	12	47
t-Statistic	1.4	0.9	1.5	1.5	2.1
IT>2	31%	10%	31%	23%	38%
Wtd T-Stat	2.1	2.7	2.5	1.8	2.5
Regularity	.64	1.12	.05	.21	.35

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Points of interest:

Identity figures are not particularly high but still indicate some performance distinctiveness of simple Value within sectors.

Unweighted T-Statistics are low, but in Financials, Consumer Goods, and Industrials simple Value is strongly significant a high proportion of the time.

And as in the individual markets, the weighted T-Statistics indicate that simple Value is very significant among the larger securities.

Style within Market / Regional Sectors

- The simple Value Style displays similar performance and is very important across all US sectors.
- Value displays similar performance across UK sectors but is only really important, across all capitalizations, in 2 sectors.
- Sector differences become clearly evident within France and Germany, and importance scores are different sector to sector.
- Value appears more uniformly relevant across Euro Zone sectors.
- Recent trends may reflect the formation of the Euro.
- Other Styles will have different characteristics.
- Sectors can be further disaggregated.

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The only thing to add to the statements in the slide is the difference between the weighted T-Statistics and the unweighted T-Statistics, and the interpretation regarding the significance of the weighted T-Statistics for practical portfolio construction.

Just a look at how the sectors themselves perform across Europe and the Euro Zone.

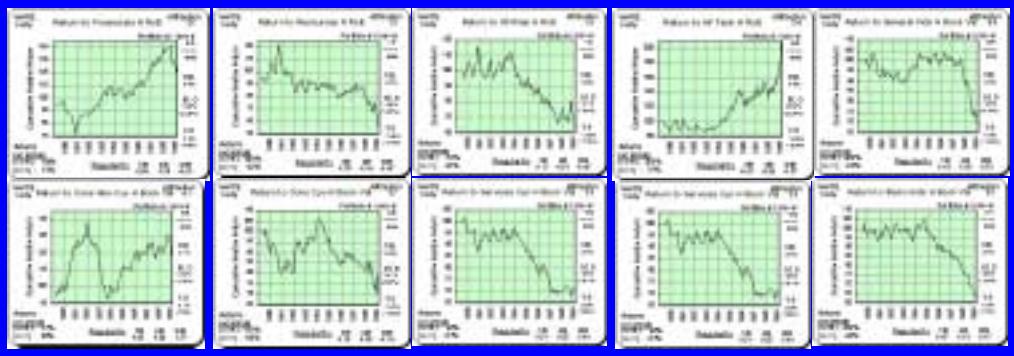
It is interesting to note that the synchronization of sector performance across Europe is quite low (or at least it has been until very recently). Therefore, sector to sector emphasis and sector allocation across Europe is likely to be fraught with problems.

Against this diversity of performance, the differences in the relative importance and performance of various Styles are rather less concerning.

Note in the following slides:

The high Identity features - Sectors are distinctive Styles.
The low Regularity data - Sector relative performance is very noisy and difficult to model.

Sector "Factors" in the US



	Fin	Res	Utils	I T	Con NC	Con C	Ser NC	Ser C	Gen	Bas
Identity	100	100	100	100	100	100	100	100	100	100
Regularity	-0.03	-0.47	-0.47	-0.37	1.37	-0.15	0.61	0.00	0.73	0.17

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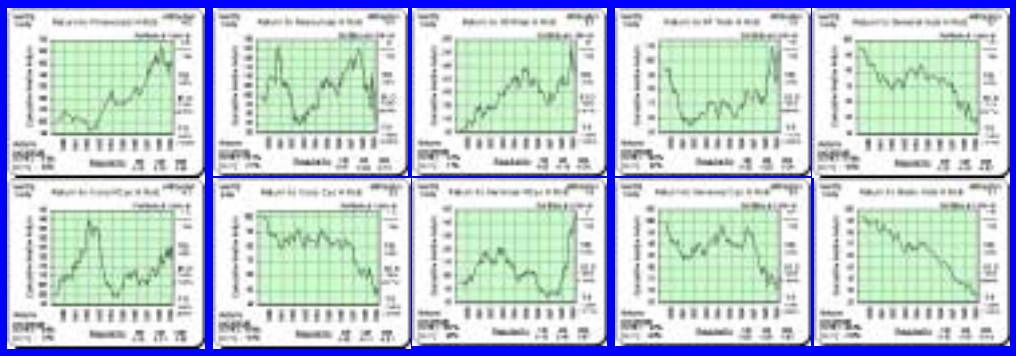
Sector "Factors" in the UK



	Fin	Res	Utils	I T	Con NC	Con C	Ser NC	Ser C	Gen	Bas
Identity	100	100	100	100	100	94	100	100	100	100
Regularity	0.69	-0.13	-0.36	0.20	0.98	-0.21	0.97	0.53	-0.23	-0.14

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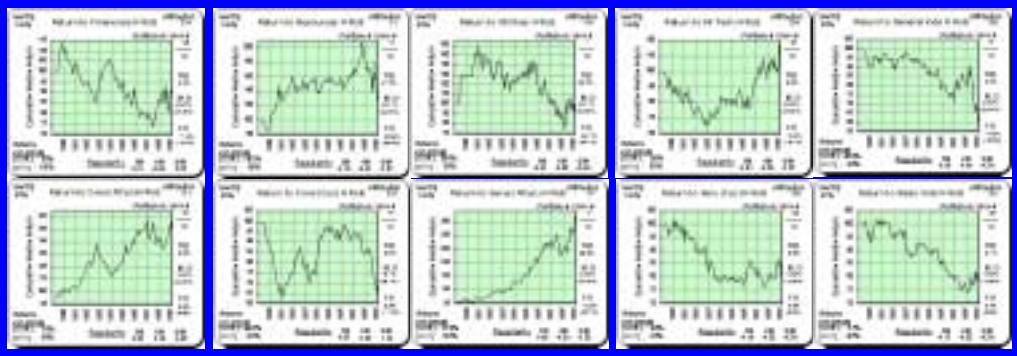
Sector "Factors" in France



	Fin	Res	Utils	I T	Con NC	Con C	Ser NC	Ser C	Gen	Bas
Identity	100	100	95	100	98	99	100	100	98	97
Regularity	-0.09	-0.51	-0.64	-0.33	0.49	1.16	-0.32	-0.34	-0.34	-0.34

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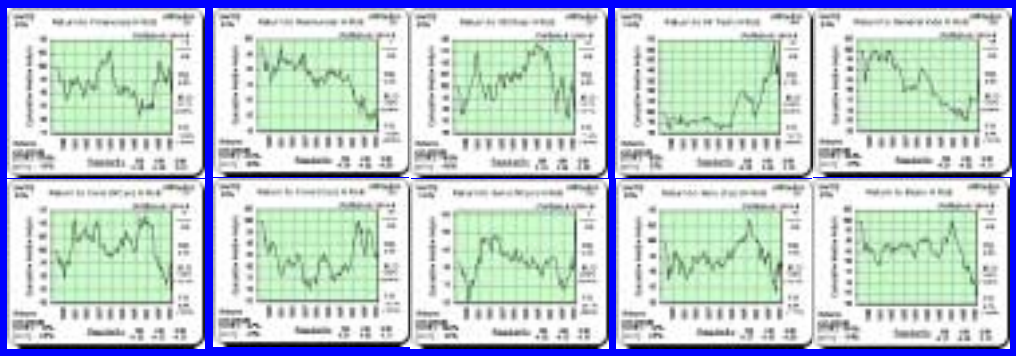
Sector "Factors" in Germany



	Fin	Res	Utils	I T	Con NC	Con C	Ser NC	Ser C	Gen	Bas
Identity	95	90	95	100	86	98	100	92	84	98
Regularity	0.00	-0.59	-0.32	0.12	-0.13	0.11	-0.07	-0.56	-0.11	0.10

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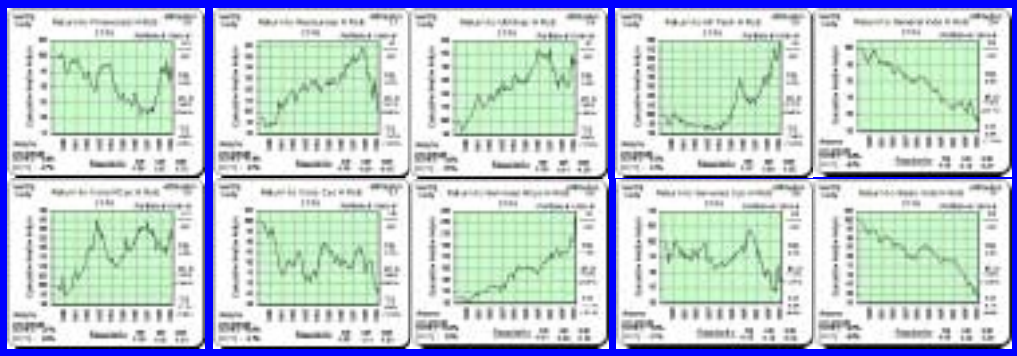
Sector "Factors" in the Euro Zone



	Fin	Res	Utils	I T	Con NC	Con C	Ser NC	Ser C	Gen	Bas
Identity	100	100	100	100	100	100	100	100	100	100
Regularity	0.72	-0.08	-0.20	0.58	0.51	0.80	-0.32	-0.08	-0.57	0.29

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Some Tentative Judgements

- Key Styles are evident and exploitable within the US, UK and Europe - and they're not just disguised industry or country effects!
- Important Styles within individual European markets may "wash out" at the Euro Zone level, but there is also some reinforcement.
- Styles within market sectors may be exploitable even when market-wide and regional Styles are weak.

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Europe is changing very quickly so all findings such as these must be treated with caution. But a number of significant features of European Style do seem to be emerging:

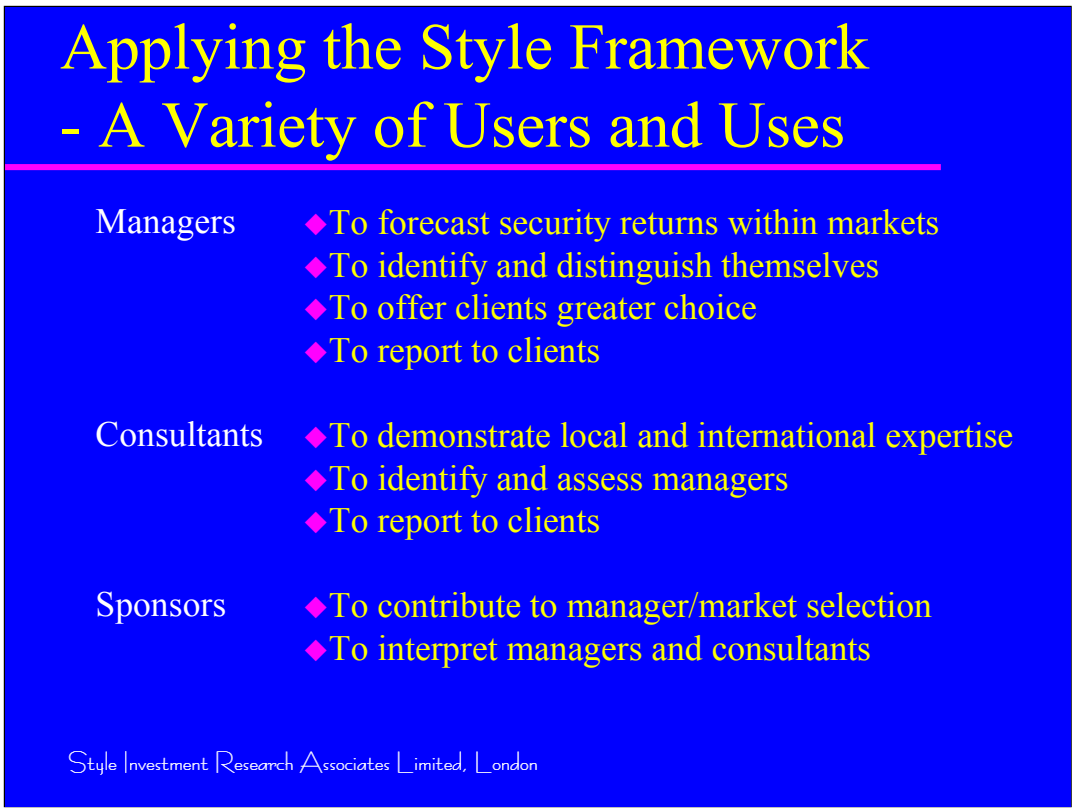
-Despite the scepticism, many (but not all, and not some of the most obvious ones, at that) of the major Styles are clearly Identified and potentially exploitable across the European Market … and they are not simply disguised industry or country effects.

-Often Styles which clearly apply within the individual markets appear to "wash-out" at the European level of aggregation. This is primarily due to non-synchronous cycles, and that may change as the European markets converge. But, for now, and probably for some time yet to come, it will still be important to explore Style patterns at the individual country level as well.

However, even with the "wash out" effect, Euro Zone Styles have already established an Identity and relevance (both over a large proportion of the time, and among the larger securities across Europe)

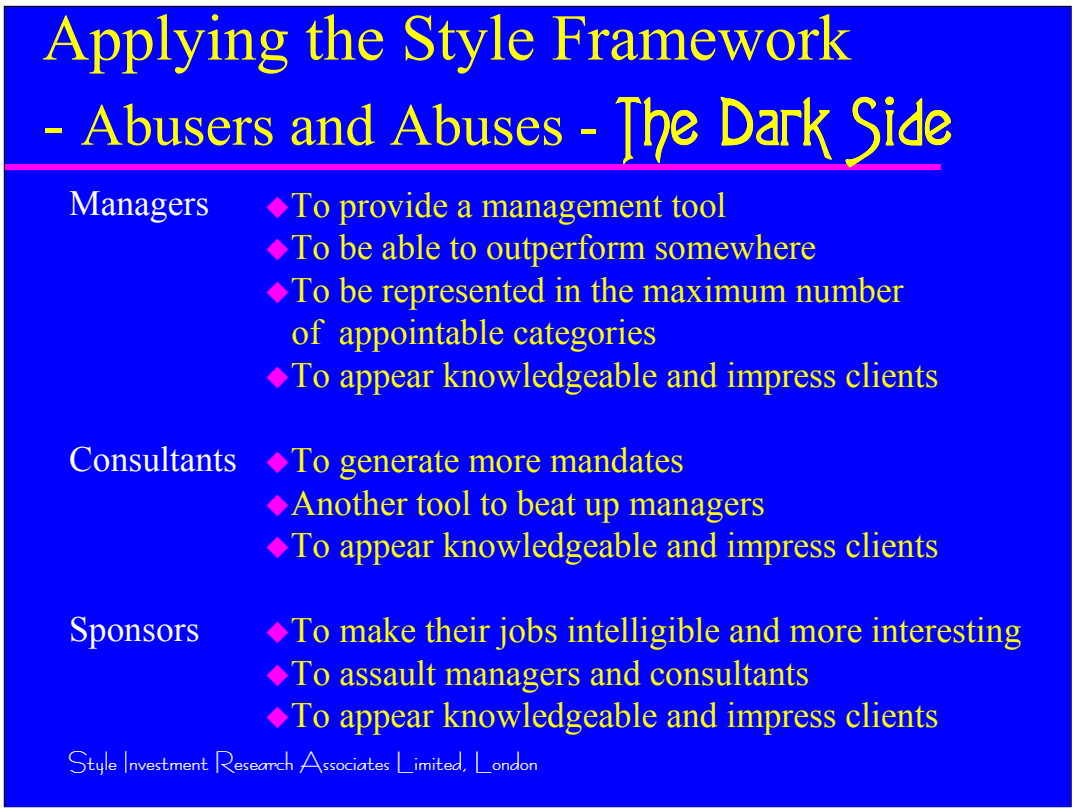
-Europe is changing rapidly and, just as some reassuring features have only just begun to appear over the past 12 months, other features will undoubtedly emerge over the near term as well.

-Just as managers consider Europe-wide sector management (and possibly sector allocation), the evidence also supports Style management within economic / industrial sectors, both at the individual country level and across the Euro Zone, as well.



These are the good ways.

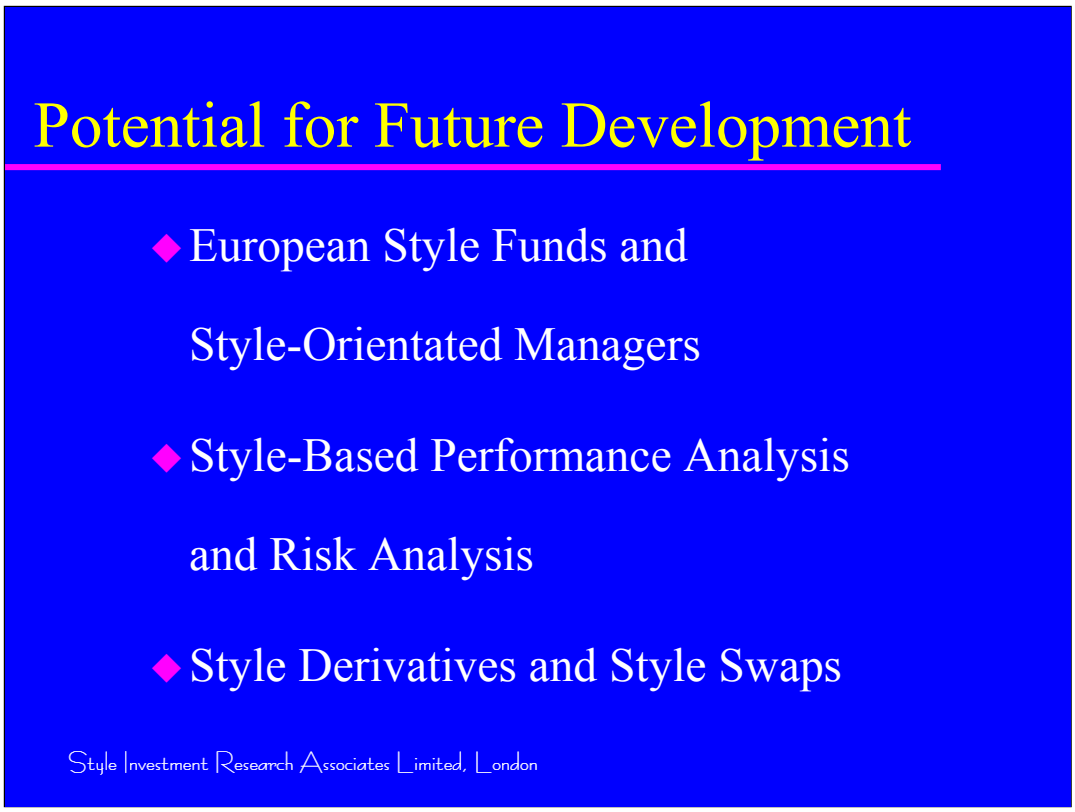
But!



There is always The Dark Side.

All successful innovations flourish as much for their abuses as for their uses.

These are a few. I'm sure the industry will discover others.



Europe is converging towards a single market - and so might the Style reward patterns. Foreign investors consider Europe as a whole, so we must try to understand what they see. And most US-based investors will try to assess Europe according to criteria they feel comfortable with. Style will soon sweep across European markets. We must make certain that it does so sensibly, and that we can perform positively within the changing competitive environment of the European investment management market.

If we manage according to Style, then we must be able to attribute our performance according to our Style tilts and exposures. But Style-based performance attribution across (or even within Europe) is not as simple as in the US. As we have seen, the important Style factors are different from in the US; they also differ within Europe from market to market; and European manager practices are also different. New techniques are required. Not complex techniques, just different!

The brokers will also want to get in on the act, and they can be a force for good. One needs capital to be able to structure large index-sized swaps. And Style swaps also offer a useful new product for investors who wish to implement or alter a Style tilt but who do not want to disrupt their portfolios, external managers, or the market and who don't have the ability to choreograph large programme trades themselves.

In the coming Style-based equity management revolution there seems to be something for everyone. And that, in itself, is usually reason enough for commercial success. Our job is to try to ensure that, in the enthusiasm to implement Style practices across Europe, we don't lose sight of the basic reasons why (and where) Style is a relevant and beneficial concept in our markets.

A data supplement offering simple graphic information and some statistics relating to the *Common Styles*.

Common Style Classifications

- Large Value
- Large "Growth" (low Value) and Large Growth
- Small Value
- Small "Growth" (low Value)

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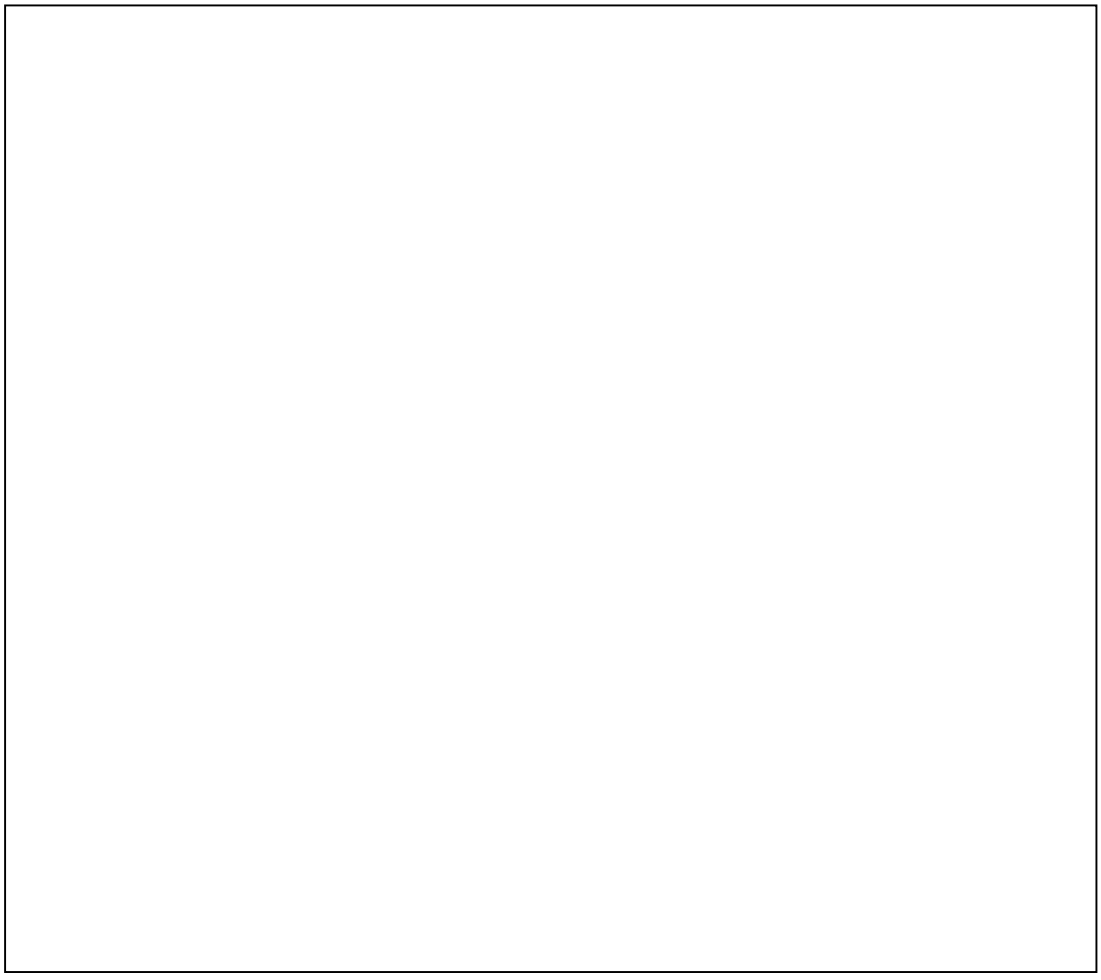
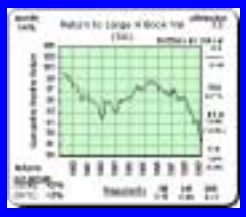
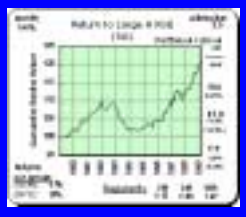
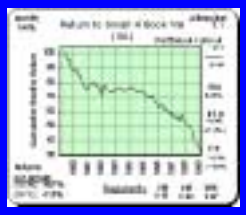
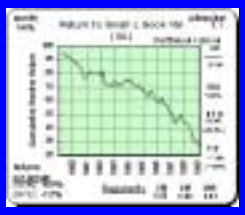


Common Styles in the United States



	Large Value	Large "Growth"	Large II ROE	Small Value	Small "Growth"
Identity	100	100	100	100	100
t-Statistic	3.2	3.2	2.9	3.1	3.1
R^2	62%	62%	59%	69%	69%
Wtd T-Stat	2.7	2.7	2.9	3.9	3.9
Regularity	11	71	1.27	47	51

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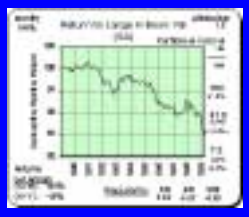
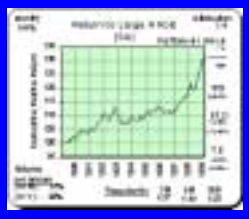
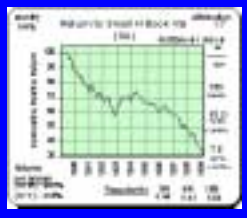
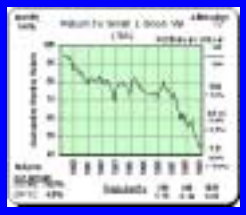
Common Styles in the United Kingdom



	Large Value	Large "Growth"	Large H RoE	Small Value	Small "Growth"
Identity	100	100	100	100	100
T-Statistic	1.8	1.8	1.4	1.7	1.7
H / 2	33%	33%	23%	38%	38%
Wtd T-Stat	2.2	2.2	1.5	2.6	2.6
Regularity	- 09	04	23	54	03

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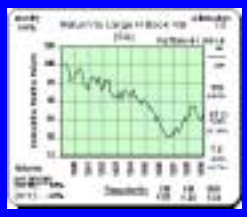
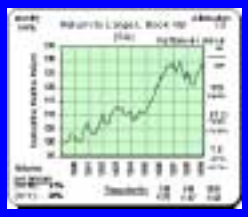
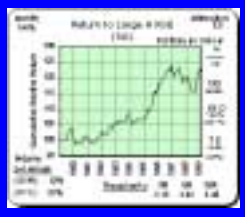
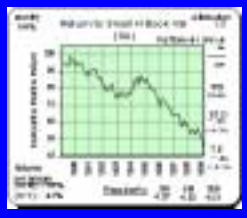
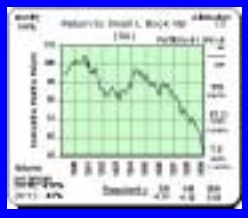
Common Styles in France

	Large Value	Large "Growth"	Large H RoE	Small Value	Small "Growth"
Identity	100	100	100	100	100
T-Statistic	1.2	1.2	1.6	1.3	1.3
R^2	13%	13%	33%	15%	15%
Wtd T-Stat	2.1	2.1	2.2	1.3	1.3
Regularity	34	42	38	- 31	02

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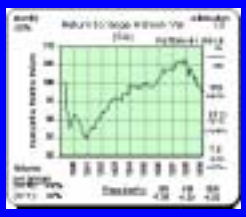
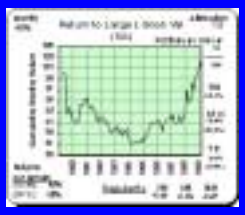
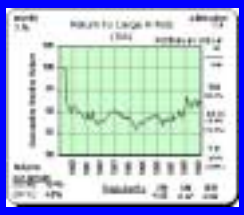
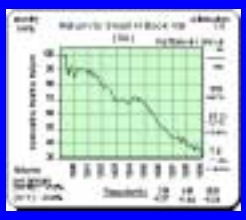
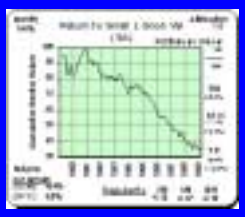
Common Styles in Germany

	Large Value	Large "Growth"	Large H RoE	Small Value	Small "Growth"
Identity	58	45	3	100	100
T-Statistic	1.8	1.8	1.4	1.6	1.6
IR^2	33%	33%	22%	28%	28%
Wtd T-Stat	1.5	1.5	1.4	1.7	1.7
Regularity	- 38	- 27	- 66	- 34	- 15

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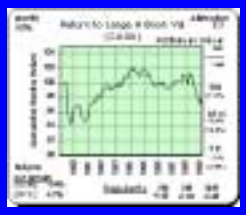
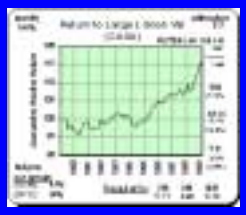
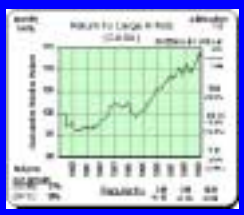
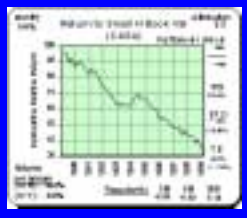
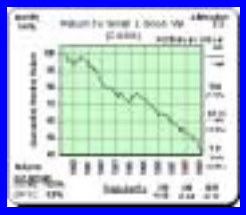
Common Styles in the Euro Zone (11)

	Large Value	Large "Growth"	Large II Rob	Small Value	Small "Growth"
Identity	92	100	100	100	100
T-Statistic	2.3	2.3	1.6	2.2	2.2
R^2	46%	46%	33%	51%	51%
Wtd T-Stat	1.7	1.7	1.3	2.3	2.3
Regularity	-.45	10	-.08	14	-.11

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