

## Equities

5 July 2011 | 24 pages

# What Works in Equity Markets

## Macro Risk Aversion

- **Volatile Risk Aversion** — While macro risks remain, the market's perception of the related uncertainty has reduced, causing sharp reversals in style returns at the end of June. Value was the main beneficiary while Quality and Low Risk underperformed due largely to a strong rally in Financials.
- **Low Risk and Quality still Favoured Year to Date** — Quality and Low Risk continue to lead the way across our style indices. Value continues to lag despite the recent increase in risk appetite.
- **Citi Macro Risk Index** — Citi Macro Risk Index (MRI) measures the level of risk aversion in financial markets. We examine its correlation with markets and style factors and its use as potential lead indicator.
- **Risk Aversion to Stabilise** — After several months of increasing risk aversion, the MRI fell sharply in June. While this does reflect a change in risk sentiment in the market we don't expect a trend of increasing risk appetite to emerge. We see more of a stabilisation in risk aversion/appetite given that the key macro risks remain for investors.

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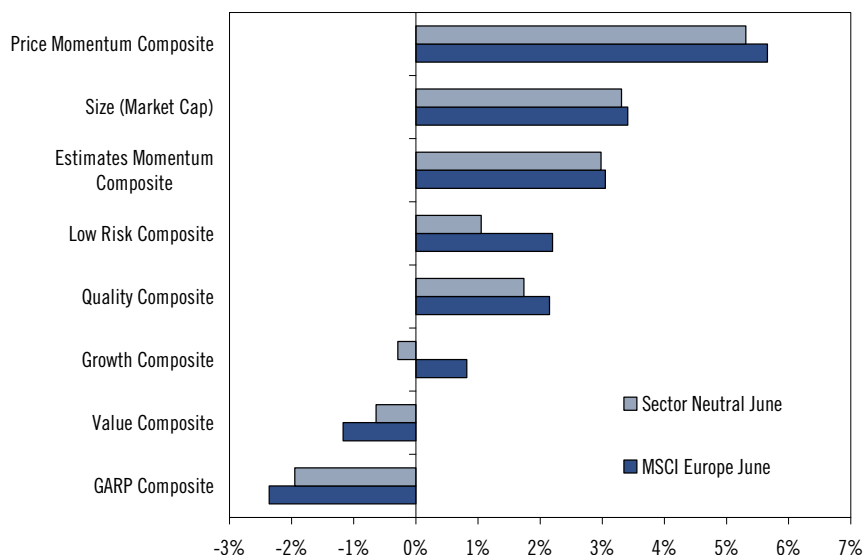
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Figure 1. Style Performance for Stocks in MSCI Europe — June 2011



Source: Citi Investment Research and Analysis

See Appendix A-1 for Analyst Certification, Important Disclosures and non-US research analyst disclosures.

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## June Style Review

**Strong last week of June rally caused strong style reversals after a tough month for equities**

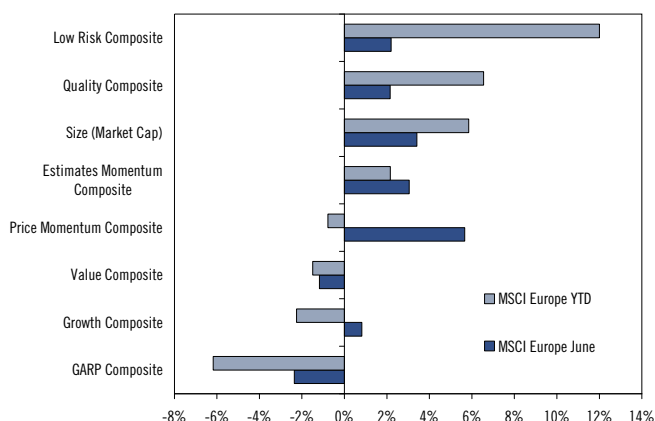
**Q2's top styles suffered a role reversal as Financials dominate market and style returns**

June finished on an up-note after a generally difficult month for investors. While the market was down nearly 2% over the month, the last week of June witnessed a strong rally in European equity markets (~5%) as the macro uncertainty, or at least the market's perception of the uncertainty, reduced. How this played-out in style performance was, unfortunately, one of sharp reversals.

In terms of month-end headline numbers, Price/Estimates Momentum, Low Risk and Quality were some of the best-performing styles, while Value continued its poor performance. However, the rally in equity markets last week was accompanied by large style rotation. In effect, the performance of the dominant styles of past quarter reversed: value performance was up, whilst low risk, quality and momentum performance was down (see Figure 2). The Financials sector was an obvious and major contributor to both recent market and style performance.

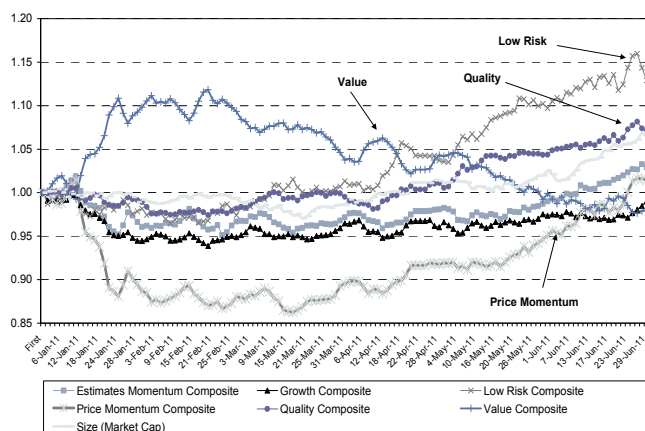
Year-to-date style performance remains relatively unchanged. As per Figure 1, June style performance was generally in line with the year-to-date numbers. However, the biggest discrepancies are from price momentum strategies, which have had a strong June but also a strong quarter.

Figure 2. Style Performance in June and YTD



Source: Citi Investment Research and Analysis

Figure 3. Style Composite YTD Performance



Source: Citi Investment Research and Analysis

**High levels of macro uncertainty the main source of market paralysis...**

**... uncertainty should ease over H2 2011 placing greater focus on fundamentals**

How does this recent performance fit with the short- to medium-term outlook? Our view with regards to style performance remains the same and the market performance of last week should not be a major surprise. Macro risks will remain an important feature of markets and in turn an important consideration for investors. As the market's perceptions of the macro risks wax and wane, so too will markets and style return variability. As our Strategists call it<sup>1</sup>, the high level of macro uncertainty has been the key source of recent equity market paralysis, viz. risk aversion, of investors.

While the market's concern on the macro risks, not just for Europe but globally, are valid and will remain, the uncertainty of these risks should reduce over the second half of 2011. With risk appetite increasing, a greater focus on stock fundamentals and the economic recovery should ensue. Combining this with compelling relative equity valuations, the second half of 2011 should be more supportive of higher share prices.

<sup>1</sup> "Equity Portfolio Strategist: UK/Pan-European — Paralysis", Citi Investment Research & Analysis, 1 July 2011.

# Measuring Macro Risk Aversion

Incorporating a macro view has never been more important...

...especially from a quantitative perspective with macro driving style returns

The MRI measures risk aversion in financial markets...

...and has a strong negative correlation with equity markets

Since the start of the global financial crisis, it's been crucial for investors to incorporate a macro view into their overall investment strategy. However, what a macro view encompasses can be ill-defined and difficult to measure. It can range from having a perspective on the relative risk aversion in financial markets to having a deeper understanding on the economic data and the momentum of this data and how this relates to the different facets of an investment process. In reality all these perspectives are linked.

From a quantitative investor's perspective, the macro environment is a driver, and more so recently, of style return behaviour as part of the variation in returns of style factors are directly related to the underlying economic conditions and the equity risk premium. Given that macro is an important feature of equity markets, what tools, signals or indicators are available to quantitative investors to aid in navigating the macro economic environment? In this month's What Works in Equity Markets, we examine a risk index that has been developed by our colleagues in the CitiFX Quantitative Investor Solutions team<sup>2</sup>: the Citi Macro Risk Index (MRI).

## Citi Macro Risk Index and the Equity Market

The first question that we tackle is: what is the MRI and what is its relationship with the equity market.

The Citi Macro Risk index (MRI) measures the level of risk aversion in financial markets. The MRI is based on various asset prices in the financial markets that will rise with risk aversion. The index is the equally weighted percent rank of Corporate CDs, three-month TED spread, Emerging Market Spreads, Implied Swaption Volatility, Implied Equity Option Volatility and Implied FX Option Volatility. Percent rank makes the different components directly comparable to each other. The MRI rises in the periods of heightened risk aversion in the market, while falls or remains low in periods of lower risk aversion. The dynamics of the MRI index is warranted through using a look-back window of one year (Long-Term MRI) or one month (Short-Term MRI).

Figure 4 on the next page shows the relationship of the MRI and the MSCI Europe through time. From a high level there seems to be periods where there is a strong negative relationship between the two series. Overall the contemporaneous correlation since 2003 (inception of index) is -0.38 but through the global financial crisis and recently the relationship has been a lot stronger.

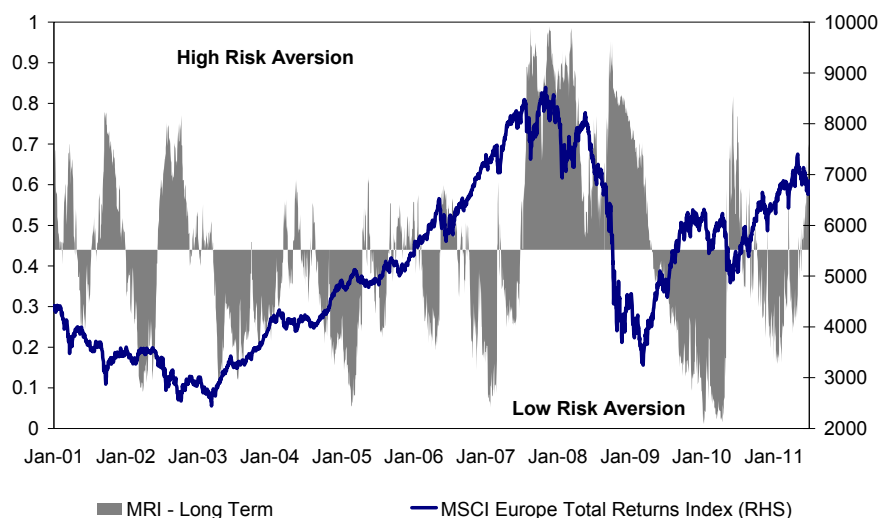
Figure 4. Contemporaneous Correlations: MRI vs. MSCI Europe

	2003 Jan-2007 June	2007 July-2008 Apr	2008 May-2009 Feb	2009 March-2009 May	2009 June-2010 Apr	2010 May-2011 June	All
MRI vs. MSCI Europe	-22.8%	-34.1%	-27.2%	-54.9%	-35.5%	-53.6%	-38.0%

Source: Citi Investment Research and Analysis

<sup>2</sup> For more information, please contact [Kristian Kasikov](#) from CitiFX Quantitative Investor Solutions. This index can be found on Bloomberg: Citi Macro Risk Index - MRI <GO>.

Figure 5. MRI (Long-Term) and MSCI Europe



Source: Citi Investment Research and Analysis

## Citi Macro Risk Index and Style Returns

Having established that there is a relationship, although time varying, between the MRI and the market, we next focus our attention on the relationship of the MRI with style returns.

Using the same methodology that we used in the previous analysis on the market, we calculate contemporaneous correlations for a number of common style factors.

Figure 6. Correlations of relative daily style factor, the market and the daily changes of MRI in sub samples (2003 January-2011 June)

	MRI Status	2003 Jan- 2007 June	2007 July- 2008 Apr	2008 May- 2009 Feb	2009 March- 2009 May	2009 June - 2010 Apr	2010 May - 2011 June
		Low	Increasing	Falling but High	Falling – Turning Point	Rising – Turning Point	Volatile
MRI vs Style Factors	High Earnings Yield	8%	-20%	-27%	-52%	18%	-5%
	<b>Low Beta</b>	<b>15%</b>	<b>22%</b>	<b>26%</b>	<b>56%</b>	<b>32%</b>	<b>49%</b>
	Size	-10%	-5%	5%	32%	-1%	-8%
	High ROE	14%	6%	7%	48%	31%	41%
	High 12m PM	2%	3%	17%	50%	-13%	19%
	High Earnings Revision	-5%	4%	18%	49%	-9%	4%
	MRI vs. MSCI Europe	-22.8%	-34.1%	-27.2%	-54.9%	-35.5%	-53.6%

Source: Citi Investment Research and Analysis

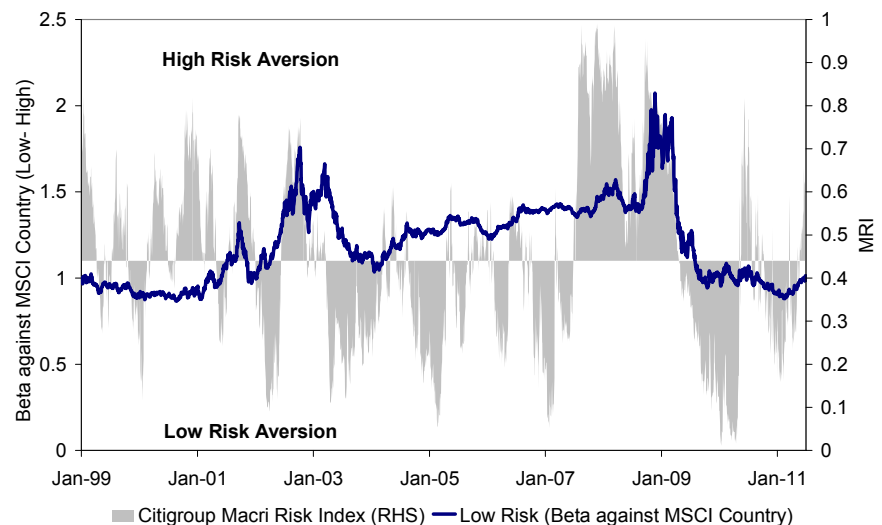
**Strong positive correlation between MRI and Low Beta factor...**

As an example, we have highlighted Beta as a factor where we would expect there to be a strong relationship with the MRI. Figure 6 plots the cumulative returns of low beta factor against the Long-Term MRI index (right-hand side). The MRI was relatively low during the five years between 2003 to early 2007. The prolonged periods of lower risk aversion suggest that low-beta stocks are not likely to be priced in the equity market. Indeed, as shown in Figure 6, the absolute price performance of low-beta factor has been flat during this period. If an investor invested in 1USD in the low-beta basket when 2003 began, he/she would have ended up with 0.94 USD at the end of May 2007.

...Low Beta has been a beneficiary of the steady year to date rise in MRI

Visual inspection on the periods between 2007 July and June 2011 suggests that low-beta factor returns have tended to outperform whenever the MRI rises: MRI rose between July 2007 and April 2008, so did low-beta factor. The brief rise of MRI from May 2008 to June 2008 and the brief subsequent fall in July corresponded to the same rise and fall in the low-beta factor. This is also true for the periods from October 2008 to April 2010 where MRI fell and low-beta factor fell as well. From May 2010 to June 2011, MRI has firstly trended downwards and then upwards. This is also true with the cumulative returns of low-beta factor.

Figure 7. Performance of the Low-Beta Factor and MRI (1999 January-2011 June)



Source: Citi Investment Research and Analysis

MRI captures the risk aversion in the financial market. Our observation here merely corroborates some widely documented theory that a variable's condition on the market state<sup>3</sup> has certain predictive power on factor returns. It is also widely documented that economic conditions also, to a certain extent, predict factor returns<sup>4</sup>.

## The MRI as a Leading Indicator

While the contemporaneous correlations between certain styles and the MRI are relatively small and time varying, we next examine whether there is a stronger relationship between style returns and the MRI but where the MRI is a leading indicator. To examine this question, we show the information content in the MRI by calculating the correlation of the MRI with respect to the following month's return of the market and the styles that we have considered.

Figure 8 shows the lagged correlation of MRI with the market and the style factors since inception (1999). For the market, we continue to see a negative correlation albeit smaller than the contemporaneous correlation shown before. For all style factors we see a positive correlation. In general, these relationships are intuitive. For example, as highlighted before we would expect the market to reduce beta exposure when risk aversion rises. A positive correlation with Earnings Yield over

<sup>3</sup> For example, Fama and French (1989), Arnott et al. (1989).

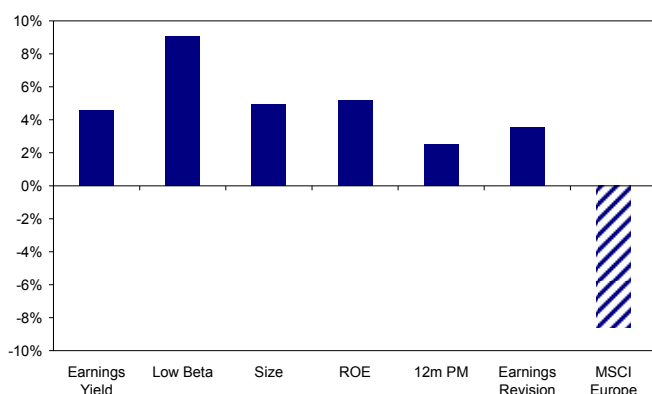
<sup>4</sup> For example, Arnott et al. (1989), Kao and Shumaker (1999).

the long term makes sense when, however, in recent times we have seen more of a negative relationship as the performance of value has been reflected in risk on/risk off trading patterns.

**Correlation decay is swift — MRI is a fast burn signal**

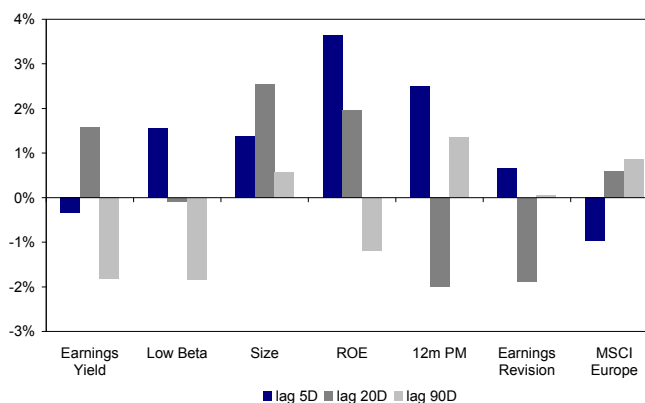
We next examine the persistence in the MRI signal over time. In Figure 8 we show the lagged correlation decay in the signal. In general, the longer the lags, the smaller the correlations, although different factors have a different speed of decay. While we expect the signal to noise ratio to be high we were surprised at the general speed of decay. In particular for the market, after five days the relationship between the signal and returns breaks down (on average). So in this regard we would consider the MRI as rather a "fast burn" signal.

**Figure 8. Lagged Correlations between MRI and Subsequent Relative Returns (1999 – 2011)**



Source: Citi Investment Research and Analysis

**Figure 9. Lagged Correlation Decay – MRI (1999- 2011)**



Source: Citi Investment Research and Analysis

## What is the MRI Currently Saying?

**Marco risks remain and are unlikely to be resolved soon...**

Year to date the MRI has been rising as the "macro fog" has increased. The three key macro risks: Sovereign Risk; Possible US Slowdown; and EM Inflation, have all contributed to the general heightened level of risk aversion. These risks remain and are unlikely to be resolved soon. That said, while the general trend has been of increasing risk aversion, the index has decreased quite sharply over the past week (see Figure 10, overleaf). The fall in the MRI is puzzling given that, broadly speaking, the key macro risks remain. However, the sharp drop in the index is reflective of the increase in volatility of the index — in 2011 this volatility is at a historical high (see Figure 9).

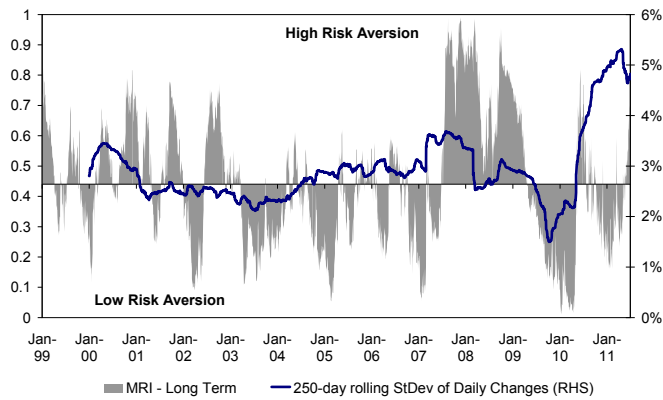
**...despite MRI falling sharply over the past week**

**Relative risk aversion may not have decreased in line with the fall in MRI...**

The coming weeks will reveal whether the market has reached a level of comfort with the macro risks and whether then the MRI will continue to trend downwards. Our view is that it took two months for the MRI to move from 0.3 to ~0.6 but only 2 to 3 days to halve from 0.6. Given the macro risks remain we don't believe that the relative risk aversion in the market has reduced to the extent that is suggested by the MRI. We would expect some retracement of the index and for risk aversion to stabilise. The MRI is key risk indicator to monitor but recent volatility in the index is also reflecting the general uncertainty in the macroeconomic landscape.

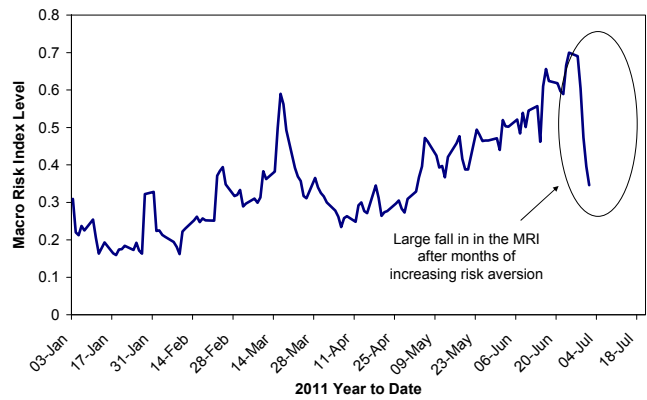
**...we expect some retracement in the index and for risk aversion to stabilize**

Figure 10. MRI and Standard Deviation of Changes in Levels



Source: Citi Investment Research and Analysis

Figure 11. 2011 YTD MRI

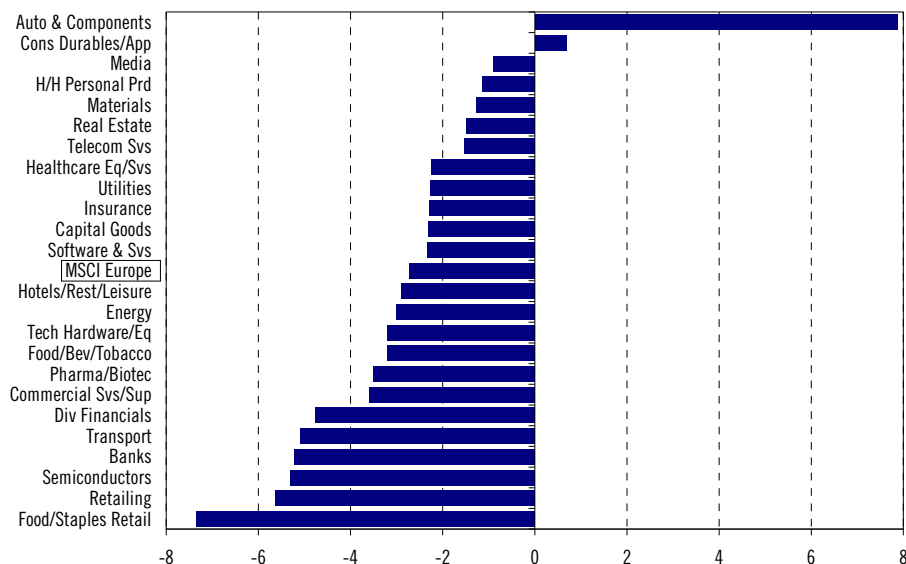


Source: Citi Investment Research and Analysis

## What Has the Market Done in June?

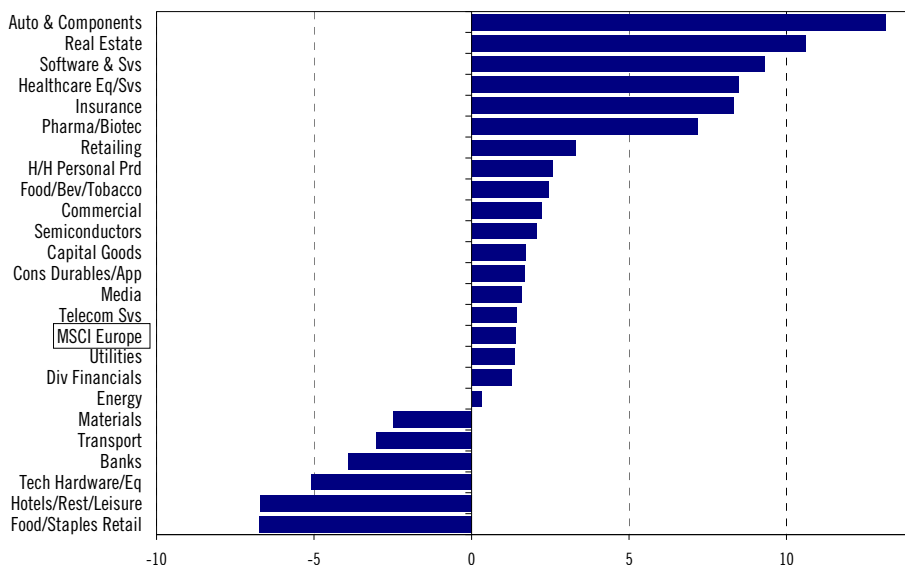
- **Markets:** The market was down nearly 2% in June as the European sovereign debt woes were front-and-centre of investors' minds. That said, the last week of the month was strong, up nearly 5% (based on MSCI Europe).
- **Size:** Large-cap stocks outperformed small-cap stocks in June. Using the MSCI indices as our base, the large-cap index was down 1.37% while for the small-cap index it was 2.74%. Mid-caps were not too far off with the index falling 2.63%.
- **Sectors:** The only two sectors to post positive returns were Autos and Consumer Staples, with Auto & Components being a clear outlier in terms of performance. BMW and VW were the main contributors with better-than-expected resilience in sales growth numbers.

Figure 12. MSCI Europe Industry Group One-Month Total Euro Returns (Percentage)



Source: Citi Investment Research and Analysis & MSCI

Figure 13. MSCI Europe Industry Group 2011 Total Euro Returns (Percentage)



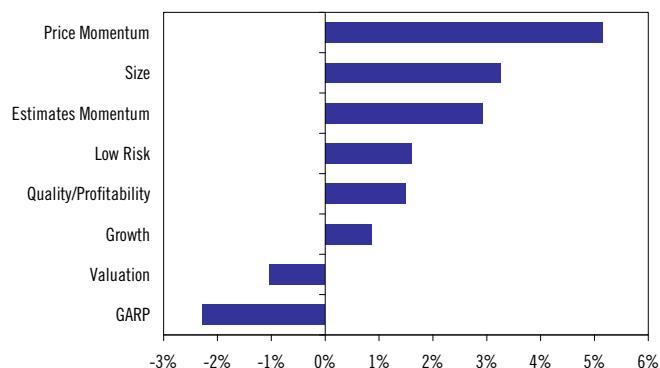
Source: Citi Investment Research and Analysis & MSCI



## What is in Style?

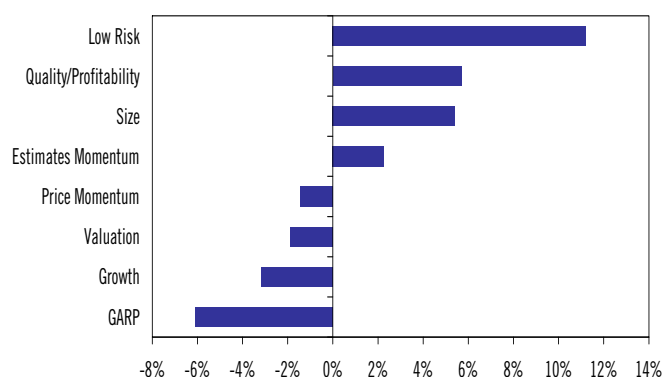
- **What do we do?** We compare the performance of a portfolio with the highest 20% of factor values against the performance of a portfolio with the lowest 20% of factor values for the individual style factors.
- **What worked, what didn't?** Value as style continued to struggle in June as it did in May. However, on the other side of the equation, it was clear that the market was focusing on those larger, quality-orientated companies with strong momentum, in particular those companies with strong momentum over the past 12 months.

Figure 14. Style Performance Across Market, June 2011



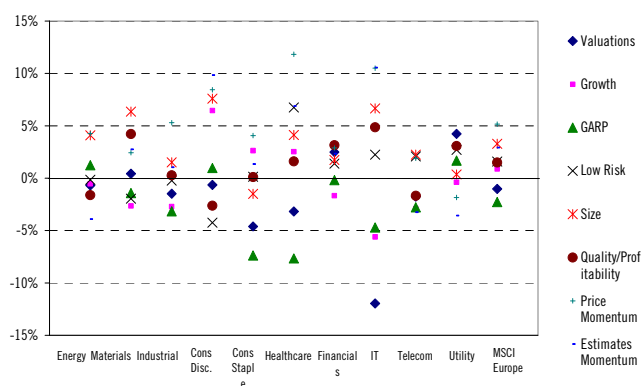
Source: Citi Investment Research and Analysis, IBES, Worldscope, FTSE and MSCI

Figure 15. Style Performance Across Market, 2011 YTD



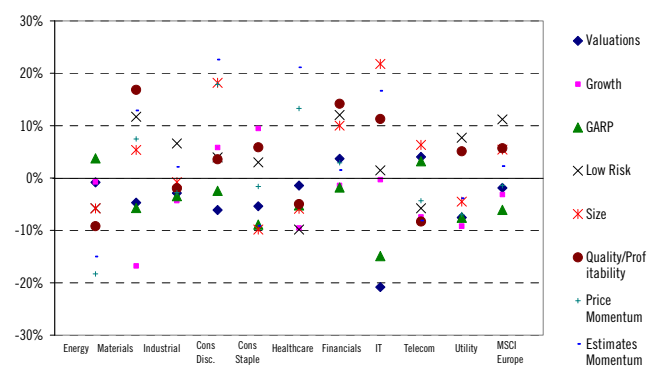
Source: Citi Investment Research and Analysis, IBES, Worldscope, FTSE and MSCI

Figure 16. Style Performance Across Sectors, June 2011



Source: Citi Investment Research and Analysis, IBES, Worldscope, FTSE and MSCI

Figure 17. Style Performance Across Sectors, 2011



Source: Citi Investment Research and Analysis, IBES, Worldscope, FTSE and MSCI

## June 2011 Style Leaders and Laggards

- Figure 18 and Figure 19 show the return spread between the high and low factor portfolios by factor for the last month and for 2011, respectively. Figure 20 shows the annualised return spread between the high and low factor portfolios by factor since 1995. Note that, as the distribution of factor values varies by sector and factors may not affect all sectors in the same manner, the performance within each sector and across the market is shown. For further details of our method, please see the Appendix on Style Performance.

**Figure 18. Performance Spread Between High (Top 20%) and Low (Bottom 20%) Factor Portfolios in June 2011**

	Energy	Materials	Industrials	Consumer Discretionary	Consumer Staples	Health Care	Financials	Information Technology	Telecoms	Utilities	MSCI Europe	MSCI UK
<b>Valuation</b>	<b>-0.7%</b>	<b>0.4%</b>	<b>-1.5%</b>	<b>-0.6%</b>	<b>-4.6%</b>	<b>-3.2%</b>	<b>2.5%</b>	<b>-12.0%</b>	<b>-1.8%</b>	<b>4.2%</b>	<b>-1.0%</b>	<b>-2.1%</b>
Earnings Yield - 12 month forward	-1.6%	0.1%	-1.1%	1.1%	-5.4%	-4.3%	3.5%	-12.3%	-3.5%	3.4%	-0.1%	-1.1%
Earnings Yield- 12 month historical	1.7%	1.5%	-2.7%	1.1%	-4.3%	-4.3%	3.5%	0.1%	-0.1%	3.4%	0.3%	0.1%
Cash Flow To Price	2.9%	0.4%	-2.6%	2.3%	-3.2%	-4.8%	0.2%	-12.0%	-0.1%	3.7%	0.3%	-2.8%
Dividend Yield	5.7%	-1.0%	-1.0%	-6.6%	-3.2%	-2.1%	3.6%	6.9%	0.9%	-0.1%	0.3%	-1.2%
Book to Price Ratio	0.4%	-2.3%	-3.1%	4.3%	-1.7%	-7.6%	-2.0%	-11.0%	-3.2%	1.3%	-2.2%	-3.9%
Sales to Price Ratio	2.4%	-0.3%	-2.0%	-1.9%	-4.9%	-4.9%	NA	2.3%	0.5%	-2.2%	-1.0%	-4.3%
EBITDA / EV	3.8%	2.4%	-2.4%	-1.3%	-2.2%	-4.6%	NA	-9.8%	1.7%	2.8%	-0.9%	-2.2%
Sales / EV	2.4%	-1.0%	-1.2%	-4.6%	-4.9%	-5.8%	NA	2.3%	2.4%	-3.1%	-2.0%	-4.2%
<b>Growth</b>	<b>-0.5%</b>	<b>-2.7%</b>	<b>-2.7%</b>	<b>6.5%</b>	<b>2.6%</b>	<b>2.5%</b>	<b>-1.7%</b>	<b>-5.6%</b>	<b>-2.9%</b>	<b>-0.4%</b>	<b>0.9%</b>	<b>2.7%</b>
Earnings Growth (12 month forward)	-1.0%	-1.6%	1.7%	5.9%	-0.7%	7.6%	-1.7%	0.5%	-8.0%	-2.6%	-0.5%	-1.5%
CIR Growth-Value Score	-0.1%	-0.4%	0.7%	-2.5%	2.3%	0.8%	-0.6%	1.1%	-3.8%	-2.1%	0.2%	3.7%
One Year Sales Growth	1.8%	-1.9%	-3.1%	11.2%	3.2%	3.4%	NA	-4.5%	1.7%	1.3%	0.7%	0.8%
Long Term Earnings Growth	0.1%	-2.1%	-0.6%	10.0%	-0.8%	3.0%	0.6%	3.6%	-0.5%	1.0%	2.1%	2.9%
One Year EPS Growth	-1.3%	-1.4%	-1.4%	11.9%	-0.3%	10.2%	0.3%	-0.1%	5.9%	-0.1%	1.7%	0.4%
<b>GARP</b>	<b>1.2%</b>	<b>-1.4%</b>	<b>-3.2%</b>	<b>1.0%</b>	<b>-7.4%</b>	<b>-7.7%</b>	<b>-0.2%</b>	<b>-4.7%</b>	<b>-2.8%</b>	<b>1.7%</b>	<b>-2.3%</b>	<b>-3.8%</b>
Deviation from Fair P/E	-1.2%	-1.0%	-4.2%	0.4%	-6.8%	-5.0%	3.0%	-4.7%	-2.9%	2.5%	-1.7%	-2.3%
Deviation from Fair P/B	-4.1%	-1.2%	-2.5%	1.9%	-6.2%	-5.5%	1.9%	-8.5%	-6.9%	4.0%	-1.7%	-2.0%
Deviation from Fair P/CF	-1.3%	-1.1%	-3.0%	-4.4%	-5.9%	-7.3%	NA	-1.4%	-0.7%	0.6%	-3.1%	-5.3%
Deviation from Fair P/S	-0.8%	-3.8%	-0.9%	0.7%	-7.3%	-9.0%	-0.5%	-11.6%	-1.6%	0.1%	-1.6%	-3.1%
PEG (Inverted)	-4.3%	-1.4%	3.0%	4.3%	-0.1%	3.1%	-2.8%	-4.7%	0.5%	0.2%	-0.9%	-2.9%
<b>Low Risk</b>	<b>-0.2%</b>	<b>-2.0%</b>	<b>-0.2%</b>	<b>-4.3%</b>	<b>0.1%</b>	<b>6.7%</b>	<b>1.4%</b>	<b>2.2%</b>	<b>2.1%</b>	<b>2.7%</b>	<b>1.6%</b>	<b>0.6%</b>
Debt to Equity (Inverted)	-4.2%	-0.3%	-0.1%	-6.8%	2.4%	-2.4%	NA	-5.7%	0.6%	2.1%	-2.9%	-3.1%
Earnings Stability	-4.3%	-0.2%	0.4%	2.0%	-0.4%	5.1%	4.6%	1.2%	-2.8%	3.0%	1.9%	-0.4%
Beta against MSCI AC World (Low-High)	1.5%	-1.4%	3.1%	-5.7%	-3.2%	-2.5%	-0.3%	5.6%	5.3%	0.6%	0.6%	-0.0%
Beta against MSCI Country (Low-High)	1.0%	1.5%	1.8%	-5.3%	-0.8%	7.2%	1.2%	5.4%	5.3%	3.0%	1.0%	-0.3%
<b>Size (Market Cap)</b>	<b>4.1%</b>	<b>6.3%</b>	<b>1.5%</b>	<b>7.6%</b>	<b>-1.5%</b>	<b>4.1%</b>	<b>1.7%</b>	<b>6.7%</b>	<b>2.2%</b>	<b>0.4%</b>	<b>3.3%</b>	<b>2.0%</b>
<b>Quality/Profitability</b>	<b>-1.6%</b>	<b>4.2%</b>	<b>0.3%</b>	<b>-2.6%</b>	<b>0.1%</b>	<b>1.6%</b>	<b>3.2%</b>	<b>4.9%</b>	<b>-1.7%</b>	<b>3.1%</b>	<b>1.5%</b>	<b>2.7%</b>
Earnings Certainty	2.8%	2.5%	2.2%	-1.7%	-2.6%	4.0%	2.6%	8.2%	-0.1%	-2.5%	1.7%	2.0%
Return on Equity	3.4%	2.3%	-0.1%	-0.4%	2.4%	-0.0%	3.0%	4.2%	0.8%	-0.8%	2.0%	4.5%
Net Profit Margin on Sales	1.1%	0.1%	1.5%	-2.6%	3.4%	-3.3%	0.0%	-4.0%	-2.1%	1.9%	-0.1%	3.0%
Margin Growth	-0.4%	-0.8%	1.8%	3.0%	-0.0%	-6.6%	-0.2%	-9.8%	-2.8%	-1.8%	-0.1%	1.5%
Earnings Quality (Accruals) (Inverted)	3.2%	0.3%	1.7%	0.1%	1.7%	7.4%	NA	1.9%	-5.7%	7.0%	2.6%	2.6%
Balance Sheet Quality (NOA) (Inverted)	2.3%	4.5%	1.6%	-2.9%	-2.1%	3.9%	NA	6.5%	-6.3%	0.5%	0.3%	0.9%
<b>Volatility Adjusted Price Momentum</b>	<b>4.3%</b>	<b>2.4%</b>	<b>5.3%</b>	<b>8.4%</b>	<b>4.1%</b>	<b>11.8%</b>	<b>2.9%</b>	<b>10.5%</b>	<b>1.9%</b>	<b>-1.9%</b>	<b>5.2%</b>	<b>5.1%</b>
Price Momentum - 1 month	-0.6%	1.6%	2.7%	-1.6%	1.4%	2.4%	-0.3%	8.4%	-3.9%	-0.5%	1.0%	1.5%
Price Momentum - 3 months	-2.4%	1.8%	5.1%	4.1%	2.9%	8.4%	2.3%	14.0%	2.3%	0.2%	3.7%	2.3%
Price Momentum - 12 months	7.7%	4.3%	5.2%	8.9%	6.3%	7.8%	5.3%	12.9%	6.0%	-1.2%	6.2%	5.7%
Price Momentum - First 11 months	6.8%	2.6%	2.9%	8.8%	6.2%	4.6%	5.5%	6.7%	7.7%	-0.8%	4.6%	4.6%
<b>Estimates Momentum</b>	<b>-3.9%</b>	<b>2.8%</b>	<b>1.0%</b>	<b>9.8%</b>	<b>1.3%</b>	<b>6.9%</b>	<b>2.3%</b>	<b>10.6%</b>	<b>-3.3%</b>	<b>-3.6%</b>	<b>2.9%</b>	<b>-0.1%</b>
1 Month Change in Earnings Forecast	-6.5%	0.4%	4.1%	13.1%	-1.5%	7.7%	0.9%	12.4%	-5.4%	-0.4%	2.9%	-0.1%
Earnings Revisions	-4.0%	4.2%	1.7%	8.7%	1.3%	3.2%	2.6%	3.6%	-2.9%	-2.5%	2.8%	1.3%
Sales Revisions	3.1%	-2.9%	2.1%	-1.0%	3.5%	4.6%	NA	0.8%	-3.0%	1.5%	-0.1%	0.5%
Cash Revisions	3.8%	-1.7%	2.5%	0.6%	3.2%	4.6%	NA	0.8%	-3.7%	1.5%	1.2%	0.6%

Source: Citi Investment Research and Analysis, IBES, Worldscope, FTSE and MSCI

## 2011 Leaders and Laggards

- Low Risk and Quality continue to outperform Value and are the top performing composite style year to date with Quality also moving to the fore – a theme even more evident in the UK. A poor second quarter for Value metrics has seen the composite Value factor move into negative territory year to date from the top of the pack at the end of April.
- The Price Momentum composite factor while positing negative performance YTD, if you exclude the shorter-term metrics (or consider them reversal factors), then the 12-month based momentum measures have actually had strong YTD performance.

Figure 19. Performance Spread Between High (Top 20%) and Low (Bottom 20%) Factor Portfolios in 2011 YTD

	Energy	Materials	Industrials	Consumer Discretionary	Consumer Staples	Health Care	Financials	Information Technology	Telecoms	Utilities	MSCI Europe	MSCI UK
<b>Valuation</b>	<b>-0.8%</b>	<b>-4.7%</b>	<b>-2.9%</b>	<b>-6.1%</b>	<b>-5.4%</b>	<b>-1.4%</b>	<b>3.7%</b>	<b>-20.8%</b>	<b>4.0%</b>	<b>-7.5%</b>	<b>-1.9%</b>	<b>-6.5%</b>
Earnings Yield - 12 month forward	-3.5%	-11.0%	-8.2%	-1.8%	-5.7%	-4.7%	9.4%	-27.3%	-6.8%	3.1%	-3.8%	-10.3%
Earnings Yield- 12 month historical	2.8%	-2.9%	-3.2%	-2.2%	-2.7%	-3.8%	13.9%	-18.6%	-0.3%	-8.5%	1.5%	-6.0%
Cash Flow To Price	11.3%	5.2%	8.0%	3.9%	-0.4%	-8.7%	-7.3%	-50.7%	14.9%	-5.4%	-2.2%	-8.1%
Dividend Yield	8.2%	10.1%	-0.1%	-9.1%	-0.1%	2.3%	21.4%	-15.5%	-3.8%	-9.4%	5.9%	6.7%
Book to Price Ratio	12.9%	-3.1%	0.0%	1.4%	1.0%	-10.7%	-8.4%	-25.8%	-7.4%	6.0%	-3.1%	-7.4%
Sales to Price Ratio	8.4%	12.6%	-7.0%	-4.2%	-8.0%	-2.8%	NA	-2.5%	10.9%	-19.0%	-2.2%	-5.6%
EBITDA / EV	1.6%	7.4%	-0.4%	-2.0%	-3.4%	0.8%	NA	-16.9%	13.4%	-16.5%	-0.3%	-6.0%
Sales / EV	7.1%	14.2%	-7.1%	-6.8%	-8.0%	-7.4%	NA	-2.8%	7.5%	-19.7%	-4.1%	-3.9%
<b>Growth</b>	<b>-0.7%</b>	<b>-16.8%</b>	<b>-4.3%</b>	<b>5.8%</b>	<b>9.5%</b>	<b>-9.6%</b>	<b>-1.4%</b>	<b>-0.3%</b>	<b>-7.5%</b>	<b>-9.2%</b>	<b>-3.2%</b>	<b>-3.5%</b>
Earnings Growth (12 month forward)	-12.8%	-18.9%	0.3%	-0.1%	-2.3%	8.9%	-12.4%	-0.9%	-15.3%	9.9%	-8.4%	-17.2%
CIR Growth-Value Score	4.1%	-9.6%	0.3%	-4.8%	6.8%	-7.4%	-2.3%	-0.3%	-3.1%	-5.2%	-0.6%	5.6%
One Year Sales Growth	-4.2%	-10.2%	1.4%	9.4%	3.0%	-4.7%	NA	-14.1%	-4.1%	3.4%	-0.1%	-6.9%
Long Term Earnings Growth	-7.3%	-4.6%	-2.7%	12.1%	-1.0%	7.6%	8.9%	16.1%	4.8%	-6.9%	2.1%	-4.2%
One Year EPS Growth	-10.0%	-12.7%	0.5%	18.9%	0.9%	10.7%	7.7%	8.0%	-5.9%	-2.2%	5.6%	-7.9%
<b>GARP</b>	<b>3.8%</b>	<b>-5.7%</b>	<b>-3.5%</b>	<b>-2.5%</b>	<b>-8.9%</b>	<b>-5.2%</b>	<b>-1.8%</b>	<b>-14.9%</b>	<b>3.2%</b>	<b>-7.6%</b>	<b>-6.1%</b>	<b>-10.4%</b>
Deviation from Fair P/E	1.2%	-9.5%	-0.7%	-3.3%	-3.0%	5.5%	1.1%	-21.8%	-3.7%	-11.9%	-4.6%	-9.3%
Deviation from Fair P/B	-5.7%	-15.2%	-7.5%	-3.5%	-8.0%	-3.8%	3.7%	-15.7%	-7.5%	1.0%	-5.5%	-13.1%
Deviation from Fair P/CF	5.1%	-0.6%	-5.1%	-7.7%	-10.4%	-12.7%	NA	-2.1%	-7.5%	-0.9%	-6.3%	-10.0%
Deviation from Fair P/S	2.2%	0.5%	5.4%	2.2%	-7.9%	-13.8%	-7.4%	-41.6%	3.0%	-12.6%	-3.8%	-11.9%
PEG (Inverted)	-10.1%	-19.2%	8.5%	-3.7%	1.3%	7.2%	-9.0%	-33.4%	-24.7%	4.1%	-7.5%	-18.5%
<b>Low Risk</b>	<b>-5.8%</b>	<b>11.7%</b>	<b>6.6%</b>	<b>3.9%</b>	<b>3.0%</b>	<b>-9.9%</b>	<b>12.0%</b>	<b>1.5%</b>	<b>-5.8%</b>	<b>7.7%</b>	<b>11.2%</b>	<b>13.1%</b>
Debt to Equity (Inverted)	-9.1%	-7.5%	-0.1%	-6.4%	0.2%	-9.7%	NA	-22.0%	-7.6%	-3.3%	-5.0%	-9.0%
Earnings Stability	-2.3%	0.7%	6.9%	6.5%	1.4%	8.5%	0.9%	42.8%	-6.2%	16.3%	7.9%	10.9%
Beta against MSCI AC World (Low-High)	-3.6%	16.3%	7.9%	1.1%	2.5%	-11.5%	10.5%	7.5%	5.8%	-2.6%	7.5%	11.6%
Beta against MSCI Country (Low-High)	-4.6%	22.9%	5.6%	-3.0%	6.1%	-2.5%	6.4%	3.1%	2.3%	3.3%	7.4%	10.1%
<b>Size (Market Cap)</b>	<b>-5.8%</b>	<b>5.4%</b>	<b>-0.8%</b>	<b>18.2%</b>	<b>-9.9%</b>	<b>-5.9%</b>	<b>10.0%</b>	<b>21.8%</b>	<b>6.3%</b>	<b>-4.5%</b>	<b>5.4%</b>	<b>-0.3%</b>
<b>Quality/Profitability</b>	<b>-9.2%</b>	<b>16.8%</b>	<b>-2.0%</b>	<b>3.6%</b>	<b>5.8%</b>	<b>-5.0%</b>	<b>14.2%</b>	<b>11.3%</b>	<b>-8.3%</b>	<b>5.1%</b>	<b>5.7%</b>	<b>14.5%</b>
Earnings Certainty	-1.2%	20.4%	2.0%	0.1%	-0.6%	-0.7%	15.4%	18.8%	-12.0%	-5.1%	5.0%	14.3%
Return on Equity	-3.7%	10.7%	-0.7%	-2.5%	5.5%	-10.8%	18.3%	-13.1%	4.5%	-13.5%	4.5%	13.8%
Net Profit Margin on Sales	-5.5%	-3.8%	2.3%	-3.6%	8.0%	-17.0%	6.8%	-9.4%	-5.2%	8.8%	1.9%	5.6%
Margin Growth	-10.2%	-2.7%	-6.0%	-0.3%	4.7%	-21.3%	-5.2%	-27.9%	-3.1%	-4.0%	-6.1%	0.1%
Earnings Quality (Accruals) (Inverted)	-7.0%	10.1%	1.1%	10.0%	8.7%	13.1%	NA	22.3%	-11.3%	17.2%	5.2%	8.3%
Balance Sheet Quality (NOA) (Inverted)	4.1%	18.3%	-1.0%	-4.0%	1.4%	1.0%	NA	19.9%	-13.7%	-14.7%	0.0%	5.2%
<b>Volatility Adjusted Price Momentum</b>	<b>-18.3%</b>	<b>7.4%</b>	<b>-2.8%</b>	<b>17.9%</b>	<b>-1.6%</b>	<b>13.3%</b>	<b>2.9%</b>	<b>49.6%</b>	<b>-4.3%</b>	<b>-7.0%</b>	<b>-1.5%</b>	<b>1.2%</b>
Price Momentum - 1 month	-15.6%	-8.2%	3.8%	2.7%	-8.7%	-5.7%	-13.9%	39.5%	-4.8%	-9.6%	-3.3%	1.4%
Price Momentum - 3 months	-13.2%	-7.7%	-10.1%	5.0%	-7.4%	4.0%	-10.2%	28.3%	1.7%	-12.1%	-7.8%	-6.3%
Price Momentum - 12 months	1.3%	13.1%	-1.6%	10.9%	5.5%	10.9%	11.7%	24.2%	-3.3%	-5.4%	5.0%	4.3%
Price Momentum - First 11 months	3.5%	10.6%	-3.4%	9.3%	9.2%	5.4%	14.8%	18.2%	-0.3%	-3.1%	4.7%	3.7%
<b>Estimates Momentum</b>	<b>-15.0%</b>	<b>12.9%</b>	<b>2.1%</b>	<b>22.6%</b>	<b>-9.1%</b>	<b>21.1%</b>	<b>1.5%</b>	<b>16.7%</b>	<b>-8.1%</b>	<b>-3.9%</b>	<b>2.3%</b>	<b>2.1%</b>
1 Month Change in Earnings Forecast	-13.0%	-3.5%	0.4%	22.0%	-14.2%	13.6%	-5.2%	62.0%	-23.0%	9.2%	-1.8%	-12.1%
Earnings Revisions	-16.6%	10.9%	1.1%	19.5%	-9.6%	14.2%	6.4%	-3.8%	-8.8%	0.9%	2.5%	3.0%
Sales Revisions	3.2%	-10.6%	0.8%	-5.2%	4.3%	8.7%	NA	-8.7%	-15.7%	2.2%	-3.7%	-5.7%
Cash Revisions	5.5%	-9.8%	2.0%	-3.9%	4.8%	8.7%	NA	-8.7%	-15.6%	2.2%	-1.7%	-5.2%

Source: Citi Investment Research and Analysis, IBES, Worldscope, FTSE and MSCI

## Long-Term Style Leaders and Laggards

- Of the main quant selection factors, Quality, Valuation and Estimates Momentum investing in pan-Europe have outperformed all other factors since 1995. On the momentum side, 12-month price momentum and earnings momentum have been consistent factors to bet on.

Figure 20. Performance Spread Between High (Top 20%) and Low (Bottom 20%) Factor Portfolios since January 1995 (annualized)

	Energy	Materials	Industrials	Consumer Discretionary	Consumer Staples	Health Care	Financials	Information Technology	Telecoms	Utilities	MSCI Europe	MSCI UK
<b>Valuation</b>	<b>-3.8%</b>	<b>10.6%</b>	<b>7.0%</b>	<b>-1.2%</b>	<b>4.8%</b>	<b>-2.3%</b>	<b>7.4%</b>	<b>-1.6%</b>	<b>1.9%</b>	<b>2.5%</b>	<b>4.5%</b>	<b>5.0%</b>
Earnings Yield - 12 month forward	0.0%	11.7%	3.7%	-2.6%	4.0%	3.4%	9.5%	-3.7%	0.0%	8.5%	4.6%	9.5%
Earnings Yield- 12 month historical	3.2%	17.9%	5.9%	-2.6%	7.4%	2.3%	11.1%	-8.7%	3.7%	8.1%	6.5%	10.4%
Cash Flow To Price	14.1%	9.0%	0.9%	2.5%	5.4%	8.4%	4.5%	-10.8%	9.9%	11.2%	5.9%	9.2%
Dividend Yield	7.4%	9.0%	10.3%	-1.0%	12.1%	0.2%	14.1%	-4.6%	-1.4%	-0.0%	8.2%	5.7%
Book to Price Ratio	3.3%	6.5%	1.3%	-0.2%	-1.0%	6.5%	5.9%	-7.5%	-2.5%	6.7%	2.7%	0.1%
Sales to Price Ratio	-7.7%	3.6%	3.8%	0.0%	-0.6%	11.7%	NA	-5.9%	1.4%	2.2%	3.4%	1.4%
EBITDA / EV	3.3%	16.1%	6.2%	4.2%	4.5%	-1.7%	NA	-7.5%	7.7%	2.6%	7.0%	10.1%
Sales / EV	-12.2%	6.2%	6.5%	5.7%	-0.7%	7.5%	NA	-5.3%	0.7%	2.0%	4.1%	5.0%
<b>Growth</b>	<b>-4.9%</b>	<b>-1.1%</b>	<b>-7.0%</b>	<b>-0.7%</b>	<b>-1.3%</b>	<b>-14.8%</b>	<b>-1.9%</b>	<b>-5.6%</b>	<b>-6.6%</b>	<b>-5.9%</b>	<b>-3.4%</b>	<b>-6.7%</b>
Earnings Growth (12 month forward)	-13.9%	-17.8%	-3.0%	-1.7%	-3.9%	-4.8%	-3.6%	-6.8%	-0.9%	-0.6%	-6.3%	-9.7%
CIR Growth-Value Score	2.1%	-3.1%	-5.1%	-2.5%	2.3%	-11.9%	-5.8%	-0.2%	-5.8%	-5.1%	-3.4%	-5.4%
One Year Sales Growth	-8.2%	-0.1%	-3.6%	-6.9%	-4.3%	-9.4%	NA	-7.2%	-4.4%	-4.0%	-4.7%	-4.2%
Long Term Earnings Growth	-10.9%	0.9%	-3.3%	-2.3%	-3.0%	1.8%	-0.2%	-1.8%	-4.0%	0.1%	-0.4%	1.0%
One Year EPS Growth	-4.1%	3.7%	2.3%	-2.2%	-6.9%	-1.4%	-1.9%	3.5%	-4.4%	4.5%	2.0%	-0.0%
<b>GARP</b>	<b>-3.6%</b>	<b>7.0%</b>	<b>3.1%</b>	<b>-0.5%</b>	<b>2.6%</b>	<b>11.0%</b>	<b>9.2%</b>	<b>-5.4%</b>	<b>1.7%</b>	<b>4.0%</b>	<b>4.3%</b>	<b>6.7%</b>
Deviation from Fair P/E	-3.4%	5.4%	3.8%	-0.6%	6.5%	8.9%	9.7%	-10.7%	-1.3%	8.1%	5.2%	8.1%
Deviation from Fair P/B	2.9%	8.7%	3.7%	-1.9%	4.1%	4.0%	11.5%	-4.9%	-1.2%	9.6%	5.1%	8.4%
Deviation from Fair P/CF	-8.0%	1.5%	2.8%	1.7%	-2.3%	9.7%	NA	-2.1%	2.5%	2.4%	3.5%	2.7%
Deviation from Fair P/S	9.3%	8.7%	1.9%	1.9%	2.4%	13.8%	6.2%	-4.9%	5.6%	7.6%	6.1%	8.9%
PEG (Inverted)	-7.3%	-5.1%	6.1%	1.5%	-1.6%	4.5%	3.4%	-3.6%	3.9%	6.6%	-0.4%	1.4%
<b>Low Risk</b>	<b>-6.2%</b>	<b>-1.6%</b>	<b>1.0%</b>	<b>0.4%</b>	<b>-6.8%</b>	<b>1.4%</b>	<b>-1.0%</b>	<b>-7.5%</b>	<b>-4.2%</b>	<b>-2.2%</b>	<b>0.5%</b>	<b>2.4%</b>
Debt to Equity (Inverted)	-7.7%	6.6%	6.1%	2.5%	7.5%	-4.8%	NA	3.4%	4.5%	-1.5%	2.1%	1.0%
Earnings Stability	2.1%	0.3%	-1.4%	-0.4%	-0.7%	9.6%	2.0%	-5.3%	-5.4%	-2.3%	2.0%	-0.4%
Beta against MSCI AC World (Low-High)	-6.5%	-0.8%	-1.3%	-3.1%	-10.3%	-6.5%	-0.6%	-7.0%	-8.3%	-5.4%	-2.0%	-0.5%
Beta against MSCI Country (Low-High)	-13.2%	-4.6%	2.2%	-1.2%	-7.2%	-2.1%	-2.8%	-8.0%	-0.6%	-4.6%	-0.8%	-6.2%
<b>Size (Market Cap)</b>	<b>-12.2%</b>	<b>0.5%</b>	<b>-2.8%</b>	<b>-0.2%</b>	<b>-3.6%</b>	<b>-7.4%</b>	<b>-2.7%</b>	<b>0.7%</b>	<b>-10.9%</b>	<b>-5.7%</b>	<b>-0.3%</b>	<b>-2.2%</b>
<b>Quality/Profitability</b>	<b>-11.1%</b>	<b>0.0%</b>	<b>10.4%</b>	<b>6.1%</b>	<b>10.0%</b>	<b>-2.2%</b>	<b>1.4%</b>	<b>15.6%</b>	<b>-1.6%</b>	<b>-4.3%</b>	<b>6.2%</b>	<b>4.5%</b>
Earnings Certainty	-4.5%	-3.1%	-1.4%	-0.9%	0.7%	-4.1%	-1.4%	-9.6%	3.3%	-2.5%	-0.5%	-2.5%
Return on Equity	-1.7%	7.6%	3.6%	1.1%	4.3%	-2.0%	1.1%	0.2%	5.8%	-1.0%	4.7%	6.0%
Net Profit Margin on Sales	0.1%	5.0%	-0.1%	-2.7%	0.9%	-9.7%	0.1%	7.2%	1.6%	-0.2%	1.7%	5.4%
Margin Growth	4.6%	-0.4%	1.9%	2.9%	7.4%	0.4%	6.9%	1.5%	-4.3%	2.2%	4.3%	3.4%
Earnings Quality (Accruals) (Inverted)	-8.1%	-2.3%	9.3%	9.4%	5.6%	13.5%	NA	5.9%	-1.3%	0.1%	7.3%	3.9%
Balance Sheet Quality (NOA) (Inverted)	-9.8%	-1.9%	3.8%	4.4%	7.7%	1.5%	NA	10.6%	-4.3%	-6.9%	2.6%	1.5%
<b>Volatility Adjusted Price Momentum</b>	<b>-6.5%</b>	<b>-3.2%</b>	<b>-2.3%</b>	<b>5.4%</b>	<b>-3.2%</b>	<b>-4.5%</b>	<b>-6.3%</b>	<b>3.1%</b>	<b>-6.4%</b>	<b>-7.6%</b>	<b>1.6%</b>	<b>-4.6%</b>
Price Momentum - 1 month	-19.5%	-5.5%	-6.9%	-4.9%	-7.9%	-13.6%	-5.5%	-3.2%	-11.8%	-10.8%	-2.9%	-5.6%
Price Momentum - 3 months	-15.5%	-4.0%	-4.0%	0.9%	-4.3%	-8.0%	-11.3%	13.1%	-7.2%	-7.2%	-0.1%	-1.0%
Price Momentum - 12 months	8.8%	-0.1%	6.9%	8.1%	3.4%	-3.4%	0.7%	-0.9%	1.0%	-4.6%	7.1%	3.8%
Price Momentum - First 11 months	14.3%	-0.1%	6.4%	8.1%	5.3%	-0.8%	3.8%	-1.9%	-0.4%	-1.4%	6.4%	2.7%
<b>Estimates Momentum</b>	<b>-7.6%</b>	<b>-1.0%</b>	<b>5.1%</b>	<b>10.5%</b>	<b>6.5%</b>	<b>-1.8%</b>	<b>2.8%</b>	<b>11.4%</b>	<b>-2.8%</b>	<b>-0.8%</b>	<b>5.9%</b>	<b>2.9%</b>
1 Month Change in Earnings Forecast	-17.4%	-4.6%	1.7%	11.5%	-5.0%	-6.5%	-3.8%	10.2%	-6.6%	-0.0%	0.0%	-1.2%
Earnings Revisions	-8.6%	-2.0%	7.8%	10.8%	2.5%	-0.0%	3.2%	12.1%	-1.9%	1.4%	6.6%	4.4%
Sales Revisions	0.3%	-4.0%	0.3%	4.2%	6.5%	-5.1%	NA	5.9%	-6.8%	2.5%	2.9%	0.4%
Cash Revisions	-2.1%	-1.2%	3.5%	7.8%	5.8%	2.6%	NA	7.9%	-2.0%	-1.9%	5.8%	0.4%

Source: Citi Investment Research and Analysis, IBES, Worldscope, FTSE and MSCI

## Quant Model Portfolio

Our model portfolio is constructed to reflect our top-down style views. The portfolio is rather concentrated, with typically less than 50 positions and an estimated tracking error of 5% maximum. It is also constrained to have a market beta close to 1 and be size neutral. The stocks are predominantly chosen based on their attractiveness scores, which are generated using an objective multifactor model. The weights in the factors could change periodically to reflect our views on styles. Our current style weights are: Composite Valuation (25%), Price Momentum (25%), Estimate Revisions (25%) and Quality (25%).

Figure 21. Style Weightings

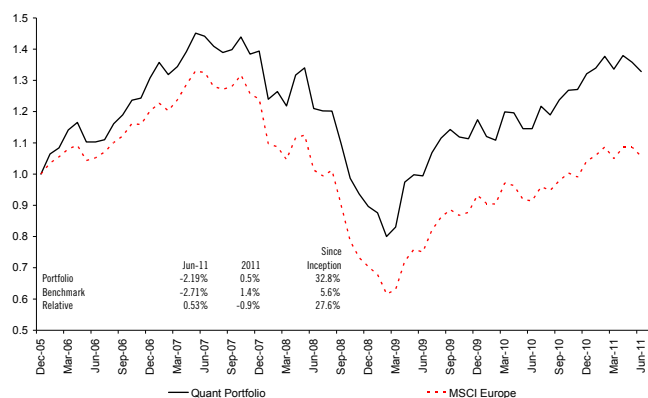
	Value	Quality/Profitability	Price Momentum	Estimate Revisions
Weights	25%	25%	25%	25%

Source: Citi Investment Research and Analysis

Our Value factor is further split between 25% P/E, 25% Dividend Yield, 25% EV/EBITDA, and 25% the equal weighted combination of P/CF, P/BV and P/S. The quality factor includes Margins, Earnings Quality (ROE is used for Financials) and Earnings Certainty. The price momentum element is represented by the 12-month volatility-adjusted price momentum factor. Finally, estimate revisions are proxied with the diffusion ratio (upgrades – downgrades / total number of estimates).

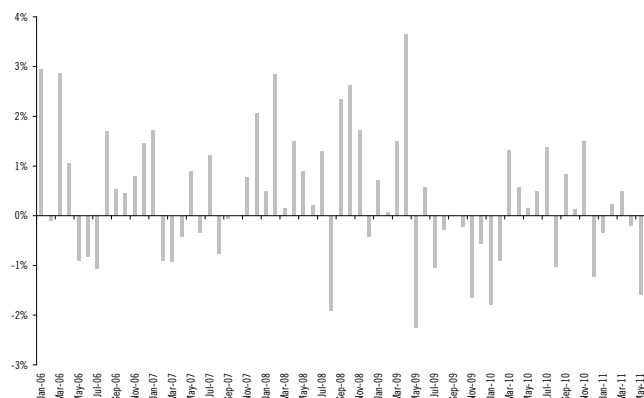
The quant model portfolio was up 53bps relative to the benchmark in June but not enough to erase the big return drawdown of the previous month. All but two of the active sector positions posted positive returns, those sectors being Financials and Utilities.

Figure 22. Since Inception Performance of Model Portfolio vs. MSCI Europe (€ Total Returns)



Source: Citi Investment Research and Analysis & MSCI

Figure 23. Since Inception Monthly Relative Returns of Model Portfolio vs. MSCI Europe (€ Total Returns)



Source: Citi Investment Research and Analysis & MSCI

Figure 24. Current Quant Model Portfolio

SEDOL	Name	Country	Sector	Market Cap (\$ Mill)	Benchmark Weight	Portfolio Weight	Active Weight	Last Month's Weight	Trade
040650	Hammerson PLC	United Kingdom	Financials	3,803	0.07%	2.16%	2.08%	1.27%	0.9%
056039	Legal & General Group PLC	United Kingdom	Financials	7,800	0.15%	1.87%	1.71%	1.84%	0.0%
318094	Land Securities Group PLC	United Kingdom	Financials	7,392	0.14%	5.19%	5.05%	5.47%	-0.3%
410359	EDP-Energias de Portugal S.A.	Portugal	Utilities	4,764	0.09%	5.14%	5.05%	5.14%	0.0%
426330	DnB NOR ASA	Norway	Financials	9,755	0.19%	5.24%	5.05%	5.09%	0.1%
<b>473249</b>	<b>Telenor ASA</b>	<b>Norway</b>	<b>Telco Services</b>	<b>8,452</b>	<b>0.16%</b>	<b>4.08%</b>	<b>3.91%</b>	<b>0</b>	<b>4.1%</b>
522603	Sampo Oyj	Finland	Financials	9,472	0.18%	5.23%	5.05%	5.40%	-0.2%
523148	Allianz SE	Germany	Financials	44,223	0.86%	3.33%	2.47%	3.29%	0.0%
<b>528748</b>	<b>Deutsche Lufthansa AG</b>	<b>Germany</b>	<b>Industrials</b>	<b>3,476</b>	<b>0.07%</b>	<b>3.88%</b>	<b>3.82%</b>	<b>0</b>	<b>3.9%</b>
538003	Nordea Bank AB	Sweden	Financials	19,997	0.39%	1.47%	1.08%	5.26%	-3.8%
553397	Swisscom AG	Switzerland	Telco Services	7,311	0.14%	1.68%	1.54%	1.66%	0.0%
556352	MAN AG	Germany	Industrials	10,076	0.20%	5.24%	5.05%	5.37%	-0.1%
571342	Metso Corp.	Finland	Industrials	5,067	0.10%	2.40%	2.30%	1.67%	0.7%
573252	Telefonica S.A.	Spain	Telco Services	69,768	1.36%	1.64%	0.29%	1.62%	0.0%
<b>574081</b>	<b>Linde AG</b>	<b>Germany</b>	<b>Materials</b>	<b>20,560</b>	<b>0.40%</b>	<b>4.25%</b>	<b>3.85%</b>	<b>0</b>	<b>4.2%</b>
595607	Koninklijke KPN N.V.	Netherlands	Telco Services	15,820	0.31%	5.36%	5.05%	5.55%	-0.2%
707624	Unibail-Rodamco S.A.	France	Financials	14,679	0.29%	1.51%	1.22%	1.48%	0.0%
710106	Porsche Automobil Holding SE	Germany	Consumer Discretionary	8,448	0.16%	5.08%	4.92%	1.68%	3.4%
714456	Enel S.p.A.	Italy	Utilities	29,621	0.58%	3.22%	2.65%	1.68%	1.5%
725147	Snam Rete Gas S.p.A.	Italy	Utilities	6,669	0.13%	1.75%	1.62%	1.72%	0.0%
726613	Fortis (NL) N.V.	Belgium	Financials	4,162	0.08%	3.36%	3.28%	3.67%	-0.3%
<b>779255</b>	<b>Heineken N.V.</b>	<b>Netherlands</b>	<b>Consumer Staples</b>	<b>10,794</b>	<b>0.21%</b>	<b>0.92%</b>	<b>0.71%</b>	<b>0</b>	<b>0.9%</b>
B00D9P	Belgacom S.A.	Belgium	Telco Services	3,741	0.07%	2.74%	2.67%	2.71%	0.0%
B03MM4	Royal Dutch Shell PLC (CL B)	United Kingdom	Energy	66,846	1.30%	6.36%	5.06%	6.52%	-0.2%
B08SNH	National Grid PLC	United Kingdom	Utilities	23,923	0.46%	1.72%	1.25%	1.70%	0.0%
<b>B0DJNG</b>	<b>Finmeccanica S.p.A.</b>	<b>Italy</b>	<b>Industrials</b>	<b>3,373</b>	<b>0.07%</b>	<b>3.37%</b>	<b>3.31%</b>	<b>0</b>	<b>3.4%</b>
B15C55	Total S.A.	France	Energy	84,397	1.64%	6.70%	5.06%	6.99%	-0.3%
<b>B1VQF4</b>	<b>Orkla ASA</b>	<b>Norway</b>	<b>Industrials</b>	<b>5,097</b>	<b>0.10%</b>	<b>5.13%</b>	<b>5.03%</b>	<b>0</b>	<b>5.1%</b>
418224	CRH PLC	Ireland	Materials	10,978	0.21%	0	-0.21%	3.31%	-3.3%
481334	Skandinaviska Enskilda Banken	Sweden	Financials	8,078	0.16%	0	-0.16%	3.34%	-3.3%
483410	Schneider Electric S.A.	France	Industrials	28,625	0.56%	0	-0.56%	2.63%	-2.6%
483477	Vivendi S.A.	France	Consumer Discretionary	23,571	0.46%	0	-0.46%	3.41%	-3.4%
598662	Koninklijke Philips Electronics N.V.	Netherlands	Industrials	17,414	0.34%	0	-0.34%	1.88%	-1.9%
718472	Swatch Group AG	Switzerland	Consumer Discretionary	10,758	0.21%	0	-0.21%	3.00%	-3.0%
738048	Compagnie de Saint-Gobain S.A.	France	Industrials	17,938	0.35%	0	-0.35%	5.69%	-5.7%

Stocks in bold illustrate new additions while those stocks removed from the portfolio can be found at the bottom of the screen with a portfolio weight of zero.

Source: Citi Investment Research and Analysis & MSCI. History available on request.

## Interactive Tool

In response to client needs, we have developed an interactive style backtesting product to complement the *What Works in Equity Markets* publication. The tool comes in the form of an excel add-in that clients can easily install on their desktop. The tool offers:

- Access to over 10,000 univariate backtests covering 50 factors and 16 broad investing universes.
- Flexibility in deciding which time period to use to calculate style returns (earliest start date is January 1995).
- Returns are total return based and are available in various currencies.
- Ability to look at the analysis in a number of methods — Simple Returns, Annualised Returns, Information Ratios, Hit Rates and Factor Correlations.
- Individual factor in depth analysis.
- Downloadable factor return series in a user-defined manner.
- Analysis down to sector level.

Please contact the European Quantitative Research team (gqrlondon@citi.com) if you wish to receive this tool.

Figure 25. Citi Quant Style Add-in

Microsoft Excel - MSCIRegions.xls [Read-Only]

File Edit View Insert Format Tools Data Window FactSet

Citigroup-GQR data\_central Help

Style Templates Summary Statistics

Style Data MSCI Regions

Utilities Region and Sectors

Help One Pager

Version Info Correlation Matrix

B18 10 % € 0.00

Dividend Yield

9 11 12

From 31 Dec 05 to 20 Oct 06

Simple Returns using High-Low Basket return series in USD

Universe Returns

McAP Weighted

Equally Weighted

14.22 16.83 17.82 10.75 10.75 23.87 24.37 22.22 25.54 2.62 19.07 14.16

14.75 18.80 17.17 10.52 9.89 28.50 29.13 26.36 33.84 -0.27 21.24 16.16

No Sector Selected

MSCI World MSCI Kocasi MSCI Eafe MSCI North America MSCI United States MSCI Europe MSCI Europe ex UK MSCI United Kingdom MSCI Mordic MSCI Japan MSCI Pacific

Earnings Yield - 12 month forward 11.84 5.06 16.91 5.46 4.28 1.52 4.53 -10.95 -1.51 9.22 -2.92 12.1

Earnings Yield - 12 month historical 13.07 8.04 17.62 7.00 6.55 2.06 9.66 -9.32 9.07 7.32 -0.79 13.1

Cash Flow To Price 9.16 6.39 8.13 9.82 9.25 4.13 5.37 4.27 4.90 17.46 -5.42 8.1

Dividend Yield 16.83 11.76 20.20 7.18 10.80 6.24 8.77 6.60 11.78 15.92 -6.78 14.1

Book to Price Ratio 4.94 8.53 1.95 8.74 9.09 6.16 7.24 6.25 8.86 16.39 10.63 6.4

Sales to Price Ratio 9.22 16.99 6.22 11.35 12.47 15.15 15.79 12.51 20.63 2.64 7.90 6.6

EBITDA / EV 16.56 14.74 17.36 9.39 10.82 10.20 9.44 13.35 19.24 20.47 0.99 13.1

Sales / EV 9.10 14.36 3.08 10.67 12.28 10.86 11.56 10.89 12.53 4.73 5.55 5.1

Value Composite 17.12 15.08 15.57 8.77 9.39 3.60 6.07 -2.09 12.07 17.09 -5.88 14.1

Earnings Growth (12 month forward) -7.60 -9.73 -7.76 -5.11 -5.86 -6.72 -9.56 -7.39 -10.45 -4.97 -2.35 -7.1

SB Growth-Value Score -6.71 -5.67 -4.61 -10.10 -10.55 -4.83 -1.93 -14.36 -3.88 -10.28 2.35 -6.1

One Year Sales Growth -7.82 -12.36 -4.48 -10.73 -14.48 -9.32 -7.37 -16.53 -4.62 -8.62 2.60 -3.1

Long Term Earnings Growth -13.76 -5.06 -18.97 -6.27 -9.26 1.57 1.15 -4.52 -3.70 -5.16 -3.44 -9.1

One Year EPS Growth -1.92 -1.63 -1.04 -6.98 -7.80 -3.55 -0.02 -14.57 2.49 6.80 114 -0.1

One Year DPS Growth -1.71 -1.81 -2.21 -2.52 -2.44 -0.94 -0.75 -7.01 -9.53 0.87 -4.55 0.0

Growth Composite -7.87 -7.87 -7.37 -9.84 -12.82 -8.13 -5.22 -18.91 -10.21 -3.25 -1.90 -6.4

Debt to Equity (Inverted) -7.20 -7.54 -6.82 -7.45 -7.49 -8.46 -6.43 -8.41 -6.20 3.90 6.00 -5.1

Earnings Stability -4.54 -8.59 0.39 -5.51 -5.59 -3.65 -5.01 -3.06 -11.46 -14.42 0.31 -3.1

Beta against MSCI AC World (Low-High) -2.71 1.48 -5.39 2.47 3.54 9.71 10.20 6.96 13.56 9.91 -2.38 -1.6

Beta against MSCI Country Index (Low-High) 6.75 5.61 8.85 3.42 4.78 11.89 11.80 5.55 13.77 8.90 -2.35 -1.6



## Appendix and Methodology

### Style performance

#### Construction of Style Portfolios

At the start of each month, the MSCI Europe constituents are ranked by their factor value (eg dividend yield). The high factor value portfolio contains the 20% of stocks with the highest factor values, and the low factor value portfolio contains the 20% of stocks with the lowest factor values.

We have equally weighted the stocks in the portfolios to reduce the chance of a few large companies distorting performance, and then calculate performance over the month based on total returns (in US dollars).

#### Detailed Backtest Reports

Log in to our website ([www.gqr.ssmb.com](http://www.gqr.ssmb.com)) for detailed backtest results of more than 40 style factors for the MSCI Europe, MSCI UK and the other 17 stock indices. An example of the output you can get from our web page is included below.

If you would like to get a login/password and become a registered user of this website please send an e-mail to [gqrlondon@citi.com](mailto:gqrlondon@citi.com).



## Style Factors

Most of the style factors we use are self-explanatory. Here we list a number of them that deserve a more detailed explanation:

*Deviation from fair P/E* — The difference between the fair P/E and actual P/E. The fair P/E is estimated using a cross-sectional regression of P/E on expected earnings growth, market capitalisation and interest rates. A similar approach is used to compute the deviation from fair P/B, P/CF and P/S.

*Citi growth-value score* — A score between 0 (pure value) and 1 (pure growth) is assigned to each stock. The methodology is described in the previous section on Citi style indices.

*Earnings stability* — The R-squared from a regression of five annual EPS values (three historical and two forecast) against a time trend. (For more details, see our report *Searching for Alpha: Focus on Earnings Stability*, European Quantitative Strategy, February 2003).

*Price momentum* — All our price momentum measures are based on the cumulative product of monthly total returns over the given time period. The exception is the Citi momentum indicator, which is the t-statistic of a regression of a 260-day history of the stock price against a time trend.

*Earnings revisions* — The time-weighted average of analyst upgrades less downgrades scaled by the total number of estimates for fiscal years 1 and 2.

*Earnings certainty* — The inverse of the coefficient of variation in the next 12-month EPS estimates (stocks are excluded if there are less than five estimates or EPS is less than one cent). This is the same as the inverse of our EPS dispersion measure. (For more detail, see our report *Searching for Alpha: Sell When Analysts Disagree*, European Quantitative Strategy, December 2003).

*Citi expected earnings surprise score* — The difference between actual EPS and predicted median EPS scaled by the standard deviation of analyst estimates. (For more details, see our report *Searching for Alpha: Still Profiting from Surprises*, European Quantitative Strategy, March 2010.)

*Earnings quality* — Year-on-year change in net operating assets or the difference between accounting and cash earnings (accruals). (For more details, see our report *Searching for Alpha: Quantifying Earnings Quality*, European Quantitative Strategy, October 2004.)

*Balance sheet quality* — The level of net operating assets. NOA incorporates all the changes in NOA and can be used as proxy for cumulated accruals. Since accumulation of earnings without cash flow is unsustainable in the long term, having high net operating assets is a sign of balance sheet bloat. (For more details, see our report *Searching for Alpha: Quantifying Earnings Quality*, European Quantitative Strategy, October 2004.)

# Global Quantitative Research Team

Figure 26. Global Quantitative Research Team

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Source: Citi Investment Research and Analysis

## **Notes**

## **Notes**

## Appendix A-1

### Analyst Certification

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