

US Factor Reference Book

What Drives Equity Returns?

- In this analysis we investigate how our library of commonly used quantitative factors has performed when tested across the Russell 3000 universe and its subsets, focusing on size, style, sectors, as well as different factor investment horizons.
- Given the significant breadth of US equity markets, it is clear that **factor effectiveness does vary according to size**. It comes as no surprise that, overall, factors have shown to be **more effective** at differentiating next month's winners from next month's losers as **the market capitalization of the universe they are tested on gets smaller**.
- A number of factors were found to work well; however, as a group the **valuation family of metrics was most effective, in particular cash flow-related factors**. In addition to yielding strong long/short return profiles, information ratios, information coefficients, hit rates, and relatively low alpha decay and turnover, the theoretical factor returns exhibited statistical significance.
- **Factors pertaining to growth and sentiment families**, such as forward earnings momentum and analyst revisions, **have shown greater forecasting ability**, in particular **within the small-cap space**.
- While technical factors vary a lot in terms of their effectiveness, the **10-Day Relative Strength Indicator**, a popular mean reversion metric, **should be highlighted**. When used as a contrarian factor, it shows remarkable consistency in forecasting future returns, exhibiting almost no drawdowns in performance.
- When examining factor performance across sectors, the **average factor is more effective within cyclical sectors as opposed to defensive sectors**, with the exception of consumer staples.

Global Quantitative Strategy

US Quant Strategies

Dubravko Lakos-Bujas^{AC}

(1-212) 622-3601

dubravko.lakos-bujas@jpmorgan.com

J.P. Morgan Securities LLC

Asia/GEM Quant Strategies

Steve Malin

(852) 2800 8568

steven.j.malin@jpmorgan.com

J.P. Morgan Securities (Asia Pacific) Limited

Robert Smith

(852) 2800 8569

robert.z.smith@jpmorgan.com

J.P. Morgan Securities (Asia Pacific) Limited

Europe Quant Strategies

Marco Dion

(44-20) 7325-8647

marco.x.dion@jpmorgan.com

J.P. Morgan Securities Ltd.

Japan Quant Strategies

Satoshi Okamoto

(81-3) 6736-8647

satoshi.okamoto@jpmorgan.com

JPMorgan Securities Japan Co., Ltd.

Australia Quant Strategies

Berowne Hlavaty

(61-2) 9220-1591

berowne.d.hlavaty@jpmorgan.com

J.P. Morgan Securities Australia Limited

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Executive Summary

With this note the J.P. Morgan Quant Strategy group is expanding its coverage universe to include the U.S. markets, giving the group now fully global coverage within the quant equity space, covering both developed and emerging markets.

As a starting point we conducted a broad initial exercise where we examined the performance characteristics for many common quantitative factors across the US equity universe and its subsets, focusing on size, style, and underlying sectors. The entire factor back-testing exercise has been carried out using our proprietary back-testing platform.

This handbook is intended to serve as a summary of those results and as a reference document on the back of which future research will be conducted.

A list of the quantitative factors tested is available in Appendix III (Factor Definitions) on page 224.

Introduction

What is quantitative investing?

While to some, quantitative investing may sound overwhelmingly complex and overly scientific, to the extent that critics sometimes refer to it as a “black box,” it is essentially a way of putting together and processing different elements of information.

A quantitative investment process is characterized by multiple components ranging from signal research to portfolio construction and implementation, but first and foremost it is centered on what are known as “factors.” A factor is a quantifiable signal, attribute, or any variable, in its most simplistic form such as the price-to-earnings ratio, which has been correlated with past stock returns and is expected to be correlated with future returns. Good factors therefore exhibit relationships with stock returns that not only are stable and persistent over time but also have a fundamental and/or theoretical basis for driving those stock returns. Perhaps the most obvious influence on stock performance is the financial condition of the company, which for instance can be captured through fundamental factors. Just as good quality ingredients make for an excellent cuisine, carefully selected factors can in the right form or combination create investment strategies for outperformance.

In many instances, the underlying principles of quantitative investing are no different from traditional fundamental investing. Quantitative managers typically rely on many of the same factors as fundamental managers when selecting stocks. The main differences lie in the way managers utilize this information as well as the methods they use for constructing their portfolios. A quantitative manager will seek to add value by expanding the breadth of opportunities to differentiate a “good” stock from a “bad” stock. In addition, by using a disciplined and risk controlled approach and focusing on systematic repeatability, these managers’ goals are to capture, time after time, the insights of their investment principles, while minimizing the slippage of analytical inconsistencies and human bias. These attributes have made quantitative investing increasingly attractive.

Authors Ludwig Chincarini and Daehwan Kim, in their book, *Quantitative Equity Portfolio Management*, make a very interesting and we believe valid comparison of quantitative and fundamental investing: “It is inaccurate to say that fundamental managers dig deep at the solo stock level, but have no models or disciplines. It is also unfair to say that quantitative managers apply skills to so broad a set of stocks that the process is superficial at the fundamental level, and often labeled black-box, data mining nerds. This is a misrepresentation. Many quantitative investment strategies rely on factors that are based on not only solid economic principles, but also on sound fundamental intuition. At the same time, fundamental managers all use models. These may be rules-of-thumb or heuristics, and not subject to rigorous testing, but the deep implementation of the model into the security makes up for the lack of breadth. To repeat, quantitative management – lies in broadly perfecting the comprehensive portfolio system, whereas, fundamental management lies in deeply comprehending the perfect stock selection.”

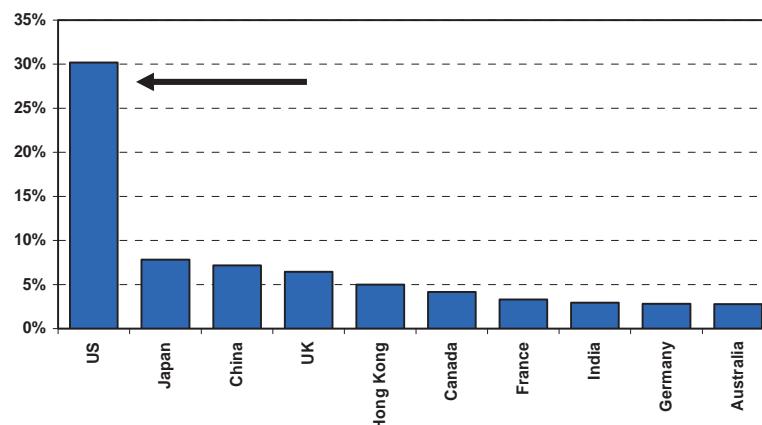
Quantitatively based investment strategies can be deployed in many forms. On the one hand there is the traditional quantitative manager who typically stands by the book, constructing and implementing investment strategies using a purely quantitative framework, while on the other hand quantitative investing may be viewed as complementary to fundamental research and can function as a stand-alone investment idea generator or simply used for purposes of stock screening.

In fact, recent years, which have posed an exceptionally challenging investment environment, have further given rise to a new type of investor, one that blends both quantitative and fundamental investing. Whether it is the quantitative manager overlaying their process with fundamental research or the fundamental manager starting to adopt quantitative techniques in their stock selection, such as testing a valuation metric historically to determine whether it has been effective in anticipating future returns, quantitative investing methods are being used in a multitude of ways, more so than ever before.

Market Decomposition

The **U.S. market** is by far the largest in the world as it **represents close to one-third of world market capitalization**. It is significantly bigger than the next largest market, Japan, which represents less than 10% of total capitalization (Figure 1).

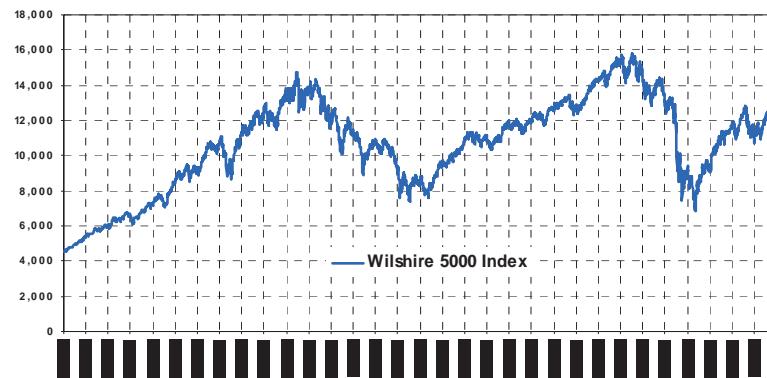
Figure 1: Decomposition of global market capitalization



Source: Bloomberg, J.P. Morgan

To provide some context, the current U.S. market capitalization stands at approximately \$13.2 trillion as measured by the Wilshire 5000 Index, the broadest index for the U.S. equity market. It has fluctuated significantly over the last 15 years, as seen in the chart below (Figure 2). During this period the U.S. market has gone through two full booms and busts, having first peaked in March 2000 and then later in October 2007 when it reached its all-time high with a market capitalization of approximately \$15.8 trillion before losing more than 50% of the value over the subsequent 18 months.

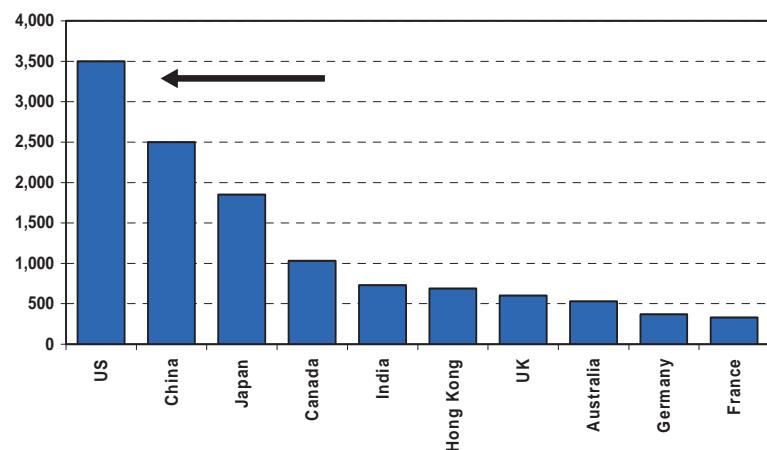
Figure 2: Wilshire 5000 Index as a proxy for U.S. market capitalization



Source: Bloomberg, J.P. Morgan

The U.S. market has very good breadth, having approximately **3,500 companies with a market capitalization greater than \$100 million** (Figure 3).

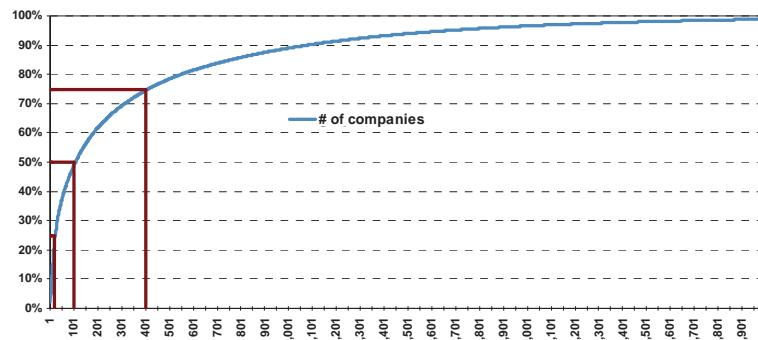
Figure 3: Number of companies with market cap greater than USD 100 million



Source: Bloomberg, J.P. Morgan

Like many other markets in the world, the U.S. can be characterized as a top-heavy market, where the **largest 20, 100, and 400 companies account for approximately 25%, 50%, and 75% of the U.S. market capitalization** respectively (Figure 4).

Figure 4: Cumulative capitalization vs. number of companies



Source: Bloomberg, J.P. Morgan

Nevertheless, the U.S. market has good depth across the various market capitalization buckets. To put things into perspective, below are some basic statistics on the decomposition of the U.S. market capitalization landscape (Table 1, Figure 5, and Figure 6). The analysis incorporates all U.S. public companies with a market capitalization greater than \$1 million, totaling almost 6,000 names.

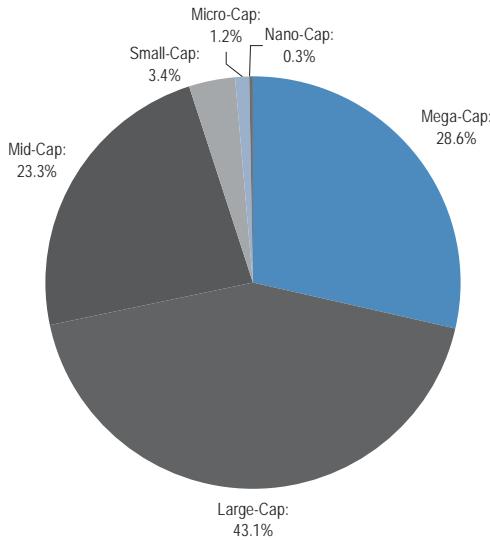
Table 1: Decomposition of U.S. market capitalization

	% of Total US Equity Market Cap	# of Companies	% of Companies
Mega-Cap:	Over \$100 billion	25	0.42%
	Over \$200 billion	3	0.05%
	\$100 billion - \$200 billion	22	0.37%
Large-Cap:	\$10 billion - \$100 billion	248	4.14%
	\$50 billion - \$100 billion	24	0.40%
	\$10 billion - \$50 billion	224	3.74%
	\$40 billion - \$50 billion	14	0.23%
	\$30 billion - \$40 billion	31	0.52%
	\$20 billion - \$30 billion	49	0.82%
	\$10 billion - \$20 billion	130	2.17%
Mid-Cap:	\$1 billion - \$10 billion	1,072	17.89%
	\$5 billion - \$10 billion	195	3.25%
	\$1 billion - \$5 billion	877	14.64%
	\$2 billion - \$5 billion	444	7.41%
	\$1 billion - \$2 billion	433	7.23%
Small-Cap:	\$300 million - \$1 billion	864	14.42%
	\$500 million - \$1 billion	500	8.34%
	\$300 million - \$500 million	364	6.07%
Micro-Cap:	\$50 million - \$300 million	1,272	21.23%
Nano-Cap:	\$1 million - \$50 million	2,511	41.91%
All-Cap:	Over \$1 million	5,992	100.00%

Source: Bloomberg, J.P. Morgan

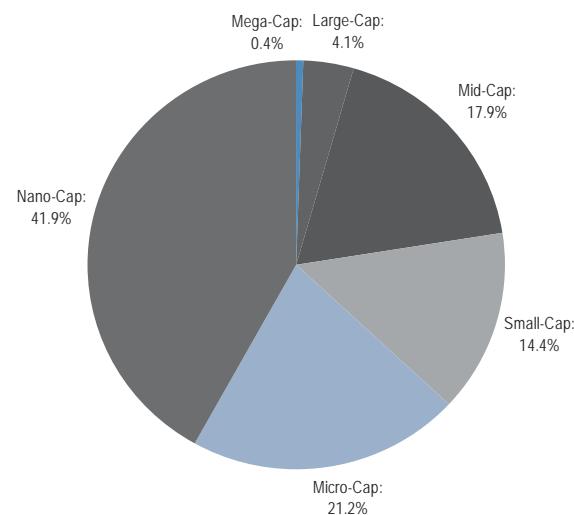
Not surprisingly, 72% of U.S. market capitalization comes from the mega-caps and large-caps, companies that we defined as having a market capitalization greater than \$100 billion and between \$10 billion and \$100 billion, respectively. While only 25 companies fall under the mega-cap category, the large-cap space alone contains almost 250 names, which in terms of breadth for most other markets globally would typically represent the bulk of their liquid universe. Within the large-cap space approximately one-third of total U.S. capitalization comes from companies with market capitalization ranging from \$10 billion to \$50 billion, a total representation of 224 names. Going further down the market capitalization spectrum, the mid-cap category constitutes approximately 23% of total capitalization and contains over 1,000 names. The small-cap category has similar breadth to the mid-cap category, but as expected represents only 3% of total capitalization.

Figure 5: % Breakdown by U.S. company market capitalization



Source: Bloomberg, J.P. Morgan

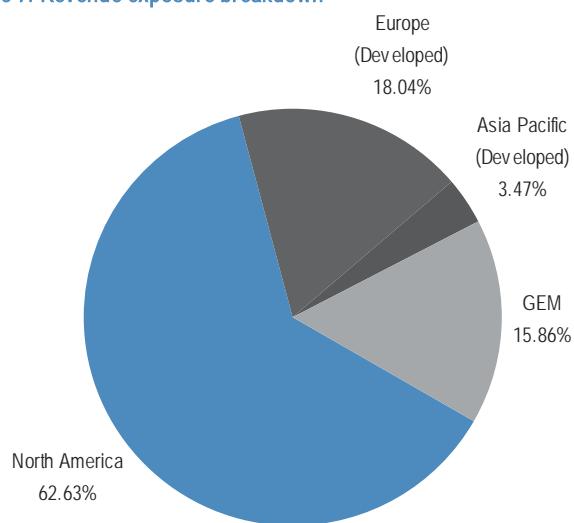
Figure 6: % Breakdown by # of U.S. companies



Source: Bloomberg, J.P. Morgan

The average U.S. company has a fairly diversified stream of revenues with almost 40% coming from non-North American regions, including ~18% and ~16% revenue exposures to developed European markets and global emerging markets, respectively (Figure 7).

Figure 7: Revenue exposure breakdown



Source: Bloomberg, J.P. Morgan

Defining the Test Universe

Given the breadth of the U.S. market, in this report we based our initial analysis on the Russell 3000 Index, which includes the largest 3000 U.S. companies and represents roughly 98% of the investable U.S. equity market cap. We then took this exercise a step further and performed a similar analysis on various size, style, and

sector subsets of the overall universe. The various subsets used in this analysis include:

- Top 200 stocks – barometer for mega-/large-cap space (i.e., Russell Top 200)
- Top 1,000 stocks – barometer for large-cap space (i.e., Russell 1000)
- Bottom 2,000 stocks – barometer for small-cap space (i.e., Russell 2000)
- Bottom 1,000 stocks – barometer for bottom half of small-cap space
- Value stocks – (i.e., Russell 3000 Value)
- Growth stocks – (i.e., Russell 3000 Growth)
- Sector-specific stocks – based on the 10 GIC Level I sectors

The back-testing exercise was performed over the last 16 years, focusing on the period from 1995 to 2010.

Similar to some of the statistics illustrated above, the Russell 3000 Index suffers from being top heavy, with the top 1% of the largest names accounting for almost one-third of the index weight and a cumulative market capitalization of \$4.6 trillion (Table 2). From a portfolio management point of view, there is clearly a requirement to take a great deal of care when making active allocations to the largest U.S. companies as getting these tilts wrong is likely to be extremely costly in terms of performance.

Table 2: Top Heavy? Top 1% of largest names correspond to one-third of Index weight

Name	Sector	Market Cap (USD, m)	Weight	Rank	Cumulative Market Cap (USD, m)	Cumulative Weight
EXXON MOBIL	Energy	362,308	2.48%	1	362,308	2.48%
APPLE	Information Technology	293,869	2.01%	2	656,176	4.49%
MICROSOFT	Information Technology	238,271	1.63%	3	894,448	6.11%
BERKSHIRE HATHAWAY	Financials	196,530	1.34%	4	1,090,978	7.46%
WAL-MART STORES	Consumer Staples	193,167	1.32%	5	1,284,145	8.78%
GOOGLE	Information Technology	188,763	1.29%	6	1,472,908	10.07%
GENERAL ELECTRIC	Industrials	186,351	1.27%	7	1,659,259	11.34%
IBM	Information Technology	179,794	1.23%	8	1,839,054	12.57%
PROCTER & GAMBLE	Consumer Staples	178,141	1.22%	9	2,017,194	13.79%
CHEVRON	Energy	177,114	1.21%	10	2,194,308	15.00%
AT&T	Telecommunication Services	172,158	1.18%	11	2,366,466	16.18%
JOHNSON&JOHNSON	Health Care	171,833	1.17%	12	2,538,299	17.35%
JPMORGAN CHASE	Financials	157,188	1.07%	13	2,695,488	18.42%
WELLS FARGO	Financials	156,360	1.07%	14	2,851,848	19.49%
ORACLE	Information Technology	153,277	1.05%	15	3,005,125	20.54%
COCA-COLA	Consumer Staples	150,328	1.03%	16	3,155,453	21.57%
PFIZER	Health Care	136,810	0.94%	17	3,292,263	22.50%
CITIGROUP	Financials	133,340	0.91%	18	3,425,603	23.41%
BANK OF AMERICA	Financials	123,947	0.85%	19	3,549,550	24.26%
INTEL	Information Technology	118,700	0.81%	20	3,668,250	25.07%
MERCK	Health Care	112,945	0.77%	21	3,781,195	25.85%
SCHLUMBERGER	Energy	110,133	0.75%	22	3,891,328	26.60%
CISCO SYSTEMS	Information Technology	107,918	0.74%	23	3,999,245	27.34%
PHILIP MORRIS	Consumer Staples	107,793	0.74%	24	4,107,038	28.07%
PEPSICO	Consumer Staples	103,395	0.71%	25	4,210,433	28.78%
VERIZON	Telecommunication Services	97,891	0.67%	26	4,308,325	29.45%
CONOCOPHILLIPS	Energy	95,676	0.65%	27	4,404,001	30.10%
HEWLETT-PACKARD	Information Technology	93,499	0.64%	28	4,497,500	30.74%
GOLDMAN SACHS	Financials	89,267	0.61%	29	4,586,767	31.35%
MCDONALDS	Consumer Discretionary	81,330	0.56%	30	4,668,097	31.91%

Source: Bloomberg, J.P. Morgan

Looking at the GIC Level I sector decomposition of the Russell 3000 universe, the Information Technology sector and the Financials sector lead the group, together accounting for 36% of total capitalization (Table 3).

Table 3: Russell 3000 Index – current sector breakdown

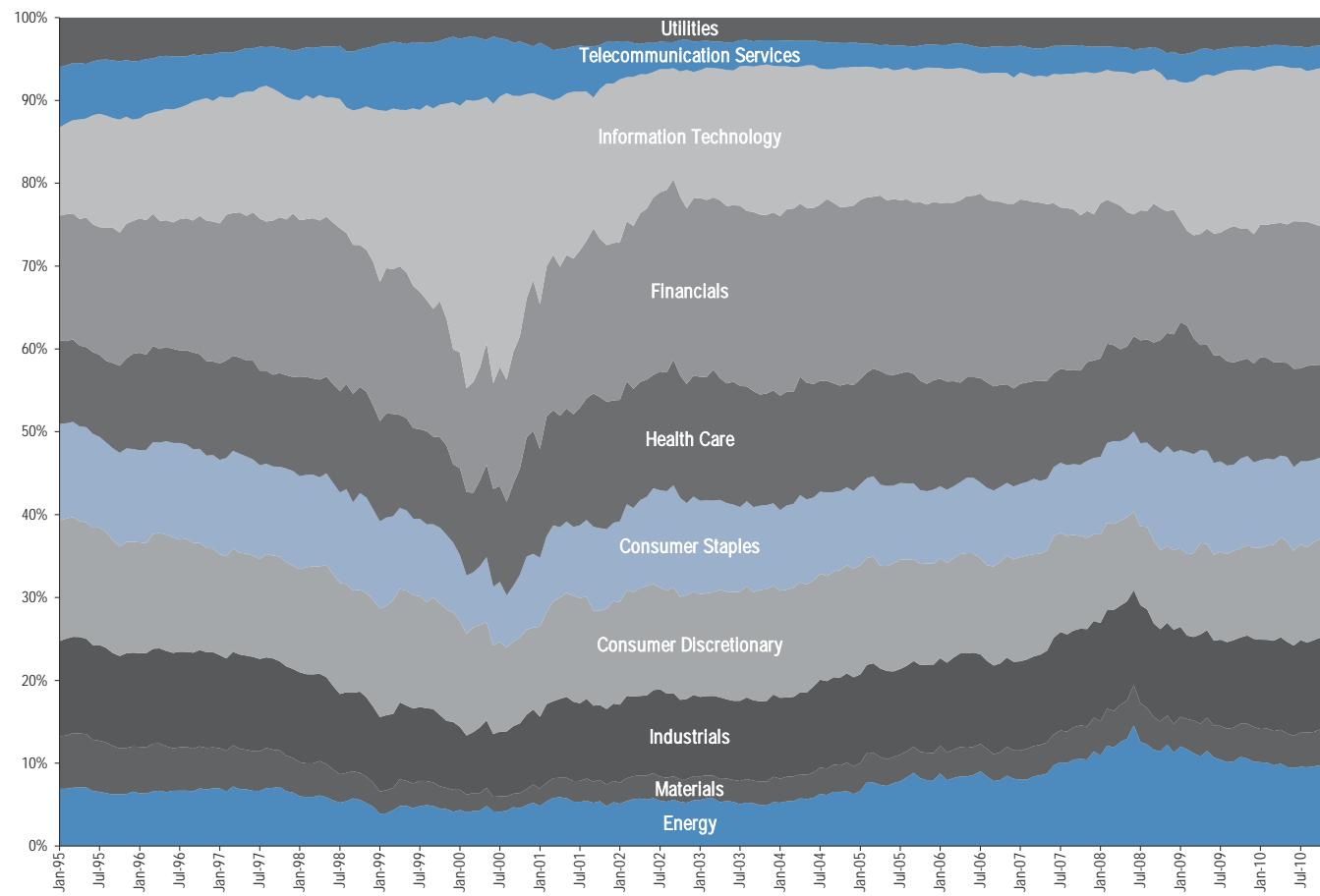
Sector (GIC Level I)	% Market Cap	% of Companies	# of Companies
Information Technology	19.10%	16.73%	494
Financials	16.68%	20.59%	608
Consumer Discretionary	11.97%	15.00%	443
Health Care	11.20%	13.51%	399
Industrials	11.04%	14.29%	422
Energy	9.77%	6.33%	187
Consumer Staples	9.77%	4.20%	124
Materials	4.36%	4.84%	143
Utilities	3.37%	3.15%	93
Telecommunication Services	2.73%	1.35%	40

Source: S&P, Bloomberg, J.P. Morgan

Both of these pro-cyclical sectors have fluctuated significantly over the last 20 years in absolute terms as well as in relative terms. Given their cyclical nature, not surprisingly both have a beta greater than 1.3, based on the last two years of history. To put things in context, the Information Technology sector accounted for less than 10% of total capitalization in the early 1990s, reaching 35% in 2000 at the peak of the technology bubble, but since then it has lost almost half of its value (Figure 8). Regardless of this decline, the Information Technology sector has continued to represent a very significant portion of total capitalization, and in the more recent past, especially post the beginning of the financial crisis, it has regained the top spot. Currently it accounts for just under 20% of total capitalization and is represented by almost 500 names from within the Russell 3000 universe.

The Financials sector has followed a similar path, having peaked in late 2006 when it represented 22% of total capitalization, before 50% of its value was eroded over the subsequent two years. Having regained some of the lost value, the Financials sector currently accounts for 17% of the Russell 3000 total capitalization and remains the most concentrated sector within the universe, with a total of more than 600 names.

Figure 8: Russell 3000 Index – sector decomposition through time

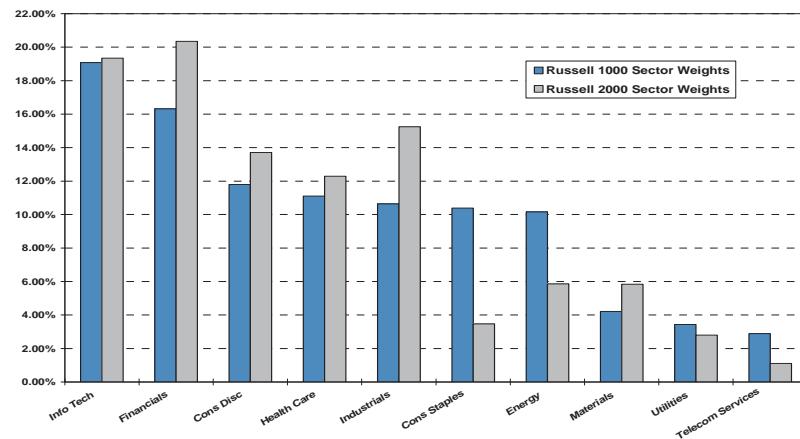


Source: S&P, Bloomberg, J.P. Morgan

On the other side of the Russell 3000 sector capitalization spectrum are two defensive sectors, Utilities and Telecommunication Services, each accounting for approximately 3% of the overall universe and fewer than 100 names. As illustrated in Figure 8 above, both of these sectors diminished in terms of percent of total market capitalization over the last 15 years. Not surprisingly, given the defensive nature of these sectors, they followed a relatively stable trajectory during both expansion and contraction phases of the previous business cycles. For the Telecommunication Services sector this was more so the case in the years post the TMT bubble.

A similar picture prevails in terms of sector decomposition when separating the overall universe into large-cap and small-cap subsets, with Information Technology and Financials as the largest sectors by market cap. There are some differences when comparing the sector weights between the two universe size subsets, namely Financials among the larger sectors. The difference in the sector's weight between the two subsets has increased over the last few years, in large part driven by the shake-out of some of the larger financial names during the recent financial crisis (Figure 9).

Figure 9: Russell 1000 & Russell 2000 sector decomposition



Source: S&P, Bloomberg, J.P. Morgan

From an active portfolio management point of view, again, it is worthwhile reiterating the importance of carefully managing the active sector exposures within the portfolio context. As seen above, sector weights may significantly vary over time. Getting the sector exposures wrong could easily outweigh the alpha generated through individual stock selection and could render itself very costly in terms of active performance at the overall portfolio level.

JPMQ Back-Testing Process

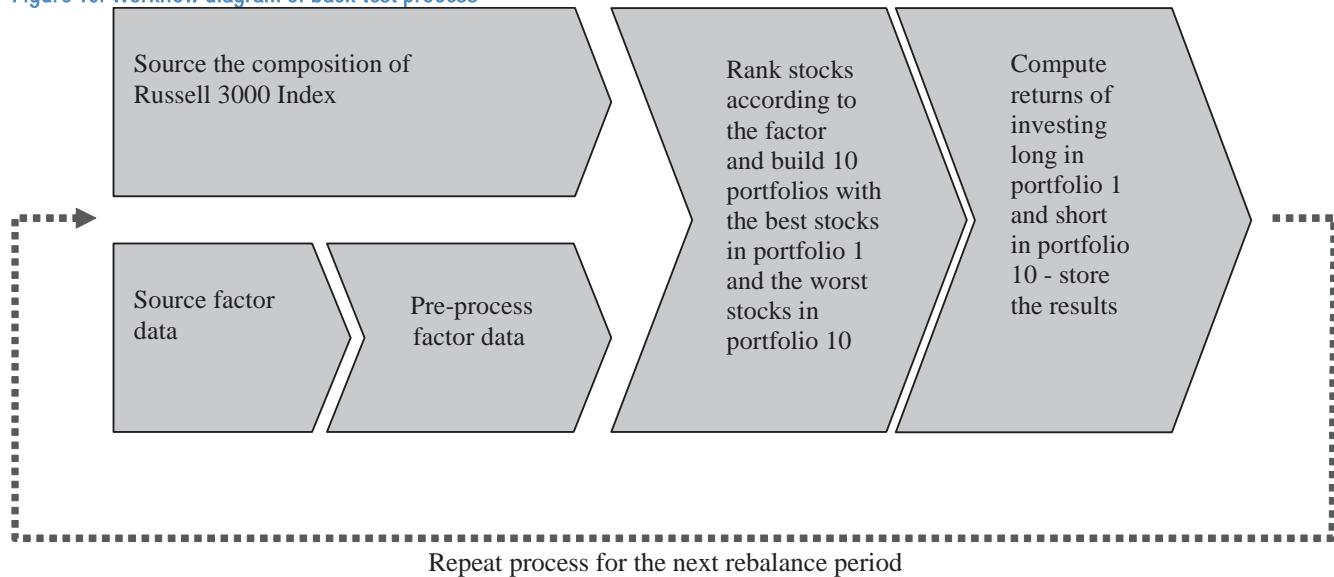
A back-test is the main tool used to determine the value of a strategy; it is how a quantitative manager tests his new ideas. The back-test simulates the investment decisions of the model with historical data and computes the theoretical historical return profile.¹ A back-test includes the following concepts:

- A back-test is run on an **investment universe**, typically a large index is used. It is extremely important to continuously update the universe through time with the stock entries and exits to avoid several biases. The most well-known example of a bias is the “survivorship bias,” which affects tests that are carried on the current composition of an index with past market data, ignoring all the stocks that have gone bust or were acquired by their competitors. As mentioned earlier, for purposes of this report, the Russell 3000 Index and various subsets of it were used to conduct the testing.
- The **rebalance period**, or investment horizon, is the interval between investment dates. It defines when the optimization tool will run and change the composition of the portfolio. We test here a rebalance period of 1 month, which is commonly accepted by the quantitative manager as a good compromise between reactivity to the market and turnover of the portfolio. Additionally, in some cases we used a lower rebalancing frequency (i.e., 3, 6, 12 month holding periods) for testing as certain factors may be slower moving and may exhibit a less pronounced alpha decay, allowing one to extract similar or at times even greater alpha while trading less frequently on that same information and as a result incurring less turnover and lower transaction cost.
- Lastly and very importantly, the **quant factors** are measurable pieces of information attached to stocks. These factors are used to rank the stocks and make the investment decisions. The P/E ratio is a well known example of a factor.
 - Factors were run through a normalization process and transformed into Z-scores. A Z-score is a stock’s standardized exposure to a fundamental factor (i.e., price-to-book). To compute the factor Z-scores for a given universe of stocks, the mean factor value of the universe was subtracted from each stock’s individual factor value and that difference was then scaled by the standard deviation of factor values for that universe. This standardization provided a set of Z-scores or ‘universe-neutral scores’ with a mean of 0 and standard deviation of 1. To control for outliers and potential data errors, the Z-scores were then winsorized at +/- 3 standard deviations cross-sectionally. Factors that were rendered to be sector sensitive were transformed into sector-neutral scores rather than universe-neutral scores.
 - Factors were classified in different families depending on the anomaly they try to exploit. For purposes of this report, they have been sorted into six categories: Value, Growth, Quality, Sentiment, Technical, and Composite. Composite factors were built by combining several normalized factors together, often with different weights or factor premiums.
 - In this report we have ~60 of some of the most commonly used factors. Please refer to the Appendixes for a full list and description of factors tested.

¹ While this exercise provides valuable information, it is important to remember that past performance is not indicative of future returns.

A workflow diagram of the back-test process is illustrated in Figure 10 below. At the start of each rebalance period, the composition of the universe and the values of the factor are sourced. Then, in the case of a back-test based on deciles, the top 10% of stocks according to the chosen factor are selected as the long investment and the bottom 10% of stocks are selected as the short investment. At the end of each period, the returns of these decile portfolios are computed and stored; the process is repeated with the next rebalance.

Figure 10: Workflow diagram of back-test process



Source: J.P. Morgan.

It is important to recognize that in quantitative analysis single factor back-tests are not to simulate a 'real world' portfolio or to outperform a benchmark. Constraints such as target risk, turnover, active asset/sector exposure, leverage, along with many others, are applied later in the portfolio construction phase. Instead, at this stage we are simply trying to identify if the signal under investigation contains any useful information.

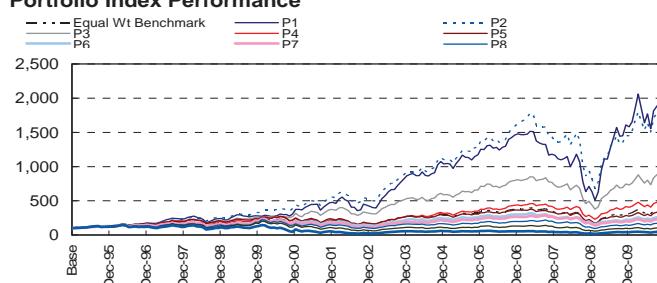
Viewing the Results

Our factor profile, an example of which is shown in Figure 11 below, shows a number of key charts and statistics that can help provide an understanding of the usefulness of a given factor/strategy. It is further broken down into a number of different components, all of which are explained in detail below.

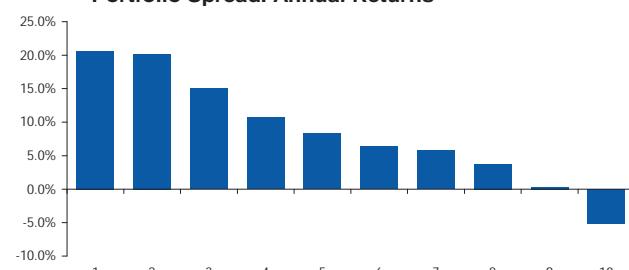
Figure 11: Back-test results - factor profile

Cash Flow Yield								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010				Portfolio Statistics			
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.5%	16.9%	6%	60%	1	2.7%	32.9%	8%	63%	1	1.5%	11.2%	11%	52%	1	1.9%	20.6%	8%	58%
2	1.8%	22.0%	5%	70%	2	2.4%	29.6%	6%	67%	2	1.0%	7.5%	9%	60%	2	1.8%	20.2%	7%	65%
3	1.3%	15.4%	5%	62%	3	1.8%	21.3%	6%	67%	3	0.8%	6.8%	8%	67%	3	1.4%	15.0%	6%	63%
4	1.0%	10.2%	6%	57%	4	1.1%	11.1%	7%	53%	4	0.8%	7.4%	7%	62%	4	1.1%	10.7%	7%	57%
5	1.0%	10.9%	6%	62%	5	0.9%	7.9%	7%	47%	5	0.5%	3.1%	7%	47%	5	0.9%	8.4%	6%	53%
6	0.6%	5.0%	6%	48%	6	0.9%	9.3%	6%	43%	6	0.3%	0.9%	6%	40%	6	0.7%	6.4%	6%	44%
7	0.7%	6.1%	7%	38%	7	0.7%	6.5%	7%	45%	7	0.3%	1.4%	6%	45%	7	0.7%	5.8%	6%	43%
8	0.6%	2.9%	8%	43%	8	0.6%	4.1%	7%	28%	8	0.3%	1.0%	7%	50%	8	0.6%	3.8%	7%	41%
9	0.3%	-1.0%	9%	38%	9	0.3%	-0.6%	8%	27%	9	0.2%	-1.3%	8%	40%	9	0.4%	0.3%	8%	36%
10	-0.9%	-15.1%	9%	37%	10	1.1%	-0.2%	16%	37%	10	0.2%	-3.5%	10%	37%	10	0.2%	-5.1%	12%	37%
Total Test				Total Test				Total Test				Total Test				Portfolio Statistics			
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets
Universe	0.8%	5.8%	4.5%	1619	Universe	1.3%	6.6%	4.7%	1763	Universe	0.6%	2.9%	2.4%	1943	Universe	1.0%	5.0%	3.8%	1763
Long Short Strategy Statistics																			
Portfolio 1 less Portfolio 10																			
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.
Long/Short	2.4%	29.8%	6%	72%	Long/Short	1.6%	11.0%	11%	65%	Long/Short	1.3%	15.7%	4%	65%	Long/Short	1.7%	17.89%	7.3%	67%
T-Stat	3.07		325	T-Stat	1.15		353	T-Stat	2.56		389	T-Stat	3.19		353				

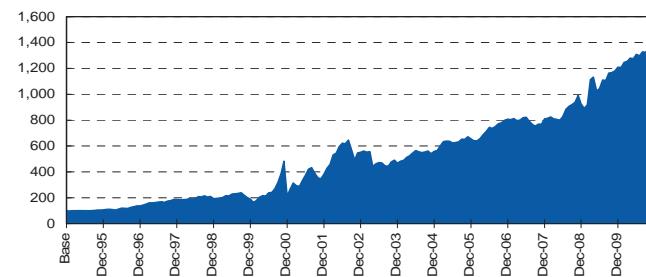
Portfolio Index Performance



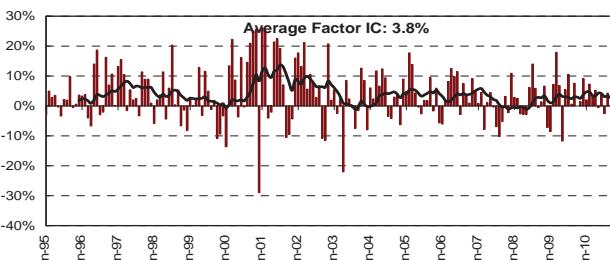
Portfolio Spread. Annual Returns



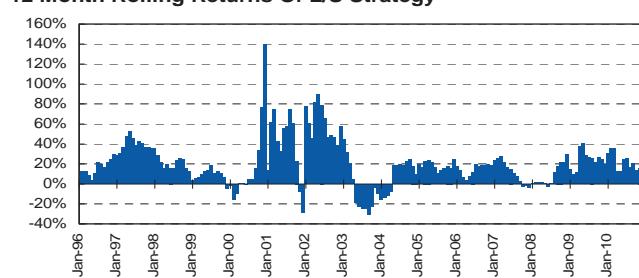
Cumulative Returns



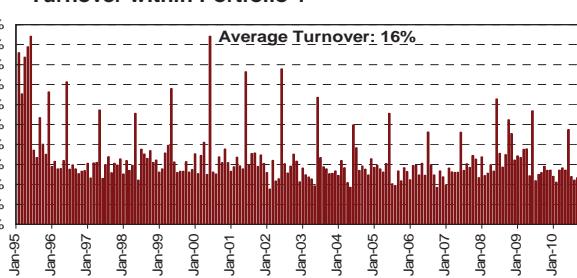
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1



Source: J.P. Morgan.

Statistics Summary Table

The statistics summary table is the portion of our back-test output where the full picture can be seen. Generally the table is broken down into three equal periods in addition to showing the overall results across the entire test period. A sample output is illustrated below in Figure 12. Some of the key statistics to note are long/short average monthly returns (i.e., difference between top decile and bottom decile) and standard deviation of the long/short returns, which can simply be combined to compute the return per unit of risk (i.e., information ratio). These statistics are included for both the overall strategy/portfolio as well as for the underlying portfolios (i.e., deciles). Observing the performance of the underlying deciles can indeed render itself useful as some factors might work better as one-sided factors, for example for identifying short stock candidates, rather than the typical two-sided factors, used for identifying both long and short stock candidates.

Figure 12: Back-test results - statistics summary table

Cash Flow Yield					Rebalance every 1 month(s)															
5 Year(s): 11/30/1995 to 11/30/2000 Portfolio Statistics					5 Year(s): 11/30/2000 to 11/30/2005 Portfolio Statistics					5 Year(s): 11/30/2005 to 11/30/2010 Portfolio Statistics					Total Period: 1/31/1995 to 11/30/2010 Portfolio Statistics					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	
1	1.5%	16.9%	6%	60%	1	2.7%	32.9%	8%	63%	1	1.5%	11.2%	11%	52%	1	1.9%	20.6%	8%	58%	
2	1.8%	22.0%	5%	70%	2	2.4%	29.6%	6%	67%	2	1.0%	7.5%	9%	60%	2	1.8%	20.2%	7%	65%	
3	1.3%	15.4%	5%	62%	3	1.8%	21.3%	6%	67%	3	0.8%	6.8%	8%	67%	3	1.4%	15.0%	6%	63%	
4	1.0%	10.2%	6%	57%	4	1.1%	11.1%	7%	53%	4	0.8%	7.4%	7%	62%	4	1.1%	10.7%	7%	57%	
5	1.0%	10.9%	6%	62%	5	0.9%	7.9%	7%	47%	5	0.5%	3.1%	7%	47%	5	0.9%	8.4%	6%	53%	
6	0.6%	5.0%	6%	48%	6	0.9%	9.3%	6%	43%	6	0.3%	0.9%	6%	40%	6	0.7%	6.4%	6%	44%	
7	0.7%	6.1%	7%	38%	7	0.7%	6.5%	7%	45%	7	0.3%	1.4%	6%	45%	7	0.7%	5.8%	6%	43%	
8	0.6%	2.9%	8%	43%	8	0.6%	4.1%	7%	28%	8	0.3%	1.0%	7%	50%	8	0.6%	3.8%	7%	41%	
9	0.3%	-1.0%	9%	38%	9	0.3%	-0.6%	8%	27%	9	0.2%	-1.3%	8%	40%	9	0.4%	0.3%	8%	36%	
10	-0.9%	-15.1%	9%	37%	10	1.1%	-0.2%	16%	37%	10	0.2%	-3.5%	10%	37%	10	0.2%	-5.1%	12%	37%	
Total Test					Total Test					Total Test					Total Test					
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	
0.8%	5.8%	4.5%	1619	Universe	1.3%	6.6%	4.7%	1763	Universe	0.6%	2.9%	2.4%	1943	Universe	1.0%	5.0%	3.8%	1763		
Long Short Strategy Statistics Portfolio 1 less Portfolio 10					Long Short Strategy Statistics Portfolio 1 less Portfolio 10					Long Short Strategy Statistics Portfolio 1 less Portfolio 10					Long Short Strategy Statistics Portfolio 1 less Portfolio 10					
Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short
Long/Short	2.4%	29.8%	6%	72%	Long/Short	1.6%	11.0%	11%	65%	Long/Short	1.3%	15.7%	4%	65%	Long/Short	1.7%	17.89%	7.3%	67%	Long/Short
Long/Short	T-Stat		Avg Assets	325	Long/Short	T-Stat		Avg Assets	353	Long/Short	T-Stat		Avg Assets	389	Long/Short	T-Stat		Avg Assets	353	Long/Short

Source: J.P. Morgan.

The t-statistic of long/short returns can also be found in the back-test results. In addition to serving as an indicator as to the level of confidence that can be put into the back-test results, the t-statistic makes evident the difference between the returns of the long and short portfolios. A t-stat > 2 (set at the 95% confidence limit) tells us that the hypothesis that there is no significant difference between our long and short portfolios can be rejected.

Furthermore, the statistics summary table shows the factor IC (Information Coefficient), calculated as the monthly cross-sectional correlation between start-of-month factor ranks and the subsequent 1-month factor returns. Computed for every single month, the individual ICs are then averaged out to arrive at the factor IC. For example, if the strategy were perfect at picking stocks every month, the average IC would turn out to be 100%. In reality, no quant strategy would come close to being

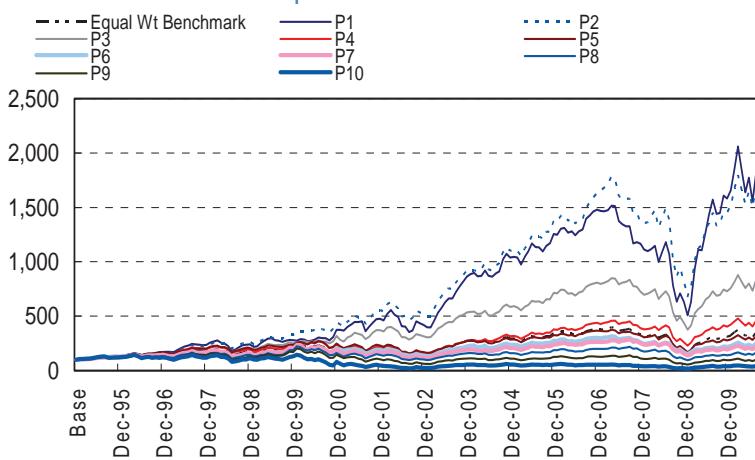
that good of a stock picker. In fact, generally an IC greater than 3% is considered ‘good’ among quantitative analysts.

Typically, the IC statistic and long/short bucket returns are used hand-in-hand as they tend to complement each other well. While the long/short return simply characterizes the difference in performance between the top and bottom deciles and is essentially based on the extremes of the factor distribution, the IC statistic captures the entire distribution. So, for example, if a factor’s long/short return displays solid results, but the factor’s IC does not, one could conclude that factor returns are mainly driven by extremes, more specifically by the top/bottom deciles.

Cumulative Long/Short Performance Chart

The deciles performance chart is a simple visual representation of the strategy performance over the test period. Each decile/portfolio is shown alongside the equal weighted benchmark (Figure 13).

Figure 13: Individual decile cumulative performance

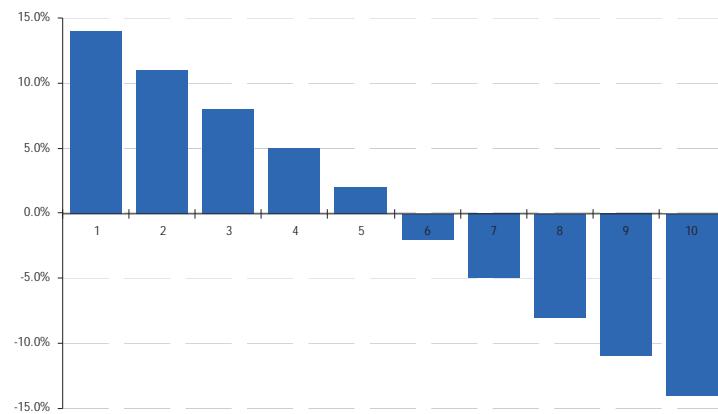


Source: J.P. Morgan.

The Portfolio Payoff Structure

When analyzing the usefulness of the signal, one is ideally looking for a linear payoff structure and is hoping for the underlying portfolios (i.e., deciles) to be “monotonic.” Essentially, the desired outcome is a predictable spread in performance of the portfolios across the groupings, where ideally Decile 1 outperforms Decile 2, Decile 2 outperforms Decile 3, and so forth (on average) over the analysis period. For example, Figure 14 below shows an ideal monotonic spread, where the top 5 portfolios add value over time, with the top portfolio adding the most value. On the flip side, the bottom 5 portfolios detract value, with the bottom-most portfolio detracting the largest amount. Therefore, by going long the top portfolio and short the bottom portfolio, the spread or long/short return would be maximized.

Figure 14: Decile performance – the ideal monotonic spread

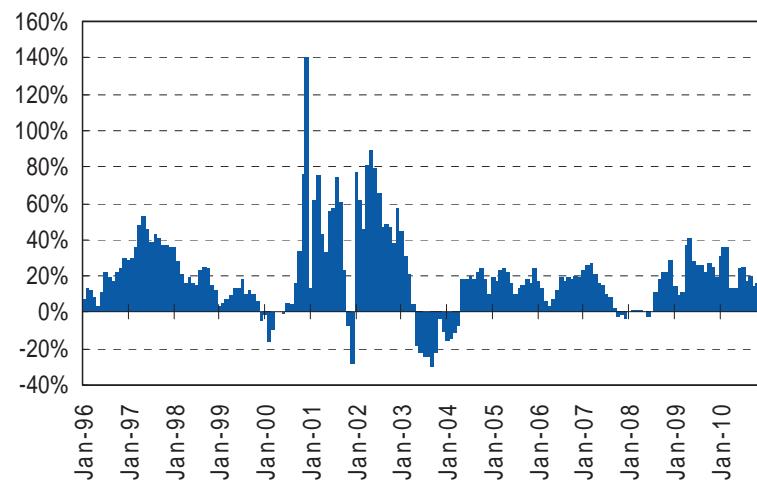


Source: J.P. Morgan.

Rolling Long/Short Returns Chart

The clearest picture of the strategy generating positive returns can be illustrated by the rolling 12-month performance chart shown below (Figure 15). Note that the chart represents returns of the long /short strategy. In the instances where the line is above the x-axis, the 12-month returns were positive and vice-versa for the lines below the x-axis. This chart allows one to easily identify periods of value add as well as drawdown periods for a particular strategy.

Figure 15: Rolling 12-month returns - when was the strategy profitable?



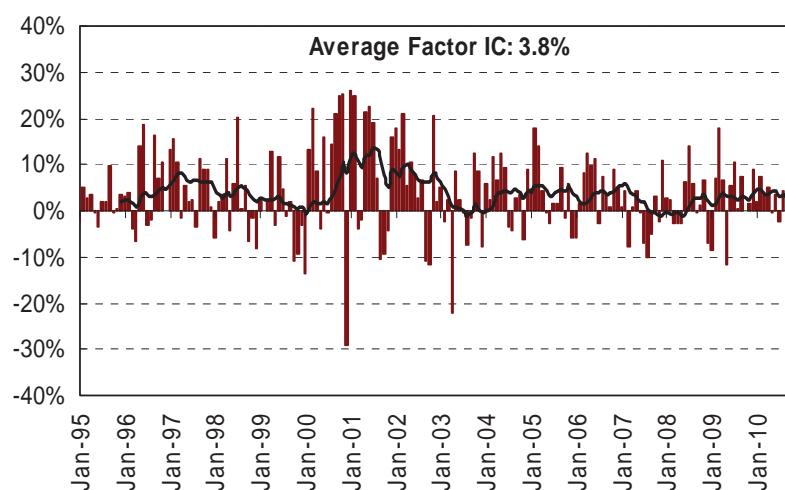
Source J.P. Morgan.

Information Coefficient Chart

The chart below shows factor IC (Information Coefficient) at each point in time over the back-test period (Figure 16). When evaluating the effectiveness of the strategy at hand, positive correlation between factor scores and the subsequent returns is desired. If the strategy were perfect at picking stocks every single month, the average IC would be 100%. However, no Quant strategy has yet proven to be so consistently effective. In fact, an IC greater than 3% is considered ‘good’ among quantitative analysts.

In order to better highlight the cyclical nature of the factor at hand, as well as to help distinguish between the periods where the factor had strong vs. poor performance, we have added a 12-month trend line to the chart. For example, many value factors performed poorly during the tech boom only to strongly rebound in the three years post 2000.

Figure 16: The factor IC chart



Source: J.P. Morgan.

Hit Rate

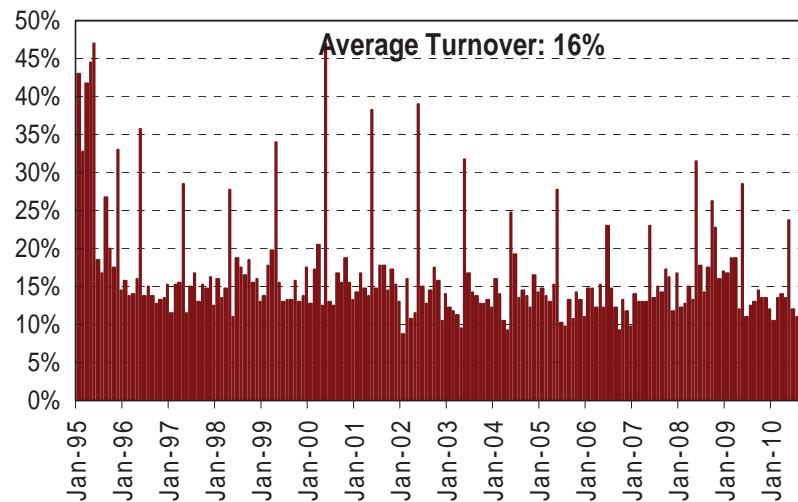
The hit rate, or reliability of a factor, refers to its frequency of success, and measures the consistency of a given strategy. It is defined as the number of months out of the entire testing period in which the strategy produced positive returns. The hit rate can be found in the results section and is labeled as “% Outperformance.” Clearly, it is preferred for a strategy to deliver consistent positive returns through time rather than achieving all the outperformance from a few select months. A good quant strategy would generally have a hit rate in excess of 55%.

Turnover Chart

The turnover chart (Figure 17) depicts what percentage of the portfolio is being turned over each month. It is imperative to note that turnover for many single-factor back-tests could potentially be significantly high. Such strategies, while producing solid returns, would be impractical to implement in isolation for institutional investors as the transaction costs involved would be prohibitive. Even the most trading-oriented fund is likely to balk at 30% turnover a month, and in reality 10-20% would be a more typical range even for a momentum driven fund.

However, a prohibitively high turnover does by no means suggest the strategy is of little use—on the contrary. Such a strategy should therefore be employed in moderation as a small piece of a bigger engine. For instance, it could very well be included as one component of a multi-factor model with the dial turned toward some of the lower turnover factors, such as members of the value or quality families. This would not only lower the turnover but would also serve to diversify the alpha.

Figure 17: Turnover



Source: J.P. Morgan.

Summary of Factor Effectiveness

This section of the handbook examines the performance characteristics of our standard suite of factors, with an emphasis on factor effectiveness across various size, style, and sector subsets of the universe. In addition, factor effectiveness was examined across different investment horizons / rebalancing periods described in the introductory section of this report.

Do Size, Style, and Sector Matter?

- Given the significant breadth of U.S. equity markets, it comes as no surprise to us that **factor effectiveness does vary according to size**. Overall, factors have shown to be **more effective** at differentiating next month's winners from next month's losers as the **market capitalization of the universe they are tested on gets smaller**.
- In fact, the **risk-adjusted performance of the average factor tested in the small-cap universe was twice as good as the performance of factors tested in the large-cap space**. These results are intuitive given that the small-cap space has been relatively less explored by the investment community as it presents itself with additional hurdles, such as lower market liquidity and higher transaction costs, including higher cost of borrowing for shorting stocks. However, certain factors within the small-cap space have exhibited attractive return profiles, which could more than outweigh the higher transaction costs associated with them.
- It is clear from the testing results that, overall, the **valuation family of factors was the most efficacious group, in particular the cash flow-related factors**. In addition to yielding strong long/short return profiles, information ratios, information coefficients, hit rates, and relatively low alpha decay and turnover, the theoretical factor returns also exhibited statistical significance.
- Valuation-based and technical factors** rendered themselves more or less **equally effective across the various universe sizes**.
- Factors pertaining to **growth and sentiment families**, such as forward earnings momentum and analyst revisions, showed **greater forecasting ability, in particular within the small-cap space**.
- When examining factor performance across sectors, the **average factor was more effective in cyclical sectors as opposed to defensive sectors, except for consumer staples**.
- The results suggest that **valuation based-metrics** have been the **most effective factors within the industrial, consumer discretionary, energy, materials, and consumer staples sectors** and have been **least effective within the utilities and telecommunications sectors**, both of which are somewhat unique from a factor behavioral point of view. For instance, top factors within the utilities sector were dividend yield, book value yield, and 3-month and 6-month price acceleration, which interestingly have not been that effective across the rest of the universe.
- The Financials sector is **also somewhat unique** given the nature of the companies' business models; **as a result, various valuation based-factors need to be handled with care**. These include traditional cash flow based-metrics, enterprise value based-metrics, and more recently the dividend yield factor,

due to the capital preservation requirements imposed on the banking industry since the beginning of the financial meltdown. Having said that, the **most effective valuation based-factors within financials sector have been both historical and forward-based earnings metrics**, such as historical earnings yield and 1-year forward earnings yield relative to trailing history.

- **Sentiment factors as a category, overall, did not render themselves that effective.** However, the results suggest that the **consumer discretionary sector in particular, as well as the financials sector, have been more sentiment driven than others**, where change in analyst recommendations and net earnings revisions factors stood out as having been able to consistently differentiate between **next month's winners and next month's losers**. **While these factors have the potential to be highly effective, one should also** be aware of the higher turnover they exhibit, rendering them less practical from a transaction cost and implementation point of view.
- **There are some differences in factor effectiveness between value and growth styles that are worth pointing out.** In the large-cap space most of the valuation-based factors have been more effective for growth names as opposed to value names. However, in the small-cap space that was not necessarily the case as factor effectiveness is more mixed between the two styles. For example, all of the earnings-related factors, such as historical earnings yield, have been more powerful within the value space.
- Similar is the case with the quality family of factors; for instance, within the large-cap universe, a company's operational efficiency, as measured by asset turnover, has been more effective for growth names than for value names, whereas the contrary holds within the small-cap universe.
- Certain other factors also have been more effective within a particular style of the universe. **Historical and forward sales based- factors and interest coverage factor** stand out as having been **most efficacious within the growth subset of the universe**, while **forward earnings and consensus recommendation based-factors** have been **more effective within the value space**.

Key Observations

VALUE FACTORS

Cash Flow Related Factors

The valuation family of factors has been the most efficacious group, in particular the cash flow-related factors. In addition to yielding strong long/short return profiles, information ratios, information coefficients, hit rates, and relatively low turnover, the theoretical factor returns also exhibited statistical significance (Table 4).

Table 4: Cash flow related factors – summary of back-test results

Top 1000 (Large Cap Universe) - Monthly Statistics

Description	Ave IC	Ave L/S Ret	L/S Ret StdDev	Hit Rate	Turnover	T-Stat	Annualized IR
Cash Flow Yield	2.20%	1.31%	4.23%	64%	15%	4.27	1.15
Free Cash Flow Yield	2.00%	0.94%	3.61%	61%	15%	3.59	0.95
CFROIC	2.00%	0.84%	4.26%	57%	12%	2.72	0.72
Cash Flow to Total Assets	2.00%	0.76%	3.92%	62%	11%	2.67	0.70

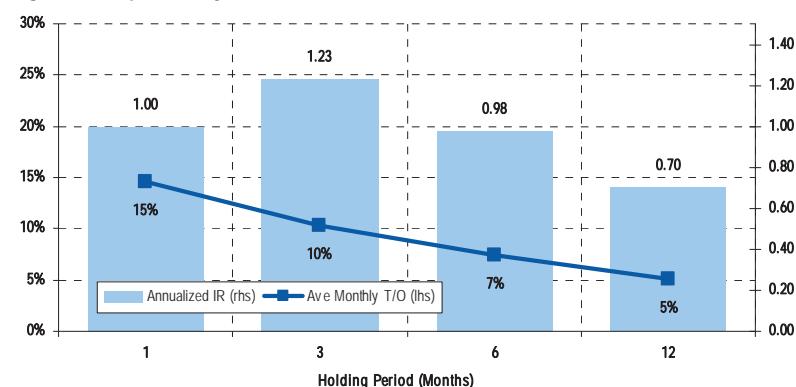
Bottom 2000 (Small Cap Universe) - Monthly Statistics

Description	Avg IC	Ave L/S Ret	L/S Ret StdDev	Hit Rate	Turnover	T-Stat	Annualized IR
Cash Flow Yield	3.80%	1.70%	7.33%	67%	16%	3.19	0.88
Free Cash Flow Yield	3.30%	1.43%	6.96%	65%	16%	2.84	0.77
CFROIC	3.70%	1.63%	6.44%	66%	13%	3.50	0.96
Cash Flow to Total Assets	4.00%	1.69%	6.69%	68%	13%	3.48	0.96

Source: Compustat, Reuters, Bloomberg, J.P. Morgan.

The factors' risk-adjusted performance held up well across different investment horizons, including 3-, 6-, and 12-month periods, making them good candidates for both short-term and long-term multi-factor models. As expected, their monthly turnover decreased as the holding period increased. For instance, the chart below illustrates the IR and turnover values for the cash flow yield factor across multiple holding periods (Figure 18).

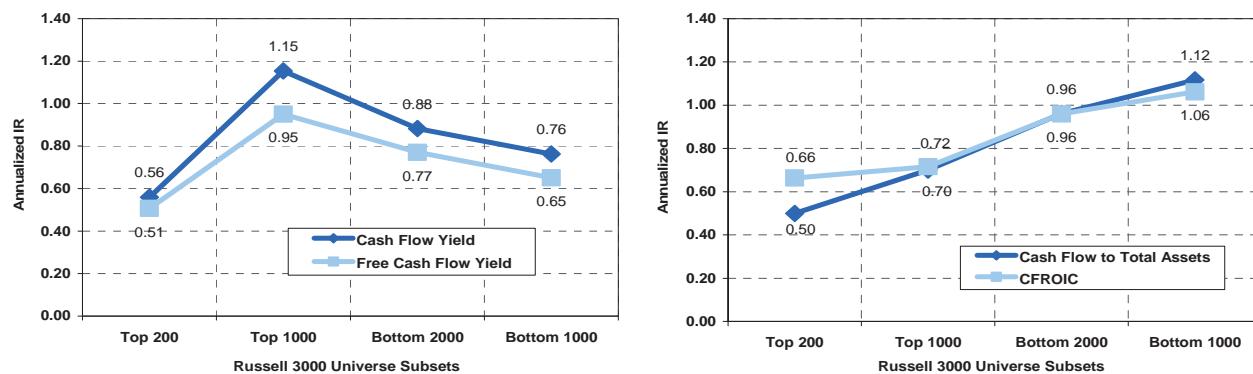
Figure 18: Alpha decay and turnover



Source: Compustat, Reuters, Bloomberg, J.P. Morgan

The risk-adjusted performance of basic historical cash flow yield factors is most significant within the large-cap space, except for the top 200 names, where it has generated mediocre results (Figure 19). In fact, within the large-cap space the strategy has yielded an impressive IR of 1.2. While the factor was somewhat less profitable within the small-cap space, it did yield a higher rate of consistency in its long/short returns as well as a higher IC in the small-cap space while exhibiting hardly any drawdowns since the beginning of the financial crisis (Figure 20).

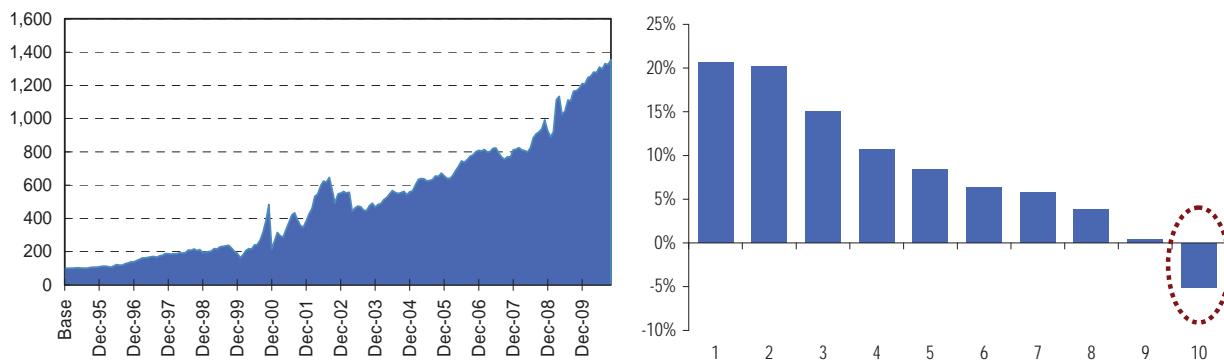
Figure 19: Risk-adjusted performance across different universe size subsets



Source: Compustat, Reuters, Bloomberg, J.P. Morgan

Cash flow yield is a strong two-sided factor with a linear payoff structure whose deciles are monotonically decreasing. The bottom decile yielded negative returns 60% of the time, making it a potentially attractive investment strategy for identifying short only candidates as well (Figure 20). Additionally, the effectiveness of this factor was particularly strong within the industrials sector as it generated an impressive information ratio of 1.5 over the life of the back-test.

Figure 20: Cash flow yield factor (bottom 2000 universe) - cumulative performance (left) & portfolio decile payoff structure (right)



Source: Compustat, Reuters, Bloomberg, J.P. Morgan

Interestingly, normalized historical cash flow based metrics, such as CFROIC and cash flow-to-total assets have been more effective among smaller cap companies (Figure 19).

Sales-Related Factors

Other factors within the value family that ranked well include historical- and forward-based sales yield. Something to note, however, is their effectiveness does vary significantly according to size of the universe. As shown in Table 5 below, these factors have without question been most effective within small-cap space where they yield very solid performance statistics. The picture is somewhat different within the large-cap space. The factors have fared well across the entire top 3000 universe, but when tested solely on the largest names, their effectiveness dropped significantly. In fact, within the top 200 universe they have hardly been able to add any value, yielding ICs that are less than 1% and not exhibiting statistically significant L/S returns.

Table 5: Sales related factors - summary of back-test results across different size universes

Top 200 (Mega/Large Cap Universe) - Monthly Statistics

Description	Avg IC	Ave L/S Ret	L/S Ret StdDev	Hit Rate	Turnover	T-Stat
Sales Yield	0.90%	0.23%	3.44%	55%	10%	0.94
Sales Yield FY1	0.90%	0.29%	4.15%	55%	12%	0.94
Sales Yield FY2	-0.30%	0.21%	4.14%	50%	14%	0.69
Sales Yield Mean FY1 FY2	-0.30%	0.22%	4.09%	54%	14%	0.70
Sales to EV (incl MV)	1.30%	0.13%	2.75%	50%	10%	0.67

Annualized IR
0.23
0.25
0.18
0.19
0.16

Top 1000 (Large Cap Universe) - Monthly Statistics

Description	Avg IC	Ave L/S Ret	L/S Ret StdDev	Hit Rate	Turnover	T-Stat
Sales Yield (Hist)	1.70%	0.96%	5.20%	58%	10%	2.55
Sales Yield FY1	1.80%	1.24%	6.15%	58%	13%	2.69
Sales Yield FY2	1.50%	0.98%	6.34%	56%	14%	2.06
Sales Yield Mean FY1 FY2	1.60%	1.10%	6.34%	57%	14%	2.30
Sales to EV (incl MV)	1.30%	0.58%	3.26%	56%	10%	2.44

Annualized IR
0.67
0.75
0.57
0.64
0.64

Bottom 2000 (Small Cap Universe) - Monthly Statistics

Description	Avg IC	Ave L/S Ret	L/S Ret StdDev	Hit Rate	Turnover	T-Stat
Sales Yield (Hist)	1.80%	1.14%	5.89%	60%	12%	2.66
Sales Yield FY1	2.30%	1.53%	7.19%	59%	15%	2.84
Sales Yield FY2	2.00%	1.38%	7.45%	58%	19%	2.47
Sales Yield Mean FY1 FY2	2.20%	1.46%	7.35%	60%	19%	2.65
Sales to EV (incl MV)	1.70%	0.87%	3.19%	59%	14%	3.76

Annualized IR
0.71
0.80
0.69
0.75
0.99

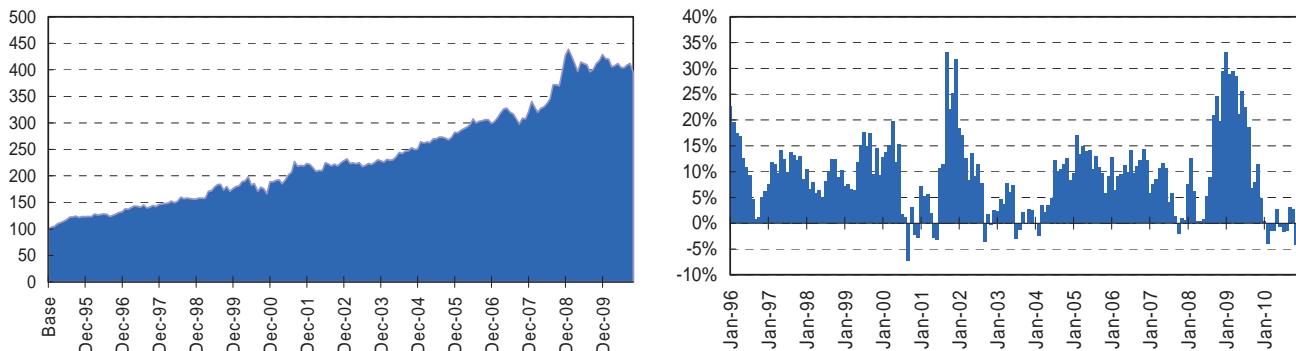
Source: IBES, Compustat, Reuters, Bloomberg, J.P. Morgan.

Sales-related factors, both historical and forward based, are most effective within the industrials sector. Their back-test factor profiles were quite appealing, with since inception IRs ranging between ~1.0 and ~1.2, exhibiting hit rates and turnover of ~60% and ~10%, respectively, and ICs greater than 3%.

Historical and Forward Earnings Yield (P/E) Factors

Historical earnings yield factor, the reciprocal of price-to-earnings ratio and probably the most commonly referred to company valuation metric, has been efficacious in forecasting future returns across the entire test universe. Interestingly, the factor has been most powerful when tested across the 200 biggest companies (i.e., currently corresponding to companies with market cap greater than \$10 billion). Within the top 200 universe, the factor delivered impressive and consistent long / short returns over the life of the back-test, with an exception during the last two years where its performance moved sideways (Figure 21).

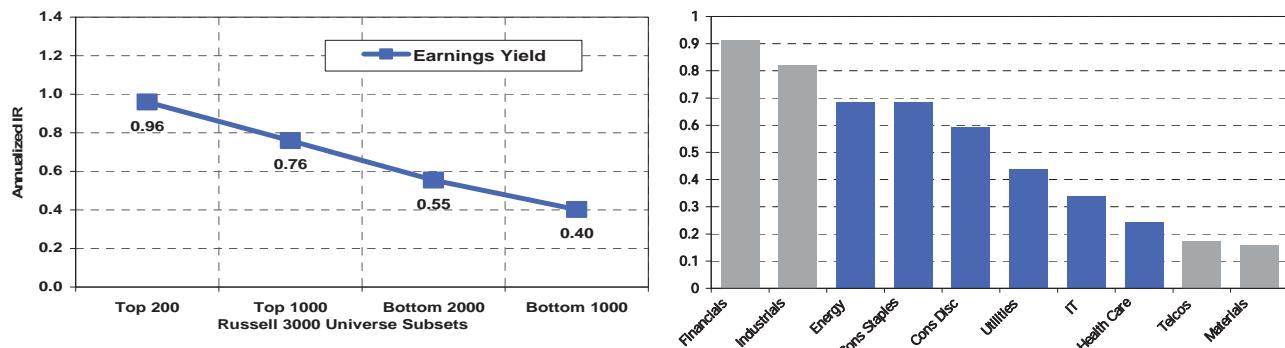
Figure 21: Historical earnings yield factor (top 200 universe) - cumulative performance (left) & rolling 12 month I/s returns (right)



Source: Compustat, Reuters, Bloomberg, J.P. Morgan

However, the factor's effectiveness is linearly related to company size, deteriorating the further one goes down the market capitalization spectrum. Figure 22 below shows the factor risk adjusted performance for the various universe size subsets.

Figure 22: Historical earnings yield – risk-adjusted performance across universe size subsets (left) & sectors (right)

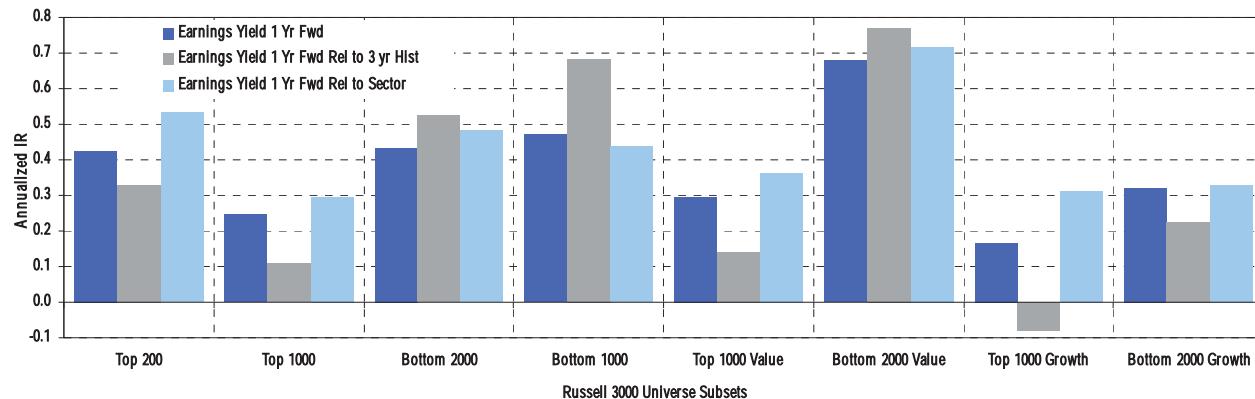


Source: Compustat, Reuters, Bloomberg, J.P. Morgan

When testing the earnings yield factor across the 10 GIC Level I sectors, the back-test results suggest the factor is most effective within financials and industrials sectors and least effective within telecommunications and materials sectors (Figure 22). Within the materials sector, the value factor of choice is clearly cash earnings-based valuation instead of earning-based valuation, suggesting that focus should be placed on companies where cash is being generated. An often cited argument is that resource stocks should be bought when they are “expensive,” yet what delivered the alpha stream in this back-test was the consistent approach of buying cheap stocks and selling the expensive ones.

With respect to the forward earning yield factor, back-tests showed mixed results as different flavors of the factor exhibited varying levels of effectiveness across different sizes and sectors (Figure 23).

Figure 23: Forward earnings yield factors – summary of risk-adjusted performance



Source: IBES, Compustat, Reuters, Bloomberg, J.P. Morgan.

The forward 1-year earnings yield factor by itself has been less impressive in terms of forecasting future returns. This is especially true within the large-cap space. The factor has steadily produced negative returns since the beginning of 2007. Within the small-cap space the effectiveness of this factor has been better, in particular with small-cap value names, and could have been further improved by anchoring it against its trailing 3-year history.

In terms of portfolio construction, this factor should be handled with care, as for certain sectors, mainly consumer staples, telecommunications, and energy, it detracted value over the last 16 years when tested across the broader universe.

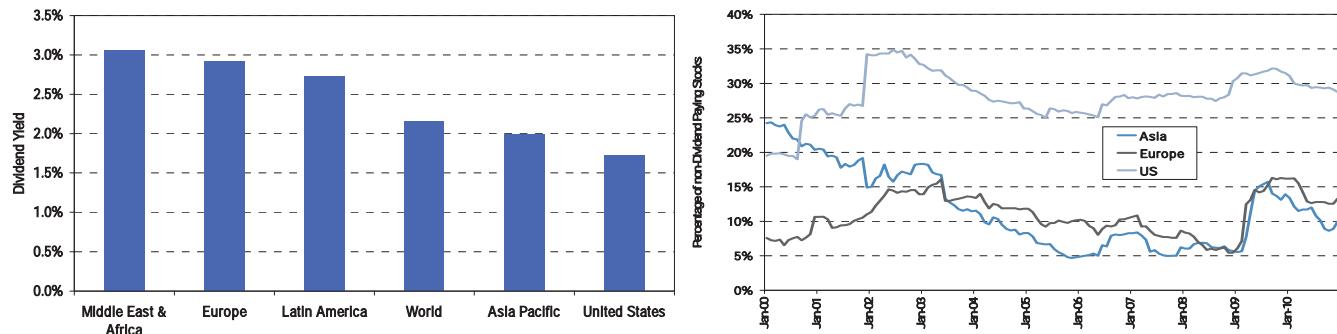
It is also interesting to note that forward earnings valuation relative to sector was a more effective strategy for large-cap names, while forward earnings valuation relative to history was better suited for small cap names. One potential explanation for this is that for companies within the large-cap space more emphasis is placed on cross-sectional valuation. A typical large-cap company most likely has already reached a mature and stable phase of its lifecycle, rendering valuation against its peers, as opposed to its own history, of more importance. Conversely, for small-cap names, which are more likely to be in an earlier phase of the lifecycle and growing at a faster pace, it might be more effective to benchmark them against their own trailing history.

Book Value Yield and Dividend Yield Factors

Some of the other common valuation metrics, such as book value yield and dividend yield, were not effective at forecasting future returns over the testing period.

When observing dividend yield, two points should be noted. First, the US has the lowest aggregate dividend yield relative to other markets; second, a significantly larger percentage of US companies do not pay any dividends (Figure 24). Together this could be a potential reason why dividend yield as a factor has been less relevant and has been ineffective over the longer run in the US.

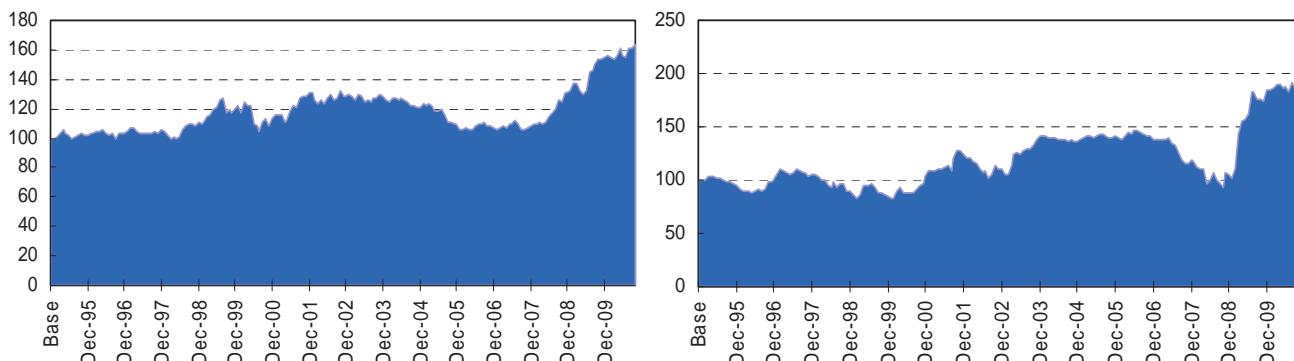
Figure 24: Aggregate dividend yield levels (left) & % of non-dividend paying stocks across world markets (right)



Source: MSCI, Factset, Bloomberg, J.P. Morgan

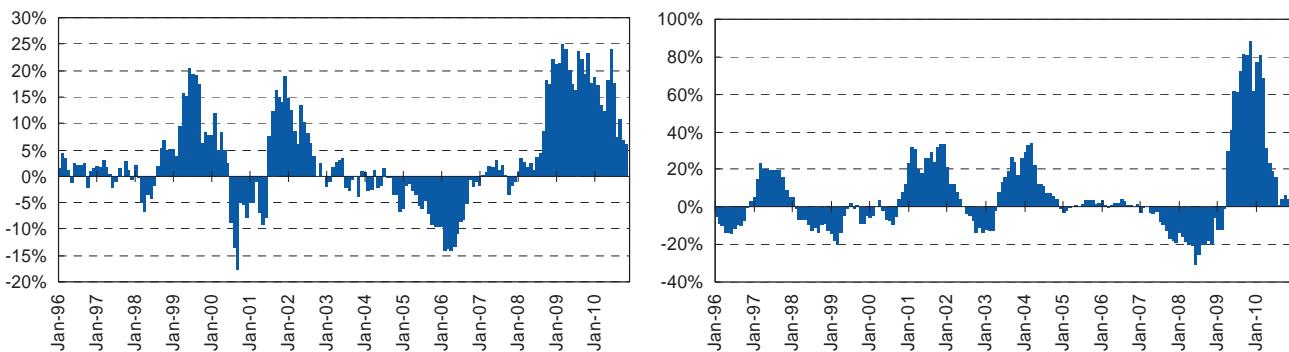
Both book value yield and dividend yield have exhibited more pronounced cyclical behavior through time. According to our belief, they become more relevant depending on the market environment and investor risk preference. In fact, the charts below (Figure 25 and Figure 26) illustrate the cyclicalities in the factors' performance over time. These characteristics make the factors interesting candidates for timing and for inclusion into dynamic factor rotation models. For instance, both of these factors have exhibited periods of impressive performance in recent years—a good example is the second half of 2008, when the market tipped from greed to fear, causing investors to search for strong value names with healthy balance sheets.

Figure 25: Cumulative performance – dividend yield (left) & book value yield (right)



Source: Compustat, Reuters, Bloomberg, J.P. Morgan

Figure 26: Rolling 12-month l/s returns – dividend yield (left) & book value yield (right)



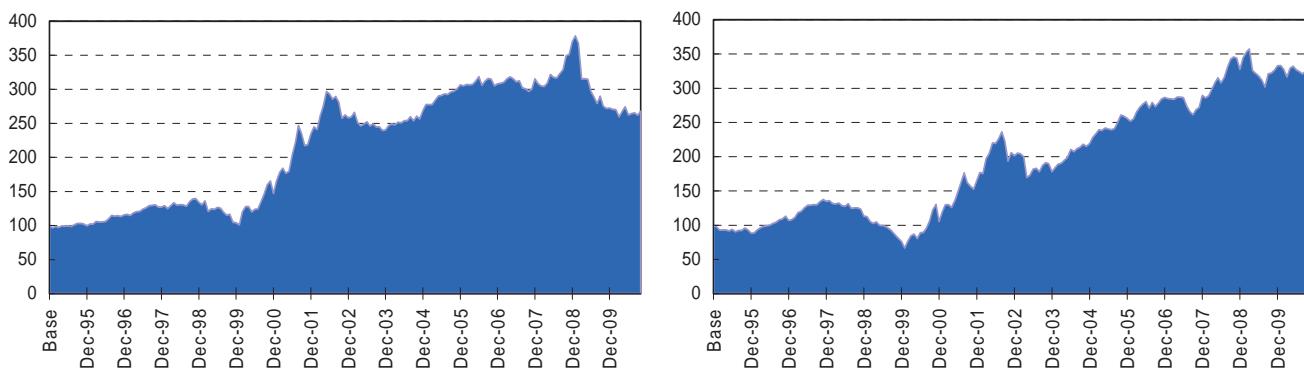
Source: Compustat, Reuters, Bloomberg, J.P. Morgan

QUALITY FACTORS

Asset Turnover Factors

While quality factors did not stand out as an overall category, asset turnover, often used as a barometer for a company's general health and operational efficiency, turns out to offer some interesting attributes. While the factor's risk-adjusted performance, IR of ~ 0.55, is equally good across the entire universe, within the small-cap space the factor does deliver a smoother and less cyclical performance curve, avoiding the drawdown that it incurred with large-cap names starting at the beginning of 2009 (Figure 27).

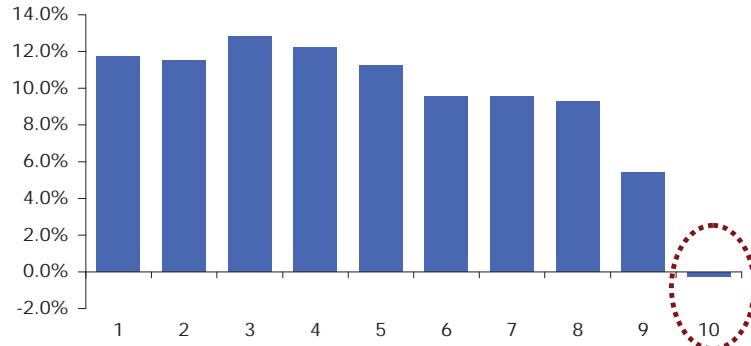
Figure 27: Cumulative performance - asset turnover factor within top 1000 universe (left) & within bottom 2000 universe (right)



Source: Compustat, Reuters, Bloomberg, J.P. Morgan

What appears to be predominantly driving the long/short performance of this factor is its short portfolio. In fact, when examining the factor's decile-based payoff structure, there is little differentiation in performance among the top 8 deciles, while it is apparent that the bottom decile, which contains companies with the lowest level of asset turnover and inefficient utilization of their available resources, significantly underperformed its peers. This is even more apparent with small-cap names, where holding companies within the bottom decile on average would have yielded flat to slightly negative returns on average over the last 16 years, during which the overall equity market has appreciated (Figure 28). In the long only space this would suggest that the lowest ranking stocks be avoided in order to maximize return.

Figure 28: Decile payoff structure



Source: Compustat, Reuters, Bloomberg, J.P. Morgan

In addition, results suggest the asset turnover factor is more effective when applied across growth names within the large-cap space and across value names within the small-cap space (Table 6).

Table 6: Asset turnover factor – summary of back-test results across different universe subsets

	Avg IC	Ave L/S Ret	L/S Ret StdDev	Hit Rate	Turnover	T-Stat	Annualized IR
Top 200	1.10%	0.25%	2.53%	56.00%	7.00%	1.37	0.35
Top 1000	1.20%	0.60%	4.01%	59.00%	4.00%	2.06	0.54
Bottom 2000	1.40%	0.75%	4.72%	59.00%	5.00%	2.19	0.57
Bottom 1000	1.89%	0.97%	5.51%	60.53%	11.16%	2.42	0.64
Top 1000 Value	1.14%	0.53%	3.67%	57.37%	4.88%	1.98	0.51
Top 1000 Growth	1.30%	0.88%	5.04%	59.47%	5.09%	2.41	0.64
Bottom 2000 Value	1.60%	0.84%	4.60%	64.74%	5.75%	2.51	0.66
Bottom 2000 Growth	1.35%	0.59%	5.45%	57.37%	6.34%	1.50	0.39

Source: Compustat, Reuters, Bloomberg, J.P. Morgan.

Again, this is an example of another factor that it would make sense to include as part of a multi-factor model. Given its low correlation to other standard quant factors, it could act as a good diversifier, especially during periods of crises. The factor is also efficient from an implementation point of view given its low average monthly turnover of ~ 5%.

A slightly different flavor of this factor is asset turnover growth, where change is measured over the last 12 months. Similar to its peer above, it has been a mediocre factor when applied universe wide, but it has delivered improved risk-adjusted performance within the large-cap space, yielding an IR of ~0.8. Additionally, when evaluating the factor across sectors, it has been most impressive within the materials space. Not only has it delivered an IR of ~1.00, but it has also exhibited very consistent returns over the life of the back-test, having almost no drawdown periods, unlike the average quant factor. It yielded an information coefficient of 3%, hit rate of 57%, and a statistically significant stream (Figure 29).

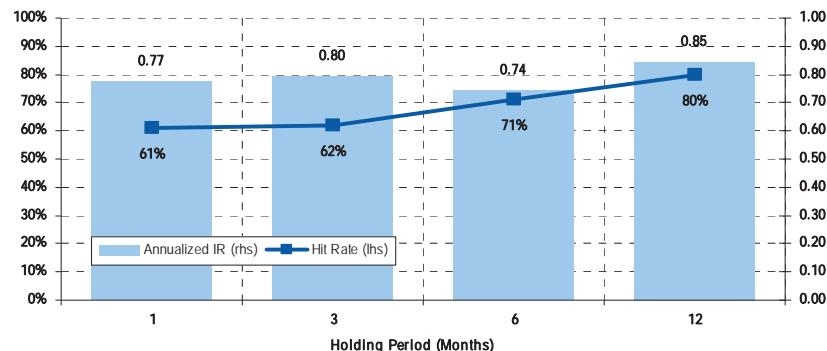
Figure 29: Asset turnover factor - cumulative performance (left) & rolling 12 month l/s returns (right) within MATERIALS sector



Source: Compustat, Reuters, Bloomberg, J.P. Morgan

The factor has also been effective at forecasting returns over multiple investment horizons, including 3-month, 6-month, and 12-month holding periods, exhibiting statistical significance and improved hit rates as the holding period increases (Figure 30).

Figure 30: Asset turnover factor – risk-adjusted performance vs. hit rate

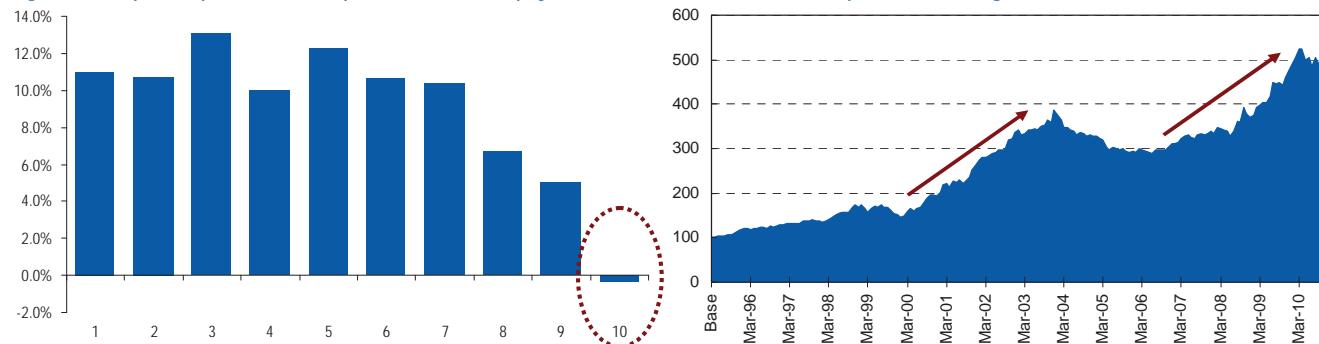


Source: Compustat, Reuters, Bloomberg, J.P. Morgan

Capital Expenditures to Depreciation

Another metric considered to be part of the quality family of factors is capital expenditures relative to depreciation. A company's management often times extrapolates from market trends and invests heavily when business conditions are at their best and as a consequence frequently allocates capital toward uncertain future demand. As suggested by the factor back-test results, those companies that are more conservative with their capital expenditures have tended to outperform their peers that end up overspending. In fact, companies that are too optimistic and overspend have experienced no appreciation in their stock price over the last 16 years, as illustrated by the performance of the bottom decile in Figure 31.

Figure 31: Capital expenditure to depreciation - decile payoff structure (left) & cumulative performance (right) within bottom 2000 universe



Source: Compustat, Reuters, Bloomberg, J.P. Morgan

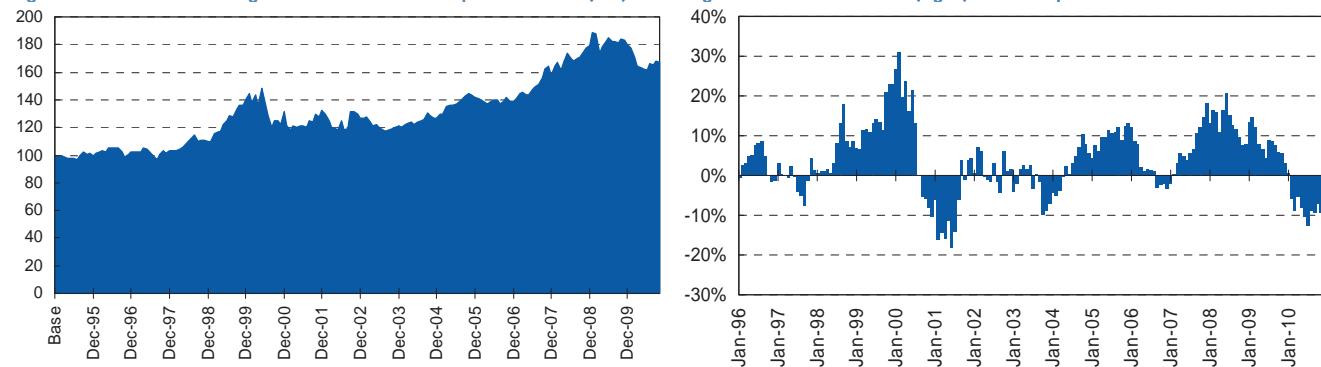
While the factor has yielded average performance across the broader universe, it has been most effective within the small-cap space, exhibiting an IR, IC, and hit rate of 0.9, 2%, and 60%, respectively. Interestingly, the factor was most effective during the course of the last two recessions, suggesting that it could act as a nice diversifier within a multi-factor model framework (Figure 31). The factor incurs relatively low turnover making, it also practical from an implementation point of view.

Interest Coverage Factor

Interest coverage, typically used as a measure of a company's ability to meet its debt interest payments, exhibited mediocre performance as a factor. Although yielding an information ratio of ~ 0.4 across various universe size subsets, it has been most

effective across the top 200 names in terms of being able to differentiate between the next month's winners and next month's losers (Figure 32). This is a fairly slow-moving factor and as a result exhibits low turnover, averaging less than 10% per month.

Figure 32: Interest coverage factor – cumulative performance (left) & rolling 12 month l/s returns (right) within top 200 universe



Source: Compustat, Reuters, Bloomberg, J.P. Morgan

SENTIMENT FACTORS

The sentiment category of factors, overall, was not very effective at forecasting next the month's returns within the large-cap space. However, they did yield fairly strong results within the small-cap space.

Analyst Recommendation Factors

Within the small-cap space, various flavors of the analyst recommendations factor yielded the strongest results among the sentiment group. One-month change in recommendation yielded an impressive information ratio of 1.1 over the life of the back-test, but given its fast-moving nature, it exhibited very high turnover. Three-month change in recommendation, on the other hand, while yielded somewhat less impressive performance yet was still very effective for forecasting future returns and incurred half the turnover of the one-month change recommendation factor. For instance, blending these factors into a composite factor, such as a simple static combination of 1-month and 3-month change in recommendation factors, helped reduce their already high turnover while maintaining very strong risk-adjusted performance (Table 7).

Table 7: Analyst recommendation factors – summary of back-test results

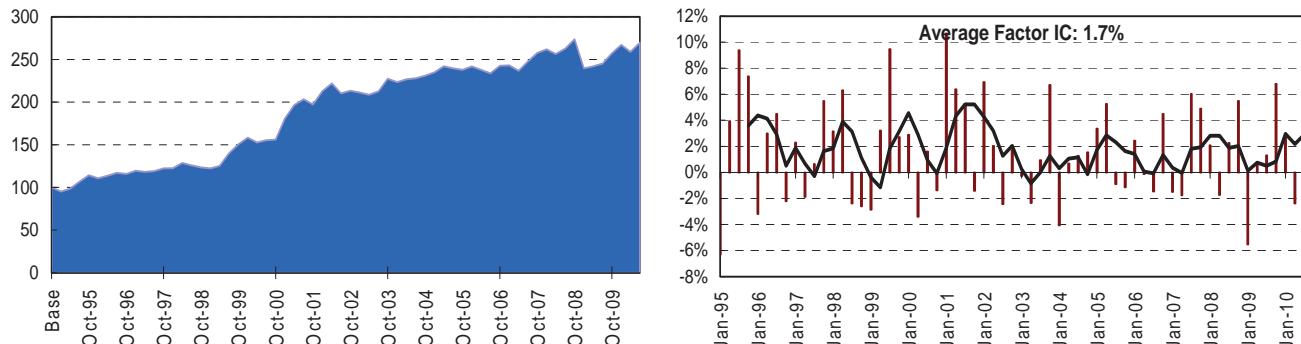
Bottom 2000 (Small Cap Universe) - Monthly Statistics

Description	Holding Period	Avg IC	Ave L/S Ret	L/S Ret StdDev	Hit Rate	Turnover	T-Stat	Annualized IR
1 Mnth Chg in Recommendation	1 Month	1.30%	0.71%	2.29%	66%	89.00%	4.28	1.12
1 Mnth Chg in Recommendation	3 Month	0.91%	0.97%	3.18%	60%	29.64%	2.43	0.62
3 Mnth Chg in Recommendation	1 Month	1.50%	0.78%	3.10%	61%	46.00%	3.48	0.91
3 Mnth Chg in Recommendation	3 Month	1.84%	1.62%	4.26%	65%	30.11%	3.02	0.78
Composite Recommendation Change	1 Month	1.55%	0.82%	3.22%	66%	58.38%	3.52	0.93
Composite Recommendation Change	3 Month	1.74%	1.68%	4.32%	67%	30.18%	3.09	0.80

Source: IBES, Compustat, Reuters, Bloomberg, J.P. Morgan.

Another, and arguably a better, approach worth considering would be to increase the holding period from 1 month to 3 months. In fact, when rebalancing the composite factor every 3 months, as expected, the back-test results show a decrease in monthly turnover, from 58% to 30%, while preserving most of the risk-adjusted performance and yielding an IR of 0.8. This suggests the factor does not exhibit much of an alpha decay over the subsequent 3 months while still producing solid and statistically significant L/S returns and a consistently positive 1-year rolling information coefficient (Figure 33).

Figure 33: 3-month analyst recommendation factor – cumulative performance (left) & 12 month rolling IC (right) within bottom 2000 universe

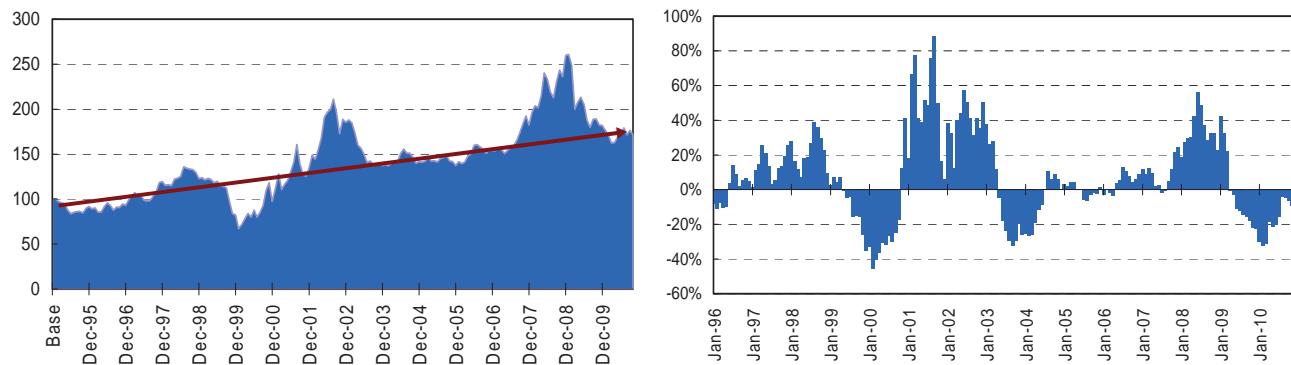


Source: IBES, Bloomberg, J.P. Morgan

Short Interest Factor

Short interest relative to shares outstanding was also tested as a factor. The belief here is that stocks with a lower level of short interest tend to outperform stocks with a higher level of short interest as this would indicate negative market sentiment toward that stock. This factor yielded mediocre results when tested across the broader universe. While its long/short performance does follow a positive trajectory path over the life of the back-test within the large-cap space, it does exhibit pronounced swings. The factor was very effective during periods of market recession, suggesting the investor community gives more importance to a stock's relative level of short interest during those periods; however, most of those gains eroded as the markets began to recover (Figure 34). This might be an interesting factor to consider as part of a dynamic factor rotation model given its pronounced cyclical behavior.

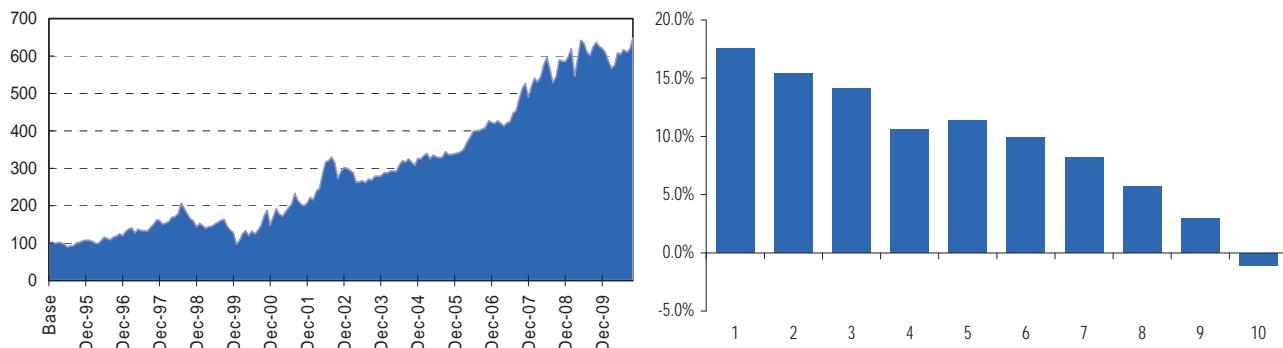
Figure 34: Short interest factor – cumulative performance (left) & rolling 12 month I/s returns (right) within top 1000 universe



Source: Compustat, Bloomberg, J.P. Morgan

The effectiveness of the short interest factor was, without doubt, more appealing within the small-cap space where it yielded an IR of 0.7, a strong upward sloping performance curve, a hit rate of 60%, and an IC of 3%. The factor exhibited a linear payoff structure with close to monotonically decreasing deciles (Figure 35).

Figure 35: Short interest factor – cumulative performance (left) & decile payoff structure (right) within top 2000 universe



Source: Compustat, Bloomberg, J.P. Morgan

Given the factor's effectiveness across the broad universe, especially during periods of recession, it seems sensible to consider including it as part of a multi-factor model, helping diversify overall model risk and minimize drawdowns.

With respect to sector performance, it comes as no surprise to us that short interest as a factor is among the top performers within the heavily sentiment driven sectors, including consumer discretionary and industrials.

Change in Shares Outstanding Factor

Another trading-related metric that was included as part of the sentiment family of factors is change in shares outstanding. After split-adjusting the share count, companies within the universe were ranked based on the change in their outstanding shares over the last 12 months. The top 10% of companies that decreased their shares outstanding through buybacks were bought and the bottom 10% of the companies that increased their share count through equity issuance were shorted.

This factor yielded mediocre risk-adjusted performance with an IR of 0.4 within the large-cap space. Results were more impressive within the small-cap space, where the factor yielded an IR of 0.8 and an IC of 5.1%, which is not often seen among U.S. quant equity factors.

We also thought it would be sensible to back-test this factor across multiple holding periods. The factor saw a slight improvement in its risk-adjusted performance both within the large-cap and small-cap universes when increasing the holding period to 3 months. However, with a 6-month holding period its performance began to decay, and in the case of the large-cap universe it eroded completely (Table 8).

Table 8: Change in share count – summary of back-test results within top 1000 and bottom 2000 universes

Universe Subset	Holding Period	Avg IC	Hit Rate	Turnover	T-Stat	Annualized IR
Top 1000	1 month	2.29%	53.37%	12.05%	1.48	0.40
Top 1000	3 month	8.30%	59.32%	10.12%	1.70	0.46
Top 1000	6 month	0.76%	51.72%	6.82%	0.24	0.06
Bottom 2000	1 month	4.09%	57.76%	11.62%	2.76	0.80
Bottom 2000	3 month	5.91%	69.81%	9.55%	3.03	0.88
Bottom 2000	6 month	8.24%	73.08%	7.35%	2.45	0.70

Source: Compustat, Bloomberg, J.P. Morgan.

GROWTH FACTORS

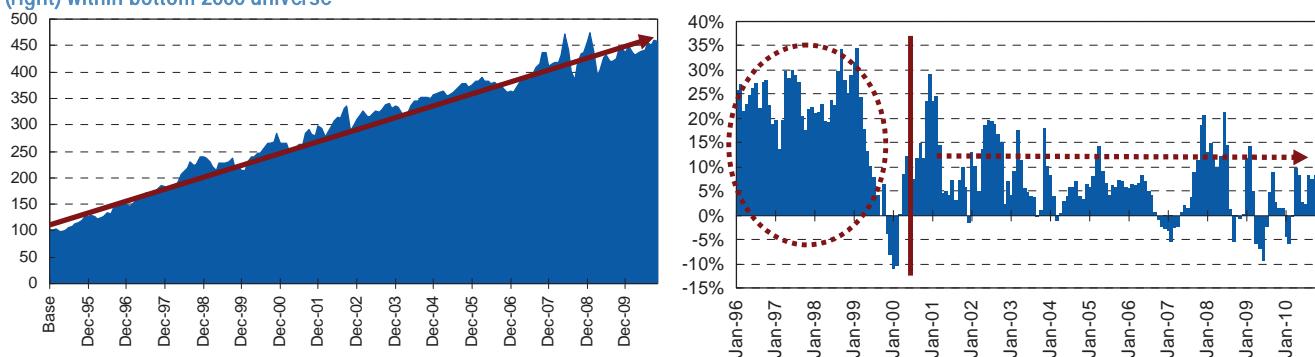
Growth factors as a category did not fare as well as some of the other factor families, especially within the large-cap space, where they failed to add value on a consistent basis over the life of the back-test.

Forward Earnings Momentum Factor

The picture is quite different within the small-cap space, where various flavors of the forward earnings momentum factor were effective predictors of future returns.

Among that group, 1-month earnings momentum – mean of FY 1 and FY2 – stood out as the top performer. In fact, the factor yielded an information ratio of 0.92, information coefficient of 1.6%, an impressive hit rate of 64%, and a close to perfect upward sloping long/short cumulative performance curve with no significant drawdowns.

Figure 36: 1-month forward earnings momentum (mean of FY1 and FY2) factor - cumulative performance (left) & rolling 12 month l/s returns (right) within bottom 2000 universe



Source: IBES, Bloomberg, J.P. Morgan

This is a fast-moving factor by nature and as a result exhibited a high level of turnover, rendering it impractical from a multi-factor model inclusion point of view. However, given the factor's consistent historical success in predicting the next month's winners from the next month's losers, it is definitely sensible to consider it as a way to screen for names that are exhibiting a significant amount of momentum in their earnings.

Also, it is worth noting that while the forward earnings momentum factor might have been more efficacious at forecasting future returns before Regulation Fair Disclosure was implemented by the SEC in 2000, afterwards it was still able to effectively differentiate the next month's winners from the next month's losers within the small-cap space as shown in Figure 36 above. This is clearly not the case with the large-cap space, where the effectiveness of this factor essentially disappeared after this rule went into effect.

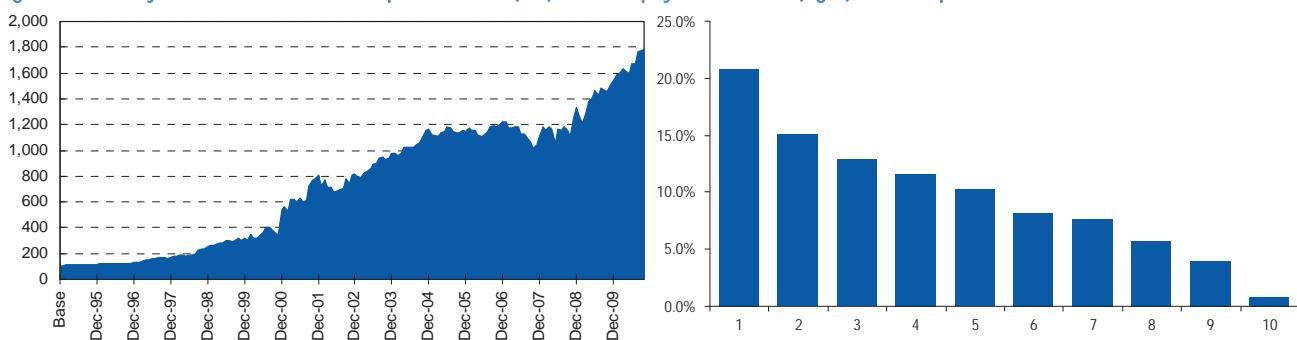
TECHNICAL FACTORS

10-Day RSI Factor

Among the technical family of factors, the 10-Day Relative Strength Indicator, a popular mean reversion indicator that compares the magnitude of recent gains to recent losses, should not go un-noted.

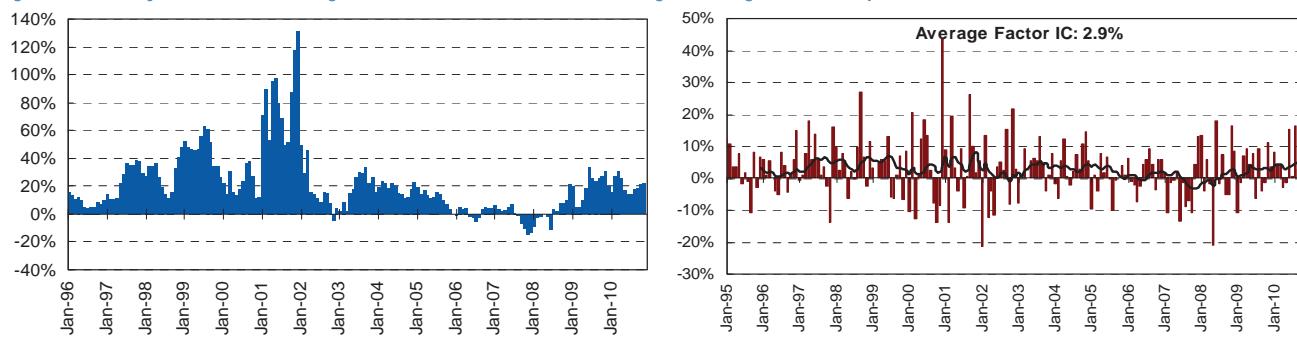
When used as a contrarian factor, it finds itself at the top of the group in terms of performance and consistency across the entire universe. Not only did it deliver an IR of 1.0, it also exhibited consistent returns over the life of the back-test, experiencing almost no drawdown periods. Additionally, the factor had a linear payoff structure across its deciles. It yielded an IC of 3%, an impressive hit rate of 66%, and a statistically significant stream of long/short returns (Figure 37).

Figure 37: 10-Day RSI factor – cumulative performance (left) & decile payoff structure (right) within top 3000 universe



Source: Compustat, Reuters, Bloomberg, J.P. Morgan

Figure 38: 10-Day RSI factor – rolling 12 month l/s returns (left) & rolling 12 IC (right) within top 3000 universe



Source: Compustat, Reuters, Bloomberg, J.P. Morgan

When decomposing the universe by size, the factor has been most impressive with smaller cap names in terms of performance and consistency, while it has been most impressive in the top 200 universe in terms of IC (Table 9).

Table 9: 10-Day RSI factor – summary of back-test results

	Avg IC	Ave L/S Ret	L/S Ret StdDev	Hit Rate	Turnover	T-Stat	Annualized IR
Entire Universe	2.87%	1.69%	6.15%	66.32%	88.86%	3.78	
Top 200	4.21%	1.28%	5.17%	58.95%	89.42%	3.42	
Top 1000	2.91%	1.31%	5.52%	58.95%	89.28%	3.27	
Bottom 2000	2.72%	1.81%	6.62%	64.21%	88.77%	3.76	
Bottom 1000	2.86%	2.04%	7.23%	65.26%	89.34%	3.89	

Source: Compustat, Reuters, Bloomberg, J.P. Morgan.

For instance, the long/short performance curves of this factor, when tested in the two extremes of the size universe, top 200 and bottom 1000, are shown below (Figure 39).

Figure 39: 10-Day RSI factor - cumulative performance within top 200 universe (left) & bottom 1000 universe (right)



Source: Compustat, Reuters, Bloomberg, J.P. Morgan

While the factor was effective across all sectors, it was most impressive within the financials, industrials, and materials sectors, yielding impressive since inception annualized information ratios of 1.4, 1.4, and 1.2, respectively. These results suggest that names within these three sectors, in particular, are very prone to short-term price reversal behavior.

Given the fast-moving nature of this factor, one should be aware that it fared very poorly with respect to turnover, making it impractical from an implementation point of view. Due to this impracticality, rather than considering it as part of a multi-factor model, it might be more sensible to use it for purposes of trade timing or as an implementation tool / screen on rebalance day in order to identify names with the highest probability of reversion.

Price Momentum and Price Acceleration Factors

Other standard price momentum factors and price acceleration factors, which are essentially the second derivative of price momentum, were also tested using various look-back periods, including 1-month, 3-month, 6-month, and 12-month periods. Our back-tests suggest that momentum as a factor has not delivered much value on a consistent basis, but clearly it is an irreplaceable component of many quantitative models. Obviously, different formation periods provide momentum factors with different characteristics.

Short-term price reversal (i.e., negative of 1-month price momentum) yielded somewhat similar results to the RSI 10-Day factor mentioned above, but overall it was less effective as a factor while still incurring a high level of turnover.

Long-term price momentum (i.e., using 12-month look-back period), while also exhibiting unimpressive risk-adjusted performance characteristics, was slightly improved when scaling it by the stock's underlying volatility. As a result, the standard deviation of the factor's long/short returns was reduced (Table 10).

Table 10: Price momentum factors - summary of risk-adjusted performance (IR) across various universe subsets

	Top 200	Top 1000	Bottom 2000	Bottom 1000	Top 1000 Value	Top 1000 Growth	Bottom 2000 Value	Bottom 2000 Growth
1 Mnth Price Momentum	-0.16	-0.07	-0.36	-0.46	-0.12	-0.09	-0.20	-0.49
3 Mnth Price Momentum	0.01	0.02	0.00	-0.12	-0.03	0.00	0.15	-0.13
3 Mnth Price Acceleration	-0.27	-0.17	0.10	0.30	-0.34	-0.12	0.02	0.00
6 Mnth Price Momentum	0.13	0.16	0.15	0.05	0.07	0.13	0.23	0.07
6 Mnth Price Acceleration	0.03	0.26	0.43	0.48	0.07	0.28	0.26	0.46
12 Mnth Price Momentum	0.31	0.15	0.12	0.12	0.07	0.15	0.22	-0.01
12 Mnth Price Momentum Vol Adj	0.28	0.28	0.25	0.23	0.17	0.29	0.28	0.23

Source: Bloomberg, J.P. Morgan.

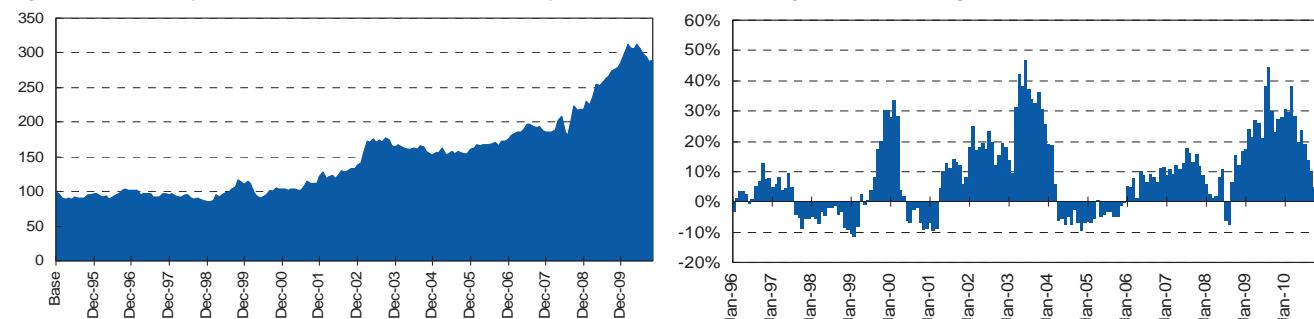
An exception can be observed in the utilities sector, where we were surprised to see that price acceleration factors turned out to be quite effective (Table 11 and Figure 40).

Table 11: Price momentum factors - summary of risk-adjusted performance (IR) across sectors

	Energy	Materials	Industrials	Cons Disc	Cons Staples	Health Care	Financials	IT	Telcos	Utilities
1 Mnth Price Momentum	-0.43	-0.60	-0.92	-0.38	-0.43	-0.72	-0.78	-0.58	-0.03	-0.12
3 Mnth Price Momentum	-0.11	-0.24	-0.46	0.10	-0.11	-0.58	-0.27	-0.06	0.37	-0.08
3 Mnth Price Acceleration	0.07	-0.22	-0.28	-0.19	0.07	0.02	-0.04	0.07	0.24	0.63
6 Mnth Price Momentum	0.11	-0.19	-0.29	0.19	0.11	-0.23	-0.20	-0.04	0.29	0.13
6 Mnth Price Acceleration	0.21	-0.25	0.13	0.14	0.21	0.23	-0.05	0.44	0.44	0.77
12 Mnth Price Momentum	0.04	0.07	-0.20	0.28	0.04	-0.30	0.07	-0.06	0.39	-0.01
12 Mnth Price Momentum Vol Adj	0.13	-0.18	0.00	0.41	0.13	-0.05	0.03	0.12	0.45	0.03

Source: Bloomberg, J.P. Morgan.

Figure 40: 3-month price acceleration factor – cumulative performance (left) & rolling 12 mths returns (right) within UTILITIES sector



Source: Bloomberg, J.P. Morgan

Assigning time-varying conviction to momentum factors within a quantitative model framework, without question, might be an interesting option to consider, given that the factor exhibits very distinct behavior during different market environments. For instance, long-term price momentum has tended to work better during more rational, trending, and risk-embracing markets, when fundamentals tend to drive stock prices. On the other hand, it has failed when markets are mean-reverting and when risk aversion typically takes the front seat.

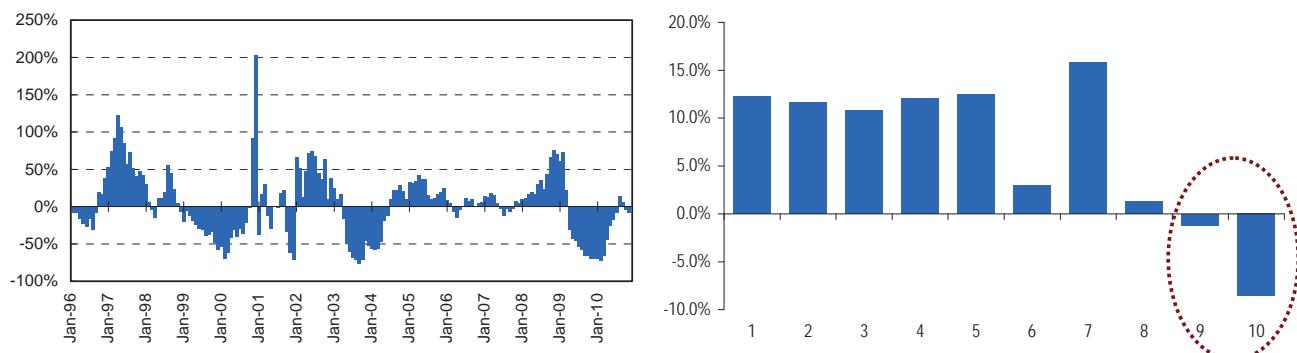
Specific Risk Factor

Within this category it is also worth highlighting specific risk as a factor for predicting next month's returns. Essentially, a stock's specific risk is the portion of total risk that is related solely to a particular stock and is not explained by common factors. The greater a stock's specific risk the larger the proportion of return

attributable to idiosyncratic, rather than, common factors. This factor was constructed such that stocks with low specific risk were bought and stocks with high specific risk were shorted.

The results suggest that specific risk is not an effective two-sided long/short factor but should rather be considered as a one-sided short only factor (i.e., for identifying candidates to short). It comes as no surprise to us that this is especially the case with smaller cap names, where the bottom decile, on average, exhibited an annual return of almost -10% and yielded a negative return approximately 60% of the time over the life of the back-test (Figure 41). Therefore, simply shorting small-cap stocks with the highest level of specific risk relative to the small cap universe would have resulted in a winning strategy in our back-test. For small-cap long-only managers it would be advisable to think carefully before loading up on a name that carries a relatively high level of specific risk, especially during the beginning period of a recession when the market tips from greed to fear.

Figure 41: Specific risk factor – rolling 12 month l/s returns within bottom 2000 universe



Source: Barra, Bloomberg, J.P. Morgan

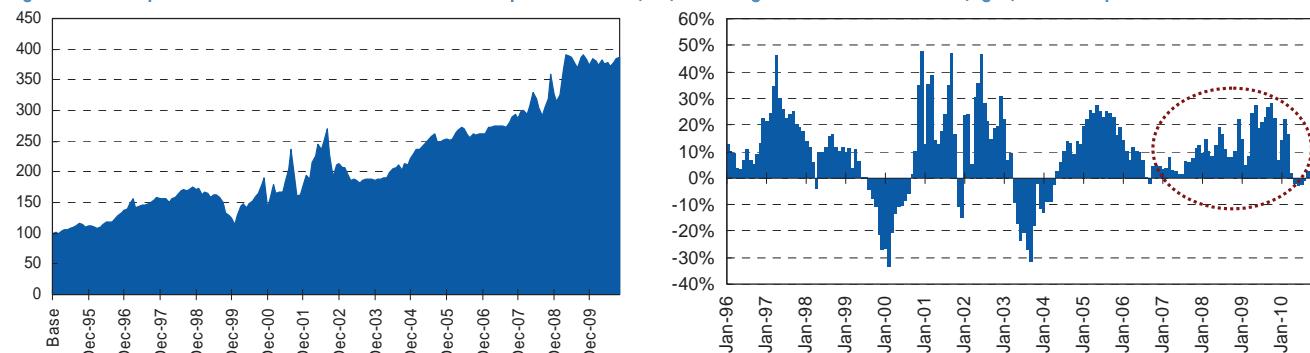
Realized volatility over last 12 months as a factor yielded similar results as the specific risk factor mentioned above.

JPMQ COMPOSITE FACTORS

While a multitude of different approaches can be utilized when blending factors together, for the purposes of this report we focused on a fairly common set of composites and tested their effectiveness across various universe subsets (see composite definitions in Appendix III).

For instance, a standard equal-weighted composite of value and price momentum produced an overall solid and relatively consistent long/short performance over time. Within the large-cap space, the strategy exhibited an IR of 0.6, an IC of 2.8%, average gross monthly return of 0.9%, and a hit rate of 62%. It is worth highlighting how well the performance of this long/short strategy held up during the last few years (Figure 42). In fact, looking at the 12-month rolling returns chart below, the strategy barely exhibited any drawdown.

Figure 42: Composite value / momentum - cumulative performance (left) & rolling 12 month l/s returns (right) within top 1000 universe



Source: IBES, Compustat, Reuters, Bloomberg, J.P. Morgan

We must say that we were a little surprised by the strong performance this composite exhibited in recent years, especially since some of the individual underlying factors suffered severe drawdowns in performance in that same period. However, the results suggest that the interaction effects between valuation factors and momentum improved their overall effectiveness when used jointly.

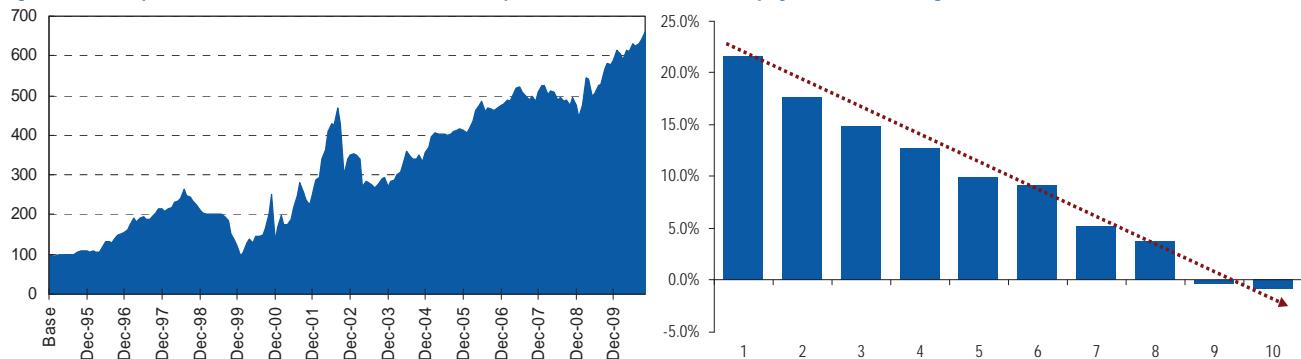
Looking at the performance of this composite, with a focus on the last four years, we see that in 2007 and in 2008 the gain produced by momentum and historical earnings yield factors outweighed the loss coming from sales yield and cash flow yield factors. Furthermore, in the first part of 2009, the significant loss coming from the momentum factor and the smaller loss coming from the historical earnings yield factor was fully offset by the impressive gains generated through cash flow yield and sales yield factors. As a result of these offsets, the overall composite managed to outperform.

In testing the same exact composite model in the large-cap space, but using forward earnings based metrics instead of the historical valuation based factors mentioned above, the composite would have steadily lost money since the beginning of the quant crisis.

Within the small-cap space, the same strategy of blending value and price momentum yielded an IR of 0.6, an IC of 3.7% and a strong average monthly long/short return before t-cost of 1.3%, all while producing statistically significant

results and producing positive returns almost two-thirds of the time. While the strategy produced stronger monthly long/short returns in the small-cap space, it performed equally well in the large-cap space in terms of risk-adjusted performance. Additionally, this was a solid two-sided strategy with a linear payoff structure whose deciles were monotonically decreasing. The bottom two deciles produced negative absolute returns roughly 60% of the time (Figure 43).

Figure 43: Composite value / momentum - cumulative performance (left) & decile payoff structure (right) within bottom 2000 universe



Source: IBES, Compustat, Reuters, Bloomberg, J.P. Morgan

Another popular composite, a blend of growth, value, quality, long-term price momentum, and short-term price reversal, yielded decent results universe-wide, with the highest effectiveness in the top 200 and bottom 2000 names of the overall universe. Across the various size subsets, this basic model has exhibited ICs north of 3.5% and IRs ranging from 0.5 to 0.6, while producing a statistically significant stream of long/short returns and outperforming in 60% of the months over the life of the back-test. Additionally, this strategy, on average, generated a monthly return of 1.0% in the large-cap space and an impressive 1.6% in the small-cap space before t-cost on a long/short basis (Table 12).

Table 12: General composite – summary of back-test results across universe size subsets

	Avg IC	Ave L/S Ret	L/S Ret StdDev	Hit Rate	Turnover	T-Stat	Annualized IR
Top 200	3.66%	0.77%	5.02%	56.84%	39.40%	2.11	0.55
Top 1000	3.55%	0.95%	7.59%	62.11%	45.56%	1.72	0.45
Bottom 2000	4.43%	1.60%	9.29%	61.05%	42.16%	2.37	0.65

Source: IBES, Compustat, Reuters, Bloomberg, J.P. Morgan.

The value-only composite was most effective within the large-cap universe, yielding an IR of 0.6 and an average monthly gross alpha of 1.4%. Some of the other composites, such as value and growth, forward earnings momentum and earnings revisions, or recommendation changes were also tested. Please see a full list of composite factor back-test results in Appendix II.

Appendix I: Summary of Back-Test Results

VALUATION FACTORS

Description	Test Universe	Avg IC	IR	Avg Ret LS	StdDev Ret LS	Hit Rate	T-Stat	Turnover	Avg Stocks
Cash Flow Yield	Top 200	0.60%	0.6	0.50%	3.18%	57%	2.2	14%	178
Cash Flow Yield	Top 1000	2.22%	1.2	1.31%	4.23%	64%	4.3	15%	860
Cash Flow Yield	Bottom 2000	3.77%	0.9	1.70%	7.33%	67%	3.2	16%	1,763
Cash Flow Yield	Bottom 1000	4.09%	0.8	1.83%	9.19%	66%	2.7	20%	881
Free Cash Flow Yield	Top 200	0.88%	0.5	0.41%	2.87%	54%	2.0	14%	178
Free Cash Flow Yield	Top 1000	2.03%	1.0	0.94%	3.61%	61%	3.6	15%	860
Free Cash Flow Yield	Bottom 2000	3.32%	0.8	1.43%	6.96%	65%	2.8	16%	1,763
Free Cash Flow Yield	Bottom 1000	3.78%	0.7	1.56%	9.02%	65%	2.4	21%	881
CFROIIC	Top 200	1.46%	0.7	0.51%	2.74%	53%	2.6	11%	178
CFROIIC	Top 1000	2.02%	0.7	0.84%	4.26%	57%	2.7	12%	861
CFROIIC	Bottom 2000	3.74%	1.0	1.63%	6.44%	66%	3.5	13%	1,768
CFROIIC	Bottom 1000	4.30%	1.1	1.97%	7.18%	68%	3.8	18%	881
Cash Flow to Total Assets	Top 200	1.63%	0.5	0.48%	3.42%	54%	1.9	10%	178
Cash Flow to Total Assets	Top 1000	2.04%	0.7	0.76%	3.92%	62%	2.7	11%	861
Cash Flow to Total Assets	Bottom 2000	4.00%	1.0	1.69%	6.69%	68%	3.5	13%	1,768
Cash Flow to Total Assets	Bottom 1000	4.71%	1.1	2.16%	7.57%	67%	3.9	18%	881
Free Cash Flow to Enterprise Value	Top 1000	1.17%	0.6	0.50%	3.19%	56%	2.2	12%	929
Free Cash Flow to Enterprise Value	Bottom 2000	2.66%	1.0	1.22%	4.40%	66%	3.8	16%	1,861
EBITDA to Enterprise Value	Top 1000	0.93%	0.5	0.42%	2.83%	52%	2.0	14%	941
EBITDA to Enterprise Value	Bottom 2000	2.70%	1.0	1.35%	5.05%	59%	3.7	16%	1,855
Earnings Yield	Top 200	3.48%	1.0	0.77%	2.90%	63%	3.6	15%	198
Earnings Yield	Top 1000	1.58%	0.8	0.79%	3.76%	56%	2.9	14%	943
Earnings Yield	Bottom 2000	1.82%	0.6	0.99%	6.53%	55%	2.1	15%	1,862
Earnings Yield	Bottom 1000	2.15%	0.4	0.91%	8.29%	53%	1.5	20%	920
Earnings Yield 1 Yr Fwd	Top 200	1.82%	0.4	0.36%	2.98%	55%	1.7	15%	197
Earnings Yield 1 Yr Fwd	Top 1000	1.01%	0.2	0.30%	4.27%	53%	1.0	17%	917
Earnings Yield 1 Yr Fwd	Bottom 2000	2.35%	0.4	0.91%	7.68%	57%	1.6	22%	1,588
Earnings Yield 1 Yr Fwd	Bottom 1000	2.92%	0.5	1.21%	9.51%	58%	1.7	28%	738
Earnings Yield 1 Yr Fwd Rel to 3 yr Hist	Top 200	1.09%	0.3	0.29%	3.09%	53%	1.2	24%	192
Earnings Yield 1 Yr Fwd Rel to 3 yr Hist	Top 1000	0.14%	0.1	0.12%	3.93%	49%	0.4	23%	859
Earnings Yield 1 Yr Fwd Rel to 3 yr Hist	Bottom 2000	1.08%	0.5	0.70%	4.80%	56%	1.9	27%	1,243
Earnings Yield 1 Yr Fwd Rel to 3 yr Hist	Bottom 1000	1.54%	0.7	1.07%	5.73%	56%	2.5	33%	537
Earnings Yield 1 Yr Fwd Rel to Sector	Top 200	1.92%	0.5	0.46%	3.07%	59%	2.1	15%	194
Earnings Yield 1 Yr Fwd Rel to Sector	Top 1000	1.15%	0.3	0.35%	4.16%	51%	1.2	18%	877
Earnings Yield 1 Yr Fwd Rel to Sector	Bottom 2000	2.31%	0.5	0.98%	7.42%	57%	1.8	21%	1,388
Earnings Yield 1 Yr Fwd Rel to Sector	Bottom 1000	2.84%	0.4	1.12%	9.41%	54%	1.6	28%	644
Sales Yield	Top 200	0.95%	0.2	0.23%	3.44%	55%	0.9	10%	193
Sales Yield	Top 1000	1.74%	0.7	0.96%	5.20%	58%	2.5	10%	929
Sales Yield	Bottom 2000	1.78%	0.7	1.14%	5.89%	60%	2.7	12%	1,889
Sales Yield FY1	Top 200	0.87%	0.2	0.29%	4.15%	55%	0.9	12%	180
Sales Yield FY1	Top 1000	1.84%	0.8	1.24%	6.15%	58%	2.7	13%	813
Sales Yield FY1	Bottom 2000	2.29%	0.8	1.53%	7.19%	59%	2.8	15%	1,360
Sales Yield FY2	Top 200	-0.33%	0.2	0.21%	4.14%	50%	0.7	14%	175
Sales Yield FY2	Top 1000	1.51%	0.6	0.98%	6.34%	56%	2.1	14%	767
Sales Yield FY2	Bottom 2000	2.03%	0.7	1.38%	7.45%	58%	2.5	19%	1,251
Sales Yield Mean FY1 FY2	Top 200	-0.28%	0.2	0.22%	4.09%	54%	0.7	14%	175
Sales Yield Mean FY1 FY2	Top 1000	1.58%	0.6	1.10%	6.34%	57%	2.3	14%	764
Sales Yield Mean FY1 FY2	Bottom 2000	2.20%	0.7	1.46%	7.35%	60%	2.7	19%	1,238
Sales to EV (incl MV)	Top 200	1.29%	0.2	0.13%	2.75%	50%	0.7	10%	191
Sales to EV (incl MV)	Top 1000	1.35%	0.6	0.58%	3.26%	56%	2.4	10%	917
Sales to EV (incl MV)	Bottom 2000	1.65%	1.0	0.87%	3.19%	59%	3.8	14%	1,823
Book Value Yield	Top 1000	0.77%	0.3	0.40%	4.15%	48%	1.3	14%	910
Book Value Yield	Bottom 2000	0.85%	0.3	0.36%	4.58%	51%	1.1	17%	1,808
Dividend Yield	Top 1000	0.21%	0.4	0.29%	2.41%	52%	1.6	7%	931
Dividend Yield	Bottom 2000	0.48%	0.2	0.16%	2.59%	49%	0.8	6%	1,840

Source: IBES, Compustat, Reuters, Bloomberg, J.P. Morgan.

QUALITY FACTORS

Description	Test Universe	Avg IC	IR	Avg Ret LS	StdDev Ret LS	Hit Rate	T-Stat	Turnover	Avg Stocks
Asset Turnover	Top 200	1.10%	0.3	0.25%	2.53%	56%	1.4	7%	194
Asset Turnover	Top 1000	1.17%	0.5	0.60%	4.01%	59%	2.1	4%	890
Asset Turnover	Bottom 2000	1.40%	0.6	0.75%	4.72%	59%	2.2	5%	1,788
Asset Turnover	Bottom 1000	1.89%	0.6	0.97%	5.51%	61%	2.4	11%	888
Asset Turnover	Bottom 1000 Value	1.14%	0.5	0.53%	3.67%	57%	2.0	5%	613
Asset Turnover	Bottom 1000 Growth	1.30%	0.6	0.88%	5.04%	59%	2.4	5%	549
Asset Turnover	Bottom 2000 Value	1.60%	0.7	0.84%	4.60%	65%	2.5	6%	1,157
Asset Turnover	Bottom 2000 Growth	1.35%	0.4	0.59%	5.45%	57%	1.5	6%	1,153
Asset Turnover	Materials Sector	1.61%	0.6	0.67%	4.08%	58%	2.3	4%	136
Asset Turnover 12 Mnth Change	Top 1000	1.51%	0.8	0.47%	2.15%	65%	3.0	11%	863
Asset Turnover 12 Mnth Change	Bottom 2000	0.73%	0.5	0.35%	2.29%	55%	2.1	10%	1,702
Interest Coverage	Top 200	0.14%	0.4	0.31%	2.63%	54%	1.6	9%	161
Interest Coverage	Top 1000	0.40%	0.4	0.33%	2.90%	54%	1.6	7%	745
Interest Coverage	Bottom 2000	1.23%	0.4	0.62%	5.61%	56%	1.5	8%	1,265
Capital Expenditures to Depreciation	Top 1000	1.38%	0.3	0.28%	3.01%	52%	1.3	11%	759
Capital Expenditures to Depreciation	Bottom 2000	1.64%	0.9	0.67%	2.56%	60%	3.6	13%	1,558
ROE	Top 1000	0.69%	0.2	0.19%	4.07%	51%	0.6	8%	895
ROE	Bottom 2000	1.80%	0.3	0.58%	5.91%	56%	1.3	8%	1,744
Leverage	Top 1000	0.12%	0.2	0.19%	3.41%	53%	0.8	5%	939
Leverage	Bottom 2000	-0.13%	-0.2	-0.20%	2.80%	48%	-1.0	7%	1,840
Current Ratio	Top 1000	-0.79%	-0.2	-0.26%	5.12%	48%	-0.7	7%	715
Current Ratio	Bottom 2000	-1.00%	-0.3	-0.29%	3.21%	42%	-1.2	7%	1,436
Payout Ratio	Top 1000	0.22%	0.0	0.01%	2.41%	52%	0.1	10%	929
Payout Ratio	Bottom 2000	-0.39%	0.1	0.08%	2.21%	53%	0.5	8%	1,834

Source: IBES, Compustat, Reuters, Bloomberg, J.P. Morgan.

SENTIMENT FACTORS

Description	Test Universe	Avg IC	IR	Avg Ret LS	StdDev Ret LS	Hit Rate	T-Stat	Turnover	Avg Stocks
Short Interest to Shares Outstanding	Top 1000	1.82%	0.3	0.46%	5.82%	54%	1.1	20%	917
Short Interest to Shares Outstanding	Bottom 2000	2.87%	0.7	1.17%	5.99%	59%	2.7	20%	1,838
12 Mnth Change in Shares Outstanding	Top 1000	2.29%	0.4	0.84%	7.57%	53%	1.5	12%	646
12 Mnth Change in Shares Outstanding	Bottom 2000	4.09%	0.8	1.11%	5.11%	58%	2.8	12%	1,395
12 Mnth Change in Shares Outstanding	Bottom 1000	2.93%	0.7	1.33%	7.15%	62%	2.2	17%	794
1 Mnth Chg in Recommendation	Top 1000	0.61%	0.2	0.19%	2.68%	56%	1.0	88%	934
1 Mnth Chg in Recommendation	Bottom 2000	1.23%	1.0	0.67%	2.31%	66%	4.0	89%	1,741
3 Mnth Chg in Recommendation	Top 1000	0.47%	0.1	0.11%	3.60%	53%	0.4	49%	932
3 Mnth Chg in Recommendation	Bottom 2000	1.47%	0.9	0.77%	3.05%	63%	3.5	46%	1,721
Net Earnings Revisions FY1	Top 1000	0.35%	-0.2	-0.26%	4.62%	52%	-0.8	79%	931
Net Earnings Revisions FY1	Bottom 2000	1.50%	0.6	0.61%	3.44%	56%	2.4	84%	1,715
Net Earnings Revisions FY2	Top 1000	0.94%	0.0	-0.02%	4.81%	53%	-0.1	78%	927
Net Earnings Revisions FY2	Bottom 2000	1.63%	0.7	0.71%	3.77%	59%	2.6	83%	1,658
6 Mnth Chg in Target Price	Top 1000	2.38%	0.1	0.40%	11.71%	60%	0.4	26%	906
6 Mnth Chg in Target Price	Bottom 2000	2.45%	0.2	0.67%	10.71%	65%	0.7	29%	1,453
Earnings CV (Mean EPSCVFY1 EPSCVFY2)	Top 1000	0.27%	0.0	-0.11%	7.78%	52%	-0.2	22%	904
Earnings CV (Mean EPSCVFY1 EPSCVFY2)	Bottom 2000	1.72%	0.3	0.72%	7.83%	58%	1.3	29%	1,414
Earnings Estimates Count FY1	Top 1000	-0.42%	-0.1	-0.13%	3.95%	49%	-0.5	12%	931
Earnings Estimates Count FY1	Bottom 2000	0.25%	0.2	0.26%	3.70%	49%	1.0	16%	1,715

Source: IBES, Compustat, Reuters, Bloomberg, J.P. Morgan.

GROWTH FACTORS

Description	Test Universe	Avg IC	IR	Avg Ret LS	StdDev Ret LS	Hit Rate	T-Stat	Turnover	Avg Stocks
1 Mnth Earnings Momentum Mean FY1 FY2	Top 1000	0.60%	0.1	0.11%	4.01%	58%	0.4	70%	917
1 Mnth Earnings Momentum Mean FY1 FY2	Bottom 2000	1.59%	0.9	0.86%	3.40%	64%	3.5	77%	1,591
3 Mnth Earnings Momentum Mean FY1 FY2	Top 1000	1.07%	0.1	0.09%	4.67%	60%	0.3	33%	886
3 Mnth Earnings Momentum Mean FY1 FY2	Bottom 2000	1.69%	0.6	0.79%	4.86%	62%	2.2	38%	1,451
Mean of 1 Mnth & 3 Mnth Earnings Momentum	Top 1000	0.99%	0.1	0.13%	4.67%	58%	0.4	40%	884
Mean of 1 Mnth & 3 Mnth Earnings Momentum	Bottom 2000	1.84%	0.6	0.80%	4.67%	63%	2.4	45%	1,441
3 Mnth Earnings Momentum FY1 to FY2	Top 1000	0.65%	0.0	-0.03%	3.89%	52%	-0.1	43%	843
3 Mnth Earnings Momentum FY1 to FY2	Bottom 2000	0.82%	0.0	0.06%	4.87%	58%	0.2	48%	1,210
Earnings Growth 5 Yr Hist	Top 1000	-0.64%	-0.3	-0.35%	4.38%	48%	-1.1	8%	863
Earnings Growth 5 Yr Hist	Bottom 2000	0.07%	0.0	0.01%	2.80%	52%	0.1	10%	1,332
Earnings Growth FY1 to FY2	Top 1000	0.08%	0.4	0.41%	3.21%	59%	1.7	21%	931
Earnings Growth FY1 to FY2	Bottom 2000	-1.15%	-0.3	-0.22%	2.65%	48%	-1.2	24%	1,660

Source: IBES, Compustat, Reuters, Bloomberg, J.P. Morgan.

TECHNICAL FACTORS

Description	Test Universe	Avg IC	IR	Avg Ret LS	StdDev Ret LS	Hit Rate	T-Stat	Turnover	Avg Stocks
10 Day Relative Strength Indicator	Top 200	4.21%	0.8	0.98%	4.32%	63%	3.1	80%	199
10 Day Relative Strength Indicator	Top 1000	2.91%	0.9	1.31%	5.52%	59%	3.3	89%	962
10 Day Relative Strength Indicator	Bottom 2000	2.72%	1.0	1.81%	6.62%	64%	3.8	89%	1,934
10 Day Relative Strength Indicator	Bottom 1000	2.86%	1.1	2.04%	7.23%	65%	3.9	89%	955
30 Day Relative Strength Indicator	Top 200	2.26%	0.2	0.32%	4.84%	53%	0.9	71%	199
30 Day Relative Strength Indicator	Top 1000	1.63%	0.3	0.60%	6.42%	54%	1.3	81%	962
30 Day Relative Strength Indicator	Bottom 2000	0.93%	0.4	0.82%	7.35%	54%	1.5	80%	1,933
30 Day Relative Strength Indicator	Bottom 1000	1.06%	0.5	1.07%	8.03%	55%	1.8	82%	955
1 Mnth Price Momentum	Top 1000	-0.73%	-0.1	-0.16%	8.03%	49%	-0.3	85%	962
1 Mnth Price Momentum	Bottom 2000	-1.12%	-0.4	-0.97%	8.91%	49%	-1.5	86%	1,941
3 Mnth Price Momentum	Top 1000	0.50%	0.0	0.05%	9.72%	50%	0.1	52%	960
3 Mnth Price Momentum	Bottom 2000	0.82%	0.0	0.00%	10.78%	52%	0.0	52%	1,936
6 Mnth Price Momentum	Top 1000	1.96%	0.2	0.51%	11.09%	57%	0.6	37%	955
6 Mnth Price Momentum	Bottom 2000	1.96%	0.1	0.51%	12.28%	60%	0.6	38%	1,920
12 Mnth Price Momentum	Top 1000	2.49%	0.2	0.51%	11.79%	57%	0.6	28%	944
12 Mnth Price Momentum	Bottom 2000	1.74%	0.1	0.43%	12.75%	59%	0.5	29%	1,870
12 Mnth Price Momentum Vol Adj	Top 1000	2.60%	0.3	0.69%	8.99%	56%	1.1	31%	944
12 Mnth Price Momentum Vol Adj	Bottom 2000	2.46%	0.2	0.64%	9.31%	59%	0.9	32%	1,870
3 Mnth Price Acceleration	Top 1000	-0.53%	-0.2	-0.25%	5.10%	47%	-0.7	45%	850
3 Mnth Price Acceleration	Bottom 2000	1.22%	0.1	0.17%	5.93%	54%	0.4	46%	1,388
6 Mnth Price Acceleration	Top 1000	0.82%	0.3	0.40%	5.35%	56%	1.0	34%	846
6 Mnth Price Acceleration	Bottom 2000	2.01%	0.4	0.73%	6.15%	61%	1.6	34%	1,374
Percent Off 52 Week High	Top 1000	1.59%	-0.1	-0.26%	12.10%	54%	-0.3	46%	963
Percent Off 52 Week High	Bottom 2000	3.56%	0.1	0.33%	13.52%	54%	0.3	44%	1,941
12 Mnth Realized Volatility	Top 1000	0.99%	-0.1	-0.25%	11.28%	47%	-0.3	16%	949
12 Mnth Realized Volatility	Bottom 2000	3.08%	0.2	0.65%	11.56%	51%	0.8	15%	1,889
Specific Risk Factor	Top 1000	0.69%	-0.1	-0.19%	12.32%	47%	-0.2	10%	830
Specific Risk Factor	Bottom 2000	3.88%	0.2	0.71%	14.02%	53%	0.7	11%	1,561
Beta	Top 1000	-0.65%	0.1	0.21%	11.18%	48%	0.3	31%	961
Beta	Bottom 2000	-1.78%	0.0	-0.08%	11.30%	49%	-0.1	20%	1,928
Size Factor	Top 1000	-0.95%	-0.4	-0.87%	7.55%	49%	-1.6	10%	830
Size Factor	Bottom 2000	1.56%	0.0	0.08%	10.76%	61%	0.1	18%	1,561

Source: IBES, Compustat, Reuters, Barra, Bloomberg, J.P. Morgan.

JPMQ COMPOSITE FACTORS

Description	Test Universe	Avg IC	IR	Avg Ret LS	StdDev Ret LS	Hit Rate	T-Stat	Turnover	Avg Stocks
Composite General (Value, Growth, Quality, LT Momentum)	Top 200	2.77%	0.5	0.62%	4.80%	55%	1.8	38%	178
Composite General (Value, Growth, Quality, LT Momentum)	Top 1000	3.04%	0.4	0.88%	7.80%	59%	1.6	45%	860
Composite General (Value, Growth, Quality, LT Momentum)	Bottom 2000	4.01%	0.6	1.39%	9.40%	61%	2.0	42%	1,763
Composite General (Value, Growth, Quality, LT Momentum)	Bottom 1000	4.09%	0.7	1.74%	8.84%	60%	2.7	58%	717
Composite General (Value, Growth, Quality, LT Momentum, ST Reversal)	Top 200	3.66%	0.6	0.77%	5.02%	57%	2.1	39%	178
Composite General (Value, Growth, Quality, LT Momentum, ST Reversal)	Top 1000	3.55%	0.5	0.95%	7.59%	62%	1.7	46%	860
Composite General (Value, Growth, Quality, LT Momentum, ST Reversal)	Bottom 2000	4.43%	0.7	1.60%	9.29%	61%	2.4	42%	1,763
Composite General (Value, Growth, Quality, LT Momentum, ST Reversal)	Bottom 1000	4.09%	0.7	1.74%	8.84%	60%	2.7	58%	717
Composite Value	Top 200	2.74%	0.3	0.52%	6.99%	56%	1.0	14%	178
Composite Value	Top 1000	3.03%	0.6	1.36%	8.32%	52%	2.3	13%	860
Composite Value	Bottom 2000	3.70%	0.5	1.38%	10.04%	58%	1.9	13%	1,763
Composite Value	Bottom 1000	4.43%	0.6	1.73%	10.20%	61%	2.3	43%	881
Composite General Blend (Value, Momentum)	Top 200	2.31%	0.3	0.35%	3.62%	59%	1.3	48%	175
Composite General Blend (Value, Momentum)	Top 1000	2.77%	0.6	0.86%	5.40%	62%	2.2	56%	828
Composite General Blend (Value, Momentum)	Bottom 2000	3.73%	0.6	1.33%	7.88%	62%	2.3	56%	1,508
Composite General Blend (Value, Momentum)	Bottom 1000	4.95%	0.8	1.97%	9.89%	59%	2.8	44%	881
Composite General Blend (Value, Growth)	Top 200	2.31%	0.3	0.35%	3.62%	59%	1.3	48%	175
Composite General Blend (Value, Growth)	Top 1000	2.77%	0.6	0.86%	5.40%	62%	2.2	56%	828
Composite General Blend (Value, Growth)	Bottom 2000	3.73%	0.6	1.33%	7.88%	62%	2.3	56%	1,508
Composite General Blend (Value, Growth)	Bottom 1000	3.78%	0.5	1.50%	10.56%	57%	2.0	18%	881
Composite Quality	Top 1000	0.93%	0.0	0.04%	6.91%	50%	0.1	12%	842
Composite Quality	Bottom 2000	2.16%	0.2	0.49%	7.80%	58%	0.9	19%	1,275
Composite Sentiment	Top 1000	0.84%	-0.1	-0.11%	7.61%	57%	-0.2	38%	937
Composite Sentiment	Bottom 2000	1.59%	0.4	0.55%	5.44%	62%	1.4	39%	1,752
Composite Recommendation Change	Top 1000	0.59%	0.2	0.18%	3.63%	55%	0.7	61%	936
Composite Recommendation Change	Bottom 2000	1.55%	0.9	0.82%	3.22%	67%	3.5	58%	1,741
Composite Price Momentum with Reversion	Top 1000	3.04%	0.3	0.86%	10.37%	64%	1.1	35%	941
Composite Price Momentum with Reversion	Bottom 2000	2.52%	0.4	1.17%	9.86%	63%	1.6	38%	1,860
Composite Price with Acceleration	Top 1000	2.06%	0.2	0.56%	8.28%	56%	0.9	31%	843
Composite Price with Acceleration	Bottom 2000	2.77%	0.3	0.68%	8.89%	62%	1.0	32%	1,364
Composite Earnings Momentum	Top 1000	1.18%	0.1	0.11%	4.97%	57%	0.3	70%	923
Composite Earnings Momentum	Bottom 2000	1.85%	0.6	0.64%	3.89%	62%	2.3	78%	1,648

Source: IBES, Compustat, Reuters, Bloomberg, J.P. Morgan.

Appendix II: Full Back-Test Results

This appendix holds the full back-testing results for the factors analyzed in this report.

Factors were back-tested on various subsets of the Russell 3000 universe, including:

- Top 200 stocks – barometer for mega-/large-cap space (i.e., Russell Top 200)
- Top 1,000 stocks – barometer for large-cap space (i.e., Russell 1000)
- Bottom 2,000 stocks – barometer for small-cap space (i.e., Russell 2000)
- Bottom 1,000 stocks – barometer for bottom half of small-cap space
- Value stocks – (i.e., Russell 3000 Value)
- Growth stocks – (i.e., Russell 3000 Growth)
- Sector specific stocks – based on the 10 GIC Level I sectors

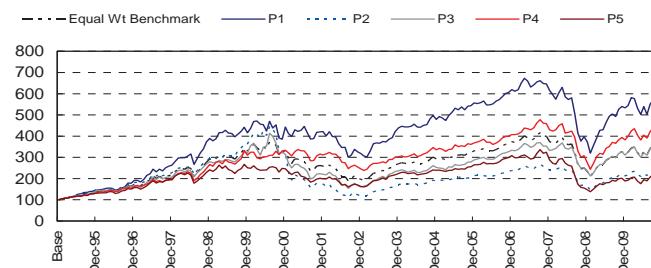
All the tables and charts in this section were sourced from Bloomberg, Compustat, I/B/E/S, Reuters, Barra, and J.P. Morgan.

Note: Past performance is not indicative of future returns.

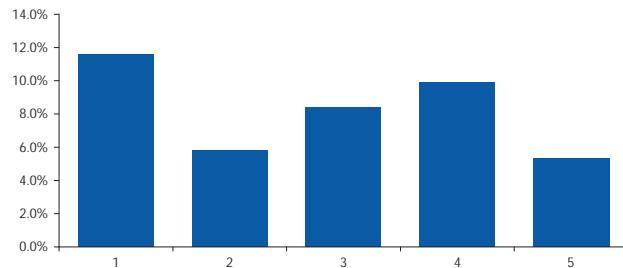
Cash Flow Yield

Cash Flow Yield in Top 200 Universe								Rebalance every 1 month(s)																							
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Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics																	
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.												
1	1.9%	23.0%	5%	53%	1	0.7%	6.7%	5%	53%	1	0.2%	1.0%	6%	53%	1	1.1%	11.6%	5%	54%												
2	1.6%	19.1%	6%	55%	2	-0.5%	-9.3%	7%	52%	2	0.4%	3.9%	5%	55%	2	0.6%	5.8%	6%	54%												
3	1.6%	19.2%	6%	43%	3	-0.1%	-2.5%	5%	45%	3	0.5%	5.1%	5%	62%	3	0.8%	8.4%	5%	51%												
4	1.7%	20.0%	5%	48%	4	0.3%	3.0%	4%	50%	4	0.5%	4.2%	5%	63%	4	0.9%	9.9%	5%	52%												
5	1.1%	12.6%	5%	38%	5	0.2%	1.9%	4%	48%	5	0.0%	-2.2%	6%	40%	5	0.6%	5.3%	5%	42%												
Total Test				Total Test				Total Test				Total Test				Total Test															
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets												
Universe	1.6%	2.4%	2.0%	162	Universe	0.1%	0.7%	-1.1%	179	Universe	0.3%	0.8%	0.4%	197	Universe	0.8%	1.5%	0.6%	178												
Long Short Strategy Statistics																Long Short Strategy Statistics															
Portfolio 1 less Portfolio 5																Portfolio 1 less Portfolio 5															
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.				
Long/Short	0.8%	8.9%	3%	63%	Long/Short	0.4%	4.4%	4%	50%	Long/Short	0.3%	2.6%	3%	55%	Long/Short	0.5%	5.53%	3.2%	57%	Long/Short	2.17	T-Stat	72	Long/Short	1.87	T-Stat	66	Long/Short	0.89	T-Stat	72

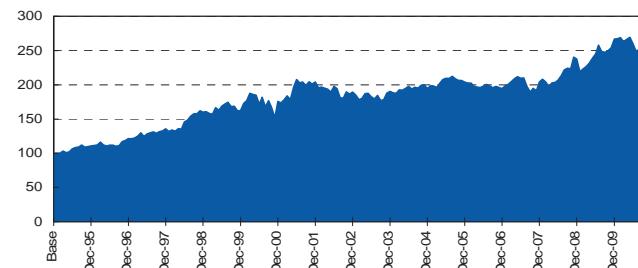
Portfolio Index Performance



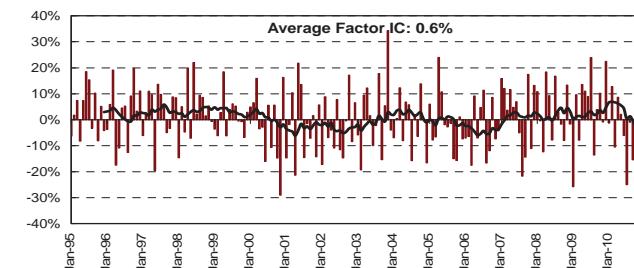
Portfolio Spread. Annual Returns



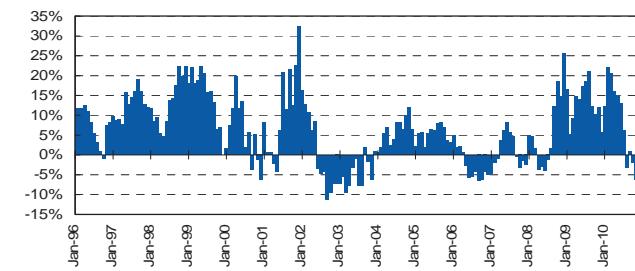
Cumulative Returns



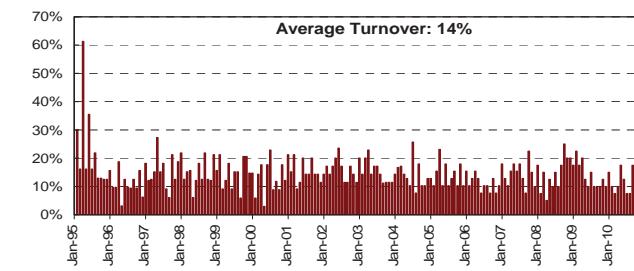
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

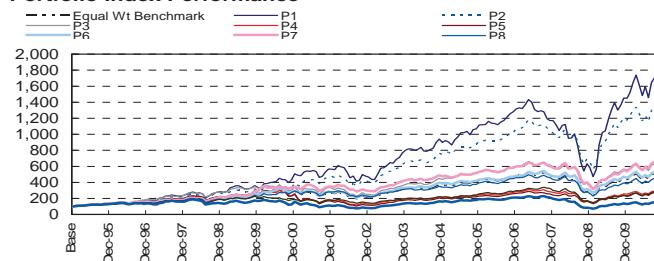


Turnover within Portfolio 1

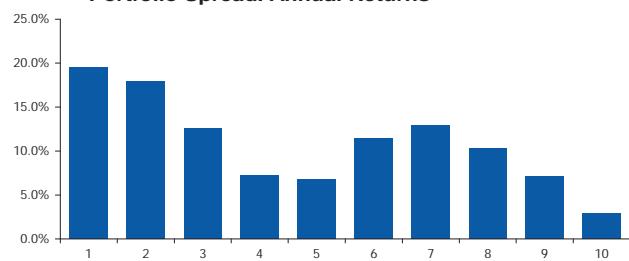


Cash Flow Yield in Top 1000 Universe										Rebalance every 1 month(s)																			
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010														
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics															
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.										
1	2.0%	23.9%	6%	60%	1	1.9%	21.6%	7%	67%	1	1.3%	9.9%	11%	47%	1	1.8%	19.6%	8%	58%										
2	1.6%	19.6%	5%	62%	2	1.8%	22.0%	6%	60%	2	1.0%	9.3%	7%	63%	2	1.6%	17.9%	6%	61%										
3	1.4%	16.6%	5%	52%	3	1.2%	11.8%	7%	55%	3	0.6%	4.9%	6%	43%	3	1.2%	12.6%	6%	51%										
4	1.1%	12.0%	5%	50%	4	0.4%	0.8%	8%	42%	4	0.6%	4.9%	6%	50%	4	0.8%	7.2%	6%	47%										
5	1.0%	10.7%	6%	48%	5	0.2%	-0.8%	7%	37%	5	0.6%	5.1%	6%	45%	5	0.7%	6.7%	6%	45%										
6	1.3%	15.5%	5%	52%	6	0.9%	9.2%	5%	43%	6	0.7%	5.9%	6%	48%	6	1.1%	11.4%	6%	48%										
7	1.6%	19.7%	5%	58%	7	0.9%	9.8%	5%	43%	7	0.7%	5.9%	6%	52%	7	1.2%	12.9%	5%	51%										
8	1.3%	15.0%	5%	53%	8	0.8%	8.0%	5%	47%	8	0.6%	4.7%	6%	47%	8	1.0%	10.3%	5%	48%										
9	0.8%	7.4%	6%	45%	9	0.6%	6.7%	5%	45%	9	0.5%	4.0%	6%	53%	9	0.7%	7.1%	6%	47%										
10	0.1%	-1.4%	7%	37%	10	0.9%	8.5%	7%	53%	10	0.1%	-2.6%	8%	37%	10	0.5%	2.9%	7%	42%										
Total Test					Total Test					Total Test					Total Test														
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	1.2%	2.8%	3.2%	759	Universe	1.0%	2.8%	1.8%	882	Universe	0.7%	0.9%	1.6%	963	Universe	1.0%	2.3%	2.2%	860						
Long Short Strategy Statistics															Long Short Strategy Statistics														
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10									
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.						
Long/Short	1.9%	24.2%	3%	70%	Long/Short	0.9%	10.8%	3%	60%	Long/Short	0.9%	14.1%	6%	62%	Long/Short	1.69	T-Stat	1.69	T-Stat	Long/Short	1.3%	15.77%	4.2%	64%					
T-Stat	4.21			153	T-Stat	2.08			177	T-Stat				193	T-Stat	4.27			Long/Short					173					

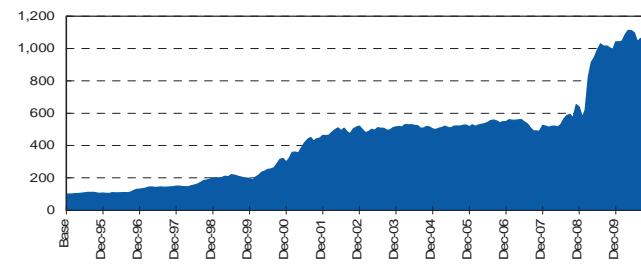
Portfolio Index Performance



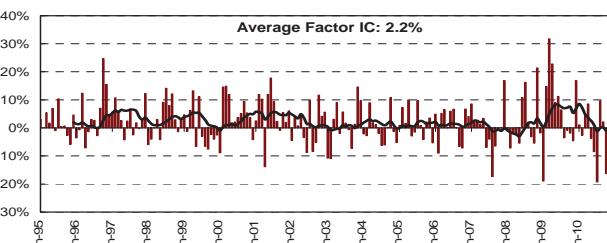
Portfolio Spread. Annual Returns



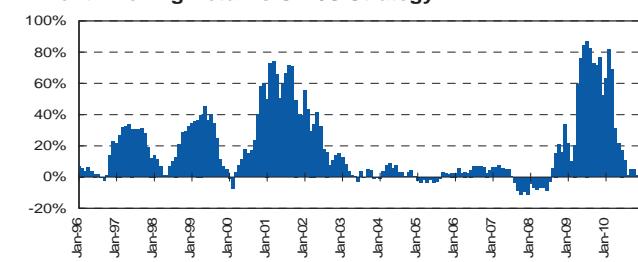
Cumulative Returns



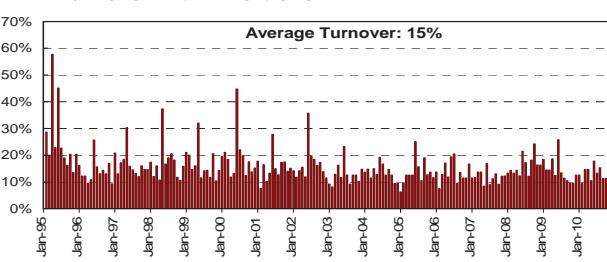
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

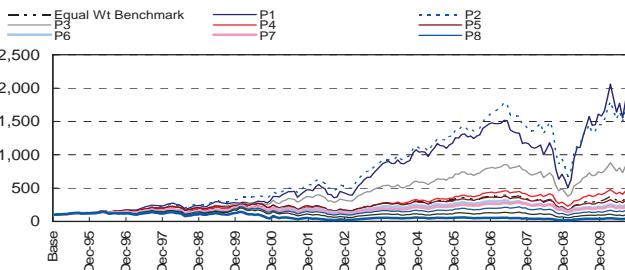


Turnover within Portfolio 1

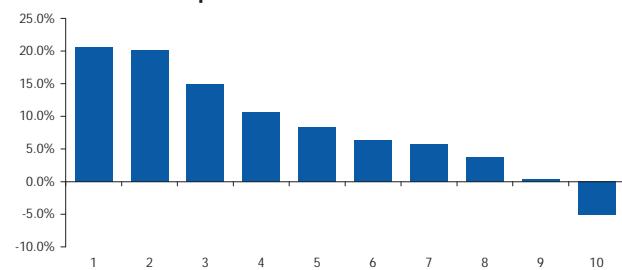


Cash Flow Yield in Bottom 2000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.5%	16.9%	6%	60%	1	2.7%	32.9%	8%	63%	1	1.5%	11.2%	11%	52%	1	1.9%	20.6%	8%	58%
2	1.8%	22.0%	5%	70%	2	2.4%	29.6%	6%	67%	2	1.0%	7.5%	9%	60%	2	1.8%	20.2%	7%	65%
3	1.3%	15.4%	5%	62%	3	1.8%	21.3%	6%	67%	3	0.8%	6.8%	8%	67%	3	1.4%	15.0%	6%	63%
4	1.0%	10.2%	6%	57%	4	1.1%	11.1%	7%	53%	4	0.8%	7.4%	7%	62%	4	1.1%	10.7%	7%	57%
5	1.0%	10.9%	6%	62%	5	0.9%	7.9%	7%	47%	5	0.5%	3.1%	7%	47%	5	0.9%	8.4%	6%	53%
6	0.6%	5.0%	6%	48%	6	0.9%	9.3%	6%	43%	6	0.3%	0.9%	6%	40%	6	0.7%	6.4%	6%	44%
7	0.7%	6.1%	7%	38%	7	0.7%	6.5%	7%	45%	7	0.3%	1.4%	6%	45%	7	0.7%	5.8%	6%	43%
8	0.6%	2.9%	8%	43%	8	0.6%	4.1%	7%	28%	8	0.3%	1.0%	7%	50%	8	0.6%	3.8%	7%	41%
9	0.3%	-1.0%	9%	38%	9	0.3%	-0.6%	8%	27%	9	0.2%	-1.3%	8%	40%	9	0.4%	0.3%	8%	36%
10	-0.9%	-15.1%	9%	37%	10	1.1%	-0.2%	16%	37%	10	0.2%	-3.5%	10%	37%	10	0.2%	-5.1%	12%	37%
Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets				
Universe	0.8%	5.8%	4.5%	1619	Universe	1.3%	6.6%	4.7%	1763	Universe	0.6%	2.9%	2.4%	1943	Universe	1.0%	5.0%	3.8%	1763

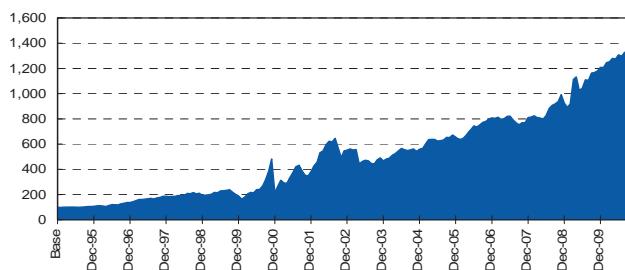
Portfolio Index Performance



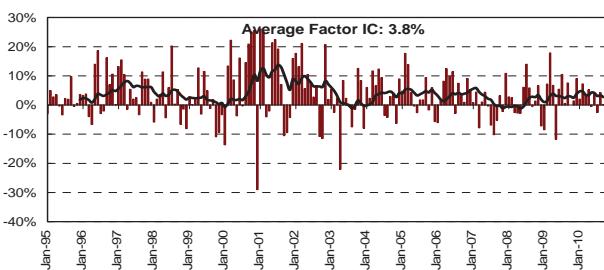
Portfolio Spread. Annual Returns



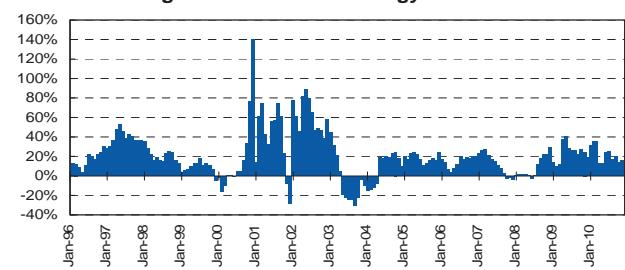
Cumulative Returns



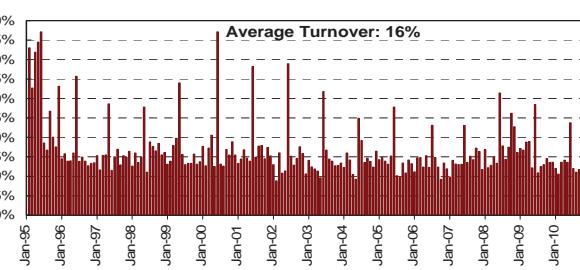
Information Co-Efficients (IC)

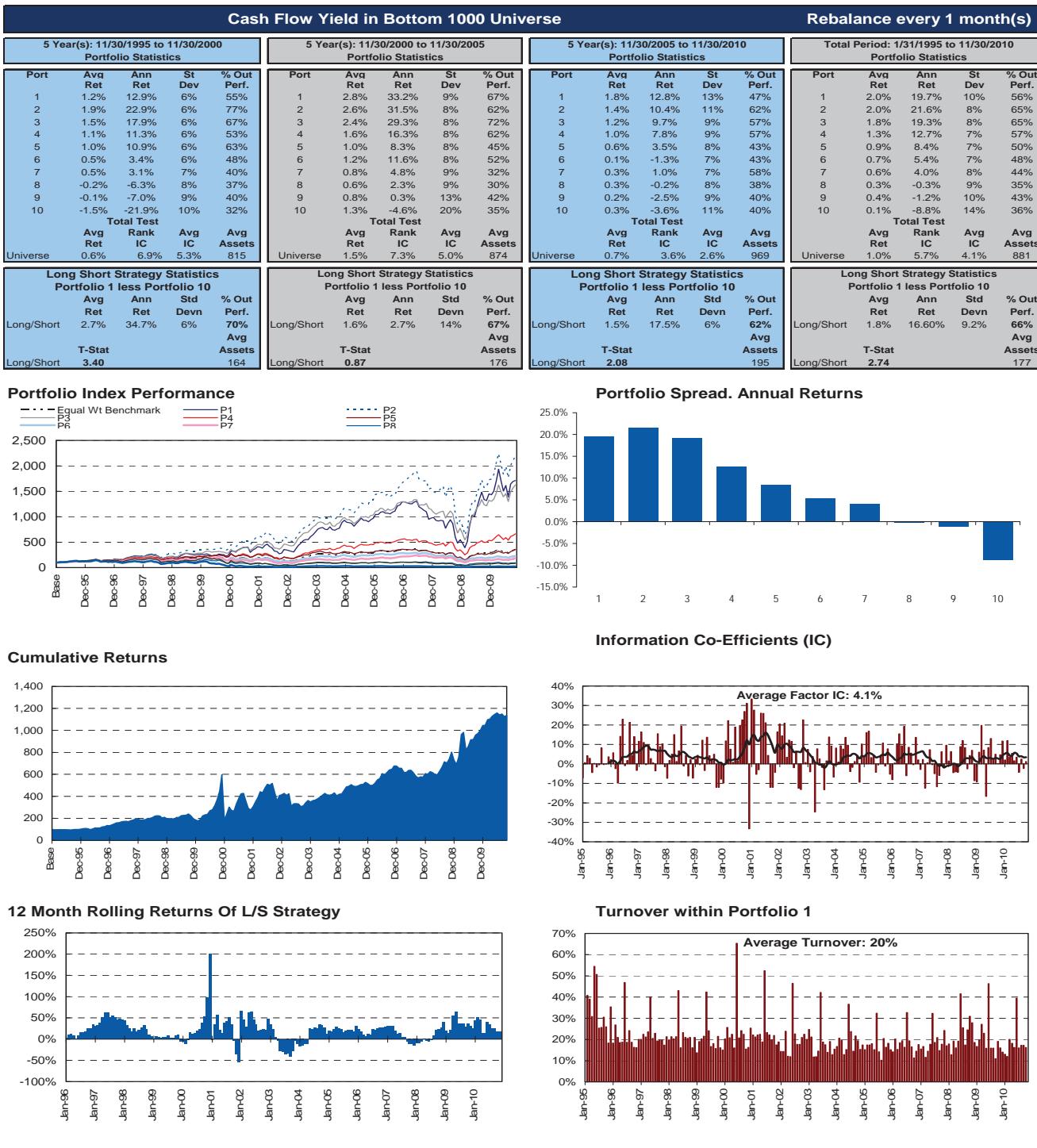


12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

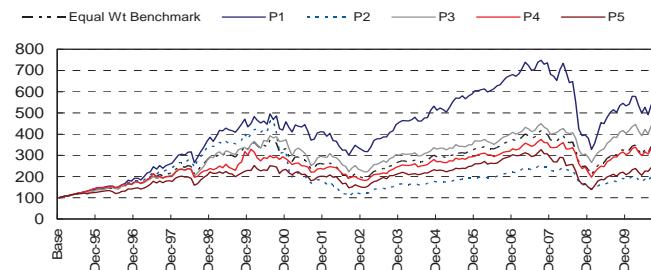




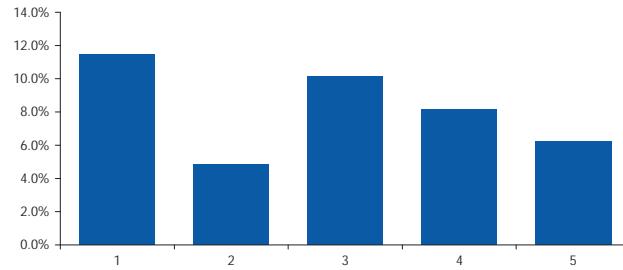
Free Cash Flow Yield

Free Cash Flow Yield in Top 200 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port				
1	2.1%	25.5%	6%	67%	1	0.6%	6.4%	5%	62%	1	0.1%	-0.7%	6%	45%	1	1.1%	11.5%	5%	58%
2	1.6%	17.8%	6%	58%	2	-0.5%	-9.1%	7%	43%	2	0.3%	2.0%	5%	47%	2	0.6%	4.8%	6%	51%
3	1.9%	23.3%	5%	62%	3	0.1%	-0.8%	5%	52%	3	0.6%	5.8%	5%	65%	3	0.9%	10.2%	5%	59%
4	1.3%	15.4%	5%	40%	4	0.1%	0.8%	4%	55%	4	0.4%	3.6%	5%	50%	4	0.8%	8.2%	5%	49%
5	1.1%	11.8%	5%	38%	5	0.3%	2.8%	4%	58%	5	0.3%	1.1%	6%	45%	5	0.6%	6.2%	5%	46%
Total Test				Total Test				Total Test				Total Test							
Universe	1.6%	3.6%	3.0%	162	Universe	0.1%	0.6%	-0.4%	179	Universe	0.3%	-0.1%	-0.3%	197	Universe	0.8%	1.5%	0.9%	178
Long Short Strategy Statistics																			
Portfolio 1 less Portfolio 5																			
Avg Ret	Ann Ret	Std Devn	% Out Perf.		Avg Ret	Ann Ret	Std Devn	% Out Perf.		Avg Ret	Ann Ret	Std Devn	% Out Perf.		Avg Ret	Ann Ret	Std Devn	% Out Perf.	
Long/Short	1.0%	12.1%	3%	63%	Long/Short	0.3%	3.1%	3%	50%	Long/Short	-0.1%	-2.3%	3%	45%	Long/Short	0.4%	4.58%	2.9%	54%
T-Stat					T-Stat					T-Stat					T-Stat				
Long/Short	2.75				Long/Short	0.82				Long/Short	-0.36				Long/Short	1.99			
Assets	66				Assets	72				Assets	79				Assets	72			

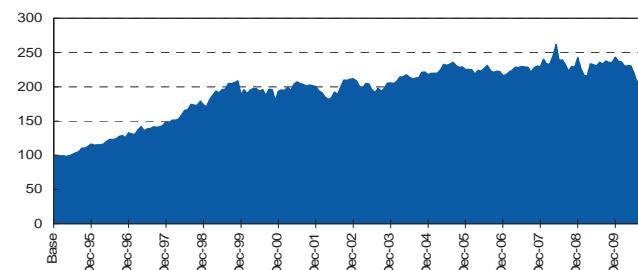
Portfolio Index Performance



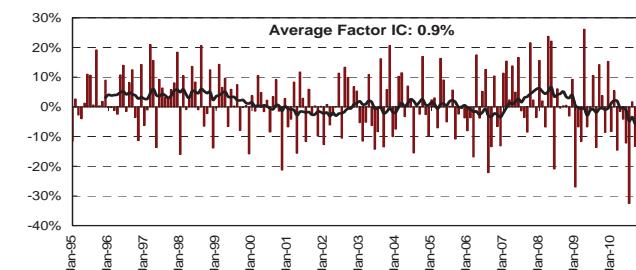
Portfolio Spread. Annual Returns



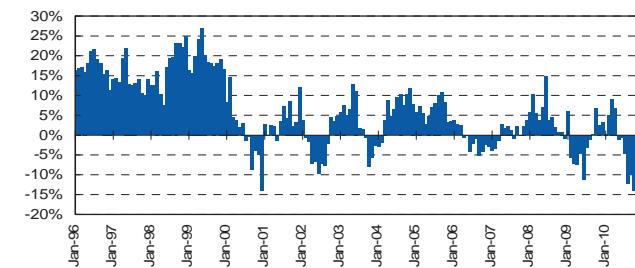
Cumulative Returns



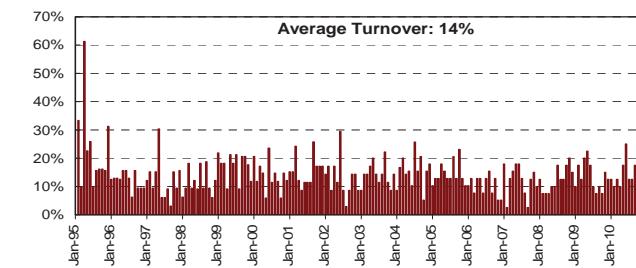
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

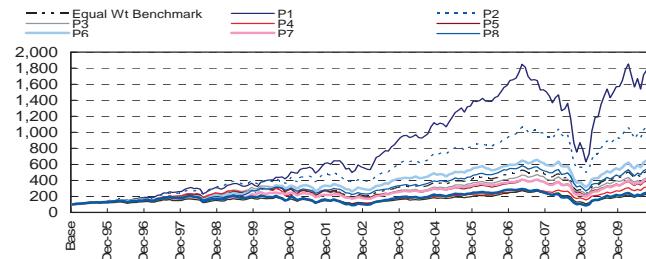


Turnover within Portfolio 1

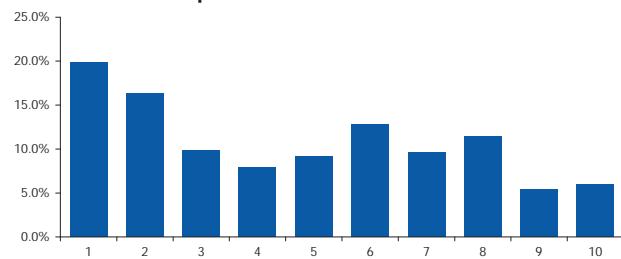


Free Cash Flow Yield in Top 1000 Universe							Rebalance every 1 month(s)												
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010				
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	2.0%	25.0%	6%	68%	1	2.1%	25.8%	5%	70%	1	0.9%	5.9%	9%	50%	1	1.8%	19.8%	7%	63%
2	1.7%	20.9%	5%	60%	2	1.5%	17.4%	6%	63%	2	0.7%	6.3%	7%	57%	2	1.4%	16.3%	6%	61%
3	1.3%	15.3%	6%	60%	3	0.7%	6.0%	7%	45%	3	0.6%	4.6%	6%	57%	3	1.0%	9.9%	6%	54%
4	0.9%	9.5%	6%	48%	4	0.4%	1.2%	7%	45%	4	0.9%	8.4%	6%	55%	4	0.8%	7.9%	6%	49%
5	1.3%	14.5%	5%	48%	5	0.5%	3.4%	7%	37%	5	0.6%	5.4%	6%	43%	5	0.9%	9.1%	6%	45%
6	1.6%	19.2%	5%	58%	6	1.1%	11.6%	5%	43%	6	0.6%	5.2%	6%	52%	6	1.2%	12.8%	6%	50%
7	1.1%	12.3%	5%	43%	7	0.7%	7.5%	5%	38%	7	0.7%	5.7%	6%	62%	7	0.9%	9.7%	5%	47%
8	1.3%	15.5%	5%	53%	8	0.9%	9.6%	4%	50%	8	0.6%	4.9%	6%	45%	8	1.1%	11.5%	5%	51%
9	0.5%	4.3%	6%	33%	9	0.6%	5.3%	5%	38%	9	0.5%	3.7%	7%	48%	9	0.6%	5.4%	6%	38%
10	0.5%	2.9%	7%	38%	10	1.1%	9.6%	9%	52%	10	0.5%	1.3%	10%	43%	10	0.8%	6.0%	8%	45%
Total Test					Total Test					Total Test					Total Test				
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	Avg Ret	Rank IC	Avg IC	Avg Assets	Universe
1.2%	3.9%	3.7%	759		1.0%	2.4%	1.5%	882		0.7%	0.7%	0.8%	963		1.0%	2.4%	2.0%	860	

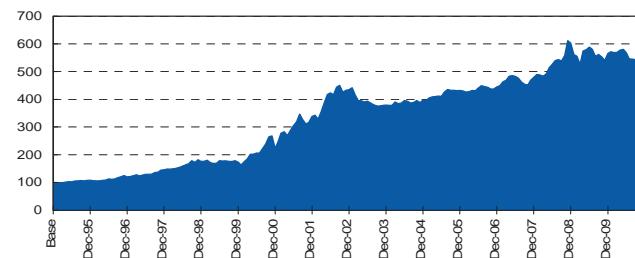
Portfolio Index Performance



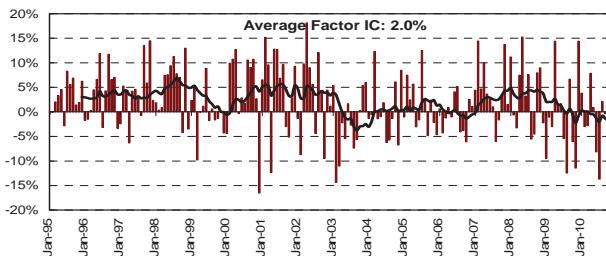
Portfolio Spread. Annual Returns



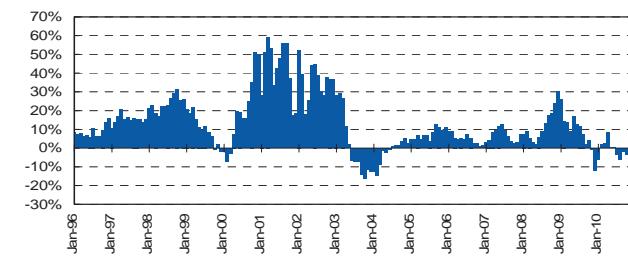
Cumulative Returns



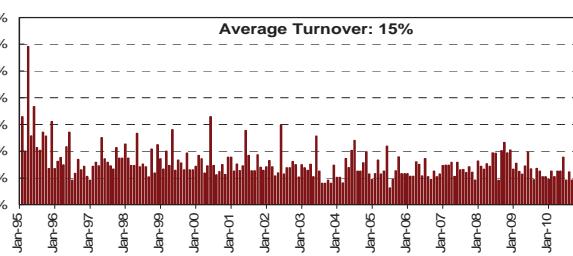
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

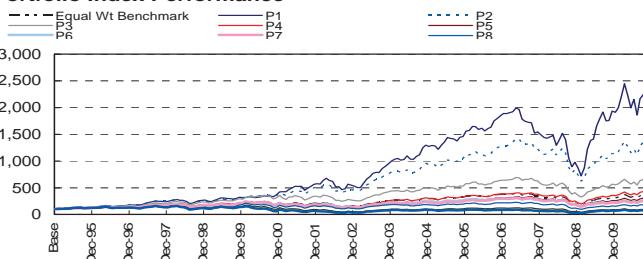


Turnover within Portfolio 1

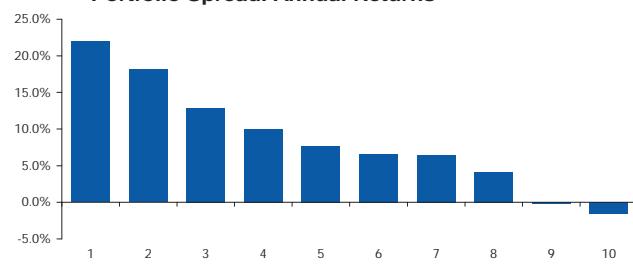


Free Cash Flow Yield in Bottom 2000 Universe										Rebalance every 1 month(s)													
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010								
Portfolio Statistics										Portfolio Statistics													
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.				
1	1.7%	20.1%	5%	67%	1	2.7%	34.1%	7%	72%	1	1.3%	9.9%	10%	53%	1	1.9%	21.9%	7%	65%				
2	1.7%	20.3%	6%	75%	2	2.1%	25.6%	6%	77%	2	0.8%	6.1%	7%	57%	2	1.6%	18.2%	6%	69%				
3	1.5%	17.8%	6%	72%	3	1.2%	12.8%	7%	62%	3	0.6%	5.1%	7%	53%	3	1.2%	12.9%	6%	63%				
4	0.8%	7.4%	6%	52%	4	1.2%	12.0%	7%	57%	4	0.8%	7.1%	7%	55%	4	1.0%	10.0%	7%	55%				
5	0.8%	7.0%	6%	50%	5	0.9%	8.0%	7%	42%	5	0.6%	4.5%	7%	55%	5	0.8%	7.7%	7%	49%				
6	0.8%	7.2%	7%	42%	6	0.9%	8.3%	6%	53%	6	0.3%	1.3%	7%	38%	6	0.7%	6.6%	6%	45%				
7	0.8%	7.8%	6%	47%	7	0.7%	7.1%	6%	40%	7	0.4%	2.1%	7%	47%	7	0.7%	6.4%	6%	44%				
8	0.5%	2.7%	7%	33%	8	0.9%	7.8%	8%	35%	8	0.2%	-0.4%	7%	37%	8	0.6%	4.1%	7%	34%				
9	0.0%	-3.6%	8%	32%	9	0.5%	1.0%	10%	33%	9	0.3%	-1.0%	9%	45%	9	0.4%	-0.2%	9%	36%				
10	-0.7%	-12.5%	9%	33%	10	1.4%	4.5%	15%	38%	10	0.6%	0.0%	11%	45%	10	0.5%	-1.5%	12%	39%				
Total Test					Total Test					Total Test					Total Test								
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	0.8%	5.8%	4.5%	1619	Universe	1.3%	5.7%	3.8%	1763	Universe	0.6%	2.7%	1.7%	1943	Universe	1.0%	4.8%	3.3%	1763
Long Short Strategy Statistics										Long Short Strategy Statistics													
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10								
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.					
2.4%	30.8%	5%	65%	Long/Short	1.3%	7.3%	11%	70%	Long/Short	0.7%	8.2%	3%	60%	Long/Short	1.4%	14.64%	7.0%	65%					
T-Stat				Long/Short	T-Stat				Long/Short	T-Stat				Long/Short	T-Stat								
				Long/Short	3.65				Long/Short	0.94				Long/Short	1.85								

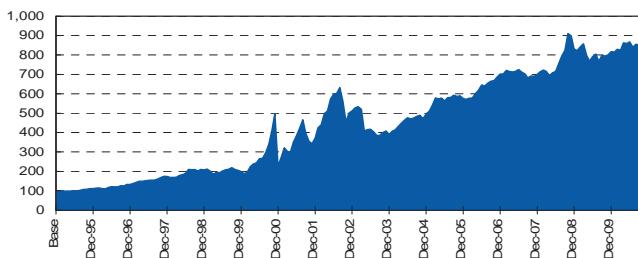
Portfolio Index Performance



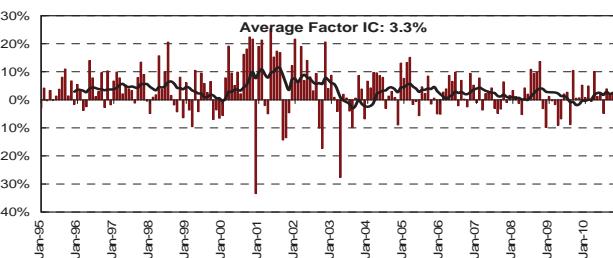
Portfolio Spread. Annual Returns



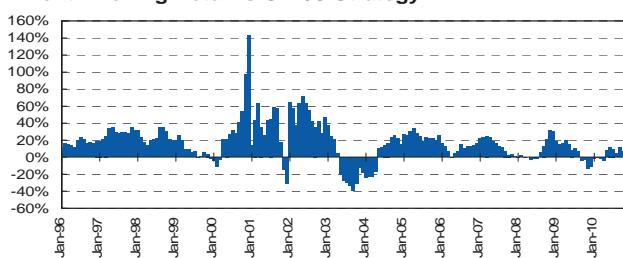
Cumulative Returns



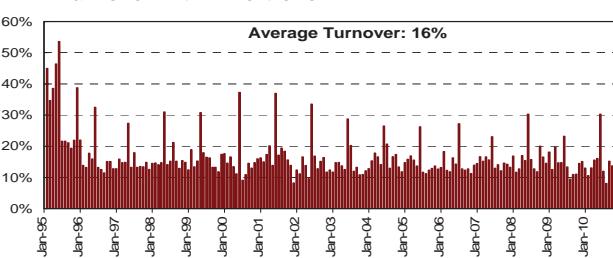
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

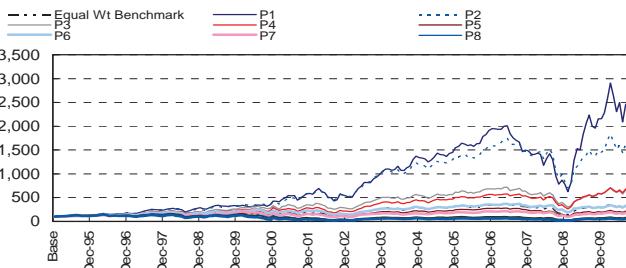


Turnover within Portfolio 1

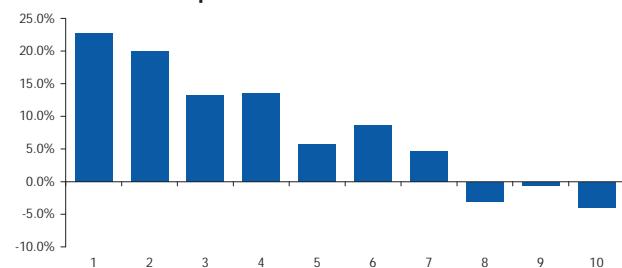


Free Cash Flow Yield in Bottom 1000 Universe							Rebalance every 1 month(s)												
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010				
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.7%	20.6%	6%	70%	1	2.8%	34.9%	8%	68%	1	1.7%	12.5%	12%	52%	1	2.1%	22.8%	9%	64%
2	1.7%	19.7%	6%	73%	2	2.5%	31.0%	7%	68%	2	1.0%	7.0%	9%	58%	2	1.8%	20.0%	7%	67%
3	1.4%	16.2%	6%	65%	3	1.5%	16.2%	8%	65%	3	0.7%	5.0%	8%	58%	3	1.3%	13.3%	7%	63%
4	1.0%	10.0%	6%	63%	4	1.7%	17.5%	8%	60%	4	1.1%	9.7%	8%	57%	4	1.3%	13.5%	7%	61%
5	0.5%	3.1%	6%	60%	5	1.1%	10.4%	8%	50%	5	0.4%	0.8%	8%	43%	5	0.7%	5.7%	7%	51%
6	1.0%	9.1%	7%	60%	6	1.2%	10.8%	8%	48%	6	0.6%	4.3%	7%	50%	6	1.0%	8.7%	7%	53%
7	0.4%	1.2%	8%	40%	7	1.1%	8.1%	10%	42%	7	0.5%	2.5%	8%	50%	7	0.7%	4.6%	8%	43%
8	-0.1%	-4.3%	7%	32%	8	0.1%	-4.4%	10%	20%	8	0.0%	-4.2%	9%	32%	8	0.1%	-3.1%	9%	28%
9	-0.5%	-10.2%	9%	33%	9	1.1%	4.1%	13%	43%	9	0.5%	0.4%	10%	48%	9	0.5%	-0.6%	10%	42%
10	-1.1%	-17.9%	10%	35%	10	1.9%	4.1%	19%	40%	10	0.7%	-0.5%	12%	45%	10	0.6%	-4.0%	14%	40%
Total Test					Total Test					Total Test					Total Test				
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	Avg Ret	Rank IC	Avg IC	Avg Assets	Universe
0.6%	7.0%	5.4%	815		1.5%	6.6%	4.1%	874		0.7%	3.2%	2.0%	969		1.0%	5.5%	3.8%	881	

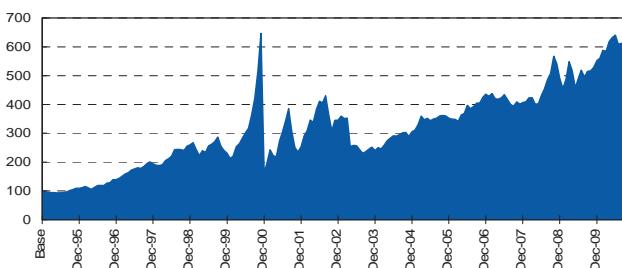
Portfolio Index Performance



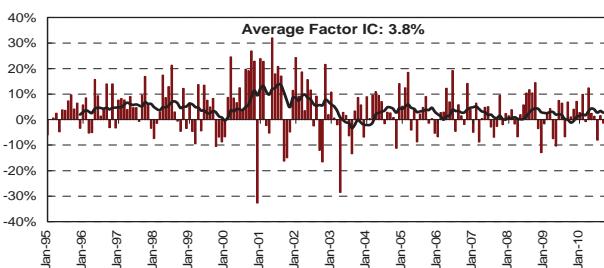
Portfolio Spread. Annual Returns



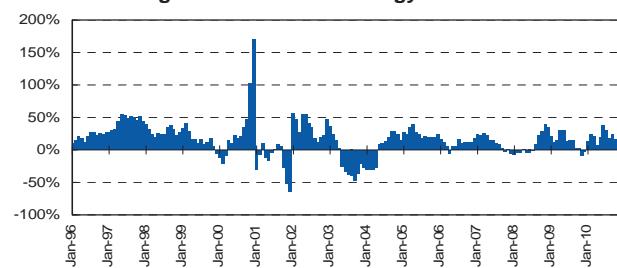
Cumulative Returns



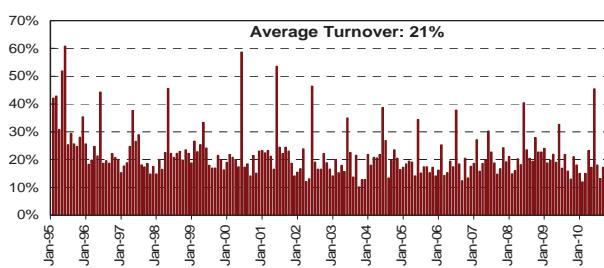
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



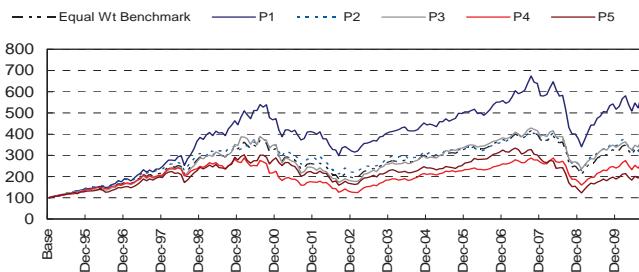
Turnover within Portfolio 1



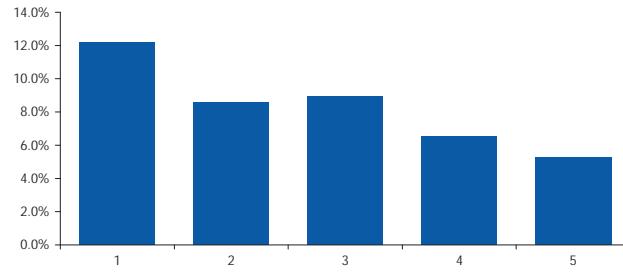
CFROIC

CFROIC in Top 200 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000 Portfolio Statistics				5 Year(s): 11/30/2000 to 11/30/2005 Portfolio Statistics				5 Year(s): 11/30/2005 to 11/30/2010 Portfolio Statistics				Total Period: 1/31/1995 to 11/30/2010 Portfolio Statistics							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	2.3%	28.6%	5%	63%	1	0.2%	0.9%	4%	43%	1	0.5%	4.4%	5%	53%	1	1.1%	12.2%	5%	53%
2	1.6%	19.4%	5%	52%	2	0.1%	-0.4%	4%	53%	2	0.3%	2.4%	5%	48%	2	0.8%	8.6%	5%	52%
3	1.7%	20.3%	5%	57%	3	0.1%	-0.2%	5%	52%	3	0.4%	3.1%	5%	47%	3	0.8%	8.9%	5%	53%
4	1.0%	10.9%	5%	40%	4	0.2%	0.9%	5%	60%	4	0.4%	3.8%	5%	57%	4	0.7%	6.5%	5%	51%
5	1.4%	15.5%	6%	43%	5	0.0%	-0.9%	5%	42%	5	0.0%	-1.9%	6%	47%	5	0.6%	5.3%	5%	44%
Total Test				Total Test				Total Test				Total Test				Total Test			
Avg Ret		Rank IC	Avg IC	Avg Assets	Avg Ret		Rank IC	Avg IC	Avg Assets	Avg Ret		Rank IC	Avg IC	Avg Assets	Avg Ret		Rank IC	Avg IC	Avg Assets
Universe	1.6%	3.3%	3.1%	162	Universe	0.1%	0.0%	0.0%	179	Universe	0.3%	1.4%	1.3%	197	Universe	0.8%	1.7%	1.5%	178
Long Short Strategy Statistics																			
Portfolio 1 less Portfolio 5																			
Avg Ret		Ann Ret	Std Devn	% Out Perf.	Avg Ret		Ann Ret	Std Devn	% Out Perf.	Avg Ret		Ann Ret	Std Devn	% Out Perf.	Avg Ret		Ann Ret	Std Devn	% Out Perf.
Long/Short	0.9%	10.9%	3%	57%	Long/Short	0.1%	1.0%	3%	45%	Long/Short	0.5%	5.3%	3%	57%	Long/Short	0.5%	5.82%	2.7%	53%
T-Stat				T-Stat				T-Stat				T-Stat				T-Stat			
Long/Short	2.48		66		Long/Short	0.33		72		Long/Short	1.36		79		Long/Short	2.57		72	

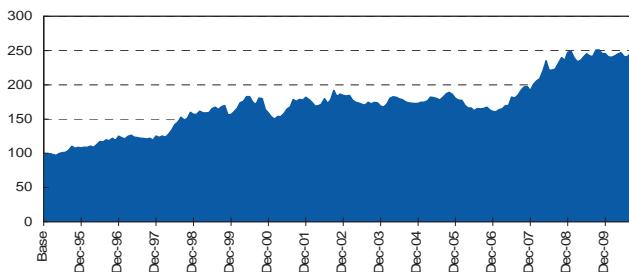
Portfolio Index Performance



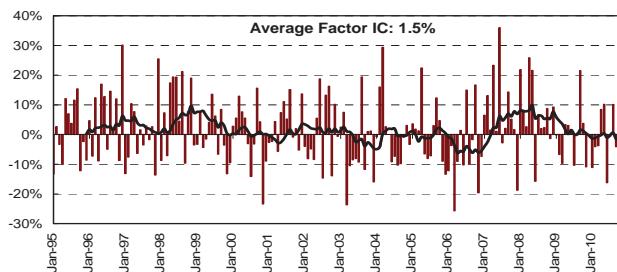
Portfolio Spread. Annual Returns



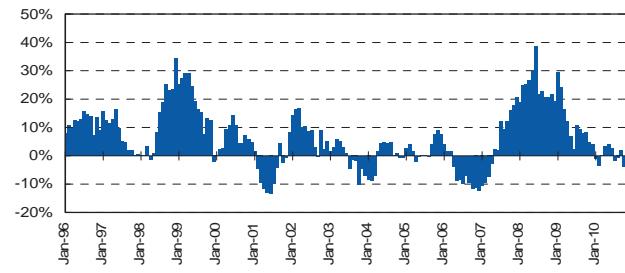
Cumulative Returns



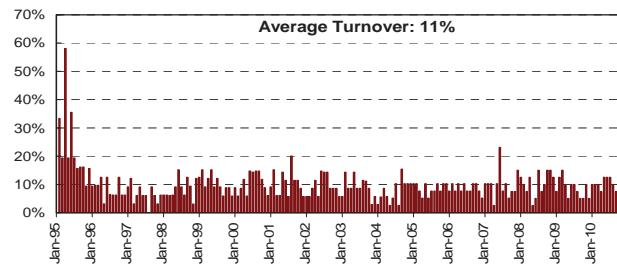
Information Co-Efficients (IC)

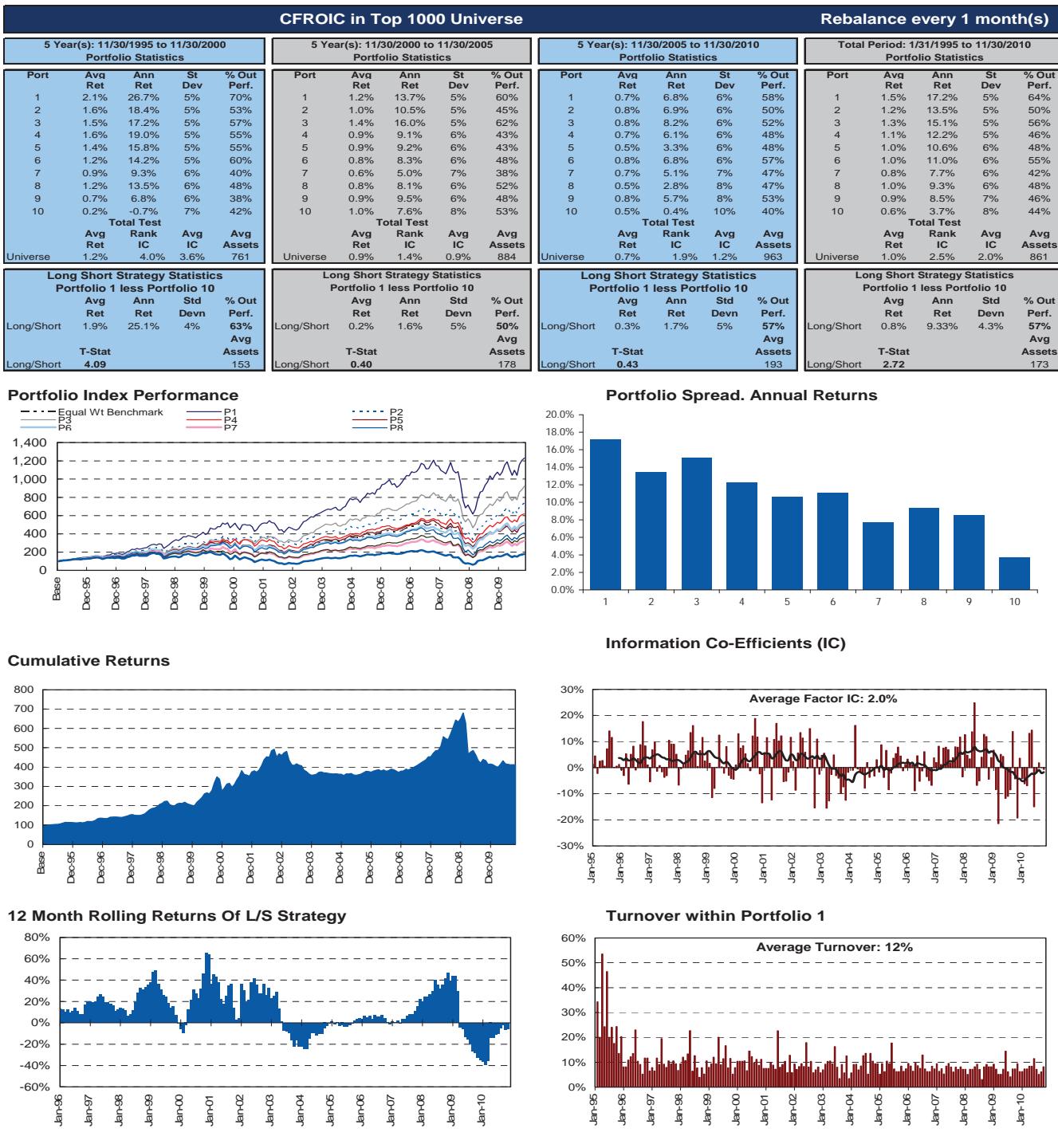


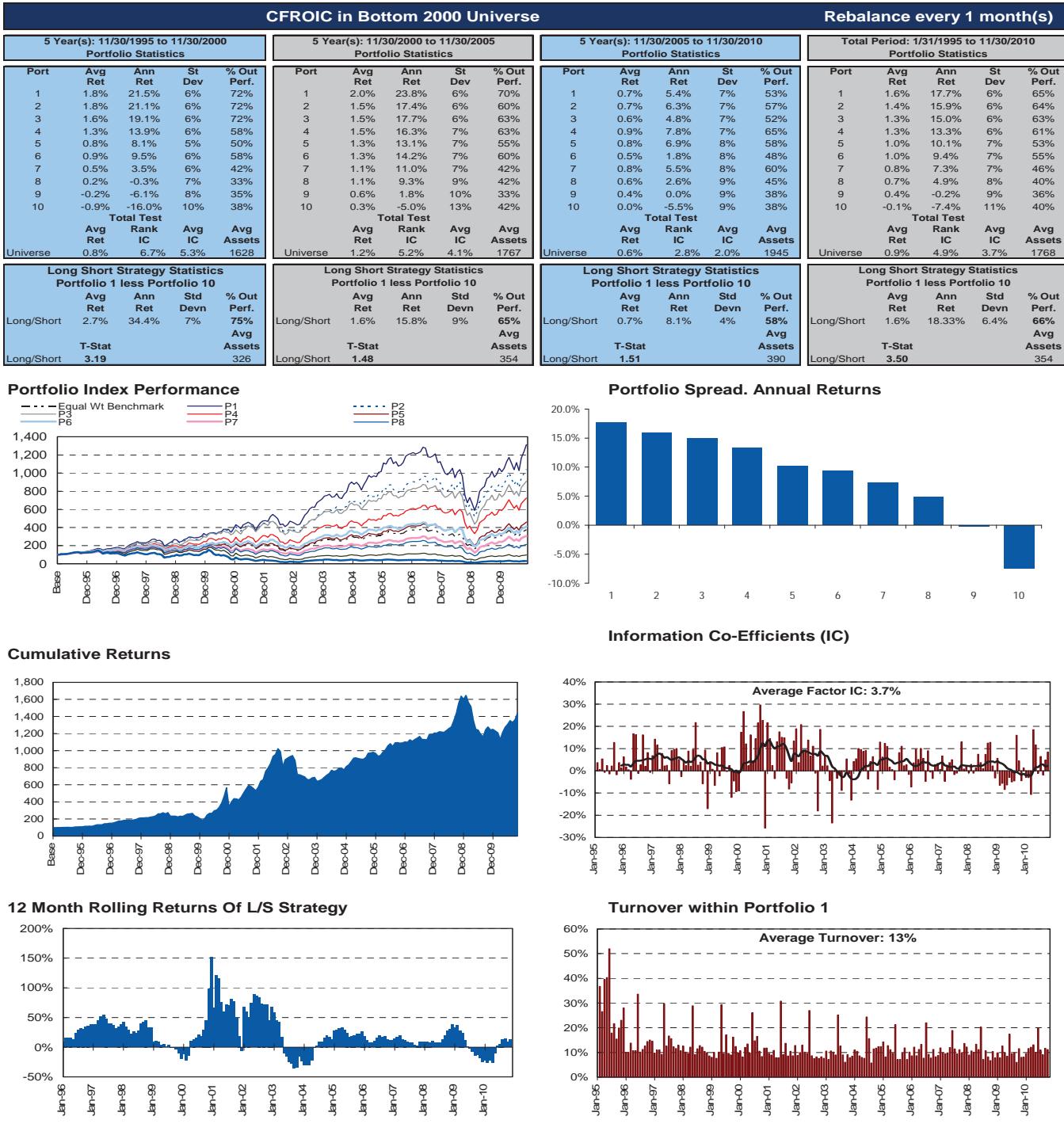
12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1







CFROIIC in Bottom 1000 Universe

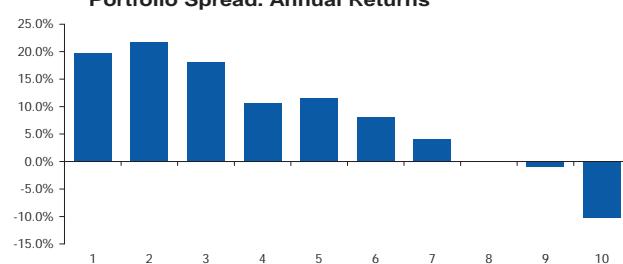
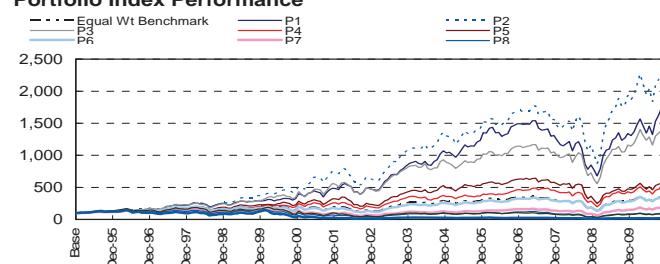
5 Year(s): 11/30/1995 to 11/30/2000					
Portfolio Statistics					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	
1	1.7%	19.5%	6%	70%	
2	2.1%	26.4%	6%	80%	
3	1.7%	20.0%	6%	70%	
4	1.0%	9.8%	6%	48%	
5	1.1%	11.9%	6%	60%	
6	0.4%	2.4%	7%	45%	
7	-0.2%	-4.9%	7%	32%	
8	-0.5%	-9.0%	8%	30%	
9	-0.3%	-7.6%	9%	42%	
10	1.2%	19.6%	11%	37%	
Total Test					
	Avg Ret	Rank	Avg IC	Avg IC Assets	
U Universe	0.6%	8,000	5,600	815	

5 Year(s): 11/30/2000 to 11/30/2005					
Portfolio Statistics					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	
1	2.6%	31.8%	7%	72%	
2	2.3%	27.4%	7%	63%	
3	2.1%	23.7%	8%	67%	
4	1.5%	14.8%	8%	50%	
5	1.9%	19.8%	9%	63%	
6	1.5%	14.5%	10%	53%	
7	1.1%	7.0%	10%	42%	
8	1.1%	4.9%	12%	45%	
9	0.9%	1.1%	14%	33%	
10	0.2%	8.6%	15%	37%	
Total Test					
Avg Ret		Rank	Avg IC	Avg IC	Avg Assets
Universe		6.0%	5.2%	874	

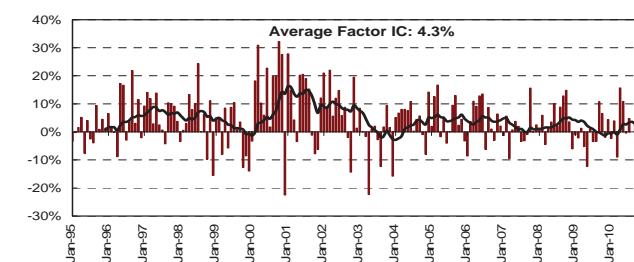
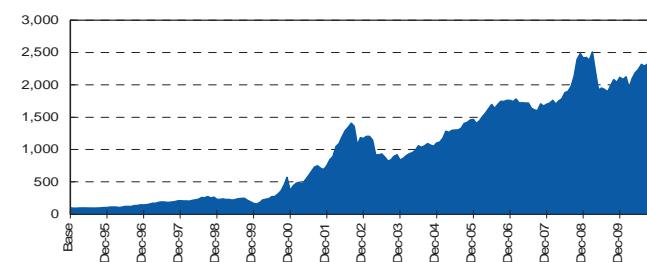
5 Year(s): 11/30/2005 to 11/30/2010 Portfolio Statistics					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	
1	0.9%	7.7%	8%	57%	
2	1.1%	10.0%	8%	62%	
3	1.0%	8.3%	8%	58%	
4	0.9%	6.3%	9%	58%	
5	0.5%	1.2%	9%	48%	
6	0.9%	5.5%	9%	57%	
7	1.1%	8.3%	9%	63%	
8	0.6%	1.3%	11%	47%	
9	0.3%	-1.9%	10%	37%	
10	-0.1%	-7.1%	10%	40%	
	Total Test				
Universe	Avg Ret	Rank	Avg IC	Avg IC	Avg Assets
	0.7%	3.3%	2.5%	969	

Rebalance every 1 month(s)					
Total Period: 1/31/1995 to 11/30/2010					
Portfolio Statistics					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	
1	1.8%	19.8%	7%	66%	
2	1.9%	21.8%	7%	68%	
3	1.7%	18.1%	7%	65%	
4	1.1%	10.7%	8%	51%	
5	1.2%	11.6%	8%	57%	
6	1.0%	8.2%	8%	51%	
7	0.7%	4.1%	9%	45%	
8	0.5%	-0.1%	10%	40%	
9	0.5%	-1.0%	11%	39%	
10	-0.2%	-10.2%	12%	38%	
Total Test					
	Avg Ret	Rank	Avg IC	Avg IC	Avg Assets
Universe	1.0%	5.9%	4.3%		881

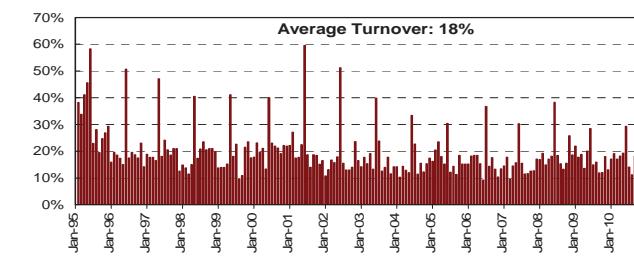
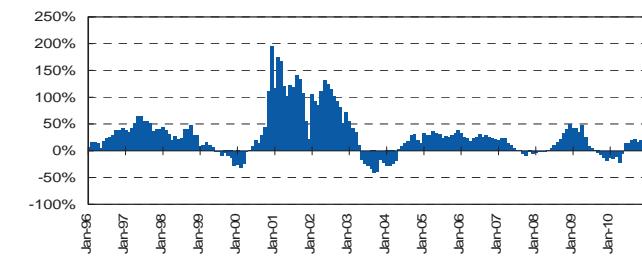
Portfolio Index Performance



Cumulative Returns



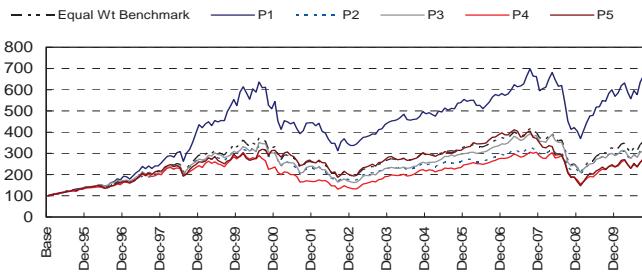
12 Month Rolling Returns Of L/S Strategy



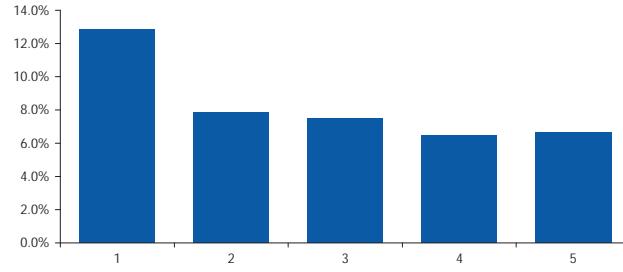
Cash Flow to Total Assets

Cash Flow to Total Assets in Top 200 Universe								Rebalance every 1 month(s)																
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010												
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics										
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.					
1	2.5%	31.5%	6%	60%	1	0.2%	0.4%	5%	47%	1	0.5%	4.8%	5%	63%	1	1.2%	12.9%	5%	56%					
2	1.4%	16.1%	5%	40%	2	0.0%	-1.7%	5%	40%	2	0.5%	4.9%	5%	50%	2	0.7%	7.8%	5%	43%					
3	1.5%	18.4%	5%	58%	3	0.0%	-0.9%	5%	43%	3	0.2%	1.4%	5%	48%	3	0.7%	7.5%	5%	51%					
4	1.1%	11.7%	5%	32%	4	0.2%	0.5%	5%	53%	4	0.4%	3.2%	5%	48%	4	0.6%	6.5%	5%	44%					
5	1.5%	17.0%	5%	52%	5	0.3%	1.8%	5%	42%	5	0.0%	-2.5%	6%	43%	5	0.7%	6.6%	5%	46%					
Total Test				Total Test				Total Test				Total Test				Total Test								
Avg Ret		Rank IC		Avg IC		Avg Ret		Rank IC		Avg IC		Avg Ret		Rank IC		Avg IC		Avg Assets						
Universe	1.6%	3.0%	3.5%	162	Universe	0.1%	-0.4%	-0.3%	179	Universe	0.3%	2.3%	1.9%	197	Universe	0.8%	1.6%	1.6%	178					
Long Short Strategy Statistics								Long Short Strategy Statistics								Long Short Strategy Statistics								
Portfolio 1 less Portfolio 5				Portfolio 1 less Portfolio 5				Portfolio 1 less Portfolio 5				Portfolio 1 less Portfolio 5				Portfolio 1 less Portfolio 5				Portfolio 1 less Portfolio 5				
Avg Ret		Ann Ret		Std Devn		% Out Perf.		Avg Ret		Ann Ret		Std Devn		% Out Perf.		Avg Ret		Ann Ret		Std Devn		% Out Perf.		
Long/Short	1.0%	12.1%	4%	55%	Long/Short	-0.1%	-1.9%	3%	47%	Long/Short	0.5%	6.2%	3%	62%	Long/Short	0.5%	5.12%	3.4%	54%	Long/Short	1.39	72	79	
T-Stat		Assets		T-Stat		Assets		T-Stat		Assets		T-Stat		Assets		T-Stat		Assets		T-Stat		Assets		
Long/Short	2.06	66	Long/Short	-0.23	Long/Short	72	Long/Short	1.39	Long/Short	79	Long/Short	1.92	Long/Short	72	Long/Short	1.92	Long/Short	72	Long/Short	1.92	Long/Short	72	Long/Short	72

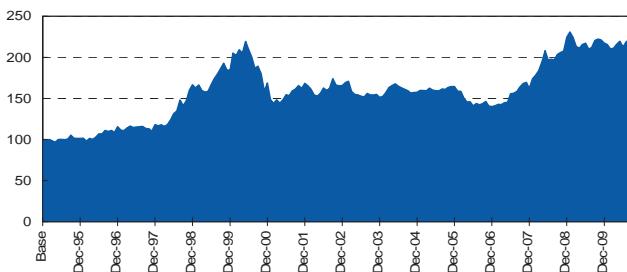
Portfolio Index Performance



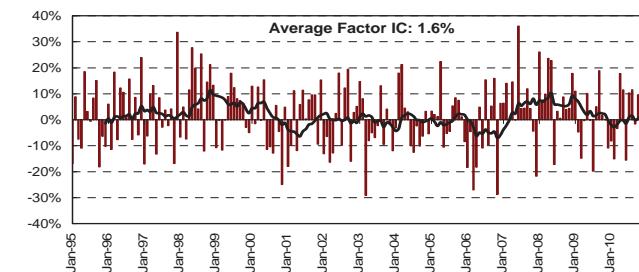
Portfolio Spread. Annual Returns



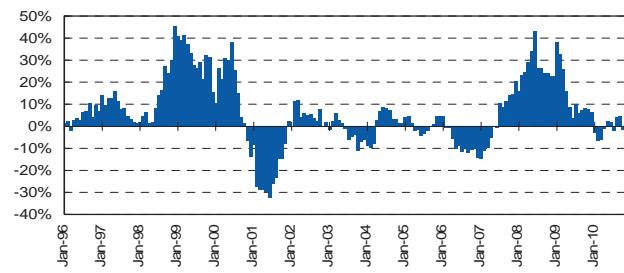
Cumulative Returns



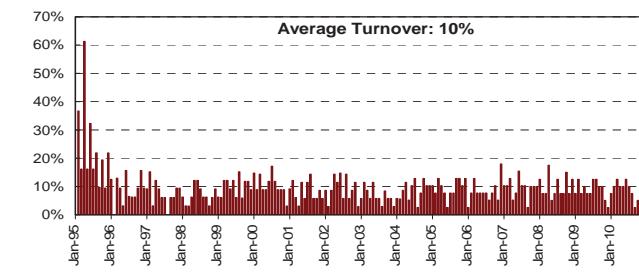
Information Co-Efficients (IC)

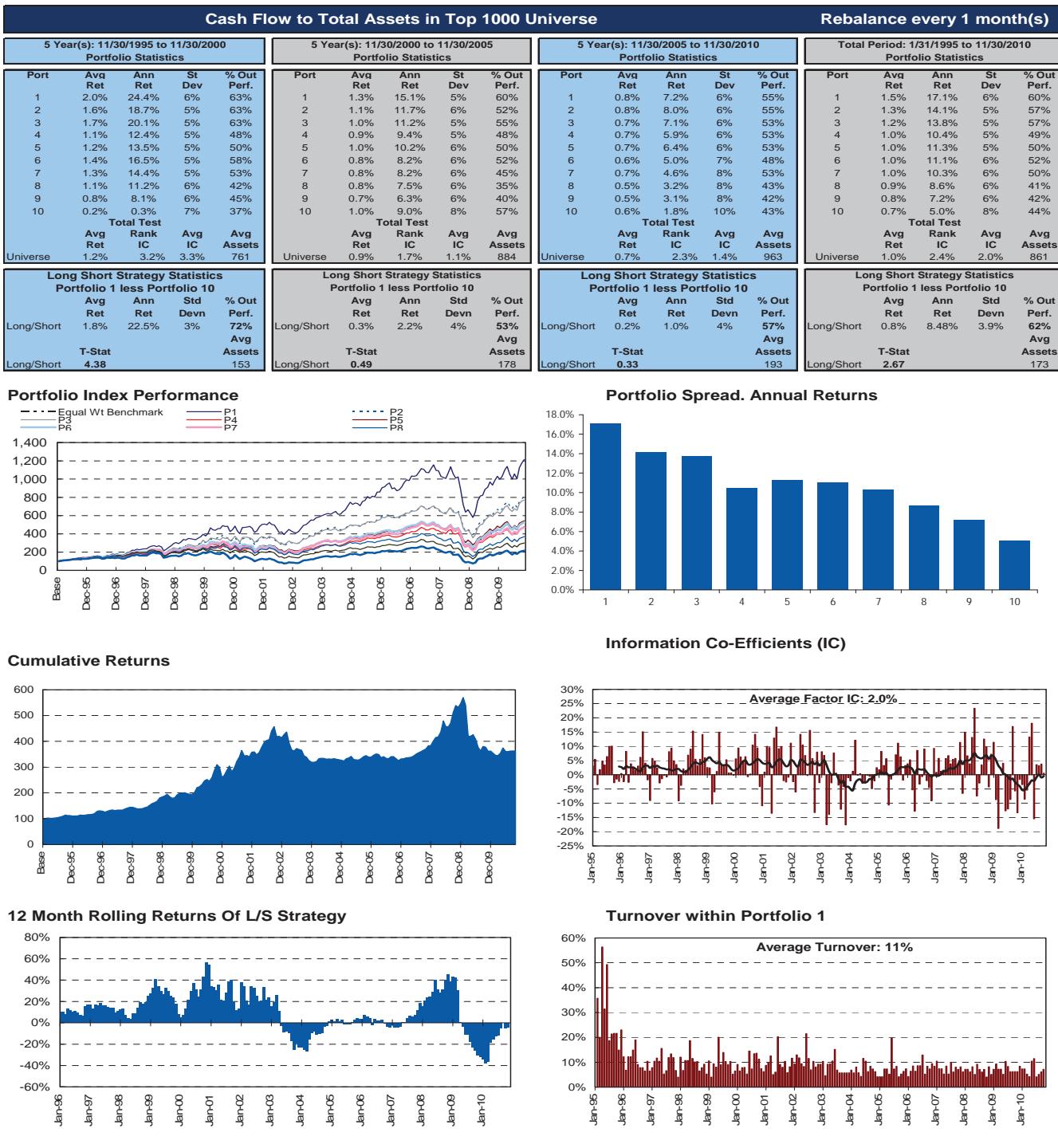


12 Month Rolling Returns Of L/S Strategy



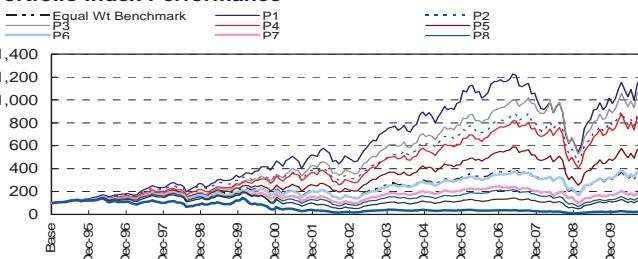
Turnover within Portfolio 1



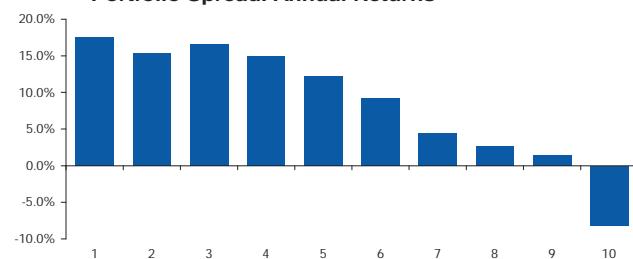


Cash Flow to Total Assets in Bottom 2000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	2.0%	23.8%	6%	73%	1	1.7%	20.2%	6%	62%	1	0.7%	5.7%	7%	52%	1	1.5%	17.5%	6%	62%
2	1.5%	17.9%	6%	73%	2	1.6%	18.3%	6%	58%	2	0.8%	6.7%	7%	60%	2	1.4%	15.3%	6%	64%
3	1.6%	18.6%	6%	62%	3	1.8%	21.6%	6%	63%	3	0.9%	7.9%	7%	57%	3	1.5%	16.6%	6%	61%
4	1.4%	16.3%	5%	62%	4	1.6%	17.7%	6%	63%	4	0.9%	8.3%	7%	68%	4	1.4%	15.0%	6%	64%
5	1.1%	11.6%	6%	55%	5	1.5%	16.0%	7%	60%	5	0.9%	7.5%	8%	67%	5	1.2%	12.2%	7%	59%
6	0.8%	7.4%	6%	52%	6	1.2%	12.1%	7%	53%	6	0.8%	6.0%	8%	57%	6	1.0%	9.2%	7%	52%
7	0.4%	2.4%	6%	43%	7	1.0%	8.2%	8%	42%	7	0.2%	-1.0%	8%	37%	7	0.6%	4.4%	7%	41%
8	0.0%	-3.1%	7%	32%	8	1.1%	9.1%	9%	42%	8	0.2%	-1.9%	8%	35%	8	0.5%	2.6%	8%	36%
9	0.1%	-3.2%	8%	43%	9	0.7%	2.4%	10%	35%	9	0.6%	1.8%	9%	50%	9	0.5%	1.4%	9%	43%
10	-1.0%	-17.2%	10%	35%	10	0.3%	-6.0%	13%	35%	10	0.0%	-5.5%	9%	38%	10	-0.1%	-8.2%	11%	37%
Total Test				Total Test				Total Test				Total Test							
Avg Ret	0.8%	6.9%	5.6%	1628	Avg Ret	1.2%	5.7%	4.2%	1767	Avg Ret	0.6%	3.6%	2.5%	1945	Avg Ret	0.9%	5.4%	4.0%	1768
Universe				Universe				Universe				Universe							
Long Short Strategy Statistics								Long Short Strategy Statistics											
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Long/Short	Avg Ret	3.0%	38.4%	7%	Long/Short	Avg Ret	1.5%	12.4%	9%	Long/Short	Avg Ret	0.8%	8.9%	3%	Long/Short	Avg Ret	1.7%	18.80%	6.7%
T-Stat	IC	3.36	326	Devn	T-Stat	IC	1.24	354	Devn	T-Stat	IC	1.80	390	Assets	Devn	IC	3.48	354	Assets
P1								P2											
P3								P4											
P5								P6											
P7								P8											

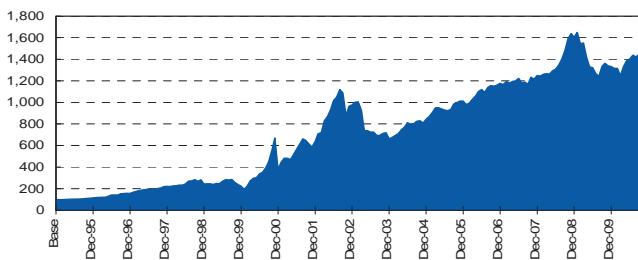
Portfolio Index Performance



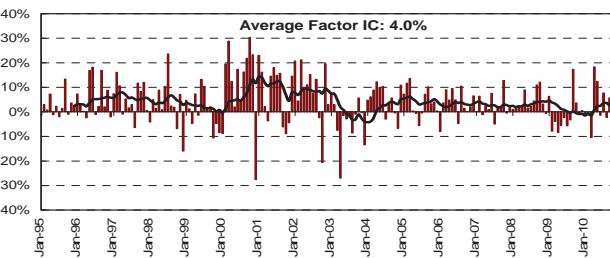
Portfolio Spread. Annual Returns



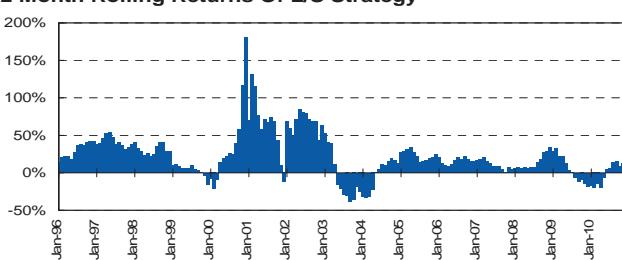
Cumulative Returns



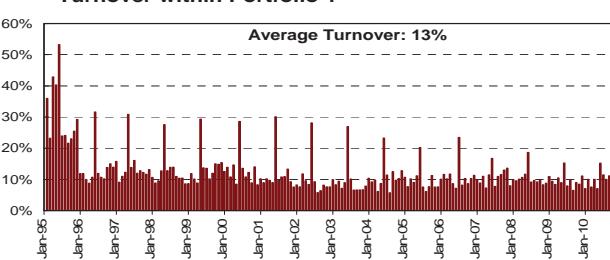
Information Co-Efficients (IC)

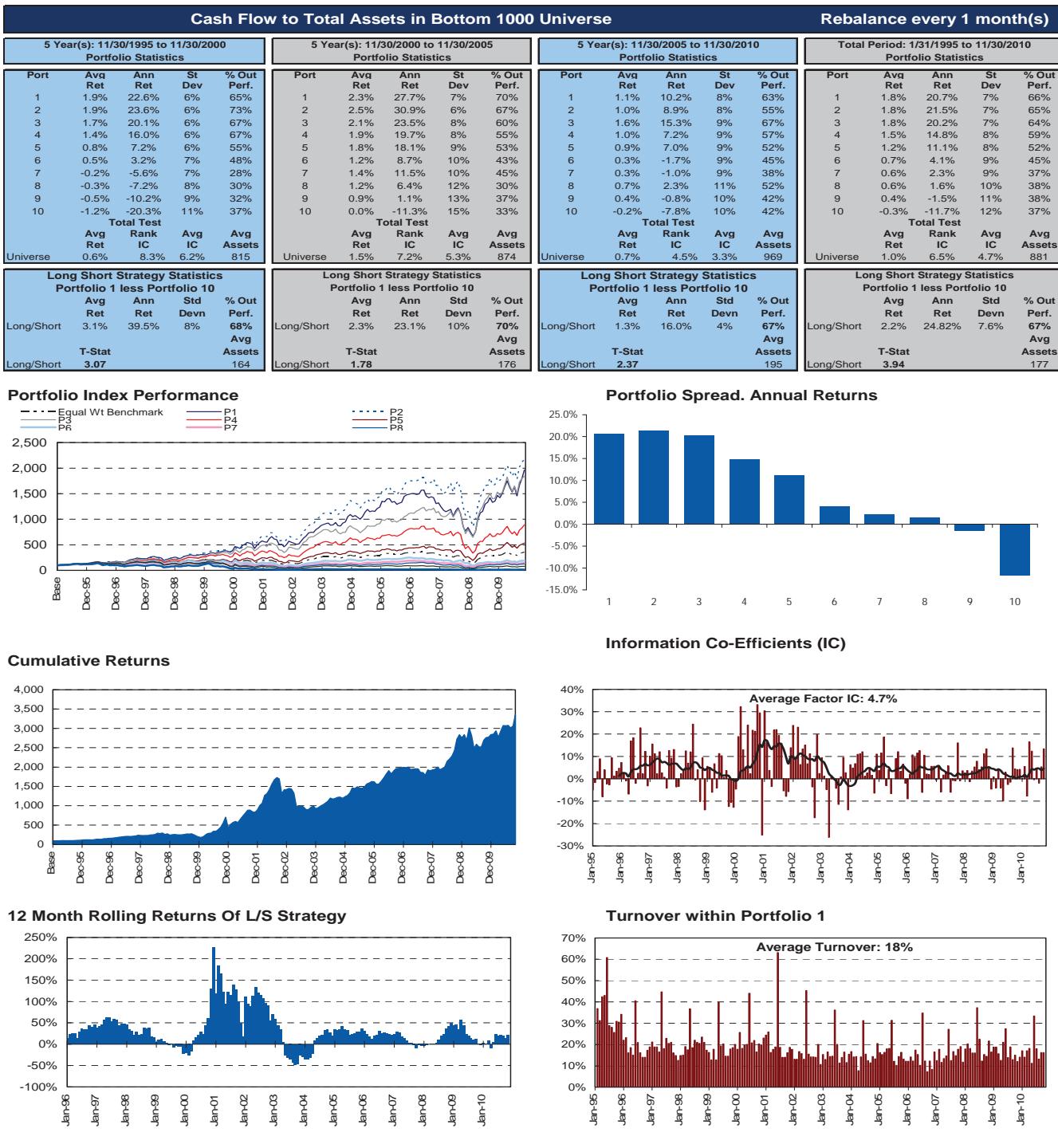


12 Month Rolling Returns Of L/S Strategy

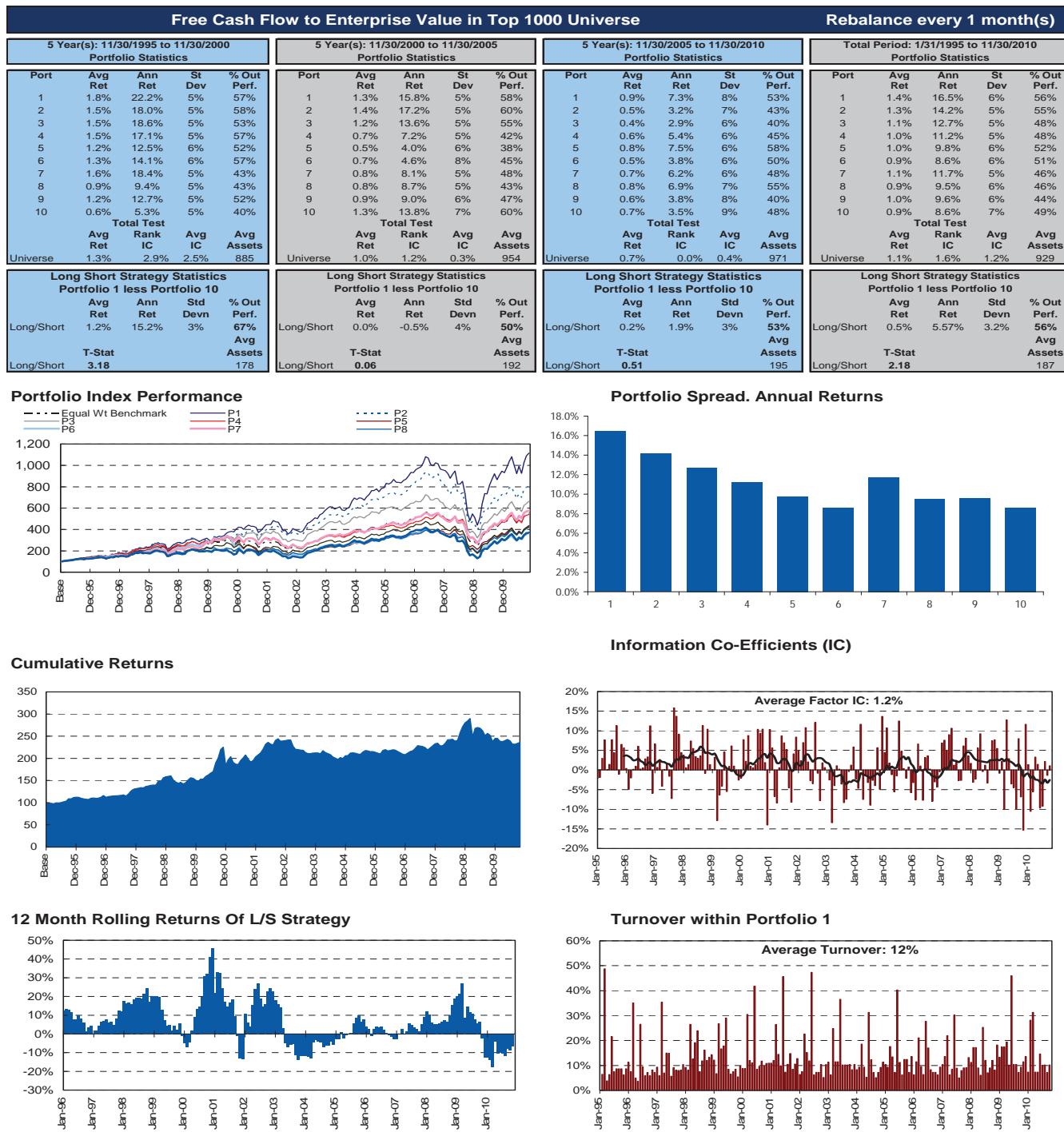


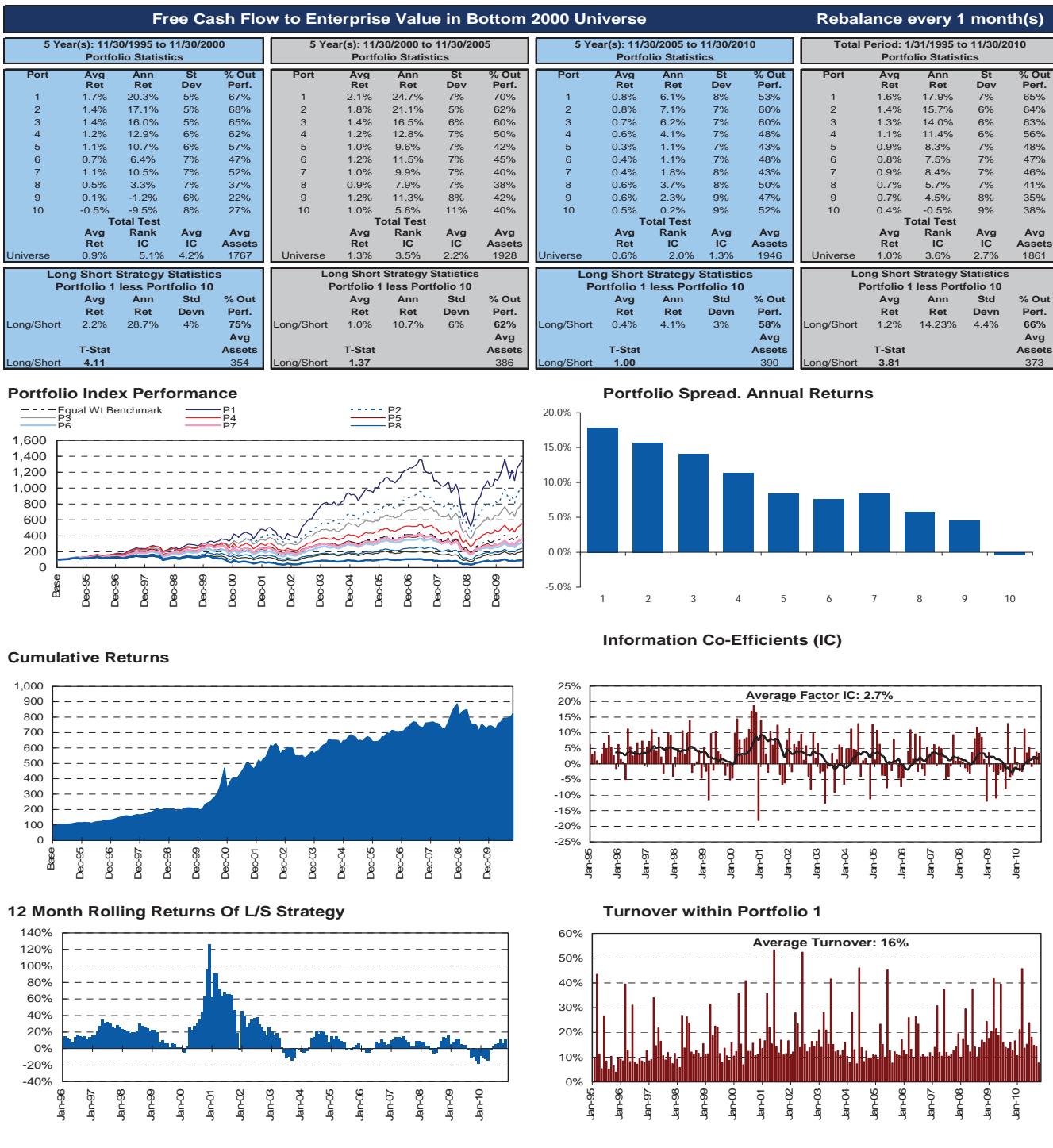
Turnover within Portfolio 1





Free Cash Flow to Enterprise Value

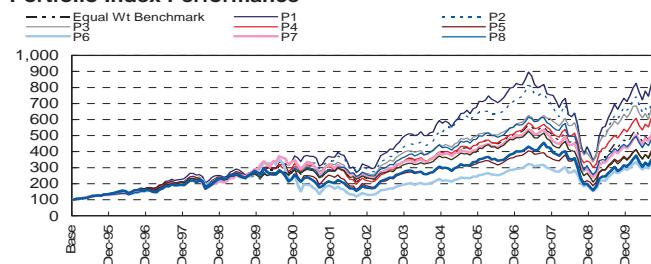




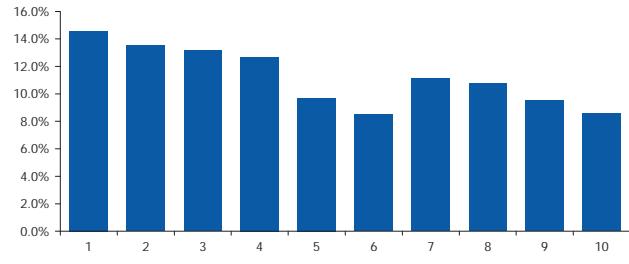
EBITDA to Enterprise Value

EBITDA to Enterprise Value in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010											
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics											
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.					
1	1.6%	19.2%	5%	52%	1	1.4%	16.0%	6%	62%	1	0.7%	5.3%	8%	47%					
2	1.4%	16.0%	5%	53%	2	1.5%	18.2%	5%	63%	2	0.6%	3.8%	7%	53%					
3	1.2%	13.1%	5%	47%	3	1.2%	14.3%	5%	57%	3	0.8%	7.6%	6%	60%					
4	1.3%	15.9%	5%	55%	4	0.9%	9.7%	6%	48%	4	0.9%	8.7%	6%	63%					
5	1.2%	13.9%	6%	48%	5	0.6%	4.0%	7%	32%	5	0.8%	6.4%	7%	60%					
6	1.1%	11.6%	6%	50%	6	0.5%	1.5%	8%	42%	6	0.9%	8.3%	7%	58%					
7	1.6%	19.6%	5%	45%	7	0.6%	5.3%	5%	38%	7	0.7%	5.5%	7%	53%					
8	1.3%	14.7%	5%	50%	8	1.1%	13.1%	5%	57%	8	0.3%	1.2%	7%	38%					
9	1.2%	13.8%	5%	50%	9	0.8%	9.3%	4%	43%	9	0.3%	1.4%	7%	42%					
10	1.0%	10.0%	6%	48%	10	0.9%	9.4%	6%	47%	10	0.5%	1.9%	8%	50%					
Total Test				Total Test				Total Test				Total Test							
Avg Ret	1.3%	0.1%	1.1%	906	Avg Ret	1.0%	1.9%	1.6%	961	Avg Ret	0.6%	1.1%	0.3%	973	Avg Ret	1.1%	1.0%	0.9%	941
Universe				Universe				Universe				Universe							
Long Short Strategy Statistics								Long Short Strategy Statistics				Long Short Strategy Statistics							
Portfolio 1 less Portfolio 10								Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg Ret				Avg Ret				Avg Ret				Avg Ret							
Long/Short	0.6%	6.7%	4%	50%	Long/Short	0.5%	5.7%	2%	58%	Long/Short	0.3%	2.6%	3%	47%	Long/Short	0.4%	4.67%	2.8%	52%
Avg Assets				Avg Assets				Avg Assets				Avg Assets							
T-Stat	1.30				T-Stat	1.83				T-Stat	0.71				T-Stat	2.05			
Long/Short				Long/Short				Long/Short				Long/Short							
P1								P2				P3							
P4								P5				P6							
P7								P8											

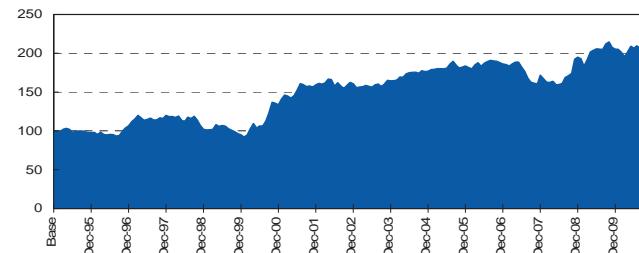
Portfolio Index Performance



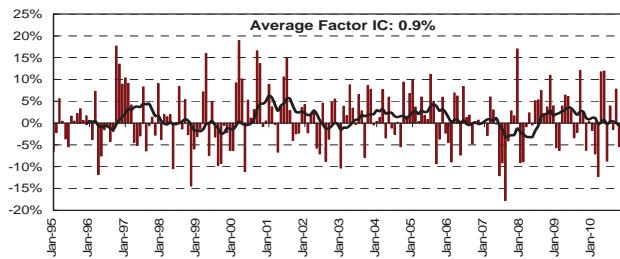
Portfolio Spread. Annual Returns



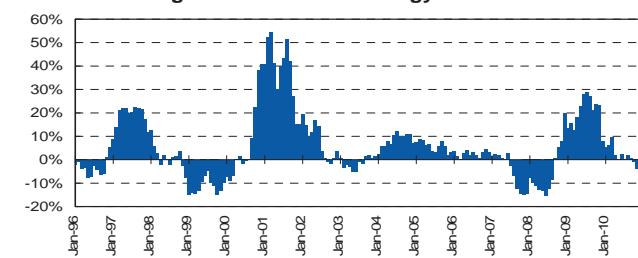
Cumulative Returns



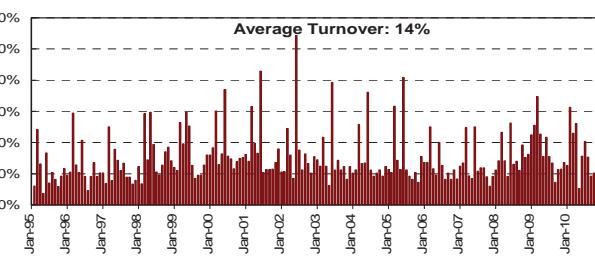
Information Co-Efficients (IC)

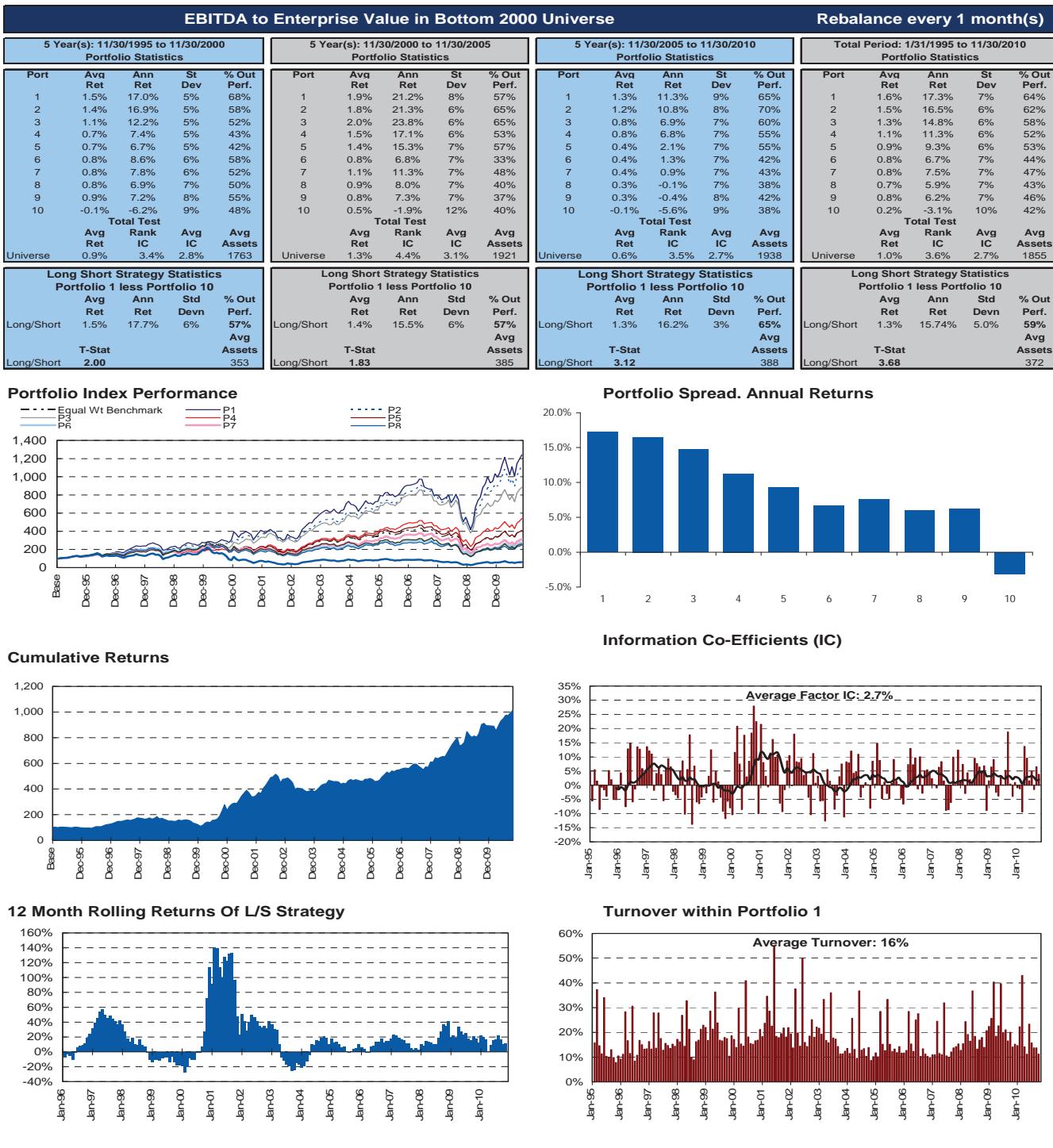


12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

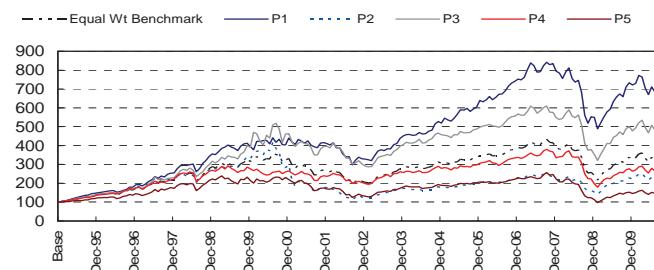




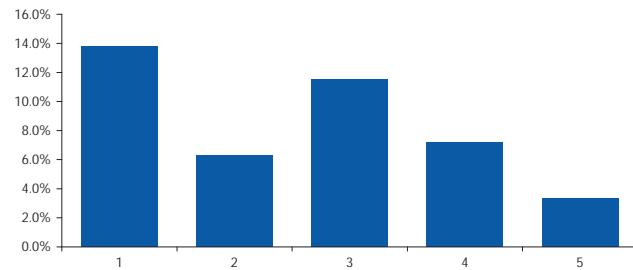
Earnings Yield

Earnings Yield in Top 200 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.8%	23.1%	5%	58%	1	0.7%	8.0%	4%	55%	1	0.6%	5.4%	5%	58%	1	1.2%	13.8%	5%	58%
2	1.4%	16.1%	6%	48%	2	-0.3%	-7.0%	7%	47%	2	0.6%	5.8%	5%	55%	2	0.7%	6.3%	6%	51%
3	2.1%	25.5%	6%	63%	3	0.3%	3.0%	4%	55%	3	0.4%	3.0%	5%	52%	3	1.1%	11.5%	5%	57%
4	1.2%	14.4%	5%	45%	4	0.4%	3.4%	4%	48%	4	0.2%	0.3%	6%	42%	4	0.7%	7.2%	5%	45%
5	1.2%	13.2%	6%	42%	5	0.0%	-1.6%	5%	48%	5	-0.1%	-3.6%	6%	37%	5	0.4%	3.3%	5%	41%
Total Test				Total Test				Total Test				Total Test				Total Test			
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets
Universe	1.6%	2.8%	2.3%	195	Universe	0.2%	2.8%	2.6%	199	Universe	0.3%	3.4%	4.6%	200	Universe	0.8%	3.4%	3.5%	198

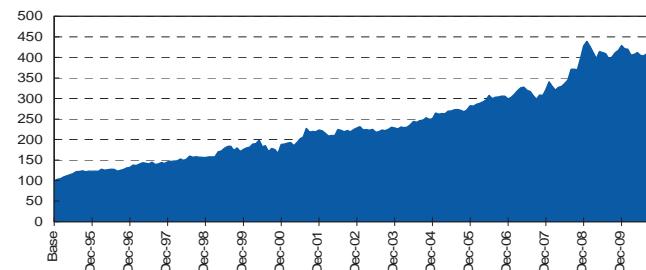
Portfolio Index Performance



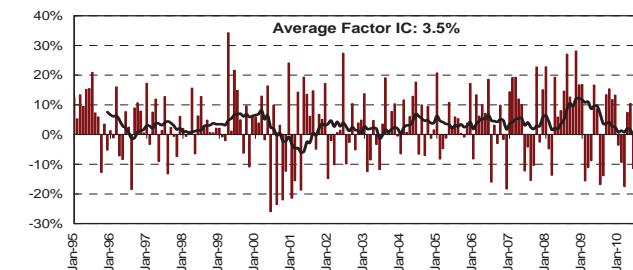
Portfolio Spread. Annual Returns



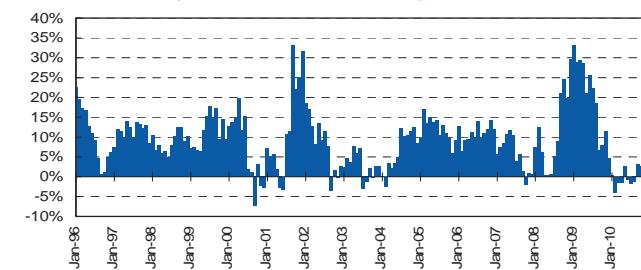
Cumulative Returns



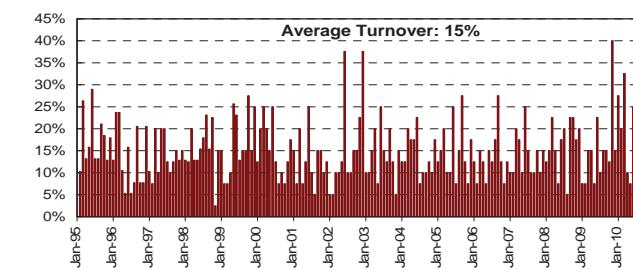
Information Co-Efficients (IC)

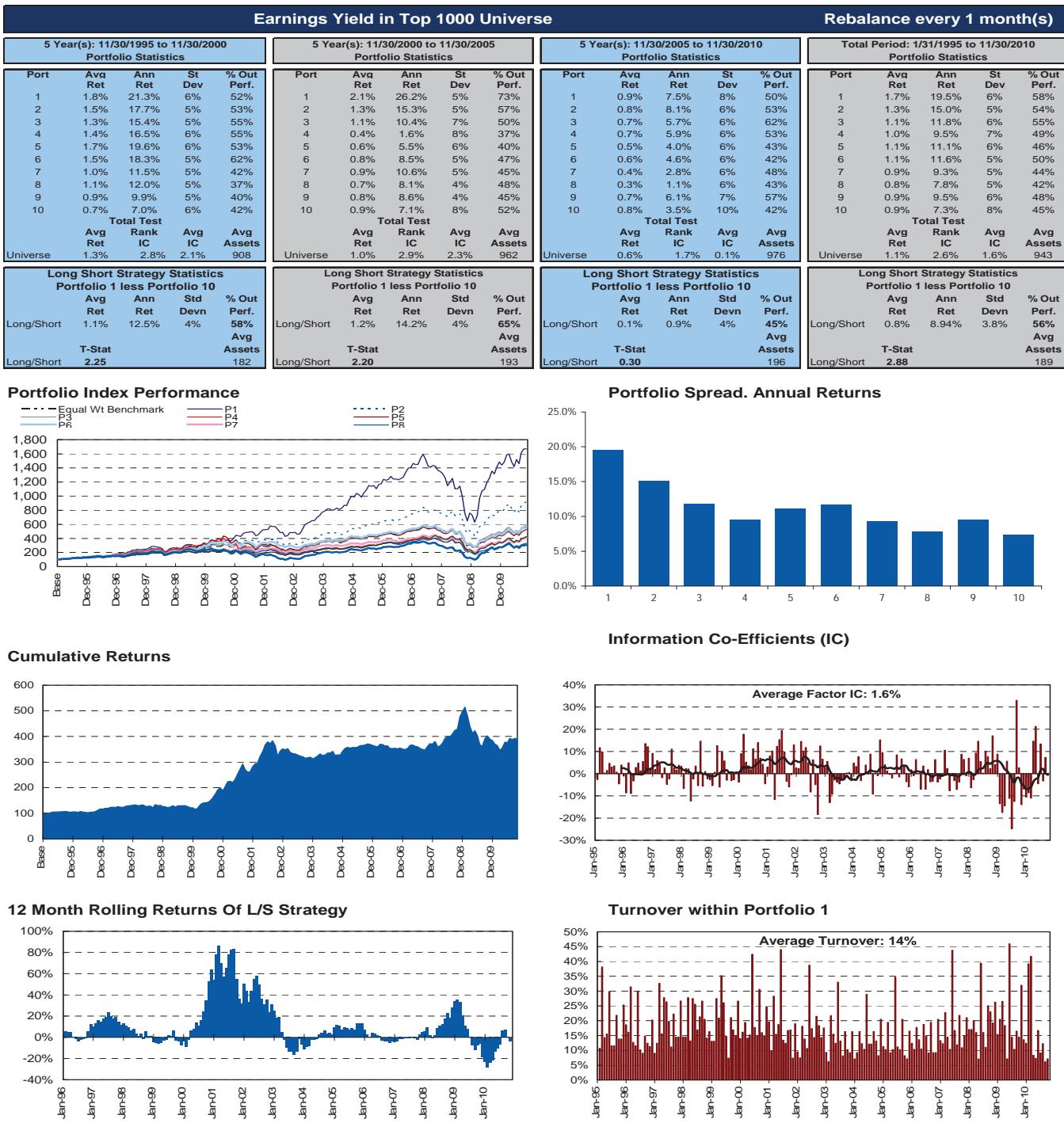


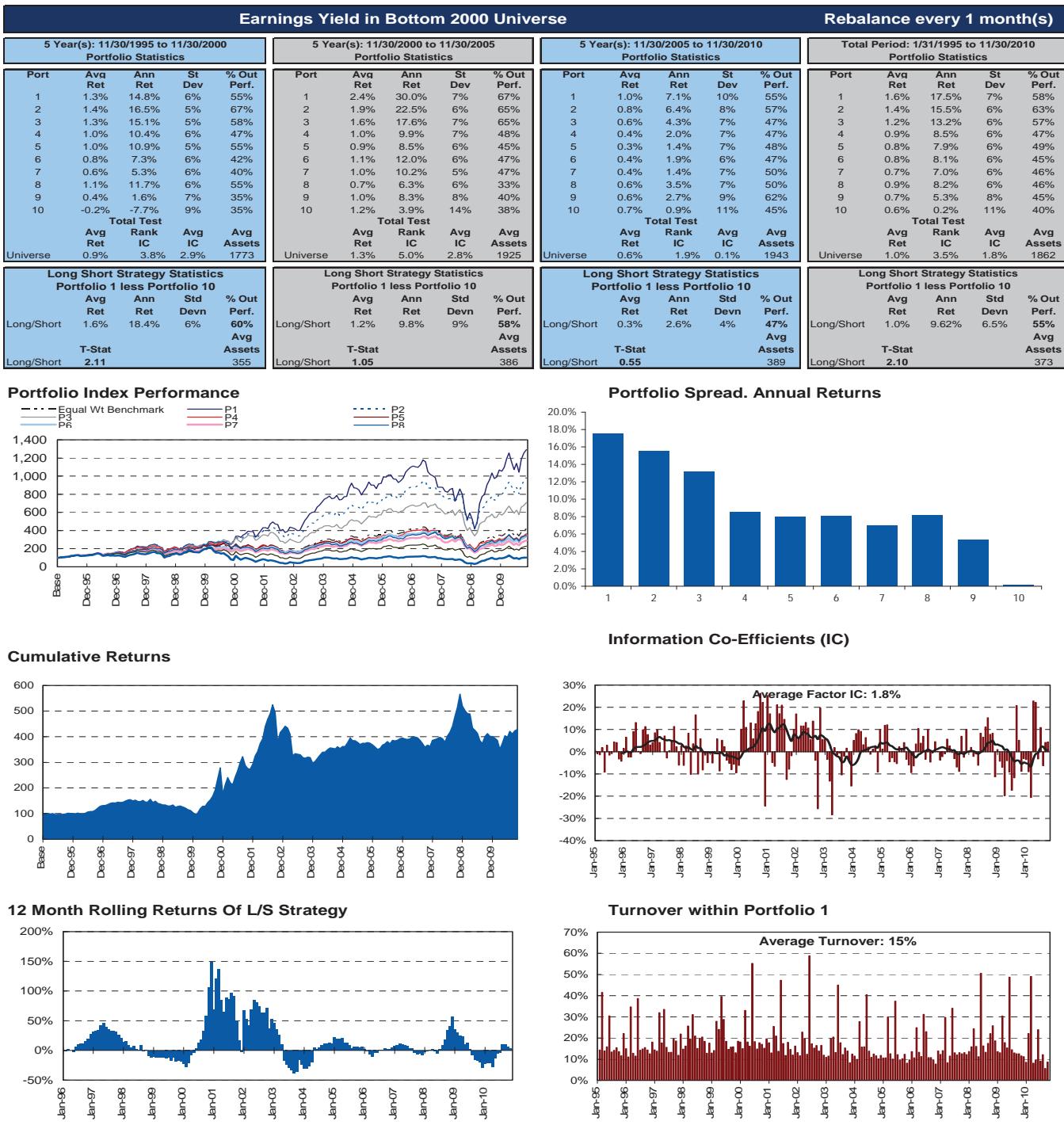
12 Month Rolling Returns Of L/S Strategy

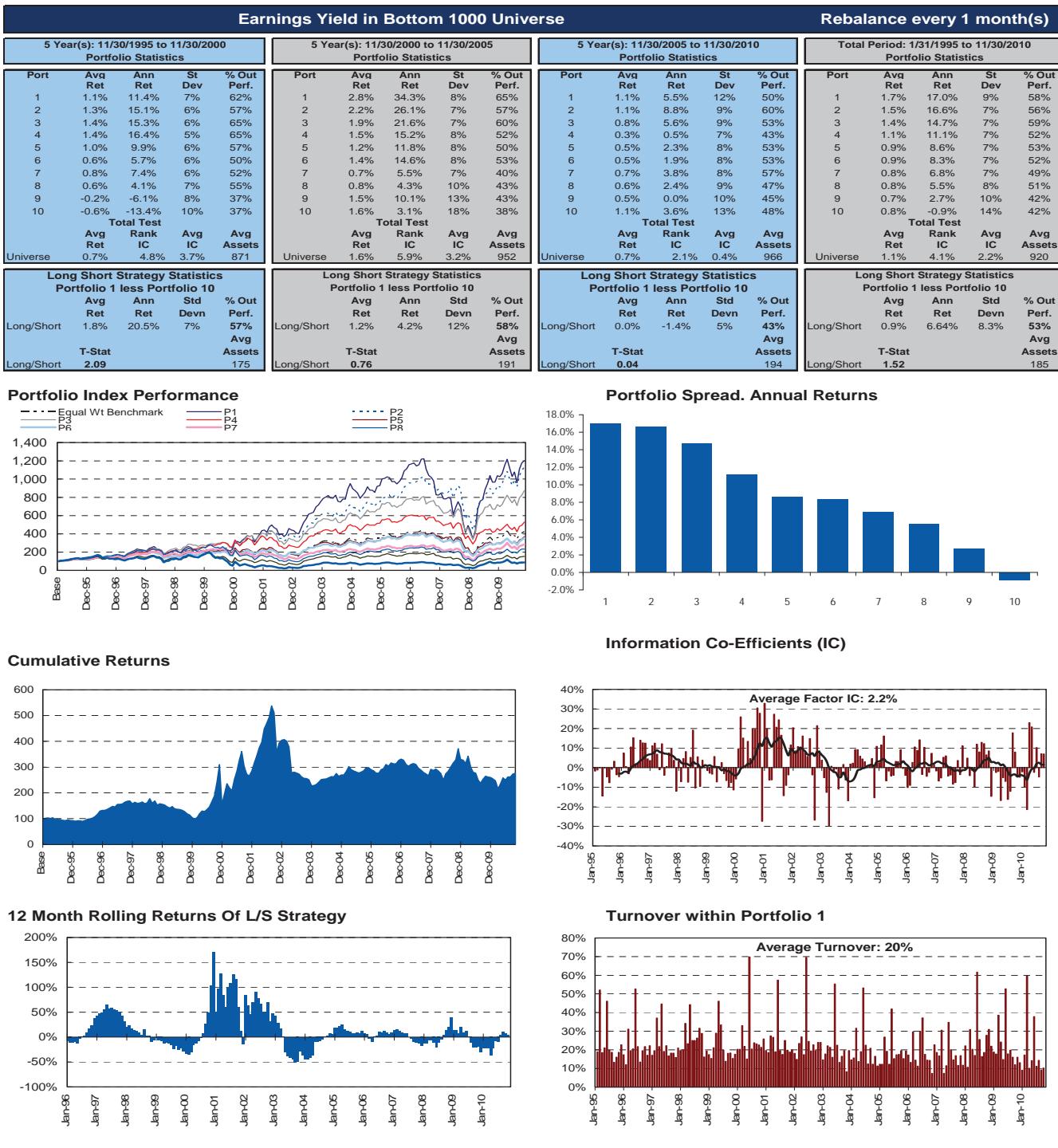


Turnover within Portfolio 1





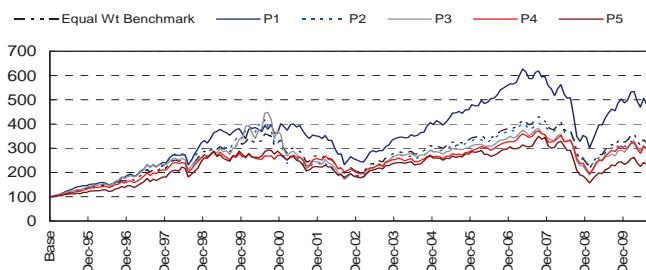




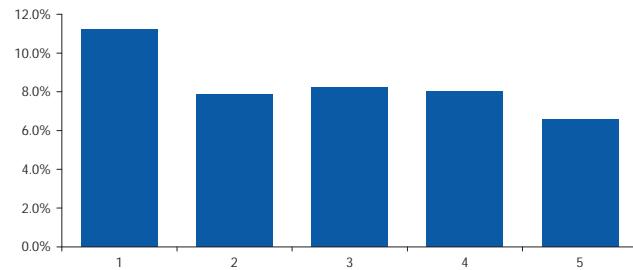
Earnings Yield 1 Yr Forward

Earnings Yield 1 Yr Fwd in Top 200 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.7%	20.1%	5%	50%	1	0.5%	4.8%	5%	57%	1	0.4%	3.3%	6%	58%	1	1.0%	11.2%	5%	56%
2	1.6%	19.1%	5%	57%	2	0.2%	0.1%	6%	48%	2	0.2%	0.7%	5%	43%	2	0.8%	7.9%	5%	50%
3	1.7%	20.3%	6%	50%	3	-0.1%	-2.5%	6%	47%	3	0.4%	3.1%	6%	53%	3	0.8%	8.2%	6%	51%
4	1.3%	14.8%	5%	35%	4	0.3%	2.1%	4%	47%	4	0.4%	3.8%	5%	52%	4	0.8%	8.0%	5%	44%
5	1.6%	18.6%	5%	45%	5	0.1%	0.1%	4%	43%	5	0.1%	-0.2%	6%	52%	5	0.7%	6.6%	5%	45%
Total Test				Total Test				Total Test				Total Test				Total Test			
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets
Universe	1.6%	1.5%	0.8%	194	Universe	0.2%	3.2%	2.3%	197	Universe	0.3%	1.4%	1.0%	199	Universe	0.8%	2.4%	1.8%	197

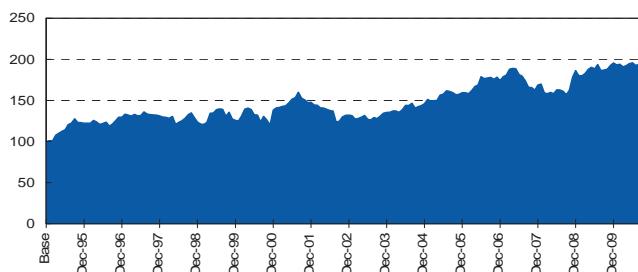
Portfolio Index Performance



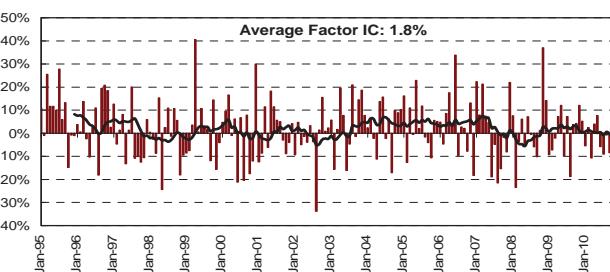
Portfolio Spread. Annual Returns



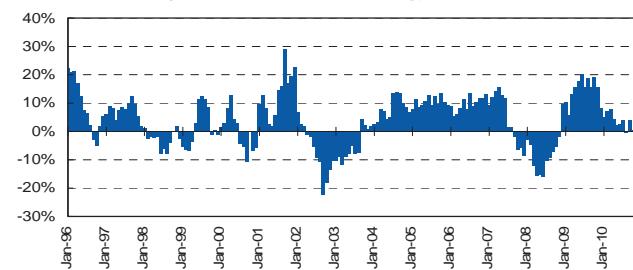
Cumulative Returns



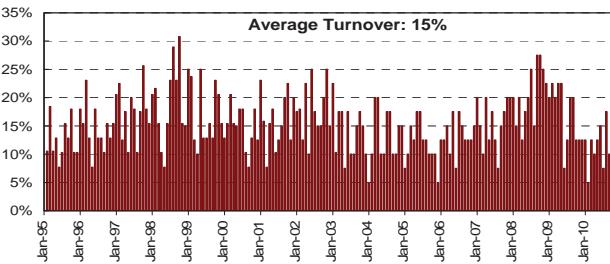
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

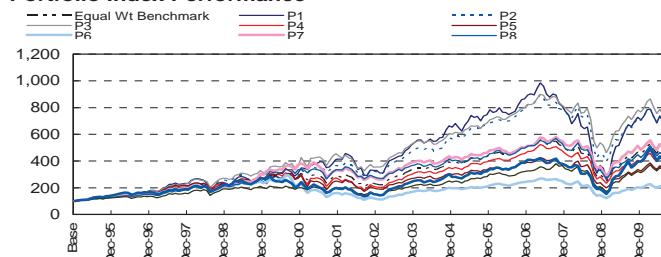


Turnover within Portfolio 1

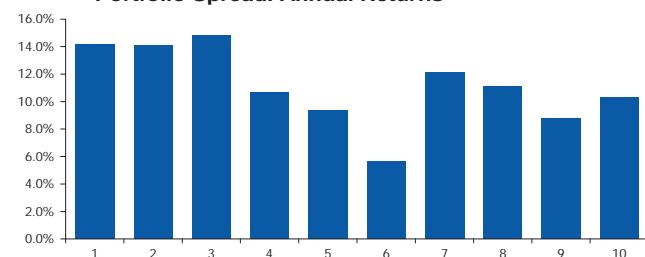


Earnings Yield 1 Yr Fwd in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Portfolio Statistics								Portfolio Statistics											
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.5%	16.3%	6%	55%	1	1.8%	20.7%	6%	70%	1	0.6%	1.9%	10%	42%	1	1.4%	14.1%	7%	56%
2	1.3%	14.6%	5%	55%	2	1.7%	19.9%	5%	65%	2	0.5%	3.9%	7%	45%	2	1.3%	14.1%	6%	56%
3	1.8%	21.8%	5%	68%	3	1.3%	14.1%	6%	53%	3	0.7%	5.8%	6%	52%	3	1.3%	14.8%	6%	56%
4	1.3%	14.7%	5%	48%	4	0.9%	8.2%	7%	47%	4	0.6%	4.9%	6%	52%	4	1.0%	10.7%	6%	51%
5	1.3%	14.1%	5%	57%	5	0.7%	5.1%	7%	38%	5	0.6%	4.3%	6%	57%	5	0.9%	9.4%	6%	52%
6	1.0%	10.5%	6%	45%	6	0.2%	-0.3%	7%	40%	6	0.4%	2.9%	6%	45%	6	0.6%	5.6%	6%	43%
7	1.7%	20.9%	5%	52%	7	0.6%	6.3%	5%	42%	7	0.7%	5.9%	6%	47%	7	1.1%	12.1%	5%	47%
8	1.7%	20.1%	5%	55%	8	0.7%	7.0%	5%	38%	8	0.5%	4.1%	6%	53%	8	1.0%	11.1%	5%	46%
9	0.9%	9.0%	5%	30%	9	0.8%	8.3%	5%	48%	9	0.7%	6.3%	7%	55%	9	0.9%	8.8%	5%	43%
10	0.8%	8.2%	6%	45%	10	1.0%	9.4%	7%	57%	10	1.1%	8.3%	9%	57%	10	1.1%	10.3%	7%	54%
Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets				
Universe	1.3%	1.9%	1.5%	879	Universe	0.9%	3.6%	2.2%	925	Universe	0.6%	0.0%	-0.8%	957	Universe	1.1%	2.0%	1.0%	917

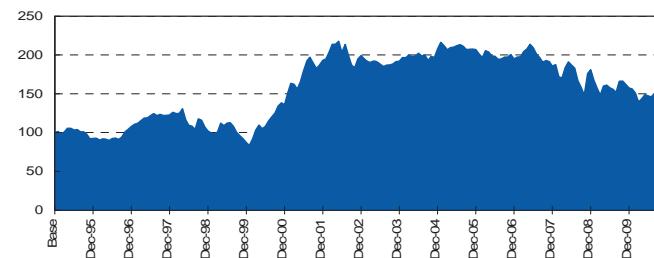
Portfolio Index Performance



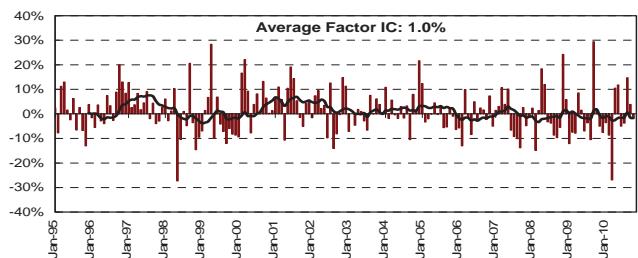
Portfolio Spread. Annual Returns



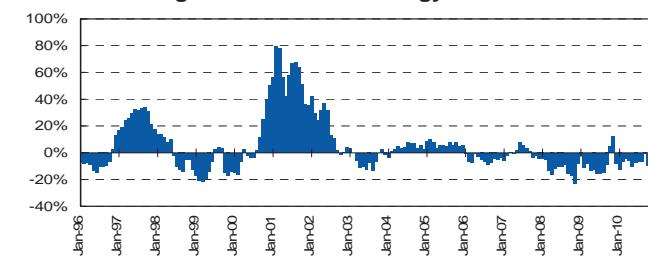
Cumulative Returns



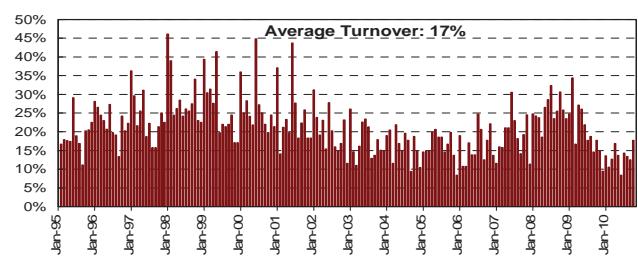
Information Co-Efficients (IC)

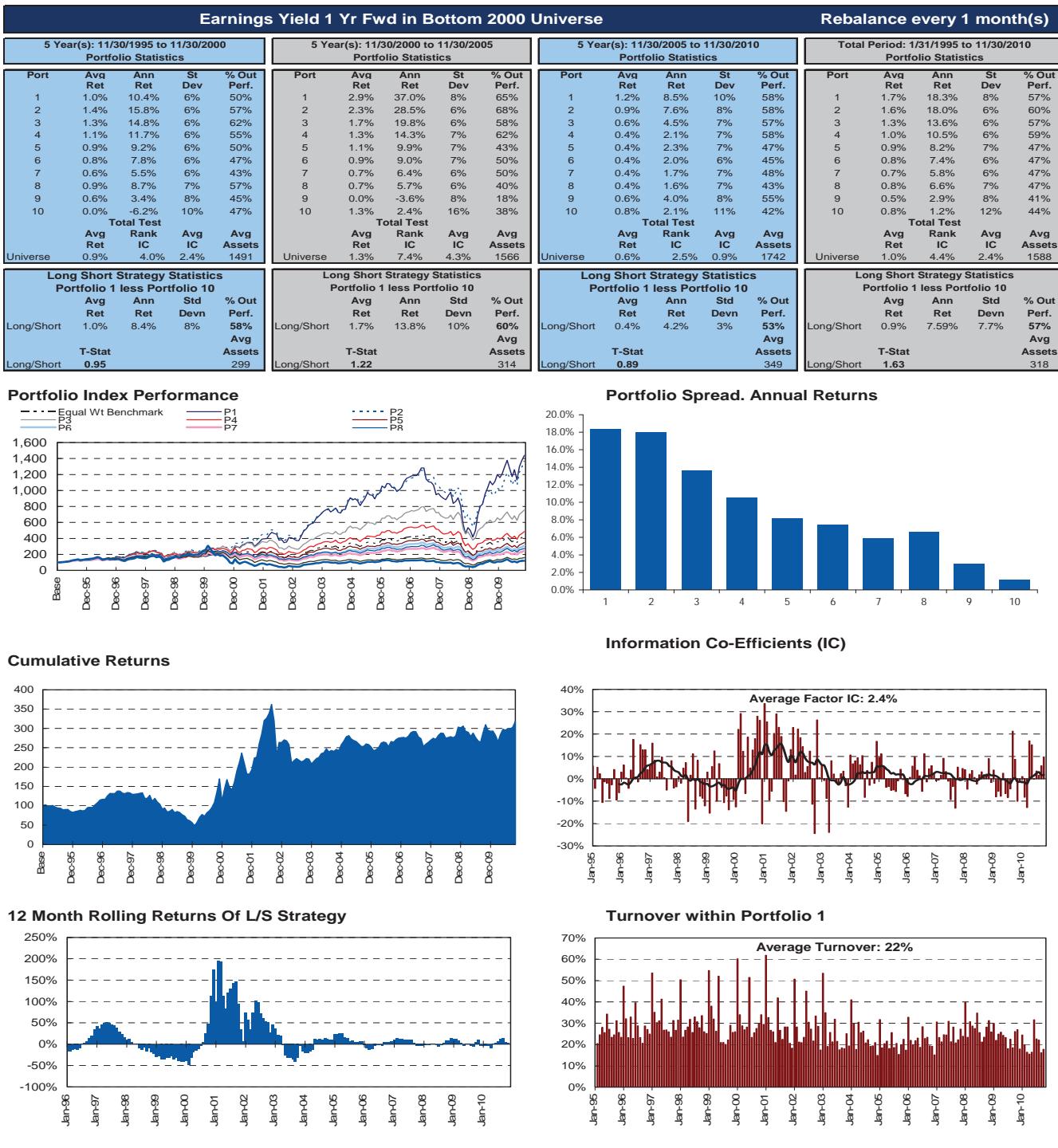


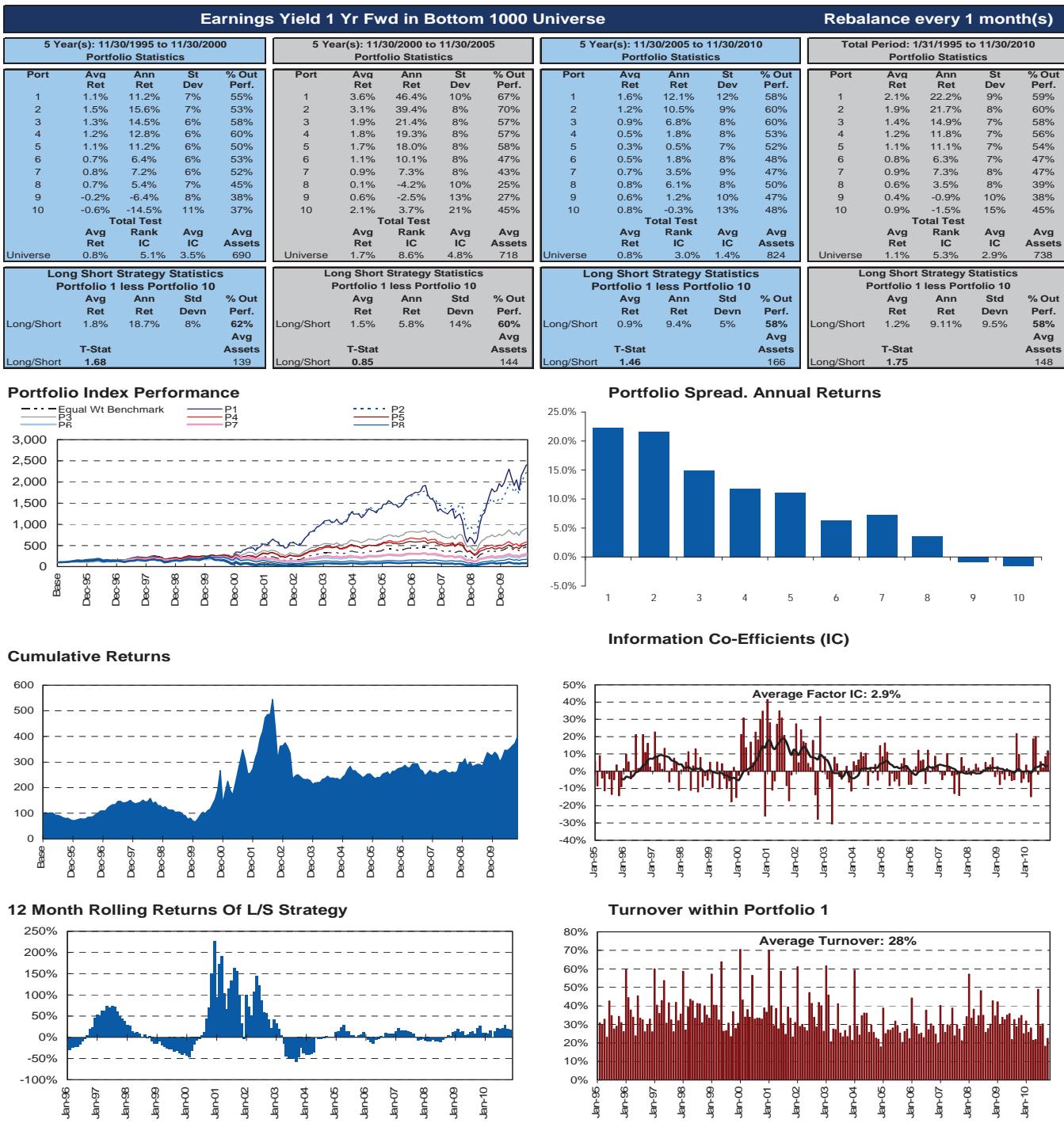
12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1



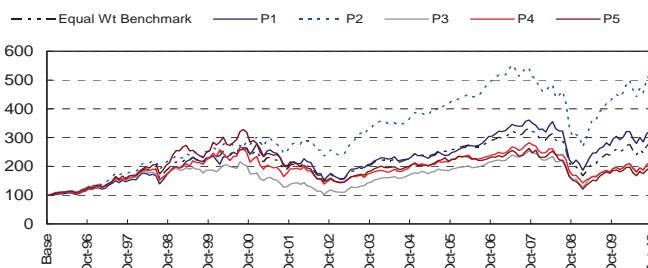




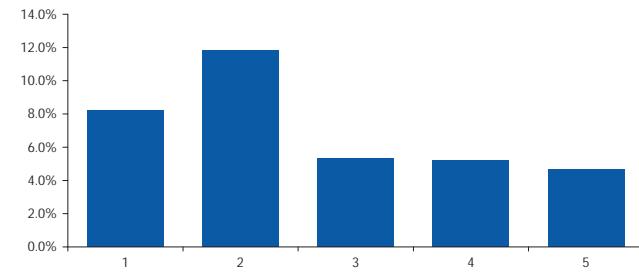
Earnings Yield 1 Yr Forward Relative to 3 Yr History

Earnings Yield 1 Yr Fwd Rel to 3 yr Hist in Top 200 Universe								Rebalance every 1 month(s)																	
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 11/30/1995 to 11/30/2010										
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics											
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.						
1	1.6%	19.4%	5%	53%	1	0.2%	0.4%	5%	48%	1	0.6%	5.8%	6%	55%	1	0.8%	8.2%	5%	52%						
2	1.8%	22.5%	4%	60%	2	0.8%	9.2%	4%	68%	2	0.5%	4.5%	6%	55%	2	1.1%	11.8%	5%	61%						
3	1.0%	11.7%	5%	28%	3	0.3%	1.8%	5%	52%	3	0.4%	2.8%	5%	55%	3	0.6%	5.4%	5%	45%						
4	1.4%	16.5%	6%	50%	4	0.2%	0.9%	5%	47%	4	0.0%	-1.0%	5%	37%	4	0.6%	5.2%	5%	44%						
5	1.9%	23.2%	6%	55%	5	-0.3%	-4.7%	4%	40%	5	0.0%	-2.4%	6%	43%	5	0.5%	4.7%	5%	46%						
Total Test					Total Test					Total Test					Total Test										
Avg Ret	1.6%	Rank IC	Avg IC	Avg Assets	Avg Ret	0.2%	Rank IC	Avg IC	Avg Assets	Avg Ret	0.3%	Rank IC	Avg IC	Avg Assets	Avg Ret	0.7%	Rank IC	Avg IC	Avg Assets						
Universe	1.5%	0.0%	187		Universe	2.7%	0.3%	194		Universe	3.6%	3.0%	195		Universe	2.6%	1.1%	192							
Long Short Strategy Statistics													Long Short Strategy Statistics												
Portfolio 1 less Portfolio 5					Portfolio 1 less Portfolio 5					Portfolio 1 less Portfolio 5					Portfolio 1 less Portfolio 5										
Avg Ret	Long/Short	-0.3%	-4.2%	4%	Avg Ret	Long/Short	0.5%	5.4%	3%	Avg Ret	Long/Short	0.7%	7.9%	3%	Avg Ret	Long/Short	0.3%	2.92%	3.1%	Avg Assets					
Ret	T-Stat	-0.64		75	Ret	T-Stat	1.24		78	Ret	T-Stat	1.98		79	Ret	T-Stat	1.25		77						

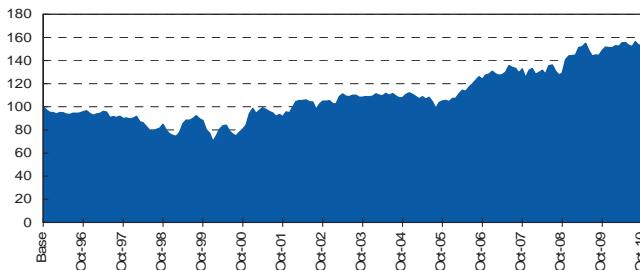
Portfolio Index Performance



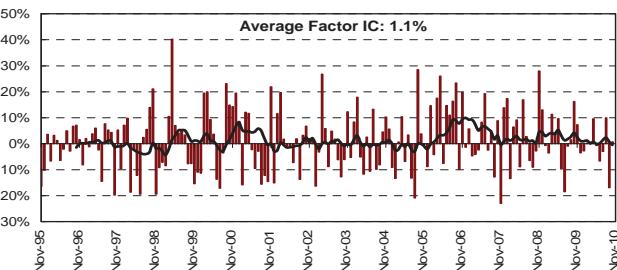
Portfolio Spread. Annual Returns



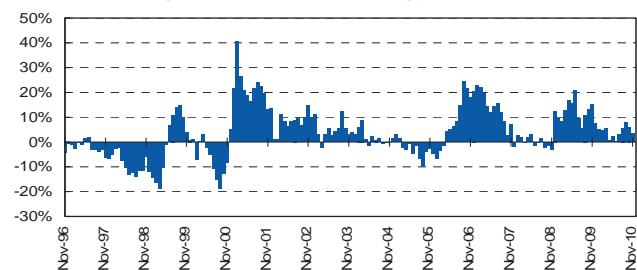
Cumulative Returns



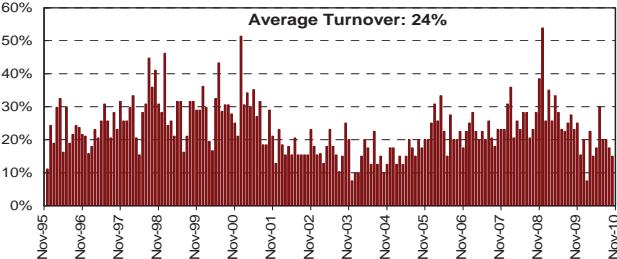
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

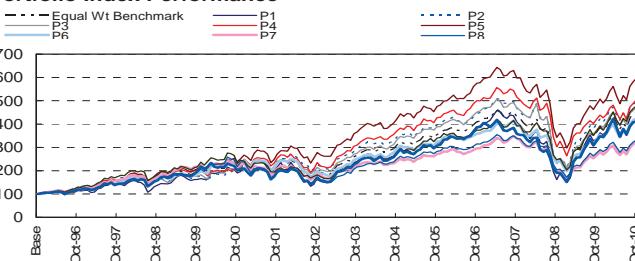


Turnover within Portfolio 1

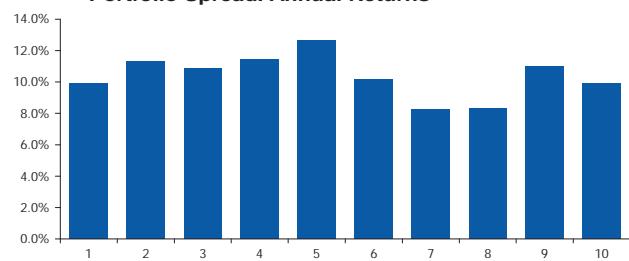


Earnings Yield 1 Yr Fwd Rel to 3 yr Hist in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 11/30/1995 to 11/30/2010							
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.3%	13.7%	6%	48%	1	1.2%	10.9%	8%	50%	1	0.9%	5.3%	10%	58%	1	1.1%	9.9%	8%	52%
2	1.3%	14.7%	6%	48%	2	1.3%	14.9%	5%	57%	2	0.7%	4.6%	7%	50%	2	1.1%	11.3%	6%	52%
3	1.3%	14.4%	6%	43%	3	1.3%	14.7%	5%	57%	3	0.6%	3.9%	7%	45%	3	1.0%	10.9%	6%	48%
4	1.3%	15.2%	5%	47%	4	1.4%	16.0%	5%	62%	4	0.5%	3.5%	6%	47%	4	1.1%	11.4%	6%	52%
5	1.6%	19.0%	5%	60%	5	1.3%	14.8%	5%	55%	5	0.6%	4.6%	6%	52%	5	1.1%	12.6%	5%	56%
6	1.4%	16.7%	5%	55%	6	0.8%	8.4%	5%	43%	6	0.6%	5.6%	6%	53%	6	1.0%	10.1%	6%	51%
7	1.4%	16.4%	5%	47%	7	0.5%	5.0%	5%	37%	7	0.5%	3.8%	6%	47%	7	0.8%	8.2%	5%	43%
8	1.4%	16.9%	5%	57%	8	0.6%	5.3%	5%	42%	8	0.4%	3.3%	6%	53%	8	0.8%	8.3%	5%	51%
9	1.5%	18.1%	5%	62%	9	0.8%	8.1%	5%	55%	9	0.8%	7.1%	7%	52%	9	1.0%	11.0%	6%	56%
10	1.3%	15.0%	5%	47%	10	0.9%	8.8%	6%	50%	10	0.8%	6.0%	8%	57%	10	1.0%	9.9%	7%	51%
Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank	Avg IC	Avg Assets	Avg Ret	Rank	Avg IC	Avg Assets	Avg Ret	Rank	Avg IC	Avg Assets	Avg Ret	Rank	Avg IC	Avg Assets				
Universe	1.4%	0.2%	-0.5%	798	Universe	1.0%	1.8%	0.5%	866	Universe	0.6%	0.1%	0.4%	915	Universe	1.0%	0.7%	0.1%	859

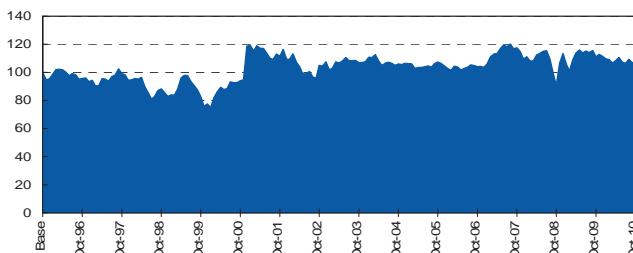
Portfolio Index Performance



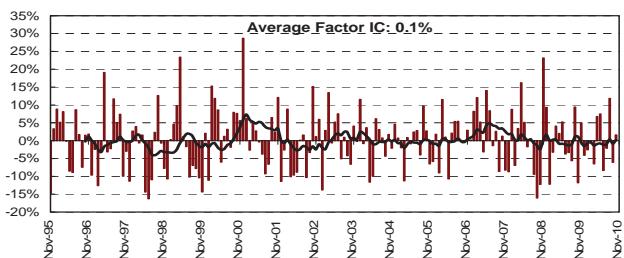
Portfolio Spread. Annual Returns



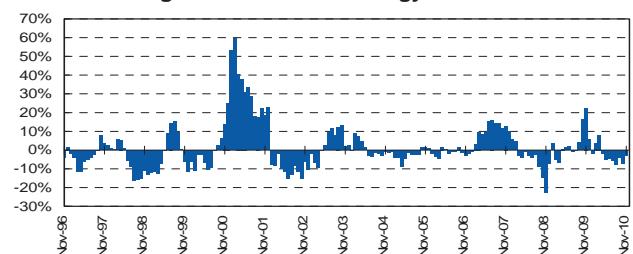
Cumulative Returns



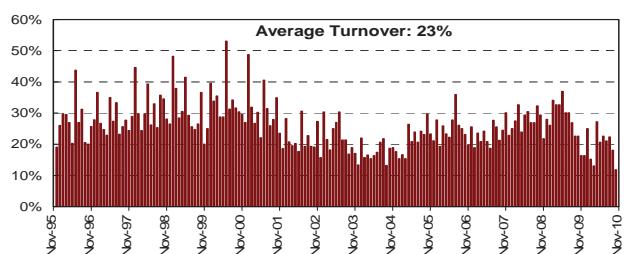
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

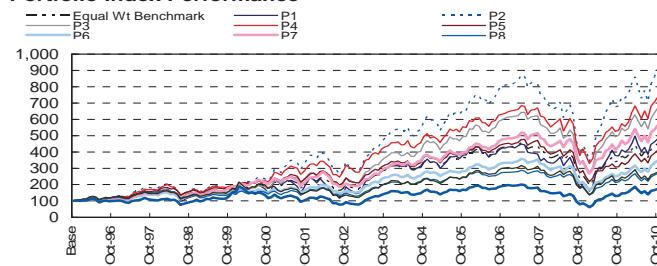


Earnings Yield 1 Yr Fwd Rel to 3 yr Hist in Bottom 2000 Universe

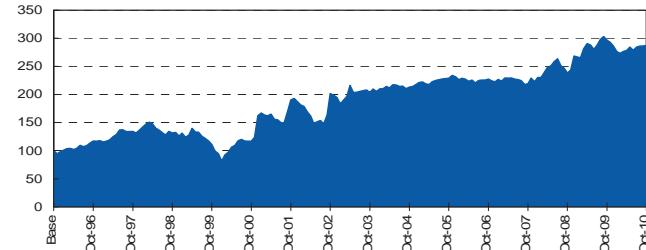
Rebalance every 1 month(s)

5 Year(s): 11/30/1995 to 11/30/2000 Portfolio Statistics					5 Year(s): 11/30/2000 to 11/30/2005 Portfolio Statistics					5 Year(s): 11/30/2005 to 11/30/2010 Portfolio Statistics					Total Period: 11/30/1995 to 11/30/2010 Portfolio Statistics				
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.0%	8.3%	7%	50%	1	2.2%	20.6%	12%	48%	1	0.9%	4.8%	10%	48%	1	1.4%	11.0%	10%	49%
2	1.5%	17.5%	6%	57%	2	2.1%	24.0%	7%	67%	2	0.9%	6.6%	8%	58%	2	1.5%	15.8%	7%	61%
3	1.1%	12.6%	5%	53%	3	1.9%	22.3%	7%	60%	3	0.8%	6.2%	8%	55%	3	1.3%	13.5%	7%	56%
4	1.4%	16.5%	5%	67%	4	1.8%	20.9%	6%	48%	4	0.7%	5.8%	7%	48%	4	1.3%	14.2%	6%	54%
5	1.3%	15.3%	5%	53%	5	1.3%	14.1%	6%	43%	5	0.3%	0.7%	7%	45%	5	1.0%	9.8%	6%	47%
6	0.8%	8.3%	5%	43%	6	1.2%	13.8%	6%	48%	6	0.6%	4.1%	7%	52%	6	0.9%	8.6%	6%	48%
7	1.3%	15.0%	5%	52%	7	1.3%	14.7%	6%	47%	7	0.8%	7.1%	7%	57%	7	1.1%	12.2%	6%	52%
8	0.8%	7.3%	6%	45%	8	1.1%	11.4%	6%	47%	8	0.4%	2.0%	7%	42%	8	0.7%	6.8%	6%	44%
9	1.2%	12.0%	7%	47%	9	0.7%	7.0%	6%	38%	9	0.5%	2.2%	8%	48%	9	0.8%	7.0%	7%	44%
10	0.6%	3.2%	8%	33%	10	0.9%	7.7%	8%	40%	10	0.5%	0.4%	10%	40%	10	0.7%	3.7%	9%	38%
Total Test					Total Test					Total Test					Total Test				
Avg Ret	1.1%	2.8%	1.1%	1063	Avg Ret	1.5%	2.7%	1.4%	1225	Avg Ret	0.6%	0.9%	0.7%	1441	Avg Ret	1.1%	2.1%	1.1%	1243
Universe																			
Long Short Strategy Statistics																			
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10				
Avg Ret	0.4%	3.2%	5%	57%	Avg Ret	1.3%	14.4%	6%	58%	Avg Ret	0.4%	4.6%	3%	52%	Avg Ret	0.7%	7.28%	4.8%	56%
Ret Devn					T-Stat	1.59				T-Stat	1.23				T-Stat	1.94			
Long/Short																			
P-Stat																			
213																			

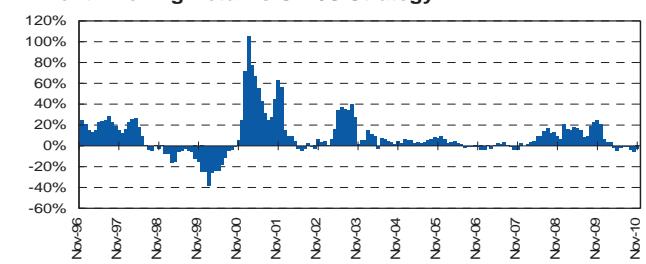
Portfolio Index Performance



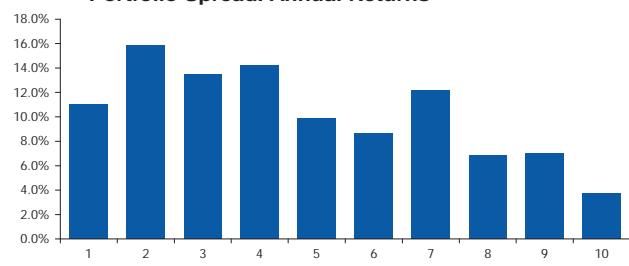
Cumulative Returns



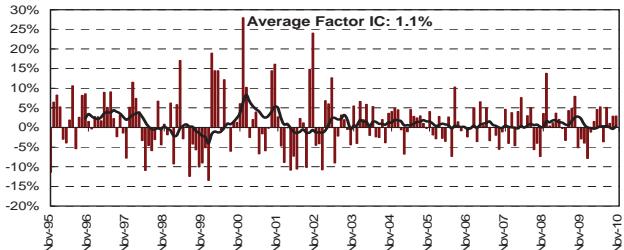
12 Month Rolling Returns Of L/S Strategy



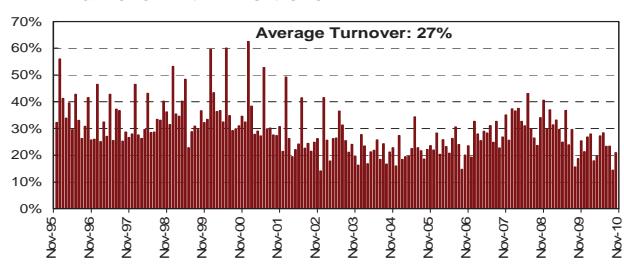
Portfolio Spread. Annual Returns



Information Co-Efficients (IC)

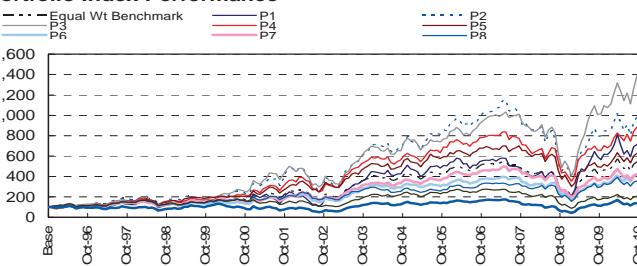


Turnover within Portfolio 1

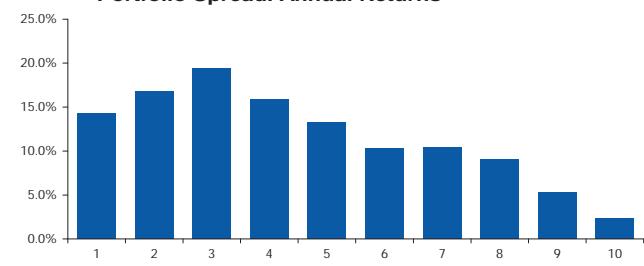


Earnings Yield 1 Yr Fwd Rel to 3 yr Hist in Bottom 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 11/30/1995 to 11/30/2010							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	0.7%	4.8%	8%	45%	1	3.4%	32.0%	16%	48%	1	1.3%	7.8%	12%	47%	1	1.8%	14.3%	12%	47%
2	1.6%	17.3%	7%	53%	2	2.9%	31.0%	11%	53%	2	0.8%	3.8%	10%	57%	2	1.7%	16.8%	10%	54%
3	1.7%	19.8%	6%	58%	3	2.3%	25.5%	9%	48%	3	1.5%	13.4%	9%	62%	3	1.8%	19.4%	8%	56%
4	1.4%	15.9%	6%	57%	4	2.3%	27.0%	8%	50%	4	0.8%	5.9%	9%	45%	4	1.5%	15.9%	8%	51%
5	1.3%	14.7%	6%	57%	5	2.1%	24.6%	8%	58%	5	0.5%	1.7%	8%	55%	5	1.3%	13.2%	7%	57%
6	0.6%	5.6%	6%	47%	6	1.7%	19.5%	7%	48%	6	0.9%	6.4%	8%	50%	6	1.1%	10.3%	7%	48%
7	0.8%	8.2%	6%	48%	7	1.8%	20.8%	6%	52%	7	0.6%	3.1%	8%	42%	7	1.1%	10.4%	7%	47%
8	0.9%	9.2%	6%	48%	8	1.2%	11.8%	7%	33%	8	0.9%	6.3%	9%	53%	8	1.0%	9.1%	7%	45%
9	1.0%	9.1%	7%	52%	9	1.0%	9.3%	7%	53%	9	0.3%	-2.0%	10%	33%	9	0.7%	5.3%	8%	46%
10	-0.1%	-4.7%	8%	35%	10	1.6%	12.8%	11%	45%	10	0.7%	-0.3%	12%	38%	10	0.7%	2.3%	11%	39%
Total Test				Total Test				Total Test				Total Test							
Avg Ret	1.0%	3.6%	2.0%	458	Avg Ret	2.0%	2.5%	1.6%	515	Avg Ret	0.8%	0.8%	1.0%	639	Avg Ret	1.3%	2.3%	1.5%	537
Universe																			
Long Short Strategy Statistics								Long Short Strategy Statistics											
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg Ret	0.8%	8.3%	5%	58%	Avg Ret	1.8%	20.1%	7%	57%	Avg Ret	0.6%	6.5%	4%	53%	Avg Ret	1.1%	11.47%	5.7%	56%
Ret IC	Long/Short	T-Stat	Assets	92	Ret IC	Long/Short	T-Stat	Assets	104	Ret IC	Long/Short	T-Stat	Assets	129	Ret IC	Long/Short	T-Stat	Assets	108
Devn					Devn					Devn					Devn				
P4					P5					P6					P7				
P1					P2					P3					P8				

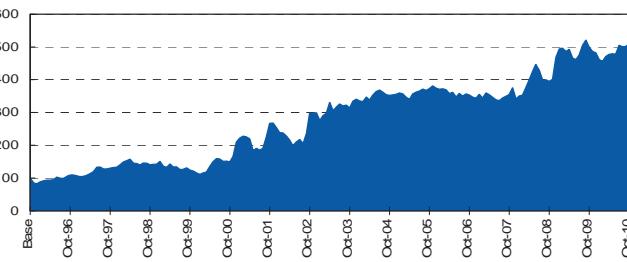
Portfolio Index Performance



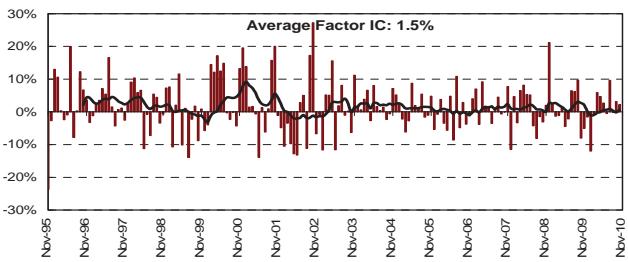
Portfolio Spread. Annual Returns



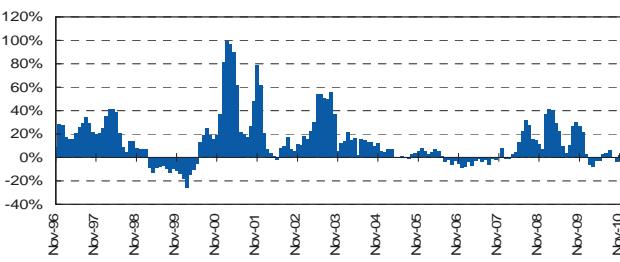
Cumulative Returns



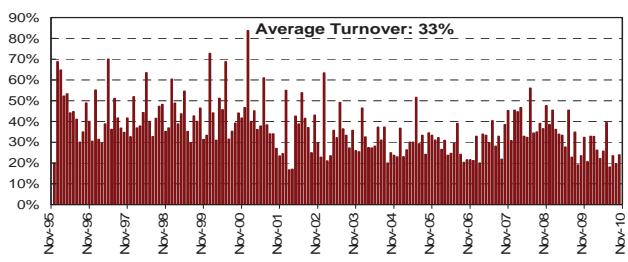
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



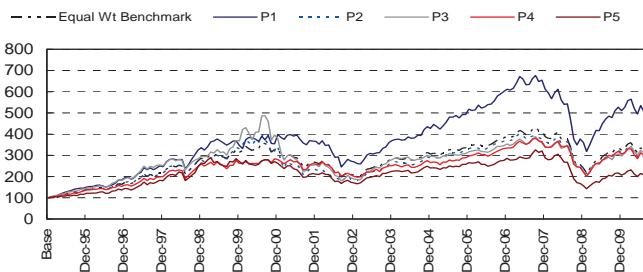
Turnover within Portfolio 1



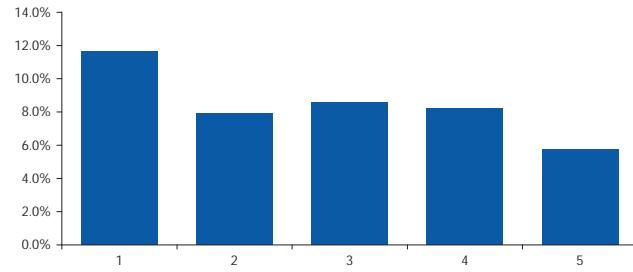
Earnings Yield 1 Yr Forward Relative to Sector

Earnings Yield 1 Yr Fwd Rel to Sector in Top 200 Universe								Rebalance every 1 month(s)																							
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010																			
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics																	
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.												
1	1.6%	19.6%	5%	50%	1	0.7%	6.7%	5%	60%	1	0.4%	3.0%	6%	57%	1	1.1%	11.6%	5%	57%												
2	1.6%	19.3%	5%	47%	2	0.2%	0.4%	6%	50%	2	0.2%	1.0%	5%	48%	2	0.8%	7.9%	5%	49%												
3	1.8%	21.8%	6%	55%	3	-0.2%	-3.7%	6%	42%	3	0.4%	3.6%	5%	57%	3	0.8%	8.5%	6%	52%												
4	1.3%	15.9%	5%	40%	4	0.2%	1.6%	4%	48%	4	0.5%	3.9%	5%	58%	4	0.8%	8.2%	5%	48%												
5	1.5%	17.5%	5%	43%	5	0.1%	-0.3%	4%	40%	5	0.1%	-1.3%	6%	45%	5	0.6%	5.7%	5%	41%												
Total Test				Total Test				Total Test				Total Test				Total Test															
Avg Ret	1.6%	Rank IC	Avg IC	Avg Assets	Avg Ret	0.2%	Rank IC	Avg IC	Avg Assets	Avg Ret	0.3%	Rank IC	Avg IC	Avg Assets	Avg Ret	0.8%	Rank IC	Avg IC	Avg Assets												
Universe	1.4%	0.8%	190		Universe	3.6%	2.5%	196		Universe	1.4%	1.0%	198		Universe	2.6%	1.9%	194													
Long Short Strategy Statistics																Long Short Strategy Statistics															
Portfolio 1 less Portfolio 5																Portfolio 1 less Portfolio 5															
Avg Ret	0.1%	0.9%	3%	52%	Avg Ret	0.6%	6.8%	3%	63%	Avg Ret	0.4%	4.0%	2%	60%	Avg Ret	0.5%	5.12%	3.1%	59%	Avg Ret	1.44	T-Stat	79	Avg Ret	1.14	T-Stat	80	Avg Ret	2.08	T-Stat	78
Long/Short	0.29		77		Long/Short	0.2%		1.44		Long/Short	0.4%		1.14		Long/Short	0.5%		2.08		Long/Short				Long/Short				Long/Short			

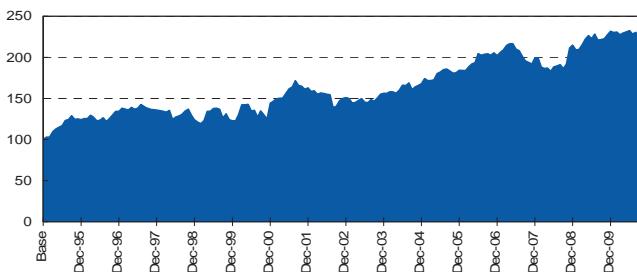
Portfolio Index Performance



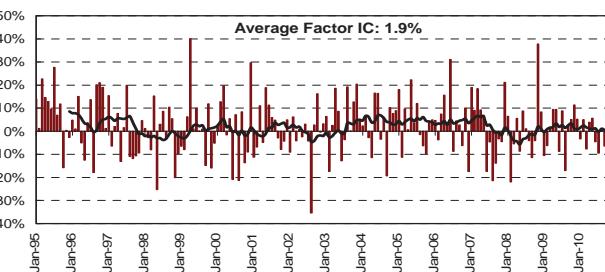
Portfolio Spread. Annual Returns



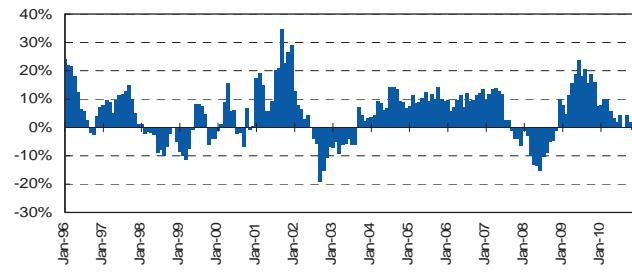
Cumulative Returns



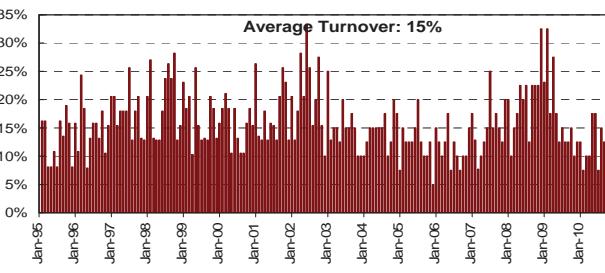
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

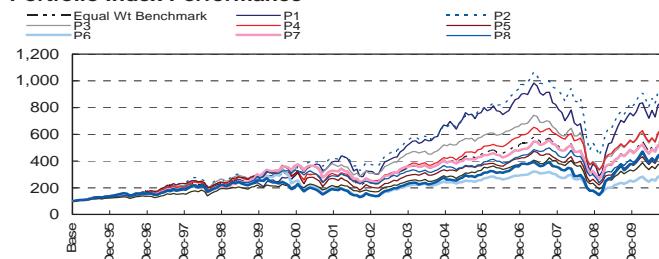


Turnover within Portfolio 1

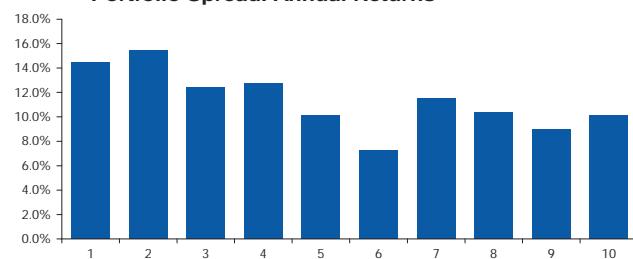


Earnings Yield 1 Yr Fwd Rel to Sector in Top 1000 Universe										Rebalance every 1 month(s)													
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010								
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.				
1	1.4%	14.9%	6%	57%	1	2.0%	23.3%	6%	67%	1	0.7%	2.4%	10%	45%	1	1.4%	14.5%	7%	56%				
2	1.4%	16.0%	6%	58%	2	1.8%	21.9%	5%	65%	2	0.6%	4.7%	7%	53%	2	1.4%	15.4%	6%	59%				
3	1.6%	19.8%	5%	62%	3	1.1%	12.4%	5%	55%	3	0.4%	2.3%	6%	45%	3	1.1%	12.4%	5%	53%				
4	1.4%	16.6%	5%	52%	4	1.1%	11.3%	6%	57%	4	0.7%	6.5%	6%	58%	4	1.2%	12.7%	6%	55%				
5	1.4%	16.2%	5%	52%	5	0.6%	4.7%	7%	42%	5	0.6%	4.8%	6%	52%	5	1.0%	10.1%	6%	49%				
6	1.2%	12.9%	6%	53%	6	0.4%	2.0%	7%	37%	6	0.5%	3.6%	6%	48%	6	0.8%	7.3%	6%	46%				
7	1.7%	20.6%	5%	53%	7	0.6%	5.2%	5%	35%	7	0.6%	5.5%	6%	52%	7	1.1%	11.5%	5%	46%				
8	1.6%	19.5%	5%	52%	8	0.4%	3.8%	5%	35%	8	0.6%	5.2%	6%	52%	8	1.0%	10.4%	5%	46%				
9	1.0%	10.4%	5%	33%	9	0.9%	10.4%	5%	52%	9	0.5%	3.5%	6%	35%	9	0.9%	8.9%	5%	39%				
10	0.8%	7.4%	6%	45%	10	0.9%	9.1%	7%	55%	10	1.2%	9.3%	9%	58%	10	1.1%	10.1%	7%	53%				
Total Test					Total Test					Total Test					Total Test								
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	1.3%	1.7%	1.4%	830	Universe	1.0%	4.0%	2.8%	884	Universe	0.6%	-0.1%	-0.8%	931	Universe	1.1%	2.0%	1.2%	877
Long Short Strategy Statistics										Long Short Strategy Statistics													
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10								
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.					
0.6%	6.0%	5%	55%	Long/Short	1.0%	11.9%	4%	63%	Long/Short	2.0%	11.9%	4%	178	Long/Short	-0.5%	-6.6%	4%	33%					
T-Stat	Avg Assets	Long/Short	167	T-Stat	Avg Assets	Long/Short	178	T-Stat	Long/Short	Avg Assets	Long/Short	187	T-Stat	Long/Short	Avg Assets	Long/Short	176	T-Stat	Long/Short	Avg Assets	176		

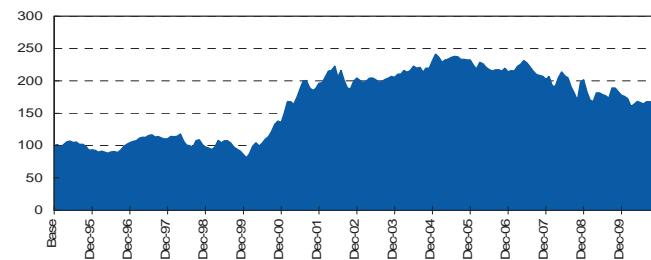
Portfolio Index Performance



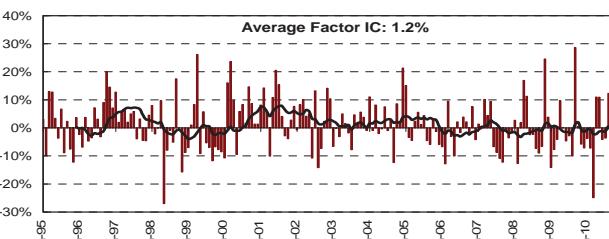
Portfolio Spread. Annual Returns



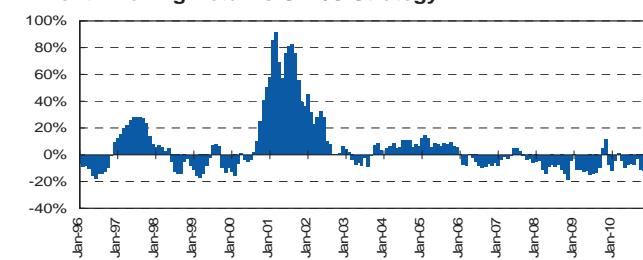
Cumulative Returns



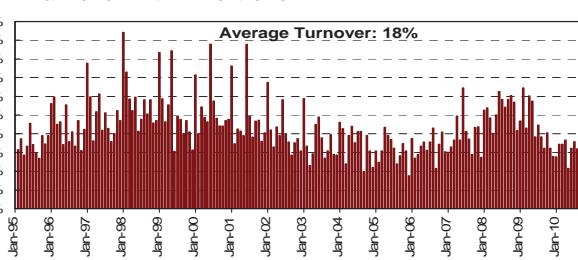
Information Co-Efficients (IC)



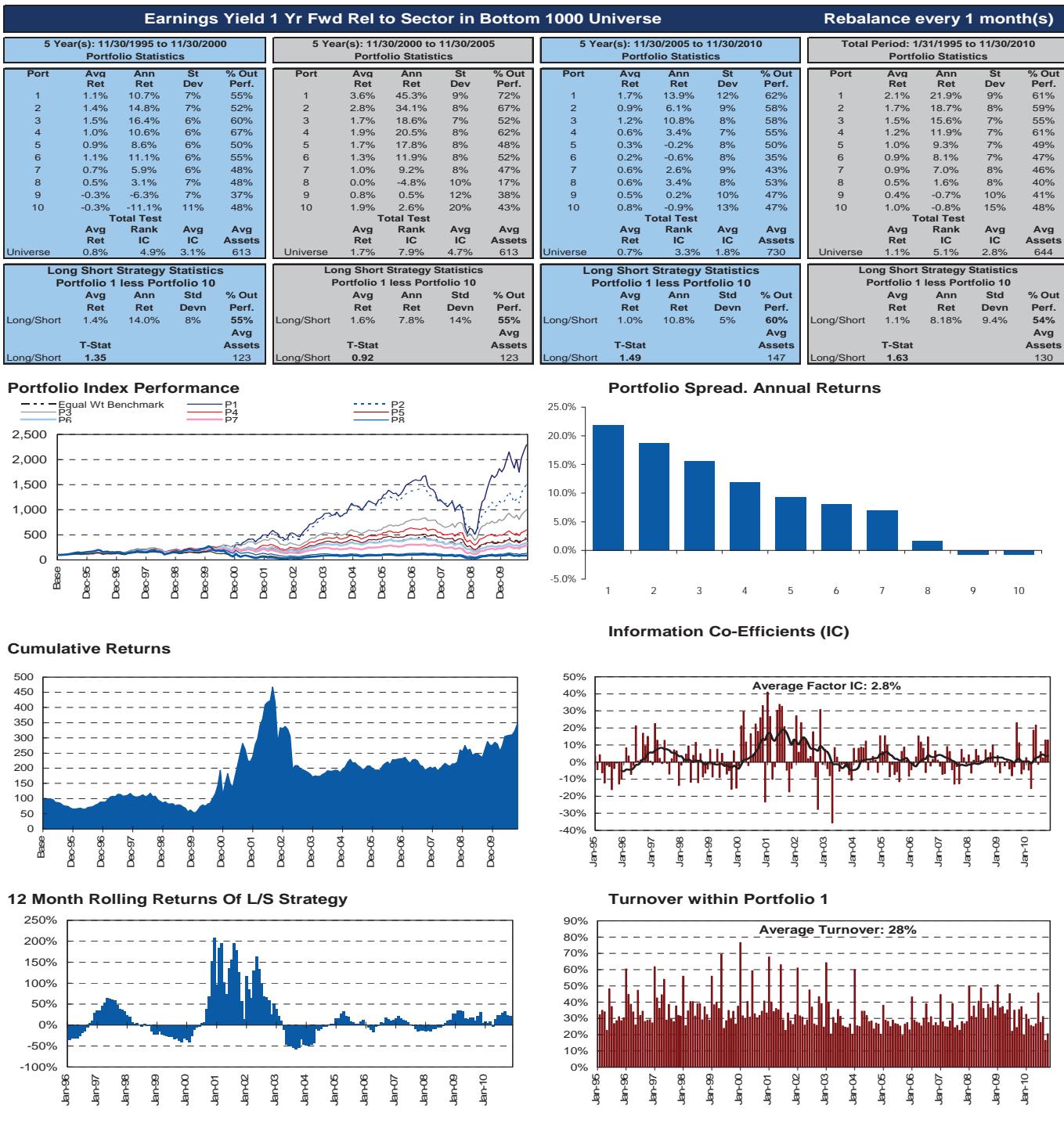
12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1



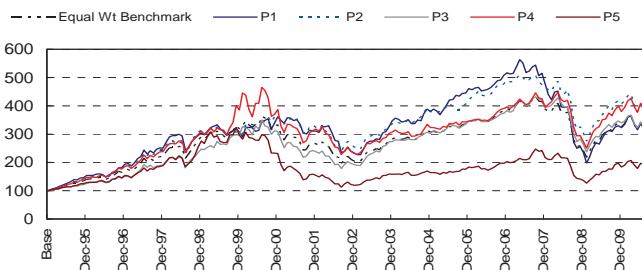




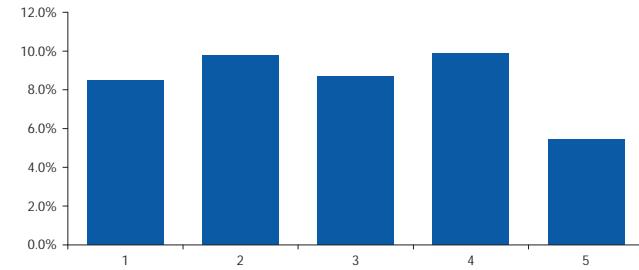
Sales Yield

Sales Yield in Top 200 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.4%	17.0%	5%	48%	1	0.7%	6.9%	5%	62%	1	-0.1%	-3.9%	6%	42%	1	0.8%	8.5%	5%	52%
2	1.7%	20.4%	5%	52%	2	0.3%	3.1%	4%	55%	2	0.3%	1.8%	5%	48%	2	0.9%	9.8%	5%	53%
3	1.6%	19.8%	5%	47%	3	0.3%	1.9%	4%	60%	3	0.3%	2.7%	5%	43%	3	0.8%	8.7%	5%	49%
4	1.9%	21.7%	6%	53%	4	0.0%	-1.1%	5%	47%	4	0.6%	5.4%	5%	52%	4	0.9%	9.9%	5%	51%
5	1.2%	13.4%	6%	42%	5	-0.3%	-5.4%	5%	37%	5	0.6%	5.6%	6%	68%	5	0.6%	5.4%	5%	47%
Total Test				Total Test				Total Test				Total Test				Total Test			
Avg Ret	1.6%	1.7%	1.1%	190	Avg Ret	0.2%	4.3%	2.9%	193	Avg Ret	0.3%	-2.5%	-2.7%	198	Avg Ret	0.8%	1.5%	0.9%	193
Universe					Universe					Universe					Universe				
Long Short Strategy Statistics																			
Portfolio 1 less Portfolio 5																			
Avg Ret	0.2%	1.9%	4%	58%	Avg Ret	1.0%	11.7%	4%	63%	Avg Ret	-0.7%	-9.0%	3%	40%	Avg Ret	0.2%	2.13%	3.4%	55%
Devn					Devn					Devn					Devn				
Perf.					Perf.					Perf.					Perf.				
Long/Short					Long/Short					Long/Short					Long/Short				
T-Stat	0.49				T-Stat	2.09				T-Stat	-1.86				T-Stat	0.94			
Avg Assets	76				Avg Assets	78				Avg Assets	79				Avg Assets	78			

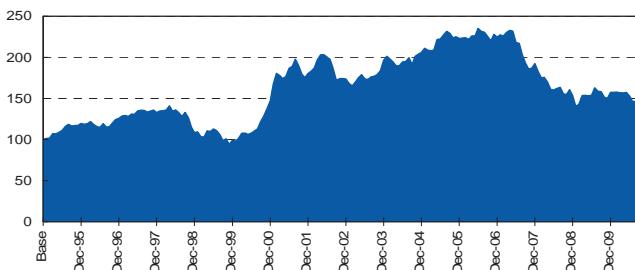
Portfolio Index Performance



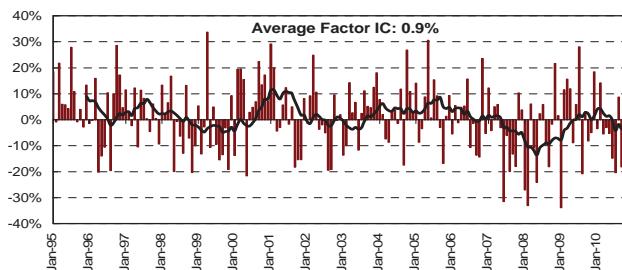
Portfolio Spread. Annual Returns



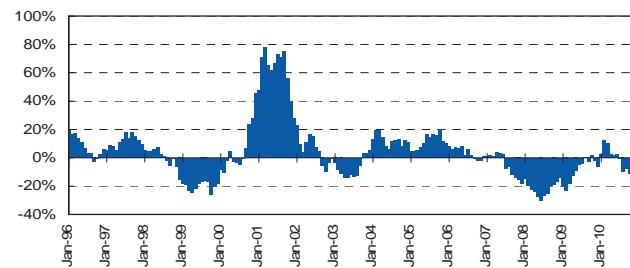
Cumulative Returns



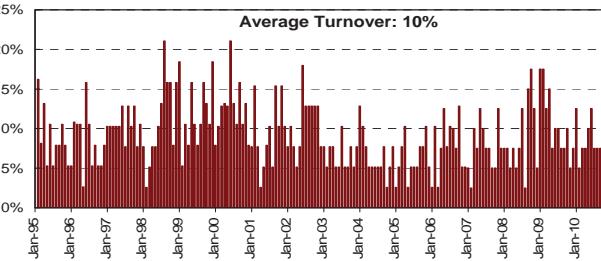
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

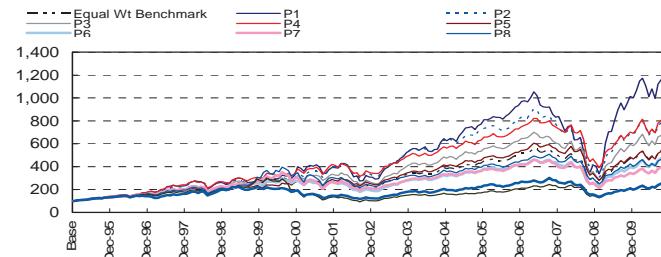


Turnover within Portfolio 1

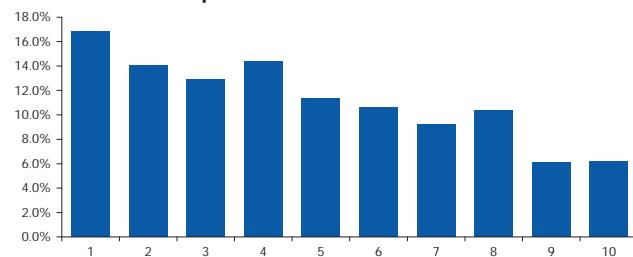


Sales Yield in Top 1000 Universe										Rebalance every 1 month(s)													
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010								
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.				
1	1.5%	17.6%	6%	53%	1	1.8%	20.6%	7%	68%	1	1.2%	9.2%	10%	53%	1	1.6%	16.8%	8%	58%				
2	1.3%	15.1%	5%	63%	2	1.8%	20.7%	6%	62%	2	0.6%	2.6%	9%	33%	2	1.3%	14.1%	7%	53%				
3	1.4%	16.4%	5%	55%	3	1.2%	13.8%	5%	57%	3	0.7%	5.2%	8%	42%	3	1.2%	12.9%	6%	51%				
4	1.6%	18.8%	5%	60%	4	1.2%	14.3%	5%	52%	4	0.7%	6.1%	6%	45%	4	1.3%	14.4%	5%	53%				
5	1.1%	13.1%	5%	43%	5	1.2%	13.7%	5%	53%	5	0.5%	3.8%	6%	40%	5	1.0%	11.3%	5%	45%				
6	1.3%	14.5%	5%	48%	6	0.7%	7.0%	5%	53%	6	0.7%	6.4%	6%	55%	6	1.0%	10.6%	5%	53%				
7	1.4%	15.6%	5%	45%	7	0.6%	5.4%	6%	38%	7	0.4%	2.6%	6%	47%	7	0.9%	9.2%	6%	45%				
8	1.6%	19.0%	6%	48%	8	0.6%	4.4%	6%	33%	8	0.5%	3.9%	6%	40%	8	1.0%	10.4%	6%	42%				
9	0.8%	7.1%	7%	42%	9	0.1%	-0.8%	7%	28%	9	0.9%	8.4%	6%	60%	9	0.7%	6.1%	6%	43%				
10	0.7%	6.6%	5%	35%	10	0.5%	4.4%	5%	45%	10	0.4%	2.9%	6%	47%	10	0.6%	6.1%	5%	42%				
Total Test					Total Test					Total Test					Total Test								
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	1.3%	1.9%	1.6%	893	Universe	1.0%	3.9%	3.7%	936	Universe	0.7%	-0.6%	0.0%	966	Universe	1.1%	1.8%	1.7%	929
Long Short Strategy Statistics										Long Short Strategy Statistics													
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10								
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.					
0.9%	9.8%	4%	60%	Long/Short	1.3%	15.8%	5%	63%	Long/Short	2.27	T-Stat	Avg Assets	188	Long/Short	0.8%	7.6%	7%	50%	Long/Short	0.91	T-Stat	Avg Assets	194
Avg Assets	179																						

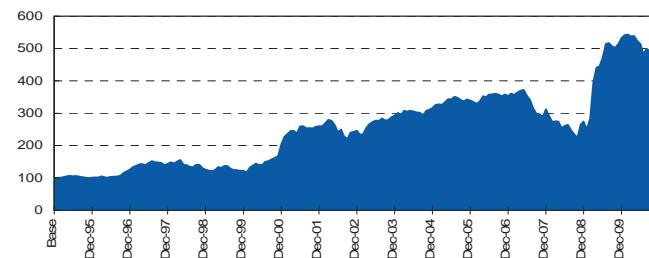
Portfolio Index Performance



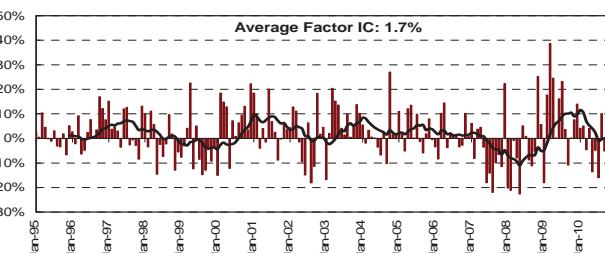
Portfolio Spread. Annual Returns



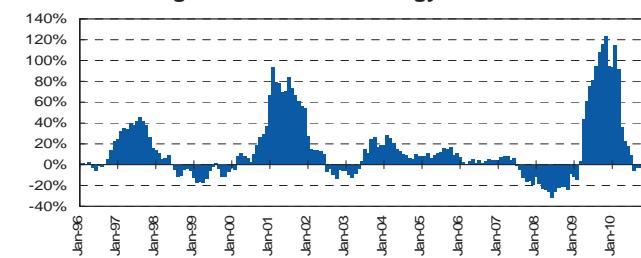
Cumulative Returns



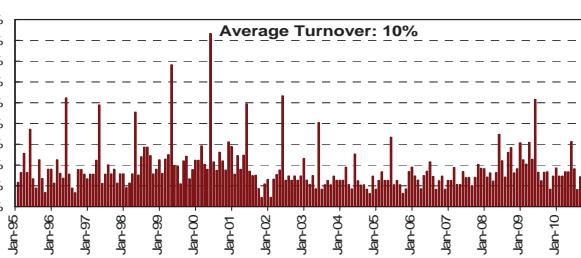
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

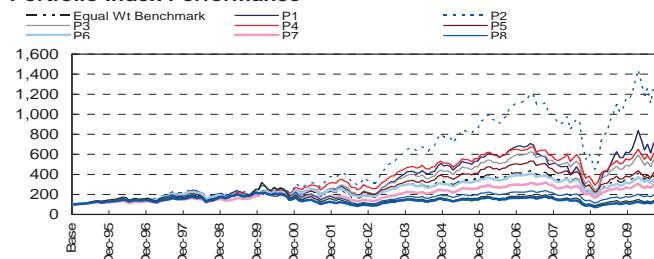


Turnover within Portfolio 1

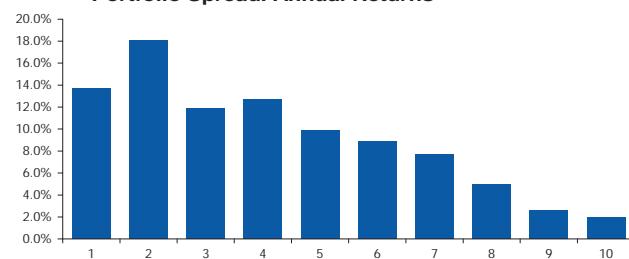


Sales Yield in Bottom 2000 Universe										Rebalance every 1 month(s)													
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010								
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics									
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.				
1	0.6%	4.9%	6%	52%	1	2.5%	27.5%	10%	63%	1	1.3%	7.5%	12%	53%	1	1.5%	13.7%	10%	55%				
2	1.1%	12.7%	5%	55%	2	2.6%	31.2%	8%	73%	2	1.3%	10.4%	10%	70%	2	1.7%	18.1%	8%	64%				
3	0.9%	10.0%	5%	50%	3	1.7%	18.8%	7%	60%	3	0.7%	4.5%	8%	67%	3	1.2%	11.9%	7%	58%				
4	1.0%	11.1%	5%	52%	4	1.8%	21.3%	6%	60%	4	0.6%	3.7%	8%	52%	4	1.2%	12.8%	6%	55%				
5	0.8%	8.4%	5%	47%	5	1.5%	16.6%	6%	63%	5	0.4%	1.5%	7%	50%	5	1.0%	9.9%	6%	54%				
6	0.9%	8.7%	6%	47%	6	1.1%	11.6%	7%	48%	6	0.5%	2.9%	7%	52%	6	0.9%	8.9%	6%	49%				
7	0.7%	6.5%	6%	45%	7	1.0%	9.6%	7%	45%	7	0.6%	4.8%	6%	52%	7	0.8%	7.7%	6%	46%				
8	1.0%	8.2%	8%	50%	8	0.3%	0.6%	7%	33%	8	0.4%	1.8%	6%	47%	8	0.6%	5.0%	7%	44%				
9	0.7%	4.5%	9%	48%	9	0.2%	-1.2%	7%	32%	9	0.1%	-1.5%	7%	43%	9	0.5%	2.6%	7%	43%				
10	0.5%	3.9%	7%	47%	10	0.3%	0.4%	7%	32%	10	0.1%	-2.0%	7%	38%	10	0.4%	1.9%	7%	38%				
Total Test					Total Test					Total Test					Total Test								
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	0.8%	1.5%	0.6%	1827	Universe	1.3%	5.0%	3.8%	1908	Universe	0.6%	1.3%	1.5%	1947	Universe	1.0%	2.4%	1.8%	1889

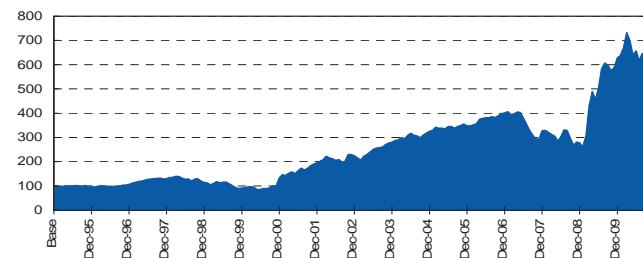
Portfolio Index Performance



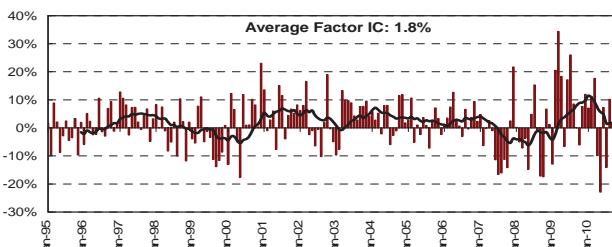
Portfolio Spread. Annual Returns



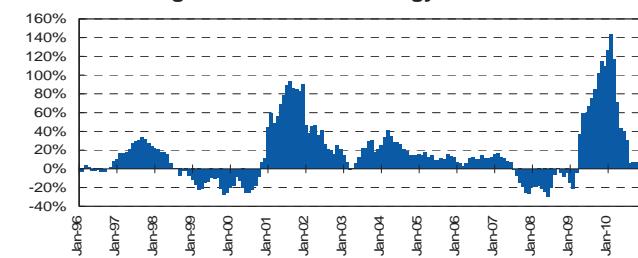
Cumulative Returns



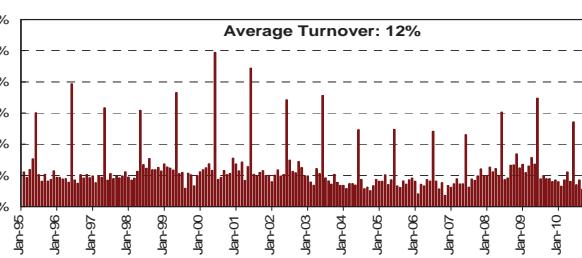
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



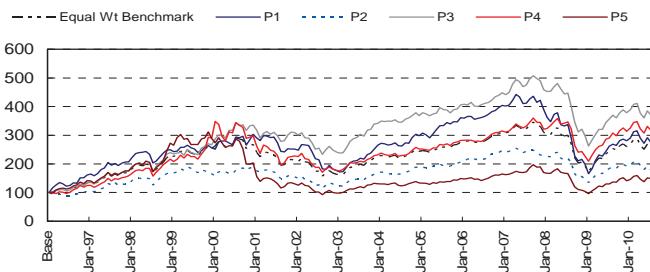
Turnover within Portfolio 1



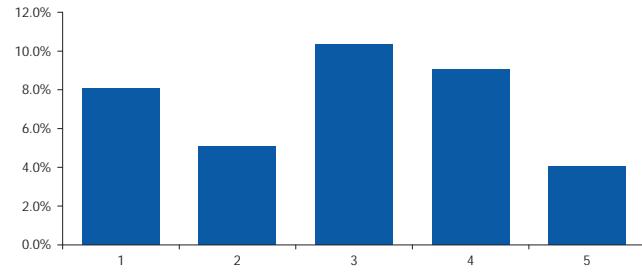
Sales Yield FY1

Sales Yield FY1 in Top 200 Universe										Rebalance every 1 month(s)																			
3 Year(s): 11/30/2001 to 11/30/2004					3 Year(s): 11/30/2004 to 11/30/2007					3 Year(s): 11/30/2007 to 11/30/2010					Total Period: 2/29/1996 to 11/30/2010														
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics															
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.										
1	0.5%	5.0%	5%	56%	1	1.0%	12.4%	3%	50%	1	-0.4%	-8.9%	8%	47%	1	0.8%	8.1%	6%	50%										
2	0.5%	5.0%	5%	56%	2	0.8%	9.2%	2%	47%	2	-0.2%	-4.5%	6%	39%	2	0.5%	5.1%	5%	46%										
3	0.6%	6.9%	4%	50%	3	0.9%	10.6%	2%	39%	3	-0.2%	-5.0%	6%	42%	3	0.9%	10.4%	5%	47%										
4	0.4%	3.5%	4%	50%	4	1.0%	11.9%	2%	58%	4	0.3%	1.2%	6%	56%	4	0.9%	9.0%	6%	53%										
5	0.2%	0.5%	5%	39%	5	1.0%	11.8%	3%	56%	5	0.1%	-1.7%	7%	69%	5	0.5%	4.0%	6%	51%										
Total Test					Total Test					Total Test					Total Test														
Avg Ret		Rank IC		Avg IC		Avg Ret		Rank IC		Avg IC		Avg Assets		Avg Ret		Rank IC		Avg IC		Avg Assets									
Universe	0.4%	2.7%	1.1%	197	Universe	0.9%	0.8%	0.7%	199	Universe	-0.1%	-1.8%	-1.8%	199	Universe	0.7%	1.0%	0.9%	180										
Long Short Strategy Statistics										Long Short Strategy Statistics																			
Portfolio 1 less Portfolio 5					Portfolio 1 less Portfolio 5					Portfolio 1 less Portfolio 5					Portfolio 1 less Portfolio 5														
Avg Ret		Ann Ret		Std Devn		% Out Perf.		Avg Ret		Ann Ret		Std Devn		% Out Perf.		Avg Ret		Ann Ret		Std Devn		% Out Perf.							
Long/Short	0.4%	4.1%	3%	61%	Long/Short	0.0%	0.2%	2%	56%	Long/Short	-0.5%	-6.8%	4%	47%	Long/Short	0.3%	2.55%	4.1%	55%	Long/Short	T-Stat	0.10	80	T-Stat	-0.90	80			
Long/Short										Long/Short										Long/Short									
Avg Assets		Avg Assets		Avg Assets		Avg Assets		Avg Assets		Avg Assets		Avg Assets		Avg Assets		Avg Assets		Avg Assets		Avg Assets		Avg Assets							

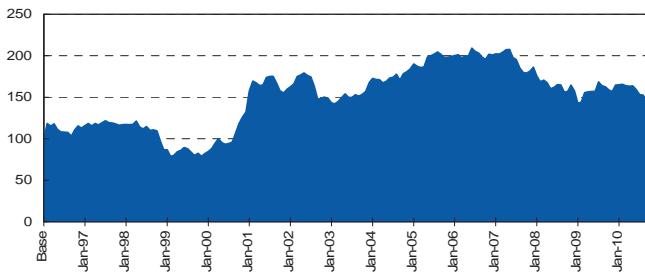
Portfolio Index Performance



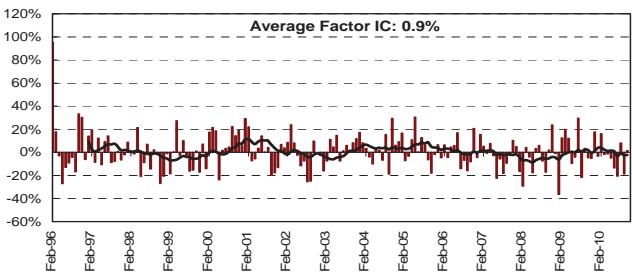
Portfolio Spread. Annual Returns



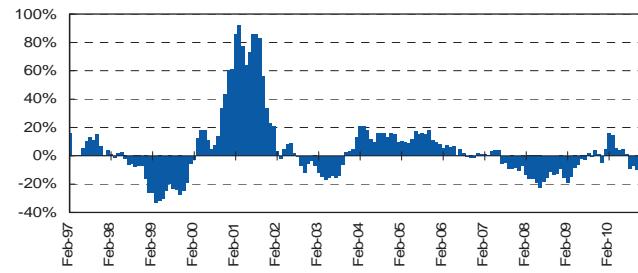
Cumulative Returns



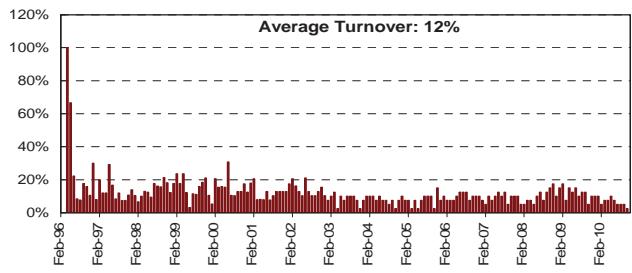
Information Co-Efficients (IC)

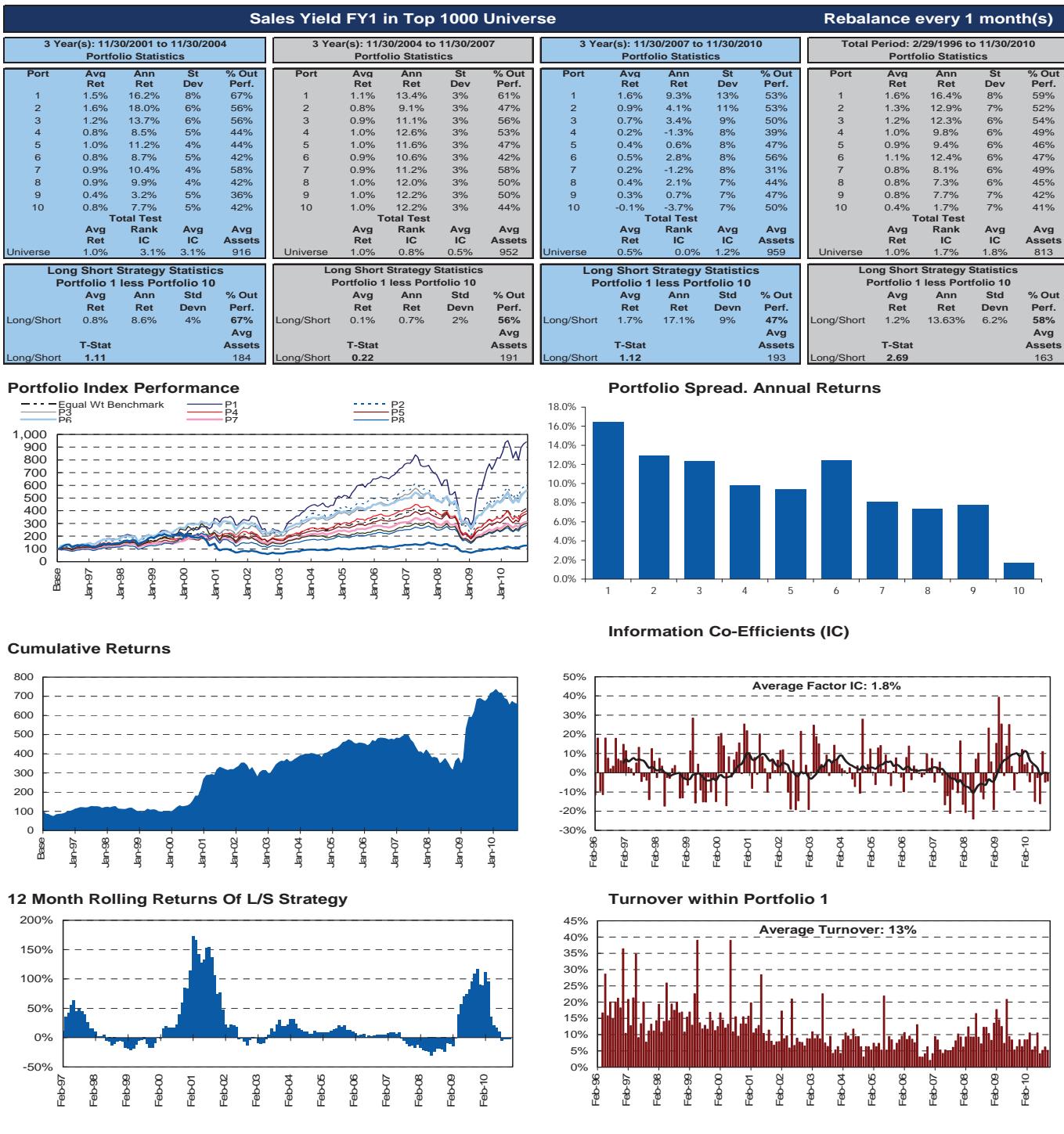


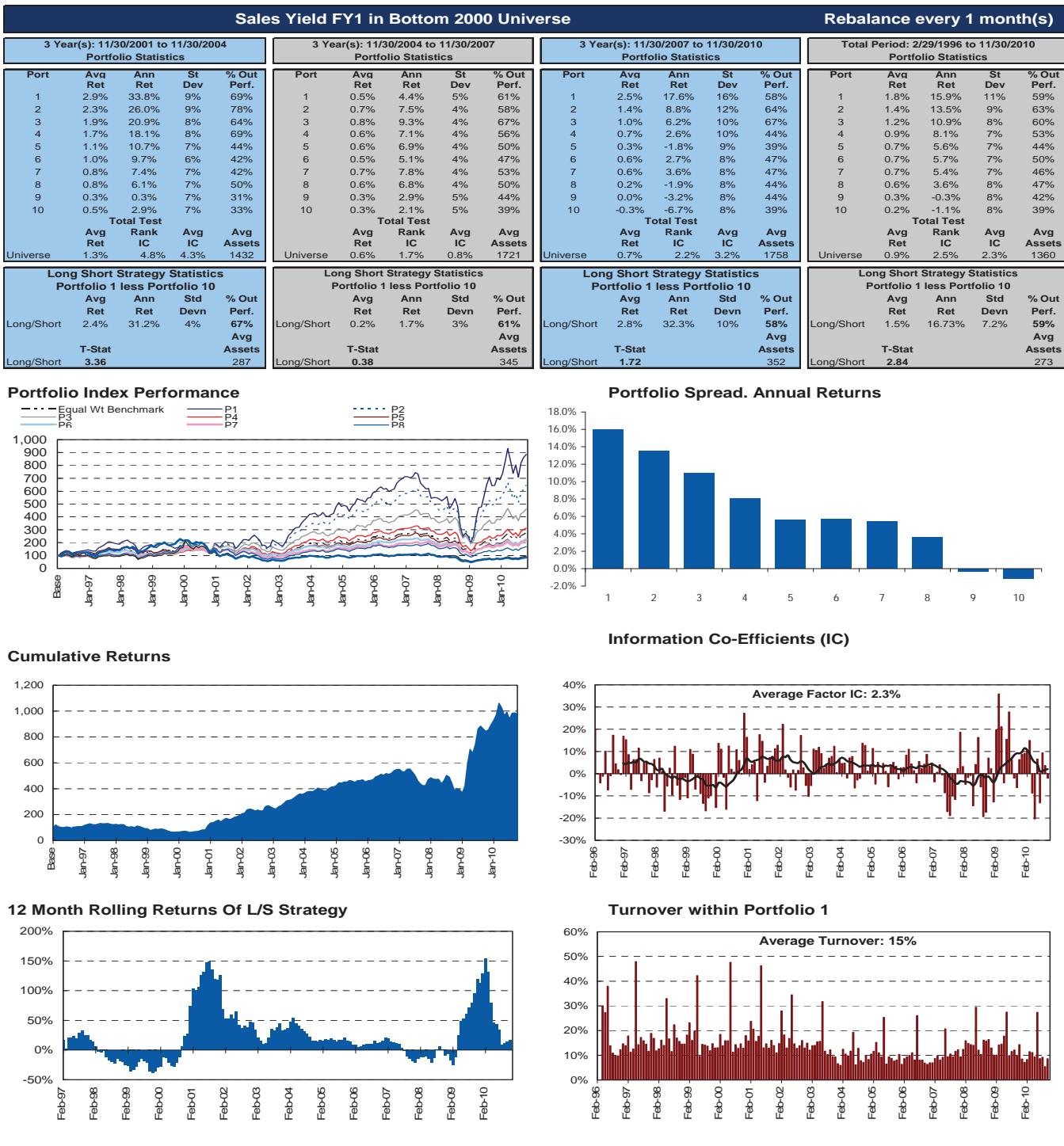
12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1



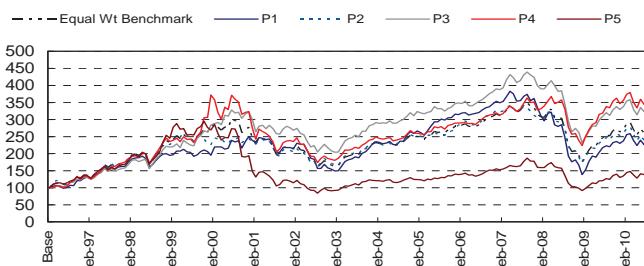




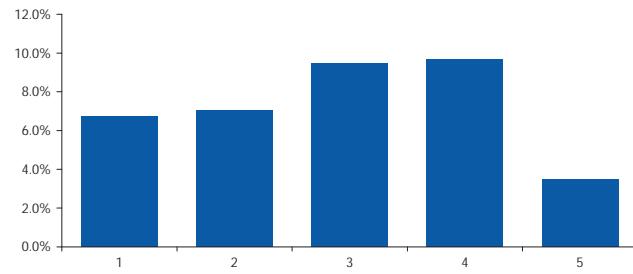
Sales Yield FY2

Sales Yield FY2 in Top 200 Universe								Rebalance every 1 month(s)													
3 Year(s): 11/30/2001 to 11/30/2004				3 Year(s): 11/30/2004 to 11/30/2007				3 Year(s): 11/30/2007 to 11/30/2010				Total Period: 3/31/1996 to 11/30/2010									
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.		
1	0.6%	5.1%	5%	61%	1	1.0%	11.8%	3%	53%	1	-0.5%	-9.9%	8%	42%	1	0.7%	6.7%	6%	50%		
2	0.5%	5.4%	5%	50%	2	0.8%	9.3%	2%	44%	2	-0.3%	-5.6%	6%	36%	2	0.7%	7.0%	5%	46%		
3	0.4%	4.3%	4%	47%	3	0.9%	11.6%	2%	47%	3	-0.2%	-4.3%	6%	44%	3	0.9%	9.5%	5%	48%		
4	0.4%	3.4%	4%	47%	4	0.9%	10.9%	2%	50%	4	0.5%	3.6%	6%	61%	4	0.9%	9.7%	6%	53%		
5	0.2%	1.1%	5%	39%	5	1.0%	12.2%	3%	58%	5	0.0%	-2.4%	7%	67%	5	0.5%	3.5%	6%	49%		
Total Test				Total Test				Total Test				Total Test				Total Test					
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	0.4%	2.6%	1.0%	194	Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	0.9%	0.5%	0.4%	200	Avg Ret	Rank IC	Avg IC	Avg Assets
Universe					Universe				Universe				Universe				Universe				

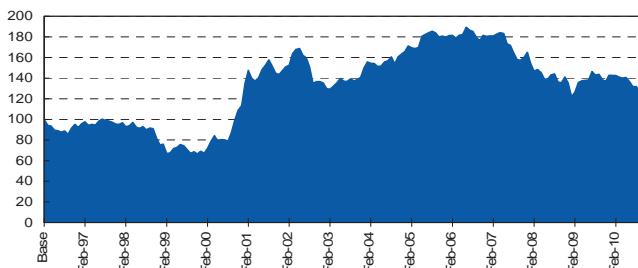
Portfolio Index Performance



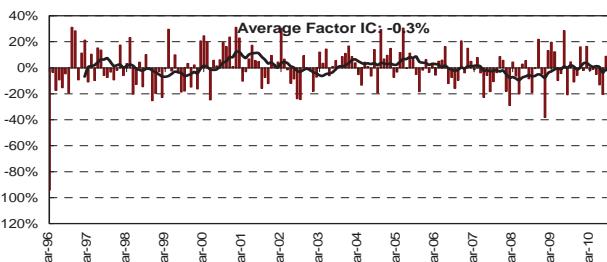
Portfolio Spread. Annual Returns



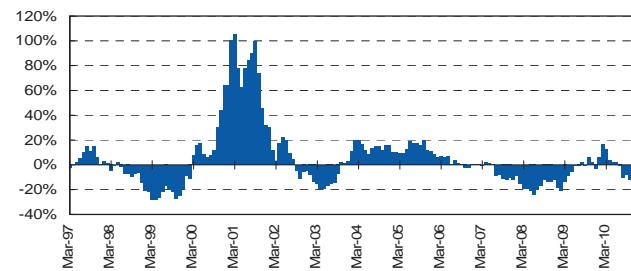
Cumulative Returns



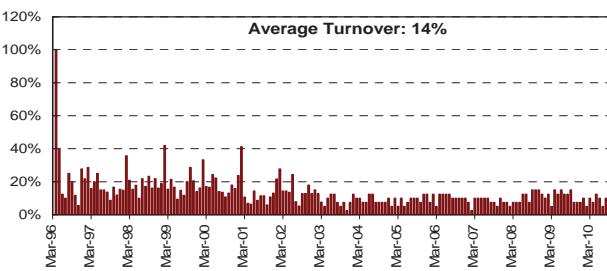
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

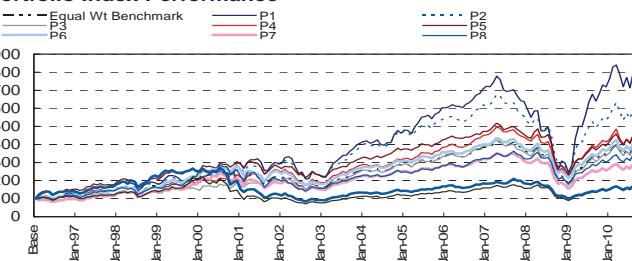


Turnover within Portfolio 1

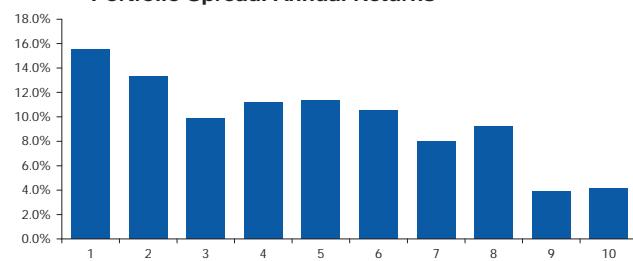


Sales Yield FY2 in Top 1000 Universe										Rebalance every 1 month(s)													
3 Year(s): 11/30/2001 to 11/30/2004					3 Year(s): 11/30/2004 to 11/30/2007					3 Year(s): 11/30/2007 to 11/30/2010					Total Period: 2/29/1996 to 11/30/2010								
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.				
1	1.6%	16.8%	8%	61%	1	1.1%	13.7%	3%	64%	1	1.5%	7.9%	14%	53%	1	1.5%	15.5%	8%	56%				
2	1.5%	16.6%	6%	61%	2	0.8%	9.8%	3%	53%	2	0.8%	2.6%	11%	47%	2	1.3%	13.3%	7%	55%				
3	1.1%	12.4%	6%	56%	3	0.9%	10.4%	3%	44%	3	0.6%	2.6%	9%	50%	3	1.0%	9.9%	7%	53%				
4	0.7%	7.5%	5%	36%	4	1.2%	14.3%	3%	64%	4	0.5%	1.3%	8%	42%	4	1.1%	11.2%	6%	49%				
5	0.9%	10.5%	5%	44%	5	0.8%	9.8%	2%	42%	5	0.4%	0.6%	8%	53%	5	1.1%	11.4%	6%	47%				
6	0.7%	7.5%	5%	39%	6	0.9%	10.3%	3%	47%	6	0.5%	2.9%	8%	58%	6	1.0%	10.6%	6%	50%				
7	0.9%	10.0%	5%	47%	7	0.9%	10.8%	3%	47%	7	0.1%	-2.3%	8%	31%	7	0.8%	8.0%	6%	45%				
8	0.6%	6.2%	5%	44%	8	1.0%	12.0%	3%	50%	8	0.5%	2.2%	7%	50%	8	0.9%	9.2%	6%	49%				
9	0.5%	4.2%	5%	36%	9	1.1%	13.0%	3%	56%	9	0.4%	1.6%	7%	64%	9	0.6%	3.9%	7%	47%				
10	0.6%	5.5%	6%	39%	10	1.0%	11.5%	3%	42%	10	0.0%	-2.9%	7%	47%	10	0.6%	4.2%	7%	42%				
Total Test					Total Test					Total Test					Total Test								
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	0.9%	3.3%	3.1%	872	Universe	1.0%	0.9%	0.6%	950	Universe	0.5%	-0.2%	0.7%	959	Universe	1.0%	1.5%	1.5%	767
Long Short Strategy Statistics										Long Short Strategy Statistics													
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10								
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.					
1.0%	11.0%	4%	64%	Long/Short	0.2%	1.5%	2%	56%	Long/Short	0.38	T-Stat	Assets	191	Long/Short	1.5%	15.0%	9%	50%	Long/Short	1.0%	9.97%	6.3%	56%
T-Stat				Long/Short					Long/Short					Long/Short					Long/Short				
1.32				175					191					193					2.06				

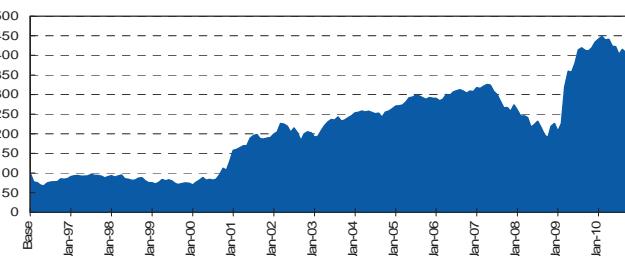
Portfolio Index Performance



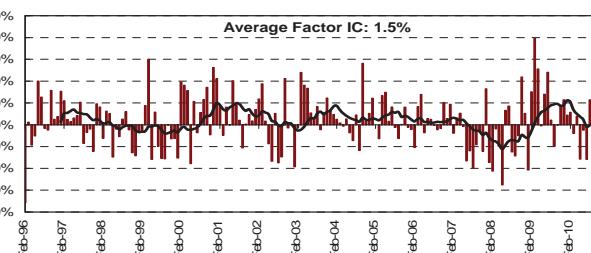
Portfolio Spread. Annual Returns



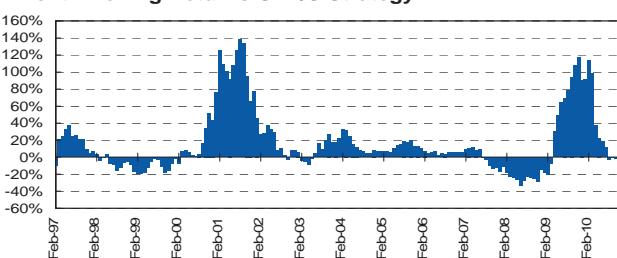
Cumulative Returns



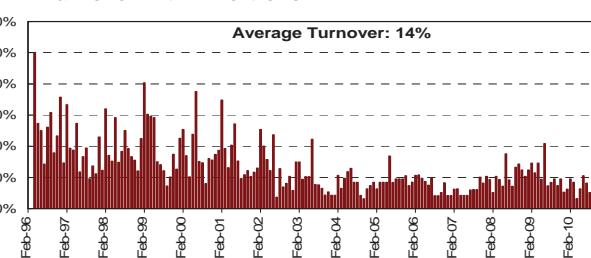
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

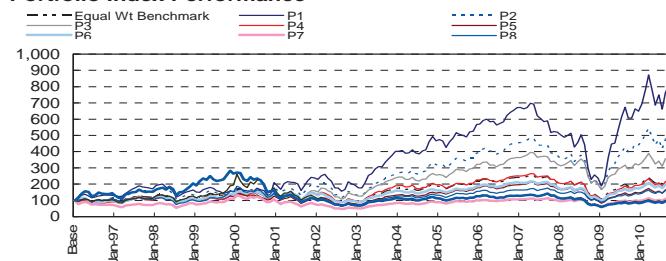


Turnover within Portfolio 1

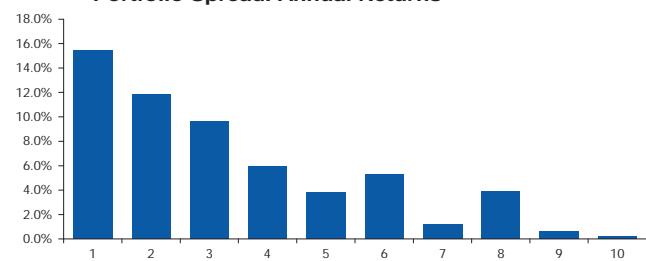


Sales Yield FY2 in Bottom 2000 Universe								Rebalance every 1 month(s)											
3 Year(s): 11/30/2001 to 11/30/2004				3 Year(s): 11/30/2004 to 11/30/2007				3 Year(s): 11/30/2007 to 11/30/2010				Total Period: 2/29/1996 to 11/30/2010							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	2.5%	27.8%	9%	69%	1	0.4%	3.8%	5%	58%	1	2.5%	17.0%	16%	58%	1	1.7%	15.4%	11%	59%
2	2.0%	21.4%	9%	72%	2	0.7%	7.5%	5%	61%	2	1.5%	10.3%	12%	67%	2	1.3%	11.9%	9%	62%
3	1.9%	20.7%	9%	56%	3	0.9%	10.0%	4%	72%	3	0.9%	4.6%	10%	61%	3	1.1%	9.6%	8%	58%
4	1.4%	14.5%	8%	58%	4	0.5%	5.3%	4%	50%	4	0.5%	0.8%	10%	47%	4	0.8%	5.9%	8%	53%
5	1.3%	13.3%	7%	58%	5	0.7%	8.3%	4%	58%	5	0.2%	-2.2%	9%	42%	5	0.6%	3.8%	7%	47%
6	0.8%	6.9%	7%	36%	6	0.6%	6.2%	4%	53%	6	0.6%	2.7%	9%	47%	6	0.7%	5.3%	7%	47%
7	0.6%	5.0%	7%	47%	7	0.5%	5.2%	4%	50%	7	0.6%	4.0%	8%	44%	7	0.4%	1.2%	8%	45%
8	0.8%	7.0%	7%	36%	8	0.7%	7.4%	4%	53%	8	0.5%	2.3%	8%	53%	8	0.6%	3.9%	8%	46%
9	0.0%	-2.7%	7%	28%	9	0.4%	3.4%	5%	50%	9	-0.1%	-4.8%	8%	39%	9	0.4%	0.6%	8%	44%
10	0.5%	3.3%	7%	39%	10	0.4%	3.6%	4%	33%	10	-0.3%	-7.6%	8%	36%	10	0.4%	0.2%	8%	40%
Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets				
Universe	1.2%	4.3%	3.7%	1318	Universe	0.6%	1.5%	0.6%	1691	Universe	0.7%	2.0%	3.1%	1740	Universe	0.8%	2.1%	2.0%	1251
Long Short Strategy Statistics								Long Short Strategy Statistics											
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.				
Long/Short	1.9%	24.9%	4%	64%	Long/Short	0.0%	-0.1%	3%	61%	Long/Short	2.8%	33.1%	10%	64%	Long/Short	1.4%	14.52%	7.5%	58%
T-Stat				Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets			
Long/Short	2.89			264	Long/Short	0.07			339	Long/Short	1.74			349	Long/Short	2.47			251

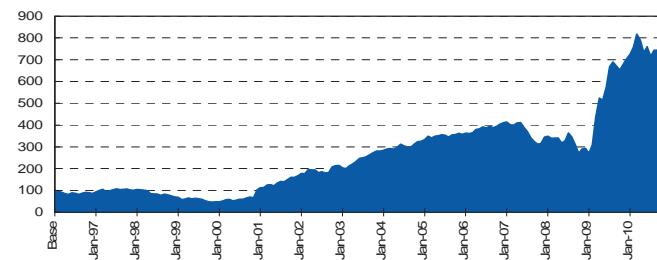
Portfolio Index Performance



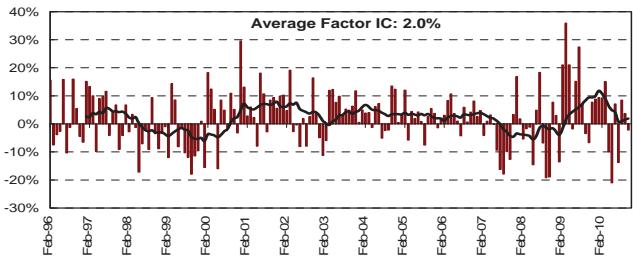
Portfolio Spread. Annual Returns



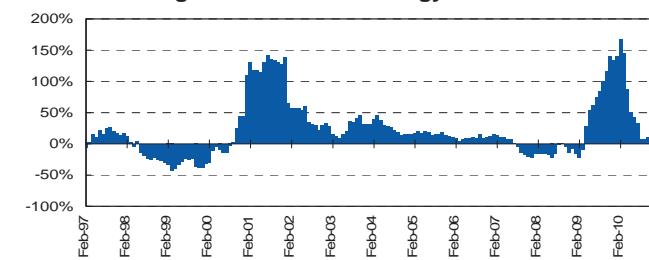
Cumulative Returns



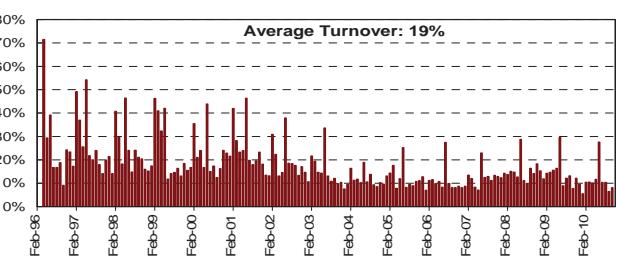
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



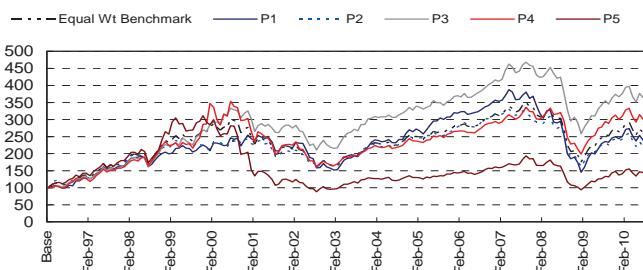
Turnover within Portfolio 1



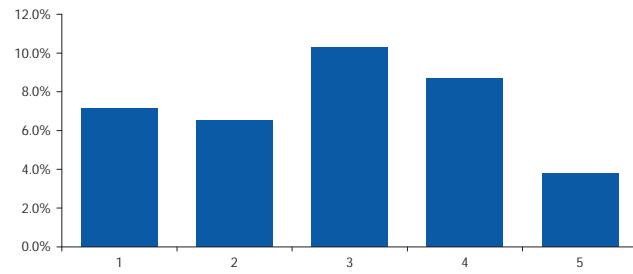
Sales Yield Mean FY1 FY2

Sales Yield Mean FY1 FY2 in Top 200 Universe								Rebalance every 1 month(s)																										
3 Year(s): 11/30/2001 to 11/30/2004				3 Year(s): 11/30/2004 to 11/30/2007				3 Year(s): 11/30/2007 to 11/30/2010				Total Period: 3/31/1996 to 11/30/2010																						
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics																				
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.															
1	0.5%	5.0%	5%	58%	1	1.0%	11.8%	3%	50%	1	-0.4%	-8.8%	8%	50%	1	0.7%	7.1%	6%	51%															
2	0.5%	5.4%	4%	56%	2	0.7%	8.6%	2%	42%	2	-0.4%	-6.6%	7%	42%	2	0.7%	6.5%	5%	48%															
3	0.5%	5.6%	4%	53%	3	1.0%	12.1%	2%	56%	3	-0.1%	-2.9%	6%	44%	3	0.9%	10.3%	5%	54%															
4	0.2%	1.5%	4%	47%	4	0.9%	11.4%	2%	50%	4	0.3%	1.8%	6%	56%	4	0.9%	8.7%	6%	52%															
5	0.3%	1.9%	5%	42%	5	1.0%	12.0%	3%	58%	5	0.1%	-2.2%	7%	69%	5	0.5%	3.8%	6%	51%															
Total Test				Total Test				Total Test				Total Test				Total Test																		
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets															
Universe	0.4%	2.6%	1.0%	194	Universe	0.9%	0.6%	0.5%	199	Universe	-0.1%	-2.0%	-2.0%	199	Universe	0.8%	0.4%	-0.3%	175															
Long Short Strategy Statistics																Long Short Strategy Statistics																		
Portfolio 1 less Portfolio 5																Portfolio 1 less Portfolio 5																		
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.							
Long/Short	0.3%	2.7%	3%	58%	Long/Short	0.0%	-0.5%	2%	56%	Long/Short	-0.5%	-6.3%	3%	53%	Long/Short	-0.85	-0.85	80	80	Long/Short	0.2%	1.64%	4.1%	54%	Long/Short	0.70	0.70	70	70					
T-Stat				Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat					
Long/Short	0.50			78	Long/Short	-0.05			80	Long/Short	-0.85			80	Long/Short	0.70			70	Long/Short	0.2%			54%	Long/Short	0.70			70	Long/Short				70

Portfolio Index Performance



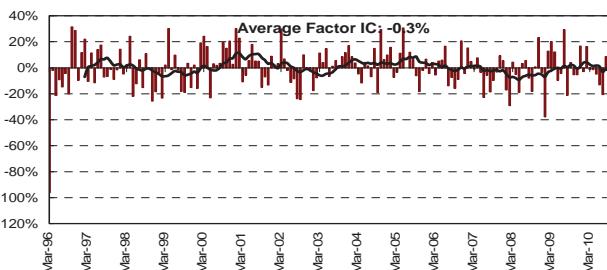
Portfolio Spread. Annual Returns



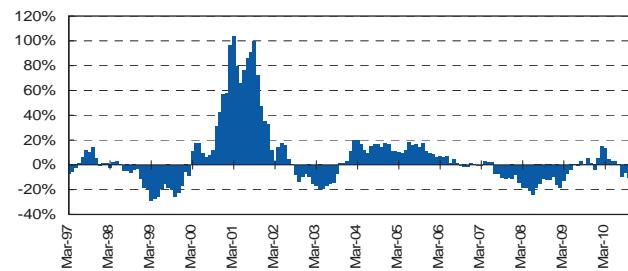
Cumulative Returns



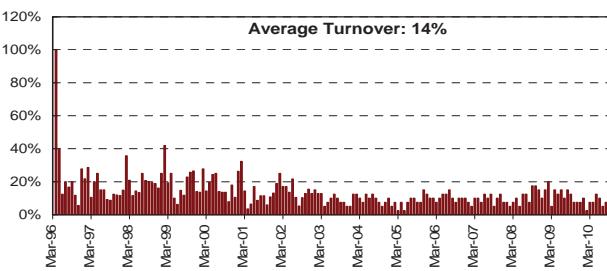
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

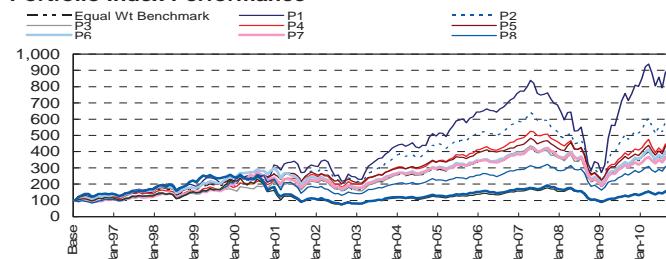


Turnover within Portfolio 1

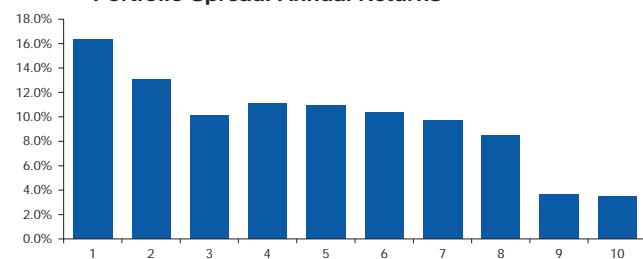


Sales Yield Mean FY1 FY2 in Top 1000 Universe								Rebalance every 1 month(s)															
3 Year(s): 11/30/2001 to 11/30/2004				3 Year(s): 11/30/2004 to 11/30/2007				3 Year(s): 11/30/2007 to 11/30/2010				Total Period: 2/29/1996 to 11/30/2010											
Portfolio Statistics								Portfolio Statistics															
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.				
1	1.6%	17.2%	8%	61%	1	1.2%	14.1%	3%	61%	1	1.6%	8.6%	14%	53%	1	1.6%	16.3%	8%	57%				
2	1.5%	16.5%	6%	58%	2	0.8%	9.7%	3%	53%	2	0.9%	3.6%	11%	50%	2	1.3%	13.1%	7%	53%				
3	1.0%	11.0%	6%	56%	3	0.8%	9.8%	3%	44%	3	0.7%	3.4%	9%	61%	3	1.0%	10.2%	7%	53%				
4	1.0%	10.2%	5%	56%	4	1.1%	13.7%	3%	69%	4	0.3%	-0.7%	8%	33%	4	1.1%	11.1%	6%	52%				
5	0.8%	8.7%	4%	39%	5	0.9%	10.4%	2%	44%	5	0.4%	1.1%	8%	47%	5	1.1%	11.0%	6%	47%				
6	0.7%	7.4%	5%	33%	6	0.9%	10.8%	3%	39%	6	0.5%	2.6%	8%	53%	6	1.0%	10.4%	6%	47%				
7	0.9%	10.5%	4%	56%	7	0.9%	11.4%	3%	64%	7	0.2%	-1.2%	8%	36%	7	0.9%	9.7%	6%	51%				
8	0.7%	7.2%	5%	47%	8	0.9%	11.0%	3%	53%	8	0.5%	2.6%	7%	42%	8	0.9%	8.4%	7%	47%				
9	0.3%	2.4%	5%	33%	9	1.0%	12.6%	3%	50%	9	0.3%	-0.1%	7%	47%	9	0.5%	3.6%	7%	40%				
10	0.6%	6.0%	6%	42%	10	1.0%	12.1%	3%	42%	10	-0.1%	-3.2%	7%	47%	10	0.5%	3.5%	7%	40%				
Total Test				Total Test				Total Test				Total Test											
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets								
Universe	0.9%	3.3%	3.2%	870	Universe	1.0%	0.8%	0.6%	947	Universe	0.5%	-0.1%	1.0%	958	Universe	1.0%	1.6%	1.6%	764				
Long Short Strategy Statistics								Long Short Strategy Statistics								Long Short Strategy Statistics							
Portfolio 1 less Portfolio 10								Portfolio 1 less Portfolio 10								Portfolio 1 less Portfolio 10							
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.
Long/Short	1.0%	11.0%	4%	61%	Long/Short	0.1%	1.4%	2%	56%	Long/Short	1.6%	16.2%	9%	50%	Long/Short	1.1%	11.46%	6.3%	57%	Long/Short	2.30	154	
T-Stat				175	T-Stat				190	T-Stat				192	T-Stat					T-Stat			

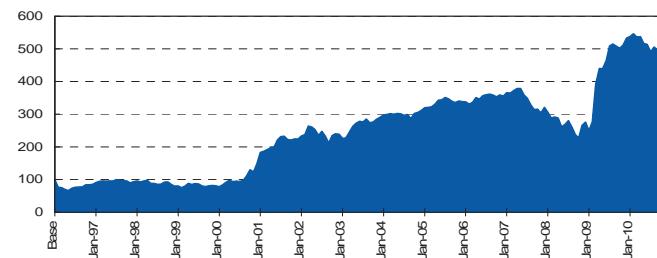
Portfolio Index Performance



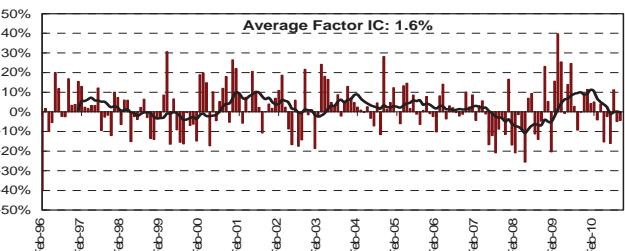
Portfolio Spread. Annual Returns



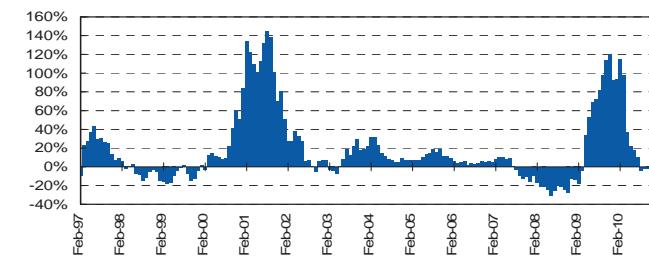
Cumulative Returns



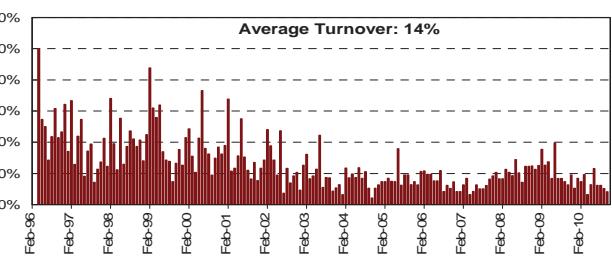
Information Co-Efficients (IC)

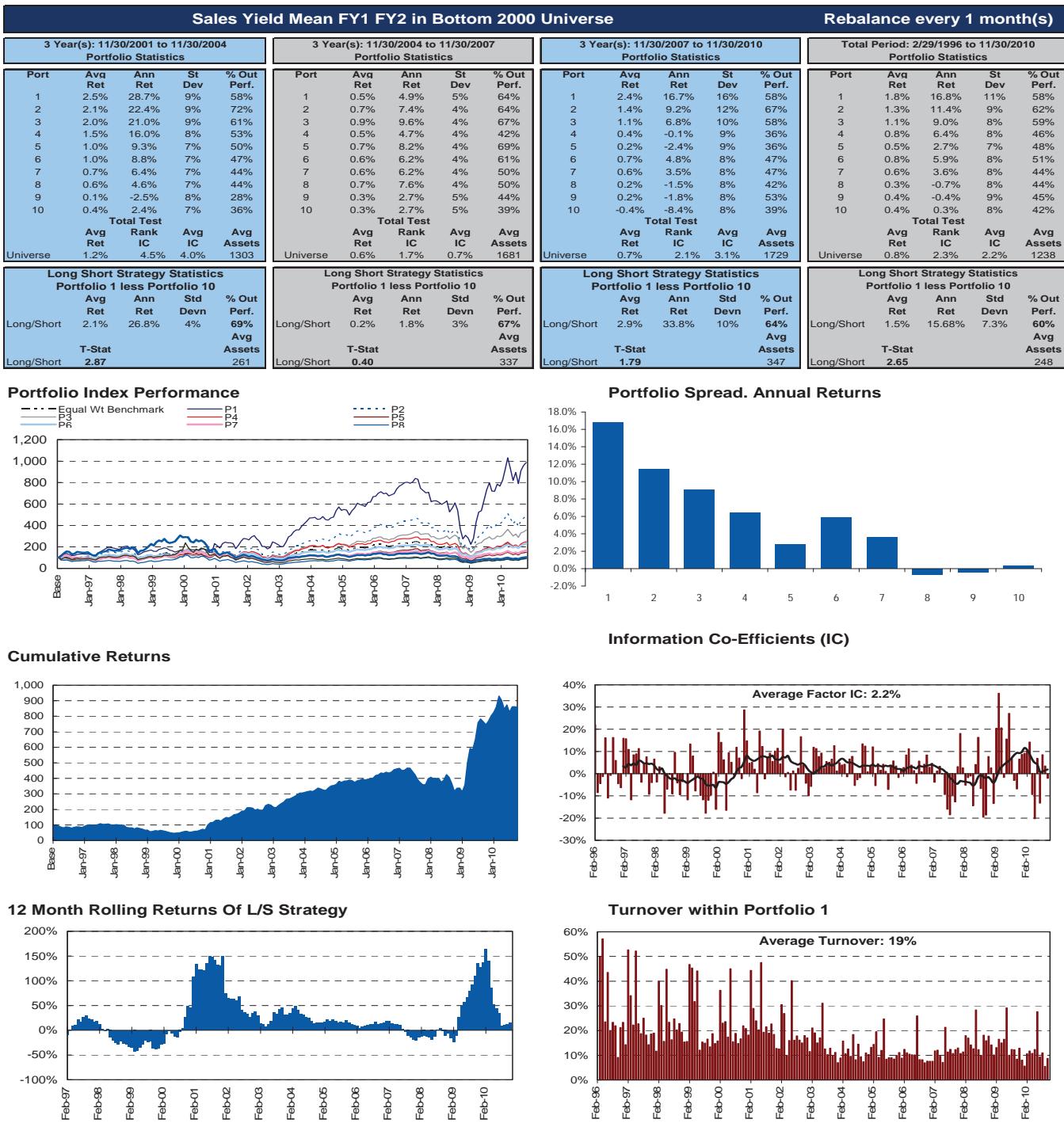


12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

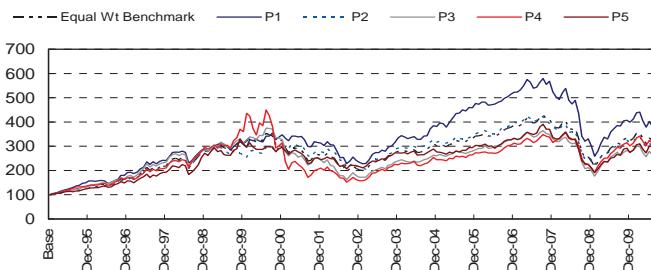




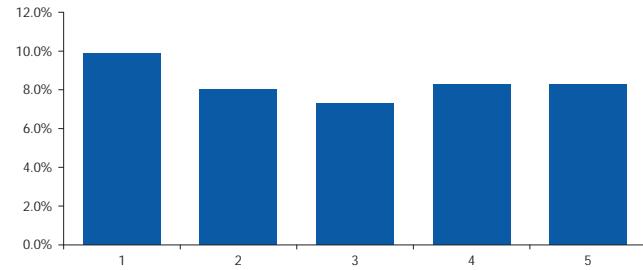
Sales to EV (incl MV)

Sales to EV (incl MV) in Top 200 Universe								Rebalance every 1 month(s)															
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010											
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics									
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.				
1	1.5%	17.4%	5%	42%	1	0.7%	7.0%	4%	50%	1	0.1%	-0.7%	6%	45%	1	0.9%	9.9%	5%	47%				
2	1.5%	17.9%	5%	55%	2	0.4%	4.1%	5%	52%	2	0.1%	0.1%	5%	40%	2	0.8%	8.0%	5%	48%				
3	1.7%	20.6%	5%	55%	3	-0.2%	-3.8%	5%	37%	3	0.3%	2.0%	6%	45%	3	0.7%	7.3%	5%	46%				
4	1.6%	17.1%	7%	45%	4	0.0%	-2.1%	6%	52%	4	0.6%	6.0%	5%	53%	4	0.9%	8.3%	6%	52%				
5	1.5%	18.1%	5%	45%	5	0.2%	1.2%	4%	43%	5	0.4%	3.7%	5%	60%	5	0.8%	8.3%	5%	48%				
Total Test				Total Test				Total Test				Total Test				Total Test							
Avg Ret		Rank IC		Avg IC		Avg IC		Avg Assets		Avg Ret		Rank IC		Avg IC		Avg Assets		Avg Assets					
Universe	1.6%	0.9%	0.3%	181	Universe	0.2%	3.4%	3.6%	198	Universe	0.3%	-1.8%	-1.5%	199	Universe	0.8%	1.1%	1.3%	191				
Long Short Strategy Statistics								Long Short Strategy Statistics								Long Short Strategy Statistics							
Portfolio 1 less Portfolio 5				Portfolio 1 less Portfolio 5				Portfolio 1 less Portfolio 5				Portfolio 1 less Portfolio 5				Portfolio 1 less Portfolio 5				Portfolio 1 less Portfolio 5			
Avg Ret		Ann Ret		Std Devn		% Out Perf.		Avg Ret		Ann Ret		Std Devn		% Out Perf.		Avg Ret		Ann Ret		Std Devn		% Out Perf.	
Long/Short	-0.1%	-1.7%	3%	48%	Long/Short	0.5%	5.7%	3%	52%	Long/Short	-0.3%	-4.1%	2%	42%	Long/Short	0.1%	1.16%	2.8%	50%	Long/Short	0.67		77
T-Stat		Avg Assets		T-Stat		Avg Assets		T-Stat		Avg Assets		T-Stat		Avg Assets		T-Stat		Avg Assets		T-Stat		Avg Assets	
Long/Short	-0.19	73		Long/Short	1.47		80	Long/Short	-1.11		80	Long/Short	-0.67		77	Long/Short	0.67		77	Long/Short			

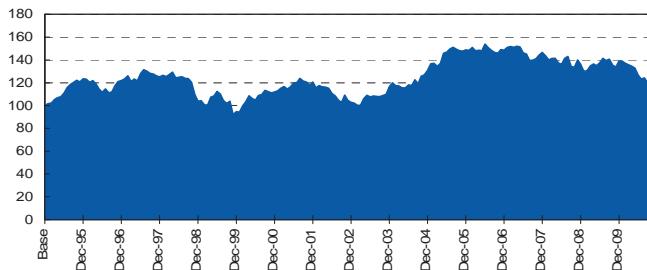
Portfolio Index Performance



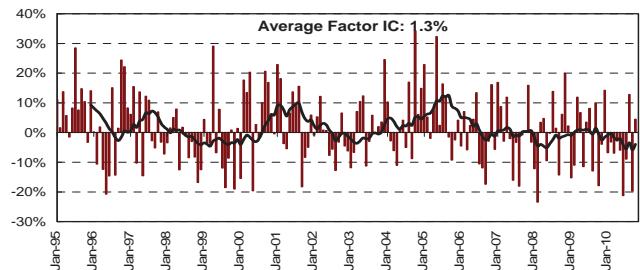
Portfolio Spread. Annual Returns



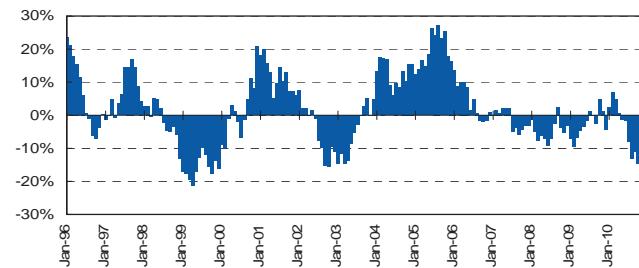
Cumulative Returns



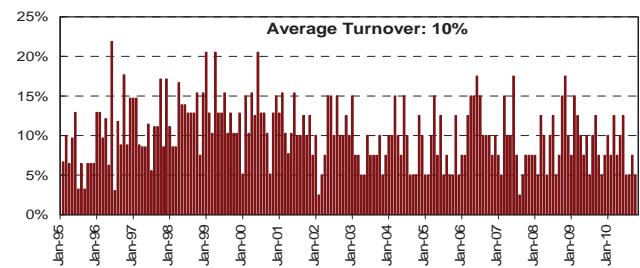
Information Co-Efficients (IC)

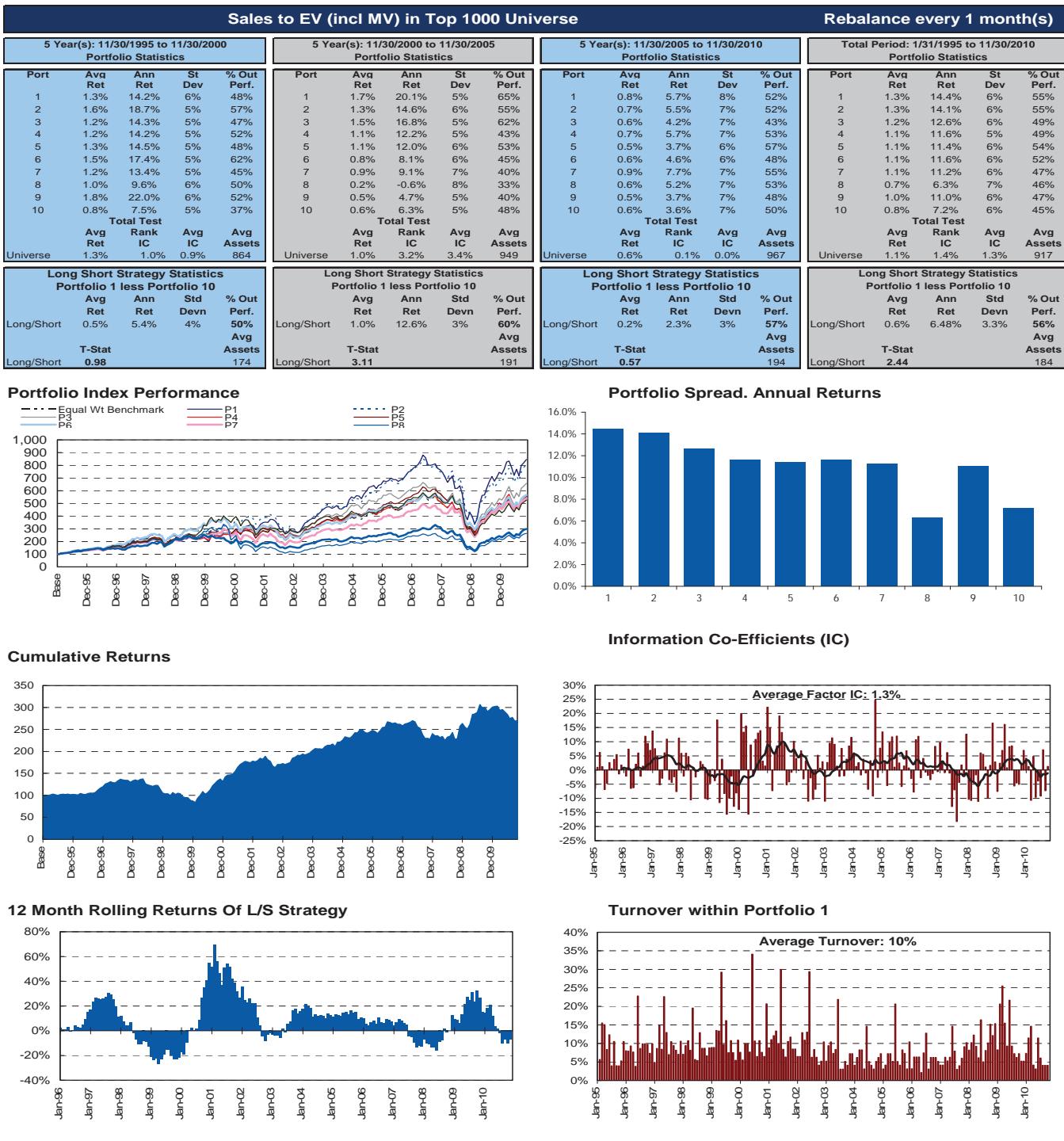


12 Month Rolling Returns Of L/S Strategy



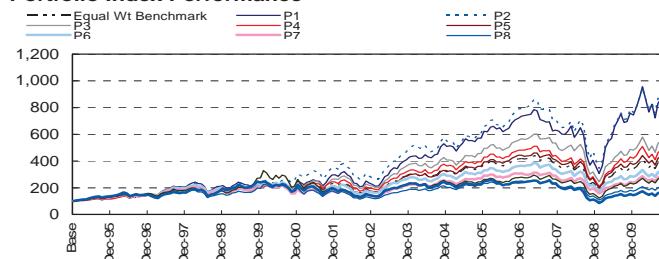
Turnover within Portfolio 1



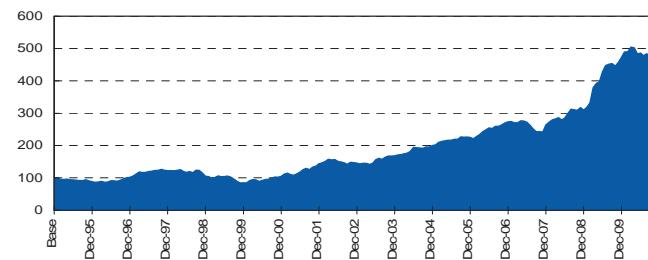


Sales to EV (incl MV) in Bottom 2000 Universe										Rebalance every 1 month(s)													
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010								
Portfolio Statistics										Portfolio Statistics													
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.				
1	0.9%	9.5%	6%	55%	1	2.1%	24.4%	8%	67%	1	1.2%	9.3%	10%	55%	1	1.4%	14.8%	8%	58%				
2	1.4%	15.6%	5%	58%	2	1.8%	20.5%	7%	63%	2	1.1%	9.3%	9%	63%	2	1.4%	15.2%	7%	60%				
3	0.9%	9.5%	5%	52%	3	1.7%	18.8%	7%	60%	3	0.7%	5.1%	8%	55%	3	1.2%	11.8%	7%	55%				
4	0.9%	9.8%	6%	60%	4	1.5%	16.5%	7%	52%	4	0.7%	5.0%	8%	47%	4	1.1%	10.8%	7%	51%				
5	0.7%	6.2%	6%	40%	5	1.4%	15.5%	7%	53%	5	0.7%	4.8%	8%	55%	5	1.0%	10.1%	7%	51%				
6	0.7%	6.0%	6%	55%	6	1.2%	11.6%	7%	42%	6	0.4%	1.8%	7%	43%	6	0.9%	8.1%	7%	49%				
7	0.6%	4.7%	6%	35%	7	1.2%	11.5%	7%	47%	7	0.4%	2.1%	6%	48%	7	0.8%	7.2%	6%	44%				
8	0.7%	6.3%	7%	40%	8	0.7%	5.8%	7%	43%	8	0.2%	-0.2%	7%	35%	8	0.6%	5.0%	7%	41%				
9	1.2%	10.5%	8%	50%	9	0.6%	3.6%	8%	33%	9	0.6%	3.4%	8%	38%	9	0.8%	6.9%	8%	42%				
10	0.7%	6.0%	7%	45%	10	0.7%	5.7%	8%	32%	10	-0.1%	-5.2%	8%	45%	10	0.6%	3.6%	7%	42%				
Total Test					Total Test					Total Test					Total Test								
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	0.9%	1.4%	1.1%	1733	Universe	1.3%	3.5%	2.9%	1893	Universe	0.6%	2.1%	1.6%	1902	Universe	1.0%	2.1%	1.7%	1823
Long Short Strategy Statistics										Long Short Strategy Statistics													
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10								
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.					
0.2%	1.7%	4%	55%	Long/Short	1.4%	17.2%	3%	65%	Long/Short	1.3%	15.9%	3%	63%	Long/Short	0.9%	10.31%	3.2%	59%					
T-Stat				Long/Short	T-Stat				Long/Short	T-Stat				Long/Short	T-Stat								
0.43				347	3.85				379	3.16				381	3.76								

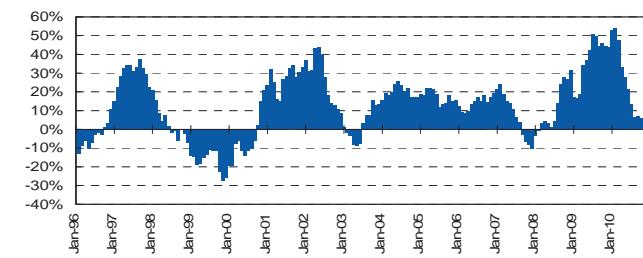
Portfolio Index Performance



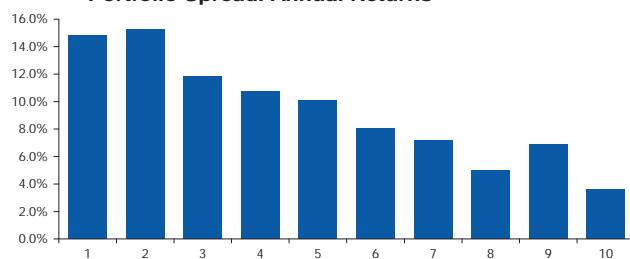
Cumulative Returns



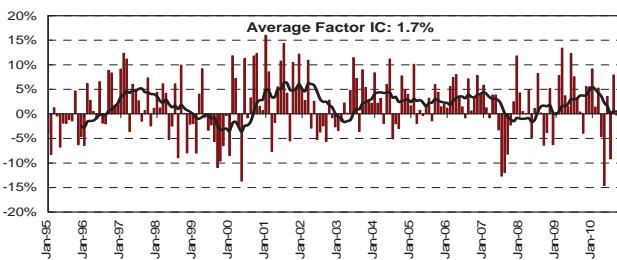
12 Month Rolling Returns Of L/S Strategy



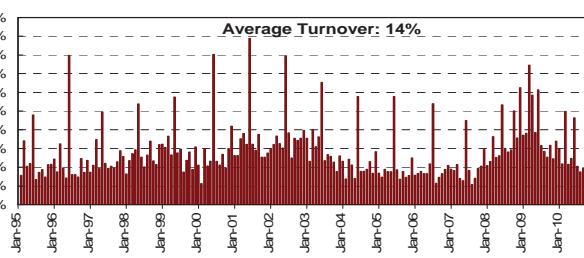
Portfolio Spread. Annual Returns



Information Co-Efficients (IC)



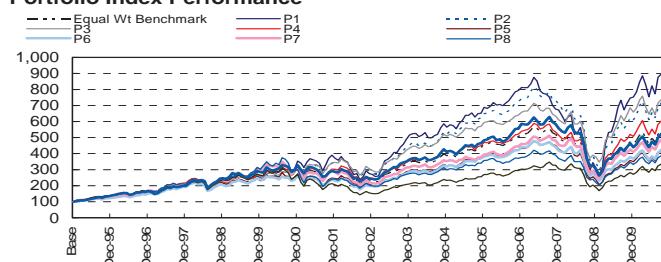
Turnover within Portfolio 1



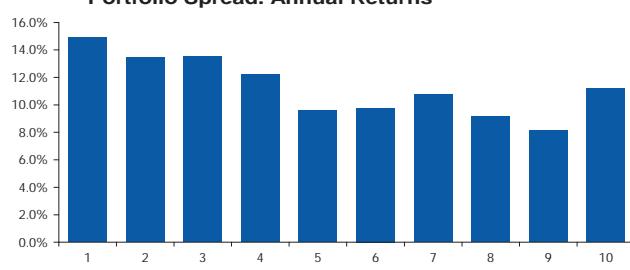
Book Value Yield

Book Value Yield in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.5%	17.4%	5%	45%	1	1.6%	17.7%	7%	55%	1	1.0%	6.8%	10%	47%	1	1.4%	14.9%	8%	48%
2	1.4%	15.9%	5%	48%	2	1.5%	17.7%	5%	67%	2	0.6%	3.7%	8%	48%	2	1.2%	13.4%	6%	54%
3	1.3%	14.8%	5%	53%	3	1.4%	16.4%	6%	57%	3	0.7%	5.7%	7%	43%	3	1.2%	13.5%	6%	51%
4	1.3%	15.1%	5%	57%	4	1.0%	10.4%	5%	47%	4	0.8%	7.0%	7%	55%	4	1.1%	12.2%	6%	54%
5	1.1%	12.4%	5%	45%	5	0.9%	9.2%	5%	50%	5	0.5%	3.2%	6%	45%	5	0.9%	9.6%	5%	47%
6	1.2%	13.7%	5%	47%	6	0.9%	9.9%	5%	47%	6	0.5%	3.5%	6%	43%	6	0.9%	9.8%	5%	44%
7	1.4%	16.3%	5%	45%	7	0.7%	6.5%	6%	32%	7	0.7%	6.2%	6%	60%	7	1.0%	10.8%	6%	45%
8	1.4%	15.9%	6%	55%	8	0.5%	3.8%	6%	37%	8	0.4%	3.2%	6%	47%	8	0.9%	9.1%	6%	47%
9	1.1%	12.0%	6%	45%	9	0.3%	1.3%	6%	35%	9	0.7%	6.2%	6%	53%	9	0.8%	8.1%	6%	45%
10	1.5%	17.0%	5%	60%	10	0.9%	9.9%	5%	48%	10	0.5%	3.1%	6%	48%	10	1.0%	11.2%	6%	54%
Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets				
Universe	1.3%	-0.4%	0.2%	848	Universe	1.0%	2.7%	2.7%	947	Universe	0.6%	-0.2%	-0.2%	967	Universe	1.1%	0.6%	0.8%	910
Long Short Strategy Statistics								Long Short Strategy Statistics											
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Long/Short	0.0%	-0.6%	3%	47%	Long/Short	0.7%	8.2%	3%	57%	Long/Short	0.6%	5.4%	6%	43%	Long/Short	0.4%	3.88%	4.1%	48%
T-Stat	0.01			Avg Assets	T-Stat	1.71			Avg Assets	T-Stat	0.80			Avg Assets	T-Stat	1.32			Avg Assets

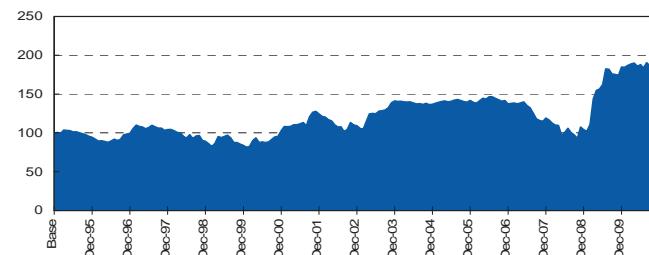
Portfolio Index Performance



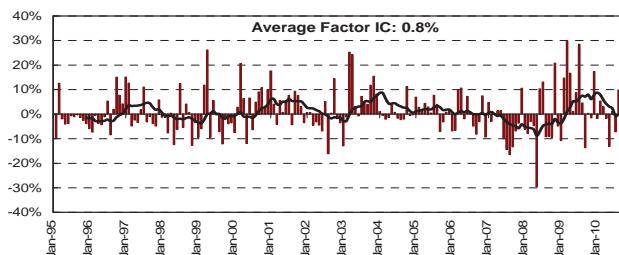
Portfolio Spread. Annual Returns



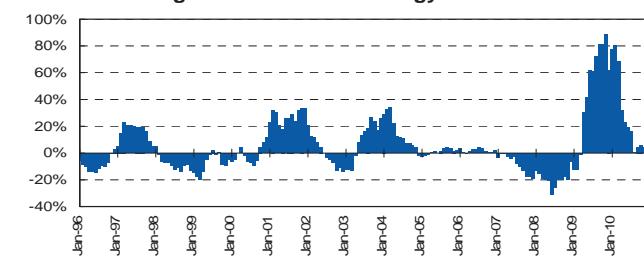
Cumulative Returns



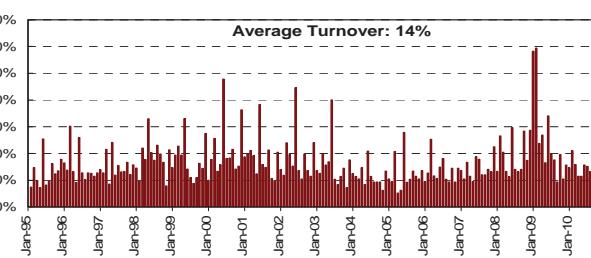
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

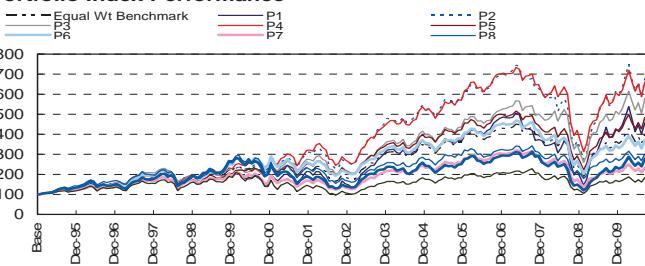


Turnover within Portfolio 1

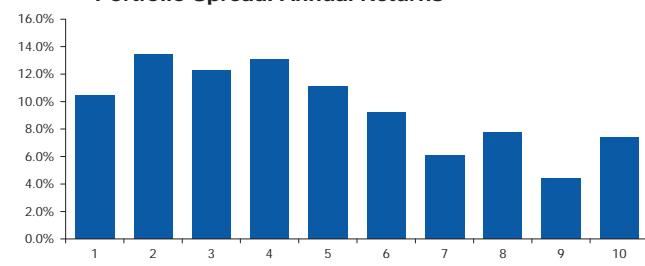


Book Value Yield in Bottom 2000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	0.4%	2.6%	6%	43%	1	2.0%	20.2%	10%	52%	1	1.0%	5.3%	11%	57%	1	1.2%	10.4%	9%	51%
2	1.1%	12.3%	5%	57%	2	1.8%	21.3%	7%	55%	2	0.8%	5.3%	9%	58%	2	1.3%	13.5%	7%	56%
3	0.8%	8.8%	5%	45%	3	1.6%	18.4%	6%	58%	3	0.9%	7.7%	8%	63%	3	1.2%	12.3%	6%	55%
4	1.2%	14.3%	5%	58%	4	1.7%	19.7%	6%	62%	4	0.6%	4.1%	8%	53%	4	1.2%	13.1%	6%	56%
5	0.9%	9.1%	6%	50%	5	1.5%	17.0%	7%	55%	5	0.7%	4.7%	7%	48%	5	1.1%	11.1%	6%	51%
6	1.2%	12.9%	6%	55%	6	1.1%	10.7%	6%	45%	6	0.4%	1.3%	7%	42%	6	0.9%	9.2%	6%	47%
7	0.5%	4.2%	6%	43%	7	1.1%	11.5%	7%	43%	7	0.2%	-0.5%	7%	40%	7	0.7%	6.1%	6%	42%
8	0.9%	8.5%	7%	53%	8	0.9%	7.8%	7%	43%	8	0.4%	1.8%	6%	38%	8	0.9%	7.8%	7%	47%
9	0.6%	3.9%	7%	43%	9	0.7%	5.6%	8%	35%	9	0.4%	1.5%	7%	42%	9	0.6%	4.4%	7%	39%
10	1.0%	8.5%	7%	52%	10	0.7%	5.3%	8%	38%	10	0.7%	4.5%	8%	60%	10	0.9%	7.4%	7%	51%
Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets				
Universe	0.9%	0.8%	0.1%	1694	Universe	1.3%	2.4%	2.2%	1887	Universe	0.6%	0.7%	0.3%	1916	Universe	1.0%	1.2%	0.9%	1808
Long Short Strategy Statistics								Long Short Strategy Statistics											
Portfolio 1 less Portfolio 10								Portfolio 1 less Portfolio 10											
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.				
Long/Short	-0.6%	-7.3%	4%	45%	Long/Short	1.3%	15.8%	4%	65%	Long/Short	0.4%	2.6%	5%	43%	Long/Short	0.4%	3.19%	4.6%	51%
T-Stat	Avg Assets		Avg Assets		T-Stat	Avg Assets		Avg Assets		T-Stat	Avg Assets		Avg Assets		T-Stat	Avg Assets		Avg Assets	
Long/Short	-1.06		340		Long/Short	2.32		378		Long/Short	0.50		384		Long/Short	1.09		362	

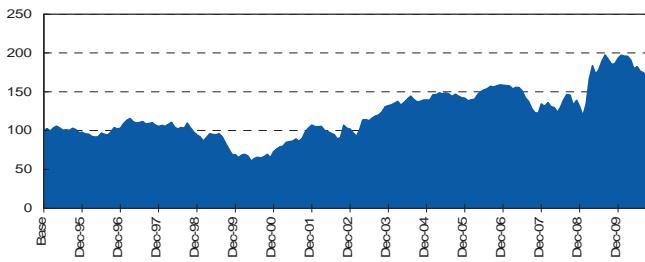
Portfolio Index Performance



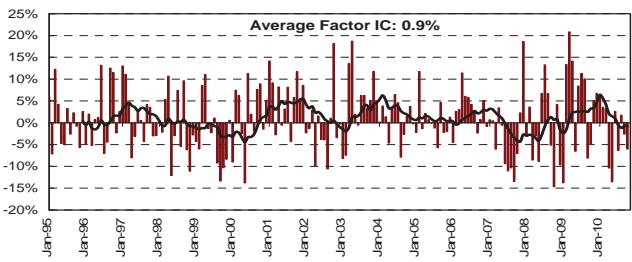
Portfolio Spread. Annual Returns



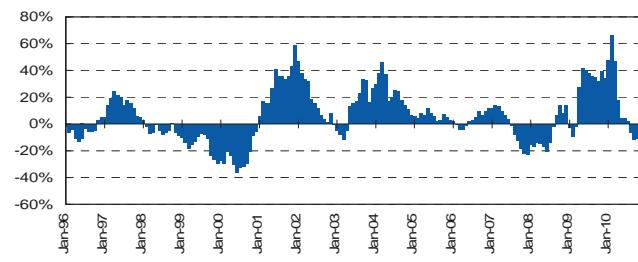
Cumulative Returns



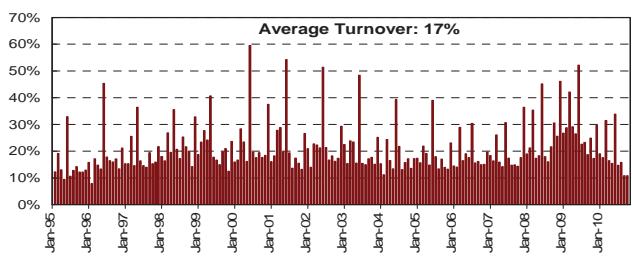
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



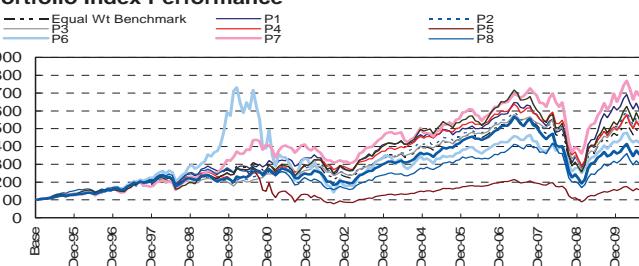
Turnover within Portfolio 1



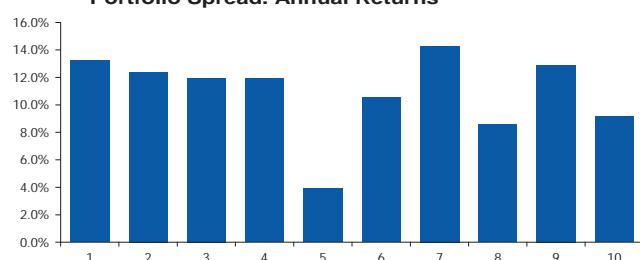
Dividend Yield

Dividend Yield in Top 1000 Universe										Rebalance every 1 month(s)									
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010				
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.4%	17.0%	5%	48%	1	1.0%	11.1%	5%	45%	1	0.9%	8.1%	8%	50%	1	1.2%	13.2%	6%	48%
2	1.2%	13.9%	4%	42%	2	1.2%	13.8%	4%	48%	2	1.1%	12.4%	5%	46%	2	1.1%	12.0%	5%	47%
3	1.0%	11.8%	4%	42%	3	1.1%	13.8%	4%	50%	3	0.8%	6.8%	6%	50%	3	1.1%	12.0%	5%	44%
4	1.2%	14.2%	5%	43%	4	1.3%	15.0%	4%	48%	4	0.5%	3.5%	6%	42%	4	1.1%	11.9%	5%	44%
5	0.6%	3.9%	7%	48%	5	0.6%	1.4%	10%	47%	5	0.4%	2.0%	6%	38%	5	0.6%	3.9%	8%	44%
6	2.3%	24.5%	9%	62%	6	0.6%	-1.7%	12%	48%	6	0.7%	6.3%	6%	53%	6	1.3%	10.5%	9%	54%
7	2.0%	23.5%	7%	60%	7	0.7%	7.6%	5%	50%	7	0.9%	8.6%	7%	55%	7	1.3%	14.3%	6%	55%
8	0.9%	9.8%	6%	47%	8	0.7%	6.5%	6%	50%	8	0.5%	2.8%	7%	52%	8	0.9%	8.6%	6%	51%
9	1.2%	13.1%	6%	40%	9	1.5%	17.0%	5%	57%	9	0.7%	5.1%	8%	52%	9	1.2%	12.9%	7%	49%
10	1.2%	13.8%	5%	43%	10	1.0%	11.3%	5%	58%	10	0.2%	-0.6%	8%	37%	10	0.9%	9.1%	6%	46%
Total Test					Total Test					Total Test					Total Test				
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	Avg Ret	Rank IC	Avg IC	Avg Assets	
1.3%	-0.4%	-0.1%	880	1.0%	-0.4%	0.2%	959	0.6%	1.4%	0.9%	975	1.1%	0.1%	0.2%	931				
Long Short Strategy Statistics																			
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10				
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	
0.2%	1.9%	3%	53%	Long/Short	0.0%	-0.4%	2%	42%	Long/Short	0.7%	8.1%	2%	60%	Long/Short	0.3%	3.15%	2.4%	52%	
T-Stat			Avg Assets	Long/Short	T-Stat			Avg Assets	Long/Short	T-Stat			Avg Assets	Long/Short	T-Stat			Avg Assets	
0.53			177	-0.03				193	2.44				196	1.64				187	

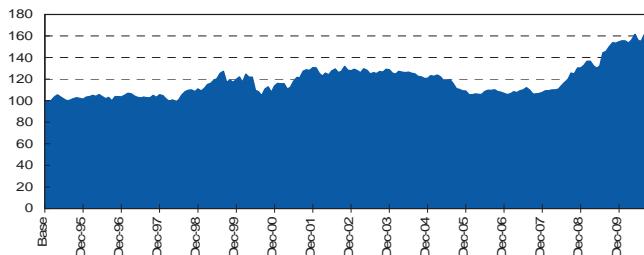
Portfolio Index Performance



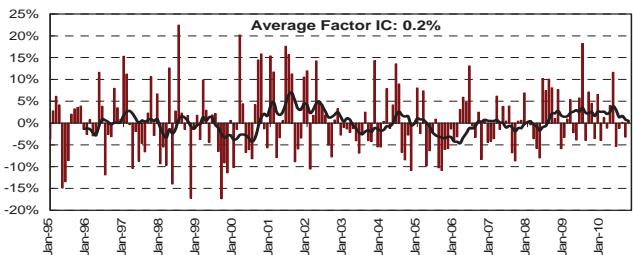
Portfolio Spread. Annual Returns



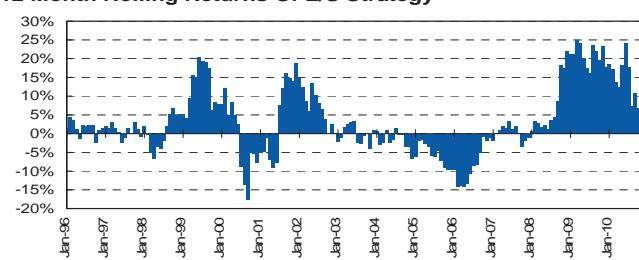
Cumulative Returns



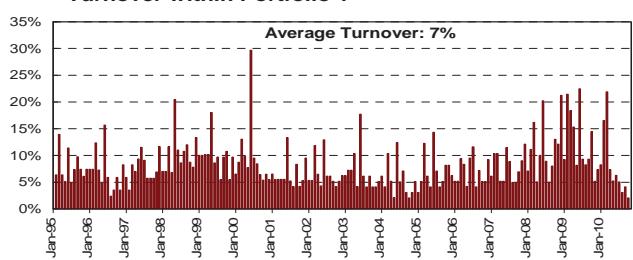
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

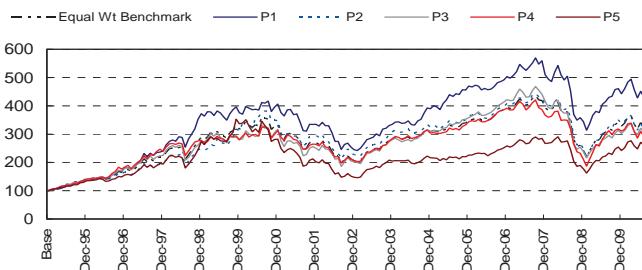




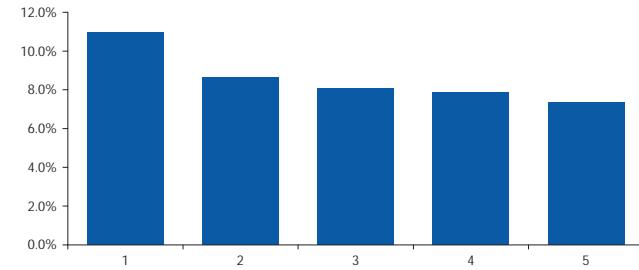
Asset Turnover

Asset Turnover in Top 200 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010				Portfolio Statistics			
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.9%	23.8%	5%	62%	1	0.4%	3.7%	4%	55%	1	0.3%	2.6%	5%	47%	1	1.0%	11.0%	5%	54%
2	1.7%	20.8%	5%	48%	2	0.1%	-0.1%	5%	42%	2	0.3%	1.4%	5%	50%	2	0.8%	8.7%	5%	47%
3	1.4%	16.6%	5%	52%	3	0.5%	4.2%	5%	58%	3	0.1%	-0.5%	5%	43%	3	0.8%	8.1%	5%	52%
4	1.4%	16.6%	5%	45%	4	0.3%	2.7%	4%	53%	4	0.2%	0.3%	6%	45%	4	0.8%	7.9%	5%	48%
5	1.5%	16.6%	6%	42%	5	-0.2%	-4.3%	5%	47%	5	0.7%	6.9%	5%	63%	5	0.7%	7.3%	5%	50%
Total Test				Total Test				Total Test				Total Test				Portfolio Statistics			
Avg Ret	1.6%	2.0%	2.1%	190	Avg Ret	0.2%	2.4%	2.4%	196	Avg Ret	0.3%	-0.9%	-1.0%	198	Avg Ret	0.8%	1.2%	1.1%	194
Universe					Universe					Universe					Universe				
Long Short Strategy Statistics																			
Portfolio 1 less Portfolio 5																			
Avg Ret	0.5%	4.9%	3%	62%	Avg Ret	0.6%	7.7%	2%	62%	Avg Ret	-0.3%	-4.3%	2%	43%	Avg Ret	0.3%	2.67%	2.5%	56%
Devn					Devn					Devn					Devn				
Perf.					Perf.					Perf.					Perf.				
Long/Short					Long/Short					Long/Short					Long/Short				
T-Stat	1.08				T-Stat	2.21				T-Stat	-1.39				T-Stat	1.37			
Avg Assets	77				Avg Assets	79				Avg Assets	79				Avg Assets	78			

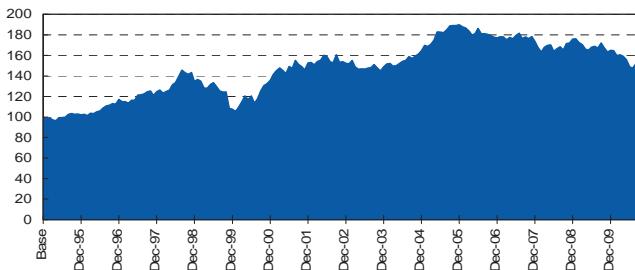
Portfolio Index Performance



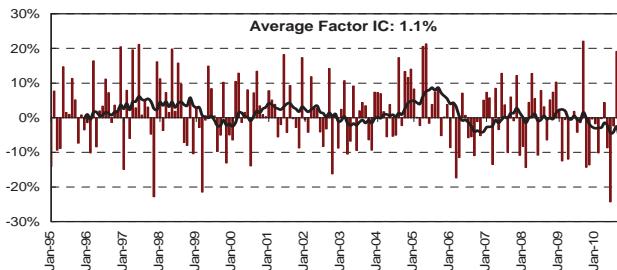
Portfolio Spread. Annual Returns



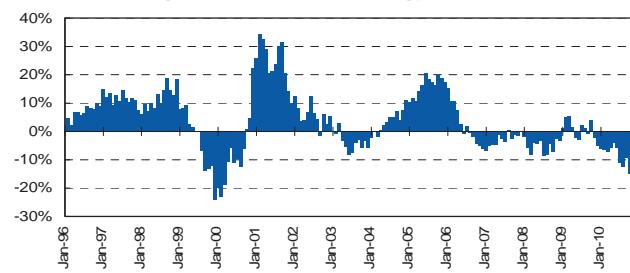
Cumulative Returns



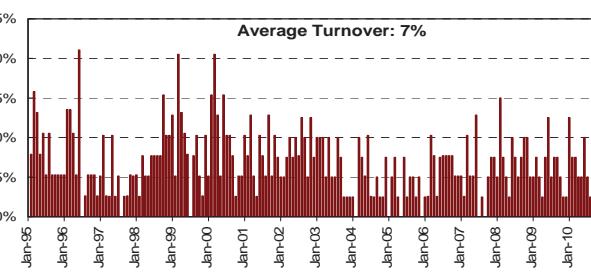
Information Co-Efficients (IC)

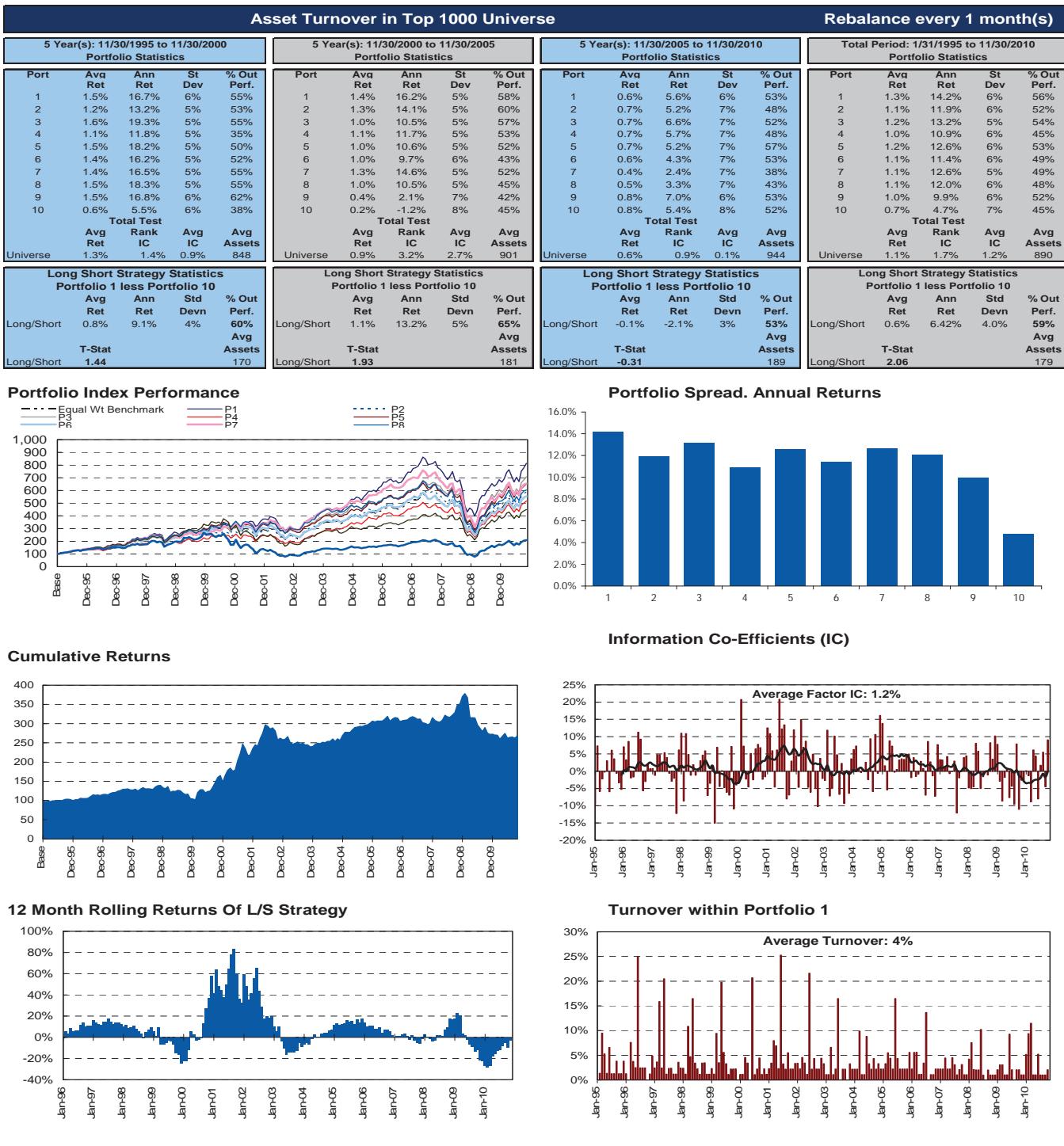


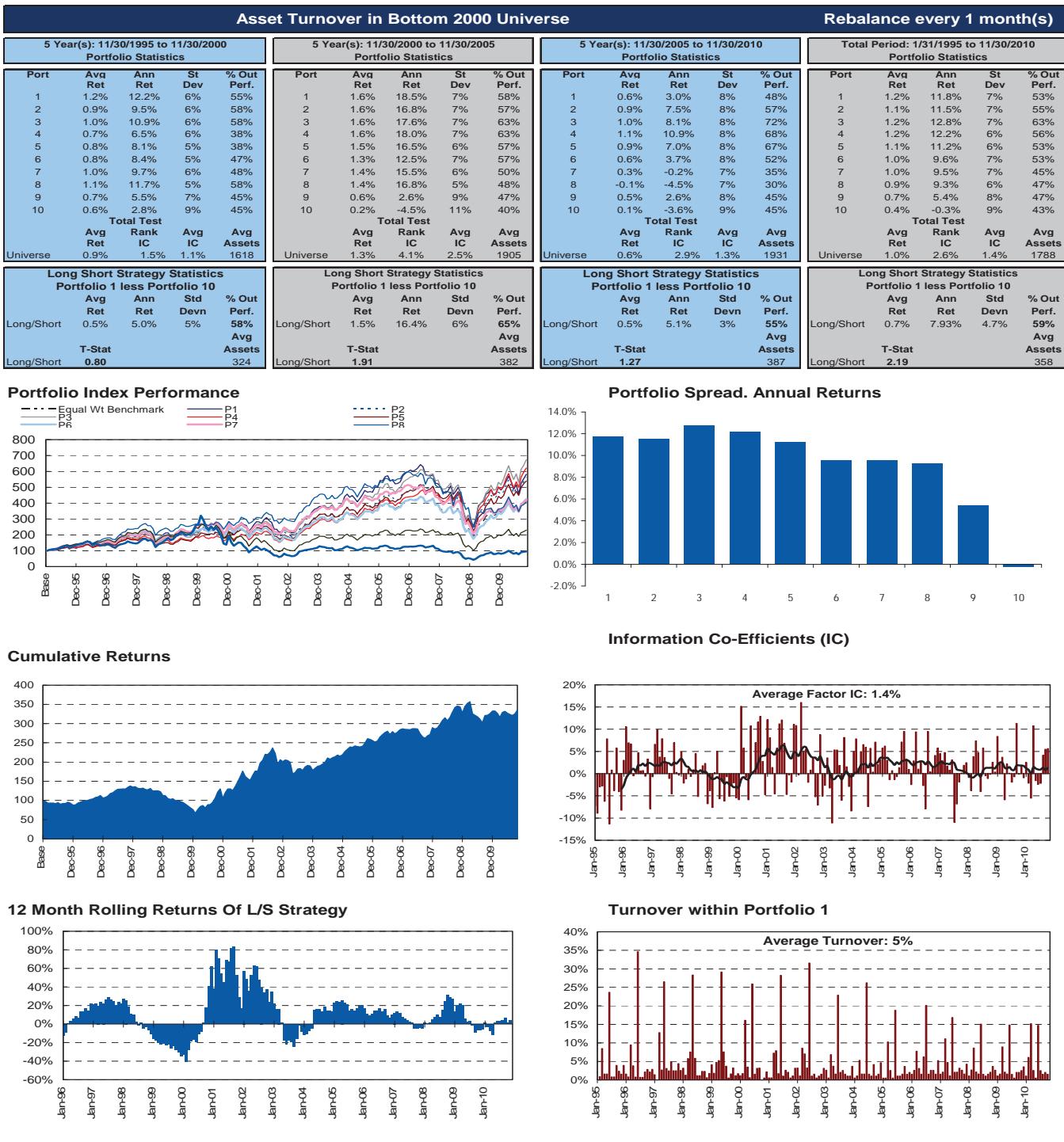
12 Month Rolling Returns Of L/S Strategy

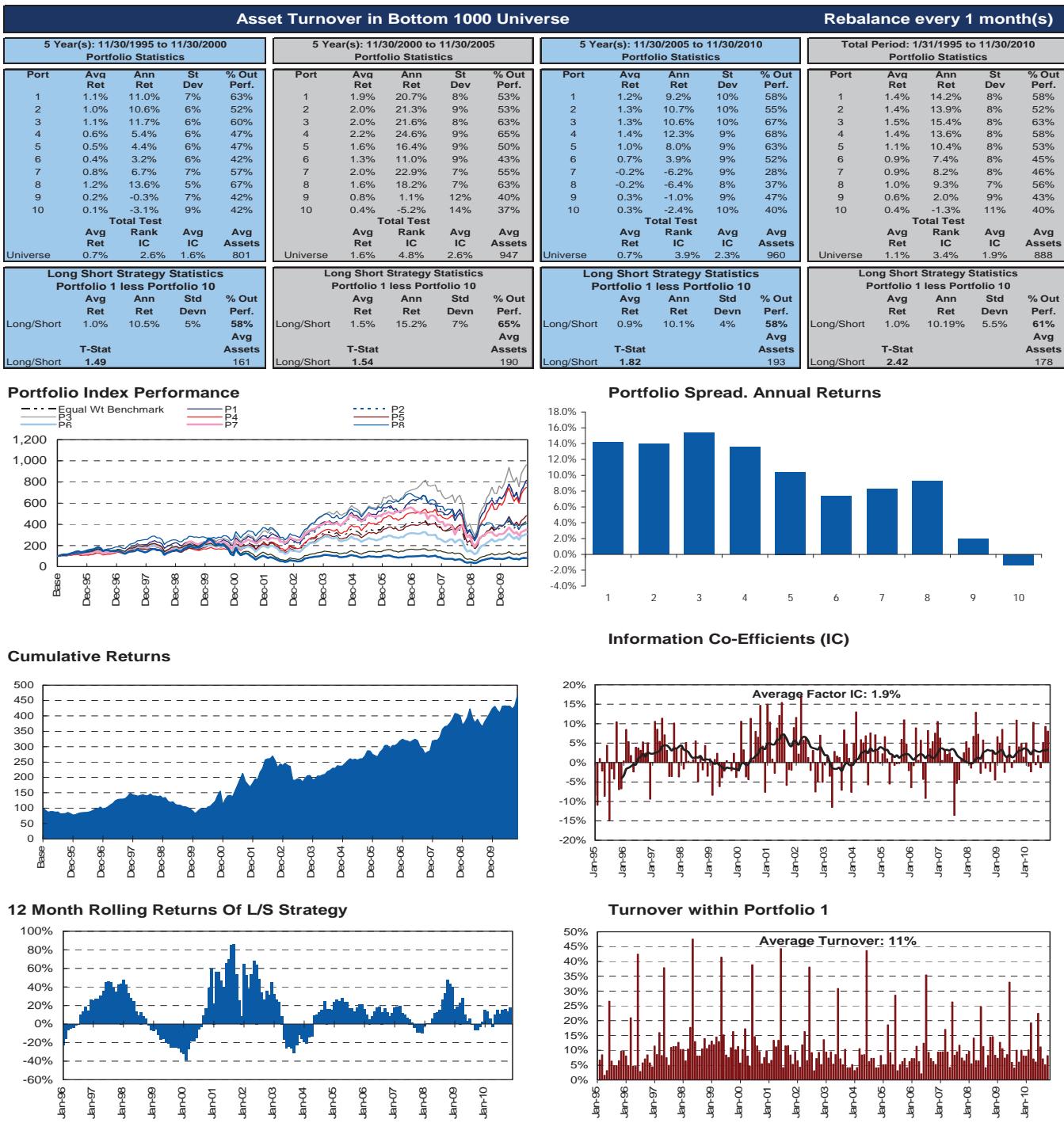


Turnover within Portfolio 1



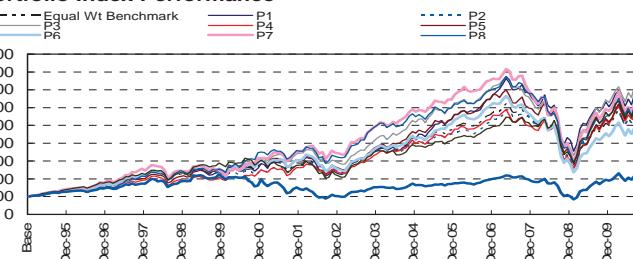




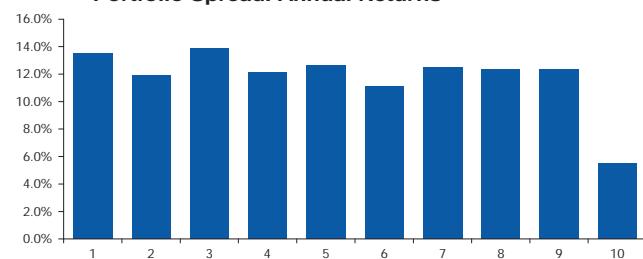


Asset Turnover in Bottom 1000 Value Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.2%	13.1%	5%	50%	1	1.4%	16.6%	5%	48%	1	0.8%	7.3%	7%	57%	1	1.2%	13.5%	6%	52%
2	1.0%	11.3%	5%	47%	2	1.3%	15.3%	4%	50%	2	0.7%	5.8%	7%	48%	2	1.1%	11.9%	5%	48%
3	1.5%	18.4%	5%	55%	3	1.3%	15.6%	4%	62%	3	0.7%	5.5%	7%	55%	3	1.2%	13.9%	5%	55%
4	1.0%	11.2%	4%	43%	4	1.4%	16.0%	5%	63%	4	0.8%	6.2%	7%	48%	4	1.1%	12.1%	6%	51%
5	1.3%	15.4%	4%	48%	5	1.2%	14.1%	5%	55%	5	0.6%	4.6%	7%	52%	5	1.1%	12.7%	5%	52%
6	1.3%	15.6%	5%	68%	6	1.2%	13.6%	5%	43%	6	0.4%	1.1%	7%	40%	6	1.0%	11.1%	6%	50%
7	1.3%	15.5%	5%	58%	7	1.5%	17.8%	4%	58%	7	0.3%	-0.1%	7%	32%	7	1.1%	12.5%	6%	51%
8	1.6%	19.6%	5%	52%	8	1.2%	14.0%	5%	48%	8	0.3%	1.3%	7%	45%	8	1.1%	12.4%	5%	48%
9	1.3%	15.5%	5%	55%	9	0.8%	8.2%	6%	40%	9	0.9%	9.1%	7%	58%	9	1.1%	12.4%	6%	52%
10	0.5%	4.6%	5%	37%	10	0.4%	1.5%	7%	42%	10	0.9%	6.4%	9%	48%	10	0.7%	5.5%	7%	42%
Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets				
Universe	1.2%	0.6%	0.6%	603	Universe	1.2%	3.1%	2.5%	652	Universe	0.6%	0.9%	0.5%	614	Universe	1.1%	1.4%	1.1%	613

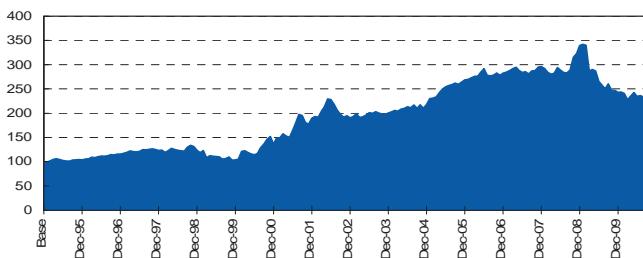
Portfolio Index Performance



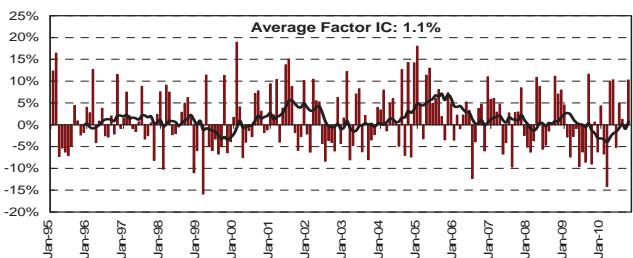
Portfolio Spread. Annual Returns



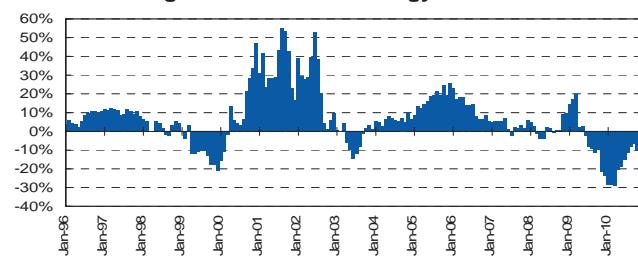
Cumulative Returns



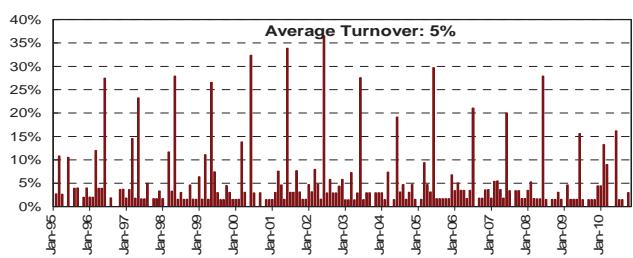
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

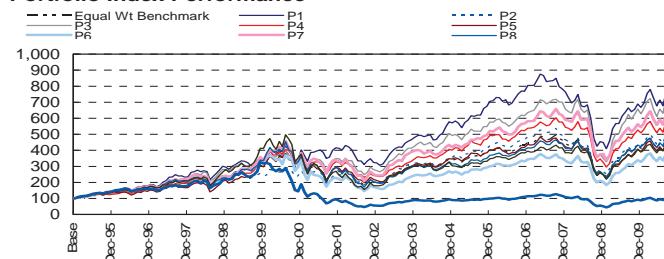


Asset Turnover in Bottom 1000 Growth Universe

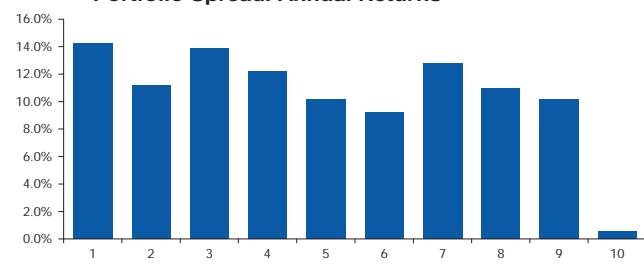
Rebalance every 1 month(s)

5 Year(s): 11/30/1995 to 11/30/2000 Portfolio Statistics					5 Year(s): 11/30/2000 to 11/30/2005 Portfolio Statistics					5 Year(s): 11/30/2005 to 11/30/2010 Portfolio Statistics					Total Period: 1/31/1995 to 11/30/2010 Portfolio Statistics				
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.7%	19.8%	7%	60%	1	1.3%	14.7%	6%	57%	1	0.6%	4.5%	6%	50%	1	1.3%	14.3%	6%	56%
2	1.2%	13.0%	6%	38%	2	1.1%	11.3%	6%	55%	2	0.7%	5.8%	6%	50%	2	1.1%	11.2%	6%	47%
3	1.6%	19.1%	6%	53%	3	1.2%	12.3%	7%	58%	3	0.9%	7.4%	7%	50%	3	1.3%	13.9%	7%	53%
4	1.8%	21.7%	6%	62%	4	0.7%	6.8%	6%	48%	4	0.7%	6.0%	6%	57%	4	1.1%	12.2%	6%	54%
5	1.5%	16.7%	7%	48%	5	0.7%	5.8%	7%	48%	5	0.5%	4.1%	6%	45%	5	1.0%	10.2%	7%	47%
6	1.3%	14.2%	7%	50%	6	0.5%	1.2%	8%	42%	6	0.8%	7.0%	6%	55%	6	1.0%	9.2%	7%	50%
7	1.6%	17.6%	6%	48%	7	1.0%	9.0%	7%	55%	7	0.7%	6.6%	6%	52%	7	1.2%	12.8%	7%	52%
8	1.6%	18.0%	7%	50%	8	0.5%	1.8%	8%	45%	8	0.9%	8.4%	6%	53%	8	1.1%	10.9%	7%	50%
9	1.8%	20.3%	7%	63%	9	0.4%	0.2%	8%	45%	9	0.8%	6.9%	6%	47%	9	1.1%	10.1%	7%	52%
10	0.5%	2.0%	8%	38%	10	-0.2%	-8.7%	10%	35%	10	0.5%	2.7%	8%	40%	10	0.4%	0.6%	9%	39%
Total Test					Total Test					Total Test					Total Test				
Avg Ret					Avg Ret					Avg Ret					Avg Ret				
IC					IC					IC					IC				
Assets					Assets					Assets					Assets				
Universe	1.5%	2.3%	1.4%	502	Universe	0.7%	4.4%	3.3%	534	Universe	0.7%	0.6%	-0.4%	630	Universe	1.1%	2.2%	1.3%	549

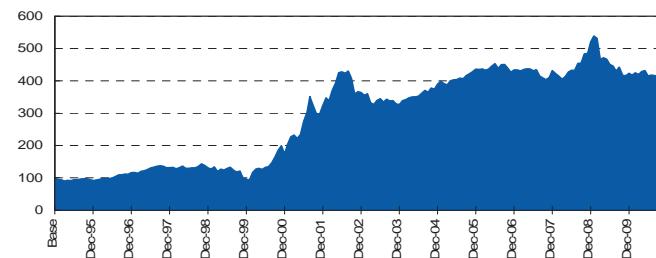
Portfolio Index Performance



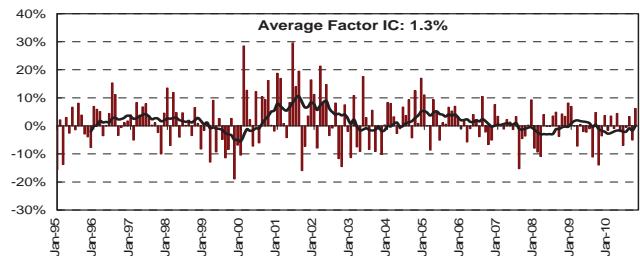
Portfolio Spread. Annual Returns



Cumulative Returns



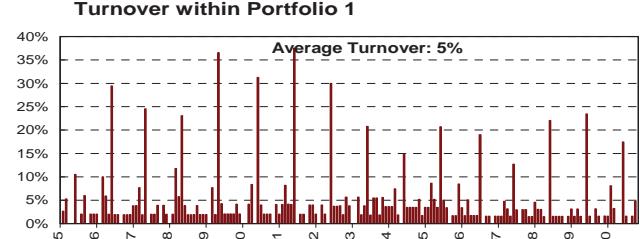
Information Co-Efficients (IC)

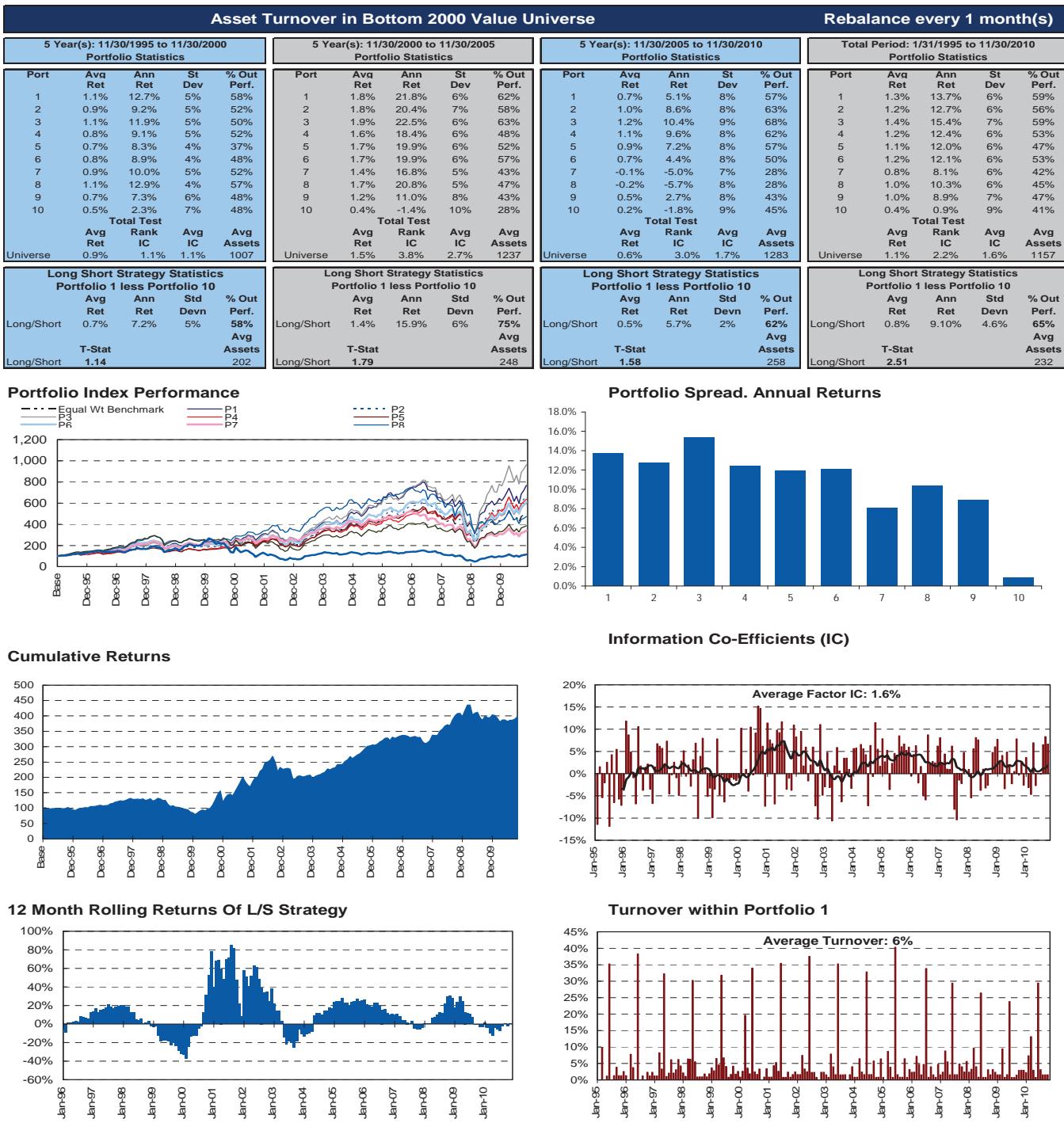


12 Month Rolling Returns Of L/S Strategy



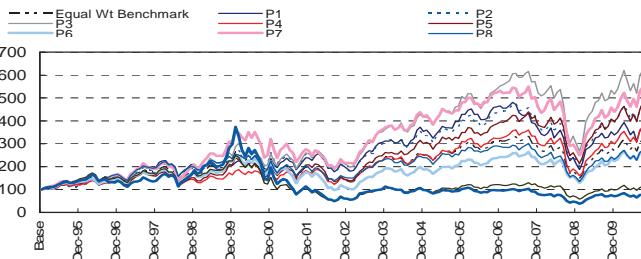
Turnover within Portfolio 1



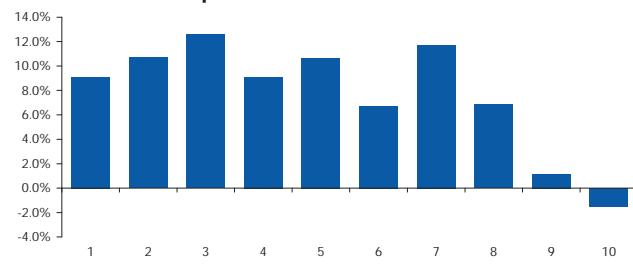


Asset Turnover in Bottom 2000 Growth Universe										Rebalance every 1 month(s)													
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010								
Portfolio Statistics										Portfolio Statistics													
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.				
1	1.0%	9.1%	7%	57%	1	1.5%	15.8%	7%	55%	1	0.3%	0.0%	8%	45%	1	1.0%	9.1%	7%	52%				
2	1.2%	12.5%	7%	58%	2	1.3%	12.7%	8%	58%	2	0.8%	6.2%	8%	55%	2	1.1%	10.7%	7%	56%				
3	1.1%	10.3%	7%	53%	3	1.7%	18.0%	8%	65%	3	0.9%	7.3%	8%	60%	3	1.3%	12.6%	7%	58%				
4	0.5%	3.7%	7%	43%	4	1.4%	14.5%	8%	60%	4	0.9%	7.4%	8%	58%	4	1.0%	9.1%	7%	52%				
5	0.6%	4.4%	7%	37%	5	1.6%	16.4%	8%	65%	5	1.0%	8.7%	7%	58%	5	1.1%	10.7%	7%	53%				
6	0.7%	5.4%	7%	47%	6	0.7%	4.1%	9%	47%	6	0.8%	6.7%	7%	55%	6	0.8%	6.7%	8%	50%				
7	1.3%	12.1%	8%	52%	7	1.3%	13.3%	8%	57%	7	0.7%	5.4%	7%	52%	7	1.2%	11.7%	8%	54%				
8	0.7%	5.5%	7%	52%	8	0.9%	7.8%	7%	45%	8	0.4%	2.3%	7%	40%	8	0.8%	6.8%	7%	46%				
9	0.3%	-0.7%	8%	42%	9	0.2%	-3.5%	10%	38%	9	0.5%	2.3%	8%	48%	9	0.5%	1.2%	9%	44%				
10	0.8%	2.9%	10%	47%	10	-0.1%	-9.1%	12%	35%	10	0.1%	-3.3%	9%	38%	10	0.4%	-1.5%	10%	40%				
Total Test					Total Test					Total Test					Total Test								
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	0.8%	2.4%	1.3%	1027	Universe	1.0%	4.9%	2.9%	1242	Universe	0.6%	1.9%	0.5%	1242	Universe	0.9%	2.8%	1.3%	1153
Long Short Strategy Statistics										Long Short Strategy Statistics													
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10								
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.
0.2%	-0.3%	6%	53%	Long/Short	1.6%	18.5%	6%	68%	Long/Short	2.04	T-Stat	Assets	249	Long/Short	0.2%	1.3%	3%	50%	Long/Short	0.38	T-Stat	Assets	249
T-Stat	2.22		206																				

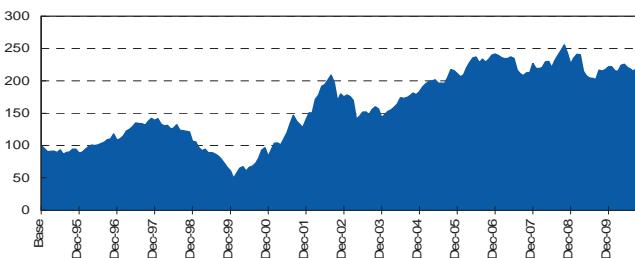
Portfolio Index Performance



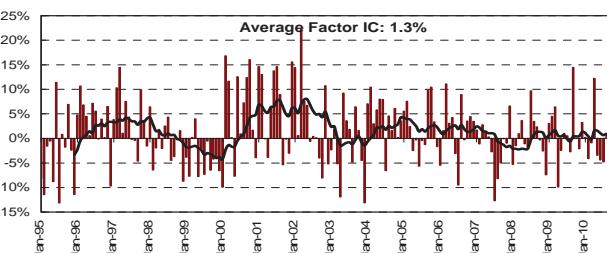
Portfolio Spread. Annual Returns



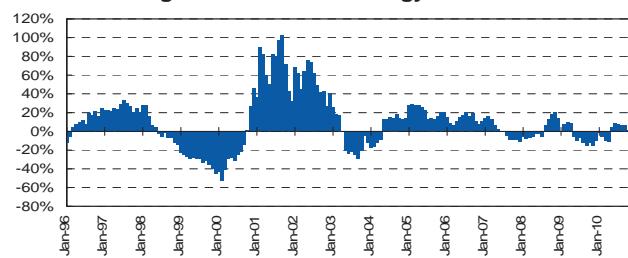
Cumulative Returns



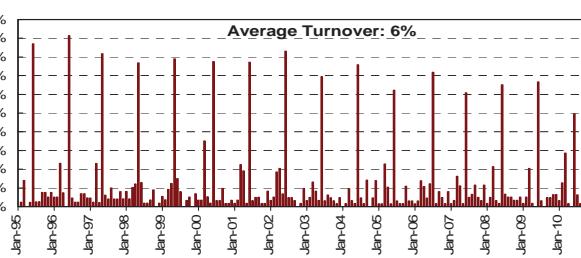
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

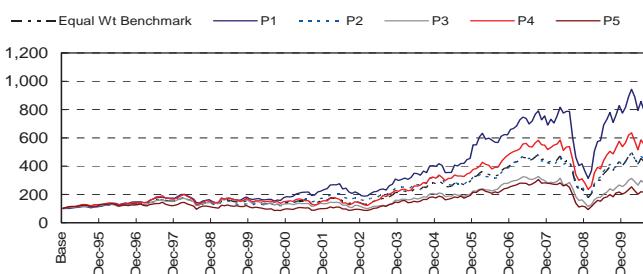


Turnover within Portfolio 1

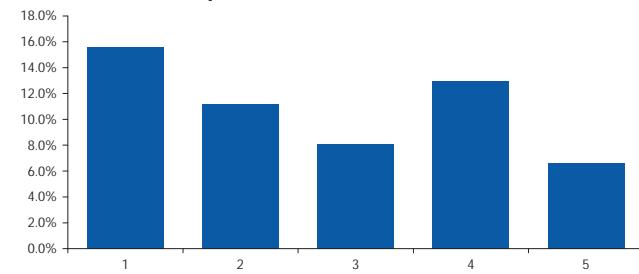


Asset Turnover in Materials GICS Level I Sector										Rebalance every 1 month(s)										
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	
1	0.7%	7.2%	6%	63%	1	2.0%	23.2%	6%	53%	1	1.8%	17.4%	10%	48%	1	1.5%	15.6%	7%	55%	
2	0.2%	0.6%	5%	48%	2	1.7%	19.6%	6%	47%	2	1.5%	13.2%	9%	48%	2	1.1%	11.2%	7%	47%	
3	0.3%	1.3%	6%	48%	3	1.0%	9.8%	6%	35%	3	1.3%	11.7%	9%	47%	3	0.9%	8.1%	7%	43%	
4	0.3%	1.3%	6%	52%	4	1.8%	20.4%	7%	50%	4	1.6%	15.0%	9%	53%	4	1.3%	13.0%	7%	53%	
5	-0.3%	-6.1%	6%	32%	5	1.5%	16.6%	6%	47%	5	1.2%	8.5%	10%	45%	5	0.8%	6.6%	7%	41%	
Total Test					Total Test					Total Test					Total Test					
Avg Ret	Rank IC	Avg IC	Avg Assets		Avg Ret	Rank IC	Avg IC	Avg Assets		Avg Ret	Rank IC	Avg IC	Avg Assets		Avg Ret	Rank IC	Avg IC	Avg Assets		
Universe	0.2%	3.2%	3.2%	149	Universe	1.6%	2.2%	2.1%	120	Universe	1.5%	1.1%	0.1%	139	Universe	1.1%	1.5%	1.6%	136	
Long Short Strategy Statistics																				
Portfolio 1 less Portfolio 5																				
Avg Ret					Avg Ret					Avg Ret					Avg Ret					
Long/Short	1.1%	12.6%	4%	67%	Long/Short	0.5%	5.0%	4%	53%	Long/Short	0.7%	7.0%	5%	53%	Long/Short	0.7%	7.25%	4.1%	58%	
T-Stat					T-Stat					T-Stat					T-Stat					
Long/Short	2.10				Long/Short	1.02				Long/Short	1.11				Long/Short	2.26				
Avg Devn																				
Avg Avg Assets																				
Long/Short																				

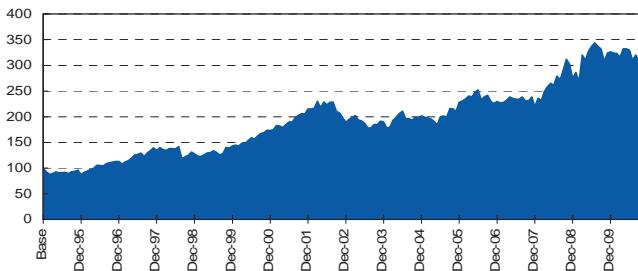
Portfolio Index Performance



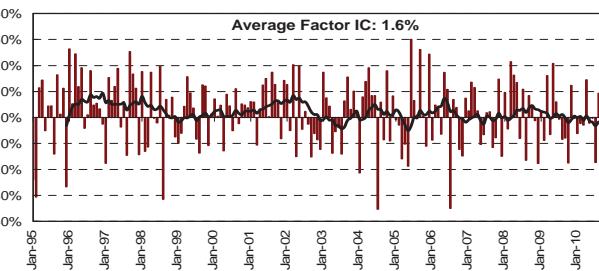
Portfolio Spread. Annual Returns



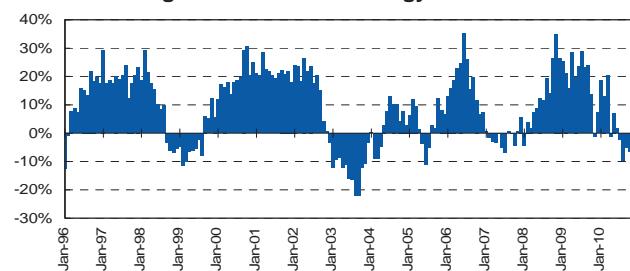
Cumulative Returns



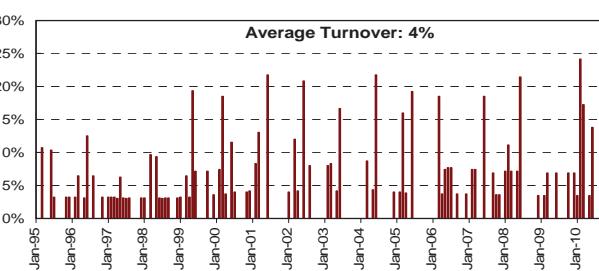
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



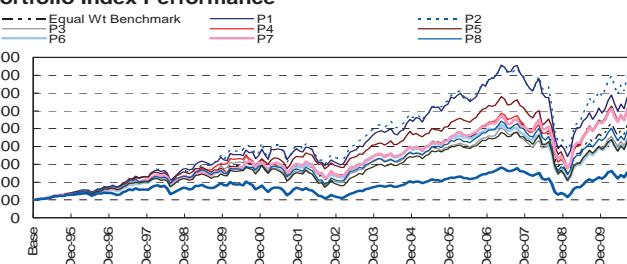
Turnover within Portfolio 1



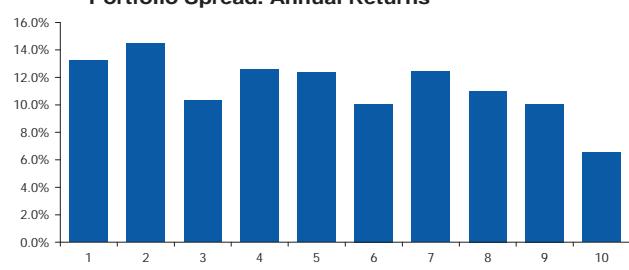
Asset Turnover 12 Month Change

Asset Turnover 12 Mnth Change in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.6%	19.3%	5%	62%	1	1.2%	13.6%	5%	60%	1	0.5%	2.6%	7%	52%	1	1.2%	13.2%	6%	58%
2	1.7%	20.9%	5%	52%	2	1.2%	13.1%	6%	58%	2	0.7%	5.6%	7%	57%	2	1.3%	14.5%	6%	56%
3	1.3%	14.6%	6%	47%	3	0.9%	8.4%	7%	38%	3	0.5%	3.8%	6%	47%	3	1.0%	10.3%	6%	45%
4	1.4%	16.8%	5%	50%	4	0.8%	8.4%	5%	52%	4	0.9%	8.4%	7%	60%	4	1.1%	12.6%	5%	53%
5	1.4%	17.0%	5%	57%	5	1.0%	11.4%	5%	55%	5	0.6%	4.4%	7%	50%	5	1.1%	12.3%	6%	54%
6	1.4%	16.0%	5%	43%	6	0.9%	10.2%	4%	52%	6	0.3%	1.2%	7%	43%	6	0.9%	10.0%	5%	45%
7	1.4%	17.0%	5%	60%	7	0.8%	8.6%	6%	45%	7	0.9%	8.3%	7%	52%	7	1.1%	12.4%	6%	52%
8	1.3%	15.7%	4%	52%	8	0.9%	9.0%	6%	43%	8	0.6%	4.9%	7%	58%	8	1.0%	11.0%	6%	51%
9	1.2%	14.4%	5%	48%	9	0.9%	9.2%	6%	53%	9	0.6%	3.7%	7%	47%	9	1.0%	10.1%	6%	49%
10	0.5%	4.4%	6%	32%	10	0.7%	6.2%	6%	43%	10	0.7%	4.8%	7%	42%	10	0.7%	6.5%	6%	39%
Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets				
Universe	1.3%	1.9%	2.8%	817	Universe	0.9%	1.0%	1.5%	890	Universe	0.6%	-0.1%	0.0%	920	Universe	1.1%	1.1%	1.5%	863

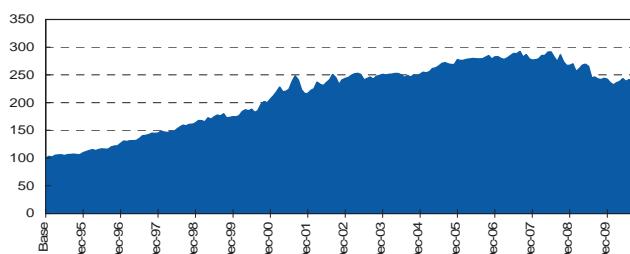
Portfolio Index Performance



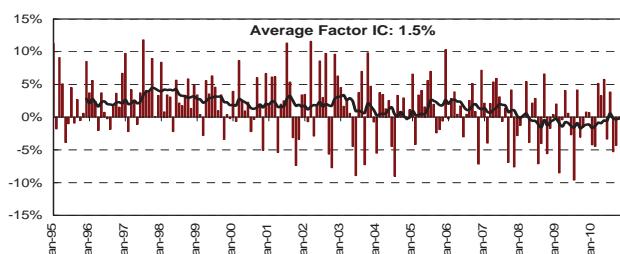
Portfolio Spread. Annual Returns



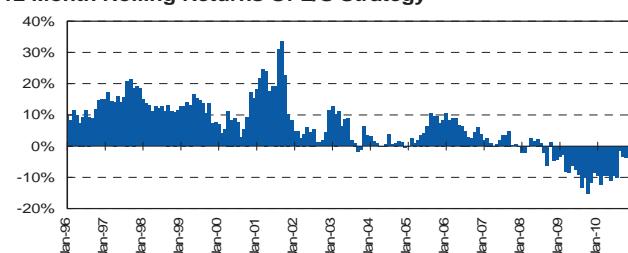
Cumulative Returns



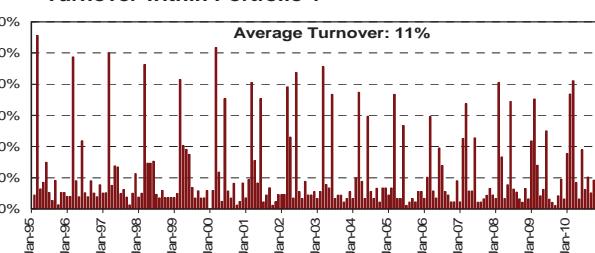
Information Co-Efficients (IC)

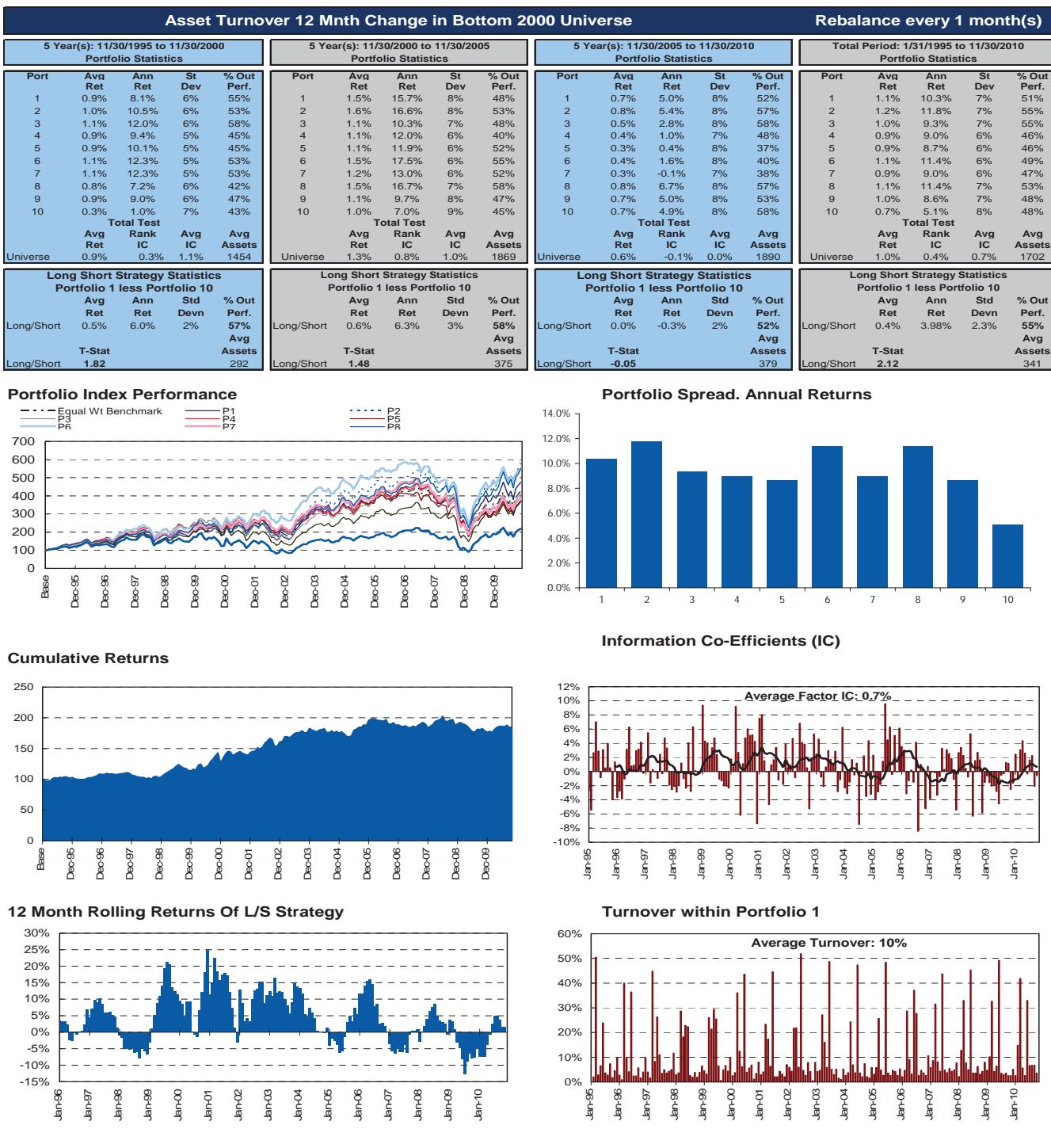


12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

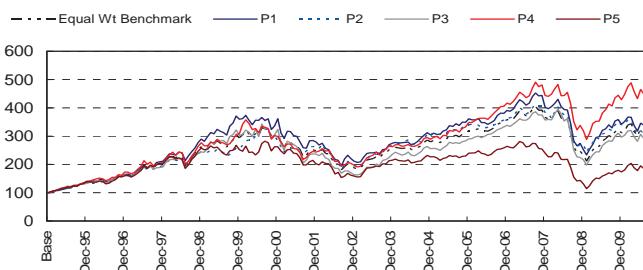




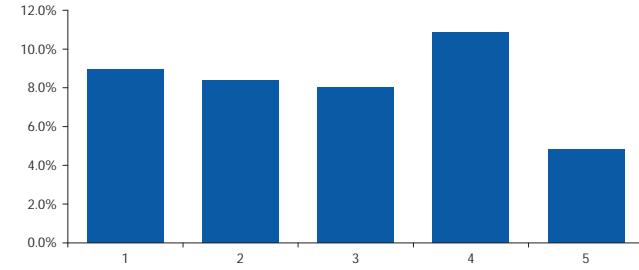
Interest Coverage

Interest Coverage in Top 200 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.6%	20.0%	4%	55%	1	0.3%	1.6%	5%	53%	1	0.3%	2.1%	5%	48%	1	0.8%	8.9%	5%	52%
2	1.5%	18.8%	4%	45%	2	0.3%	2.0%	5%	50%	2	0.3%	1.6%	5%	48%	2	0.8%	8.4%	4%	48%
3	1.5%	17.3%	5%	40%	3	0.1%	-0.7%	5%	45%	3	0.5%	3.9%	5%	53%	3	0.8%	8.0%	5%	46%
4	1.5%	17.2%	5%	48%	4	0.3%	2.5%	4%	60%	4	0.9%	9.3%	5%	67%	4	1.0%	10.9%	5%	57%
5	1.2%	13.9%	5%	42%	5	0.0%	-1.6%	5%	42%	5	0.0%	-1.6%	6%	43%	5	0.5%	4.8%	5%	43%
Total Test				Total Test				Total Test				Total Test				Total Test			
Avg Ret	1.5%	Rank IC	Avg IC	Avg Assets	Avg Ret	0.2%	Rank IC	Avg IC	Avg Assets	Avg Ret	0.4%	Rank IC	Avg IC	Avg Assets	Avg Ret	0.8%	Rank IC	Avg IC	Avg Assets
Universe	1.0%	1.1%	146		Universe	0.4%	0.0%	164		Universe	0.4%	-0.8%	-0.5%	176	Universe	0.1%	0.1%	161	
Long Short Strategy Statistics																			
Portfolio 1 less Portfolio 5																			
Avg Ret	0.4%	4.4%	3%	58%	Avg Ret	0.3%	2.9%	3%	55%	Avg Ret	0.3%	3.0%	2%	52%	Avg Ret	0.3%	3.30%	2.6%	54%
Long/Short	0.4%	4.4%	3%	58%	Long/Short	0.3%	2.9%	3%	55%	Long/Short	0.3%	3.0%	2%	52%	Long/Short	0.3%	3.30%	2.6%	54%
T-Stat	1.05		59		T-Stat	0.78		66		T-Stat	0.91		71		T-Stat	1.60		65	

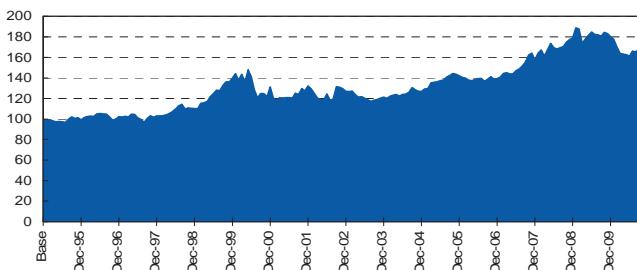
Portfolio Index Performance



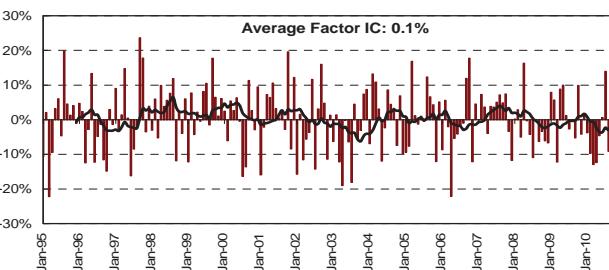
Portfolio Spread. Annual Returns



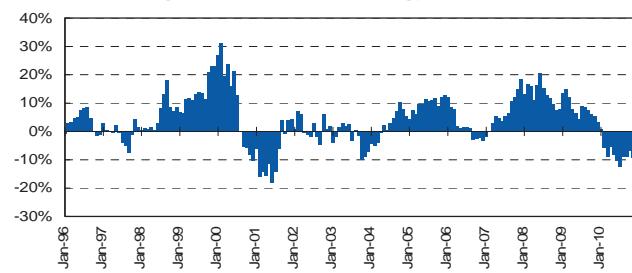
Cumulative Returns



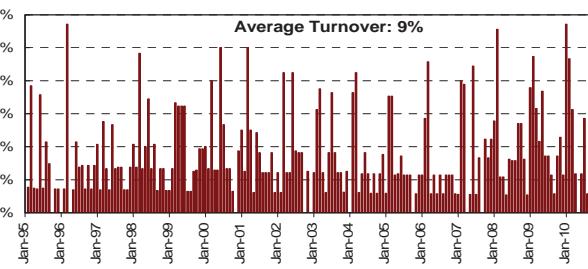
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

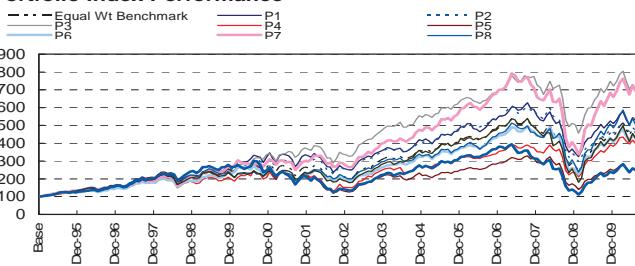


Turnover within Portfolio 1

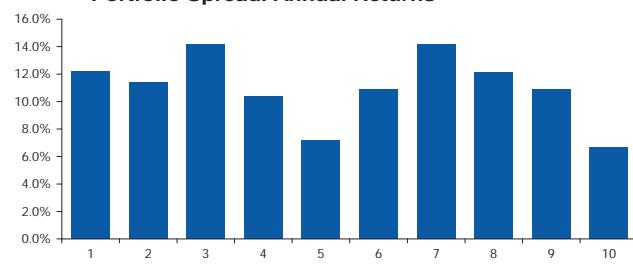


Interest Coverage in Top 1000 Universe										Rebalance every 1 month(s)													
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010								
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.				
1	1.5%	18.5%	5%	48%	1	0.9%	9.8%	6%	47%	1	0.6%	5.8%	6%	45%	1	1.1%	12.2%	5%	46%				
2	1.4%	16.8%	4%	52%	2	1.0%	11.0%	5%	50%	2	0.4%	3.2%	6%	50%	2	1.0%	11.4%	5%	51%				
3	1.6%	19.3%	4%	55%	3	1.2%	14.6%	5%	57%	3	0.6%	5.9%	5%	48%	3	1.2%	14.2%	5%	53%				
4	1.0%	10.1%	6%	45%	4	1.0%	8.8%	8%	42%	4	1.0%	9.6%	6%	60%	4	1.0%	10.4%	6%	48%				
5	1.1%	11.8%	6%	52%	5	0.5%	1.8%	8%	42%	5	0.6%	4.4%	7%	50%	5	0.8%	7.2%	7%	47%				
6	1.1%	11.7%	5%	43%	6	1.0%	10.3%	6%	55%	6	0.9%	7.6%	7%	62%	6	1.0%	10.9%	6%	54%				
7	1.3%	14.9%	5%	45%	7	1.3%	15.5%	5%	60%	7	0.9%	8.1%	7%	57%	7	1.3%	14.1%	6%	54%				
8	1.0%	10.5%	5%	55%	8	1.0%	11.1%	5%	48%	8	1.2%	11.2%	8%	65%	8	1.1%	12.1%	6%	57%				
9	1.0%	10.5%	5%	42%	9	1.1%	12.8%	5%	57%	9	0.9%	5.3%	10%	52%	9	1.1%	10.9%	7%	50%				
10	1.2%	13.5%	5%	53%	10	0.6%	5.1%	7%	42%	10	0.2%	-1.7%	8%	43%	10	0.8%	6.7%	7%	46%				
Total Test					Total Test					Total Test					Total Test								
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	1.2%	1.1%	0.9%	676	Universe	1.0%	-0.7%	0.4%	762	Universe	0.7%	0.7%	0.1%	827	Universe	1.0%	0.3%	0.4%	745
Long Short Strategy Statistics										Long Short Strategy Statistics													
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10								
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.					
0.3%	3.8%	2%	52%	Long/Short	0.3%	3.2%	3%	53%	Long/Short	0.3%	3.2%	3%	53%	Long/Short	0.4%	4.3%	4%	58%					
T-Stat				Long/Short	T-Stat				Long/Short	T-Stat				Long/Short	T-Stat								
1.07				Long/Short	0.88				Long/Short	0.88				Long/Short	1.58								
136				153					166					150									

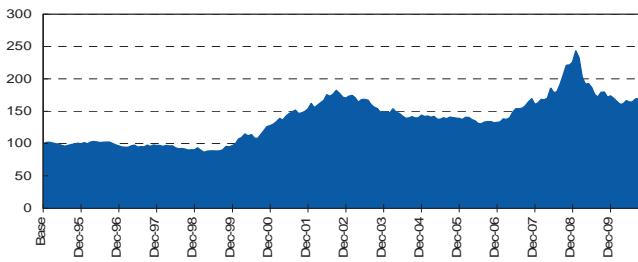
Portfolio Index Performance



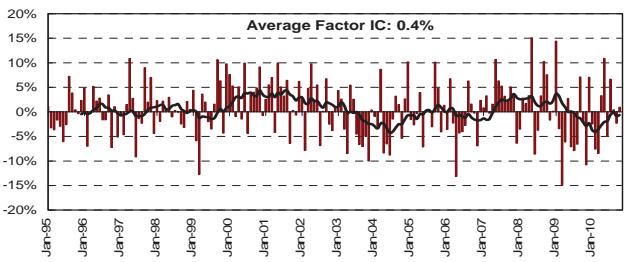
Portfolio Spread. Annual Returns



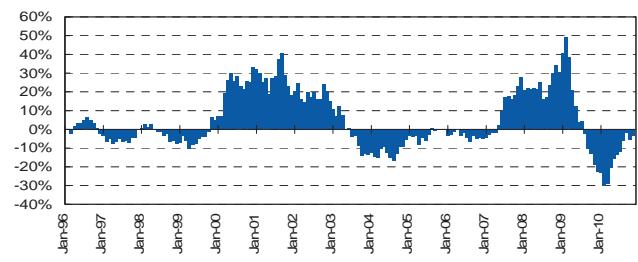
Cumulative Returns



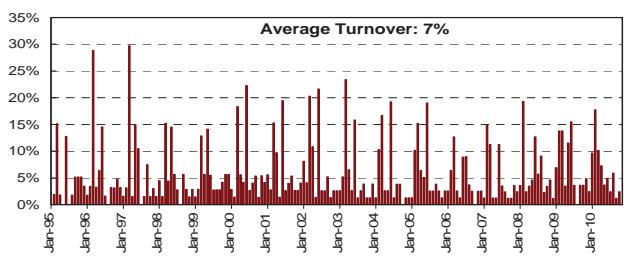
Information Co-Efficients (IC)

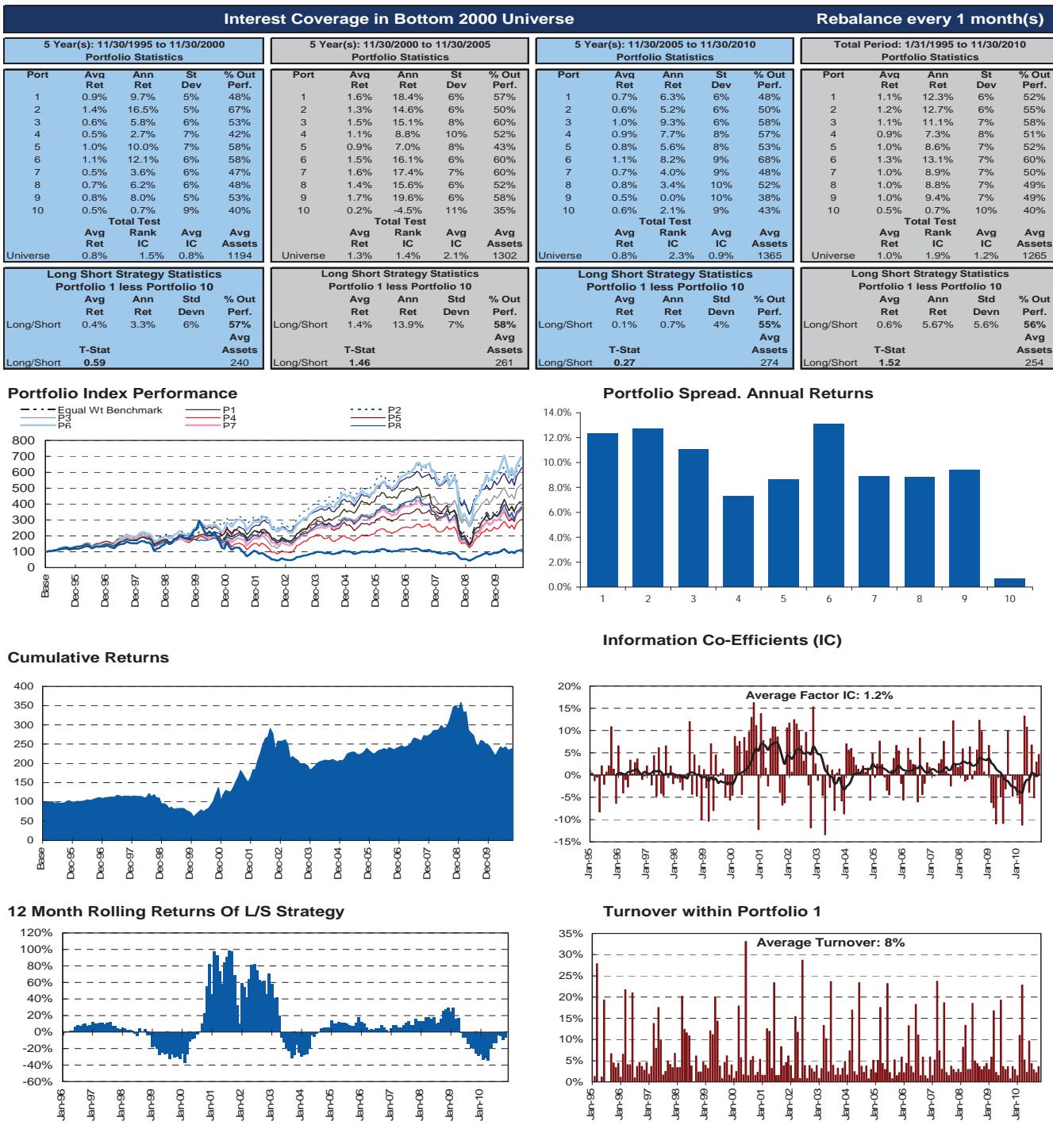


12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

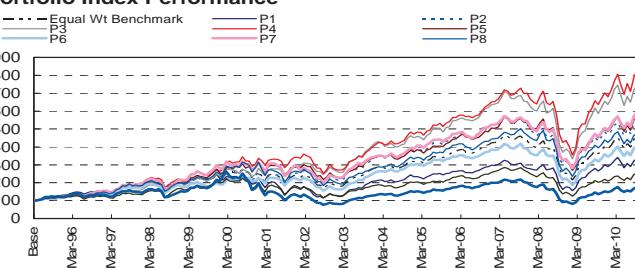




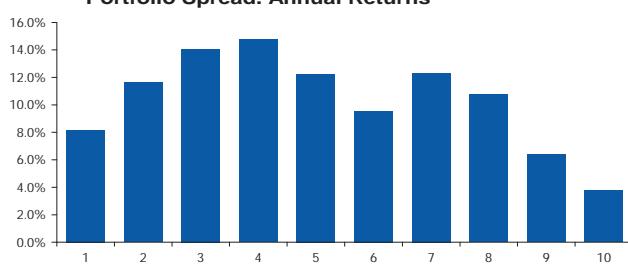
Capital Expenditures to Depreciation

Capital Expenditures to Depreciation in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 4/30/1995 to 11/30/2010							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	0.9%	8.9%	5%	45%	1	0.8%	5.7%	8%	45%	1	0.8%	6.3%	7%	43%	1	0.9%	8.2%	7%	46%
2	1.2%	13.6%	5%	47%	2	1.3%	14.7%	6%	55%	2	0.6%	5.2%	6%	45%	2	1.1%	11.6%	6%	49%
3	1.3%	15.3%	5%	55%	3	1.4%	16.9%	5%	57%	3	0.9%	8.8%	7%	53%	3	1.3%	14.1%	6%	54%
4	1.7%	20.4%	6%	60%	4	1.1%	12.9%	5%	52%	4	1.0%	9.8%	7%	60%	4	1.3%	14.7%	6%	56%
5	1.6%	18.4%	5%	57%	5	0.9%	9.1%	6%	50%	5	0.8%	7.7%	7%	52%	5	1.1%	12.2%	6%	52%
6	1.1%	12.5%	6%	45%	6	0.9%	10.0%	5%	52%	6	0.6%	4.5%	7%	37%	6	0.9%	9.6%	6%	44%
7	1.5%	17.2%	6%	53%	7	1.0%	10.6%	6%	53%	7	0.7%	6.6%	6%	45%	7	1.1%	12.3%	6%	51%
8	1.5%	16.8%	6%	58%	8	0.9%	8.4%	6%	45%	8	0.6%	4.7%	7%	42%	8	1.1%	10.7%	6%	48%
9	0.7%	6.8%	6%	42%	9	0.7%	5.1%	7%	42%	9	0.6%	4.2%	7%	47%	9	0.7%	6.4%	6%	44%
10	0.7%	5.0%	7%	43%	10	0.4%	0.7%	8%	38%	10	0.4%	1.6%	7%	45%	10	0.6%	3.8%	7%	43%
Total Test				Total Test				Total Test				Total Test				Total Test			
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets
Universe	1.2%	1.2%	2.1%	652	Universe	0.9%	1.6%	1.8%	780	Universe	0.9%	0.4%	0.9%	862	Universe	1.0%	1.0%	1.4%	759
Long Short Strategy Statistics																			
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10				
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.
Long/Short	0.2%	1.0%	4%	53%	Long/Short	0.4%	4.3%	2%	58%	Long/Short	0.3%	4.0%	2%	45%	Long/Short	0.3%	2.88%	3.0%	52%
T-Stat	0.31			Avg Assets	T-Stat	1.21			Avg Assets	T-Stat	1.39			Avg Assets	T-Stat	1.28			Avg Assets
Long/Short				131	Long/Short				157	Long/Short				173	Long/Short				153

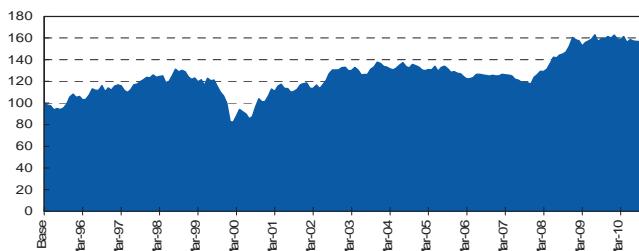
Portfolio Index Performance



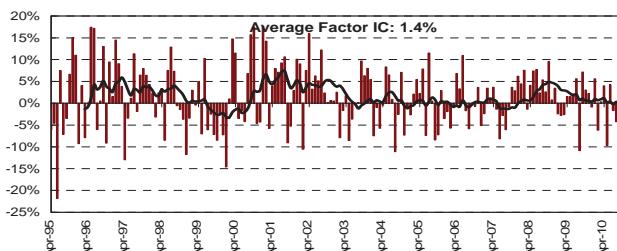
Portfolio Spread. Annual Returns



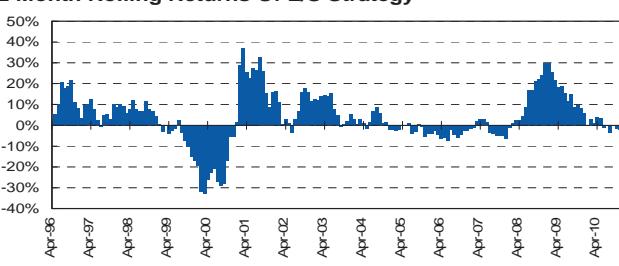
Cumulative Returns



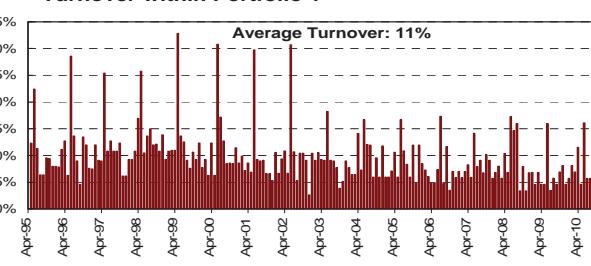
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

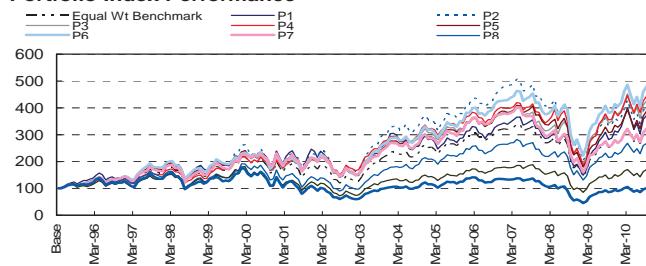


Turnover within Portfolio 1

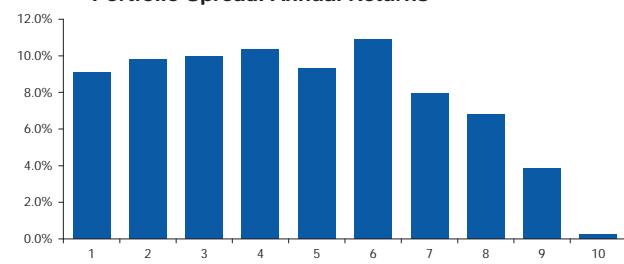


Capital Expenditures to Depreciation in Bottom 2000 Universe							Rebalance every 1 month(s)								
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					
Portfolio Statistics					Portfolio Statistics					Portfolio Statistics					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	
1	0.9%	8.0%	7%	57%	1	1.2%	9.5%	9%	40%	1	0.9%	6.4%	8%	58%	
2	1.0%	9.9%	7%	57%	2	1.6%	15.8%	8%	62%	2	0.5%	2.5%	7%	48%	
3	0.8%	7.2%	6%	50%	3	1.4%	14.4%	8%	47%	3	0.8%	6.2%	8%	48%	
4	0.8%	7.6%	6%	53%	4	1.4%	15.7%	7%	55%	4	0.8%	6.0%	8%	58%	
5	1.1%	10.9%	6%	60%	5	1.1%	11.1%	7%	52%	5	0.7%	4.8%	8%	55%	
6	0.9%	9.0%	7%	60%	6	1.4%	15.1%	7%	58%	6	0.9%	7.5%	7%	65%	
7	1.1%	10.2%	7%	45%	7	1.2%	11.1%	7%	50%	7	0.4%	1.0%	7%	48%	
8	0.5%	2.9%	7%	42%	8	1.3%	11.8%	8%	55%	8	0.6%	4.0%	7%	42%	
9	0.3%	-0.1%	8%	38%	9	1.0%	7.6%	8%	42%	9	0.5%	3.1%	7%	50%	
10	0.2%	-0.9%	8%	45%	10	0.6%	2.6%	9%	42%	10	0.1%	-3.5%	9%	40%	
Total Test					Total Test					Total Test					
Avg Ret	0.8%	1.9%	1.8%	1355	Avg Ret	1.2%	0.4%	1.3%	1583	Avg Ret	0.6%	1.0%	1.7%	1771	Avg Ret
Universe					Universe					Universe					
Long Short Strategy Statistics Portfolio 1 less Portfolio 10							Long Short Strategy Statistics Portfolio 1 less Portfolio 10							Long Short Strategy Statistics Portfolio 1 less Portfolio 10	
Avg Ret	0.6%	7.0%	3%	63%	Avg Ret	0.6%	6.5%	3%	52%	Avg Ret	0.8%	9.5%	2%	62%	Avg Ret
Long/Short	T-Stat	1.65	Assets	272	Long/Short	T-Stat	1.67	Assets	318	Long/Short	T-Stat	2.57	Assets	355	Long/Short
Long Short Strategy Statistics Portfolio 1 less Portfolio 10							Long Short Strategy Statistics Portfolio 1 less Portfolio 10							Long Short Strategy Statistics Portfolio 1 less Portfolio 10	
Avg Ret	0.7%	7.89%	2.6%	60%	Avg Ret	0.7%	7.89%	2.6%	60%	Avg Ret	0.9%	1.2%	1.6%	1558	Avg Ret
Long/Short	T-Stat	3.57	Assets	312	Long/Short	T-Stat	3.57	Assets	312	Long/Short	T-Stat	3.57	Assets	312	Long/Short

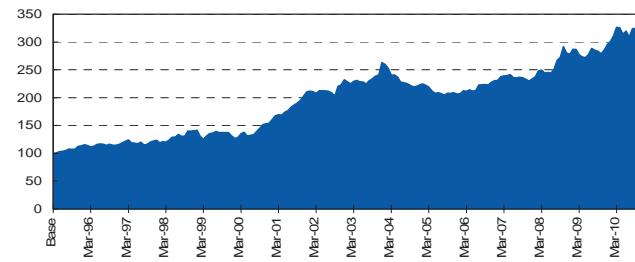
Portfolio Index Performance



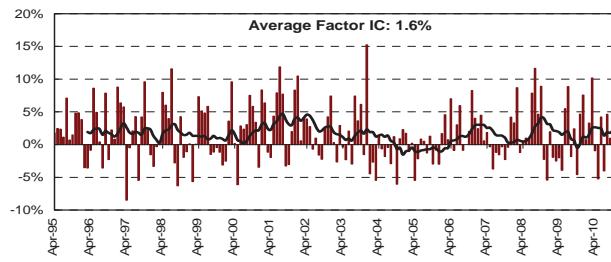
Portfolio Spread. Annual Returns



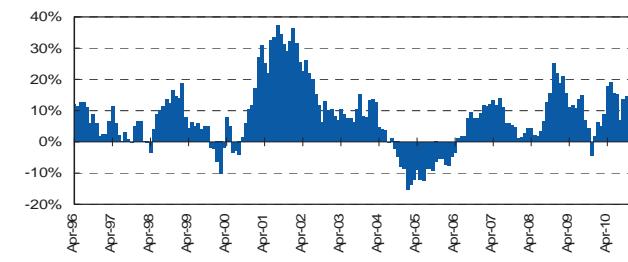
Cumulative Returns



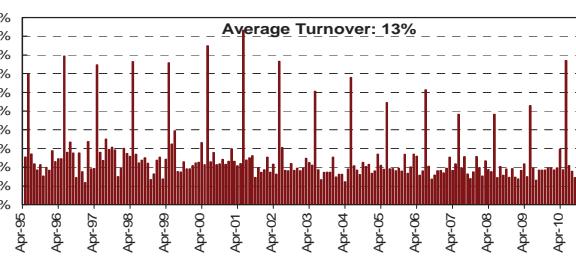
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



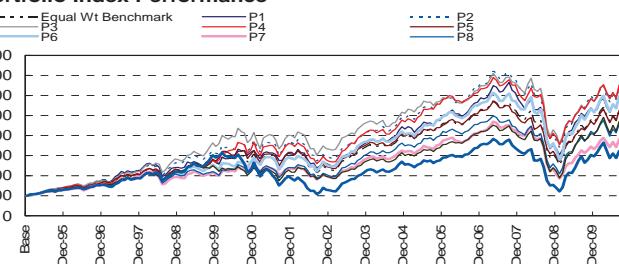
Turnover within Portfolio 1



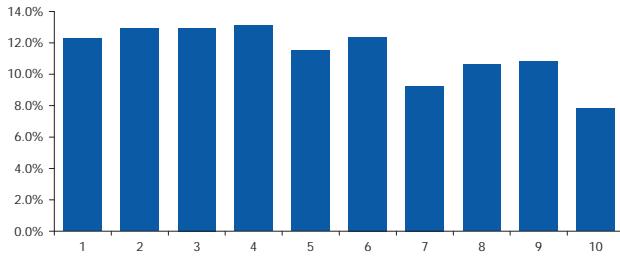
ROE

ROE in Top 1000 Universe										Rebalance every 1 month(s)									
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010				
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.5%	17.5%	5%	57%	1	0.9%	9.4%	5%	47%	1	0.6%	5.6%	6%	53%	1	1.1%	12.3%	5%	52%
2	1.7%	20.1%	5%	63%	2	1.0%	11.4%	5%	55%	2	0.5%	4.3%	6%	50%	2	1.2%	12.9%	5%	55%
3	1.7%	21.0%	5%	62%	3	0.9%	9.2%	5%	43%	3	0.5%	3.9%	6%	52%	3	1.2%	12.9%	5%	54%
4	1.6%	18.4%	5%	58%	4	1.1%	12.2%	6%	57%	4	0.6%	4.8%	6%	48%	4	1.2%	13.1%	5%	55%
5	1.4%	16.3%	5%	48%	5	0.9%	8.9%	6%	48%	5	0.6%	5.0%	6%	43%	5	1.1%	11.5%	6%	48%
6	1.2%	13.7%	5%	47%	6	1.3%	14.5%	6%	57%	6	0.7%	5.8%	7%	52%	6	1.1%	12.4%	6%	51%
7	1.1%	11.8%	5%	40%	7	0.9%	9.7%	5%	48%	7	0.5%	2.9%	7%	50%	7	0.9%	9.2%	6%	45%
8	1.1%	12.0%	5%	43%	8	1.1%	12.4%	5%	62%	8	0.7%	4.7%	7%	45%	8	1.0%	10.6%	6%	48%
9	0.9%	9.5%	5%	42%	9	1.0%	10.5%	6%	50%	9	1.0%	8.7%	8%	68%	9	1.0%	10.8%	6%	53%
10	1.0%	11.1%	5%	57%	10	0.7%	4.6%	8%	47%	10	0.8%	3.9%	9%	57%	10	0.9%	7.8%	8%	53%
Total Test					Total Test					Total Test					Total Test				
Avg Ret	1.3%	2.6%	1.1%	822	Avg Ret	1.0%	0.2%	0.6%	947	Avg Ret	0.6%	0.7%	-0.1%	959	Avg Ret	1.1%	1.3%	0.7%	895
Universe					Universe					Universe					Universe				

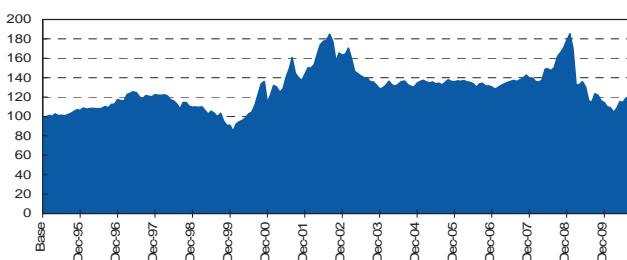
Portfolio Index Performance



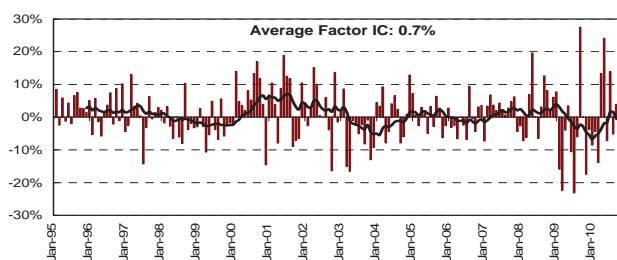
Portfolio Spread. Annual Returns



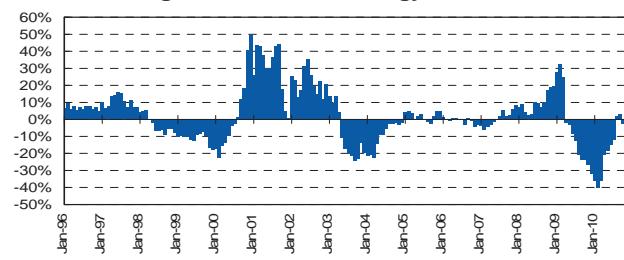
Cumulative Returns



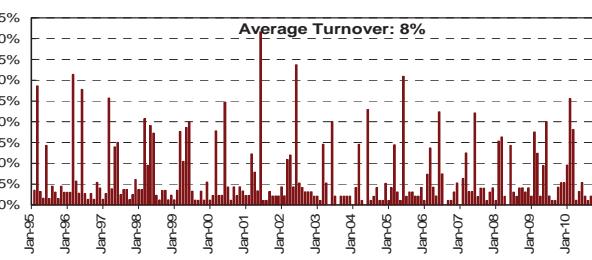
Information Co-Efficients (IC)

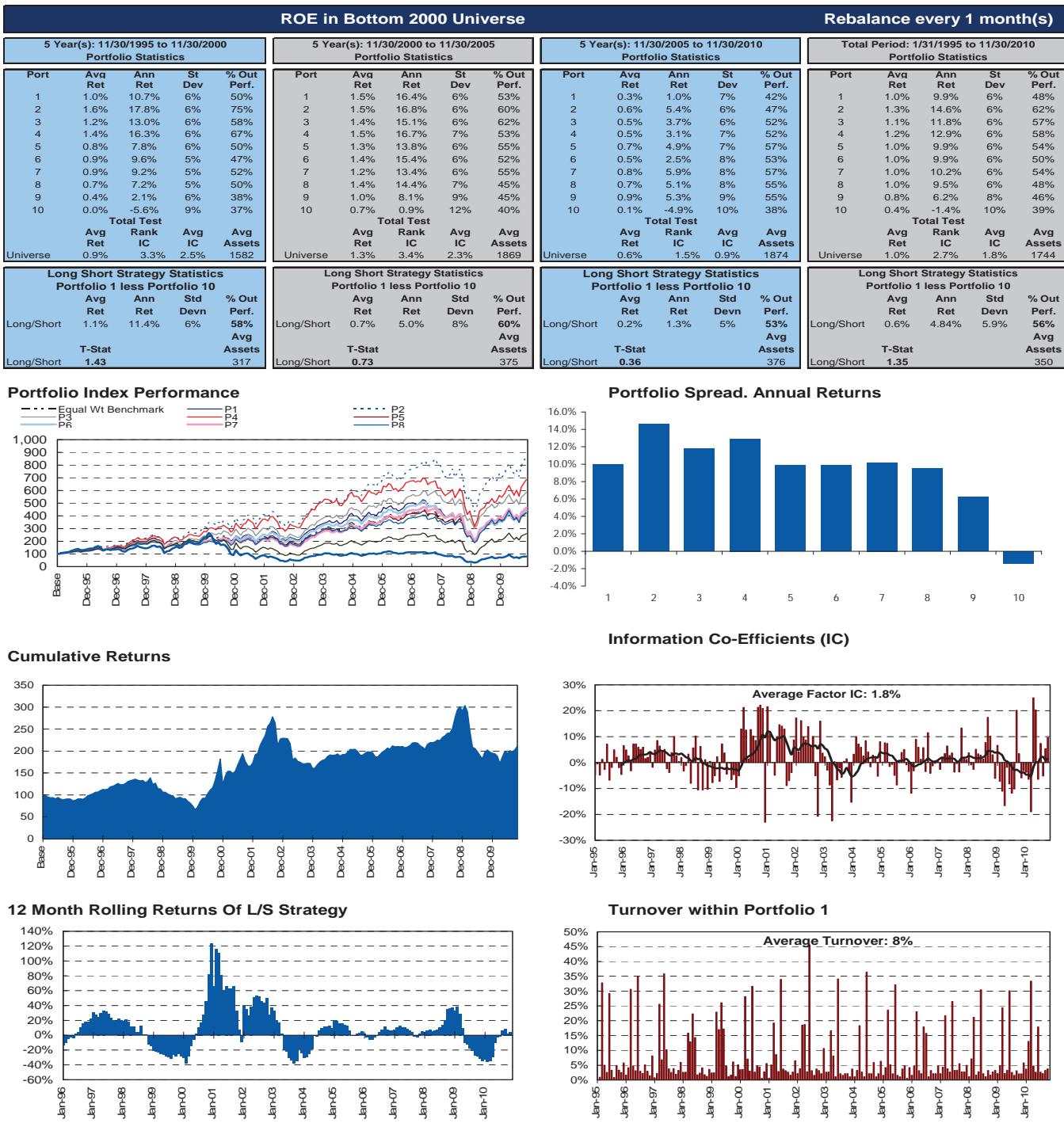


12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

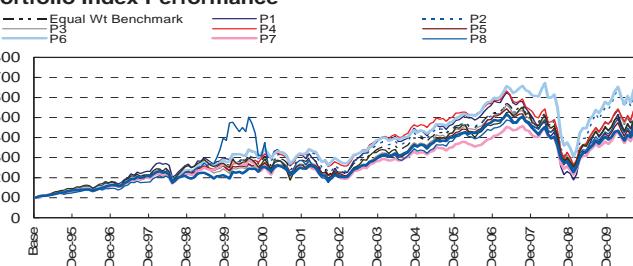




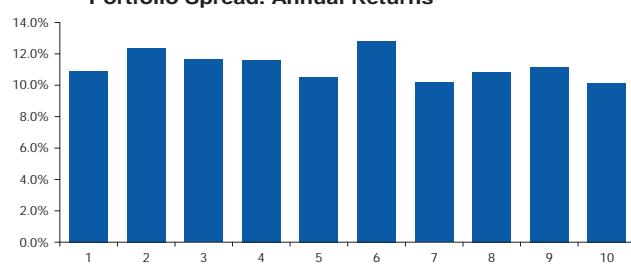
Leverage

Leverage in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010				Portfolio Statistics			
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.5%	17.1%	6%	60%	1	1.0%	9.3%	7%	55%	1	0.6%	2.2%	9%	48%	1	1.1%	10.9%	7%	55%
2	1.3%	15.6%	5%	52%	2	0.9%	9.8%	6%	48%	2	0.8%	7.5%	7%	47%	2	1.1%	12.4%	6%	50%
3	1.1%	12.3%	5%	42%	3	1.1%	12.6%	5%	57%	3	0.7%	6.3%	6%	55%	3	1.1%	11.7%	5%	51%
4	1.4%	16.4%	5%	57%	4	1.1%	12.6%	5%	52%	4	0.5%	2.8%	7%	38%	4	1.1%	11.6%	5%	48%
5	1.2%	13.4%	5%	48%	5	0.9%	10.6%	4%	53%	5	0.5%	3.8%	7%	47%	5	1.0%	10.5%	5%	49%
6	1.5%	17.8%	5%	47%	6	0.9%	9.6%	5%	48%	6	0.8%	7.3%	7%	57%	6	1.2%	12.8%	5%	50%
7	1.1%	11.7%	5%	52%	7	0.9%	8.9%	5%	42%	7	0.7%	5.9%	7%	53%	7	1.0%	10.2%	6%	48%
8	1.9%	20.7%	8%	57%	8	0.7%	4.2%	9%	43%	8	0.7%	6.1%	6%	55%	8	1.1%	10.8%	7%	50%
9	1.1%	11.7%	6%	45%	9	1.1%	10.6%	7%	53%	9	0.6%	4.9%	7%	58%	9	1.1%	11.2%	6%	54%
10	1.0%	11.7%	5%	47%	10	1.0%	11.7%	4%	50%	10	0.4%	2.9%	6%	45%	10	0.9%	10.1%	5%	48%
Total Test				Total Test				Total Test				Total Test				Portfolio Statistics			
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets
Universe	1.3%	0.8%	1.1%	902	Universe	1.0%	0.3%	-0.1%	960	Universe	0.6%	-0.3%	-0.6%	973	Universe	1.1%	0.3%	0.1%	939
Long Short Strategy Statistics																			
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10				
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.
Long/Short	0.4%	4.9%	3%	55%	Long/Short	0.0%	-1.2%	3%	50%	Long/Short	0.2%	1.3%	4%	53%	Long/Short	0.2%	1.67%	3.4%	53%
T-Stat	1.18			Avg Assets	T-Stat	-0.11			Avg Assets	T-Stat	0.36			Avg Assets	T-Stat	0.79			Avg Assets
Long/Short				181	Long/Short				193	Long/Short				195	Long/Short				189

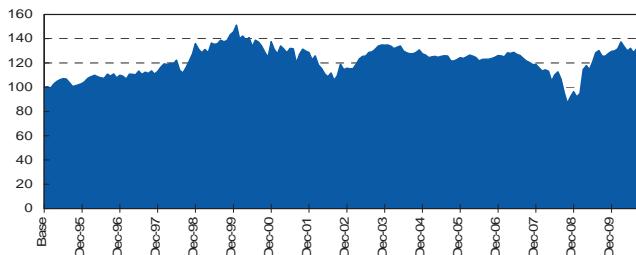
Portfolio Index Performance



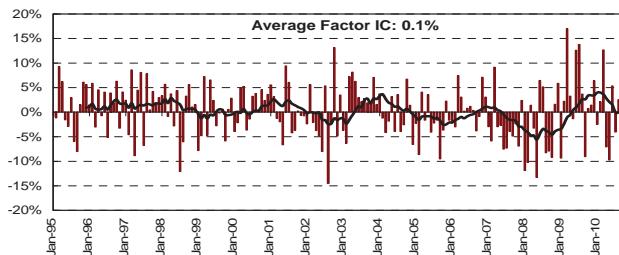
Portfolio Spread. Annual Returns



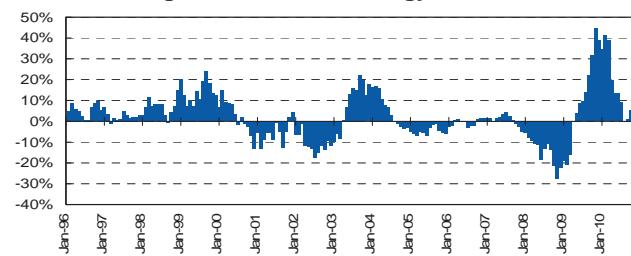
Cumulative Returns



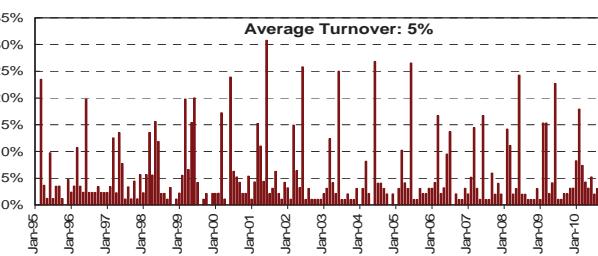
Information Co-Efficients (IC)

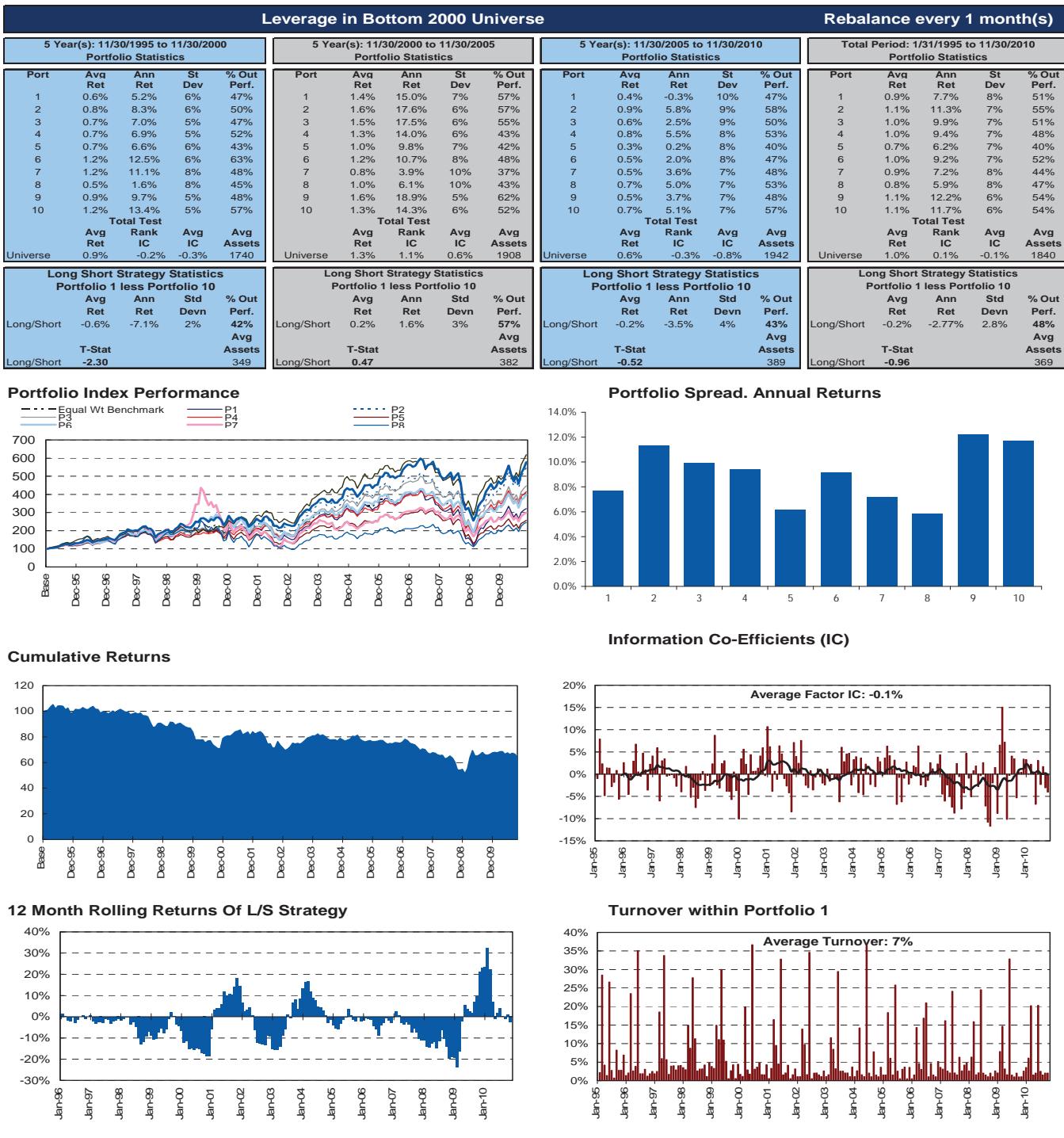


12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

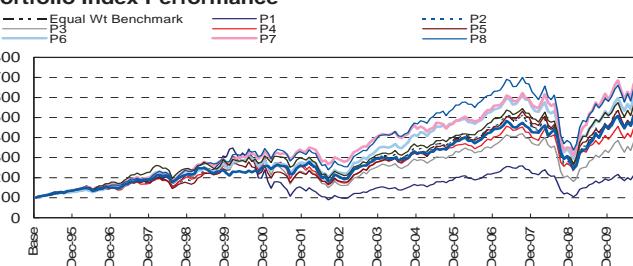




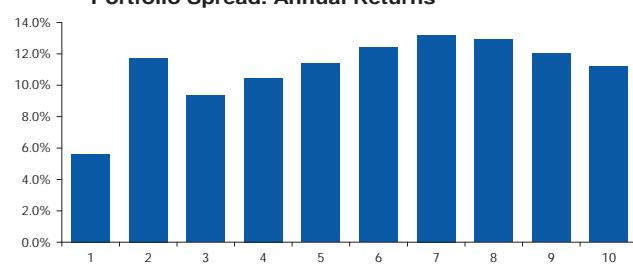
Current Ratio

Current Ratio in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010				Portfolio Statistics			
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	0.9%	8.2%	7%	47%	1	0.3%	-1.4%	9%	47%	1	0.7%	5.1%	7%	43%	1	0.8%	5.6%	8%	46%
2	1.3%	14.6%	6%	57%	2	0.9%	8.2%	7%	48%	2	1.0%	9.4%	8%	58%	2	1.1%	11.7%	7%	53%
3	1.2%	12.4%	6%	50%	3	0.8%	5.6%	8%	50%	3	0.7%	5.9%	7%	50%	3	1.0%	9.4%	7%	50%
4	1.2%	12.5%	6%	50%	4	0.9%	8.0%	7%	47%	4	0.8%	6.7%	6%	50%	4	1.0%	10.5%	6%	51%
5	1.1%	11.4%	6%	40%	5	1.1%	10.9%	6%	60%	5	0.9%	8.6%	6%	52%	5	1.1%	11.4%	6%	49%
6	1.3%	15.3%	5%	48%	6	1.2%	12.8%	6%	65%	6	0.7%	6.4%	6%	48%	6	1.1%	12.4%	5%	53%
7	1.5%	17.4%	5%	52%	7	0.9%	9.5%	4%	45%	7	0.9%	9.0%	7%	43%	7	1.2%	13.2%	5%	47%
8	1.6%	18.8%	5%	53%	8	1.1%	11.7%	5%	63%	8	0.6%	5.3%	6%	47%	8	1.2%	12.9%	5%	55%
9	1.4%	15.6%	5%	57%	9	0.8%	7.8%	6%	45%	9	0.9%	8.9%	7%	48%	9	1.1%	12.0%	6%	51%
10	1.0%	11.5%	4%	47%	10	0.9%	9.6%	6%	50%	10	0.9%	11.2%	5%	51%	10	1.0%	11.2%	5%	51%
Total Test				Total Test				Total Test				Total Test				Total Test			
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets
Universe	1.2%	-1.0%	-0.6%	696	Universe	0.9%	-1.3%	-1.7%	707	Universe	0.8%	0.0%	-0.1%	754	Universe	1.1%	-0.8%	-0.8%	715
Long Short Strategy Statistics																			
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10				
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.
Long/Short	0.0%	-2.6%	6%	52%	Long/Short	-0.6%	-9.4%	6%	45%	Long/Short	-0.2%	-2.5%	2%	47%	Long/Short	-0.3%	-4.63%	5.1%	48%
T-Stat				Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat		
Long/Short	-0.05			140	Long/Short	-0.72			142	Long/Short	-0.61			152	Long/Short	-0.70			144

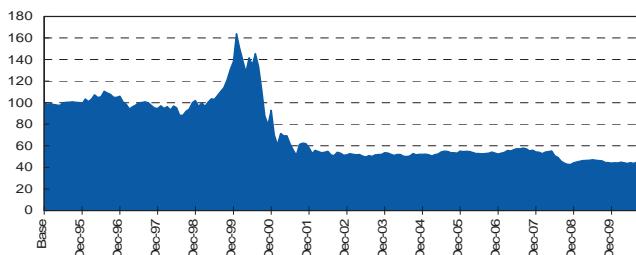
Portfolio Index Performance



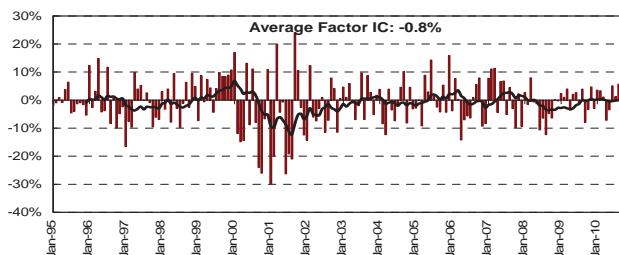
Portfolio Spread. Annual Returns



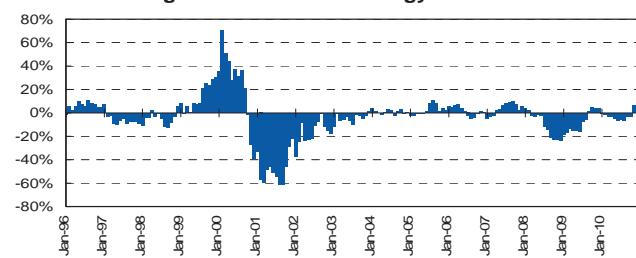
Cumulative Returns



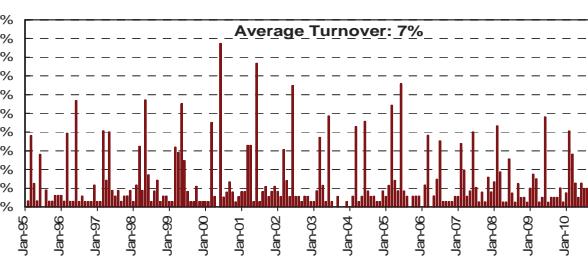
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

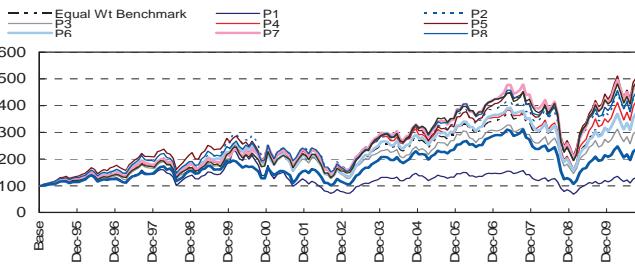


Turnover within Portfolio 1

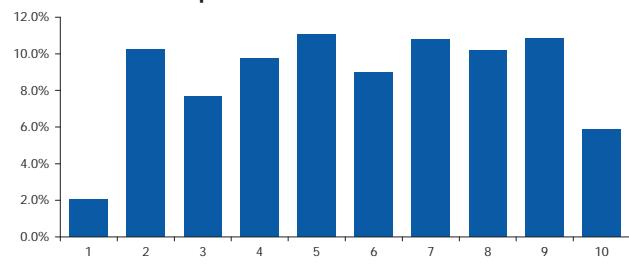


Current Ratio in Bottom 2000 Universe							Rebalance every 1 month(s)																
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010								
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics									
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.				
1	0.6%	3.0%	8%	37%	1	0.3%	-1.0%	9%	28%	1	0.3%	0.8%	7%	33%	1	0.5%	2.0%	8%	33%				
2	1.1%	10.8%	7%	60%	2	1.1%	9.4%	8%	53%	2	0.9%	7.4%	8%	57%	2	1.1%	10.2%	7%	57%				
3	0.9%	8.0%	7%	58%	3	1.0%	8.8%	8%	43%	3	0.6%	3.8%	7%	40%	3	0.9%	7.7%	7%	47%				
4	1.0%	9.2%	7%	52%	4	1.0%	8.8%	8%	50%	4	1.0%	8.0%	8%	55%	4	1.1%	9.7%	7%	53%				
5	0.8%	7.1%	7%	62%	5	1.3%	12.0%	8%	53%	5	1.1%	10.1%	8%	60%	5	1.2%	11.1%	7%	59%				
6	0.8%	7.5%	7%	43%	6	1.2%	11.5%	8%	57%	6	0.7%	5.2%	8%	50%	6	1.0%	9.0%	7%	49%				
7	0.9%	8.9%	6%	48%	7	1.4%	12.8%	8%	47%	7	1.0%	7.9%	8%	62%	7	1.1%	10.8%	8%	52%				
8	0.9%	8.4%	7%	52%	8	1.3%	12.8%	8%	47%	8	0.8%	5.9%	8%	47%	8	1.1%	10.2%	7%	49%				
9	0.8%	7.4%	7%	50%	9	1.6%	15.6%	8%	67%	9	1.0%	7.6%	8%	52%	9	1.2%	10.8%	8%	55%				
10	0.4%	2.4%	7%	42%	10	1.3%	12.7%	8%	57%	10	0.5%	1.3%	8%	45%	10	0.8%	5.9%	8%	46%				
Total Test					Total Test					Total Test					Total Test								
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	Avg Ret	Rank IC	Avg IC	Avg Assets	Universe				
0.8%	-0.6%	-0.5%	1355		1.1%	-1.8%	-2.0%	1500		0.8%	-0.3%	-0.8%	1509		1.0%	-0.8%	-1.0%	1436					
Long Short Strategy Statistics Portfolio 1 less Portfolio 10							Long Short Strategy Statistics Portfolio 1 less Portfolio 10							Long Short Strategy Statistics Portfolio 1 less Portfolio 10									
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.
0.2%	1.2%	4%	47%	Long/Short	-1.1%	-12.5%	3%	33%	Long/Short	-1.1%	-1.9%	3%	43%	Long/Short	-0.40				Long/Short	-0.3%	-3.97%	3.2%	42%
T-Stat				Long/Short	T-Stat				Long/Short	T-Stat				Long/Short	T-Stat				Long/Short	T-Stat			
0.33				272					301					303					288				

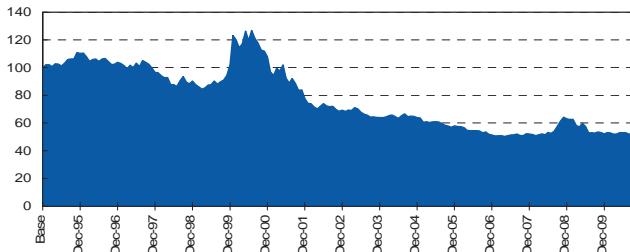
Portfolio Index Performance



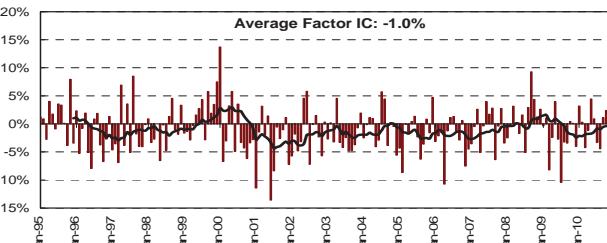
Portfolio Spread. Annual Returns



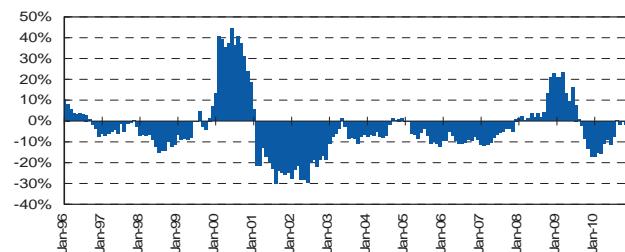
Cumulative Returns



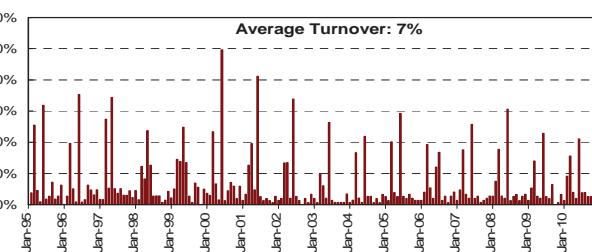
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



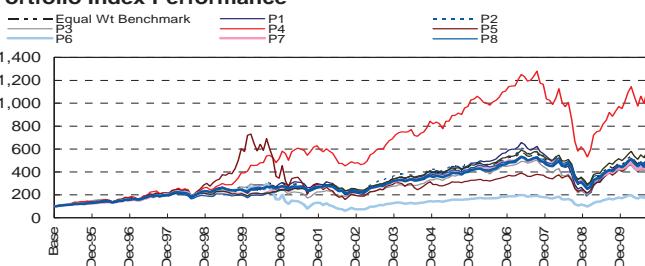
Turnover within Portfolio 1



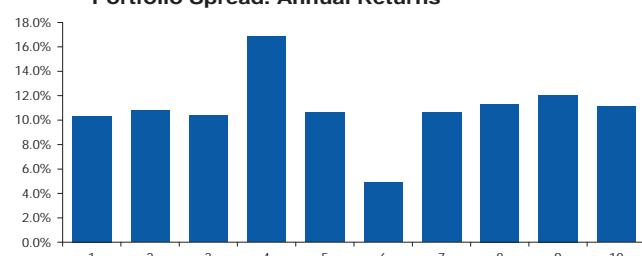
Payout Ratio

Payout Ratio in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.4%	16.1%	5%	55%	1	1.0%	10.4%	6%	55%	1	0.5%	1.5%	8%	48%	1	1.0%	10.4%	6%	53%
2	1.1%	11.7%	6%	47%	2	1.3%	14.5%	6%	53%	2	0.6%	2.1%	9%	48%	2	1.1%	10.8%	7%	49%
3	0.9%	9.7%	5%	45%	3	1.1%	11.7%	5%	47%	3	0.6%	3.8%	8%	52%	3	1.0%	10.4%	6%	50%
4	2.3%	27.2%	7%	63%	4	1.3%	14.8%	5%	57%	4	0.6%	4.2%	7%	58%	4	1.5%	16.9%	6%	61%
5	2.1%	21.7%	10%	60%	5	0.3%	-2.6%	11%	48%	5	1.0%	9.4%	6%	52%	5	1.2%	10.6%	9%	54%
6	0.7%	5.3%	7%	50%	6	0.7%	-0.1%	12%	48%	6	0.7%	5.8%	6%	43%	6	0.8%	4.9%	8%	46%
7	1.2%	13.9%	5%	45%	7	1.0%	11.5%	4%	48%	7	0.5%	3.9%	6%	47%	7	1.0%	10.6%	5%	45%
8	1.1%	12.7%	4%	37%	8	1.1%	13.2%	4%	50%	8	0.6%	5.7%	6%	53%	8	1.0%	11.3%	5%	46%
9	1.1%	12.5%	4%	43%	9	1.2%	13.9%	4%	50%	9	0.7%	6.8%	6%	58%	9	1.1%	12.1%	5%	49%
10	1.3%	14.8%	4%	50%	10	0.8%	9.2%	4%	43%	10	0.7%	6.1%	6%	47%	10	1.0%	11.1%	5%	46%
Total Test				Total Test				Total Test				Total Test				Total Test			
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets
Universe	1.3%	0.6%	0.7%	877	Universe	1.0%	-0.2%	0.1%	956	Universe	0.6%	-1.2%	-0.7%	975	Universe	1.1%	0.0%	0.2%	929
Long Short Strategy Statistics								Long Short Strategy Statistics								Long Short Strategy Statistics			
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10			
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.
Long/Short	0.1%	1.2%	3%	48%	Long/Short	0.2%	1.6%	2%	57%	Long/Short	-0.2%	-3.2%	3%	50%	Long/Short	0.0%	-0.18%	2.4%	52%
T-Stat	0.39			Avg Assets	T-Stat	0.59			Avg Assets	T-Stat	-0.67			Avg Assets	T-Stat	0.08			Avg Assets
Long/Short				176	Long/Short				192	Long/Short				196	Long/Short				186

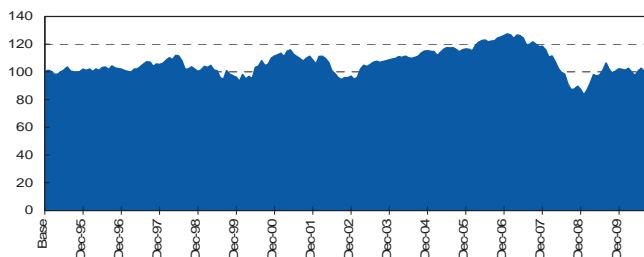
Portfolio Index Performance



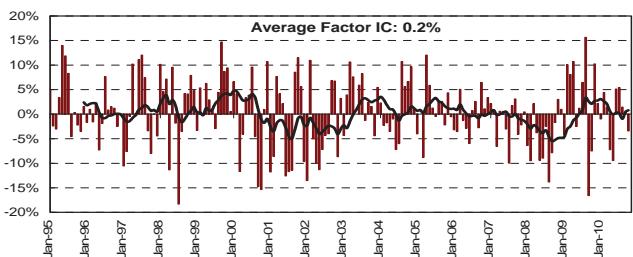
Portfolio Spread. Annual Returns



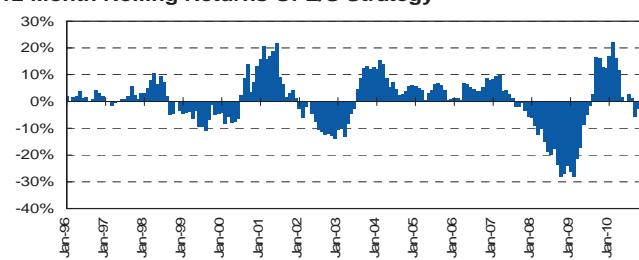
Cumulative Returns



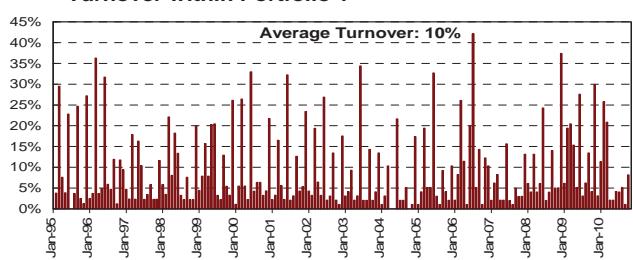
Information Co-Efficients (IC)

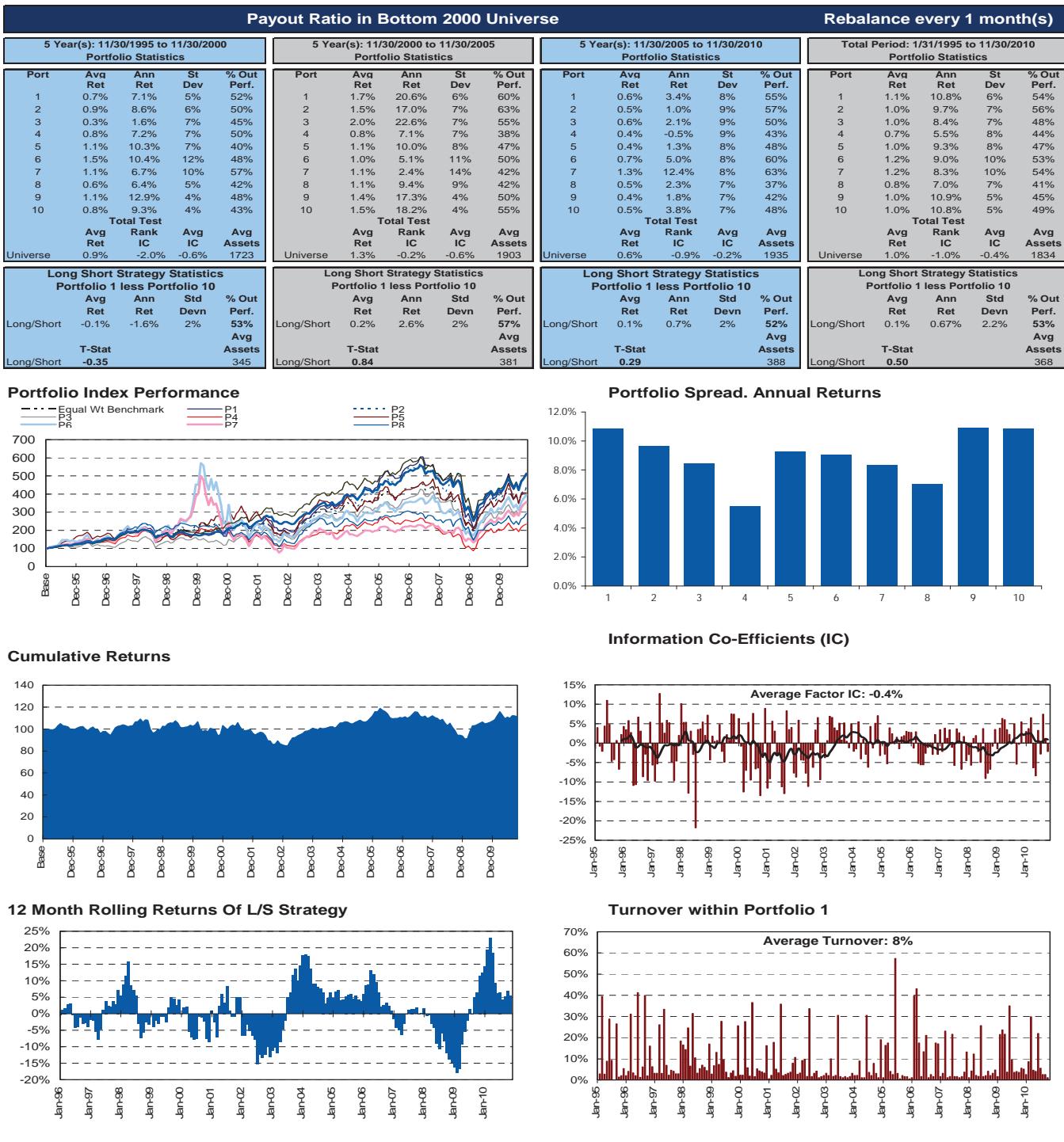


12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

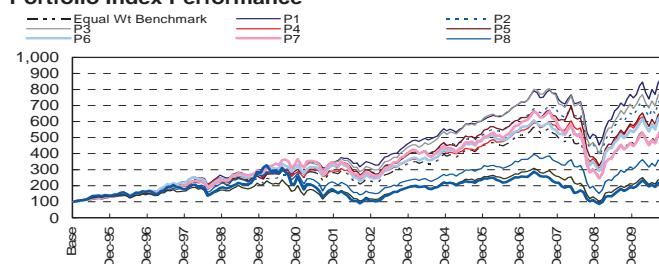




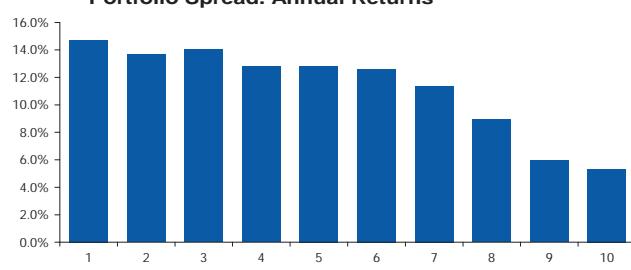
Short Interest to Shares Outstanding

Short Interest to Shares Outstanding in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.6%	19.1%	4%	63%	1	1.3%	15.4%	4%	55%	1	0.8%	8.1%	5%	53%	1	1.2%	14.7%	4%	55%
2	1.3%	15.2%	4%	48%	2	1.1%	13.5%	4%	53%	2	0.8%	8.5%	5%	60%	2	1.2%	13.7%	5%	53%
3	1.5%	18.0%	4%	55%	3	1.2%	15.0%	4%	58%	3	0.7%	5.9%	6%	48%	3	1.2%	14.0%	5%	53%
4	1.3%	15.0%	5%	60%	4	1.0%	11.3%	4%	47%	4	0.9%	8.9%	6%	55%	4	1.1%	12.8%	5%	53%
5	1.4%	16.9%	5%	57%	5	1.1%	13.3%	5%	50%	5	0.7%	5.6%	6%	52%	5	1.1%	12.8%	5%	53%
6	1.4%	16.6%	6%	58%	6	1.0%	10.4%	6%	58%	6	0.8%	6.8%	7%	52%	6	1.2%	12.6%	6%	55%
7	1.6%	19.6%	5%	62%	7	0.9%	9.0%	6%	52%	7	0.5%	2.8%	8%	57%	7	1.1%	11.4%	6%	57%
8	1.1%	12.4%	6%	42%	8	0.7%	5.1%	7%	48%	8	0.7%	5.2%	8%	47%	8	1.0%	9.0%	7%	45%
9	0.6%	4.1%	7%	47%	9	1.0%	8.1%	8%	48%	9	0.4%	0.6%	9%	47%	9	0.8%	5.9%	8%	48%
10	0.9%	8.1%	8%	52%	10	0.6%	2.1%	9%	47%	10	0.4%	-0.4%	9%	43%	10	0.8%	5.3%	8%	47%
Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets				
Universe	1.3%	3.0%	2.4%	869	Universe	1.0%	2.0%	1.5%	942	Universe	0.7%	2.5%	2.5%	965	Universe	1.1%	2.3%	1.8%	917
Long Short Strategy Statistics								Long Short Strategy Statistics											
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.				
Long/Short	0.6%	5.2%	6%	53%	Long/Short	0.7%	5.4%	7%	57%	Long/Short	0.4%	3.8%	5%	55%	Long/Short	0.5%	3.46%	5.8%	54%
T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets				
Long/Short	0.78		175	Long/Short	0.76		189	Long/Short	0.68		194	Long/Short	1.08			184			

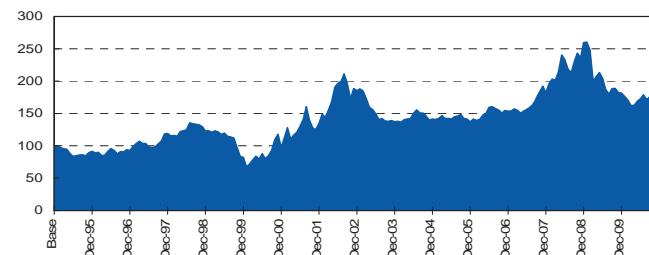
Portfolio Index Performance



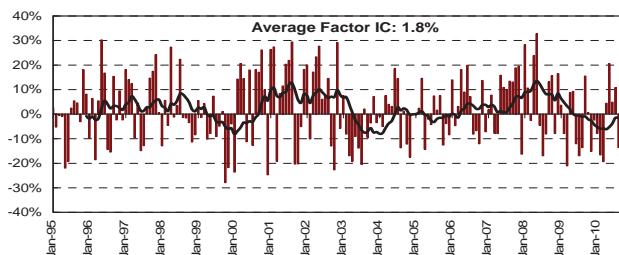
Portfolio Spread. Annual Returns



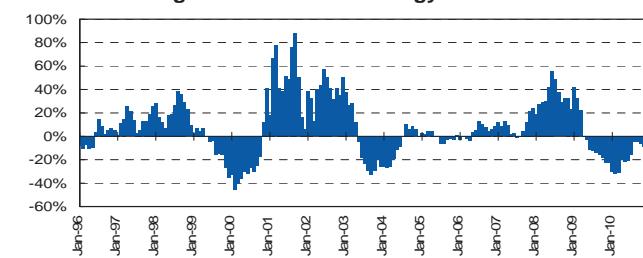
Cumulative Returns



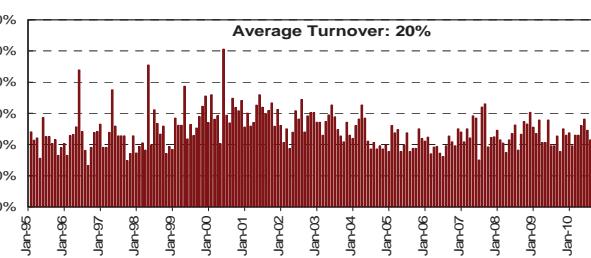
Information Co-Efficients (IC)

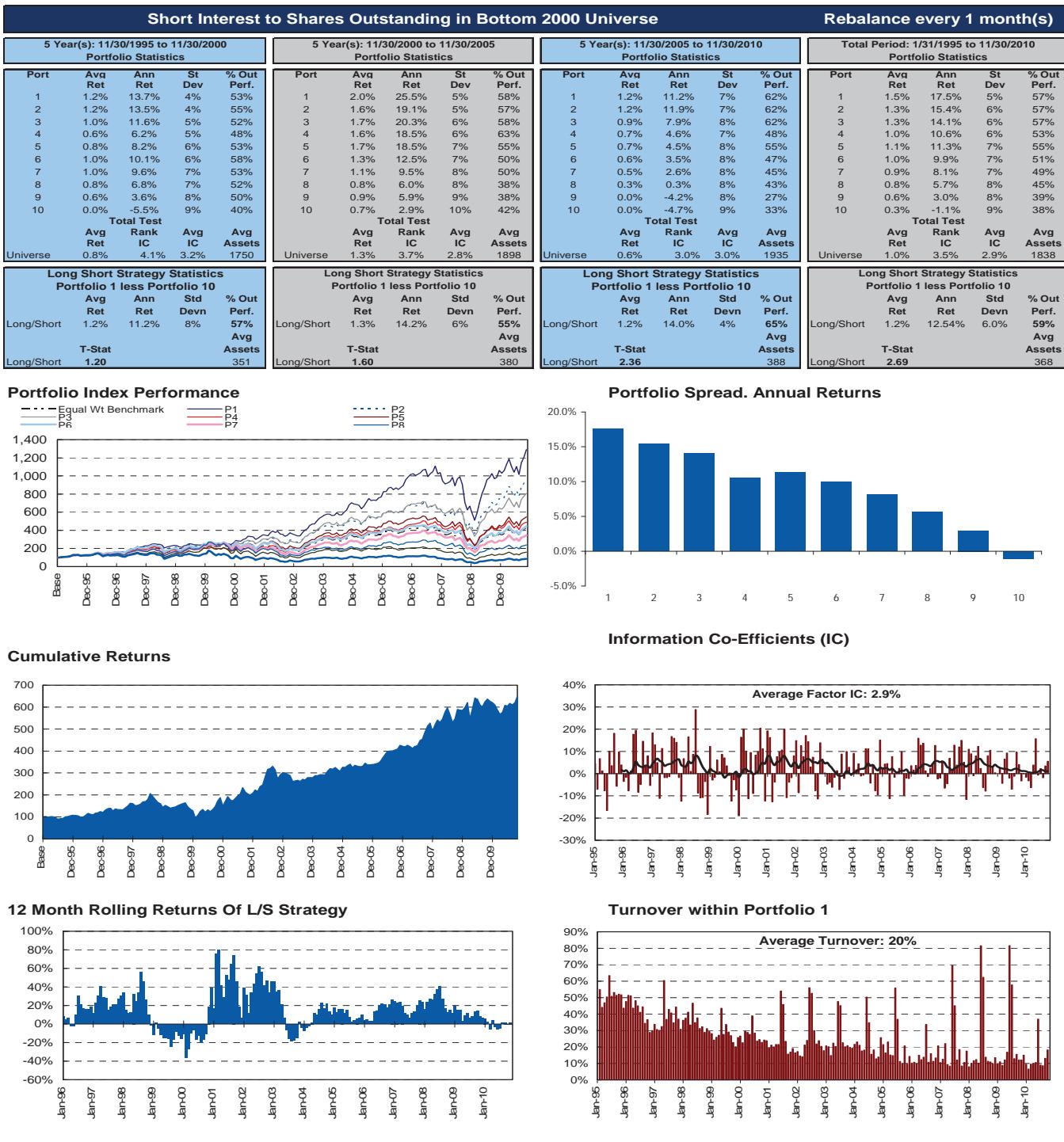


12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

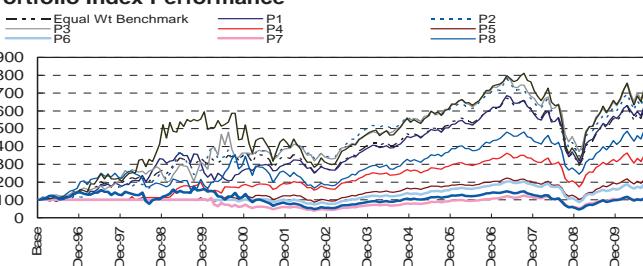




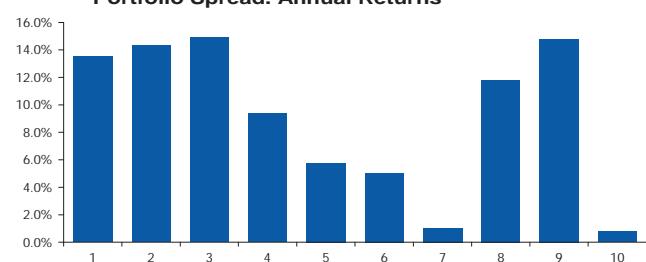
12 Month Change in Shares Outstanding

12 Mnth Change in Shares Outstanding in Top 1000 Universe								Rebalance every 1 month(s)											
3 Year(s): 11/30/2001 to 11/30/2004 Portfolio Statistics				3 Year(s): 11/30/2004 to 11/30/2007 Portfolio Statistics				3 Year(s): 11/30/2007 to 11/30/2010 Portfolio Statistics				Total Period: 1/31/1996 to 11/30/2010 Portfolio Statistics							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.2%	14.8%	4%	53%	1	1.1%	13.0%	3%	47%	1	0.5%	1.7%	8%	47%	1	1.3%	13.5%	7%	49%
2	1.1%	13.3%	4%	44%	2	0.7%	7.7%	3%	36%	2	0.5%	2.2%	8%	47%	2	1.4%	14.3%	7%	46%
3	1.2%	13.7%	4%	47%	3	0.8%	9.7%	3%	44%	3	0.6%	3.5%	8%	53%	3	1.5%	14.9%	8%	49%
4	1.1%	12.4%	5%	44%	4	0.8%	9.0%	3%	42%	4	0.7%	4.0%	8%	53%	4	0.9%	9.4%	6%	47%
5	1.0%	10.9%	5%	47%	5	0.8%	9.2%	3%	39%	5	0.6%	3.6%	8%	56%	5	0.6%	5.8%	5%	43%
6	1.0%	10.9%	5%	58%	6	1.1%	13.2%	3%	56%	6	0.6%	2.5%	9%	44%	6	0.6%	5.0%	5%	48%
7	0.9%	9.6%	6%	47%	7	1.3%	15.5%	3%	67%	7	0.4%	-0.4%	9%	44%	7	0.4%	1.1%	7%	45%
8	0.7%	7.0%	6%	44%	8	1.1%	13.2%	3%	58%	8	0.7%	5.0%	8%	58%	8	1.3%	11.8%	8%	53%
9	0.8%	8.1%	6%	53%	9	1.1%	13.0%	3%	64%	9	0.5%	0.1%	10%	50%	9	1.5%	14.8%	9%	54%
10	0.9%	8.7%	7%	53%	10	0.8%	9.8%	3%	47%	10	0.0%	-6.4%	10%	44%	10	0.5%	0.8%	9%	46%
Total Test				Total Test				Total Test				Total Test				Total Test			
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets
Universe	1.0%	0.3%	0.3%	951	Universe	0.9%	-0.5%	0.4%	950	Universe	0.5%	1.8%	1.4%	952	Universe	1.3%	1.2%	2.3%	646

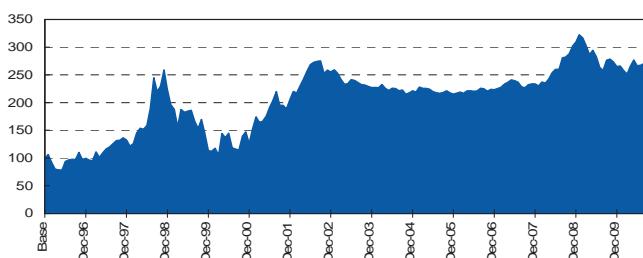
Portfolio Index Performance



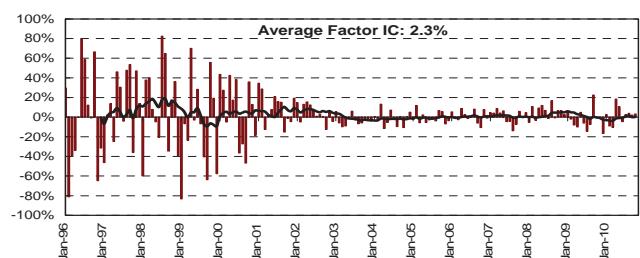
Portfolio Spread. Annual Returns



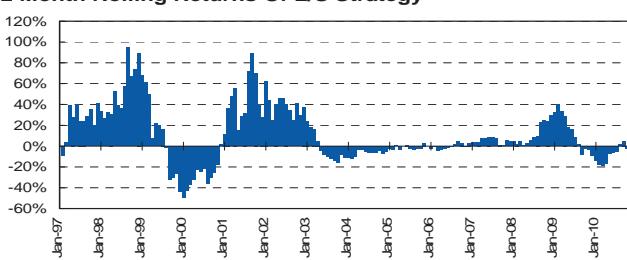
Cumulative Returns



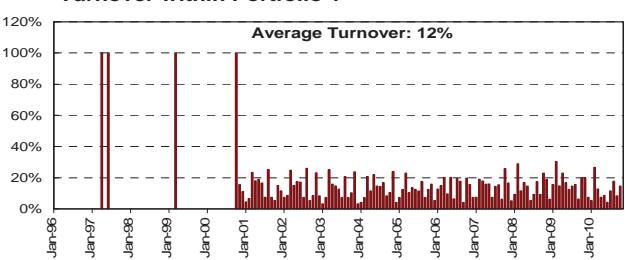
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

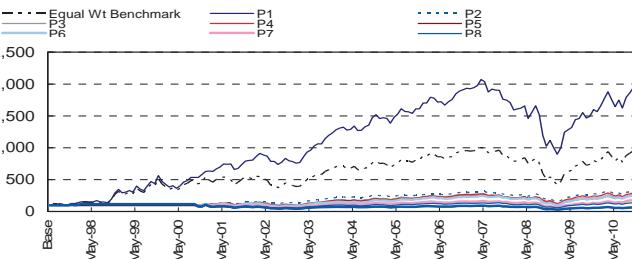


12 Mnth Change in Shares Outstanding in Bottom 2000 Universe

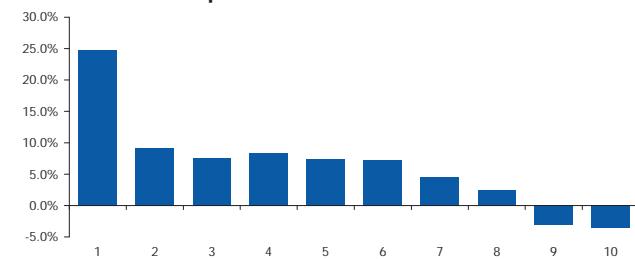
Rebalance every 1 month(s)

3 Year(s): 11/30/2001 to 11/30/2004 Portfolio Statistics					3 Year(s): 11/30/2004 to 11/30/2007 Portfolio Statistics					3 Year(s): 11/30/2007 to 11/30/2010 Portfolio Statistics					Total Period: 6/30/1997 to 11/30/2010 Portfolio Statistics				
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	2.0%	25.7%	5%	58%	1	0.6%	6.2%	4%	56%	1	0.6%	3.4%	9%	47%	1	2.3%	24.8%	9%	45%
2	1.9%	23.2%	5%	53%	2	0.3%	2.9%	4%	39%	2	0.9%	5.8%	9%	39%	2	0.9%	9.2%	6%	45%
3	1.6%	18.8%	6%	61%	3	0.4%	4.1%	4%	42%	3	0.8%	5.1%	9%	42%	3	0.8%	7.6%	6%	47%
4	1.6%	17.3%	7%	58%	4	0.6%	6.3%	4%	56%	4	1.1%	7.7%	10%	58%	4	0.9%	8.3%	6%	55%
5	1.6%	17.5%	7%	61%	5	0.7%	7.4%	4%	58%	5	0.8%	4.1%	10%	69%	5	0.8%	7.3%	6%	57%
6	1.4%	14.7%	7%	53%	6	0.8%	8.6%	4%	61%	6	0.9%	5.4%	10%	64%	6	0.8%	7.3%	7%	55%
7	1.2%	12.4%	7%	50%	7	0.5%	5.3%	4%	42%	7	1.0%	6.4%	10%	61%	7	0.6%	4.5%	7%	47%
8	1.1%	9.9%	8%	44%	8	0.6%	5.9%	4%	58%	8	0.7%	3.2%	9%	50%	8	0.5%	2.5%	8%	48%
9	0.7%	5.0%	8%	31%	9	0.1%	0.4%	5%	39%	9	0.0%	-5.7%	10%	33%	9	0.0%	-3.1%	8%	36%
10	0.4%	1.1%	7%	31%	10	0.3%	2.0%	5%	47%	10	-0.2%	-8.8%	11%	39%	10	0.1%	-3.5%	8%	37%
Total Test					Total Test					Total Test					Total Test				
Avg Ret	1.3%	3.6%	3.1%	1877	Avg Ret	0.5%	0.6%	0.9%	1842	Avg Ret	0.7%	2.3%	2.4%	1868	Avg Ret	1.9%	4.4%	4.1%	1395
Universe																			
Long Short Strategy Statistics																			
Portfolio 1 less Portfolio 10																			
Avg Ret					Avg Ret					Avg Ret					Avg Ret				
Long/Short	1.7%	21.0%	4%	67%	Long/Short	0.3%	2.9%	2%	47%	Long/Short	0.6%	9.8%	3%	53%	Long/Short	2.2%	24.33%	9.0%	58%
T-Stat					T-Stat					T-Stat					T-Stat				
Long/Short	2.64		376		Long/Short	0.69			369	Long/Short	1.49			374	Long/Short	3.10			280

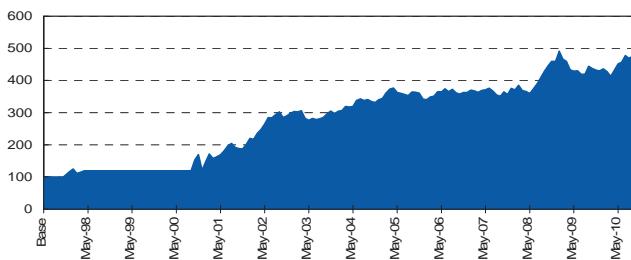
Portfolio Index Performance



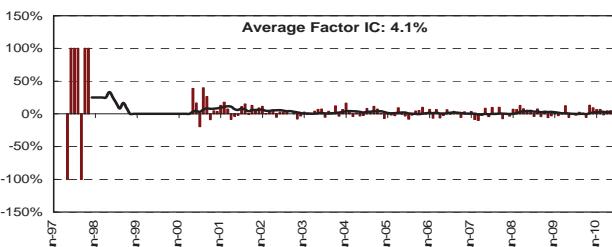
Portfolio Spread. Annual Returns



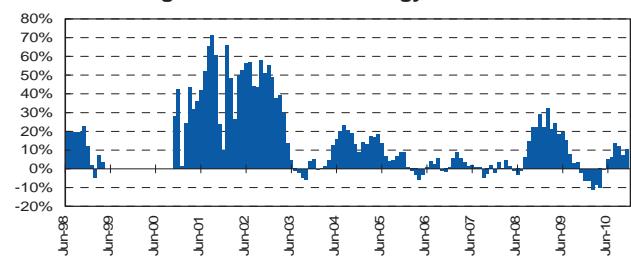
Cumulative Returns



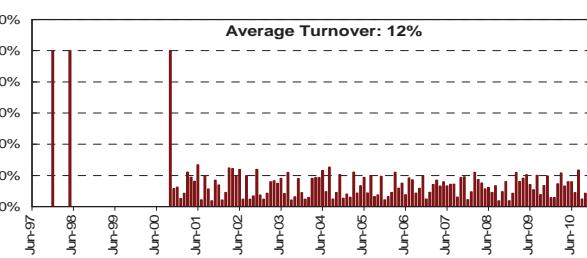
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

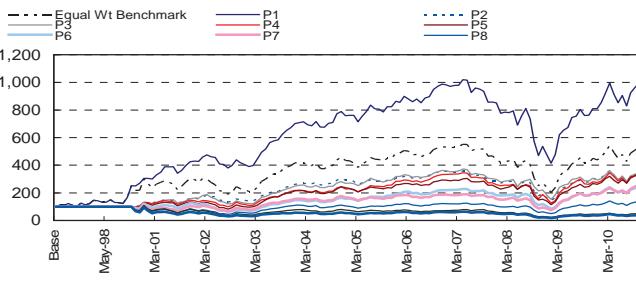


Turnover within Portfolio 1

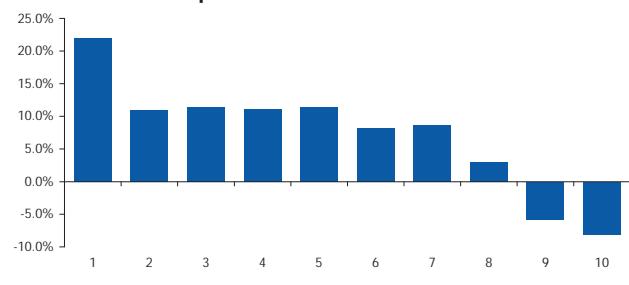


12 Mnth Change in Shares Outstanding in Bottom 1000 Universe							Rebalance every 1 month(s)																							
3 Year(s): 11/30/2001 to 11/30/2004							3 Year(s): 11/30/2004 to 11/30/2007							3 Year(s): 11/30/2007 to 11/30/2010							Total Period: 6/30/1997 to 11/30/2010									
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics								
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.						
1	2.0%	24.8%	5%	53%	1	0.4%	3.5%	4%	53%	1	0.9%	5.1%	10%	42%	1	2.0%	21.9%	9%	45%	1	2.0%	21.9%	9%	45%						
2	2.1%	25.8%	6%	61%	2	0.1%	-0.1%	4%	47%	2	0.9%	4.5%	11%	44%	2	1.1%	11.0%	7%	51%	2	1.1%	11.0%	7%	51%						
3	2.1%	23.9%	8%	50%	3	0.4%	4.1%	4%	53%	3	0.9%	4.3%	11%	36%	3	1.2%	11.4%	7%	47%	3	1.2%	11.4%	7%	47%						
4	1.8%	19.9%	8%	56%	4	0.5%	5.1%	4%	50%	4	1.4%	7.6%	13%	56%	4	1.2%	11.1%	8%	53%	4	1.2%	11.1%	8%	53%						
5	2.0%	21.4%	9%	56%	5	0.4%	3.7%	4%	50%	5	1.5%	11.0%	12%	69%	5	1.3%	11.4%	8%	56%	5	1.3%	11.4%	8%	56%						
6	1.3%	11.3%	9%	44%	6	0.7%	7.8%	4%	64%	6	1.3%	7.6%	12%	69%	6	1.1%	8.6%	9%	58%	6	1.1%	8.6%	9%	58%						
7	1.9%	20.4%	8%	58%	7	0.1%	0.4%	5%	42%	7	1.9%	15.5%	12%	72%	7	1.2%	8.6%	10%	55%	7	1.2%	8.6%	10%	55%						
8	1.4%	12.8%	10%	50%	8	0.2%	1.3%	4%	44%	8	1.2%	7.4%	11%	56%	8	0.7%	2.9%	10%	49%	8	0.7%	2.9%	10%	49%						
9	0.6%	1.1%	10%	28%	9	-0.2%	-3.6%	5%	42%	9	-0.3%	-9.9%	11%	28%	9	0.0%	-5.8%	10%	34%	9	0.0%	-5.8%	10%	34%						
10	0.3%	-1.1%	9%	28%	10	0.0%	-1.8%	6%	36%	10	-0.2%	-10.2%	12%	28%	10	-0.1%	-8.1%	11%	32%	10	-0.1%	-8.1%	11%	32%						
Total Test		Total Test		Total Test		Total Test		Total Test		Total Test		Total Test		Total Test		Total Test		Total Test		Total Test		Total Test								
Avg Ret	1.5%	4.5%	3.4%	926	Avg Ret	0.3%	1.4%	1.2%	902	Avg Ret	1.0%	2.6%	2.9%	922	Avg Ret	1.7%	3.6%	2.9%	794	Avg Ret	2.2%	22.79%	9.5%	62%	Avg Assets	1.44	181	160		
Long Short Strategy Statistics							Long Short Strategy Statistics							Long Short Strategy Statistics							Long Short Strategy Statistics									
Portfolio 1 less Portfolio 10		Portfolio 1 less Portfolio 10		Portfolio 1 less Portfolio 10		Portfolio 1 less Portfolio 10		Portfolio 1 less Portfolio 10		Portfolio 1 less Portfolio 10		Portfolio 1 less Portfolio 10		Portfolio 1 less Portfolio 10		Portfolio 1 less Portfolio 10		Portfolio 1 less Portfolio 10		Portfolio 1 less Portfolio 10		Portfolio 1 less Portfolio 10								
Long/Short	Avg Ret	1.7%	20.4%	5%	67%	Long/Short	Avg Ret	0.3%	3.7%	3%	58%	Long/Short	Avg Ret	1.1%	12.6%	5%	64%	Long/Short	Avg Ret	2.2%	22.79%	9.5%	62%	Avg Assets	T-Stat	1.44	185	T-Stat	2.70	160
Long/Short	Devn					Long/Short	Devn					Long/Short	Devn					Long/Short	Devn											
Long/Short	Perf.					Long/Short	Perf.					Long/Short	Perf.					Long/Short	Perf.											
Long/Short	Avg Assets					Long/Short	Avg Assets					Long/Short	Avg Assets					Long/Short	Avg Assets											
Long/Short	186					Long/Short	181					Long/Short	185					Long/Short	160											

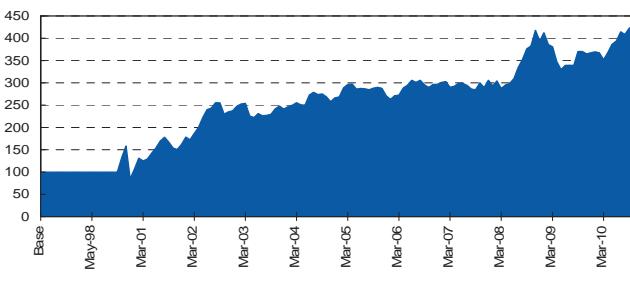
Portfolio Index Performance



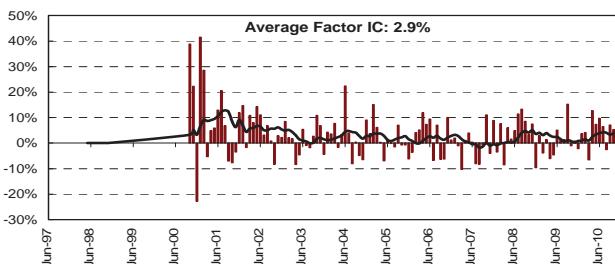
Portfolio Spread. Annual Returns



Cumulative Returns



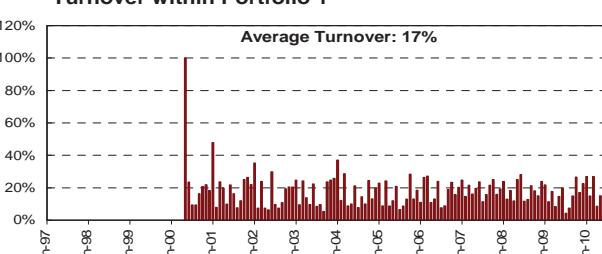
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



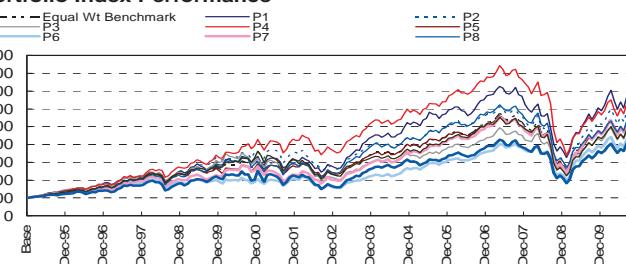
Turnover within Portfolio 1



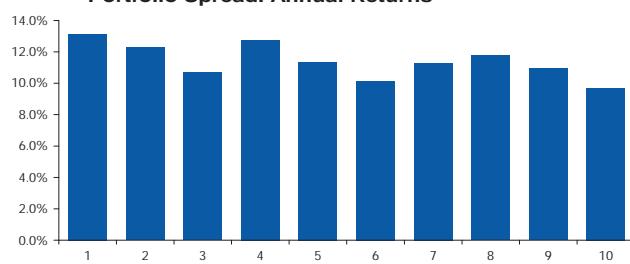
1 Month Change in Recommendation

1 Mnth Chg in Recommendation in Top 1000 Universe								Rebalance every 1 month(s)																		
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010														
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics														
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.							
1	1.4%	16.9%	5%	58%	1	1.2%	13.8%	5%	57%	1	0.6%	4.4%	6%	43%	1	1.2%	13.1%	6%	54%							
2	1.5%	18.4%	5%	58%	2	0.9%	8.9%	5%	48%	2	0.6%	4.9%	7%	48%	2	1.1%	12.3%	6%	52%							
3	1.4%	15.7%	5%	42%	3	0.5%	4.9%	5%	40%	3	0.7%	6.4%	6%	55%	3	1.0%	10.7%	6%	47%							
4	1.8%	22.8%	5%	72%	4	1.0%	11.2%	5%	50%	4	0.3%	0.9%	7%	42%	4	1.1%	12.8%	5%	55%							
5	1.2%	13.2%	5%	50%	5	1.1%	11.8%	5%	57%	5	0.6%	4.7%	7%	53%	5	1.1%	11.4%	6%	53%							
6	0.7%	7.2%	5%	27%	6	1.0%	10.5%	5%	53%	6	1.0%	9.1%	7%	60%	6	1.0%	10.1%	6%	47%							
7	1.3%	14.7%	5%	45%	7	1.0%	10.7%	6%	52%	7	0.7%	5.9%	7%	50%	7	1.1%	11.3%	6%	47%							
8	1.4%	16.7%	5%	52%	8	1.1%	12.4%	6%	57%	8	0.5%	3.6%	7%	42%	8	1.1%	11.8%	6%	49%							
9	1.5%	18.1%	5%	53%	9	0.7%	6.8%	6%	43%	9	0.6%	4.4%	7%	52%	9	1.0%	10.9%	6%	49%							
10	1.0%	10.5%	6%	48%	10	1.1%	10.1%	7%	48%	10	0.8%	6.4%	7%	53%	10	1.0%	9.7%	7%	48%							
Total Test				Total Test				Total Test				Total Test														
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets											
Universe	1.3%	0.5%	0.9%	901	Universe	1.0%	0.6%	0.7%	949	Universe	0.6%	-0.3%	-0.4%	960	Universe	1.1%	0.5%	0.6%	934							
Long Short Strategy Statistics								Long Short Strategy Statistics																		
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10														
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.											
Long/Short	0.4%	5.0%	2%	62%	Long/Short	0.2%	1.0%	4%	58%	Long/Short	-0.2%	-2.8%	2%	47%	Long/Short	0.2%	1.80%	2.7%	56%							
T-Stat	1.50	Avg Assets		T-Stat	0.33	Avg Assets		T-Stat	-0.82	Avg Assets		T-Stat	0.96	Avg Assets		Long/Short	181	Avg Assets		191	Avg Assets		193	Avg Assets		188

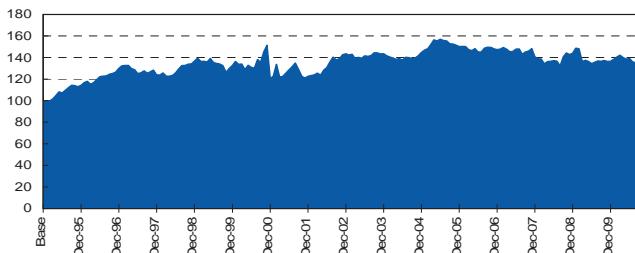
Portfolio Index Performance



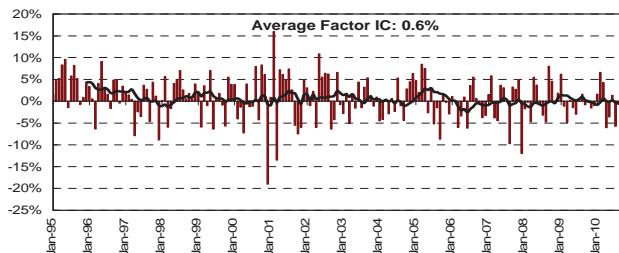
Portfolio Spread. Annual Returns



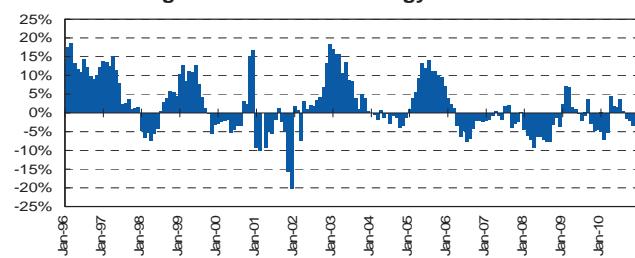
Cumulative Returns



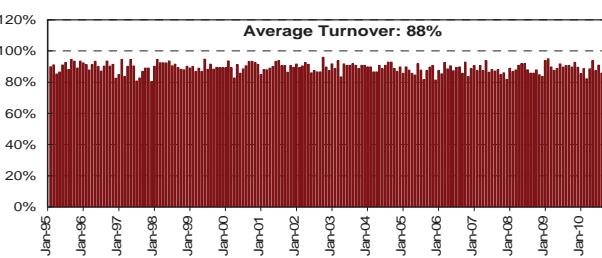
Information Co-Efficients (IC)

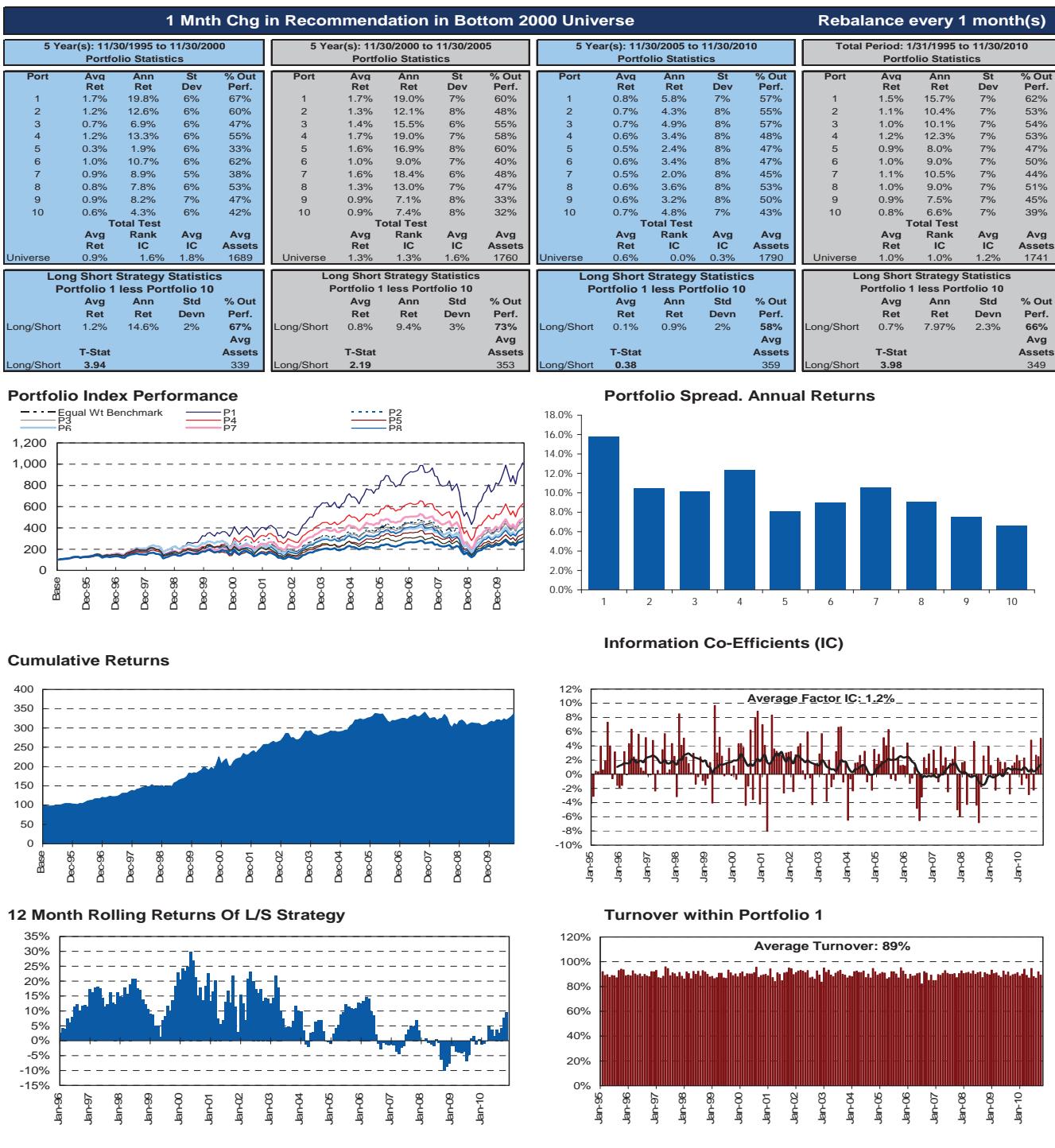


12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

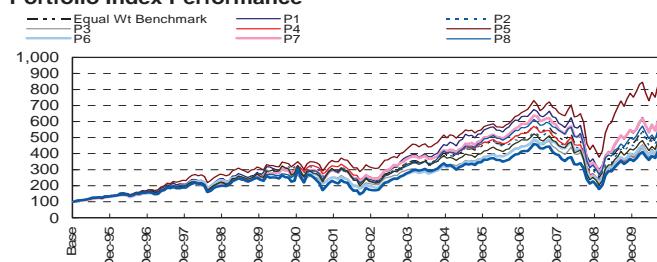




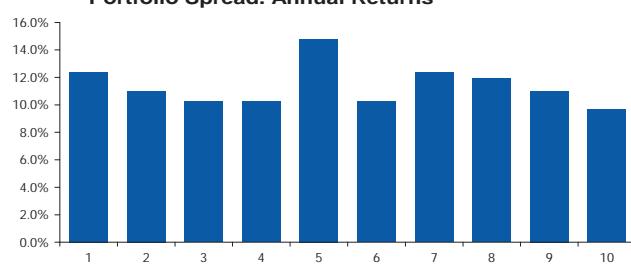
3 Month Change in Recommendation

3 Mnth Chg in Recommendation in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.3%	14.2%	5%	50%	1	1.3%	14.5%	5%	57%	1	0.6%	4.1%	7%	50%	1	1.1%	12.4%	6%	52%
2	1.4%	16.8%	5%	58%	2	0.8%	8.4%	5%	45%	2	0.5%	3.3%	7%	43%	2	1.0%	11.0%	6%	51%
3	1.2%	14.1%	5%	45%	3	0.7%	7.7%	5%	38%	3	0.6%	5.0%	6%	48%	3	1.0%	10.2%	5%	45%
4	1.4%	16.4%	5%	53%	4	0.9%	10.2%	5%	43%	4	0.3%	0.6%	7%	45%	4	1.0%	10.2%	5%	47%
5	1.6%	19.3%	5%	55%	5	1.0%	11.3%	5%	50%	5	1.1%	10.4%	7%	60%	5	1.3%	14.8%	5%	55%
6	1.4%	16.1%	5%	48%	6	0.6%	5.9%	5%	43%	6	0.7%	5.4%	7%	55%	6	1.0%	10.2%	5%	48%
7	1.4%	16.0%	5%	50%	7	1.1%	12.1%	5%	52%	7	0.7%	5.9%	7%	50%	7	1.1%	12.4%	6%	49%
8	1.2%	14.1%	5%	40%	8	1.2%	13.0%	5%	62%	8	0.7%	5.2%	7%	53%	8	1.1%	11.9%	6%	51%
9	1.4%	15.9%	6%	50%	9	0.9%	8.3%	7%	43%	9	0.8%	5.8%	8%	52%	9	1.1%	11.0%	7%	47%
10	1.1%	11.3%	6%	35%	10	1.1%	9.0%	9%	52%	10	0.6%	4.6%	7%	43%	10	1.0%	9.7%	7%	45%
Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets				
Universe	1.3%	0.7%	0.3%	897	Universe	1.0%	0.3%	1.0%	947	Universe	0.6%	-0.4%	-0.1%	957	Universe	1.1%	0.3%	0.5%	932
Long Short Strategy Statistics								Long Short Strategy Statistics											
Portfolio 1 less Portfolio 10								Portfolio 1 less Portfolio 10											
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.				
Long/Short	0.2%	2.1%	3%	57%	Long/Short	0.2%	0.2%	5%	53%	Long/Short	-0.1%	-1.3%	2%	48%	Long/Short	0.1%	0.53%	3.6%	53%
T-Stat	0.59	Avg Assets		180	T-Stat	0.26	Avg Assets		190	T-Stat	-0.29	Avg Assets		192	T-Stat	0.43	Avg Assets		187

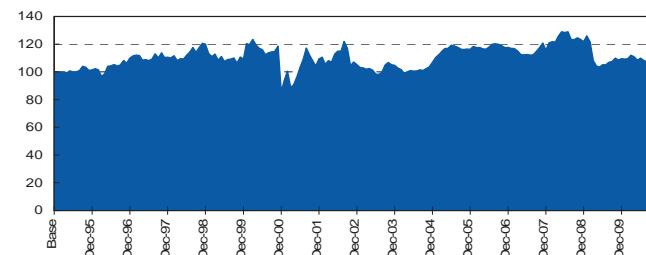
Portfolio Index Performance



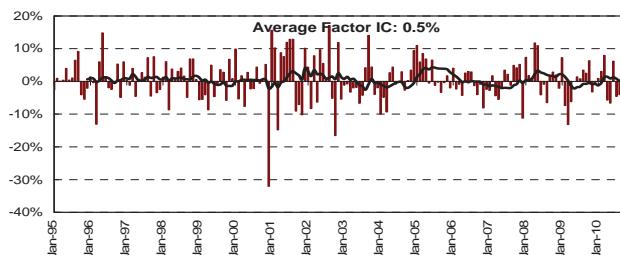
Portfolio Spread. Annual Returns



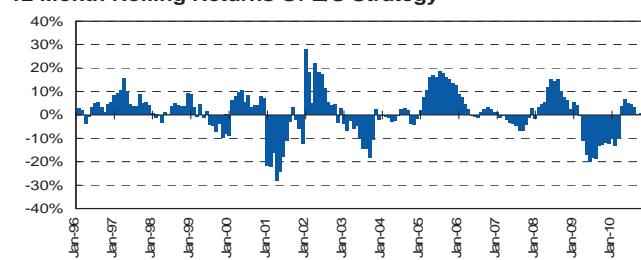
Cumulative Returns



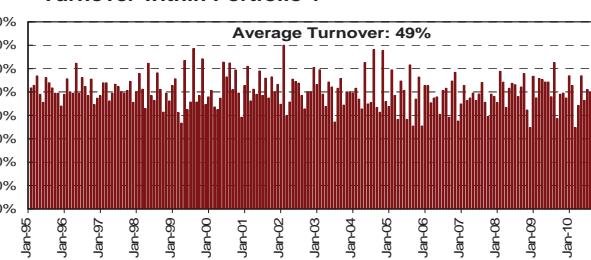
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

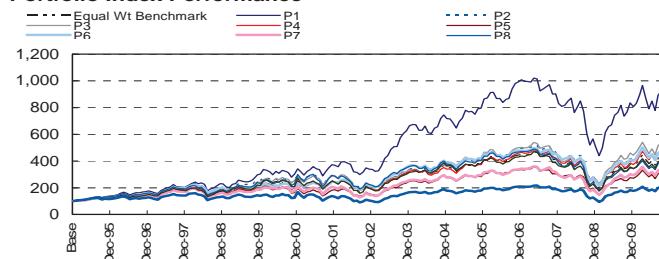


3 Mnth Chg in Recommendation in Bottom 2000 Universe

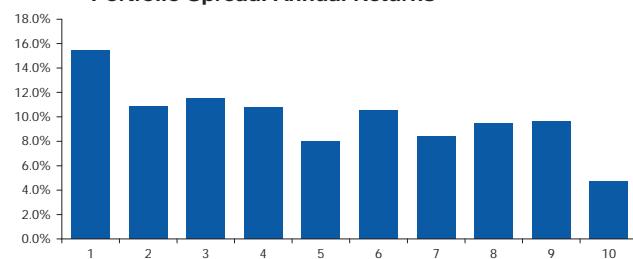
Rebalance every 1 month(s)

5 Year(s): 11/30/1995 to 11/30/2000 Portfolio Statistics						5 Year(s): 11/30/2000 to 11/30/2005 Portfolio Statistics						5 Year(s): 11/30/2005 to 11/30/2010 Portfolio Statistics						Total Period: 1/31/1995 to 11/30/2010 Portfolio Statistics															
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.														
1	1.5%	16.3%	6%	60%	1	2.0%	23.1%	7%	73%	1	0.6%	4.2%	8%	58%	1	1.4%	15.4%	7%	64%														
2	1.2%	13.0%	6%	63%	2	1.2%	12.4%	7%	50%	2	0.6%	4.0%	8%	57%	2	1.1%	10.9%	7%	57%														
3	1.3%	13.6%	6%	62%	3	1.2%	12.3%	7%	57%	3	0.8%	6.0%	8%	55%	3	1.1%	11.5%	7%	57%														
4	0.8%	8.4%	5%	48%	4	1.3%	14.8%	6%	52%	4	0.8%	6.2%	8%	57%	4	1.1%	10.8%	6%	52%														
5	0.6%	4.6%	6%	43%	5	1.2%	12.5%	7%	45%	5	0.6%	3.2%	8%	42%	5	0.9%	8.0%	7%	44%														
6	0.9%	9.5%	6%	53%	6	1.4%	16.0%	6%	52%	6	0.6%	3.1%	8%	50%	6	1.0%	10.5%	6%	51%														
7	0.7%	6.4%	6%	50%	7	1.2%	12.0%	8%	47%	7	0.6%	4.1%	8%	47%	7	0.9%	8.4%	7%	47%														
8	1.0%	10.6%	6%	50%	8	1.4%	13.4%	8%	50%	8	0.4%	0.5%	8%	45%	8	1.0%	9.5%	7%	49%														
9	1.1%	11.9%	6%	52%	9	1.3%	12.4%	8%	45%	9	0.5%	2.6%	8%	50%	9	1.0%	9.6%	7%	48%														
10	0.3%	0.9%	6%	30%	10	1.0%	7.7%	9%	32%	10	0.6%	3.2%	8%	50%	10	0.7%	4.7%	8%	37%														
Total Test				Total Test				Total Test				Total Test				Total Test																	
Avg Ret		Rank	Avg IC	Avg Assets	Avg Ret		Rank	Avg IC	Avg Assets	Avg Ret		Rank	Avg IC	Avg Assets	Avg Ret		Rank	Avg IC	Avg Assets														
Universe				1671	Universe				1740	Universe				1770	Universe				1721														
Long Short Strategy Statistics																																	
Portfolio 1 less Portfolio 10																																	
Avg Ret		Ann Ret	Std Devn	% Out Perf.	Avg Ret		Ann Ret	Std Devn	% Out Perf.	Avg Ret		Ann Ret	Std Devn	% Out Perf.	Avg Ret		Ann Ret	Std Devn	% Out Perf.	Avg Ret		Ann Ret	Std Devn	% Out Perf.									
Long/Short		1.2%	14.9%	3%	Long/Short		1.0%	10.8%	4%	Long/Short		0.1%	0.9%	2%	Long/Short		0.8%	8.98%	3.0%	Long/Short		3.44	335	349									
T-Stat		Avg Assets		T-Stat		Avg Assets		T-Stat		Avg Assets		T-Stat		Avg Assets		T-Stat		Avg Assets		T-Stat		Avg Assets											

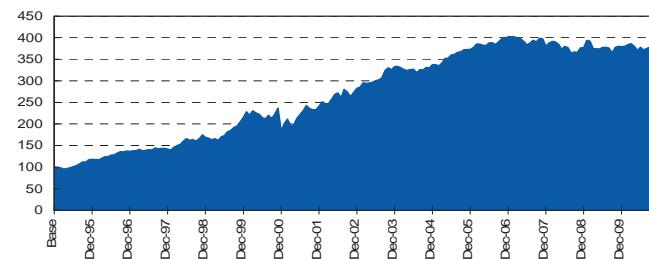
Portfolio Index Performance



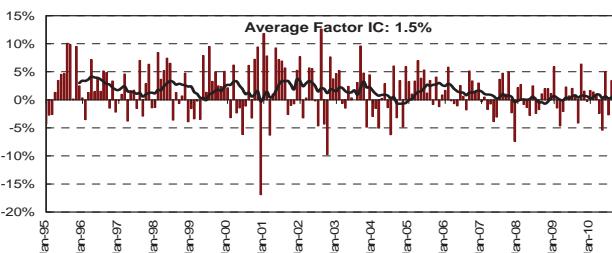
Portfolio Spread. Annual Returns



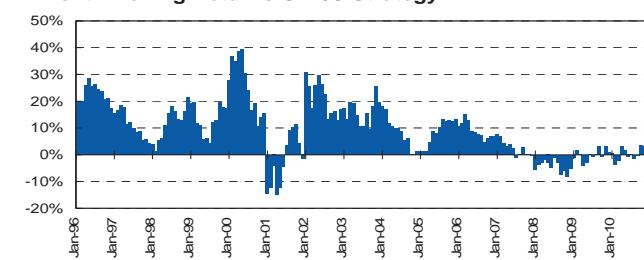
Cumulative Returns



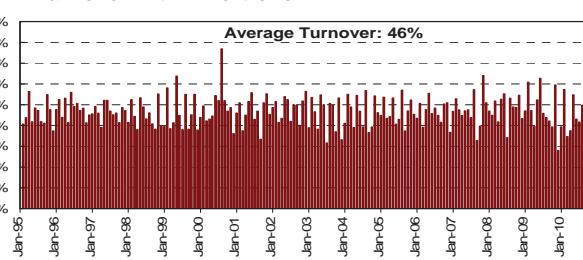
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



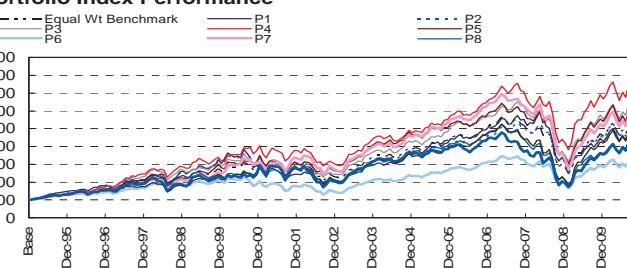
Turnover within Portfolio 1



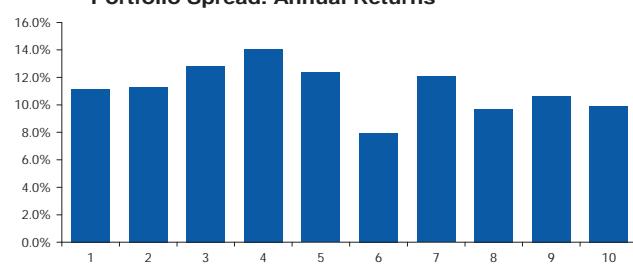
Net Earnings Revisions FY2

Net Earnings Revisions FY2 in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.3%	14.4%	6%	48%	1	0.8%	8.2%	5%	55%	1	0.6%	5.1%	6%	58%	1	1.0%	11.2%	6%	55%
2	1.4%	15.9%	5%	57%	2	0.7%	7.4%	4%	47%	2	0.7%	6.0%	6%	57%	2	1.0%	11.3%	5%	55%
3	1.5%	18.3%	5%	55%	3	0.9%	10.0%	5%	57%	3	0.8%	7.2%	6%	55%	3	1.2%	12.8%	5%	55%
4	1.8%	21.9%	5%	60%	4	0.8%	8.9%	5%	50%	4	0.8%	8.0%	6%	50%	4	1.2%	14.1%	5%	53%
5	1.5%	18.0%	5%	50%	5	1.0%	10.9%	5%	47%	5	0.6%	4.6%	6%	47%	5	1.1%	12.4%	5%	48%
6	0.7%	6.9%	5%	35%	6	0.8%	8.0%	6%	45%	6	0.6%	5.1%	6%	58%	6	0.8%	7.9%	6%	45%
7	1.5%	18.2%	5%	52%	7	1.1%	12.0%	6%	58%	7	0.5%	3.0%	7%	48%	7	1.1%	12.1%	6%	52%
8	1.2%	13.5%	5%	55%	8	1.1%	10.7%	7%	52%	8	0.4%	1.7%	8%	45%	8	1.0%	9.7%	6%	50%
9	1.1%	11.9%	5%	42%	9	1.1%	11.5%	7%	47%	9	0.8%	5.3%	8%	52%	9	1.1%	10.7%	7%	46%
10	1.2%	12.0%	7%	32%	10	1.2%	11.1%	8%	55%	10	0.6%	3.1%	8%	57%	10	1.1%	9.9%	7%	48%
Total Test				Total Test				Total Test				Total Test				Total Test			
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets
Universe	1.3%	1.6%	0.8%	892	Universe	1.0%	0.2%	0.1%	935	Universe	0.6%	1.4%	1.5%	962	Universe	1.1%	1.1%	0.9%	927
Long Short Strategy Statistics																			
Portfolio 1 less Portfolio 10																			
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.
Long/Short	0.2%	0.5%	5%	53%	Long/Short	-0.4%	-6.4%	5%	48%	Long/Short	0.0%	-1.3%	5%	55%	Long/Short	0.0%	-1.66%	4.8%	53%
T-Stat	0.25	Avg Assets		179	T-Stat	-0.64	Avg Assets		188	T-Stat	0.02	Avg Assets		193	T-Stat	-0.06	Avg Assets		186

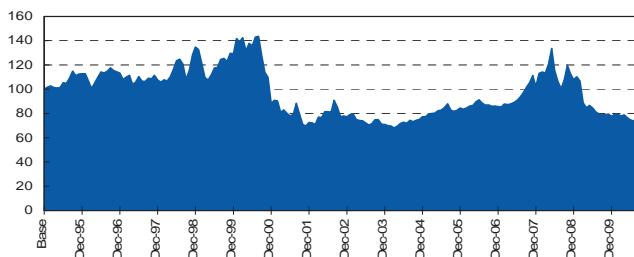
Portfolio Index Performance



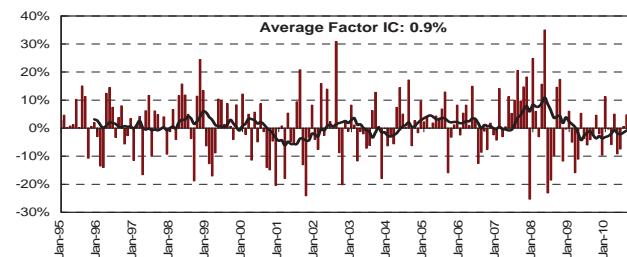
Portfolio Spread. Annual Returns



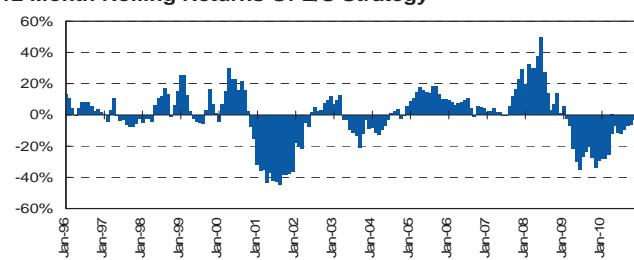
Cumulative Returns



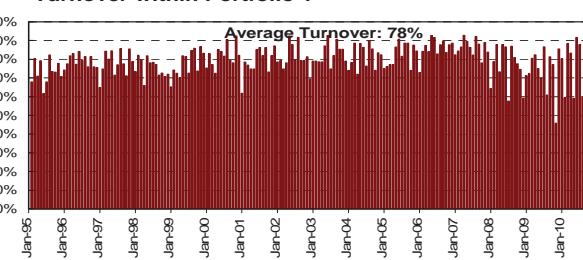
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

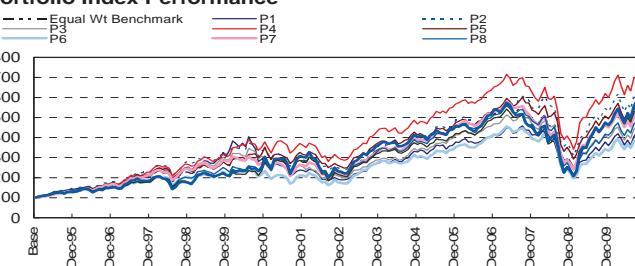




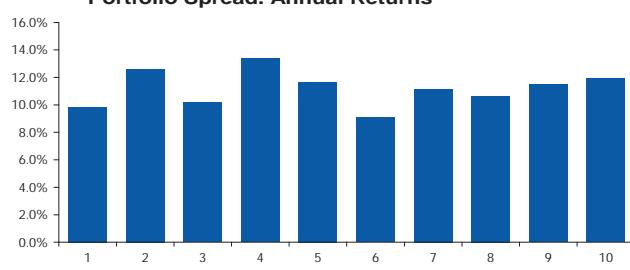
Net Earnings Revisions FY1

Net Earnings Revisions FY1 in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.4%	15.1%	7%	43%	1	0.5%	5.0%	5%	48%	1	0.6%	4.3%	6%	55%	1	1.0%	9.8%	6%	51%
2	1.4%	16.8%	5%	55%	2	0.8%	8.2%	5%	48%	2	0.8%	7.6%	6%	58%	2	1.1%	12.6%	5%	56%
3	1.5%	17.7%	5%	57%	3	0.6%	5.9%	5%	48%	3	0.5%	3.5%	6%	40%	3	1.0%	10.2%	5%	48%
4	1.7%	20.9%	5%	58%	4	0.9%	10.2%	5%	55%	4	0.7%	6.0%	7%	48%	4	1.2%	13.4%	5%	54%
5	1.5%	18.2%	5%	52%	5	0.8%	8.3%	5%	40%	5	0.6%	5.2%	6%	58%	5	1.1%	11.7%	5%	50%
6	0.9%	9.9%	5%	40%	6	1.0%	10.4%	6%	52%	6	0.5%	3.3%	7%	45%	6	0.9%	9.1%	6%	44%
7	1.3%	15.7%	5%	55%	7	1.0%	10.7%	6%	55%	7	0.6%	4.1%	7%	48%	7	1.0%	11.2%	6%	52%
8	1.2%	13.0%	5%	40%	8	1.2%	12.7%	6%	48%	8	0.5%	2.8%	7%	48%	8	1.0%	10.7%	6%	46%
9	1.0%	10.6%	5%	42%	9	1.3%	13.6%	7%	52%	9	0.8%	6.9%	8%	55%	9	1.1%	11.5%	7%	49%
10	1.2%	12.8%	6%	37%	10	1.4%	13.7%	8%	48%	10	0.9%	6.2%	9%	52%	10	1.2%	11.9%	8%	46%
Total Test				Total Test				Total Test				Total Test				Total Test			
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets
Universe	1.3%	1.6%	1.1%	900	Universe	1.0%	-1.0%	-0.7%	939	Universe	0.6%	0.4%	0.2%	960	Universe	1.1%	0.5%	0.3%	931
Long Short Strategy Statistics																			
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10				
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.
Long/Short	0.2%	1.2%	5%	57%	Long/Short	-0.8%	-10.6%	4%	42%	Long/Short	-0.4%	-5.7%	5%	53%	Long/Short	-0.3%	-4.40%	4.6%	52%
T-Stat	0.34	Avg Assets		181	T-Stat	-1.44	Avg Assets		189	T-Stat	-0.55	Avg Assets		193	T-Stat	-0.79	Avg Assets		187

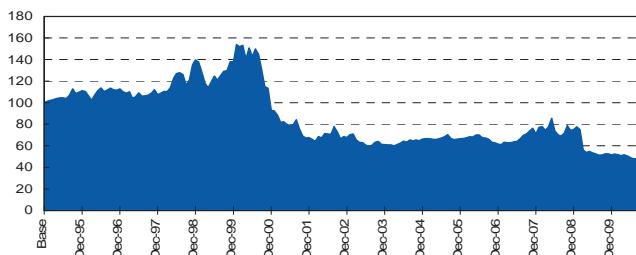
Portfolio Index Performance



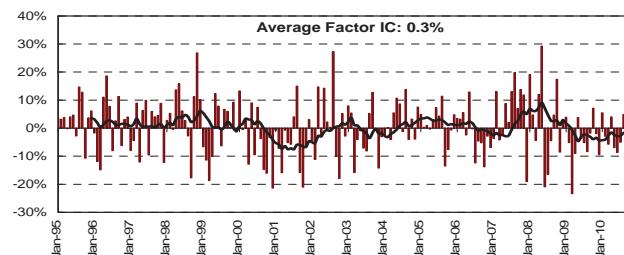
Portfolio Spread. Annual Returns



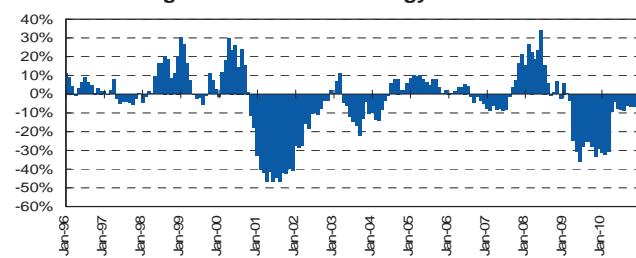
Cumulative Returns



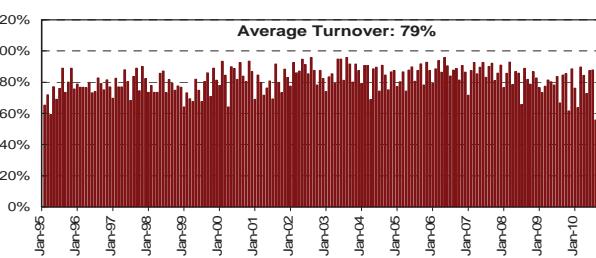
Information Co-Efficients (IC)

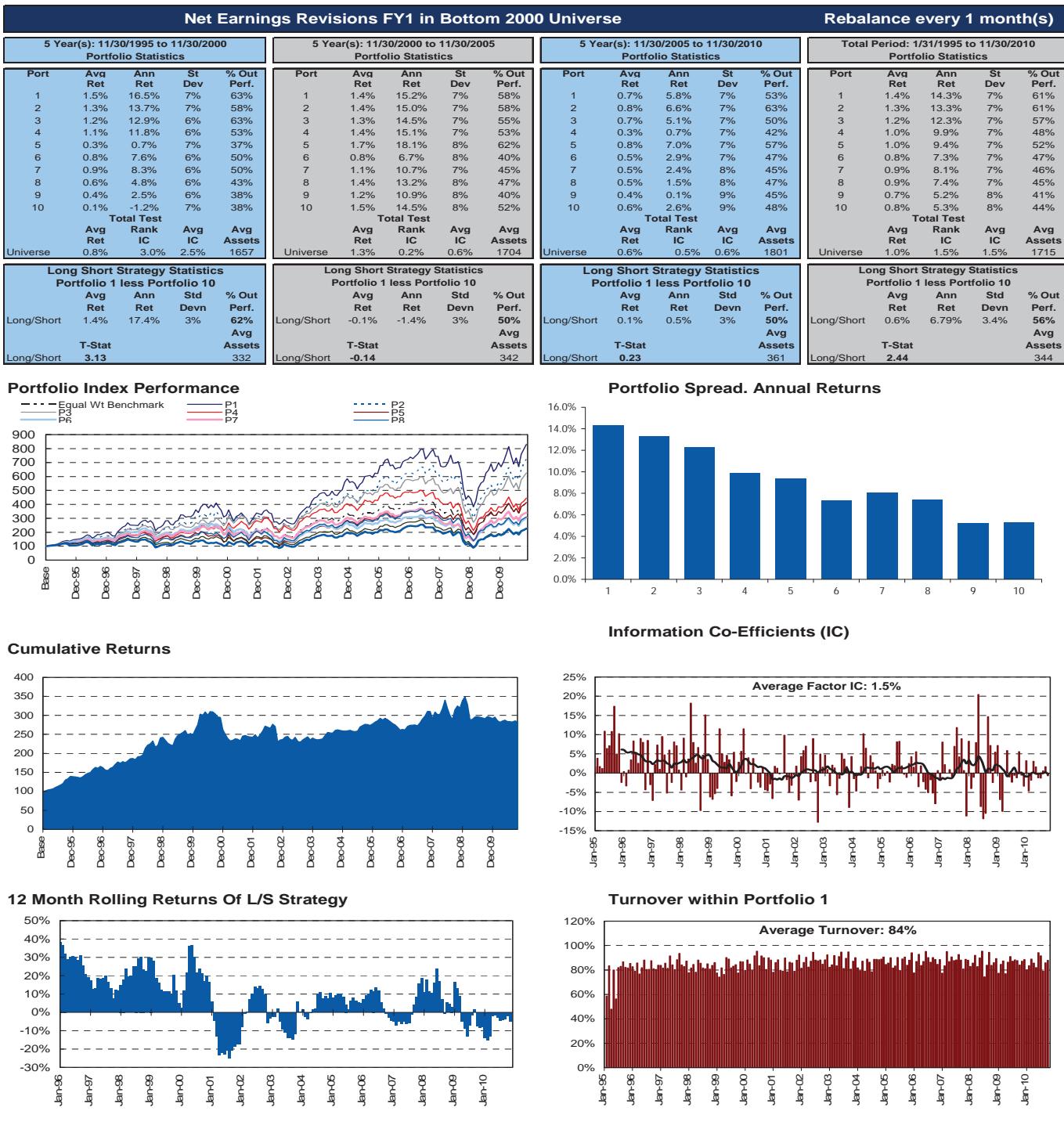


12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

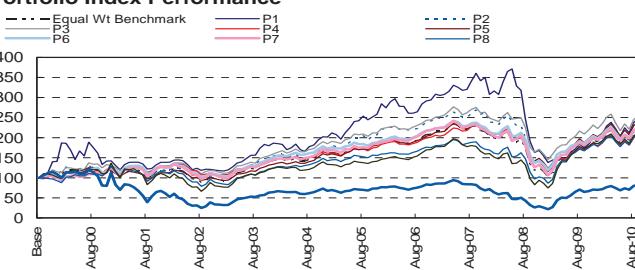




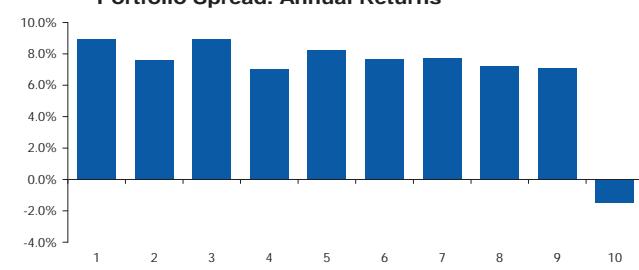
6 Month Chg in Target Price

6 Mnth Chg in Target Price in Top 1000 Universe								Rebalance every 1 month(s)											
3 Year(s): 11/30/2001 to 11/30/2004				3 Year(s): 11/30/2004 to 11/30/2007				3 Year(s): 11/30/2007 to 11/30/2010				Total Period: 9/30/1999 to 11/30/2010							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.2%	13.8%	5%	67%	1	1.7%	20.6%	4%	64%	1	-0.3%	-8.6%	9%	53%	1	1.0%	9.0%	8%	60%
2	1.2%	14.2%	4%	58%	2	1.3%	15.9%	3%	64%	2	-0.1%	-4.2%	8%	50%	2	0.8%	7.6%	6%	56%
3	1.1%	13.3%	4%	50%	3	1.0%	12.9%	3%	58%	3	0.2%	-0.2%	7%	47%	3	0.8%	8.9%	5%	54%
4	0.8%	9.4%	4%	44%	4	1.0%	12.4%	3%	53%	4	0.1%	-1.7%	7%	39%	4	0.7%	7.1%	5%	48%
5	1.0%	12.1%	4%	50%	5	1.1%	13.5%	3%	58%	5	0.5%	2.9%	7%	47%	5	0.8%	8.3%	5%	51%
6	1.0%	11.8%	4%	53%	6	0.8%	10.3%	2%	36%	6	0.3%	-0.1%	8%	39%	6	0.8%	7.7%	5%	47%
7	0.9%	10.0%	5%	36%	7	0.9%	11.3%	3%	56%	7	0.4%	0.8%	8%	39%	7	0.8%	7.7%	6%	48%
8	0.8%	8.6%	6%	44%	8	0.7%	7.9%	3%	36%	8	1.0%	7.0%	10%	50%	8	0.8%	7.2%	7%	44%
9	0.9%	8.1%	7%	47%	9	0.7%	7.5%	3%	42%	9	1.3%	9.1%	11%	44%	9	0.9%	7.1%	9%	46%
10	0.9%	2.3%	12%	50%	10	0.3%	2.1%	4%	39%	10	1.4%	4.8%	16%	47%	10	0.6%	-1.5%	13%	44%
Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets				
Universe	1.0%	1.7%	1.9%	913	Universe	0.9%	4.1%	4.2%	940	Universe	0.5%	-0.3%	-0.2%	954	Universe	0.8%	1.9%	2.4%	906
Long Short Strategy Statistics								Long Short Strategy Statistics											
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.				
Long/Short	0.3%	-2.4%	10%	56%	Long/Short	1.4%	17.4%	3%	69%	Long/Short	-1.8%	-30.9%	13%	56%	Long/Short	0.4%	-5.07%	11.7%	60%
T-Stat	0.20			Avg Assets	T-Stat	2.60			Avg Assets	T-Stat	-0.78			Avg Assets	T-Stat	0.39			Avg Assets
Long/Short				183	Long/Short				189	Long/Short				192	Long/Short				182

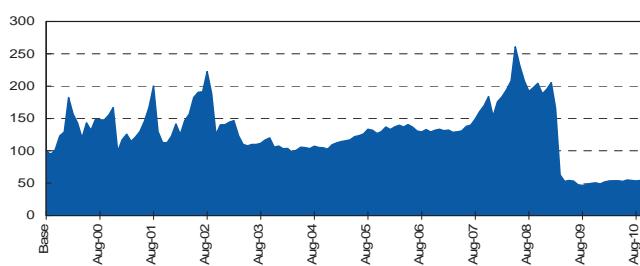
Portfolio Index Performance



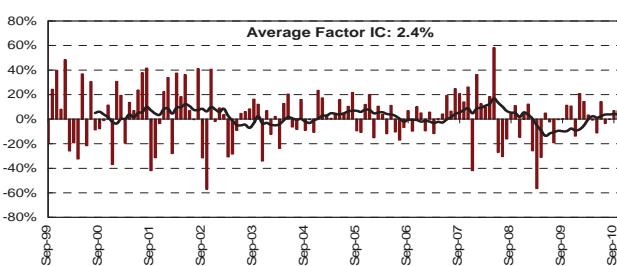
Portfolio Spread. Annual Returns



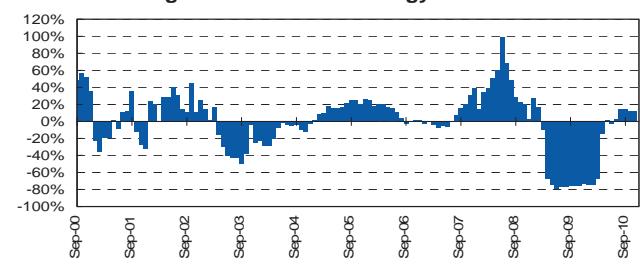
Cumulative Returns



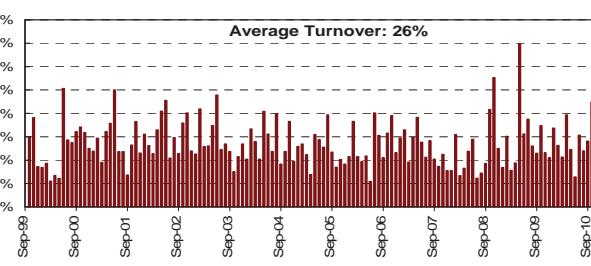
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

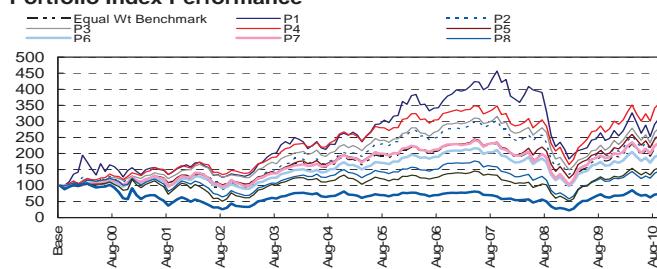


Turnover within Portfolio 1

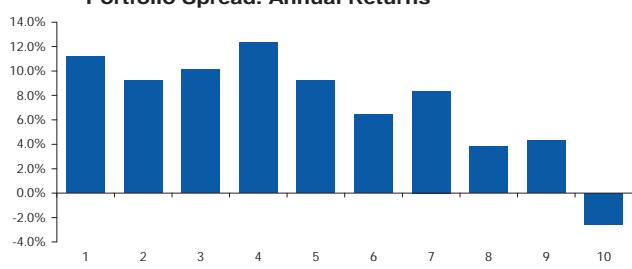


6 Mnth Chg in Target Price in Bottom 2000 Universe								Rebalance every 1 month(s)																											
3 Year(s): 11/30/2001 to 11/30/2004				3 Year(s): 11/30/2004 to 11/30/2007				3 Year(s): 11/30/2007 to 11/30/2010				Total Period: 9/30/1999 to 11/30/2010																							
Portfolio Statistics								Portfolio Statistics																											
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.																
1	1.7%	19.0%	7%	67%	1	1.5%	17.9%	5%	72%	1	-0.3%	-8.0%	9%	53%	1	1.3%	11.2%	9%	63%																
2	1.6%	18.1%	6%	53%	2	1.0%	11.8%	4%	67%	2	0.3%	-1.2%	9%	56%	2	1.0%	10.1%	6%	57%																
3	1.5%	17.6%	5%	50%	3	0.8%	9.7%	4%	61%	3	0.3%	-0.1%	8%	58%	3	1.0%	12.4%	6%	58%																
4	1.6%	19.1%	5%	58%	4	0.7%	7.2%	4%	61%	4	0.7%	4.6%	8%	53%	4	1.2%	12.4%	6%	58%																
5	1.3%	15.1%	5%	53%	5	0.4%	4.5%	4%	44%	5	0.9%	7.0%	9%	56%	5	0.9%	9.2%	6%	53%																
6	1.3%	13.8%	6%	50%	6	0.5%	5.2%	4%	53%	6	0.5%	1.3%	9%	47%	6	0.7%	6.4%	6%	51%																
7	1.5%	16.3%	6%	56%	7	0.5%	4.7%	4%	42%	7	0.8%	4.5%	10%	50%	7	0.9%	8.4%	7%	50%																
8	1.2%	11.6%	8%	47%	8	0.1%	0.1%	4%	28%	8	0.7%	1.9%	11%	44%	8	0.6%	3.8%	8%	41%																
9	1.3%	9.1%	11%	39%	9	-0.1%	-2.5%	5%	39%	9	1.6%	10.8%	12%	56%	9	0.8%	4.3%	10%	44%																
10	1.5%	9.6%	13%	42%	10	-0.5%	-7.9%	6%	31%	10	1.7%	8.5%	15%	47%	10	0.6%	-2.6%	13%	38%																
Total Test				Total Test				Total Test				Total Test																							
Avg Ret	Rank	Avg IC	Avg Assets	Avg Ret	Rank	Avg IC	Avg Assets	Avg Ret	Rank	Avg IC	Avg Assets	Avg Ret	Rank	Avg IC	Avg Assets																				
Universe	1.4%	2.9%	1.7%	1368	Universe	0.5%	5.2%	5.1%	1623	Universe	0.7%	0.1%	-1.3%	1649	Universe	0.9%	3.1%	2.5%	1453																
Long Short Strategy Statistics								Long Short Strategy Statistics								Long Short Strategy Statistics																			
Portfolio 1 less Portfolio 10								Portfolio 1 less Portfolio 10								Portfolio 1 less Portfolio 10																			
Avg Ret				Avg Ret				Avg Ret				Avg Ret				Avg Ret				Avg Ret															
Long/Short	0.1%	-4.7%	10%	64%	Long/Short	2.0%	26.4%	3%	78%	Long/Short	-2.0%	-27.5%	10%	53%	Long/Short	0.7%	-0.16%	10.7%	65%	Long/Short	3.52	325	330												
T-Stat				T-Stat				T-Stat				T-Stat				T-Stat				T-Stat															
Assets				Assets				Assets				Assets				Assets				Assets															
Long Short Strategy Statistics								Long Short Strategy Statistics								Long Short Strategy Statistics																			
Portfolio 1 less Portfolio 10								Portfolio 1 less Portfolio 10								Portfolio 1 less Portfolio 10																			
Avg Ret				Avg Ret				Avg Ret				Avg Ret				Avg Ret				Avg Ret															
Long/Short	0.1%	-4.7%	10%	64%	Long/Short	2.0%	26.4%	3%	78%	Long/Short	-2.0%	-27.5%	10%	53%	Long/Short	0.7%	-0.16%	10.7%	65%	Long/Short	3.52	325	330												
T-Stat				T-Stat				T-Stat				T-Stat				T-Stat				T-Stat															
Assets				Assets				Assets				Assets				Assets				Assets															

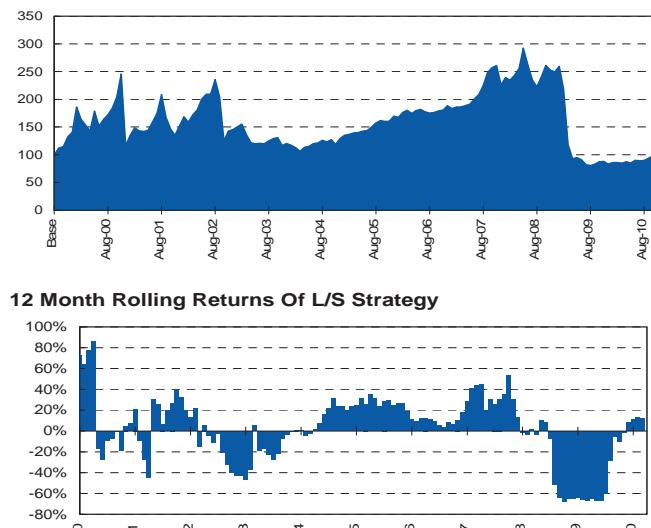
Portfolio Index Performance



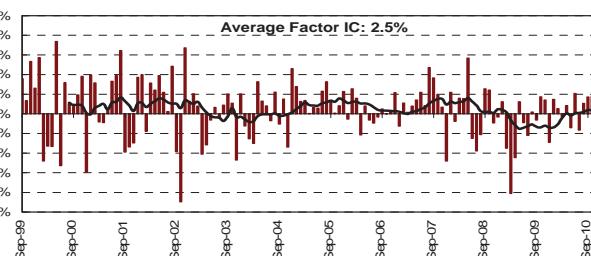
Portfolio Spread. Annual Returns



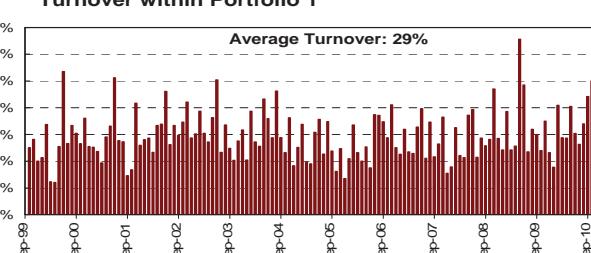
Cumulative Returns



Information Co-Efficients (IC)



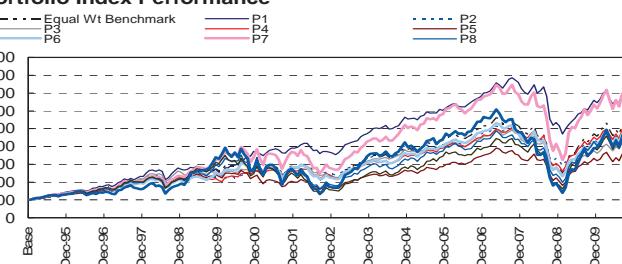
Turnover within Portfolio 1



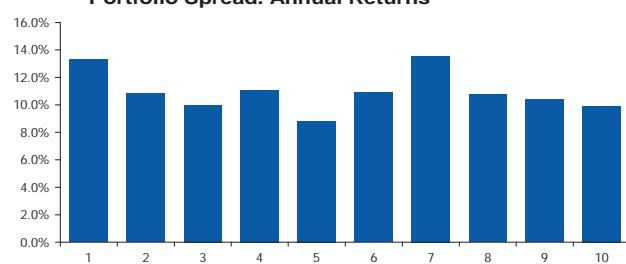
Earnings CV (Mean EPSCVFY1 EPSCVFY2)

Earnings CV (Mean EPSCVFY1 EPSCVFY2) in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010											
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics											
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.					
1	1.7%	20.0%	5%	55%	1	1.0%	12.0%	3%	50%	1	0.4%	3.5%	4%	50%					
2	1.2%	14.2%	5%	53%	2	0.9%	10.3%	3%	47%	2	0.5%	4.7%	5%	42%					
3	1.3%	15.2%	5%	50%	3	0.8%	9.0%	4%	45%	3	0.4%	2.5%	6%	43%					
4	1.2%	13.4%	5%	38%	4	0.9%	9.7%	4%	47%	4	0.7%	6.3%	6%	50%					
5	1.0%	11.4%	5%	43%	5	0.6%	5.5%	5%	40%	5	0.7%	6.0%	6%	48%					
6	1.2%	13.9%	5%	48%	6	0.9%	9.0%	6%	50%	6	0.6%	5.2%	7%	53%					
7	1.5%	18.1%	5%	52%	7	1.3%	13.1%	7%	58%	7	0.7%	5.4%	8%	43%					
8	1.3%	14.7%	6%	47%	8	0.9%	7.0%	8%	47%	8	0.8%	6.4%	8%	50%					
9	1.2%	12.9%	6%	55%	9	1.0%	7.5%	8%	48%	9	1.0%	7.2%	9%	62%					
10	1.5%	15.5%	8%	42%	10	1.4%	10.5%	11%	53%	10	0.6%	0.7%	11%	52%					
Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets				
Universe	1.3%	2.4%	0.4%	872	Universe	0.9%	0.5%	0.1%	909	Universe	0.6%	0.8%	0.3%	940	Universe	1.1%	1.3%	0.3%	904

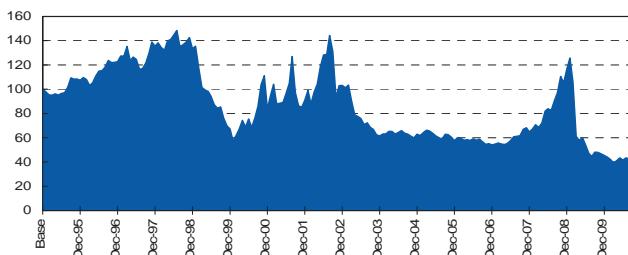
Portfolio Index Performance



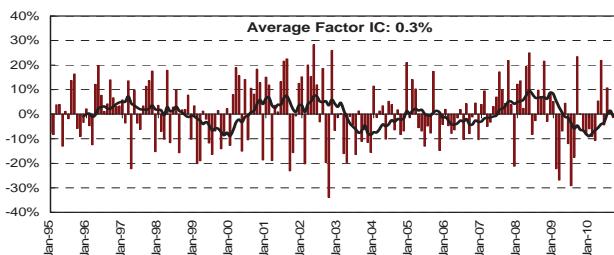
Portfolio Spread. Annual Returns



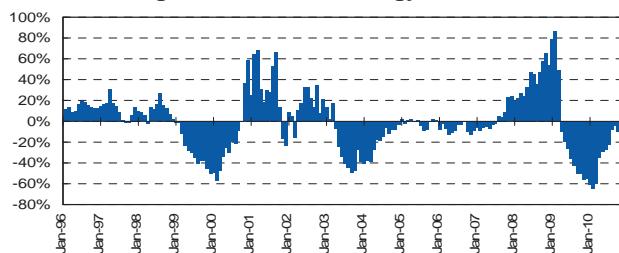
Cumulative Returns



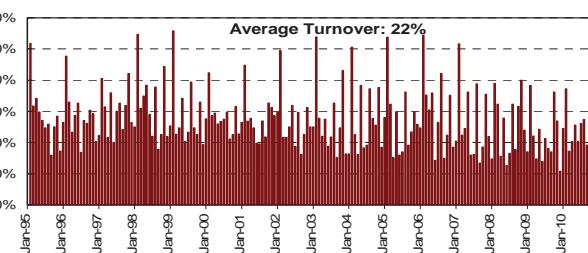
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

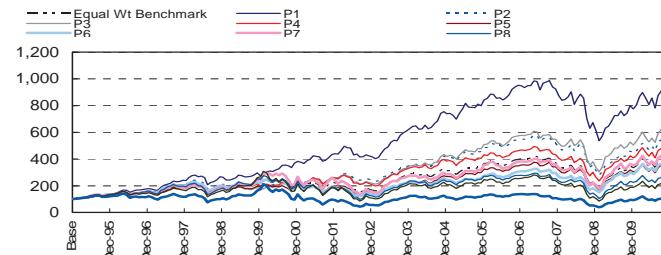


Earnings CV (Mean EPSCVFY1 EPSCVFY2) in Bottom 2000 Universe

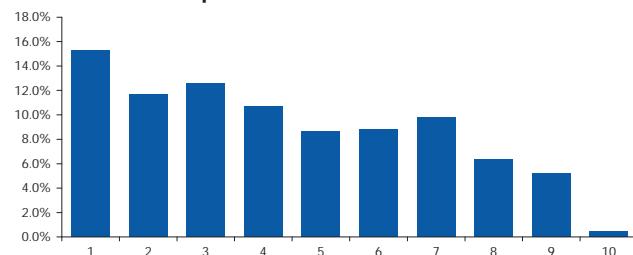
Rebalance every 1 month(s)

5 Year(s): 11/30/1995 to 11/30/2000 Portfolio Statistics					5 Year(s): 11/30/2000 to 11/30/2005 Portfolio Statistics					5 Year(s): 11/30/2005 to 11/30/2010 Portfolio Statistics					Total Period: 1/31/1995 to 11/30/2010 Portfolio Statistics				
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.7%	20.3%	5%	72%	1	1.6%	19.3%	4%	52%	1	0.4%	3.3%	6%	48%	1	1.3%	15.3%	5%	57%
2	0.9%	9.8%	5%	55%	2	1.4%	17.3%	4%	55%	2	0.6%	4.7%	6%	53%	2	1.1%	11.6%	5%	55%
3	0.9%	9.5%	5%	43%	3	1.6%	19.0%	6%	62%	3	0.7%	6.5%	7%	55%	3	1.2%	12.6%	6%	53%
4	0.9%	8.5%	6%	43%	4	1.4%	16.1%	6%	53%	4	0.6%	4.1%	7%	43%	4	1.0%	10.7%	6%	48%
5	0.6%	5.0%	6%	48%	5	1.3%	14.0%	7%	53%	5	0.6%	4.5%	8%	53%	5	0.9%	8.7%	7%	51%
6	0.6%	4.4%	7%	43%	6	1.1%	9.2%	8%	42%	6	1.0%	8.6%	7%	58%	6	1.0%	8.8%	7%	49%
7	1.0%	9.5%	7%	47%	7	1.2%	9.2%	10%	45%	7	0.9%	6.8%	8%	58%	7	1.1%	9.8%	8%	51%
8	0.9%	6.8%	8%	47%	8	1.0%	7.0%	10%	43%	8	0.5%	1.6%	9%	37%	8	0.9%	6.4%	9%	42%
9	0.8%	4.6%	9%	48%	9	1.2%	7.0%	12%	43%	9	0.5%	0.2%	10%	45%	9	0.9%	5.2%	10%	46%
10	0.2%	-3.4%	10%	43%	10	1.0%	3.2%	13%	47%	10	0.4%	-1.8%	10%	50%	10	0.6%	0.4%	11%	46%
Total Test					Total Test					Total Test					Total Test				
Universe	0.8%	4.9%	2.3%	1360	Universe	1.3%	5.1%	1.9%	1355	Universe	0.6%	2.6%	0.9%	1560	Universe	1.0%	4.2%	1.7%	1414
Long Short Strategy Statistics																			
Portfolio 1 less Portfolio 10																			
Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.
Long/Short	1.5%	15.5%	7%	62%	Long/Short	0.6%	-0.3%	10%	57%	Long/Short	0.1%	-1.3%	6%	55%	Long/Short	0.7%	4.84%	7.8%	58%
Long/Short	T-Stat				Long/Short	T-Stat				Long/Short	T-Stat				Long/Short	T-Stat			
Long/Short	1.55				Long/Short	0.42				Long/Short	0.09				Long/Short	1.27			
Long/Short					Long/Short					Long/Short					Long/Short				
273					272					313					284				

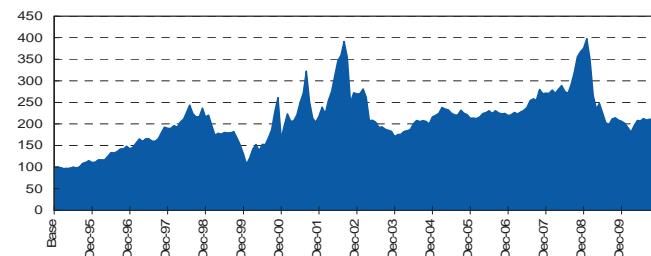
Portfolio Index Performance



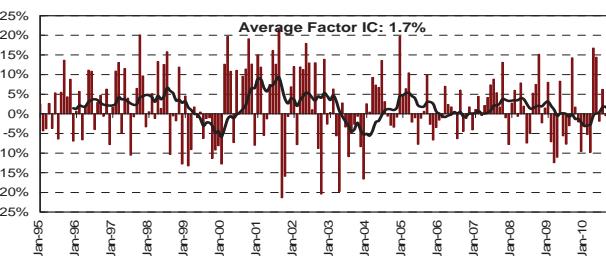
Portfolio Spread. Annual Returns



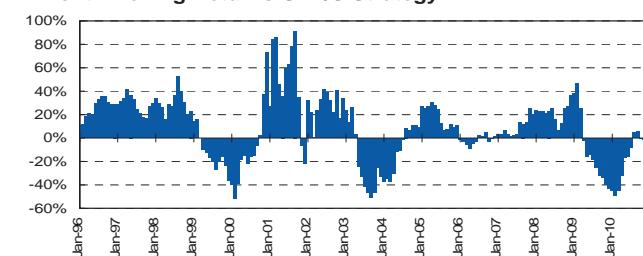
Cumulative Returns



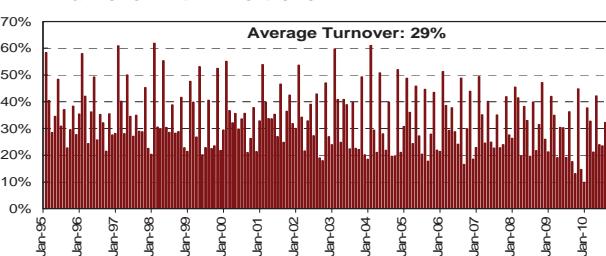
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



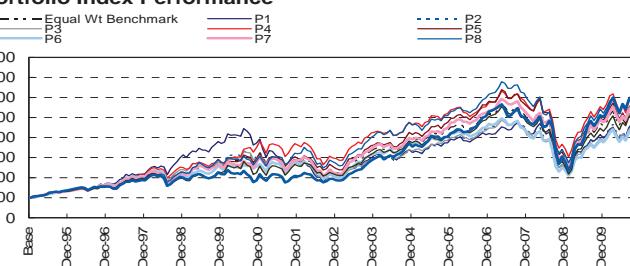
Turnover within Portfolio 1



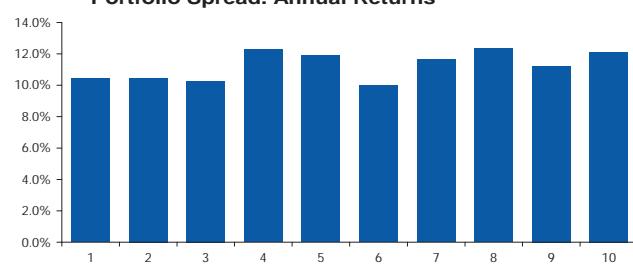
Earnings Estimates Count FY1

Earnings Estimates Count FY1 in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Port	Avg Ret	Ann Ret	St Dev	Port	Avg Ret	Ann Ret	St Dev	Port	Avg Ret	Ann Ret	St Dev	Port	Avg Ret	Ann Ret	St Dev				
1	1.8%	22.5%	5%	60%	1	0.3%	0.6%	7%	33%	1	0.6%	5.2%	6%	47%	1	1.0%	10.4%	6%	46%
2	1.5%	17.6%	5%	53%	2	0.6%	5.5%	6%	45%	2	0.6%	5.1%	6%	62%	2	1.0%	10.5%	6%	53%
3	1.4%	16.4%	5%	55%	3	0.6%	5.8%	5%	35%	3	0.5%	4.1%	6%	42%	3	1.0%	10.3%	5%	45%
4	1.7%	20.2%	5%	57%	4	0.9%	9.5%	5%	37%	4	0.5%	3.9%	6%	48%	4	1.1%	12.3%	5%	48%
5	1.4%	16.1%	5%	45%	5	1.0%	11.1%	5%	48%	5	0.6%	5.0%	7%	53%	5	1.1%	11.9%	6%	49%
6	1.2%	13.6%	5%	43%	6	1.0%	10.2%	6%	48%	6	0.4%	2.4%	7%	42%	6	1.0%	10.0%	6%	45%
7	1.2%	13.8%	5%	45%	7	1.1%	12.4%	6%	50%	7	0.7%	5.3%	7%	55%	7	1.1%	11.7%	6%	50%
8	1.3%	14.9%	5%	55%	8	1.2%	14.0%	6%	60%	8	0.6%	4.5%	7%	43%	8	1.1%	12.3%	6%	53%
9	1.0%	10.5%	6%	38%	9	1.2%	13.1%	6%	52%	9	0.8%	6.2%	7%	55%	9	1.1%	11.2%	6%	49%
10	0.6%	5.9%	6%	40%	10	1.5%	17.8%	5%	62%	10	1.0%	8.8%	8%	62%	10	1.2%	12.1%	6%	54%
Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets				
Universe	1.3%	2.6%	2.4%	900	Universe	1.0%	-3.5%	-3.0%	939	Universe	0.6%	-0.4%	-0.7%	960	Universe	1.1%	-0.3%	-0.4%	931
Long Short Strategy Statistics								Long Short Strategy Statistics											
Portfolio 1 less Portfolio 10								Portfolio 1 less Portfolio 10											
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.				
Long/Short	1.2%	14.9%	3%	63%	Long/Short	-1.2%	-14.4%	4%	37%	Long/Short	-0.4%	-5.9%	4%	47%	Long/Short	-0.1%	-2.53%	4%	49%
T-Stat	3.21	Avg Assets	181	T-Stat	Long/Short	-2.06	Avg Assets	189	T-Stat	Long/Short	-0.76	Avg Assets	193	T-Stat	Long/Short	-0.47	Avg Assets	187	

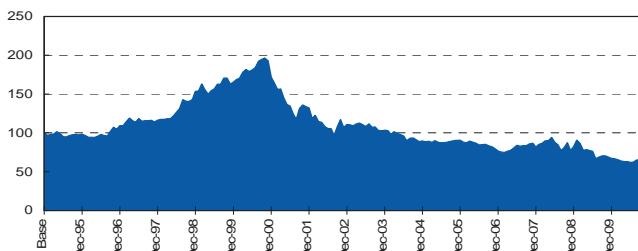
Portfolio Index Performance



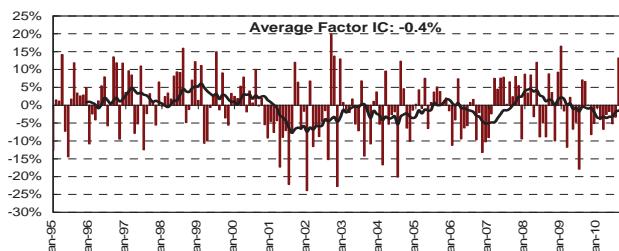
Portfolio Spread. Annual Returns



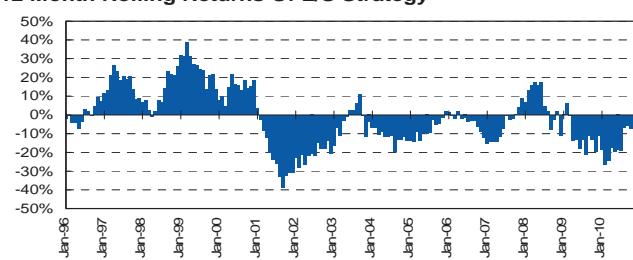
Cumulative Returns



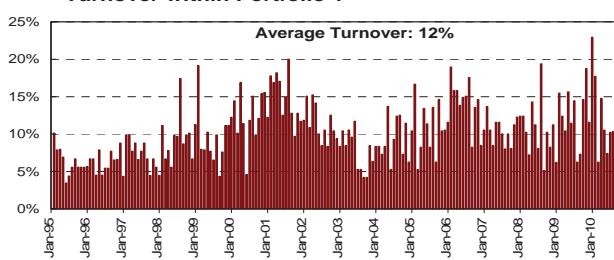
Information Co-Efficients (IC)

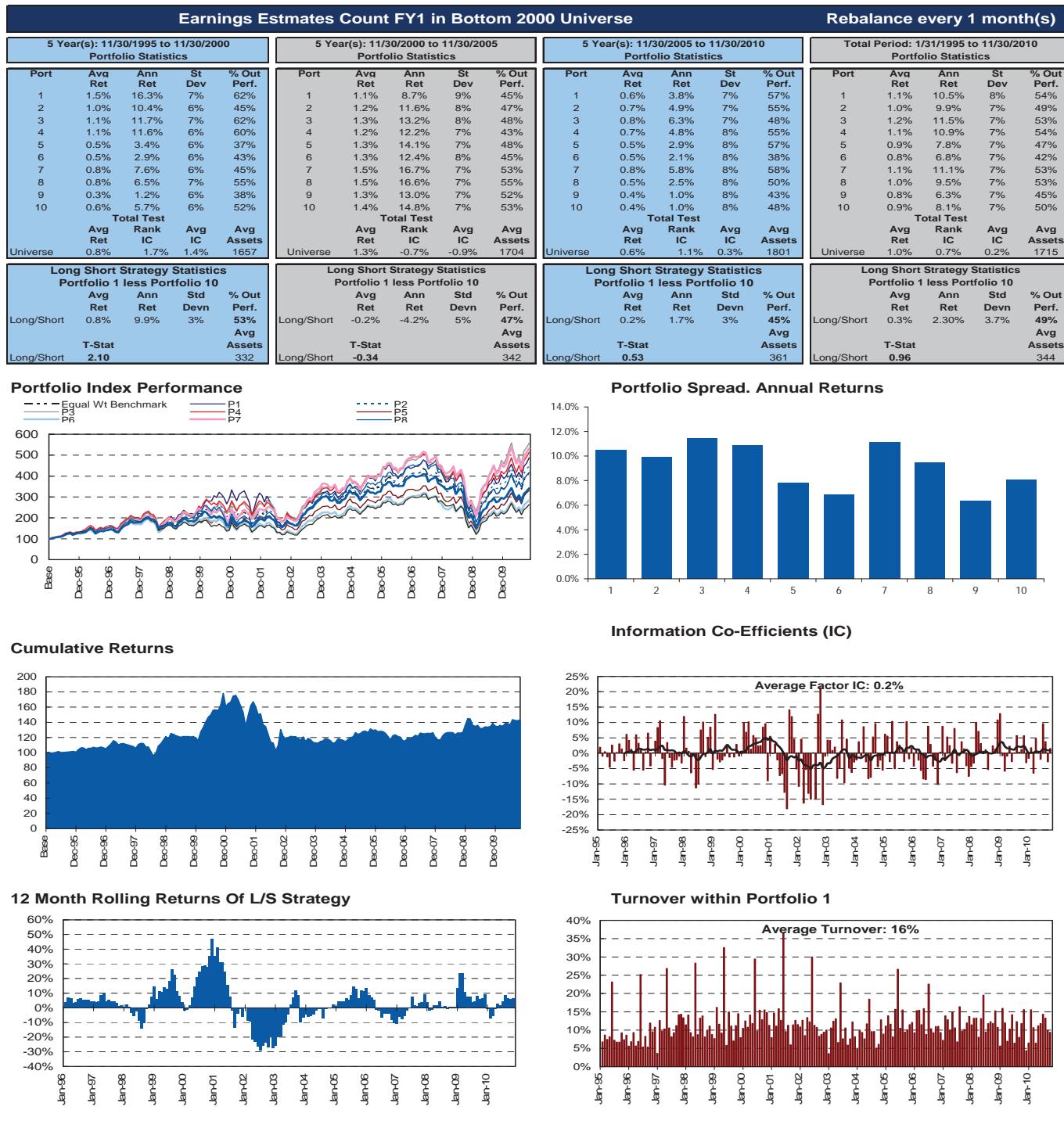


12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

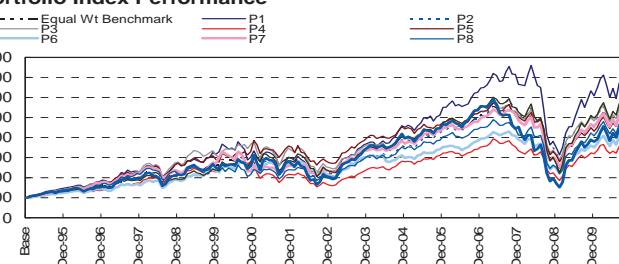




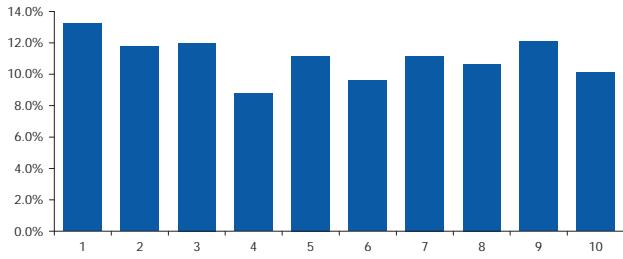
1 Month Earnings Momentum Mean FY1 FY2

1 Mnth Earnings Momentum Mean FY1 FY2 in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010											
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics											
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.					
1	1.4%	15.3%	6%	50%	1	1.1%	11.8%	6%	53%	1	0.9%	7.3%	7%	63%					
2	1.3%	14.4%	5%	45%	2	1.0%	10.1%	6%	58%	2	0.8%	7.0%	6%	53%					
3	1.8%	21.9%	5%	65%	3	0.6%	5.3%	7%	38%	3	0.7%	6.1%	6%	45%					
4	1.4%	17.0%	4%	48%	4	0.4%	2.8%	6%	43%	4	0.5%	4.3%	6%	50%					
5	1.6%	19.0%	5%	55%	5	0.8%	8.0%	5%	42%	5	0.4%	2.9%	6%	48%					
6	1.3%	14.4%	5%	45%	6	0.7%	7.0%	5%	42%	6	0.6%	4.8%	6%	50%					
7	1.1%	11.3%	6%	43%	7	1.1%	13.2%	5%	55%	7	0.6%	4.4%	6%	42%					
8	0.9%	8.4%	6%	48%	8	1.2%	13.4%	5%	55%	8	0.7%	5.3%	7%	47%					
9	1.2%	14.1%	5%	42%	9	1.1%	11.9%	6%	52%	9	0.9%	6.6%	8%	60%					
10	1.2%	13.4%	6%	45%	10	1.3%	12.8%	8%	57%	10	0.6%	0.7%	10%	43%					
Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets				
Universe	1.3%	1.6%	0.6%	879	Universe	0.9%	-0.6%	-0.6%	924	Universe	0.6%	1.2%	1.7%	956	Universe	1.1%	0.7%	0.6%	917

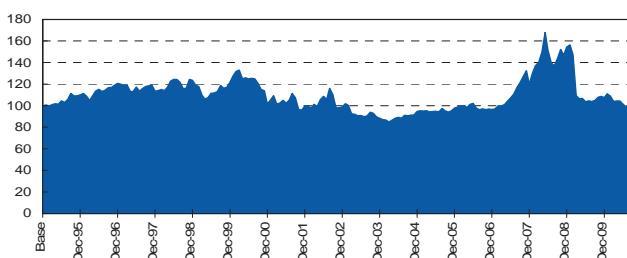
Portfolio Index Performance



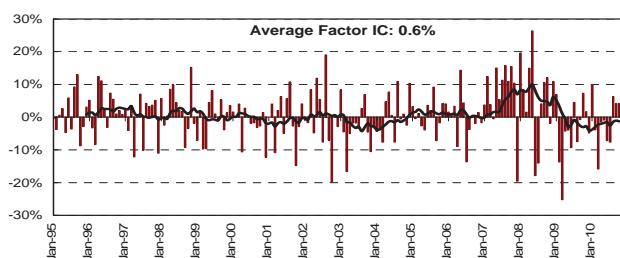
Portfolio Spread. Annual Returns



Cumulative Returns



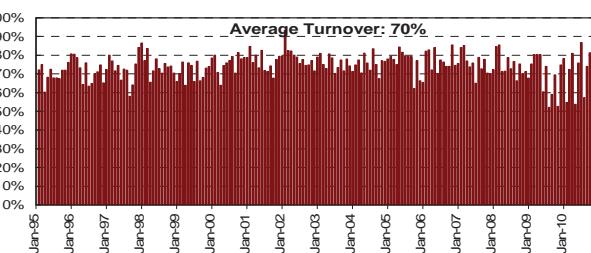
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

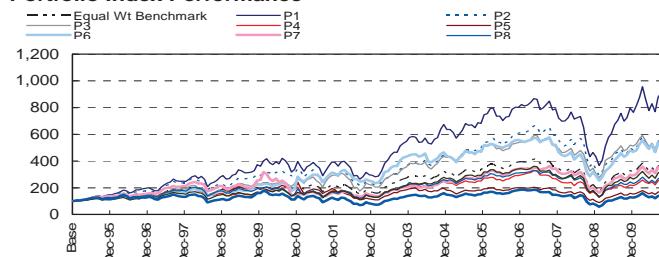


Turnover within Portfolio 1

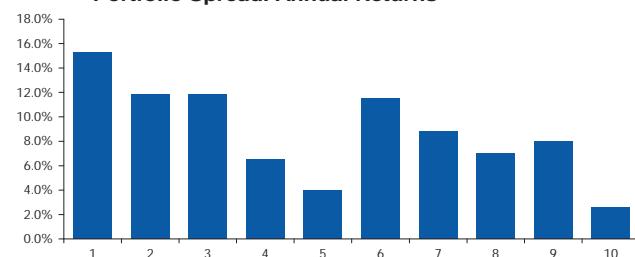


1 Mnth Earnings Momentum Mean FY1 FY2 in Bottom 2000 Universe								Rebalance every 1 month(s)																							
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010																			
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics																			
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.												
1	1.6%	17.7%	7%	65%	1	1.6%	16.7%	8%	62%	1	0.9%	6.8%	8%	55%	1	1.5%	15.3%	7%	62%												
2	1.4%	15.7%	6%	62%	2	1.2%	11.7%	7%	55%	2	0.6%	3.4%	7%	52%	2	1.2%	11.9%	7%	57%												
3	1.1%	11.2%	7%	58%	3	1.7%	17.6%	8%	53%	3	0.6%	4.6%	7%	48%	3	1.2%	11.9%	7%	52%												
4	0.8%	7.4%	6%	43%	4	0.8%	6.8%	7%	38%	4	0.4%	1.6%	7%	43%	4	0.7%	6.5%	7%	42%												
5	0.8%	8.0%	6%	48%	5	0.3%	-0.5%	8%	43%	5	0.3%	0.5%	7%	42%	5	0.6%	4.0%	7%	45%												
6	0.8%	7.3%	6%	57%	6	2.0%	21.8%	9%	60%	6	0.5%	3.4%	7%	48%	6	1.2%	11.5%	7%	55%												
7	0.4%	1.0%	8%	43%	7	1.3%	14.6%	6%	55%	7	0.8%	6.5%	7%	58%	7	1.0%	8.8%	7%	53%												
8	0.4%	2.3%	6%	48%	8	1.4%	14.0%	8%	48%	8	0.4%	1.6%	8%	40%	8	0.8%	7.0%	7%	45%												
9	0.6%	4.6%	6%	43%	9	1.5%	16.0%	7%	52%	9	0.6%	2.9%	9%	55%	9	0.9%	8.0%	7%	48%												
10	0.2%	-0.9%	8%	42%	10	0.9%	6.1%	10%	35%	10	0.5%	-0.1%	10%	45%	10	0.6%	2.5%	9%	39%												
Total Test				Total Test				Total Test				Total Test																			
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets																
Universe	0.8%	3.2%	2.4%	1500	Universe	1.3%	0.5%	1.1%	1567	Universe	0.6%	0.5%	0.8%	1737	Universe	1.0%	1.6%	1.6%	1591												
Long Short Strategy Statistics Portfolio 1 less Portfolio 10								Long Short Strategy Statistics Portfolio 1 less Portfolio 10								Long Short Strategy Statistics Portfolio 1 less Portfolio 10															
Long/Short	1.4%	17.3%	3%	67%	Long/Short	0.6%	7.2%	3%	63%	Long/Short	0.4%	4.0%	4%	58%	Long/Short	0.9%	10.10%	3.4%	64%	Long/Short	1.47	314	348	P1	P2	P3	P4	P5	P6	P7	P8
T-Stat	3.17				T-Stat	1.47				T-Stat	0.85				T-Stat	3.50				T-Stat											
Assets	301				Assets	314				Assets	348				Assets	319				Assets											

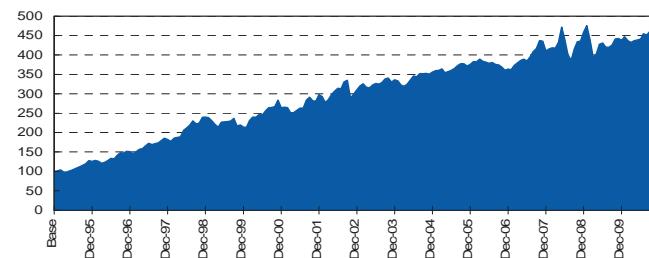
Portfolio Index Performance



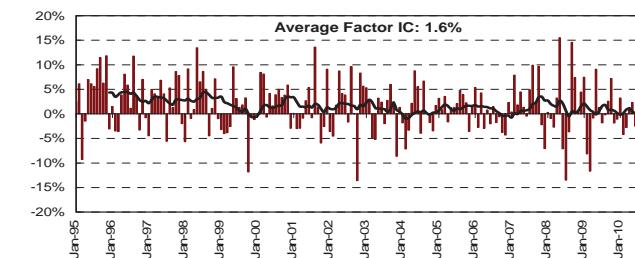
Portfolio Spread. Annual Returns



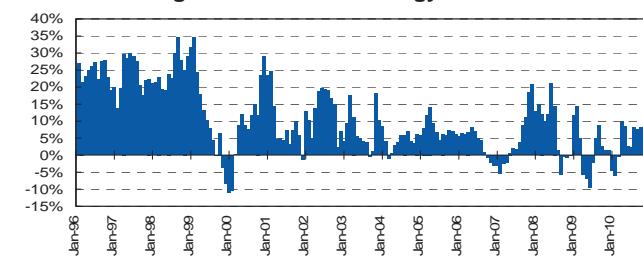
Cumulative Returns



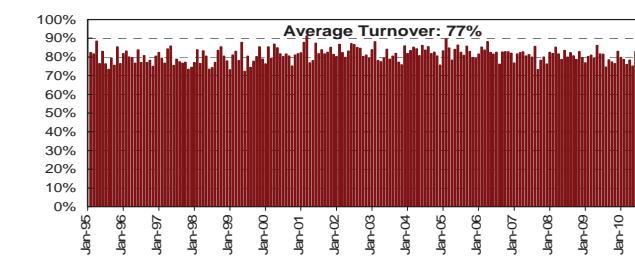
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



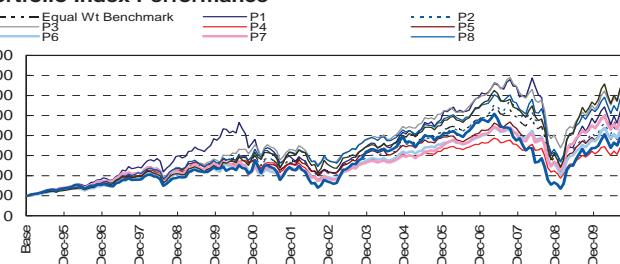
Turnover within Portfolio 1



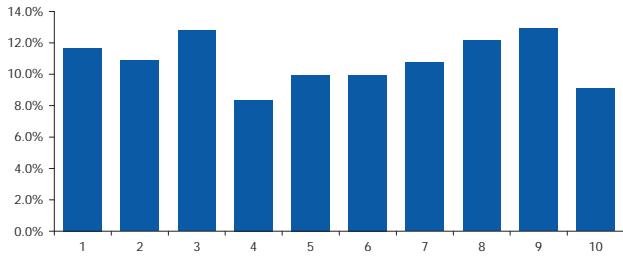
3 Month Earnings Momentum Mean FY1 FY2

3 Mnth Earnings Momentum Mean FY1 FY2 in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010											
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics											
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.					
1	1.7%	20.1%	6%	62%	1	0.7%	6.7%	6%	52%	1	0.6%	4.2%	7%	57%					
2	1.3%	15.3%	5%	48%	2	0.8%	7.8%	6%	52%	2	0.6%	5.3%	6%	53%					
3	1.6%	18.7%	5%	60%	3	1.0%	10.4%	5%	52%	3	0.6%	5.9%	6%	52%					
4	1.3%	14.5%	5%	50%	4	0.5%	4.3%	5%	33%	4	0.3%	2.1%	6%	33%					
5	1.4%	16.3%	5%	57%	5	0.7%	7.4%	5%	48%	5	0.5%	3.2%	6%	45%					
6	1.0%	11.5%	5%	43%	6	0.9%	10.2%	5%	43%	6	0.6%	4.8%	6%	52%					
7	0.8%	8.3%	5%	40%	7	1.0%	10.2%	5%	43%	7	0.9%	8.6%	7%	50%					
8	1.4%	16.2%	5%	55%	8	1.0%	10.9%	6%	52%	8	0.7%	5.8%	7%	55%					
9	1.3%	15.2%	5%	47%	9	1.2%	12.2%	7%	48%	9	1.0%	9.0%	8%	50%					
10	0.9%	9.6%	5%	42%	10	1.4%	13.3%	9%	55%	10	0.5%	0.2%	10%	47%					
Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets				
Universe	1.3%	1.8%	1.1%	833	Universe	0.9%	-0.4%	-0.3%	887	Universe	0.6%	1.0%	2.3%	947	Universe	1.0%	0.8%	1.1%	886
Long Short Strategy Statistics								Long Short Strategy Statistics				Long Short Strategy Statistics							
Portfolio 1 less Portfolio 10								Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.
Long/Short	0.8%	9.4%	3%	65%	Long/Short	-0.7%	-9.3%	5%	55%	Long/Short	0.1%	-0.6%	6%	62%	Long/Short	0.1%	-0.32%	4.7%	60%
T-Stat	1.91	167			T-Stat	-1.21	178			T-Stat	0.19	190			T-Stat	0.26	178		

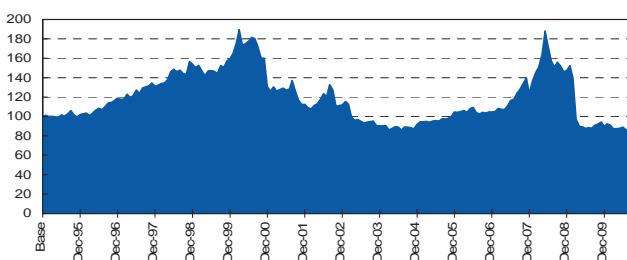
Portfolio Index Performance



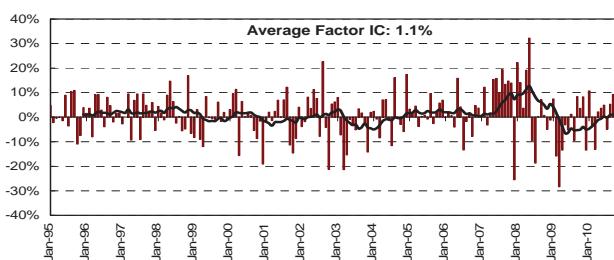
Portfolio Spread. Annual Returns



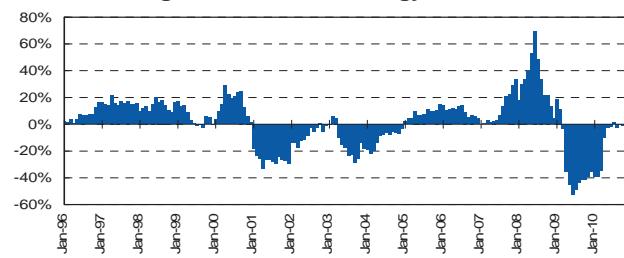
Cumulative Returns



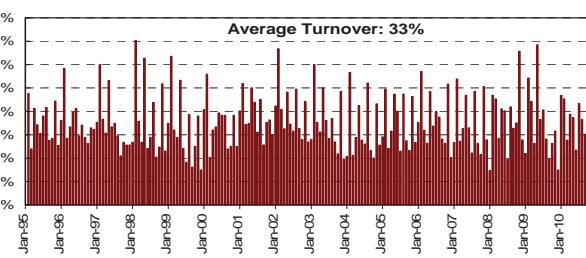
Information Co-Efficients (IC)

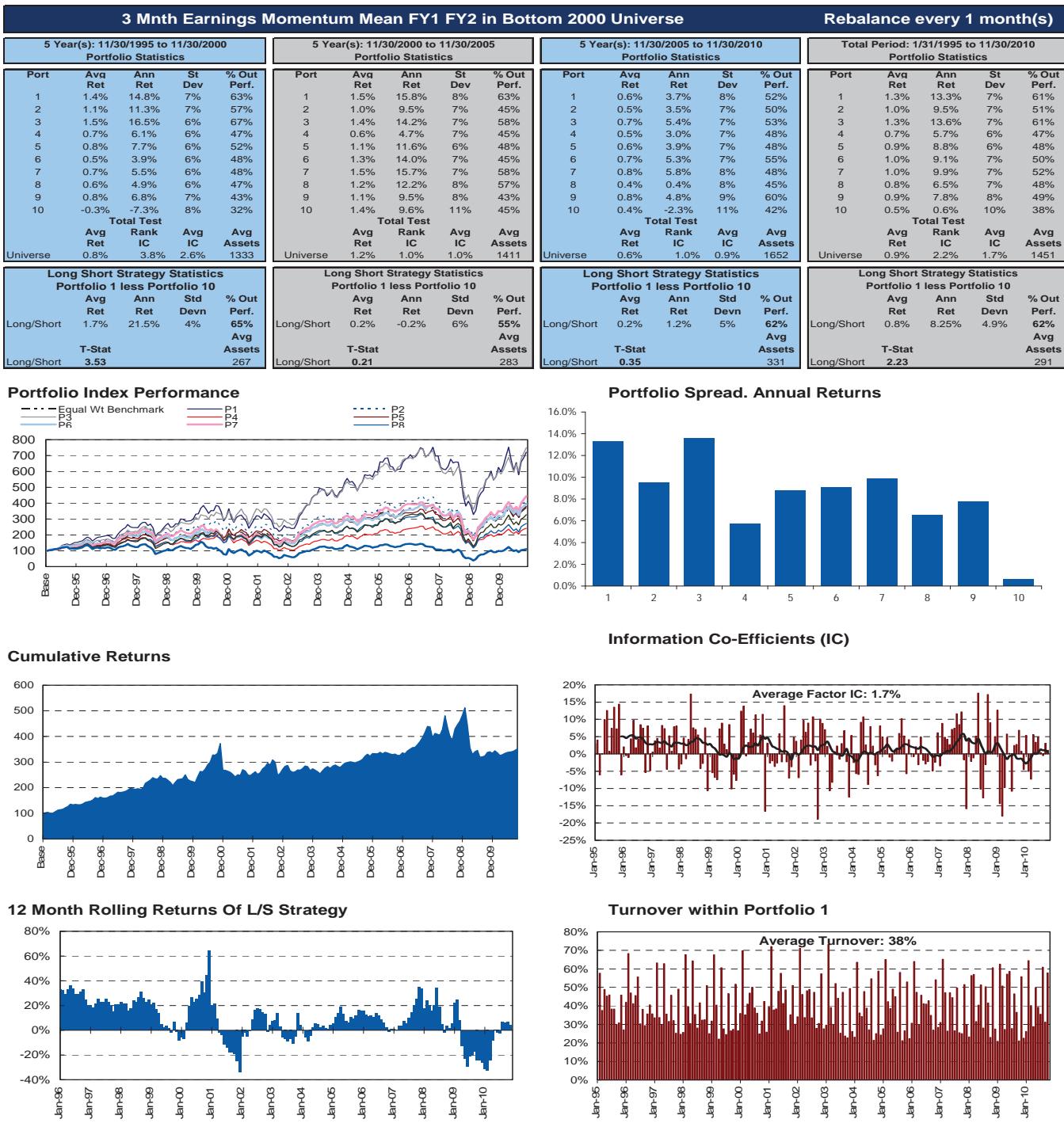


12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

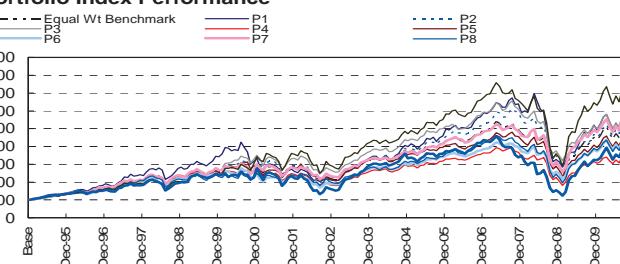




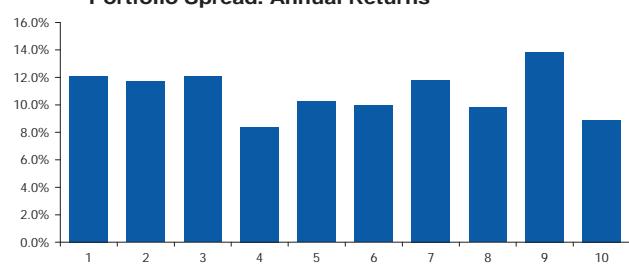
Mean of 1 Month & 3 Month Earnings Momentum

Mean of 1 Mnth & 3 Mnth Earnings Momentum in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010											
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics											
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.					
1	1.5%	17.5%	6%	60%	1	0.8%	8.2%	6%	53%	1	0.8%	6.3%	7%	60%					
2	1.5%	17.3%	5%	48%	2	0.8%	7.4%	6%	57%	2	0.7%	6.1%	6%	58%					
3	1.6%	19.1%	5%	58%	3	1.0%	10.2%	5%	50%	3	0.5%	4.0%	6%	45%					
4	1.2%	14.0%	5%	45%	4	0.5%	4.6%	5%	35%	4	0.4%	2.5%	6%	37%					
5	1.4%	16.4%	5%	48%	5	0.7%	7.6%	5%	48%	5	0.5%	3.5%	6%	45%					
6	1.1%	12.0%	5%	55%	6	0.8%	8.4%	5%	45%	6	0.7%	5.6%	6%	47%					
7	1.2%	13.3%	5%	43%	7	1.0%	10.6%	5%	40%	7	0.8%	7.5%	7%	60%					
8	0.9%	10.2%	5%	38%	8	1.0%	10.2%	6%	50%	8	0.7%	5.1%	7%	47%					
9	1.4%	15.7%	5%	47%	9	1.4%	15.4%	7%	55%	9	0.9%	7.5%	8%	50%					
10	1.0%	10.3%	6%	45%	10	1.2%	10.8%	9%	58%	10	0.6%	1.4%	10%	45%					
Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets				
Universe	1.3%	1.9%	1.0%	831	Universe	0.9%	-0.4%	-0.3%	884	Universe	0.6%	1.1%	2.1%	945	Universe	1.0%	0.9%	1.0%	884

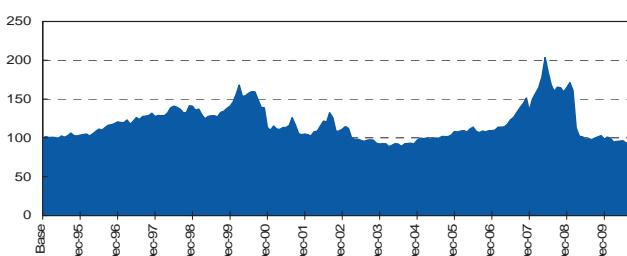
Portfolio Index Performance



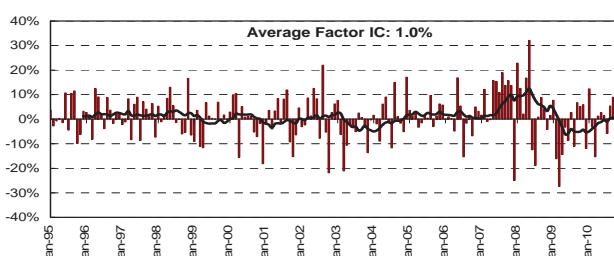
Portfolio Spread. Annual Returns



Cumulative Returns



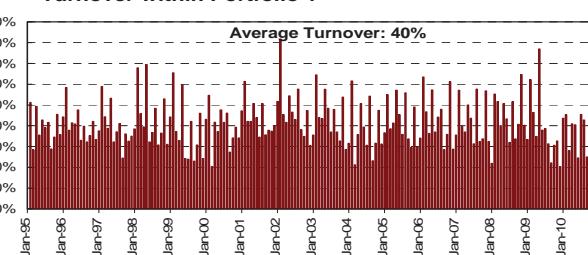
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

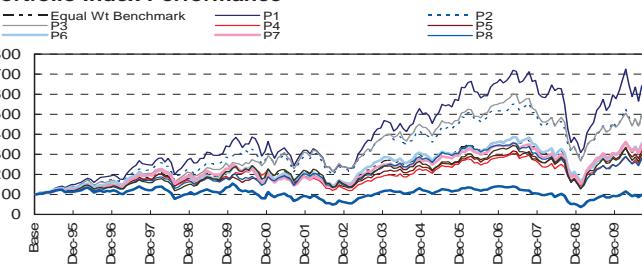


Turnover within Portfolio 1

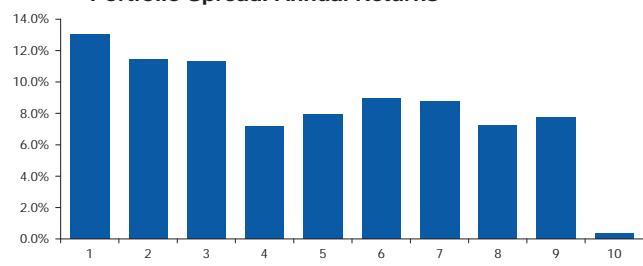


Mean of 1 Mnth & 3 Mnth Earnings Momentum in Bottom 2000 Universe								Rebalance every 1 month(s)						
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010						
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics						
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.5%	15.5%	7%	58%	1	1.4%	14.5%	8%	58%	1	0.6%	4.0%	8%	53%
2	1.2%	13.1%	7%	60%	2	1.2%	12.2%	7%	45%	2	0.6%	4.5%	7%	53%
3	1.2%	12.7%	6%	65%	3	1.3%	13.9%	7%	62%	3	0.5%	3.1%	7%	50%
4	0.9%	9.2%	6%	50%	4	0.6%	5.1%	7%	38%	4	0.5%	3.7%	7%	48%
5	0.5%	4.0%	6%	48%	5	1.1%	10.8%	6%	43%	5	0.7%	5.4%	7%	45%
6	0.6%	4.7%	6%	48%	6	1.3%	13.1%	7%	45%	6	0.7%	4.8%	8%	60%
7	0.6%	4.6%	7%	52%	7	1.4%	14.3%	7%	53%	7	0.7%	5.2%	8%	50%
8	0.5%	4.4%	6%	42%	8	1.5%	16.0%	7%	60%	8	0.3%	-0.3%	8%	42%
9	0.9%	8.5%	7%	48%	9	1.0%	8.3%	8%	40%	9	0.8%	4.3%	9%	57%
10	-0.2%	-6.6%	8%	32%	10	1.2%	8.0%	11%	45%	10	0.4%	-2.3%	11%	43%
Total Test				Total Test				Total Test						
Avg Ret	Avg IC	Avg Assets	Avg Ret	Avg IC	Avg Assets	Avg Ret	Avg IC	Avg Assets	Avg Ret	Avg IC	Avg Assets			
Universe	0.8%	3.8%	2.7%	1327	Universe	1.2%	1.2%	1.2%	1400	Universe	0.6%	1.0%	1.0%	1640
Long Short Strategy Statistics														
Portfolio 1 less Portfolio 10														
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.			
Long/Short	1.7%	21.2%	4%	68%	Long/Short	0.2%	0.7%	5%	58%	Long/Short	0.3%	1.8%	5%	58%
T-Stat				Avg Assets	T-Stat				Avg Assets	T-Stat				
Long/Short	3.36			266	Long/Short	0.30			281	Long/Short	0.43			329

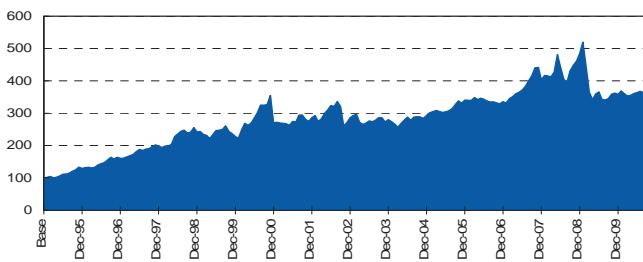
Portfolio Index Performance



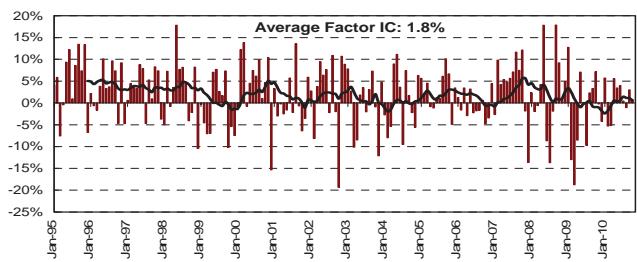
Portfolio Spread. Annual Returns



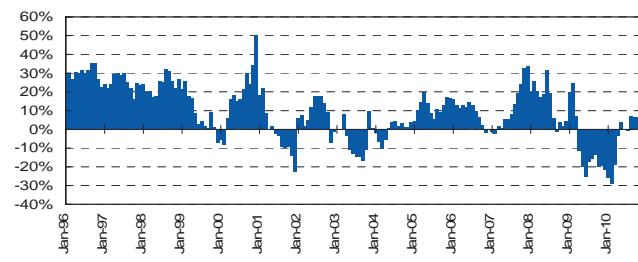
Cumulative Returns



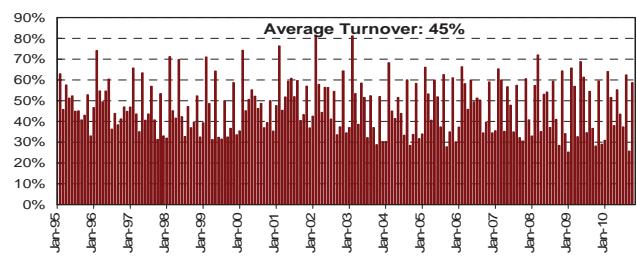
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



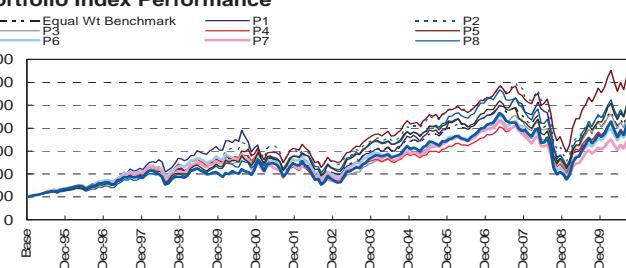
Turnover within Portfolio 1



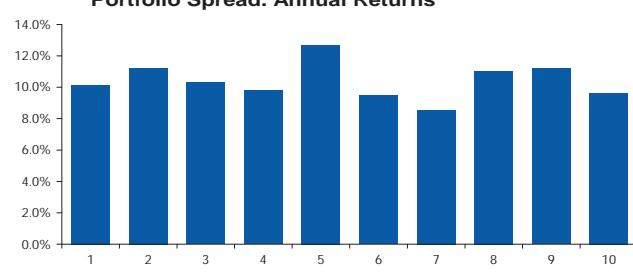
3 Month Earnings Momentum FY1 to FY2

3 Mnth Earnings Momentum FY1 to FY2 in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010											
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics											
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.					
1	1.5%	17.2%	6%	53%	1	0.6%	5.9%	6%	55%	1	0.5%	3.2%	6%	48%					
2	1.5%	17.0%	5%	53%	2	1.0%	10.2%	5%	48%	2	0.5%	3.3%	7%	45%					
3	1.1%	12.1%	5%	43%	3	0.7%	6.8%	6%	43%	3	0.8%	7.5%	7%	58%					
4	1.2%	14.4%	5%	53%	4	0.5%	3.6%	6%	42%	4	0.8%	7.3%	7%	53%					
5	1.4%	16.3%	5%	52%	5	1.0%	10.6%	5%	55%	5	0.8%	7.5%	6%	47%					
6	1.1%	12.2%	5%	53%	6	0.8%	7.8%	6%	52%	6	0.6%	4.1%	7%	58%					
7	1.0%	11.3%	5%	45%	7	0.8%	8.3%	6%	40%	7	0.4%	2.2%	7%	40%					
8	1.2%	13.1%	5%	52%	8	1.2%	13.2%	6%	58%	8	0.6%	4.6%	7%	57%					
9	1.2%	13.2%	5%	43%	9	1.1%	11.5%	6%	55%	9	0.7%	5.5%	7%	48%					
10	0.8%	8.6%	5%	47%	10	1.2%	11.8%	7%	55%	10	0.7%	4.6%	8%	47%					
Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets				
Universe	1.2%	1.6%	1.7%	777	Universe	0.9%	-0.6%	-0.2%	839	Universe	0.6%	0.5%	0.2%	925	Universe	1.0%	0.6%	0.6%	843
Long Short Strategy Statistics								Long Short Strategy Statistics				Long Short Strategy Statistics							
Portfolio 1 less Portfolio 10								Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.				
Long/Short	0.7%	7.3%	4%	62%	Long/Short	-0.6%	-7.8%	4%	43%	Long/Short	-0.2%	-3.4%	4%	50%	Long/Short	0.0%	-1.22%	3.9%	52%
T-Stat				Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets			
Long/Short	1.39			156	Long/Short	-1.01			169	Long/Short	-0.43			186	Long/Short	-0.09			169

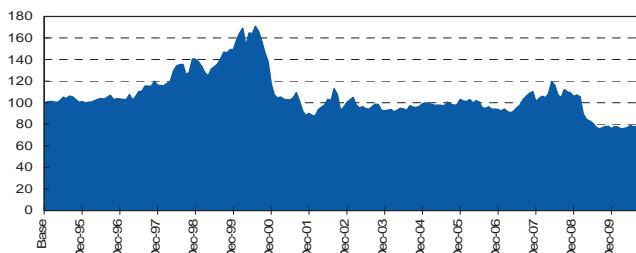
Portfolio Index Performance



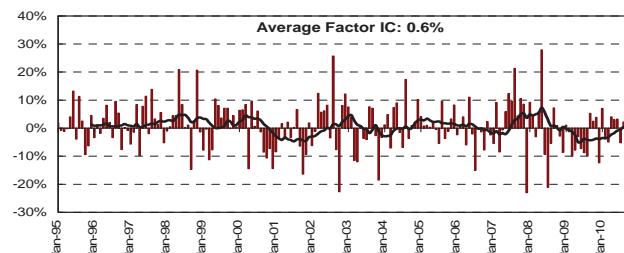
Portfolio Spread. Annual Returns



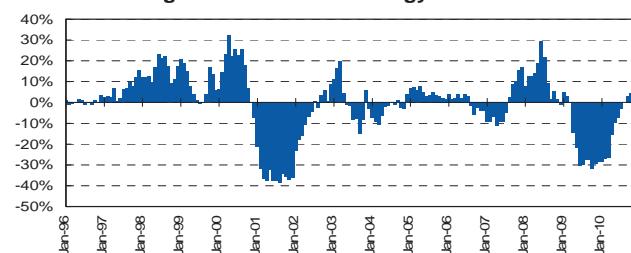
Cumulative Returns



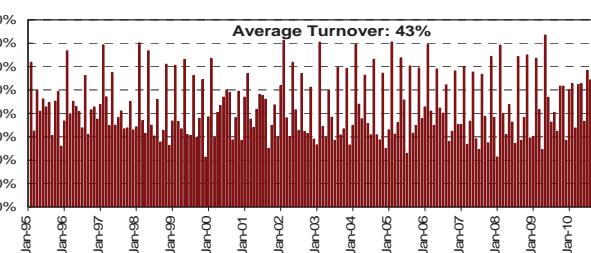
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

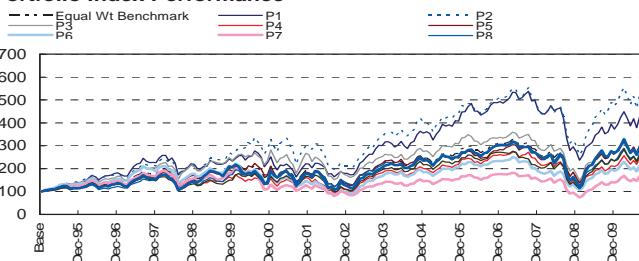


3 Mnth Earnings Momentum FY1 to FY2 in Bottom 2000 Universe

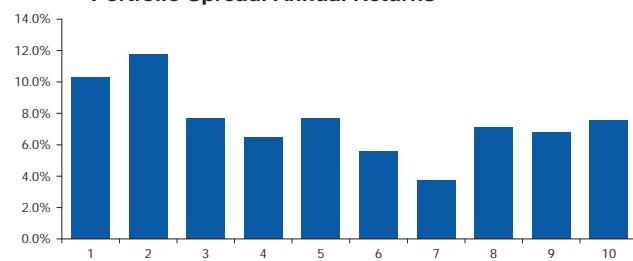
Rebalance every 1 month(s)

5 Year(s): 11/30/1995 to 11/30/2000 Portfolio Statistics					5 Year(s): 11/30/2000 to 11/30/2005 Portfolio Statistics					5 Year(s): 11/30/2005 to 11/30/2010 Portfolio Statistics					Total Period: 1/31/1995 to 11/30/2010 Portfolio Statistics				
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.0%	9.3%	7%	57%	1	1.4%	14.5%	7%	60%	1	0.5%	2.8%	7%	48%	1	1.1%	10.3%	7%	55%
2	1.3%	14.3%	6%	67%	2	1.1%	10.6%	7%	53%	2	0.7%	5.8%	7%	55%	2	1.2%	11.8%	7%	59%
3	1.0%	9.9%	6%	58%	3	0.9%	7.5%	8%	42%	3	0.3%	0.7%	7%	42%	3	0.9%	7.7%	7%	49%
4	0.3%	0.9%	6%	42%	4	1.2%	10.8%	8%	47%	4	0.7%	4.5%	8%	52%	4	0.8%	6.4%	7%	46%
5	0.8%	6.8%	6%	53%	5	0.9%	7.8%	8%	42%	5	0.7%	5.1%	8%	47%	5	0.9%	7.7%	7%	48%
6	0.4%	1.4%	7%	45%	6	1.0%	7.8%	8%	53%	6	0.5%	2.8%	7%	50%	6	0.7%	5.5%	7%	51%
7	0.1%	-2.6%	7%	42%	7	0.9%	7.2%	7%	42%	7	0.5%	3.0%	8%	45%	7	0.6%	3.7%	7%	43%
8	0.5%	3.3%	7%	43%	8	1.4%	13.6%	8%	50%	8	0.6%	3.5%	8%	48%	8	0.9%	7.1%	8%	47%
9	0.5%	3.1%	6%	43%	9	1.2%	11.6%	8%	53%	9	0.7%	4.1%	8%	50%	9	0.8%	6.8%	7%	48%
10	0.5%	3.2%	7%	52%	10	1.5%	13.2%	10%	47%	10	0.8%	4.7%	9%	45%	10	1.0%	7.5%	9%	47%
Total Test					Total Test					Total Test					Total Test				
Universe	0.6%	2.7%	1.2%	1092	Universe	1.1%	0.5%	0.5%	1137	Universe	0.6%	0.2%	0.2%	1446	Universe	0.9%	1.4%	0.8%	1210
Long Short Strategy Statistics																			
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10				
Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.
Long/Short	0.4%	4.3%	4%	58%	Long/Short	-0.1%	-4.1%	6%	58%	Long/Short	-0.3%	-5.3%	5%	57%	Long/Short	0.1%	-0.81%	4.9%	58%
Long/Short	T-Stat	Avg Assets			Long/Short	T-Stat	Avg Assets			Long/Short	T-Stat	Avg Assets			Long/Short	T-Stat	Avg Assets		
Long/Short	0.82	219			Long/Short	-0.19	228			Long/Short	-0.59	290			Long/Short	0.17	243		

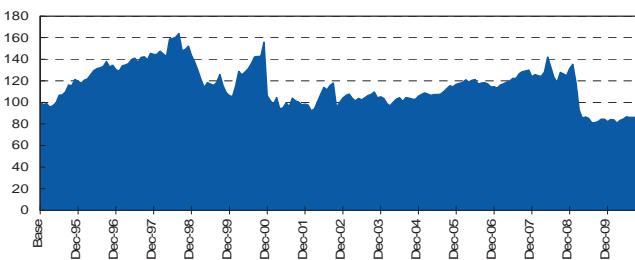
Portfolio Index Performance



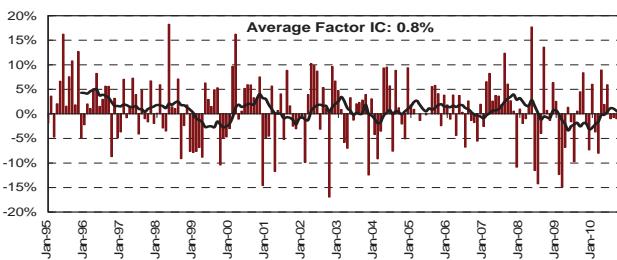
Portfolio Spread. Annual Returns



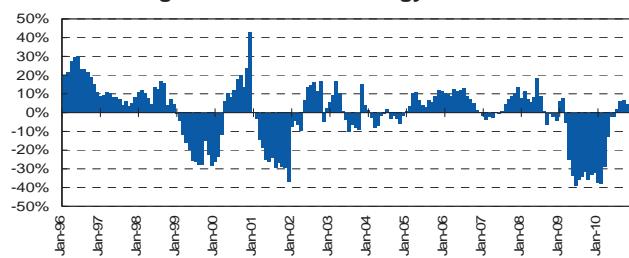
Cumulative Returns



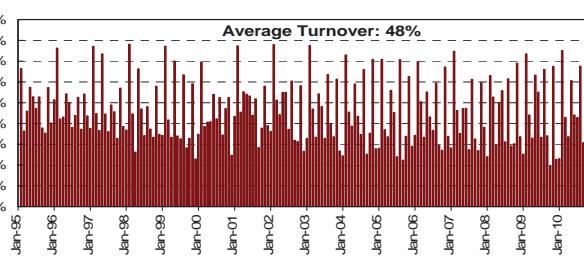
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



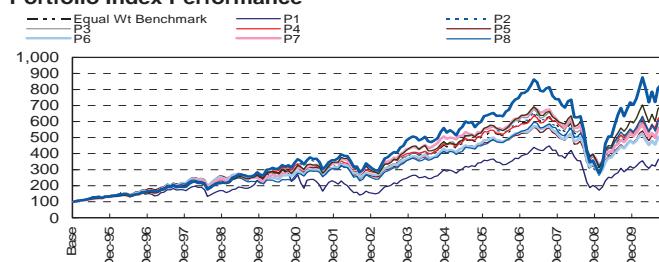
Turnover within Portfolio 1



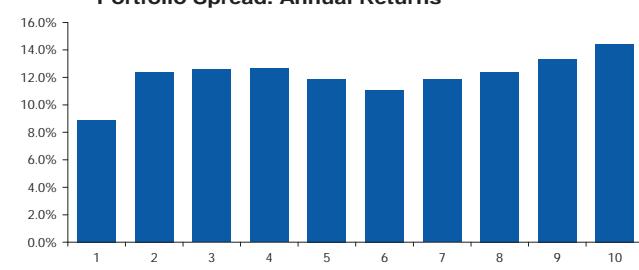
Earnings Growth 5 Yr Historical

Earnings Growth 5 Yr Hist in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.1%	11.0%	7%	50%	1	1.0%	8.5%	8%	50%	1	0.5%	2.5%	7%	48%	1	1.0%	8.9%	7%	49%
2	1.6%	18.2%	6%	57%	2	1.0%	10.6%	6%	53%	2	0.6%	4.1%	7%	50%	2	1.2%	12.4%	6%	54%
3	1.4%	16.3%	5%	57%	3	1.2%	13.5%	5%	57%	3	0.6%	4.4%	7%	42%	3	1.2%	12.5%	6%	52%
4	1.5%	18.3%	5%	55%	4	1.0%	11.2%	5%	47%	4	0.6%	5.5%	6%	57%	4	1.1%	12.7%	5%	53%
5	1.4%	16.5%	5%	50%	5	0.9%	9.5%	4%	42%	5	0.6%	5.5%	6%	48%	5	1.1%	11.9%	5%	47%
6	1.3%	14.9%	5%	55%	6	1.0%	12.0%	4%	48%	6	0.4%	2.8%	6%	43%	6	1.0%	11.1%	5%	48%
7	1.5%	17.5%	5%	52%	7	1.1%	13.3%	4%	48%	7	0.3%	2.0%	6%	45%	7	1.1%	11.8%	5%	47%
8	1.1%	12.9%	4%	40%	8	1.2%	14.0%	5%	55%	8	0.8%	7.3%	6%	52%	8	1.1%	12.4%	5%	48%
9	1.4%	16.3%	5%	47%	9	1.2%	13.7%	5%	55%	9	0.8%	6.8%	7%	58%	9	1.2%	13.4%	6%	53%
10	1.6%	19.1%	5%	60%	10	1.2%	13.4%	6%	50%	10	1.0%	7.5%	9%	57%	10	1.4%	14.4%	7%	56%
Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets				
Universe	1.4%	0.1%	-1.1%	828	Universe	1.1%	0.0%	-0.6%	860	Universe	0.6%	-0.6%	-0.7%	907	Universe	1.1%	0.0%	-0.6%	863
Long Short Strategy Statistics								Long Short Strategy Statistics											
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.				
Long/Short	-0.4%	-6.3%	5%	47%	Long/Short	-0.2%	-3.6%	5%	47%	Long/Short	-0.5%	-7.5%	4%	48%	Long/Short	-0.4%	-5.29%	4.4%	48%
T-Stat				Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets			
Long/Short	-0.76			166	Long/Short	-0.31			173	Long/Short	-0.99			182	Long/Short	-1.11			174

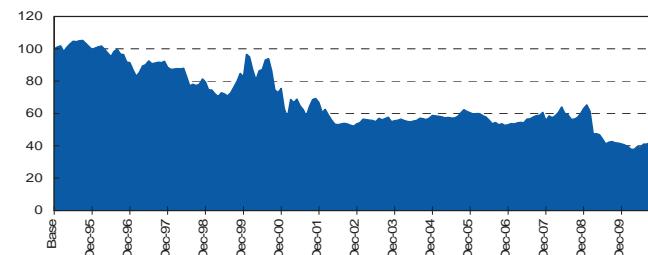
Portfolio Index Performance



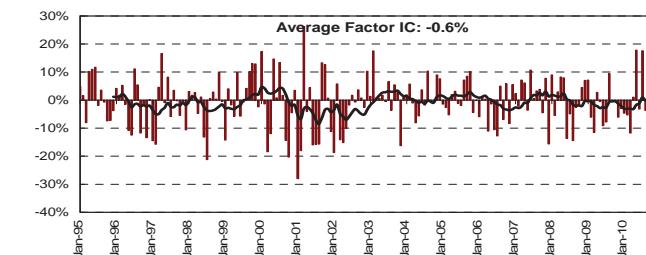
Portfolio Spread. Annual Returns



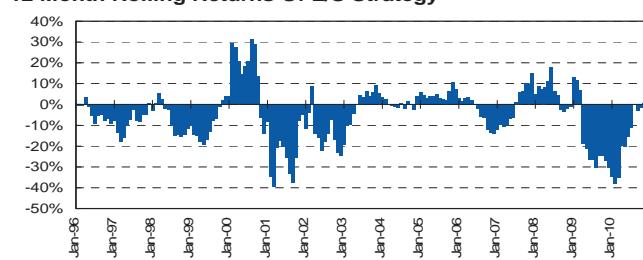
Cumulative Returns



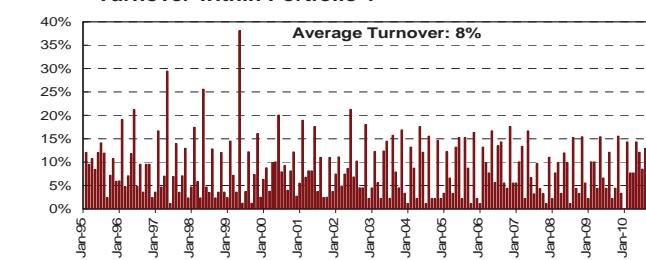
Information Co-Efficients (IC)

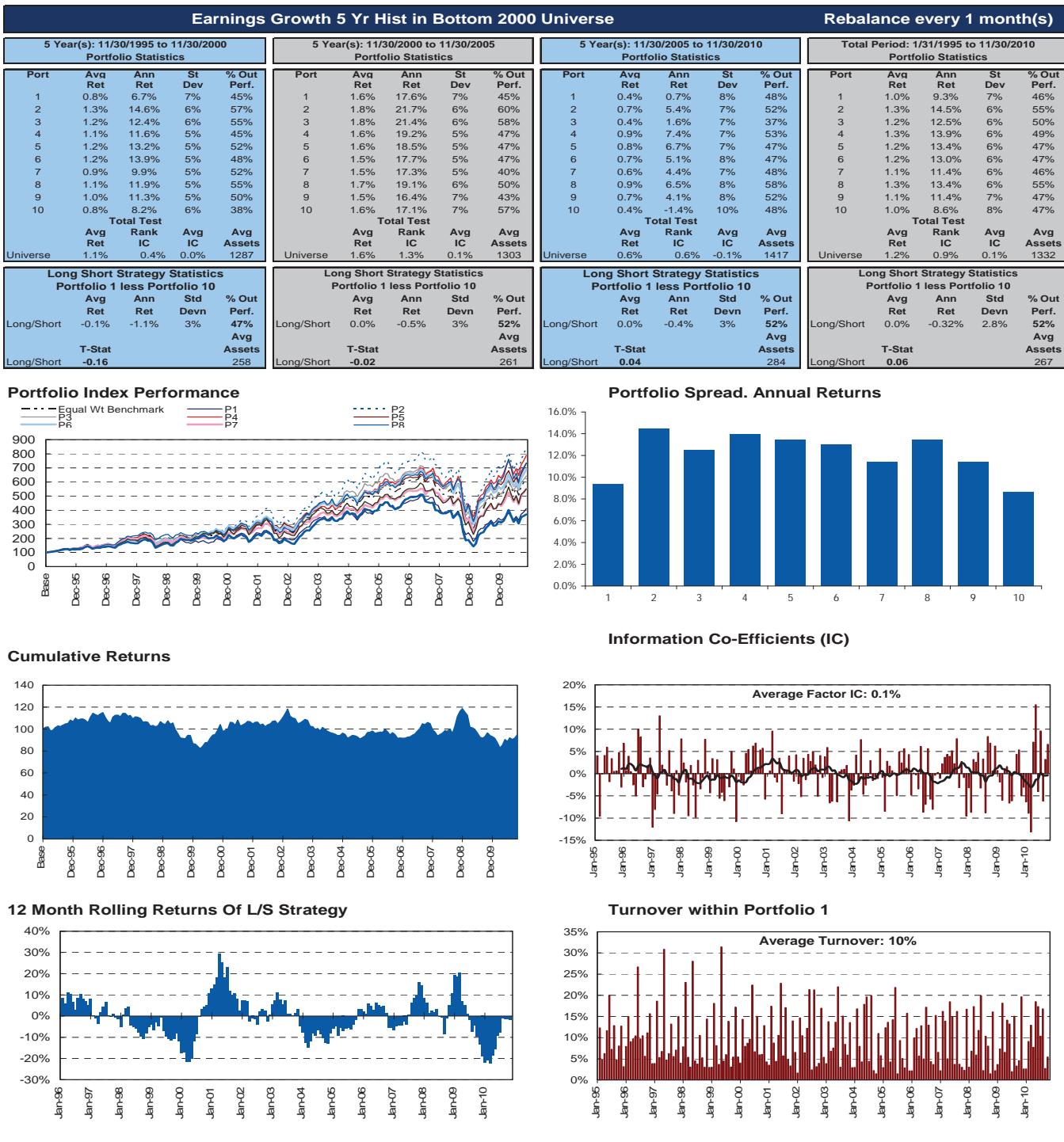


12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

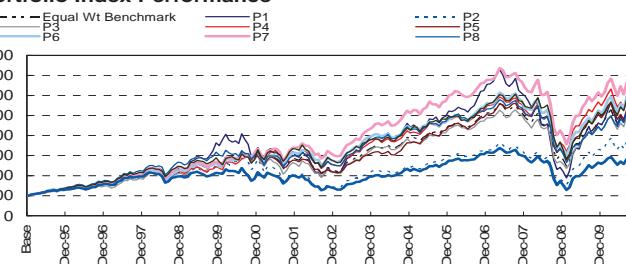




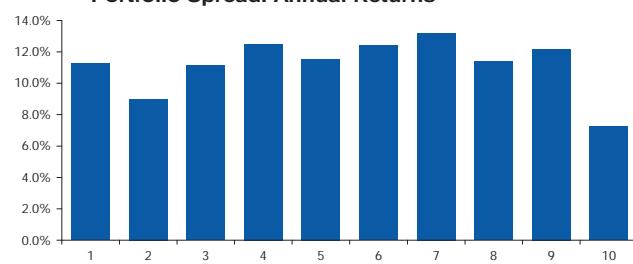
Earnings Growth FY1 to FY2

Earnings Growth FY1 to FY2 in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Port	Avg Ret	Ann Ret	St Dev	Port	Avg Ret	Ann Ret	St Dev	Port	Avg Ret	Ann Ret	St Dev	Port	Avg Ret	Ann Ret	St Dev				
1	1.6%	17.2%	7%	62%	1	1.1%	10.8%	7%	50%	0.6%	2.0%	10%	48%	1	1.2%	11.2%	8%	54%	
2	1.2%	13.0%	5%	45%	2	0.6%	3.9%	7%	38%	0.8%	7.0%	8%	50%	2	0.9%	9.0%	7%	44%	
3	1.3%	14.9%	6%	48%	3	0.9%	9.0%	6%	48%	0.6%	5.1%	7%	52%	3	1.1%	11.1%	6%	49%	
4	1.4%	16.0%	5%	48%	4	1.0%	10.9%	5%	47%	0.7%	6.9%	6%	47%	4	1.1%	12.5%	5%	47%	
5	1.4%	16.7%	5%	55%	5	0.8%	8.2%	4%	52%	0.7%	5.9%	6%	55%	5	1.0%	11.5%	5%	53%	
6	1.4%	17.1%	5%	50%	6	0.9%	9.7%	4%	48%	0.7%	6.4%	6%	58%	6	1.1%	12.4%	5%	53%	
7	1.5%	17.8%	5%	53%	7	1.3%	14.3%	5%	55%	0.6%	4.7%	6%	52%	7	1.2%	13.2%	5%	54%	
8	1.4%	16.3%	5%	55%	8	1.0%	10.6%	6%	48%	0.5%	3.4%	6%	43%	8	1.1%	11.4%	5%	49%	
9	1.2%	14.3%	5%	52%	9	1.2%	13.0%	6%	48%	0.6%	5.0%	7%	53%	9	1.1%	12.2%	6%	52%	
10	0.6%	6.0%	5%	40%	10	0.8%	8.0%	6%	45%	0.6%	3.4%	8%	43%	10	0.8%	7.2%	6%	43%	
Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets				
Universe	1.3%	0.5%	0.2%	898	0.9%	-0.6%	0.1%	940	0.9%	-0.6%	0.1%	963	0.6%	0.0%	-0.1%	931			
Long Short Strategy Statistics								Long Short Strategy Statistics											
Portfolio 1 less Portfolio 10								Portfolio 1 less Portfolio 10											
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.				
Long/Short	0.9%	11.1%	3%	67%	Long/Short	0.3%	3.2%	3%	53%	Long/Short	0.0%	-0.6%	4%	55%	Long/Short	0.4%	4.35%	3.2%	59%
T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets				
Long/Short	2.13		180	Long/Short	0.81		189	Long/Short	0.03		194	Long/Short	1.75		187				

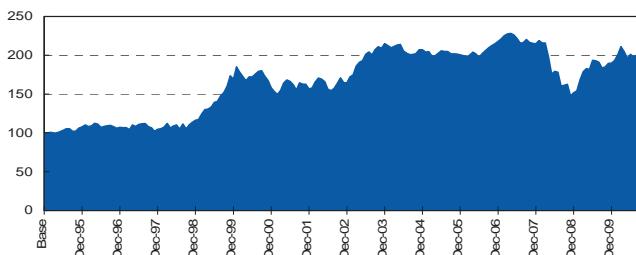
Portfolio Index Performance



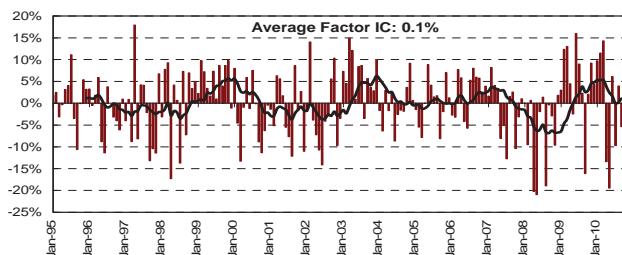
Portfolio Spread. Annual Returns



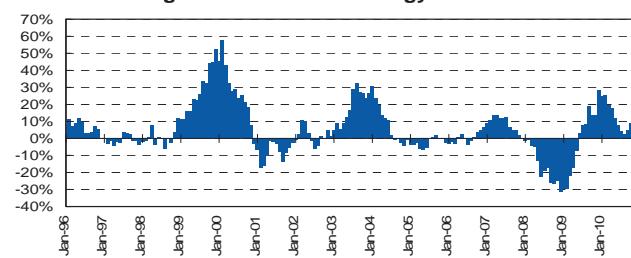
Cumulative Returns



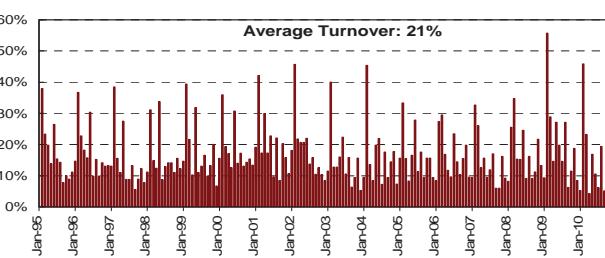
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

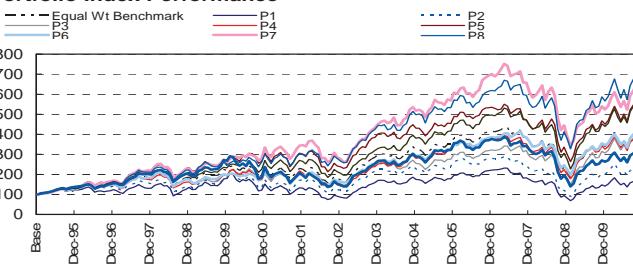


Turnover within Portfolio 1

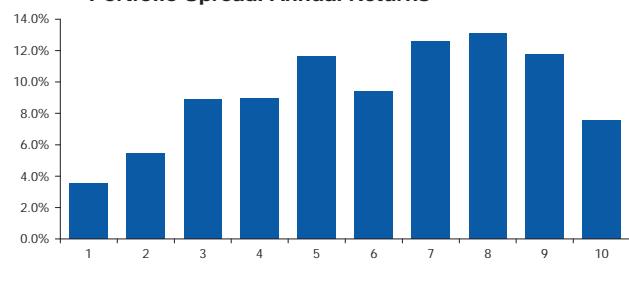


Earnings Growth FY1 to FY2 in Bottom 2000 Universe										Rebalance every 1 month(s)													
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010								
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.				
1	0.3%	-0.3%	8%	38%	1	1.1%	8.6%	9%	47%	1	0.4%	-0.6%	9%	48%	1	0.7%	3.5%	9%	43%				
2	0.5%	2.0%	8%	35%	2	1.4%	12.9%	9%	48%	2	0.4%	-0.5%	9%	38%	2	0.8%	5.5%	8%	39%				
3	0.7%	5.7%	7%	42%	3	1.1%	10.3%	8%	40%	3	0.9%	7.1%	8%	62%	3	1.0%	9.0%	7%	47%				
4	0.6%	4.9%	7%	35%	4	1.3%	13.5%	8%	55%	4	0.6%	4.2%	8%	50%	4	1.0%	9.0%	7%	47%				
5	1.3%	14.5%	6%	67%	5	1.2%	12.3%	7%	45%	5	0.6%	4.6%	7%	50%	5	1.1%	11.6%	6%	54%				
6	0.7%	6.7%	6%	52%	6	1.3%	13.8%	6%	58%	6	0.6%	4.9%	7%	52%	6	0.9%	9.4%	6%	53%				
7	1.4%	15.6%	5%	60%	7	1.5%	16.3%	6%	55%	7	0.4%	2.6%	7%	50%	7	1.2%	12.6%	6%	55%				
8	1.2%	13.4%	6%	63%	8	1.6%	17.5%	6%	58%	8	0.7%	5.7%	7%	58%	8	1.2%	13.1%	6%	59%				
9	1.0%	10.6%	5%	53%	9	1.4%	14.5%	7%	52%	9	0.9%	7.0%	8%	58%	9	1.1%	11.8%	6%	54%				
10	0.7%	6.1%	7%	50%	10	1.3%	12.6%	8%	43%	10	0.3%	-0.3%	8%	42%	10	0.9%	7.6%	8%	46%				
Total Test					Total Test					Total Test					Total Test								
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	0.8%	-2.4%	-1.8%	1576	Universe	1.3%	-1.3%	-0.8%	1644	Universe	0.6%	-0.7%	-0.6%	1789	Universe	1.0%	-1.5%	-1.1%	1660
Long Short Strategy Statistics Portfolio 1 less Portfolio 10										Long Short Strategy Statistics Portfolio 1 less Portfolio 10													
Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.				
Long/Short	-0.4%	-5.1%	3%	48%	Long/Short	-0.2%	-3.1%	3%	43%	Long/Short	T-Stat	Long/Short	T-Stat	Assets	Long/Short	T-Stat	Long/Short	T-Stat	Assets				
Long/Short	-0.98	316			Long/Short	-0.69				Long/Short	0.26			359	Long/Short	-1.16			333				

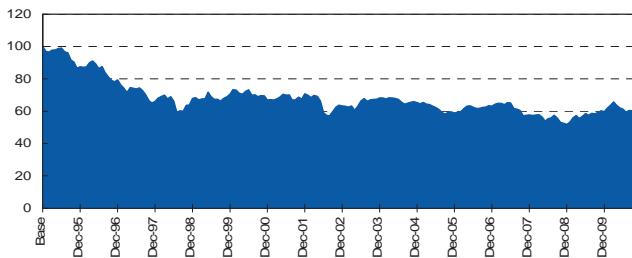
Portfolio Index Performance



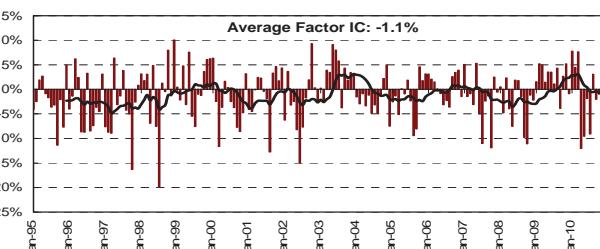
Portfolio Spread. Annual Returns



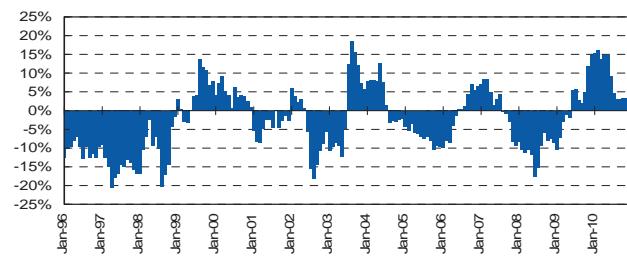
Cumulative Returns



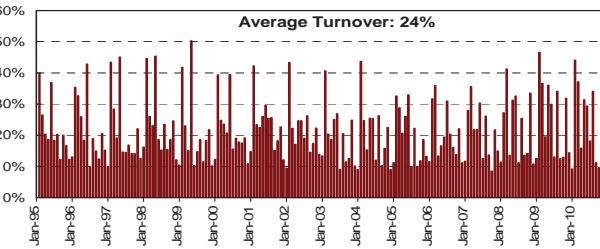
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



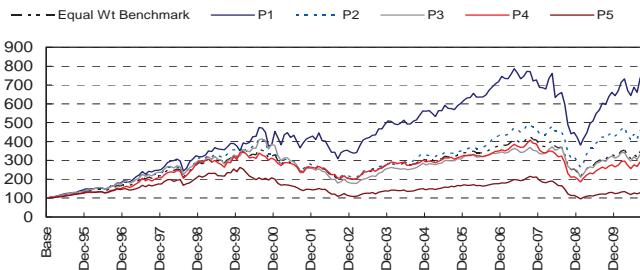
Turnover within Portfolio 1



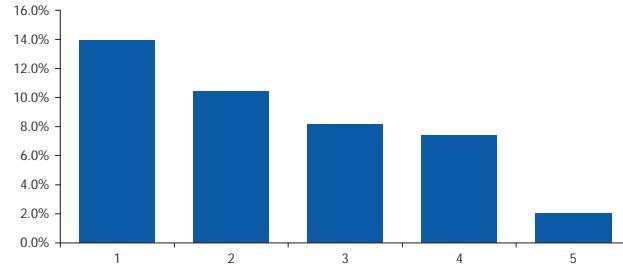
10 Day Relative Strength Indicator

10 Day Relative Strength Indicator in Top 200 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000 Portfolio Statistics				5 Year(s): 11/30/2000 to 11/30/2005 Portfolio Statistics				5 Year(s): 11/30/2005 to 11/30/2010 Portfolio Statistics				Total Period: 1/31/1995 to 11/30/2010 Portfolio Statistics							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.8%	22.2%	6%	62%	1	0.9%	9.5%	6%	60%	1	0.7%	6.1%	6%	65%	1	1.3%	14.0%	6%	63%
2	1.6%	19.4%	5%	53%	2	0.2%	0.7%	5%	50%	2	0.7%	6.8%	6%	65%	2	1.0%	10.4%	5%	56%
3	1.8%	22.1%	5%	55%	3	-0.1%	-3.1%	5%	45%	3	0.3%	2.2%	5%	47%	3	0.8%	8.1%	5%	49%
4	1.7%	19.7%	5%	47%	4	0.2%	0.9%	4%	47%	4	0.1%	-0.3%	5%	42%	4	0.7%	7.4%	5%	43%
5	0.9%	9.4%	5%	37%	5	-0.2%	-3.2%	4%	43%	5	-0.2%	-3.8%	5%	42%	5	0.3%	2.0%	5%	41%
Total Test				Total Test				Total Test				Total Test				Total Test			
Avg Ret	1.6%	Rank IC	Avg IC	Avg Assets	Avg Ret	0.2%	Rank IC	Avg IC	Avg Assets	Avg Ret	0.3%	Rank IC	Avg IC	Avg Assets	Avg Ret	0.8%	Rank IC	Avg IC	Avg Assets
Universe	1.6%	5.7%	5.3%	197	Universe	0.2%	3.1%	2.8%	200	Universe	0.3%	4.2%	4.0%	200	Universe	0.8%	4.6%	4.2%	199
Long Short Strategy Statistics																			
Portfolio 1 less Portfolio 5																			
Avg Ret	1.0%	10.5%	5%	70%	Avg Ret	1.1%	12.4%	5%	57%	Avg Ret	0.9%	10.3%	3%	62%	Avg Ret	1.0%	11.16%	4.3%	63%
Long/Short	1.0%	10.5%	5%	70%	Long/Short	1.1%	12.4%	5%	57%	Long/Short	0.9%	10.3%	3%	62%	Long/Short	1.0%	11.16%	4.3%	63%
T-Stat	1.44				T-Stat	1.78				T-Stat	2.20				T-Stat	3.12			
Avg Assets	80				Avg Assets	80				Avg Assets	80				Avg Assets	80			

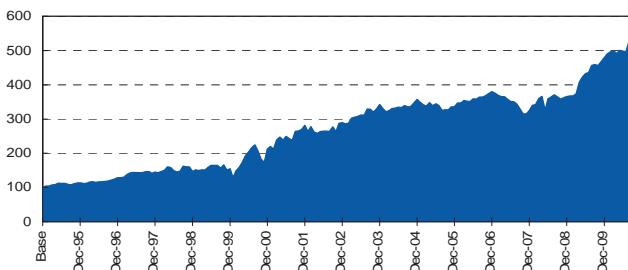
Portfolio Index Performance



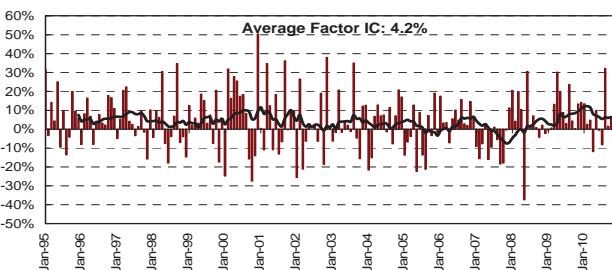
Portfolio Spread. Annual Returns



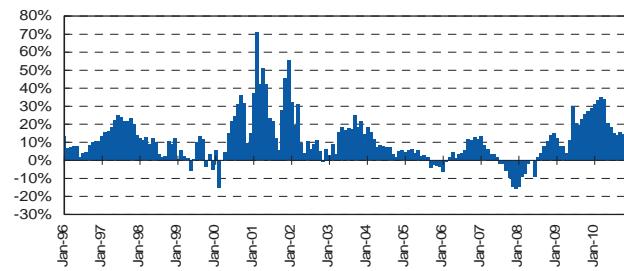
Cumulative Returns



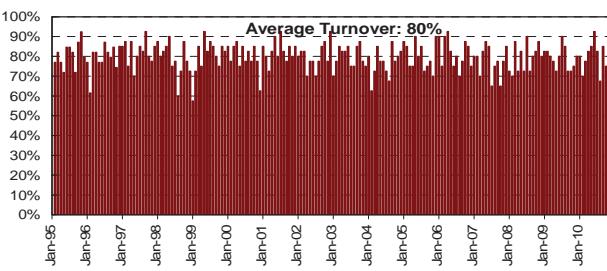
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

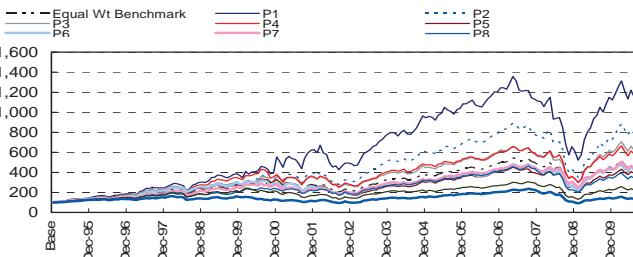


Turnover within Portfolio 1

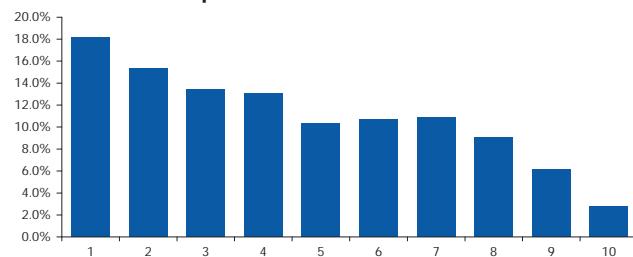


10 Day Relative Strength Indicator in Top 1000 Universe										Rebalance every 1 month(s)									
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010				
Portfolio Statistics										Portfolio Statistics									
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.9%	22.2%	6%	67%	1	2.0%	21.6%	9%	65%	1	0.8%	6.5%	8%	52%	1	1.7%	18.2%	7%	61%
2	1.5%	17.4%	6%	53%	2	1.6%	17.5%	7%	58%	2	0.9%	7.8%	8%	65%	2	1.4%	15.4%	7%	58%
3	1.5%	16.8%	6%	50%	3	1.1%	11.0%	6%	52%	3	0.9%	8.1%	7%	58%	3	1.3%	13.4%	6%	55%
4	1.7%	20.1%	6%	70%	4	0.8%	8.4%	6%	47%	4	0.8%	6.4%	7%	53%	4	1.2%	13.0%	6%	57%
5	1.5%	17.5%	5%	55%	5	0.4%	2.8%	6%	40%	5	0.8%	7.0%	7%	62%	5	1.0%	10.3%	6%	52%
6	1.3%	14.7%	5%	53%	6	0.7%	6.4%	6%	47%	6	0.8%	7.0%	7%	58%	6	1.0%	10.7%	6%	53%
7	1.3%	14.9%	5%	52%	7	0.8%	8.0%	5%	47%	7	0.7%	6.5%	7%	38%	7	1.0%	10.9%	5%	46%
8	1.1%	12.6%	5%	35%	8	0.9%	9.1%	5%	53%	8	0.4%	2.4%	7%	45%	8	0.9%	9.0%	5%	44%
9	0.9%	9.5%	5%	43%	9	0.4%	3.7%	5%	43%	9	0.3%	1.4%	6%	37%	9	0.6%	6.2%	5%	41%
10	0.1%	-0.1%	4%	37%	10	0.8%	8.2%	5%	48%	10	-0.1%	-2.9%	6%	42%	10	0.4%	2.8%	5%	41%
Total Test					Total Test					Total Test					Total Test				
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	0.9%	2.7%	2.2%	970	Universe	0.6%	2.5%	2.2%	978	Universe	1.0%	3.3%	2.9%	962	
Long Short Strategy Statistics										Long Short Strategy Statistics									
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10				
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	
1.8%	22.1%	5%	63%	Long/Short	1.2%	12.1%	8%	53%	Long/Short	0.9%	10.1%	4%	57%	Long/Short	1.3%	15.02%	5.5%	59%	
T-Stat				Long/Short	T-Stat				Long/Short	T-Stat				Long/Short	T-Stat				
3.03				190	1.21				195	1.74				196	3.27				

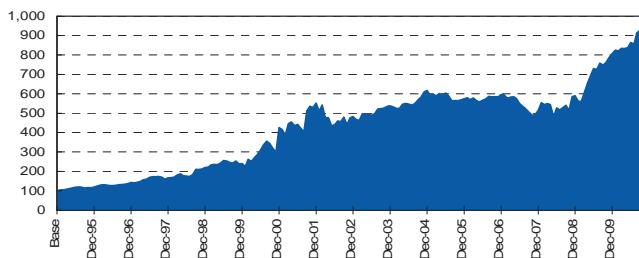
Portfolio Index Performance



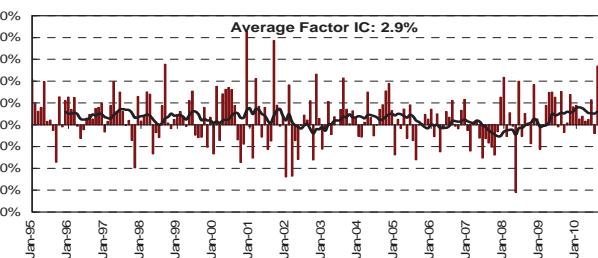
Portfolio Spread. Annual Returns



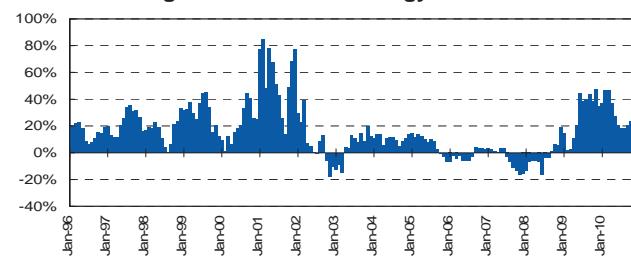
Cumulative Returns



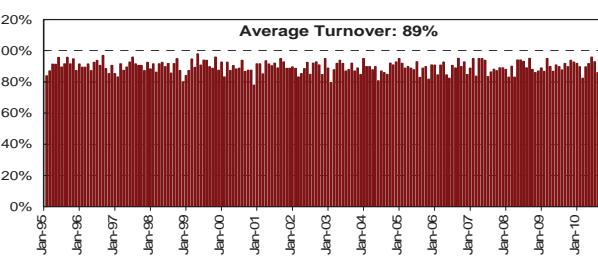
Information Co-Efficients (IC)

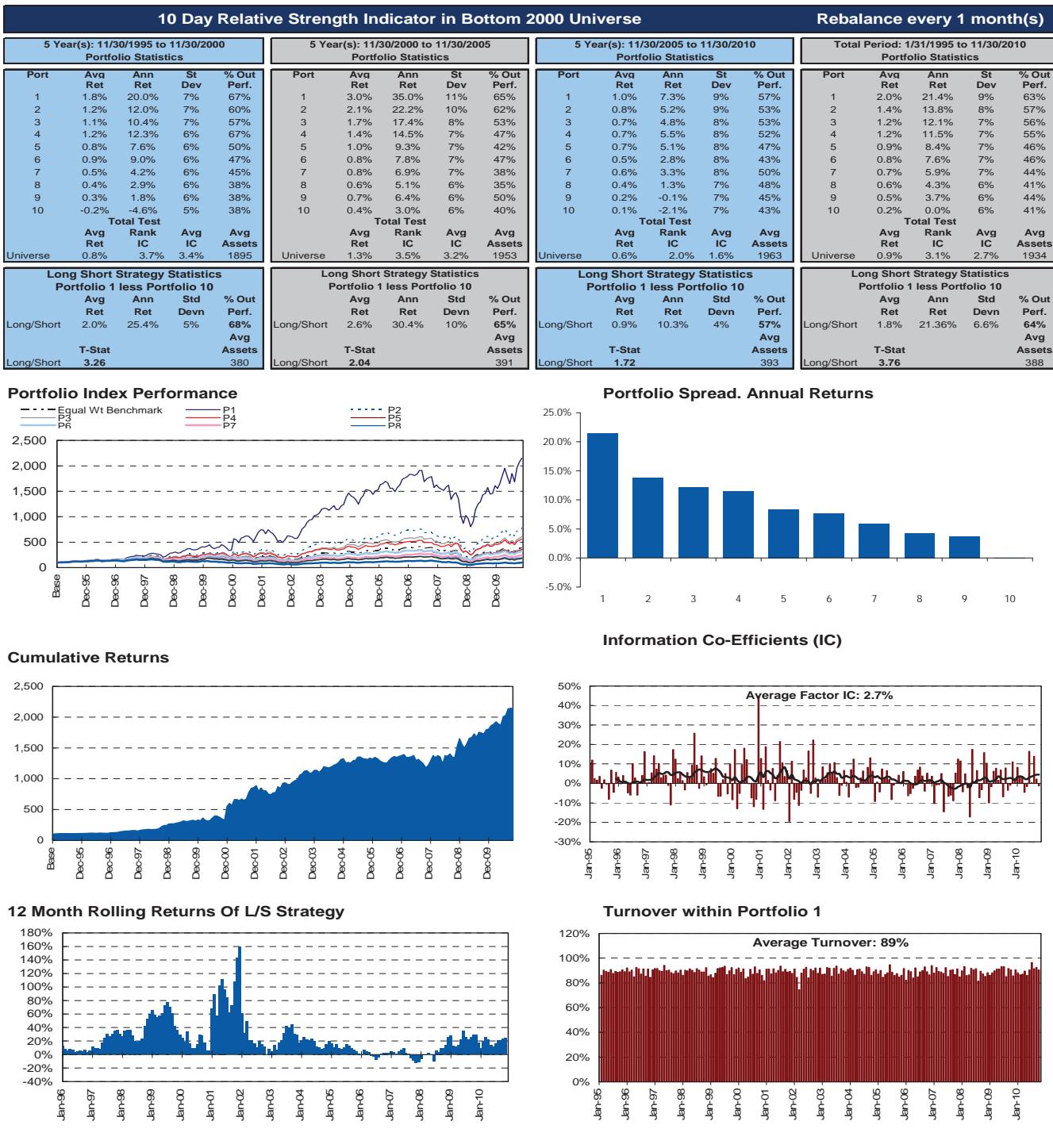


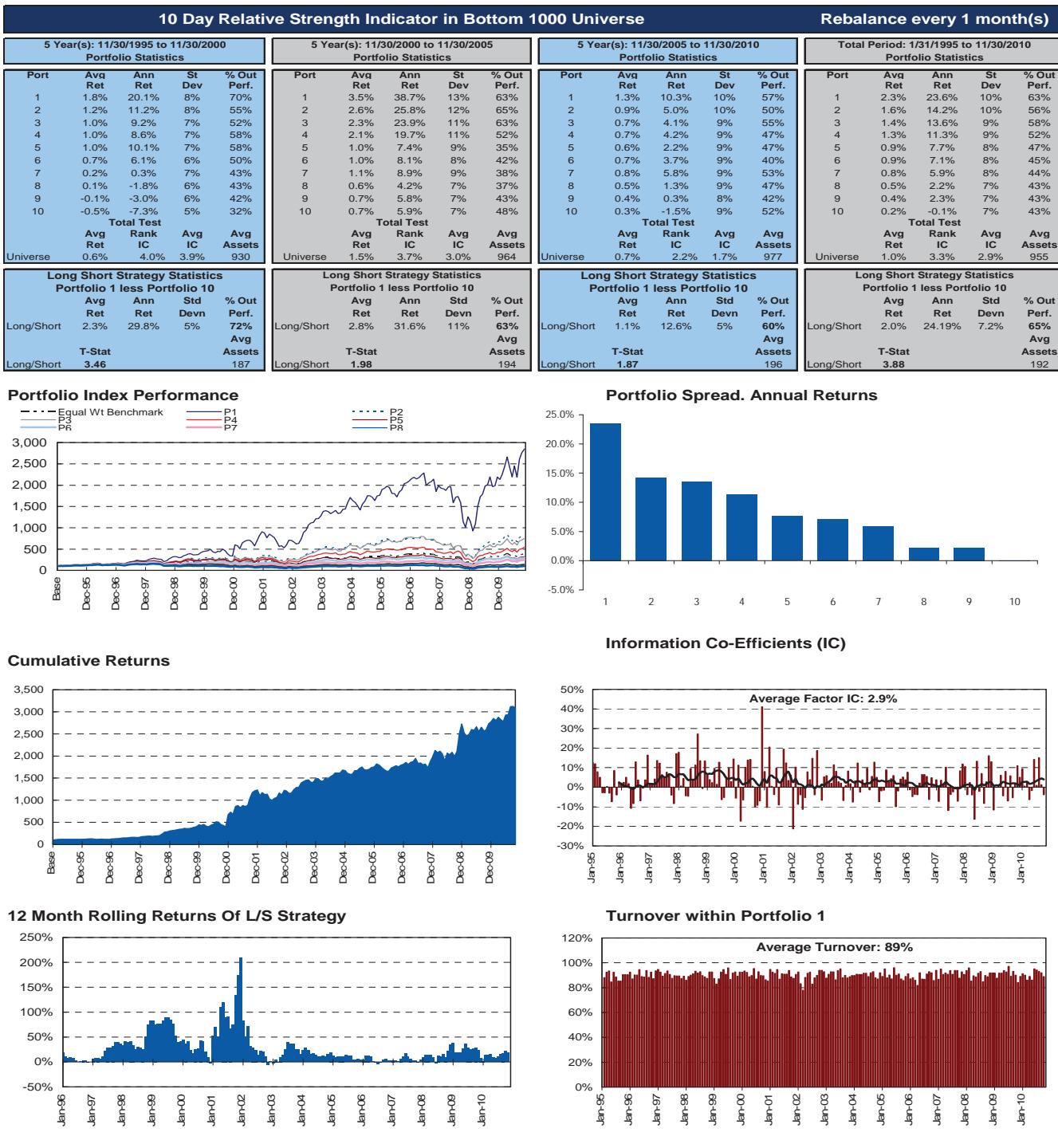
12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1



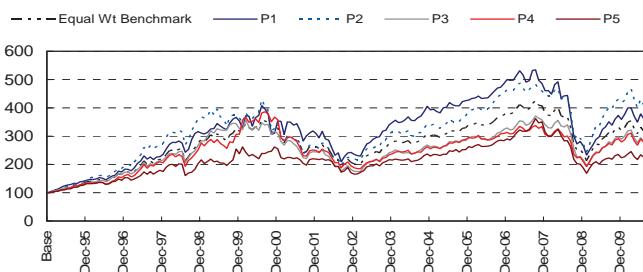




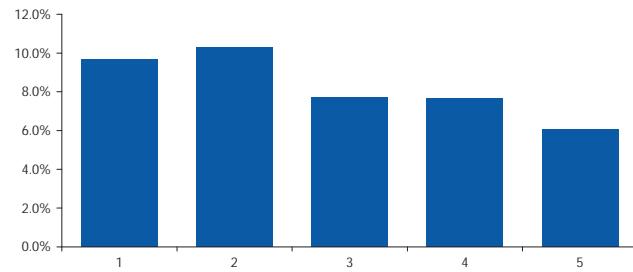
30 Day Relative Strength Indicator

30 Day Relative Strength Indicator in Top 200 Universe								Rebalance every 1 month(s)						
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010		
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.5%	17.1%	6%	52%	1	0.7%	6.6%	6%	50%	1	0.2%	0.5%	6%	50%
2	1.6%	18.4%	6%	63%	2	0.4%	2.7%	5%	57%	2	0.6%	5.3%	6%	58%
3	1.6%	19.0%	5%	52%	3	0.0%	-1.4%	4%	42%	3	0.3%	2.5%	5%	45%
4	1.8%	22.4%	5%	42%	4	-0.2%	-4.0%	5%	40%	4	0.3%	2.3%	5%	42%
5	1.3%	14.6%	6%	32%	5	0.1%	0.5%	4%	52%	5	0.1%	0.2%	5%	50%
Total Test				Total Test				Total Test				Total Test		
Universe	1.6%	3.5%	3.0%	197	Universe	0.2%	3.0%	1.9%	200	Universe	0.3%	1.3%	1.0%	199
Long Short Strategy Statistics														
Portfolio 1 less Portfolio 5														
Avg Ret				Avg Ret				Avg Ret				Avg Ret		
Long/Short	0.2%	-0.3%	6%	55%	Long/Short	0.6%	5.6%	5%	48%	Long/Short	0.1%	0.3%	3%	52%
T-Stat				T-Stat				T-Stat				T-Stat		
Long/Short	0.22				Long/Short	0.90				Long/Short	0.19			
Long Short Strategy Statistics														
Portfolio 1 less Portfolio 5														
Avg Ret				Avg Ret				Avg Ret				Avg Ret		
Long/Short	0.3%	2.47%	4.8%	53%	Long/Short	0.91				Long/Short	0.3%	2.47%	4.8%	53%
Avg Assets				Avg Assets				Avg Assets				Avg Assets		
Long/Short	80				Long/Short	80				Long/Short	80			

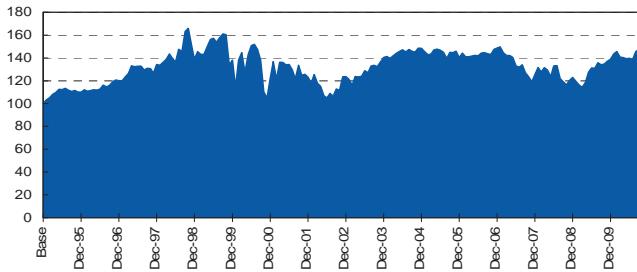
Portfolio Index Performance



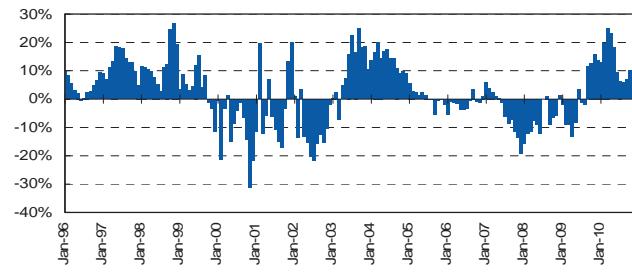
Portfolio Spread. Annual Returns



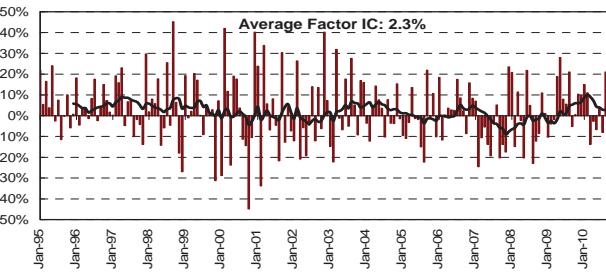
Cumulative Returns



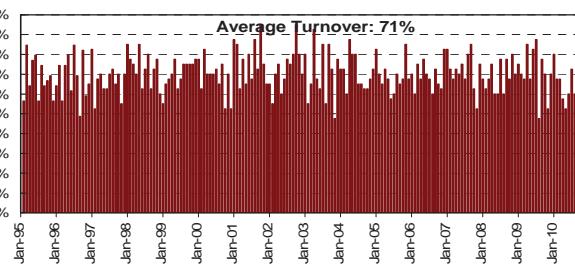
12 Month Rolling Returns Of L/S Strategy



Information Co-Efficients (IC)



Turnover within Portfolio 1

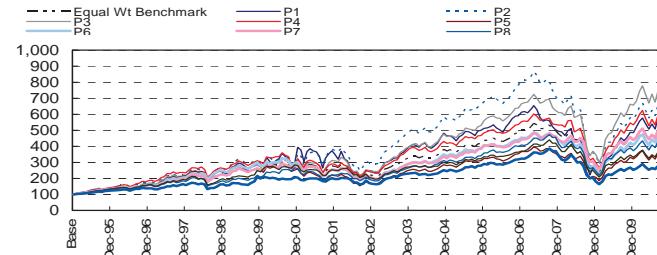


30 Day Relative Strength Indicator in Top 1000 Universe

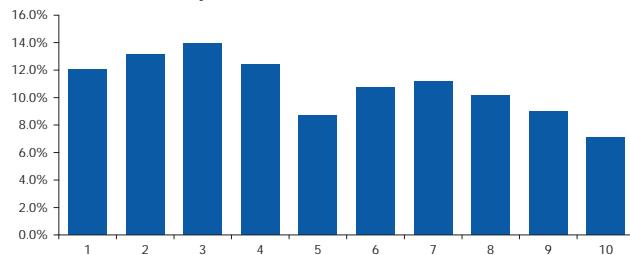
Rebalance every 1 month(s)

5 Year(s): 11/30/1995 to 11/30/2000 Portfolio Statistics						5 Year(s): 11/30/2000 to 11/30/2005 Portfolio Statistics						5 Year(s): 11/30/2005 to 11/30/2010 Portfolio Statistics						Total Period: 1/31/1995 to 11/30/2010 Portfolio Statistics					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.				
1	1.4%	15.1%	7%	50%	1	1.4%	12.5%	10%	52%	1	0.7%	4.2%	9%	47%	1	1.3%	12.1%	8%	50%				
2	1.3%	14.0%	6%	55%	2	1.8%	19.4%	8%	63%	2	0.5%	1.8%	8%	52%	2	1.3%	13.1%	7%	57%				
3	1.2%	13.3%	6%	57%	3	1.4%	15.4%	7%	70%	3	1.0%	8.7%	8%	52%	3	1.3%	14.0%	7%	61%				
4	1.4%	15.5%	6%	60%	4	1.0%	10.7%	6%	55%	4	0.8%	6.6%	7%	50%	4	1.2%	12.4%	6%	56%				
5	1.2%	14.0%	5%	58%	5	0.5%	4.9%	5%	33%	5	0.5%	3.9%	7%	42%	5	0.9%	8.7%	6%	44%				
6	1.4%	16.7%	5%	62%	6	0.7%	6.4%	5%	38%	6	0.7%	5.8%	7%	48%	6	1.0%	10.8%	6%	49%				
7	1.2%	14.3%	5%	55%	7	0.8%	8.3%	5%	47%	7	0.8%	7.1%	6%	52%	7	1.0%	11.2%	5%	51%				
8	1.2%	13.6%	5%	40%	8	0.6%	6.6%	5%	47%	8	0.7%	6.4%	7%	55%	8	1.0%	10.1%	5%	47%				
9	1.3%	15.7%	5%	52%	9	0.4%	4.2%	5%	47%	9	0.5%	3.9%	6%	47%	9	0.9%	9.0%	5%	47%				
10	0.9%	10.1%	5%	43%	10	0.7%	7.3%	4%	47%	10	0.3%	1.2%	6%	50%	10	0.7%	7.1%	5%	45%				
Total Test				Total Test				Total Test				Total Test				Total Test							
Avg Ret	1.3%	2.3%	1.7%	944	Avg Ret	0.9%	3.2%	2.1%	969	Avg Ret	0.6%	0.5%	0.6%	977	Avg Ret	1.0%	2.2%	1.6%	962				
Long Short Strategy Statistics																							
Portfolio 1 less Portfolio 10																							
Avg Ret	0.5%	3.8%	6%	52%	Avg Ret	0.8%	5.5%	8%	53%	Avg Ret	0.4%	3.9%	5%	52%	Avg Ret	0.6%	4.93%	6.4%	54%	Avg Ret	0.6%	4.93%	6.4%
Ret IC					Devn					Perf.					Assets					Assets			
Long/Short T-Stat																							
Long/Short Assets																							
Long/Short 0.62																							
Long/Short 190																							
Long/Short 0.80																							
Long/Short 195																							
Long/Short 0.69																							

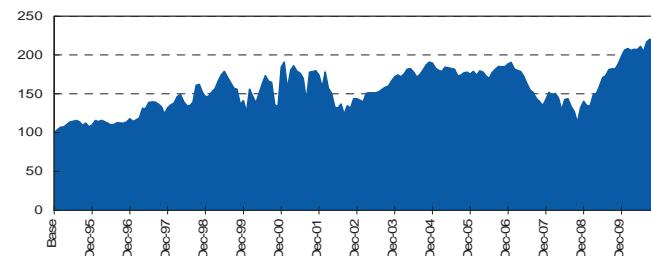
Portfolio Index Performance



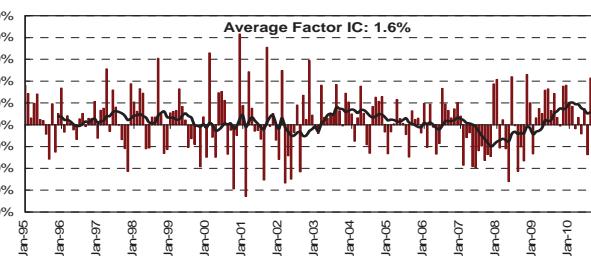
Portfolio Spread. Annual Returns



Cumulative Returns



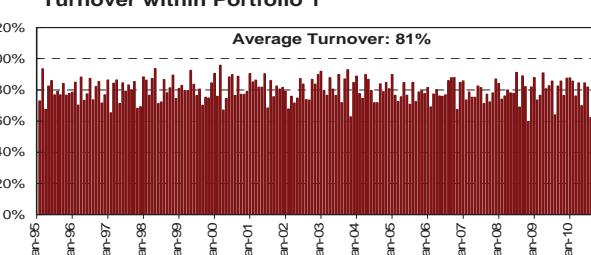
Information Co-Efficients (IC)

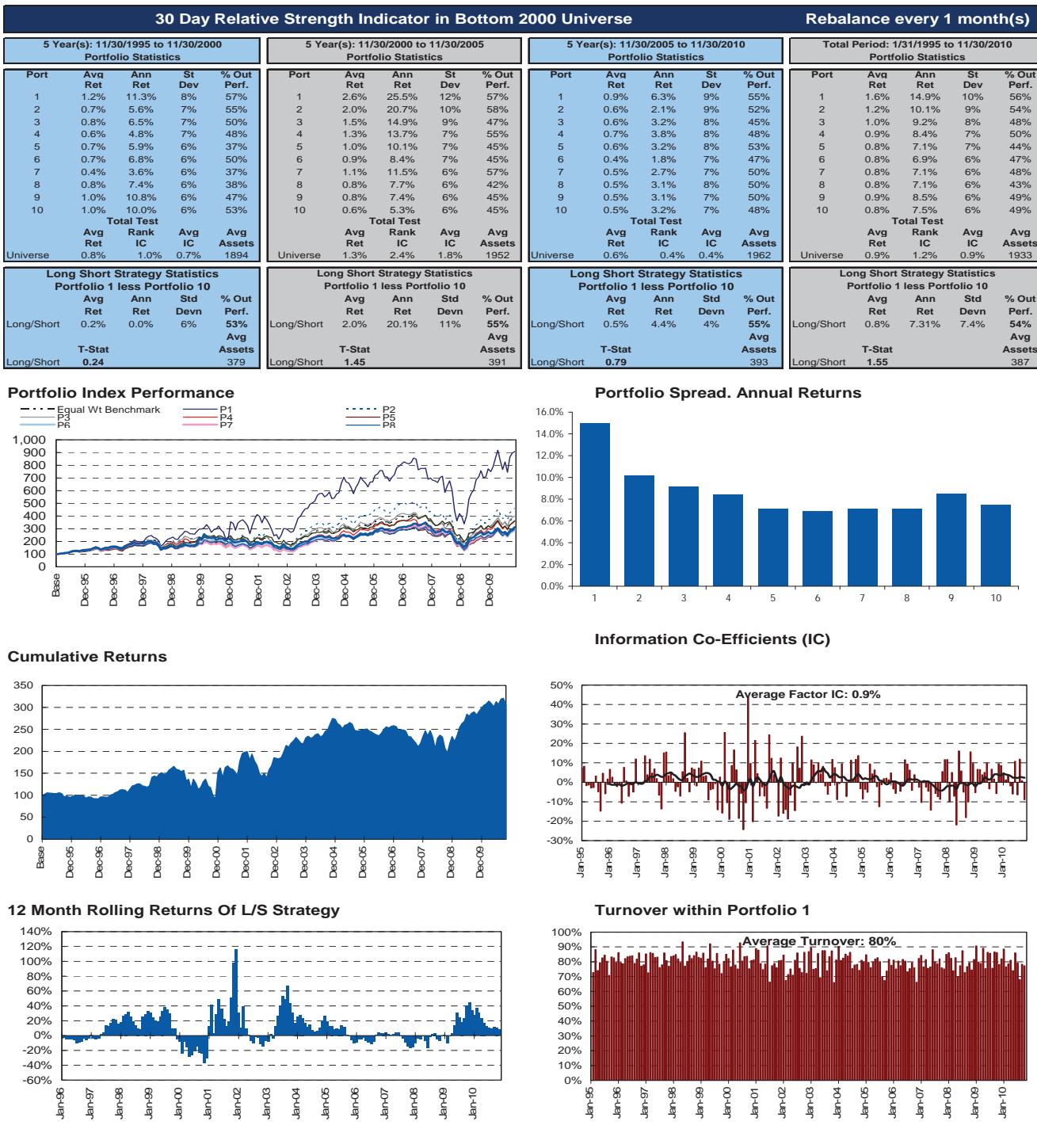


12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1



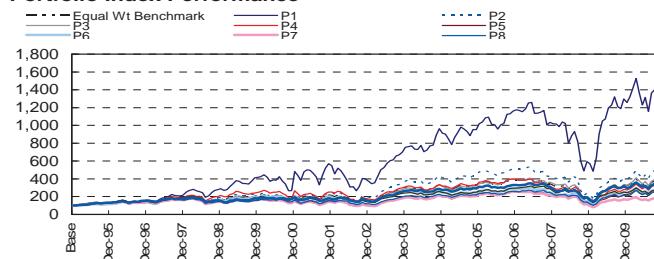


30 Day Relative Strength Indicator in Bottom 1000 Universe

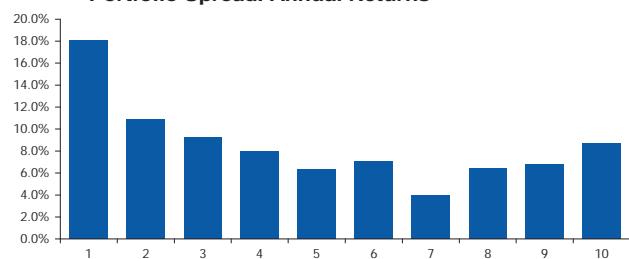
Rebalance every 1 month(s)

5 Year(s): 11/30/1995 to 11/30/2000 Portfolio Statistics					5 Year(s): 11/30/2000 to 11/30/2005 Portfolio Statistics					5 Year(s): 11/30/2005 to 11/30/2010 Portfolio Statistics					Total Period: 1/31/1995 to 11/30/2010 Portfolio Statistics				
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.5%	14.8%	8%	65%	1	3.1%	29.0%	15%	57%	1	1.2%	7.7%	11%	55%	1	2.0%	18.0%	12%	59%
2	0.6%	2.8%	8%	53%	2	2.6%	25.4%	13%	55%	2	0.8%	3.4%	10%	52%	2	1.4%	10.9%	10%	54%
3	0.6%	3.6%	7%	47%	3	1.9%	17.5%	11%	57%	3	0.8%	4.9%	9%	57%	3	1.1%	9.2%	9%	54%
4	0.9%	8.3%	7%	47%	4	1.4%	11.8%	10%	42%	4	0.5%	0.5%	9%	40%	4	1.0%	8.0%	9%	43%
5	0.4%	2.2%	7%	35%	5	1.2%	10.9%	9%	52%	5	0.8%	4.5%	9%	50%	5	0.9%	6.4%	8%	45%
6	0.7%	6.9%	6%	57%	6	1.1%	9.2%	8%	35%	6	0.7%	3.7%	9%	47%	6	0.8%	7.0%	7%	44%
7	0.2%	0.5%	6%	37%	7	1.1%	10.0%	8%	43%	7	0.2%	-2.1%	9%	42%	7	0.6%	4.0%	7%	42%
8	0.4%	2.4%	6%	43%	8	1.0%	9.5%	7%	53%	8	0.7%	3.8%	9%	42%	8	0.8%	6.4%	7%	46%
9	0.5%	4.3%	6%	43%	9	1.0%	9.2%	7%	50%	9	0.6%	2.8%	8%	50%	9	0.8%	6.8%	7%	49%
10	0.6%	5.4%	5%	47%	10	1.2%	11.9%	7%	55%	10	0.7%	4.8%	8%	52%	10	0.9%	8.7%	7%	53%
Total Test					Total Test					Total Test					Total Test				
Universe	0.6%	1.7%	1.4%	929	Universe	1.5%	1.8%	1.4%	964	Universe	0.7%	0.6%	0.5%	976	Universe	1.0%	1.3%	1.1%	955
Long Short Strategy Statistics																			
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10				
Avg Ret	0.9%	9.4%	6%	60%	Avg Ret	1.9%	17.7%	12%	52%	Avg Ret	0.5%	4.3%	6%	52%	Avg Ret	1.1%	10.03%	8.0%	55%
Ret Devn					Ret Devn					Ret Devn					Ret Devn				
T-Stat	1.22				T-Stat	1.25				T-Stat	0.70				T-Stat	1.84			
Assets	187				Assets	194				Assets	196				Assets	192			

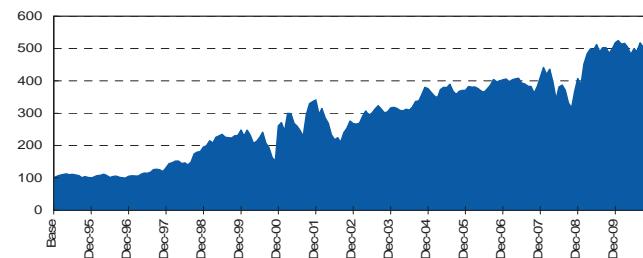
Portfolio Index Performance



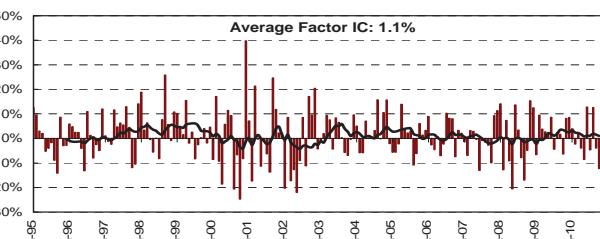
Portfolio Spread. Annual Returns



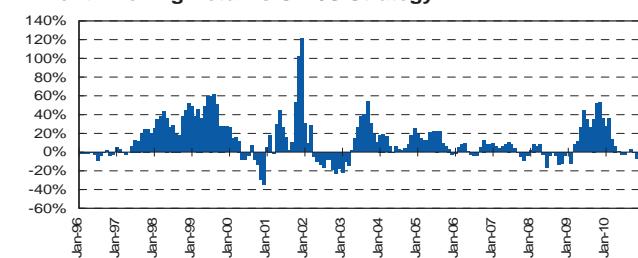
Cumulative Returns



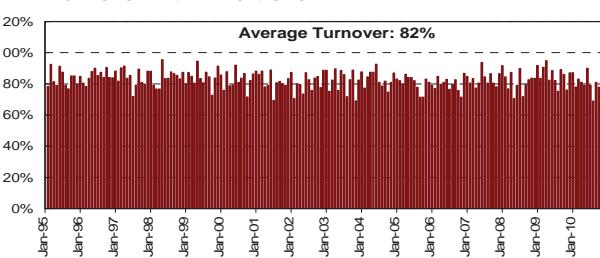
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



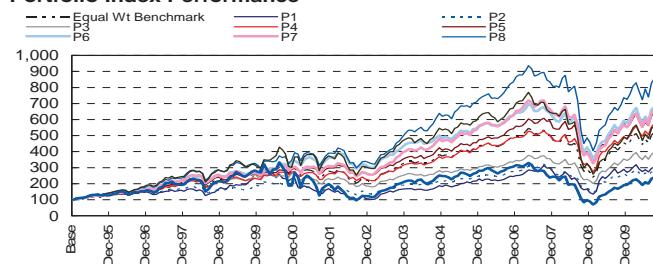
Turnover within Portfolio 1



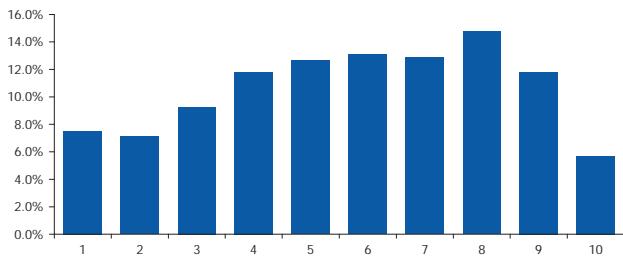
1 Month Price Momentum

1 Mnth Price Momentum in Top 1000 Universe								Rebalance every 1 month(s)													
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010													
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics													
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.							
1	1.0%	10.0%	6%	42%	1	0.3%	-0.3%	7%	38%	1	1.0%	8.0%	8%	57%							
2	0.8%	8.8%	5%	35%	2	0.5%	4.6%	6%	38%	2	0.6%	4.5%	7%	52%							
3	1.2%	13.5%	5%	42%	3	0.4%	4.1%	5%	37%	3	0.7%	6.8%	6%	58%							
4	1.2%	14.2%	4%	40%	4	0.9%	10.1%	4%	53%	4	0.8%	7.2%	6%	53%							
5	1.4%	16.4%	4%	55%	5	1.0%	11.3%	4%	53%	5	1.1%	11.8%	5%	49%							
6	1.5%	18.1%	4%	58%	6	1.1%	12.1%	5%	50%	6	0.6%	5.3%	6%	53%							
7	1.4%	16.5%	5%	53%	7	1.2%	13.3%	5%	63%	7	0.6%	5.2%	6%	57%							
8	1.6%	19.2%	5%	60%	8	1.4%	16.5%	6%	58%	8	0.6%	4.7%	7%	47%							
9	1.6%	18.0%	7%	62%	9	1.3%	13.8%	7%	53%	9	0.3%	0.0%	8%	45%							
10	1.0%	7.1%	9%	53%	10	1.3%	6.9%	12%	55%	10	0.5%	-1.6%	11%	47%							
Total Test				Total Test				Total Test				Total Test									
Avg Ret	1.3%	-3.1%	-1.6%	945	Avg Ret	0.9%	-3.4%	-1.3%	970	Avg Ret	0.6%	0.7%	0.9%	977	Avg Ret	1.0%	-2.0%	-0.7%	962		
Universe					Universe					Universe					Universe						
Long Short Strategy Statistics								Long Short Strategy Statistics				Long Short Strategy Statistics				Long Short Strategy Statistics					
Portfolio 1 less Portfolio 10								Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10					
Avg Ret				Std Devn				% Out Perf.				Avg Ret				Avg Ret					
Long/Short	0.0%	-3.3%	7%	43%	Avg	Long/Short	-1.0%	-18.3%	11%	47%	Avg	Long/Short	0.5%	3.9%	6%	55%	Avg	-0.2%	-5.95%	8.0%	49%
T-Stat				Assets				Assets				T-Stat				Assets					
Long/Short	-0.01	190				Long/Short	-0.76	195				Long/Short	0.64	196			Long/Short	-0.27	193		

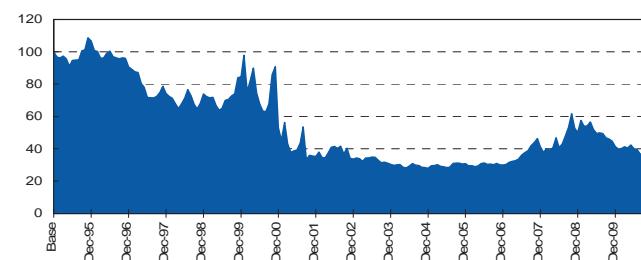
Portfolio Index Performance



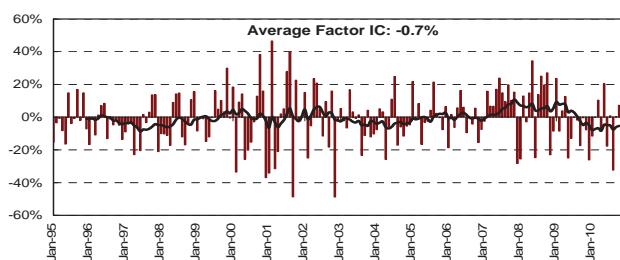
Portfolio Spread. Annual Returns



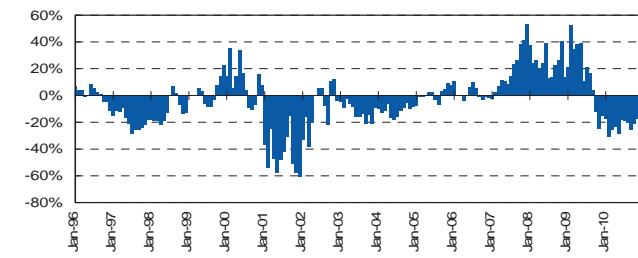
Cumulative Returns



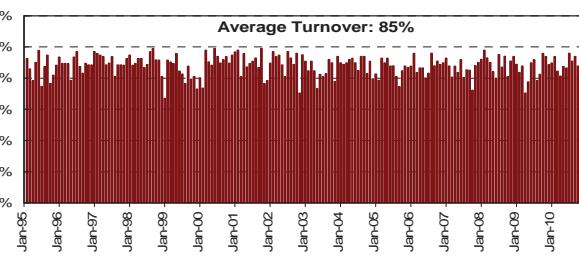
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

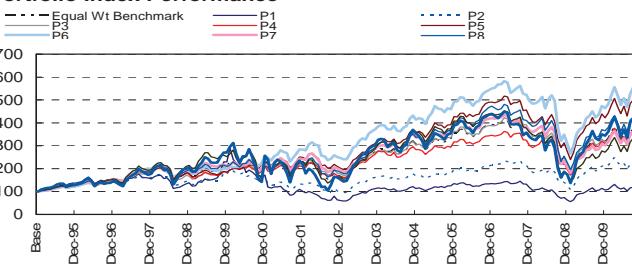


Turnover within Portfolio 1

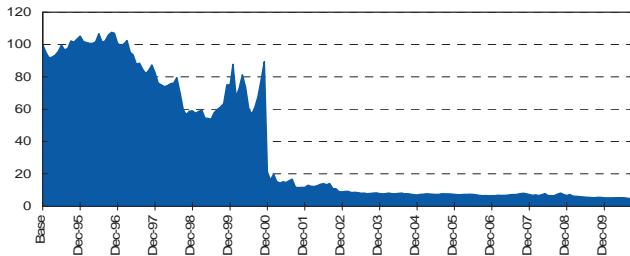


1 Mnth Price Momentum in Bottom 2000 Universe							Rebalance every 1 month(s)																	
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010									
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics										
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.					
1	0.6%	2.7%	9%	40%	1	0.1%	-4.1%	9%	32%	1	0.4%	0.4%	8%	42%	1	0.5%	1.5%	9%	39%					
2	0.5%	4.3%	6%	42%	2	0.6%	4.0%	7%	47%	2	0.7%	5.3%	7%	58%	2	0.7%	5.5%	7%	47%					
3	0.8%	8.2%	5%	47%	3	1.2%	12.6%	6%	50%	3	0.4%	2.3%	7%	43%	3	0.9%	8.7%	6%	47%					
4	0.7%	7.5%	5%	45%	4	1.0%	10.5%	5%	50%	4	0.7%	5.3%	7%	43%	4	0.9%	8.9%	6%	46%					
5	0.9%	10.1%	4%	48%	5	1.3%	14.3%	5%	53%	5	0.8%	6.4%	7%	53%	5	1.0%	11.1%	5%	52%					
6	1.1%	12.4%	5%	57%	6	1.5%	17.1%	6%	47%	6	0.6%	4.6%	7%	50%	6	1.1%	11.7%	6%	51%					
7	0.8%	8.4%	5%	57%	7	1.3%	14.0%	6%	52%	7	0.4%	0.9%	7%	47%	7	0.9%	8.7%	6%	52%					
8	0.7%	6.4%	6%	48%	8	1.6%	17.0%	7%	53%	8	0.6%	3.9%	8%	58%	8	1.0%	9.9%	7%	53%					
9	0.9%	6.7%	8%	58%	9	1.7%	16.7%	10%	60%	9	0.3%	-1.5%	9%	43%	9	1.0%	8.2%	9%	53%					
10	0.8%	3.0%	10%	52%	10	2.5%	18.1%	16%	52%	10	0.9%	4.1%	11%	47%	10	1.5%	9.6%	12%	51%					
Total Test					Total Test					Total Test					Total Test									
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	0.8%	-1.5%	-0.9%	1910	Universe	1.3%	-2.9%	-2.2%	1954	Universe	0.6%	-0.8%	-0.5%	1963	Universe	0.9%	-1.7%	-1.1%	1941	
Long Short Strategy Statistics Portfolio 1 less Portfolio 10							Long Short Strategy Statistics Portfolio 1 less Portfolio 10							Long Short Strategy Statistics Portfolio 1 less Portfolio 10										
Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret			
Long/Short	-0.2%	-5.1%	7%	52%	Long/Short	-2.4%	-37.2%	13%	47%	Long/Short	-0.6%	-8.3%	6%	48%	Long/Short	-1.0%	-17.29%	8.9%	49%	Long/Short	-1.49			
T-Stat					T-Stat					T-Stat					Avg Assets	383	392	393	389	Avg Assets	383			

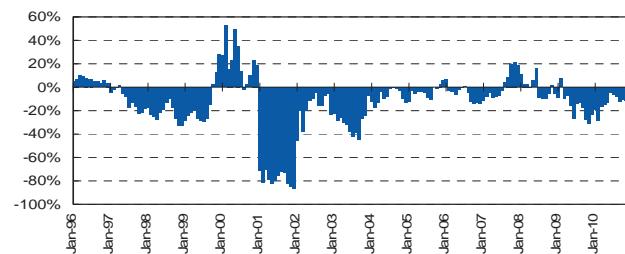
Portfolio Index Performance



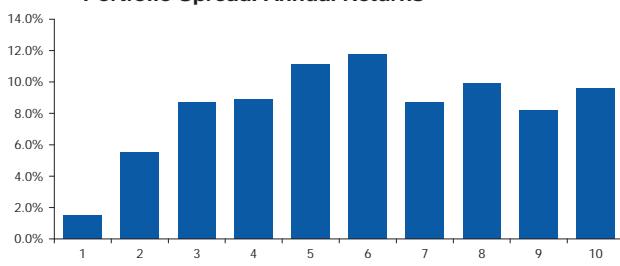
Cumulative Returns



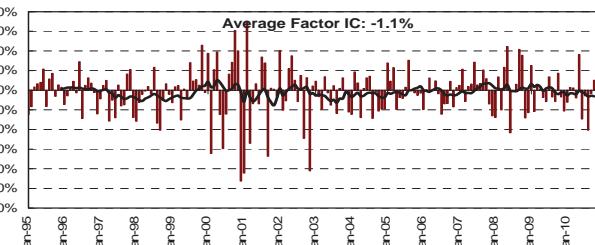
12 Month Rolling Returns Of L/S Strategy



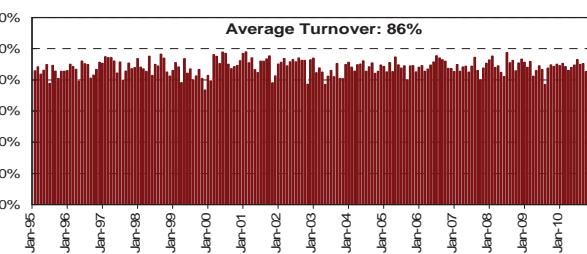
Portfolio Spread. Annual Returns



Information Co-Efficients (IC)



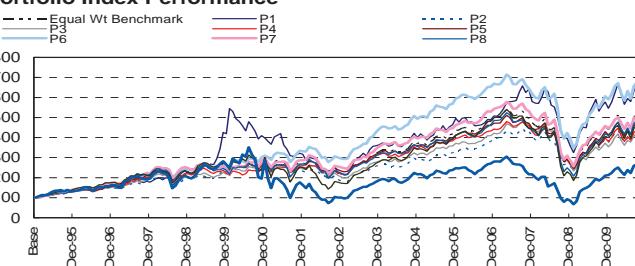
Turnover within Portfolio 1



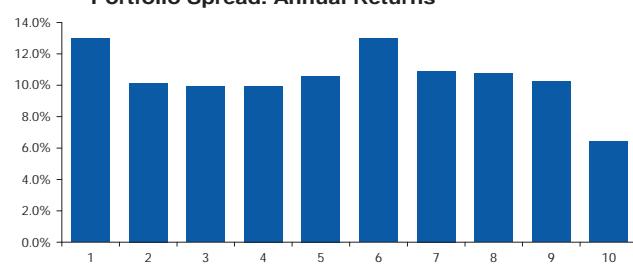
3 Month Price Momentum

3 Mnth Price Momentum in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	2.1%	23.7%	8%	48%	1	0.4%	2.9%	6%	43%	1	0.9%	8.8%	7%	53%	1	1.2%	13.0%	7%	49%
2	1.2%	13.9%	5%	40%	2	0.5%	5.5%	4%	45%	2	0.8%	7.4%	6%	55%	2	0.9%	10.1%	5%	46%
3	1.2%	13.3%	5%	45%	3	0.8%	8.5%	4%	48%	3	0.5%	4.5%	6%	50%	3	0.9%	9.9%	5%	47%
4	1.1%	12.3%	5%	45%	4	1.0%	11.1%	4%	43%	4	0.4%	3.4%	6%	43%	4	0.9%	10.0%	5%	43%
5	1.2%	13.9%	4%	45%	5	0.9%	10.4%	4%	50%	5	0.5%	4.4%	6%	48%	5	0.9%	10.6%	5%	48%
6	1.4%	16.2%	5%	47%	6	1.3%	15.2%	4%	55%	6	0.5%	4.1%	6%	42%	6	1.1%	13.0%	5%	48%
7	1.2%	13.7%	5%	57%	7	1.1%	11.9%	5%	52%	7	0.5%	3.0%	6%	47%	7	1.0%	10.9%	6%	52%
8	1.2%	13.1%	5%	58%	8	1.1%	11.0%	6%	53%	8	0.7%	5.2%	7%	55%	8	1.1%	10.7%	6%	55%
9	1.1%	11.6%	6%	48%	9	1.2%	10.2%	9%	57%	9	0.7%	3.9%	9%	52%	9	1.1%	10.2%	8%	54%
10	1.1%	7.6%	9%	43%	10	1.2%	3.2%	14%	53%	10	0.9%	2.5%	12%	43%	10	1.2%	6.4%	12%	47%
Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets				
Universe	1.3%	-0.6%	1.0%	942	Universe	0.9%	-2.1%	-0.6%	968	Universe	0.6%	0.7%	1.5%	975	Universe	1.0%	-0.9%	0.5%	960
Long Short Strategy Statistics								Long Short Strategy Statistics											
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.				
Long/Short	1.0%	7.9%	9%	48%	Long/Short	-0.8%	-18.3%	12%	50%	Long/Short	0.0%	-4.6%	9%	53%	Long/Short	0.1%	-5.55%	9.7%	50%
T-Stat				Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets			
Long/Short	0.88			189	Long/Short	-0.53			194	Long/Short	0.02			0.02			0.02	196	

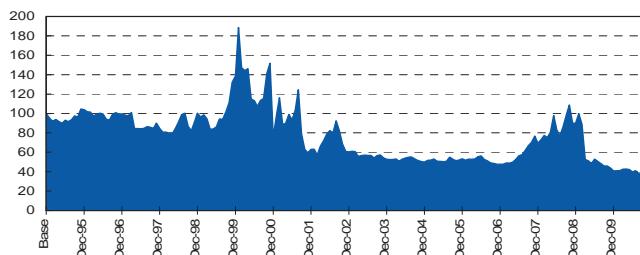
Portfolio Index Performance



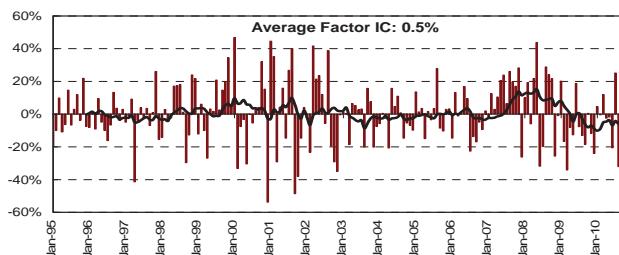
Portfolio Spread. Annual Returns



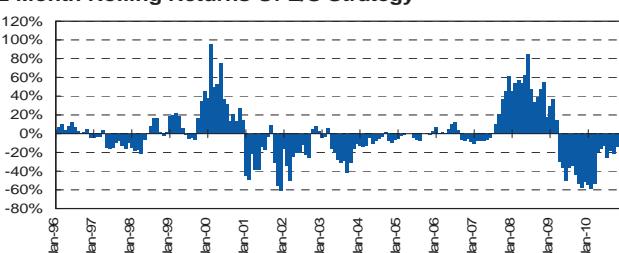
Cumulative Returns



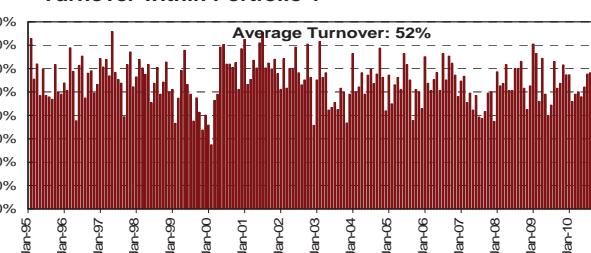
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

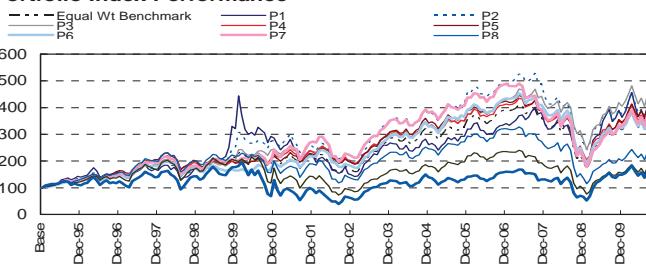


Turnover within Portfolio 1

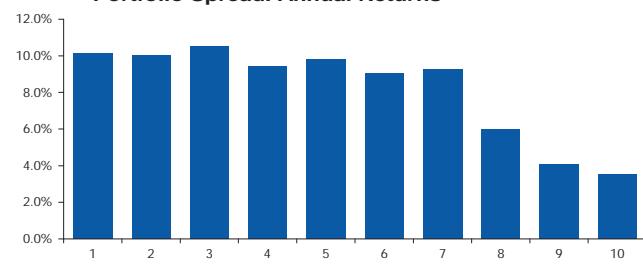


3 Mnth Price Momentum in Bottom 2000 Universe							Rebalance every 1 month(s)													
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010								
Portfolio Statistics							Portfolio Statistics							Portfolio Statistics						
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	
1	1.6%	14.7%	10%	48%	1	0.4%	1.7%	7%	42%	1	1.1%	9.5%	8%	58%	1	1.1%	10.1%	8%	50%	
2	1.3%	13.9%	7%	48%	2	1.0%	10.8%	6%	53%	2	0.4%	1.9%	7%	42%	2	1.0%	10.0%	6%	49%	
3	1.1%	11.7%	5%	48%	3	0.9%	9.8%	5%	48%	3	0.7%	6.6%	6%	62%	3	1.0%	10.5%	5%	53%	
4	0.8%	8.9%	5%	52%	4	1.1%	13.0%	5%	50%	4	0.5%	3.5%	7%	50%	4	0.9%	9.4%	5%	50%	
5	0.8%	8.6%	5%	48%	5	1.3%	14.4%	5%	55%	5	0.5%	3.7%	7%	52%	5	0.9%	9.8%	5%	51%	
6	0.6%	5.7%	5%	43%	6	1.5%	18.0%	5%	62%	6	0.3%	1.2%	7%	42%	6	0.9%	9.1%	6%	48%	
7	0.8%	8.4%	5%	47%	7	1.5%	16.6%	6%	55%	7	0.3%	0.1%	8%	42%	7	0.9%	9.3%	6%	48%	
8	0.6%	4.7%	6%	42%	8	1.3%	11.5%	8%	47%	8	0.2%	-1.5%	8%	37%	8	0.8%	6.0%	7%	43%	
9	0.4%	0.5%	8%	50%	9	1.4%	9.9%	11%	53%	9	0.4%	-0.9%	10%	47%	9	0.8%	4.0%	9%	49%	
10	-0.1%	-7.8%	11%	42%	10	2.2%	10.8%	18%	50%	10	1.2%	6.1%	12%	52%	10	1.1%	3.5%	13%	48%	
Total Test				Total Test				Total Test				Total Test								
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets					
Universe	0.8%	1.4%	1.8%	1905	Universe	1.3%	-0.9%	-0.5%	1950	Universe	0.6%	1.0%	0.7%	1957	Universe	0.9%	0.6%	0.8%	1936	
Long Short Strategy Statistics							Long Short Strategy Statistics							Long Short Strategy Statistics						
Portfolio 1 less Portfolio 10							Portfolio 1 less Portfolio 10							Portfolio 1 less Portfolio 10						
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.					
Long/Short	1.7%	17.0%	9%	52%	Long/Short	-1.8%	-43.8%	15%	48%	Long/Short	-0.1%	-4.6%	7%	52%	Long/Short	0.0%	-12.91%	10.8%	52%	
T-Stat				Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets				
Long/Short	1.46			382	Long/Short	-0.92			391	Long/Short	-0.16			392	Long/Short	0.01			388	

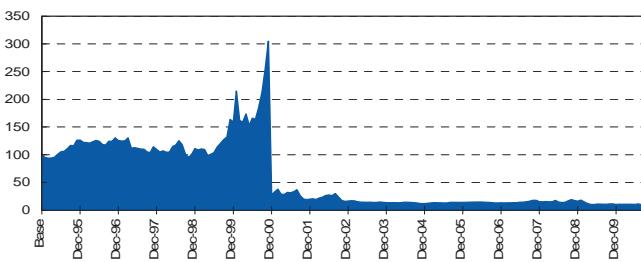
Portfolio Index Performance



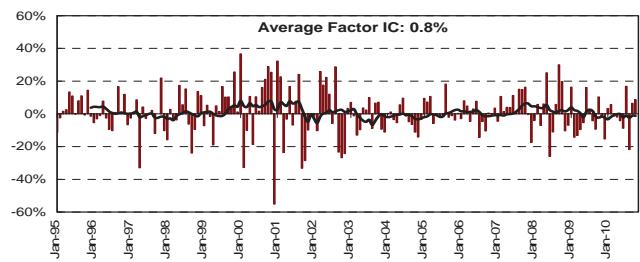
Portfolio Spread. Annual Returns



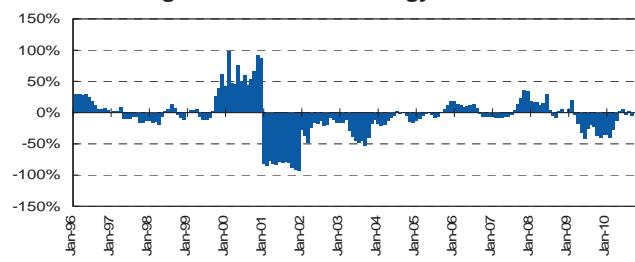
Cumulative Returns



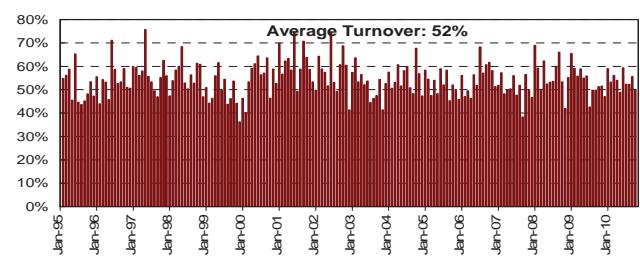
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



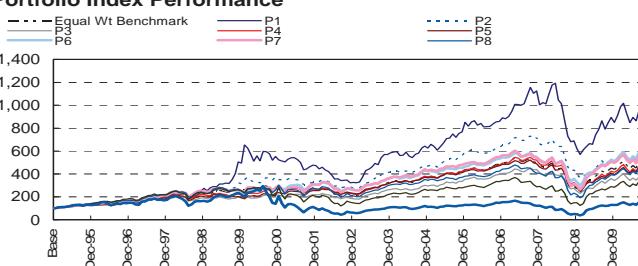
Turnover within Portfolio 1



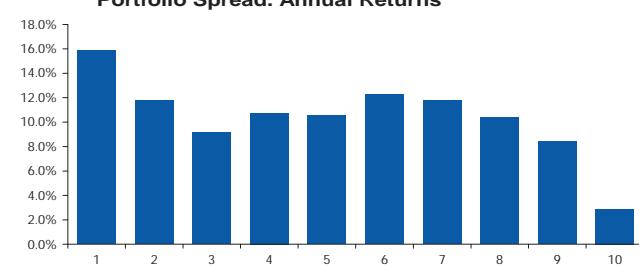
6 Month Price Momentum

6 Mnth Price Momentum in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	2.6%	30.7%	8%	57%	1	0.8%	7.7%	5%	50%	1	0.7%	6.4%	6%	57%	1	1.5%	15.9%	7%	54%
2	1.7%	20.7%	5%	58%	2	0.9%	9.6%	4%	58%	2	0.2%	1.1%	5%	47%	2	1.1%	11.8%	5%	54%
3	0.9%	10.3%	5%	43%	3	0.9%	10.2%	4%	55%	3	0.5%	3.8%	5%	50%	3	0.8%	9.2%	5%	48%
4	1.3%	15.1%	4%	50%	4	0.9%	10.7%	4%	53%	4	0.5%	3.7%	6%	50%	4	1.0%	10.7%	5%	49%
5	1.0%	10.9%	5%	43%	5	1.2%	14.0%	4%	50%	5	0.5%	3.8%	6%	47%	5	1.0%	10.6%	5%	46%
6	1.2%	14.1%	5%	50%	6	1.1%	12.6%	4%	48%	6	0.7%	6.6%	6%	55%	6	1.1%	12.3%	5%	52%
7	1.2%	14.5%	5%	47%	7	1.2%	12.9%	5%	55%	7	0.6%	4.2%	7%	43%	7	1.1%	11.8%	6%	49%
8	1.1%	12.1%	5%	50%	8	0.9%	9.1%	7%	47%	8	0.7%	5.4%	8%	52%	8	1.0%	10.4%	6%	51%
9	0.9%	9.5%	6%	47%	9	0.9%	5.8%	9%	45%	9	0.8%	5.1%	9%	53%	9	1.0%	8.4%	8%	49%
10	0.6%	2.2%	9%	45%	10	0.7%	3.3%	15%	47%	10	1.2%	4.8%	13%	45%	10	0.9%	2.9%	12%	46%
Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets				
Universe	1.3%	1.6%	3.0%	936	Universe	0.9%	0.8%	2.1%	965	Universe	0.6%	0.4%	1.2%	971	Universe	1.0%	0.8%	2.0%	955
Long Short Strategy Statistics								Long Short Strategy Statistics											
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.				
Long/Short	2.0%	19.9%	10%	60%	Long/Short	0.0%	-11.4%	13%	57%	Long/Short	-0.4%	-15.8%	11%	57%	Long/Short	0.5%	-3.24%	11.1%	57%
T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets				
Long/Short	1.58		188	Long/Short	0.01		194	Long/Short	-0.29		195	Long/Short	0.63			192			

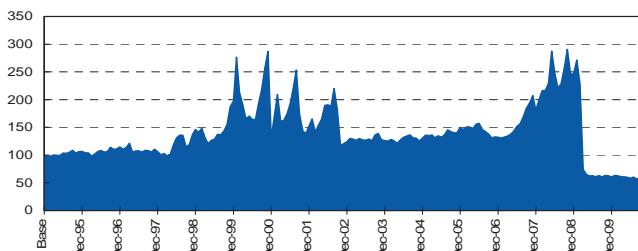
Portfolio Index Performance



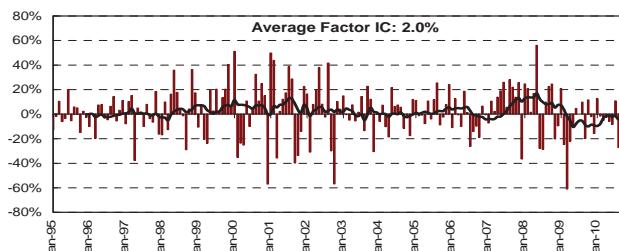
Portfolio Spread. Annual Returns



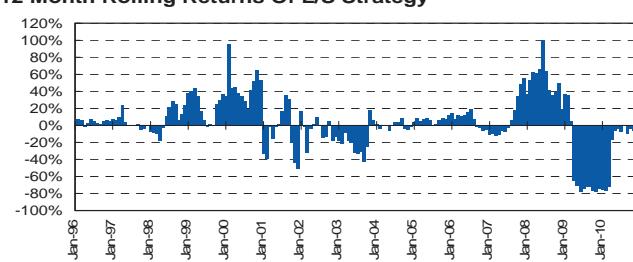
Cumulative Returns



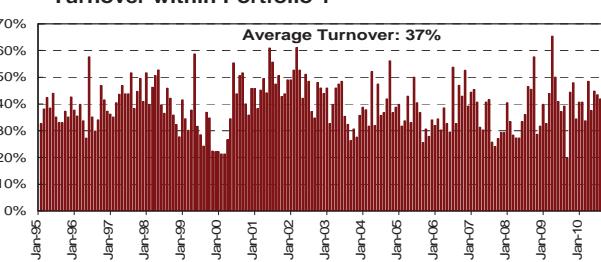
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

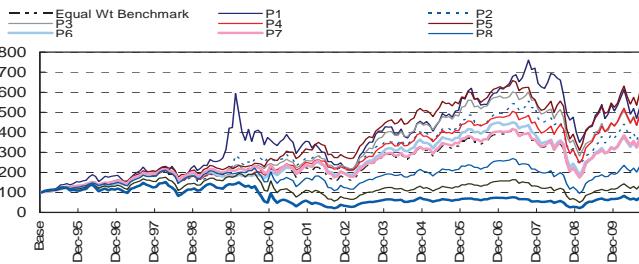


Turnover within Portfolio 1

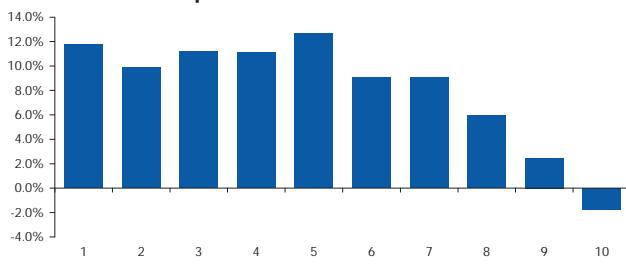


6 Mnth Price Momentum in Bottom 2000 Universe										Rebalance every 1 month(s)													
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010								
Portfolio Statistics										Portfolio Statistics													
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.				
1	2.0%	18.6%	11%	52%	1	0.9%	8.4%	7%	52%	1	0.5%	2.8%	7%	53%	1	1.3%	11.7%	8%	54%				
2	1.4%	14.7%	7%	50%	2	1.0%	11.0%	5%	52%	2	0.3%	1.2%	7%	52%	2	1.0%	9.9%	6%	51%				
3	1.0%	10.6%	5%	52%	3	1.5%	17.3%	5%	62%	3	0.4%	1.9%	6%	47%	3	1.0%	11.2%	5%	55%				
4	0.8%	8.9%	5%	47%	4	1.4%	16.9%	5%	57%	4	0.7%	5.2%	7%	55%	4	1.0%	11.1%	5%	52%				
5	1.1%	13.3%	4%	53%	5	1.6%	19.2%	5%	58%	5	0.5%	3.7%	7%	53%	5	1.1%	12.7%	5%	55%				
6	0.7%	6.9%	4%	48%	6	1.5%	17.0%	5%	55%	6	0.4%	1.2%	7%	38%	6	0.9%	9.1%	6%	47%				
7	0.8%	9.1%	5%	50%	7	1.2%	12.1%	6%	43%	7	0.5%	2.4%	8%	53%	7	0.9%	9.0%	6%	49%				
8	0.5%	4.4%	6%	52%	8	0.9%	6.9%	9%	45%	8	0.6%	3.3%	9%	52%	8	0.8%	5.9%	8%	49%				
9	0.2%	-1.2%	8%	50%	9	0.9%	3.1%	12%	40%	9	0.7%	2.9%	10%	52%	9	0.7%	2.5%	10%	47%				
10	-0.6%	-13.2%	10%	42%	10	1.7%	2.3%	19%	48%	10	1.1%	4.0%	13%	42%	10	0.8%	-1.7%	14%	44%				
Total Test					Total Test					Total Test					Total Test								
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	0.8%	3.2%	2.9%	1887	Universe	1.3%	2.1%	2.0%	1938	Universe	0.6%	0.8%	0.5%	1937	Universe	0.9%	2.2%	2.0%	1920
Long Short Strategy Statistics										Long Short Strategy Statistics													
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10								
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.					
2.6%	29.9%	10%	63%	Long/Short	-0.8%	-45.2%	17%	57%	Long/Short	-0.6%	-13.2%	10%	57%	Long/Short	0.5%	-12.82%	12.3%	60%					
T-Stat				Long/Short	T-Stat				Long/Short	T-Stat				Long/Short	T-Stat								
				Long/Short					Long/Short					Long/Short									
				378					388					388									

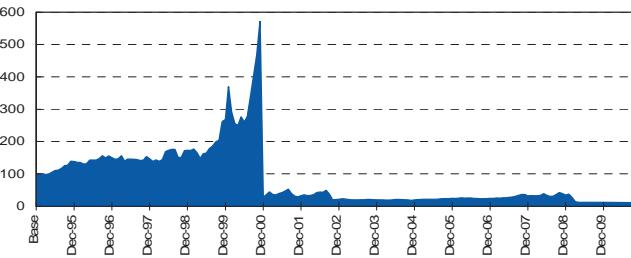
Portfolio Index Performance



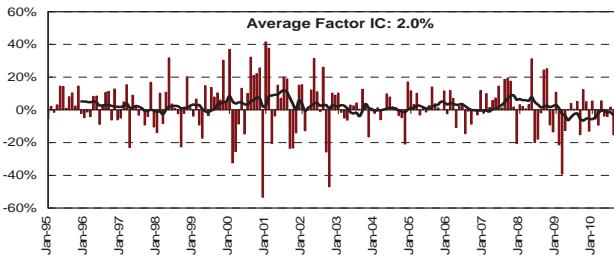
Portfolio Spread. Annual Returns



Cumulative Returns



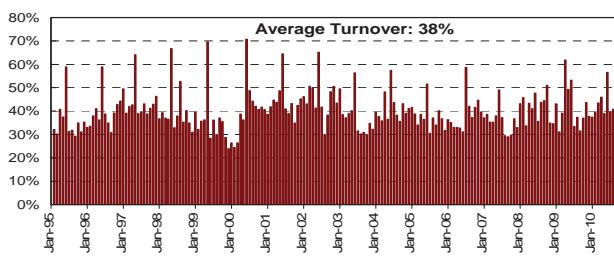
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



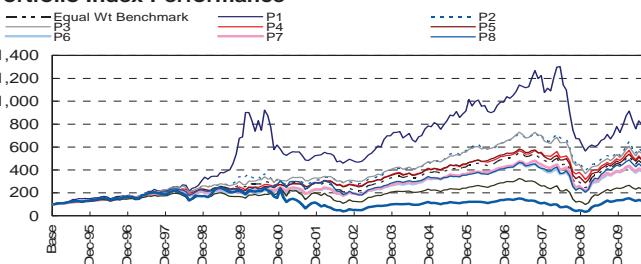
Turnover within Portfolio 1



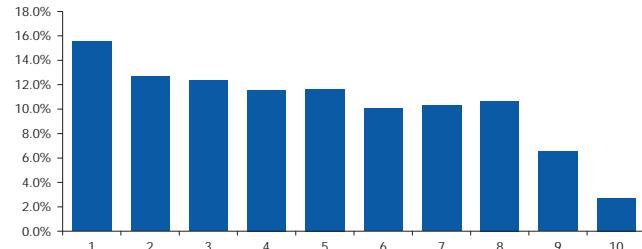
12 Month Price Momentum

12 Mnth Price Momentum in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	2.7%	30.8%	10%	57%	1	0.8%	8.9%	5%	57%	1	0.4%	2.1%	7%	57%	1	1.5%	15.5%	7%	57%
2	1.5%	17.2%	6%	57%	2	1.2%	13.7%	4%	63%	2	0.4%	3.5%	5%	55%	2	1.1%	12.7%	5%	58%
3	1.5%	17.4%	5%	58%	3	1.1%	13.7%	4%	58%	3	0.4%	2.7%	5%	53%	3	1.1%	12.4%	5%	56%
4	1.3%	15.0%	4%	52%	4	1.0%	11.7%	4%	53%	4	0.6%	5.0%	5%	48%	4	1.0%	11.6%	4%	50%
5	1.2%	13.8%	4%	47%	5	1.1%	13.1%	4%	50%	5	0.6%	4.9%	6%	42%	5	1.0%	11.7%	5%	46%
6	0.9%	10.5%	5%	38%	6	1.0%	11.2%	4%	50%	6	0.6%	5.0%	6%	47%	6	0.9%	10.1%	5%	45%
7	1.0%	11.9%	5%	53%	7	1.0%	10.5%	5%	52%	7	0.7%	5.4%	7%	52%	7	1.0%	10.3%	5%	51%
8	1.2%	13.5%	5%	48%	8	0.8%	7.2%	7%	48%	8	0.9%	7.1%	8%	52%	8	1.1%	10.7%	6%	50%
9	0.8%	7.6%	6%	37%	9	0.9%	6.0%	10%	37%	9	0.6%	2.5%	9%	50%	9	0.9%	6.5%	8%	41%
10	0.8%	5.3%	9%	40%	10	0.5%	7.2%	15%	40%	10	1.3%	5.8%	14%	48%	10	1.0%	2.7%	12%	43%
Total Test				Total Test				Total Test				Total Test				Total Test			
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets
Universe	1.3%	3.2%	3.7%	920	Universe	0.9%	2.4%	2.7%	956	Universe	0.6%	0.6%	0.7%	961	Universe	1.1%	2.1%	2.5%	944
Long Short Strategy Statistics								Long Short Strategy Statistics								Long Short Strategy Statistics			
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10			
Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.
Long/Short	1.9%	19.1%	10%	57%	Long/Short	0.3%	-9.9%	14%	53%	Long/Short	-0.9%	-21.2%	12%	60%	Long/Short	0.5%	-4.33%	11.8%	57%
T-Stat					T-Stat					T-Stat					T-Stat				
Long/Short	1.52				Long/Short	0.17				Long/Short	-0.54				Long/Short	0.60			
P1	P2	P3	P4	P5	P6	P7	P8	P1	P2	P3	P4	P5	P6	P7	P8	P1	P2	P3	P4

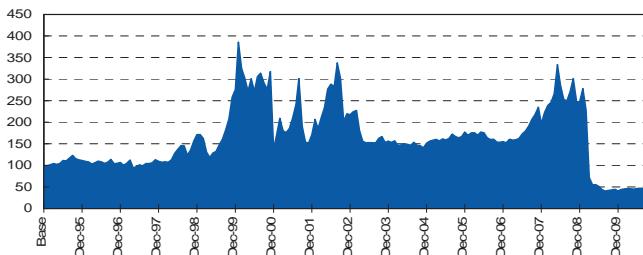
Portfolio Index Performance



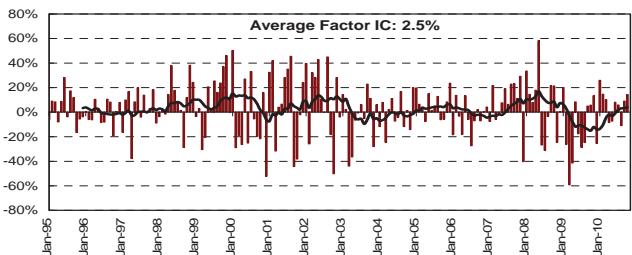
Portfolio Spread. Annual Returns



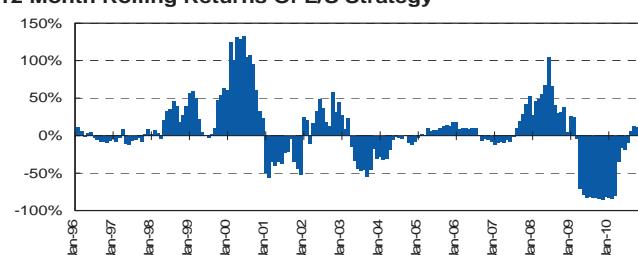
Cumulative Returns



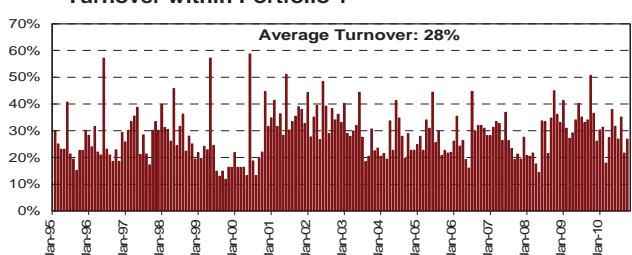
Information Co-Efficients (IC)

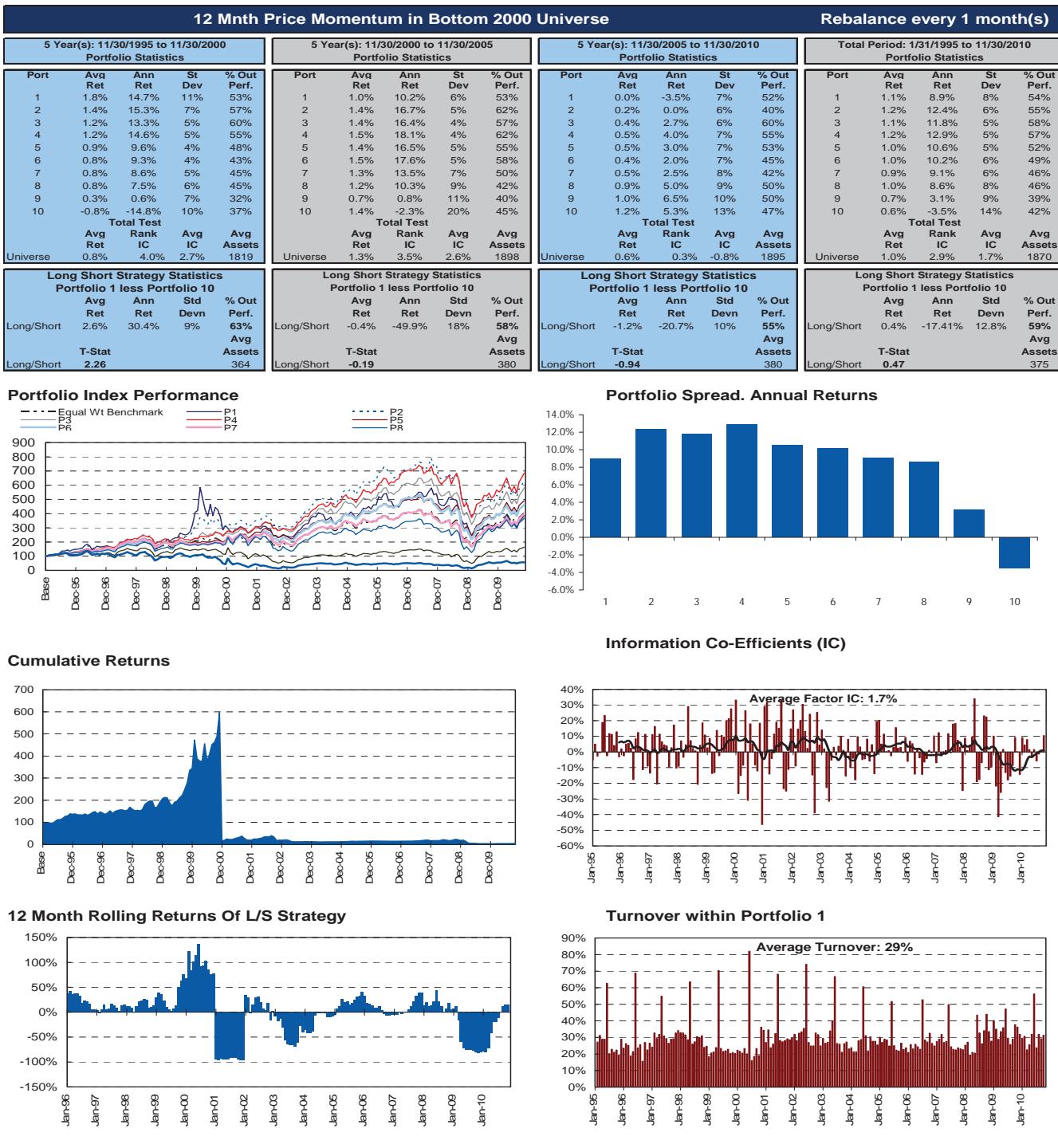


12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

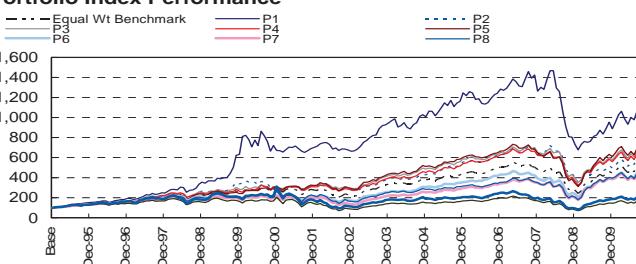




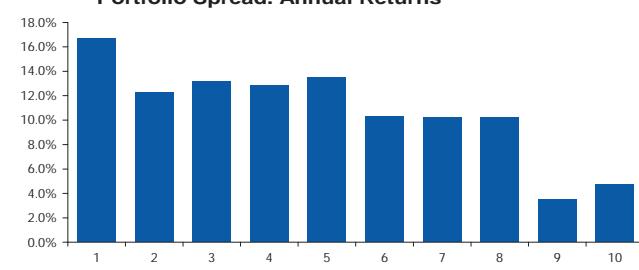
12 Month Price Momentum Volatility Adjusted

12 Mnth Price Momentum Vol Adj in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010				Portfolio Statistics			
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	2.8%	35.4%	8%	62%	1	1.0%	11.5%	4%	57%	1	0.2%	0.1%	6%	53%	1	1.5%	16.7%	6%	58%
2	1.5%	18.1%	5%	57%	2	1.0%	11.6%	4%	55%	2	0.5%	3.9%	6%	58%	2	1.1%	12.3%	5%	56%
3	1.4%	16.1%	5%	50%	3	1.2%	14.3%	4%	53%	3	0.6%	5.2%	6%	50%	3	1.2%	13.2%	5%	52%
4	1.4%	16.5%	5%	52%	4	1.1%	12.3%	4%	58%	4	0.7%	6.0%	7%	57%	4	1.1%	12.9%	5%	56%
5	1.4%	17.1%	5%	52%	5	1.4%	16.1%	5%	62%	5	0.6%	4.9%	7%	45%	5	1.2%	13.5%	5%	52%
6	0.8%	8.5%	5%	40%	6	1.1%	12.1%	5%	53%	6	0.8%	6.3%	7%	52%	6	1.0%	10.3%	6%	49%
7	0.8%	8.7%	5%	42%	7	0.9%	8.1%	7%	43%	7	1.1%	10.3%	8%	60%	7	1.0%	10.2%	6%	46%
8	1.0%	10.6%	5%	43%	8	0.9%	7.5%	8%	47%	8	1.0%	8.5%	8%	53%	8	1.1%	10.2%	7%	48%
9	0.6%	5.1%	6%	35%	9	0.4%	-0.3%	10%	42%	9	0.4%	1.5%	8%	45%	9	0.6%	3.5%	8%	41%
10	1.1%	10.0%	7%	42%	10	0.5%	-0.9%	11%	38%	10	0.4%	1.0%	9%	48%	10	0.8%	4.7%	9%	43%
Total Test				Total Test				Total Test				Total Test				Portfolio Statistics			
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets
Universe	1.3%	3.8%	4.4%	920	Universe	0.9%	2.7%	2.9%	956	Universe	0.6%	0.2%	0.3%	961	Universe	1.1%	2.2%	2.6%	944
Long Short Strategy Statistics																			
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10				
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.
Long/Short	1.8%	17.8%	9%	60%	Long/Short	0.4%	-3.8%	11%	55%	Long/Short	-0.3%	-6.0%	7%	53%	Long/Short	-0.7%	2.80%	9.0%	56%
T-Stat	1.49		Avg Assets	T-Stat	0.31		Avg Assets	T-Stat	-0.29		Avg Assets	T-Stat	1.05		Avg Assets	T-Stat	1.05		Avg Assets

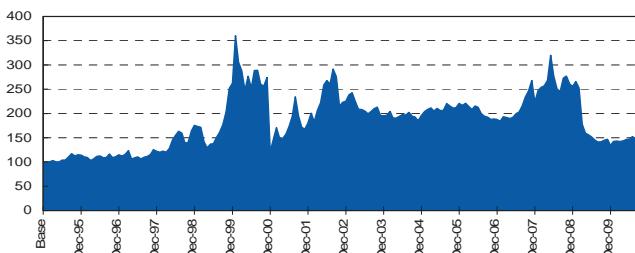
Portfolio Index Performance



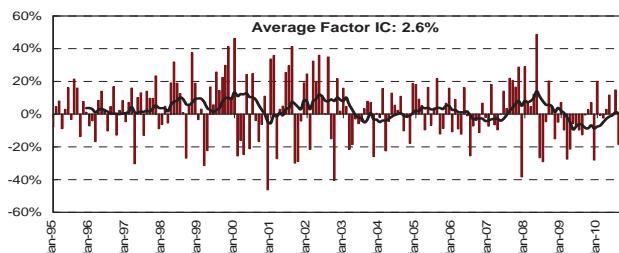
Portfolio Spread. Annual Returns



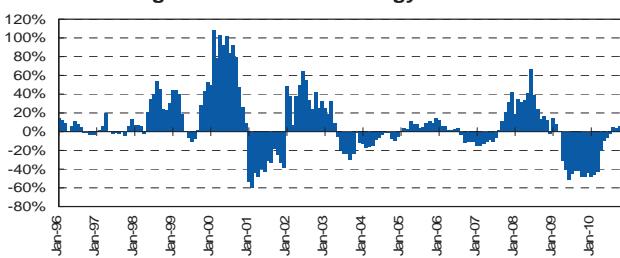
Cumulative Returns



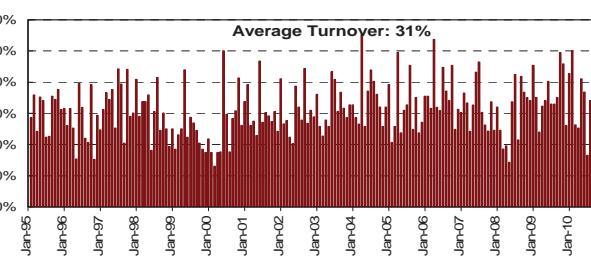
Information Co-Efficients (IC)

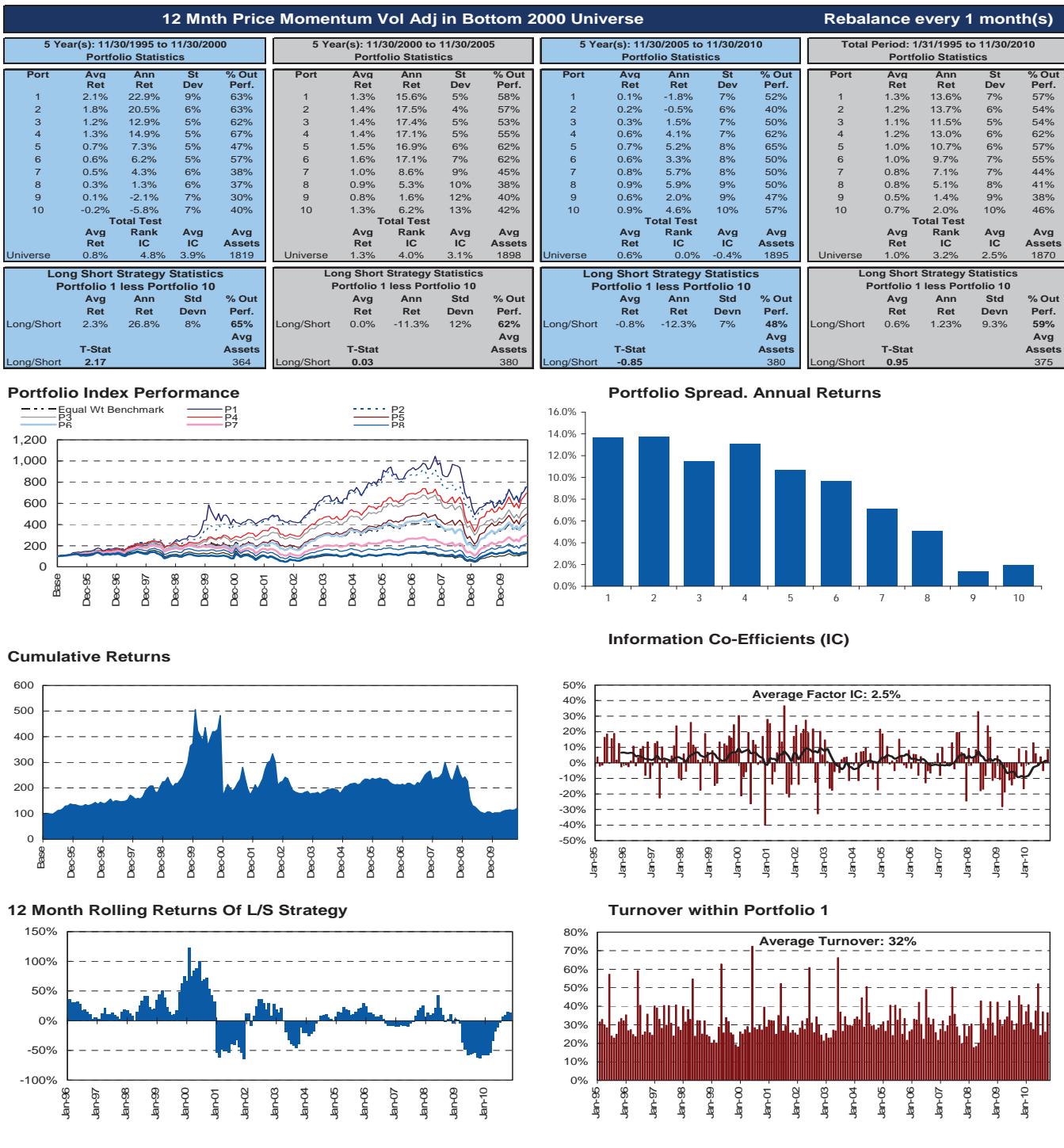


12 Month Rolling Returns Of L/S Strategy

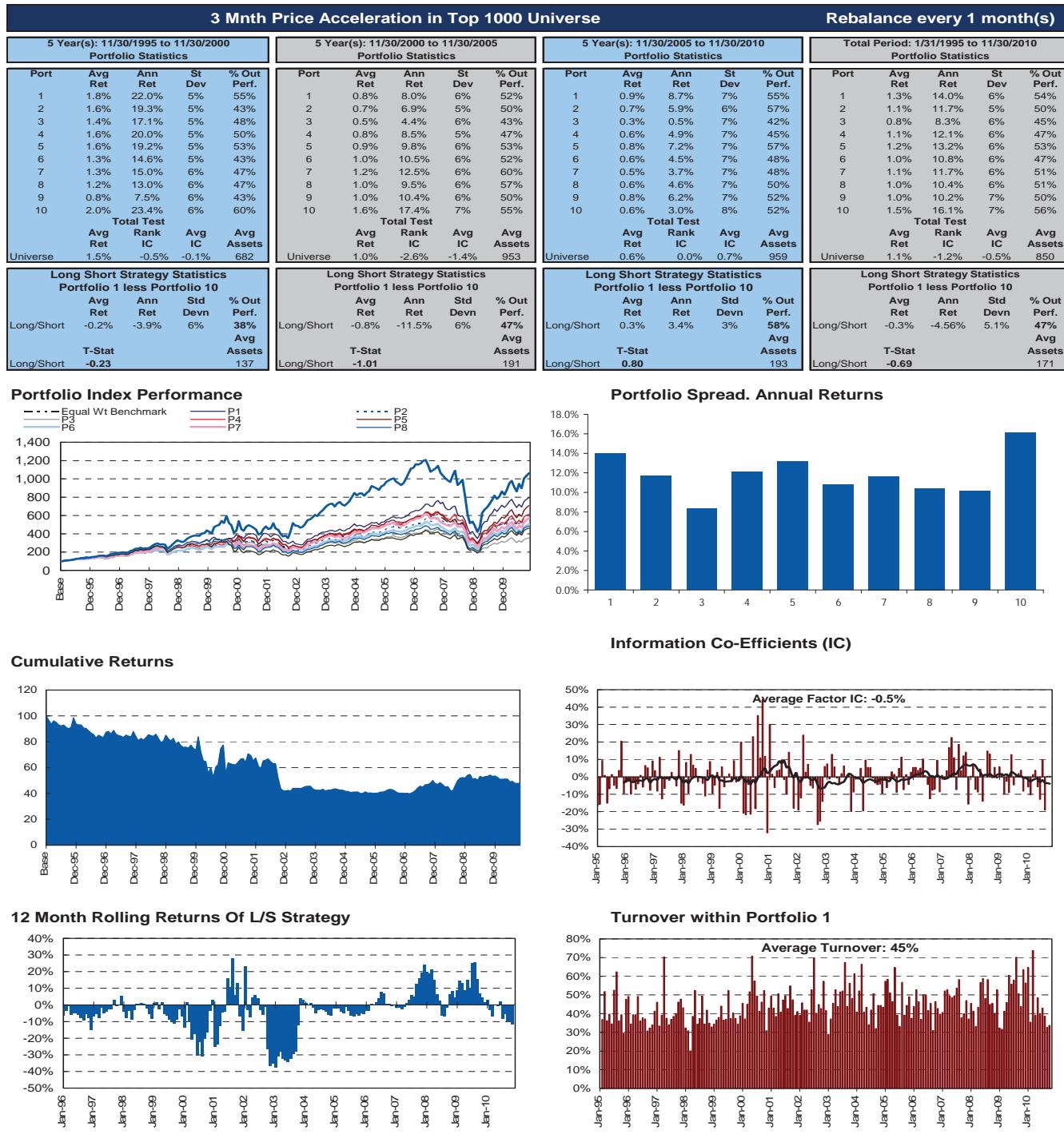


Turnover within Portfolio 1



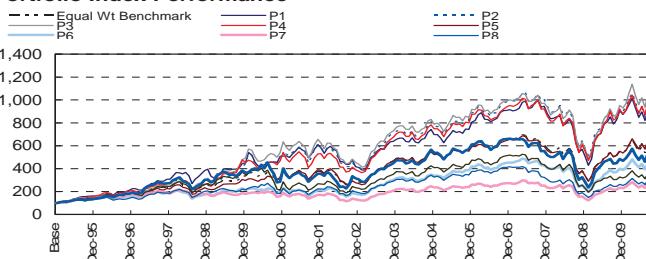


3 Month Price Acceleration

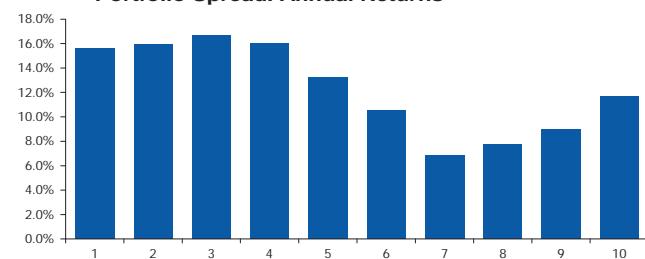


3 Mnth Price Acceleration in Bottom 2000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	2.0%	23.2%	7%	55%	1	1.0%	10.6%	6%	45%	1	0.8%	5.8%	8%	48%	1	1.4%	15.6%	7%	51%
2	2.4%	28.4%	8%	48%	2	1.2%	12.5%	7%	52%	2	0.6%	4.8%	7%	55%	2	1.5%	15.9%	7%	51%
3	2.3%	27.5%	7%	62%	3	1.1%	11.4%	7%	38%	3	0.8%	6.0%	7%	58%	3	1.5%	16.6%	7%	53%
4	2.0%	23.8%	7%	57%	4	1.3%	13.2%	7%	55%	4	0.7%	5.4%	8%	57%	4	1.5%	16.0%	7%	57%
5	1.5%	17.4%	6%	47%	5	1.3%	13.1%	7%	62%	5	0.7%	4.9%	7%	57%	5	1.3%	13.2%	7%	54%
6	0.8%	7.5%	6%	40%	6	1.5%	15.8%	7%	62%	6	0.7%	4.7%	8%	60%	6	1.1%	10.5%	7%	52%
7	0.4%	2.9%	6%	43%	7	1.0%	9.4%	7%	47%	7	0.6%	3.6%	8%	52%	7	0.8%	6.9%	7%	47%
8	0.9%	8.1%	7%	42%	8	1.3%	13.6%	8%	50%	8	0.2%	-1.4%	8%	40%	8	0.9%	7.7%	7%	43%
9	1.1%	9.6%	7%	47%	9	1.5%	14.7%	9%	50%	9	0.1%	-2.2%	8%	38%	9	1.0%	9.0%	8%	46%
10	1.5%	16.0%	8%	53%	10	1.5%	14.8%	9%	40%	10	0.5%	0.5%	9%	40%	10	1.3%	11.7%	9%	44%
Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets				
Universe	1.5%	1.4%	2.0%	573	Universe	1.3%	-0.9%	-0.1%	1888	Universe	0.6%	1.1%	1.3%	1884	Universe	1.2%	0.6%	1.2%	1388
Long Short Strategy Statistics								Long Short Strategy Statistics											
Portfolio 1 less Portfolio 10								Portfolio 1 less Portfolio 10											
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.				
Long/Short	0.5%	2.7%	7%	50%	Long/Short	-0.5%	-9.4%	7%	53%	Long/Short	0.3%	3.1%	3%	57%	Long/Short	0.2%	-0.26%	5.9%	54%
T-Stat				Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets			
Long/Short	0.51			115	Long/Short	-0.57			378	Long/Short	0.77			377	Long/Short	0.39			278

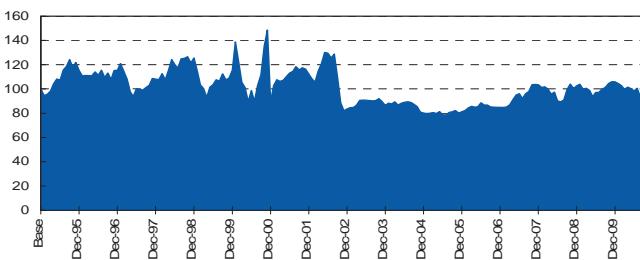
Portfolio Index Performance



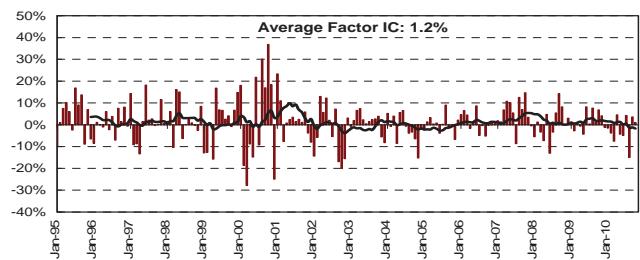
Portfolio Spread. Annual Returns



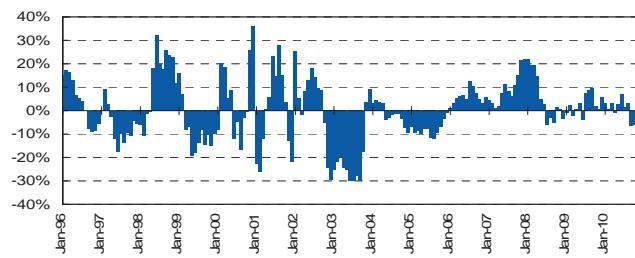
Cumulative Returns



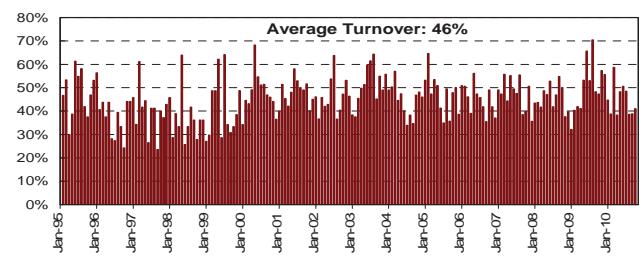
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



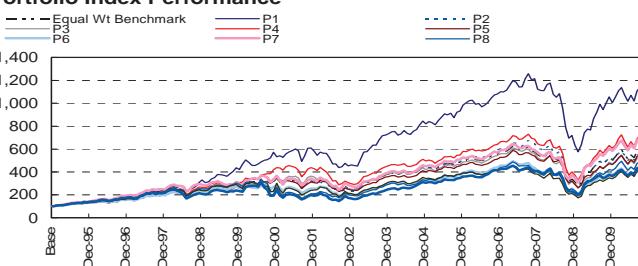
Turnover within Portfolio 1



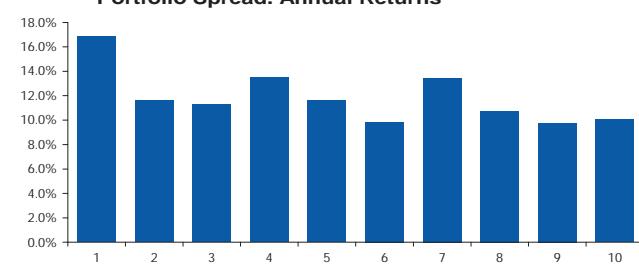
6 Month Price Acceleration

6 Mnth Price Acceleration in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	2.4%	31.1%	5%	63%	1	1.1%	12.0%	5%	57%	1	0.6%	5.0%	6%	50%	1	1.5%	16.9%	5%	58%
2	1.6%	19.3%	5%	47%	2	1.0%	10.1%	6%	57%	2	0.5%	3.2%	6%	42%	2	1.1%	11.6%	6%	47%
3	1.6%	18.9%	5%	53%	3	0.8%	8.1%	5%	48%	3	0.5%	3.2%	6%	47%	3	1.0%	11.3%	5%	49%
4	1.9%	23.5%	5%	55%	4	0.7%	7.2%	5%	32%	4	0.7%	6.3%	7%	57%	4	1.2%	13.5%	6%	48%
5	1.6%	18.8%	5%	53%	5	0.8%	8.3%	5%	48%	5	0.6%	5.0%	7%	55%	5	1.1%	11.6%	6%	51%
6	1.2%	13.9%	5%	45%	6	0.8%	8.4%	5%	35%	6	0.5%	3.7%	7%	43%	6	1.0%	9.8%	6%	42%
7	1.5%	17.4%	5%	53%	7	1.0%	10.2%	6%	45%	7	0.9%	7.9%	7%	62%	7	1.2%	13.5%	6%	54%
8	1.1%	12.0%	6%	50%	8	1.1%	10.5%	7%	57%	8	0.7%	6.0%	7%	48%	8	1.1%	10.8%	7%	52%
9	1.1%	11.2%	6%	52%	9	1.1%	10.8%	8%	43%	9	0.5%	3.1%	8%	42%	9	1.0%	9.8%	7%	45%
10	0.8%	6.6%	7%	45%	10	1.2%	12.4%	7%	53%	10	0.8%	5.9%	8%	45%	10	1.0%	10.1%	7%	48%
Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets				
Universe	1.5%	1.6%	2.5%	678	Universe	1.0%	-0.7%	-0.1%	949	Universe	0.6%	0.0%	0.5%	956	Universe	1.1%	0.1%	0.8%	846
Long Short Strategy Statistics								Long Short Strategy Statistics											
Portfolio 1 less Portfolio 10								Portfolio 1 less Portfolio 10											
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.				
Long/Short	1.6%	19.2%	6%	60%	Long/Short	-0.1%	-4.3%	6%	55%	Long/Short	-0.2%	-2.7%	4%	57%	Long/Short	0.4%	3.14%	5.3%	56%
T-Stat				Avg Assets	T-Stat			Avg Assets		T-Stat			Avg Assets		T-Stat			Avg Assets	
Long/Short	2.15			136	Long/Short	-0.17			191	Long/Short	-0.35			192	Long/Short	1.04			170

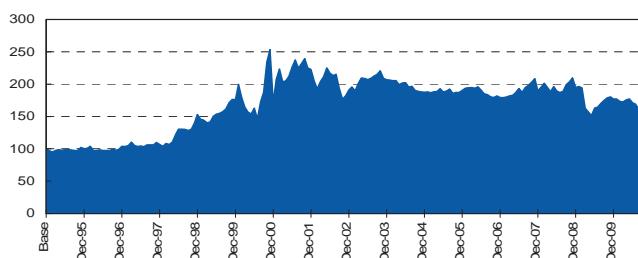
Portfolio Index Performance



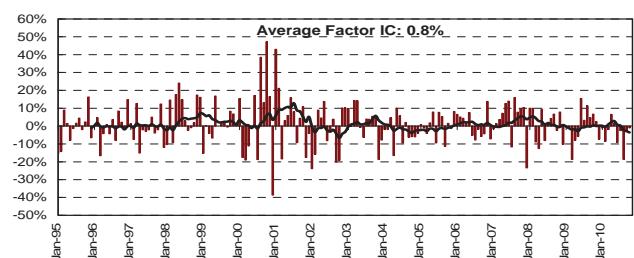
Portfolio Spread. Annual Returns



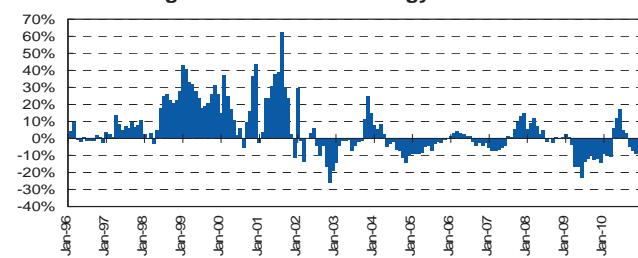
Cumulative Returns



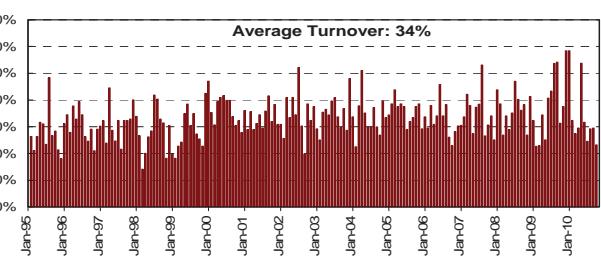
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

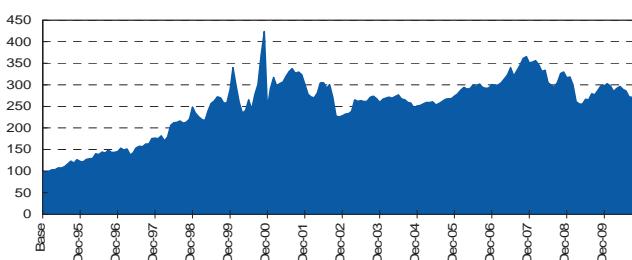


Turnover within Portfolio 1

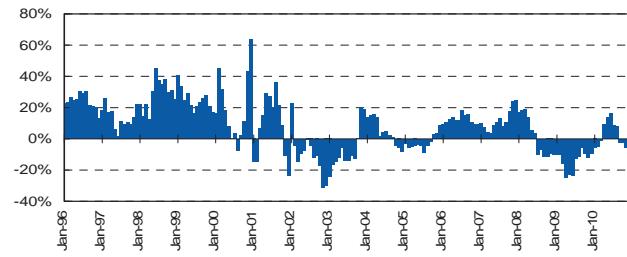


6 Mnth Price Acceleration in Bottom 2000 Universe										Rebalance every 1 month(s)													
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010								
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.				
1	2.8%	35.4%	7%	68%	1	1.3%	14.8%	6%	57%	1	0.7%	5.5%	7%	57%	1	1.8%	20.3%	7%	62%				
2	1.9%	22.1%	7%	57%	2	1.3%	13.4%	6%	57%	2	0.9%	7.5%	7%	60%	2	1.5%	16.1%	7%	57%				
3	1.9%	22.7%	6%	55%	3	1.5%	16.1%	7%	55%	3	0.5%	2.8%	7%	55%	3	1.4%	15.5%	7%	56%				
4	1.5%	16.7%	7%	45%	4	1.4%	15.1%	6%	60%	4	0.6%	3.6%	8%	43%	4	1.3%	13.7%	7%	51%				
5	2.1%	26.2%	6%	62%	5	1.0%	9.5%	6%	42%	5	0.4%	1.7%	8%	48%	5	1.3%	14.1%	7%	51%				
6	0.9%	8.8%	6%	45%	6	1.6%	17.3%	7%	62%	6	0.6%	3.3%	8%	50%	6	1.1%	10.7%	7%	51%				
7	1.3%	13.8%	7%	48%	7	1.0%	9.2%	8%	45%	7	0.7%	4.3%	8%	52%	7	1.1%	10.4%	7%	47%				
8	0.7%	6.0%	7%	38%	8	1.1%	10.2%	8%	45%	8	0.1%	-2.3%	8%	30%	8	0.7%	5.7%	7%	37%				
9	1.0%	9.2%	7%	45%	9	1.1%	8.8%	9%	28%	9	0.6%	2.9%	8%	50%	9	1.0%	8.7%	8%	41%				
10	0.7%	4.5%	8%	45%	10	1.5%	14.7%	9%	48%	10	0.6%	2.9%	9%	37%	10	1.1%	8.8%	9%	44%				
Total Test					Total Test					Total Test					Total Test								
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	1.5%	2.6%	3.4%	562	Universe	1.3%	0.3%	1.0%	1870	Universe	0.6%	0.9%	1.1%	1868	Universe	1.2%	1.4%	2.0%	1374
Long Short Strategy Statistics																							
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10								
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.
2.1%	25.4%	7%	65%	Long/Short	-0.2%	-6.2%	7%	60%	Long/Short	T-Stat	Long/Short	T-Stat	Long/Short	Long/Short	0.1%	0.3%	4%	57%	Long/Short	0.7%	6.51%	6.1%	61%
T-Stat	113																						
Portfolio Index Performance																							
Portfolio Spread. Annual Returns																							

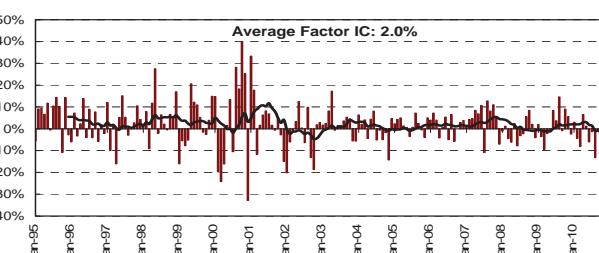
Cumulative Returns



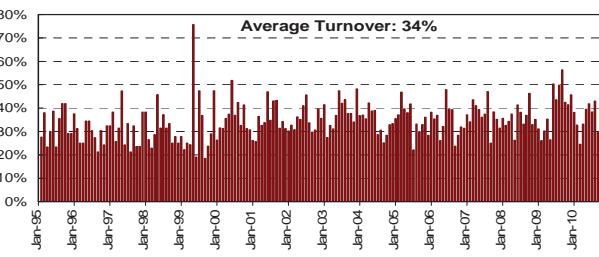
12 Month Rolling Returns Of L/S Strategy



Information Co-Efficients (IC)



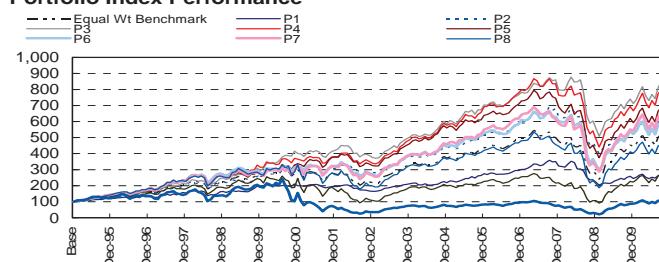
Turnover within Portfolio 1



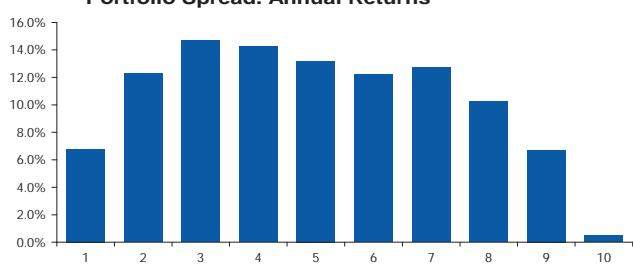
Percent Off 52 Week High

Percent Off 52 Week High in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	0.9%	10.6%	4%	45%	1	0.5%	5.8%	3%	50%	1	0.2%	1.6%	4%	53%	1	0.6%	6.8%	4%	47%
2	1.6%	19.6%	4%	50%	2	0.8%	9.9%	3%	52%	2	0.5%	4.8%	5%	48%	2	1.0%	12.3%	4%	50%
3	1.9%	24.5%	4%	57%	3	1.0%	11.9%	3%	53%	3	0.6%	5.5%	5%	52%	3	1.2%	14.7%	4%	53%
4	1.6%	19.9%	4%	60%	4	1.1%	13.5%	4%	57%	4	0.6%	5.1%	6%	53%	4	1.2%	14.3%	5%	57%
5	1.5%	17.6%	5%	62%	5	1.3%	15.0%	4%	53%	5	0.4%	3.1%	6%	45%	5	1.2%	13.2%	5%	54%
6	1.4%	16.8%	5%	58%	6	1.1%	12.1%	5%	50%	6	0.6%	4.0%	7%	52%	6	1.1%	12.2%	5%	54%
7	1.3%	14.4%	5%	55%	7	1.2%	13.8%	6%	62%	7	0.7%	5.2%	7%	57%	7	1.2%	12.7%	6%	58%
8	1.3%	14.7%	6%	52%	8	1.0%	8.3%	8%	55%	8	0.6%	3.1%	8%	50%	8	1.1%	10.2%	7%	52%
9	0.8%	7.3%	7%	42%	9	0.7%	2.9%	10%	43%	9	0.9%	5.5%	10%	55%	9	0.9%	6.7%	9%	47%
10	0.3%	-3.1%	10%	37%	10	0.7%	-6.3%	16%	45%	10	1.4%	6.6%	14%	50%	10	0.9%	0.5%	13%	44%
Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets				
Universe	1.3%	1.3%	2.6%	946	Universe	0.9%	0.9%	2.4%	970	Universe	0.6%	0.2%	0.3%	978	Universe	1.0%	0.6%	1.6%	963
Long Short Strategy Statistics								Long Short Strategy Statistics											
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.				
Long/Short	0.6%	3.0%	9%	60%	Long/Short	-0.2%	-17.3%	15%	50%	Long/Short	-1.1%	-24.0%	12%	53%	Long/Short	-0.3%	-13.33%	12.1%	54%
T-Stat	0.55	Avg Assets		T-Stat	-0.09	Avg Assets		T-Stat	-0.73	Avg Assets		T-Stat	-0.29	Avg Assets					

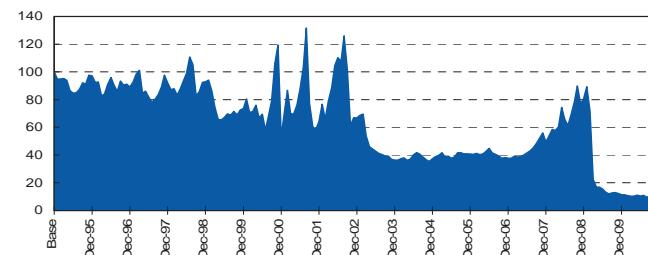
Portfolio Index Performance



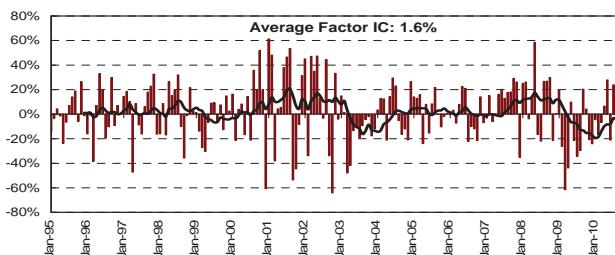
Portfolio Spread. Annual Returns



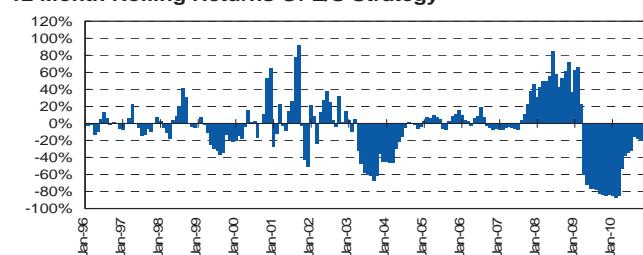
Cumulative Returns



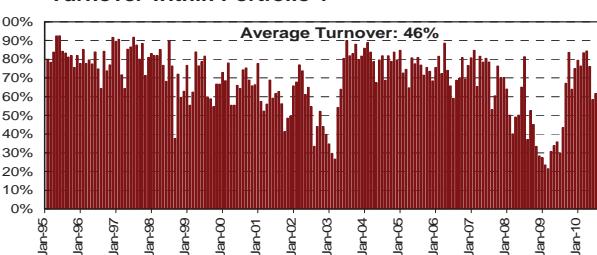
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

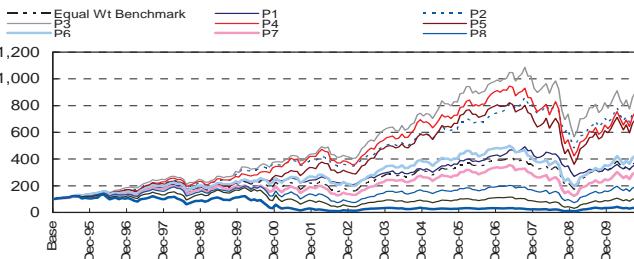


Turnover within Portfolio 1

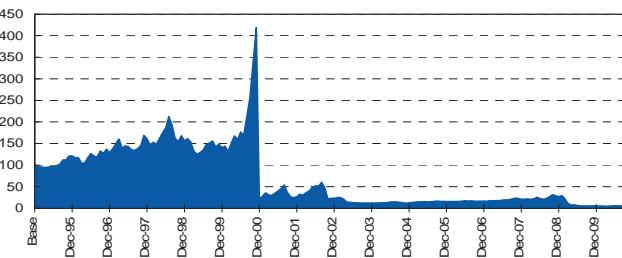


Percent Off 52 Week High in Bottom 2000 Universe										Rebalance every 1 month(s)														
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010									
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics						
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.					
1	1.1%	13.1%	5%	55%	1	0.8%	9.4%	4%	53%	1	0.2%	0.9%	5%	48%	1	0.8%	8.8%	4%	52%					
2	1.7%	20.8%	5%	55%	2	1.2%	14.0%	4%	53%	2	0.6%	5.1%	5%	50%	2	1.2%	14.2%	5%	53%					
3	1.7%	20.5%	5%	62%	3	1.6%	19.6%	4%	57%	3	0.4%	2.8%	6%	55%	3	1.3%	15.3%	5%	58%					
4	1.5%	17.3%	5%	58%	4	1.6%	19.5%	5%	55%	4	0.4%	1.9%	7%	57%	4	1.2%	14.0%	5%	57%					
5	1.1%	12.0%	5%	60%	5	1.9%	23.6%	5%	67%	5	0.4%	1.9%	7%	52%	5	1.2%	13.4%	6%	61%					
6	1.0%	10.2%	6%	60%	6	1.2%	13.7%	6%	57%	6	0.4%	1.7%	7%	45%	6	1.0%	9.8%	6%	55%					
7	0.7%	5.7%	6%	50%	7	1.3%	12.5%	8%	47%	7	0.6%	2.5%	9%	58%	7	0.9%	7.5%	7%	50%					
8	0.4%	0.7%	8%	38%	8	0.9%	5.8%	10%	50%	8	0.7%	3.9%	9%	50%	8	0.7%	4.5%	9%	45%					
9	0.0%	-5.1%	9%	37%	9	0.7%	-0.2%	12%	43%	9	0.8%	2.8%	11%	47%	9	0.6%	0.4%	11%	43%					
10	-1.1%	-19.9%	11%	43%	10	1.3%	-5.0%	20%	45%	10	1.2%	4.7%	13%	45%	10	0.5%	-6.4%	15%	44%					
Total Test					Total Test					Total Test					Total Test									
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	0.8%	6.4%	5.5%	1911	Universe	1.3%	4.5%	4.5%	1954	Universe	0.6%	1.5%	0.6%	1963	Universe	0.9%	4.2%	3.6%	1941	
Long Short Strategy Statistics Portfolio 1 less Portfolio 10										Long Short Strategy Statistics Portfolio 1 less Portfolio 10										Long Short Strategy Statistics Portfolio 1 less Portfolio 10				
Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.
Long/Short	2.3%	24.8%	9%	55%	Long/Short	-0.4%	-45.6%	19%	55%	Long/Short	-1.0%	-18.9%	11%	52%	Long/Short	0.3%	-16.57%	13.5%	54%	Long/Short	0.33	T-Stat	Avg Assets	389
T-Stat	1.88				T-Stat	-0.18				T-Stat	-0.72				T-Stat	0.33				T-Stat	0.33			

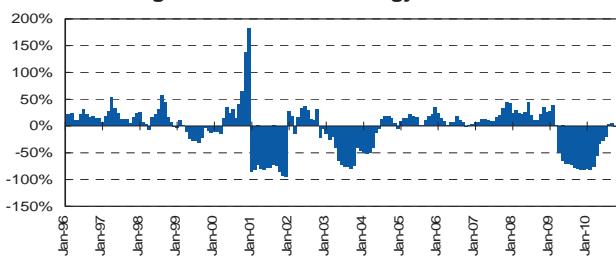
Portfolio Index Performance



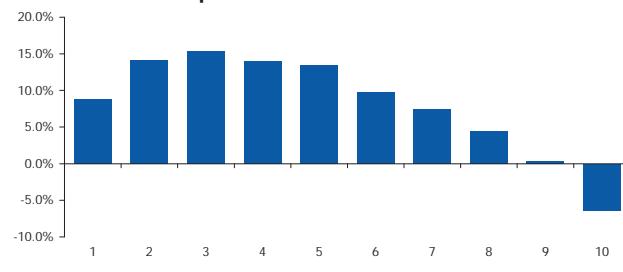
Cumulative Returns



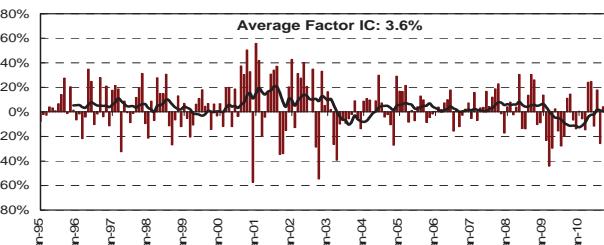
12 Month Rolling Returns Of L/S Strategy



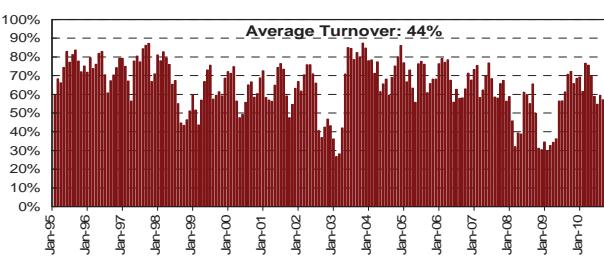
Portfolio Spread. Annual Returns



Information Co-Efficients (IC)



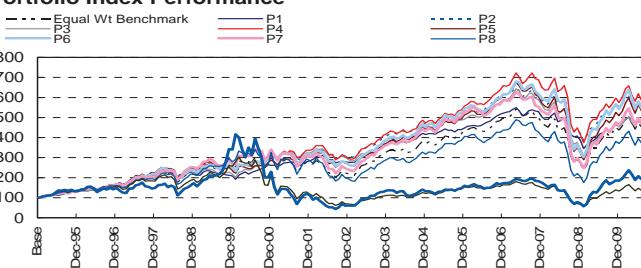
Turnover within Portfolio 1



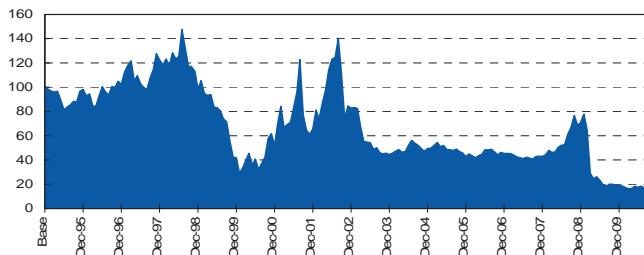
12 Month Realized Volatility

12 Mnth Realized Volatility in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.2%	14.8%	4%	45%	1	1.0%	12.0%	3%	48%	1	0.4%	3.5%	4%	43%	1	0.9%	11.0%	3%	46%
2	1.4%	17.2%	4%	52%	2	1.0%	11.7%	3%	55%	2	0.5%	4.6%	4%	45%	2	1.0%	12.3%	4%	51%
3	1.4%	16.8%	4%	48%	3	1.0%	12.2%	3%	52%	3	0.3%	1.8%	5%	50%	3	1.0%	11.1%	4%	49%
4	1.4%	16.7%	5%	57%	4	1.1%	13.6%	4%	50%	4	0.6%	5.5%	6%	52%	4	1.1%	13.0%	5%	53%
5	1.2%	13.7%	5%	52%	5	1.2%	14.3%	4%	52%	5	0.6%	4.8%	7%	50%	5	1.1%	12.2%	5%	52%
6	1.4%	15.9%	5%	52%	6	1.2%	13.9%	5%	62%	6	0.7%	5.0%	7%	53%	6	1.2%	12.7%	6%	55%
7	1.5%	17.1%	5%	63%	7	1.1%	11.8%	6%	55%	7	0.5%	2.5%	7%	47%	7	1.1%	11.6%	6%	55%
8	1.3%	13.8%	6%	50%	8	1.0%	8.4%	8%	47%	8	0.7%	4.1%	8%	53%	8	1.1%	10.2%	7%	50%
9	0.7%	4.3%	8%	53%	9	0.3%	-2.9%	11%	43%	9	0.7%	3.6%	9%	55%	9	0.7%	3.3%	9%	51%
10	1.2%	7.4%	11%	53%	10	0.4%	-6.4%	14%	48%	10	1.5%	10.4%	12%	55%	10	1.2%	5.6%	12%	53%
Total Test				Total Test				Total Test				Total Test				Total Test			
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets
Universe	1.3%	2.3%	1.8%	927	Universe	0.9%	2.6%	3.0%	960	Universe	0.6%	0.1%	-1.0%	965	Universe	1.0%	1.5%	1.0%	949
Long Short Strategy Statistics Portfolio 1 less Portfolio 10								Long Short Strategy Statistics Portfolio 1 less Portfolio 10								Long Short Strategy Statistics Portfolio 1 less Portfolio 10			
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.
Long/Short	0.0%	-8.0%	12%	47%	Long/Short	0.5%	-4.1%	13%	53%	Long/Short	-1.1%	-19.1%	10%	42%	Long/Short	-0.2%	-10.83%	11.3%	47%
T-Stat				Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat		
Long/Short	0.00			186	Long/Short	0.32			193	Long/Short	-0.88			194	Long/Short	-0.30			191

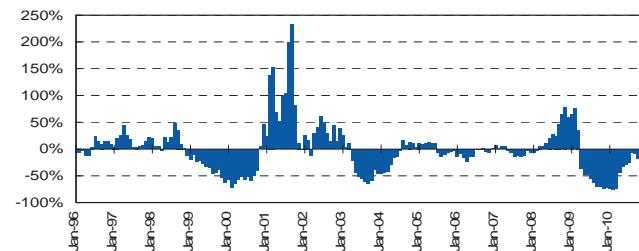
Portfolio Index Performance



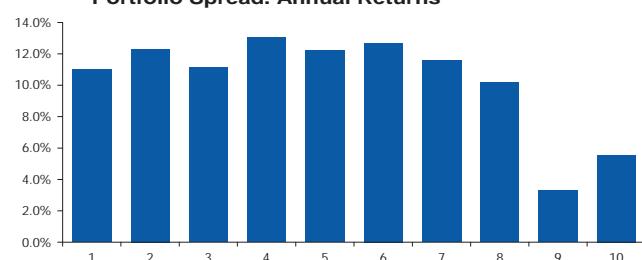
Cumulative Returns



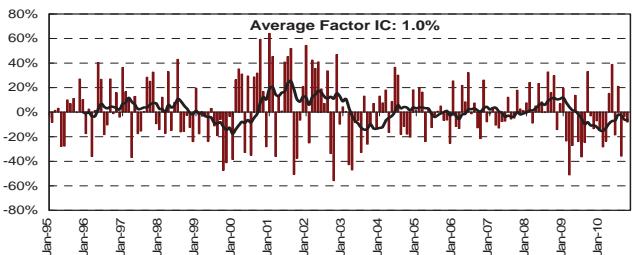
12 Month Rolling Returns Of L/S Strategy



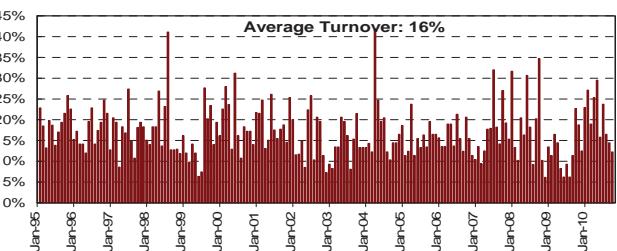
Portfolio Spread. Annual Returns



Information Co-Efficients (IC)

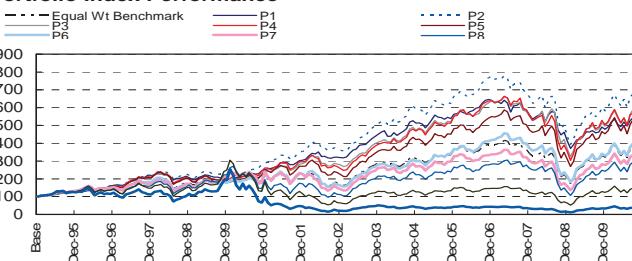


Turnover within Portfolio 1

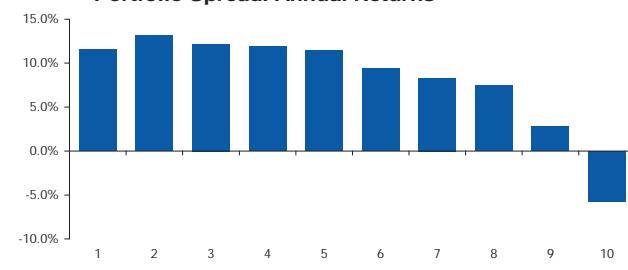


12 Mnth Realized Volatility in Bottom 2000 Universe										Rebalance every 1 month(s)									
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010				
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.1%	13.3%	3%	47%	1	1.5%	19.0%	3%	57%	1	0.2%	0.6%	5%	40%	1	1.0%	11.5%	4%	47%
2	1.3%	16.0%	4%	50%	2	1.6%	19.6%	4%	53%	2	0.4%	2.4%	6%	38%	2	1.1%	13.1%	4%	47%
3	0.9%	10.8%	4%	45%	3	1.7%	20.5%	4%	60%	3	0.5%	3.4%	6%	52%	3	1.1%	12.2%	5%	51%
4	1.1%	12.6%	5%	50%	4	1.6%	18.7%	5%	55%	4	0.5%	2.9%	7%	47%	4	1.1%	11.9%	5%	50%
5	1.0%	10.4%	5%	55%	5	1.5%	17.3%	6%	57%	5	0.6%	4.3%	7%	63%	5	1.1%	11.5%	6%	58%
6	0.7%	7.0%	6%	42%	6	1.4%	14.1%	7%	55%	6	0.7%	4.2%	8%	55%	6	1.0%	9.4%	7%	51%
7	0.7%	5.9%	7%	43%	7	1.3%	11.3%	9%	48%	7	0.6%	3.7%	8%	50%	7	1.0%	8.3%	8%	49%
8	0.6%	3.2%	9%	53%	8	1.3%	10.6%	10%	45%	8	0.9%	5.1%	9%	58%	8	1.0%	7.5%	9%	52%
9	0.6%	0.6%	10%	55%	9	0.7%	-0.1%	12%	45%	9	0.8%	3.2%	10%	52%	9	0.8%	2.8%	11%	52%
10	0.0%	-10.0%	13%	50%	10	0.0%	-12.0%	15%	45%	10	0.6%	0.2%	11%	47%	10	0.3%	-5.7%	13%	48%
Total Test					Total Test					Total Test					Total Test				
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	Avg Ret	Rank IC	Avg IC	Avg Assets	Universe
0.8%	6.4%	4.0%	1847	Universe	1.3%	7.1%	5.2%	1914	Universe	0.6%	1.9%	0.8%	1909	Universe	0.9%	5.0%	3.1%	1889	Universe
Long Short Strategy Statistics Portfolio 1 less Portfolio 10										Long Short Strategy Statistics Portfolio 1 less Portfolio 10									
Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.
Long/Short	1.1%	3.7%	13%	52%	Long/Short	1.5%	5.2%	14%	58%	Long/Short	-0.5%	-9.6%	8%	45%	Long/Short	0.6%	-0.69%	11.6%	51%
Long/Short	T-Stat	Avg Assets	370	Long/Short	T-Stat	Avg Assets	384	Long/Short	T-Stat	Avg Assets	383	Long/Short	T-Stat	Avg Assets	379	Long/Short	T-Stat	Avg Assets	379

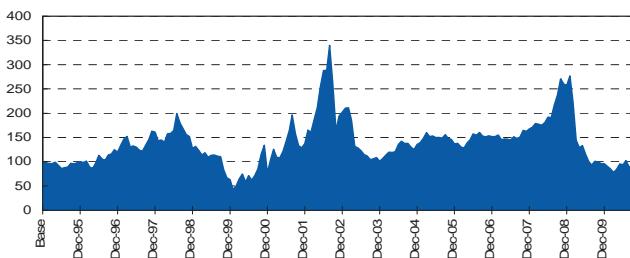
Portfolio Index Performance



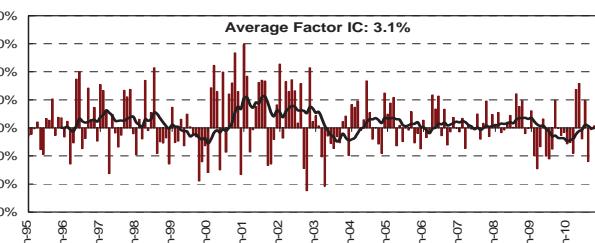
Portfolio Spread. Annual Returns



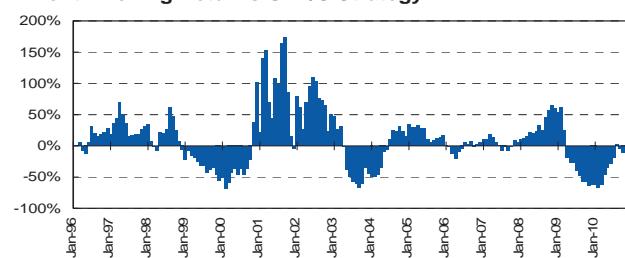
Cumulative Returns



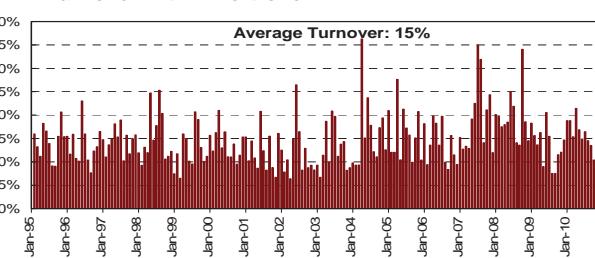
Information Co-Efficients (IC)



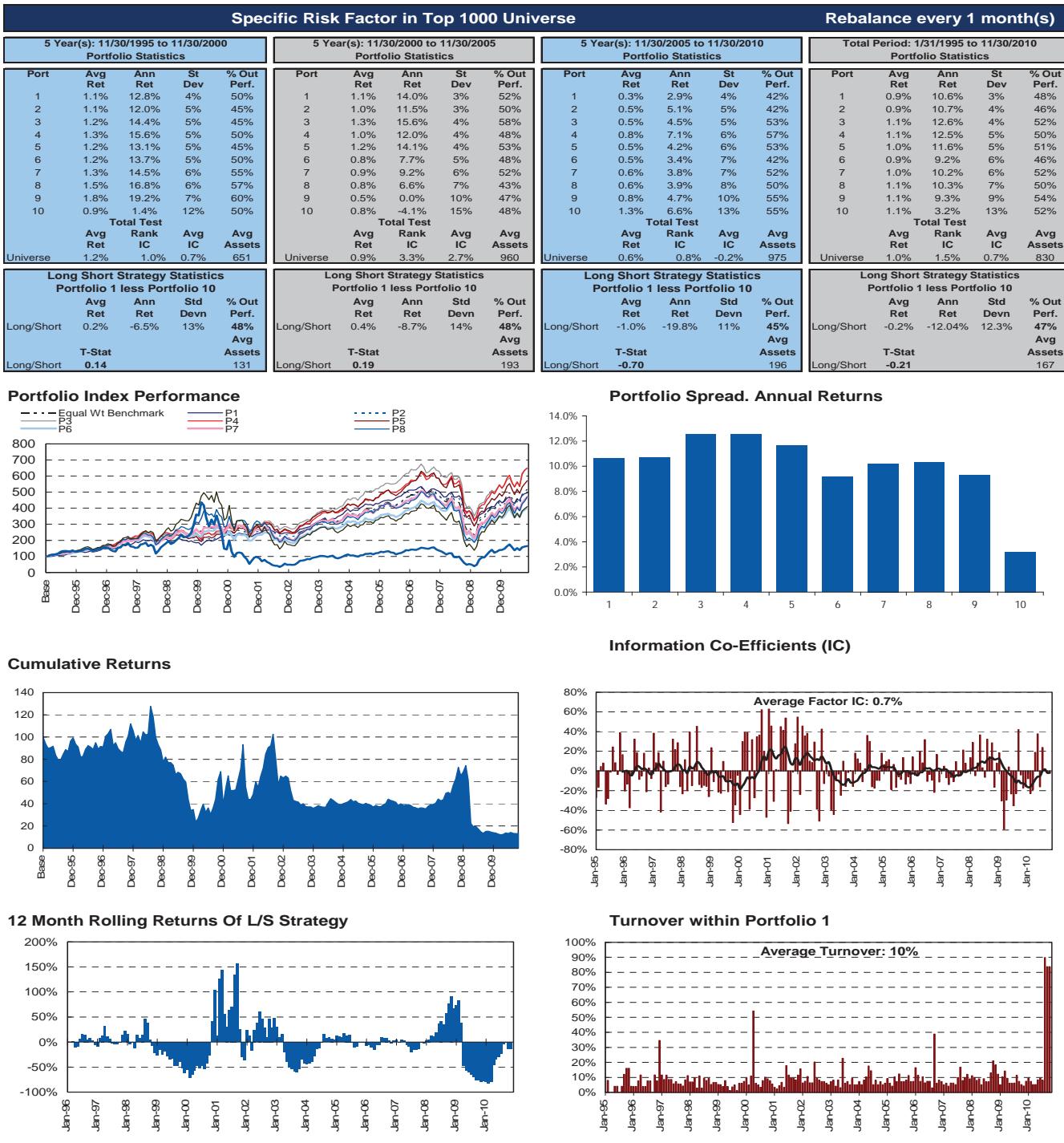
12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

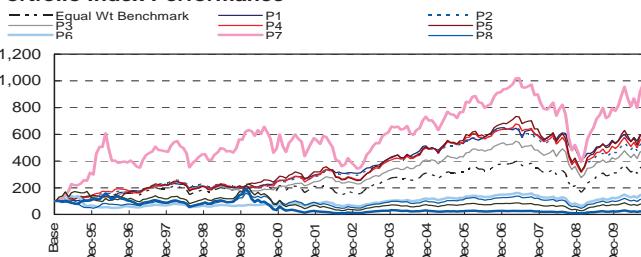


Specific Risk Factor

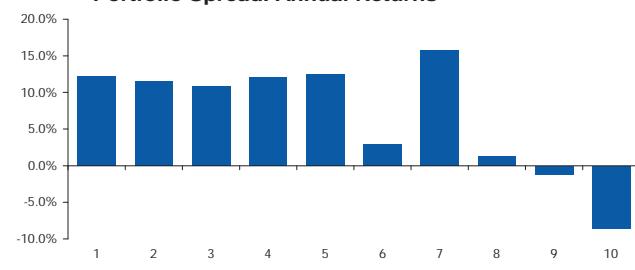


Specific Risk Factor in Bottom 2000 Universe										Rebalance every 1 month(s)									
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010				
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics	
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.3%	15.8%	4%	52%	1	1.5%	18.9%	3%	58%	1	0.4%	2.9%	5%	38%	1	1.0%	12.3%	4%	49%
2	1.2%	13.5%	4%	48%	2	1.6%	19.4%	4%	60%	2	0.3%	1.5%	6%	45%	2	1.0%	11.6%	5%	51%
3	0.7%	7.3%	5%	45%	3	1.5%	18.6%	4%	52%	3	0.5%	3.2%	6%	53%	3	1.0%	10.8%	5%	50%
4	1.0%	10.8%	5%	53%	4	1.7%	20.2%	5%	57%	4	0.4%	2.7%	6%	55%	4	1.1%	12.1%	5%	55%
5	1.1%	12.1%	6%	50%	5	1.5%	18.0%	5%	58%	5	0.5%	3.1%	7%	53%	5	1.2%	12.5%	6%	55%
6	0.3%	1.2%	6%	47%	6	1.3%	13.9%	7%	52%	6	0.7%	5.1%	8%	60%	6	0.6%	3.0%	8%	52%
7	1.6%	12.9%	11%	48%	7	1.2%	10.6%	8%	47%	7	0.8%	5.9%	8%	65%	7	1.7%	15.8%	9%	54%
8	1.3%	9.8%	10%	53%	8	0.9%	5.5%	10%	43%	8	0.6%	2.6%	9%	57%	8	0.6%	1.3%	10%	49%
9	-0.6%	-14.9%	12%	47%	9	0.6%	-1.4%	12%	42%	9	0.7%	2.9%	10%	47%	9	0.6%	-1.2%	12%	46%
10	-0.6%	-17.5%	14%	43%	10	0.8%	-9.3%	19%	42%	10	0.8%	0.4%	13%	48%	10	0.3%	-8.6%	15%	43%
Total Test					Total Test					Total Test					Total Test				
Avg Ret	0.8%	8.7%	6.7%	1090	Avg Ret	1.3%	7.3%	5.1%	1906	Avg Ret	0.6%	2.8%	0.6%	1944	Avg Ret	0.9%	6.1%	3.9%	1561
Long Short Strategy Statistics										Long Short Strategy Statistics									
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10				
Avg Ret	1.9%	12.4%	14%	52%	Avg Ret	0.7%	-20.0%	18%	57%	Avg Ret	-0.5%	-11.6%	10%	48%	Avg Ret	0.7%	-6.89%	14.0%	53%
Ret Std Devn					Ret Std Devn					Ret Std Devn					Ret Std Devn				
T-Stat Assets	1.07	219			T-Stat Assets	0.31				T-Stat Assets	-0.37				T-Stat Assets	0.70			

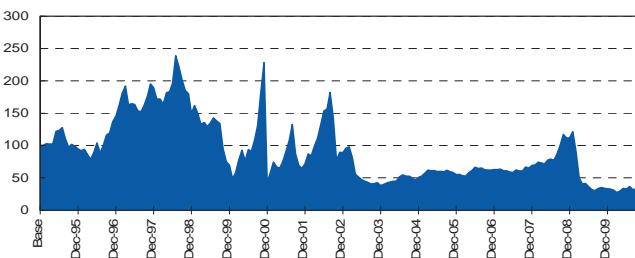
Portfolio Index Performance



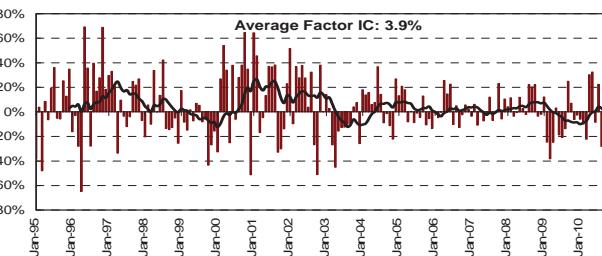
Portfolio Spread. Annual Returns



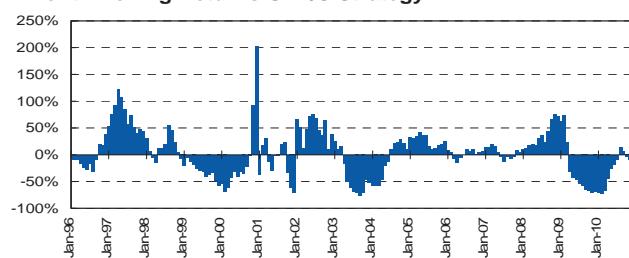
Cumulative Returns



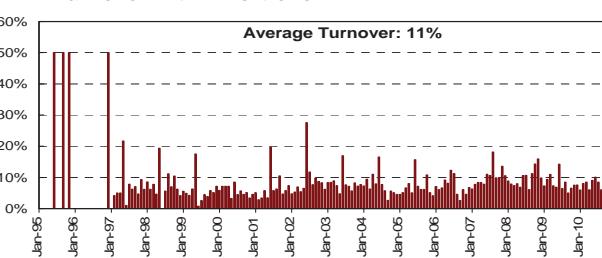
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



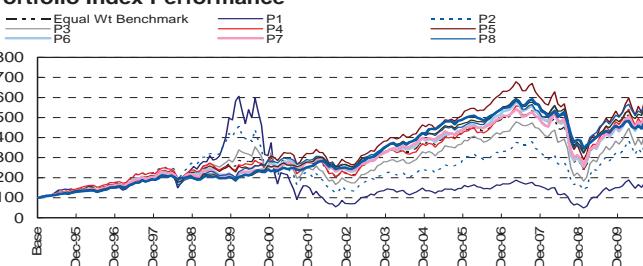
Turnover within Portfolio 1



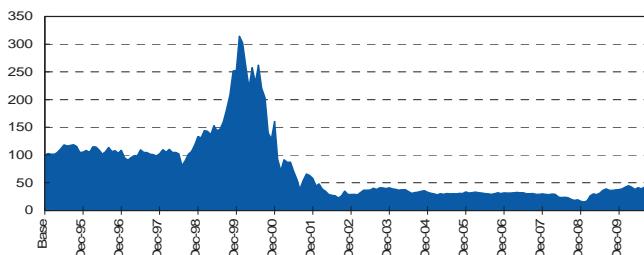
Beta Factor

Beta in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.9%	16.9%	11%	52%	1	-0.1%	-14.3%	15%	45%	1	1.1%	5.5%	12%	50%	1	1.1%	4.1%	12%	50%
2	1.3%	12.3%	8%	60%	2	0.7%	2.4%	10%	45%	2	1.0%	8.0%	9%	58%	2	1.1%	9.2%	9%	55%
3	1.3%	13.8%	6%	57%	3	0.9%	7.5%	8%	48%	3	0.7%	4.6%	8%	55%	3	1.1%	10.0%	7%	54%
4	1.1%	11.7%	5%	43%	4	1.1%	11.3%	6%	57%	4	0.8%	6.6%	7%	57%	4	1.1%	11.6%	6%	54%
5	1.3%	14.8%	5%	47%	5	1.2%	14.0%	5%	52%	5	0.6%	4.1%	7%	43%	5	1.1%	12.1%	6%	47%
6	1.2%	13.9%	5%	45%	6	1.1%	12.6%	4%	50%	6	0.5%	3.6%	7%	43%	6	1.0%	10.9%	5%	45%
7	1.1%	12.2%	5%	47%	7	1.1%	13.4%	4%	52%	7	0.5%	4.4%	6%	48%	7	1.0%	11.1%	5%	48%
8	1.4%	16.4%	5%	45%	8	1.0%	11.5%	3%	50%	8	0.6%	5.9%	5%	45%	8	1.0%	12.0%	4%	45%
9	1.1%	13.1%	4%	47%	9	1.2%	14.4%	3%	55%	9	0.4%	4.1%	5%	48%	9	1.0%	11.6%	4%	49%
10	1.1%	12.7%	3%	47%	10	1.3%	16.3%	3%	60%	10	0.1%	0.3%	4%	42%	10	0.9%	10.6%	3%	48%
Total Test				Total Test				Total Test				Total Test				Total Test			
Avg Ret	1.3%	1.2%	0.8%	944	Avg Ret	0.9%	-4.3%	-4.7%	969	Avg Ret	0.6%	0.9%	0.8%	975	Avg Ret	1.0%	-0.4%	-0.7%	961
Universe																			
Long Short Strategy Statistics																			
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10				
Avg Ret	0.8%	3.9%	10%	50%	Avg Ret	-1.4%	-26.0%	14%	43%	Avg Ret	1.0%	7.7%	9%	50%	Avg Ret	0.2%	-4.93%	11.2%	48%
Ret					Ret					Ret					Ret				
Devn					Devn					Devn					Devn				
Perf.					Perf.					Perf.					Perf.				
Long/Short					Long/Short					Long/Short					Long/Short				
T-Stat	0.64				T-Stat	-0.76				T-Stat	0.83				T-Stat	0.25			
Avg Assets	190				Avg Assets	194				Avg Assets	196				Avg Assets	193			

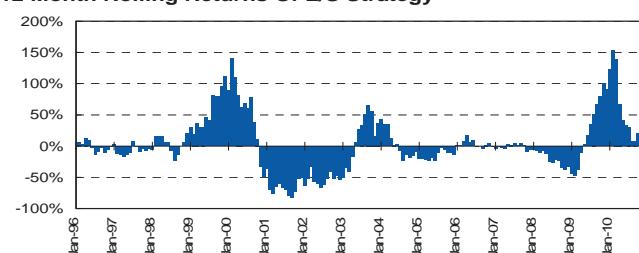
Portfolio Index Performance



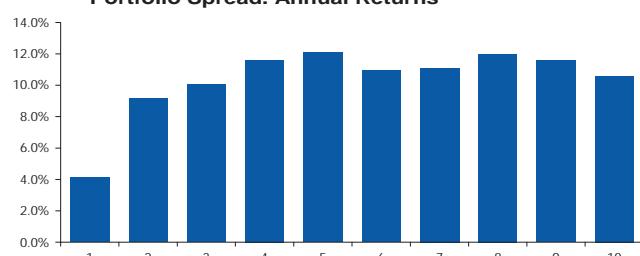
Cumulative Returns



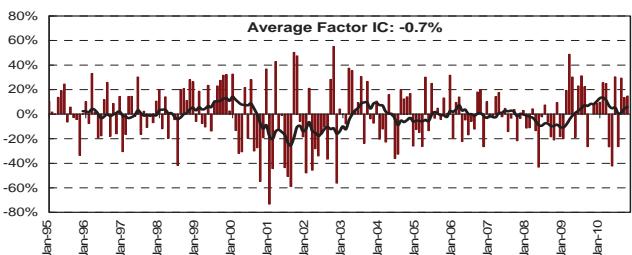
12 Month Rolling Returns Of L/S Strategy



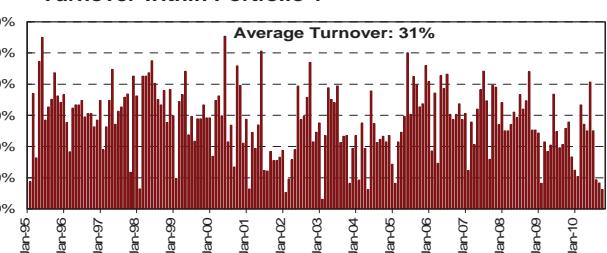
Portfolio Spread. Annual Returns



Information Co-Efficients (IC)



Turnover within Portfolio 1



Beta in Bottom 2000 Universe

5 Year(s): 11/30/1995 to 11/30/2000

Portfolio Statistics

5 Year(s): 11/30/2000 to 11/30/2005
Portfolio Statistics

5 Year(s): 11/30/2005 to 11/30/2010

Portfolio Statistics

Rebalance every 1 month(s)

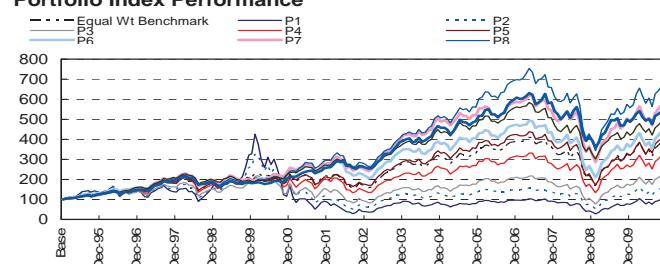
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	0.7%	-2.8%	13%	48%
2	0.6%	0.3%	10%	52%
3	0.4%	1.4%	8%	40%
4	0.7%	5.6%	7%	52%
5	0.8%	8.3%	6%	48%
6	0.9%	9.1%	5%	43%
7	1.1%	12.5%	4%	53%
8	1.0%	11.5%	4%	48%
9	0.9%	10.5%	4%	48%
10	0.8%	9.2%	4%	50%
Total Test				
	Avg Ret	Rank	Avg IC	Avg Assets
Universe	0.8%	-3.9%	-2.3%	1903

Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	0.5%	-8.5%	16%	42%
2	0.6%	-1.0%	12%	43%
3	1.0%	6.0%	11%	47%
4	1.1%	10.6%	7%	40%
5	1.4%	14.9%	6%	57%
6	1.3%	15.3%	6%	57%
7	1.6%	19.7%	5%	57%
8	1.8%	22.8%	5%	63%
9	1.5%	18.1%	4%	50%
10	1.7%	21.0%	4%	62%
Total Test				
		Avg Ret	Rank	Avg IC
Universe		-6.5%	-5.0%	1946

Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.1%	5.1%	12%	60%
2	0.8%	3.9%	10%	52%
3	0.8%	4.6%	9%	52%
4	0.6%	3.4%	9%	53%
5	0.5%	2.4%	8%	48%
6	0.4%	1.6%	7%	53%
7	0.4%	1.9%	7%	47%
8	0.5%	3.4%	6%	45%
9	0.2%	0.8%	5%	45%
10	0.3%	2.2%	5%	48%
Total Test				
	Avg Ret	Rank	Avg IC	Avg Assets
Universe	0.6%	-0.3%	0.9%	1941

Portfolio Statistics				
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	0.9%	0.1%	13%	51%
2	0.8%	2.8%	11%	51%
3	0.8%	5.1%	9%	46%
4	0.9%	7.6%	7%	48%
5	0.9%	9.2%	6%	49%
6	1.0%	9.8%	6%	53%
7	1.1%	11.6%	5%	52%
8	1.1%	12.7%	5%	50%
9	0.9%	10.5%	4%	47%
10	1.0%	11.2%	4%	52%
Total Test				
	Avg Ret	Rank IC	Avg IC	Avg Assets
Universe	0.9%	-3.2%	-1.8%	1928

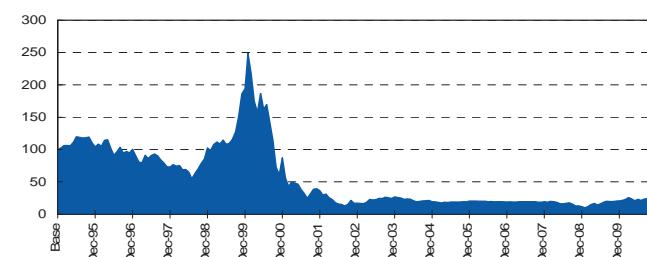
Portfolio Index Performance



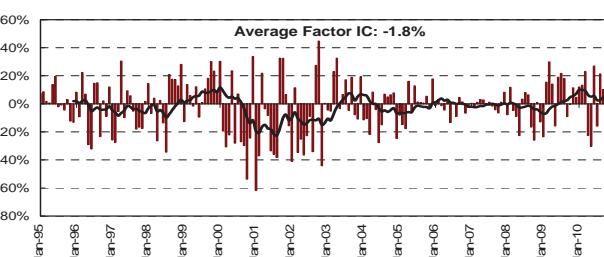
Portfolio Spread Annual Returns



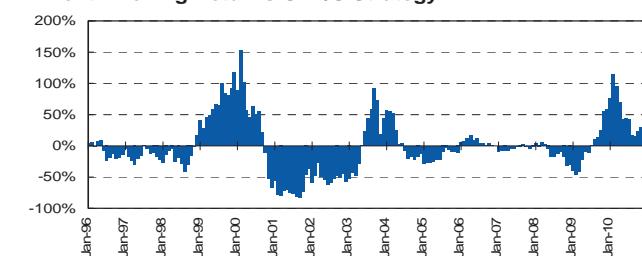
Cumulative Returns



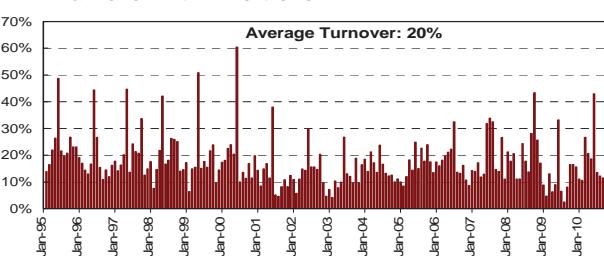
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



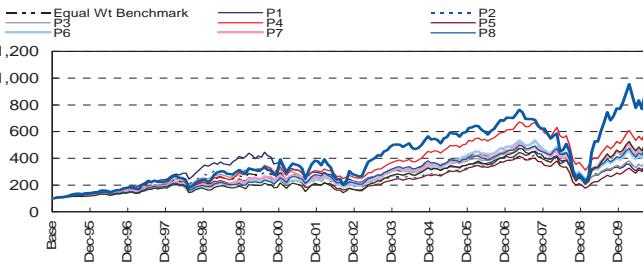
Turnover within Portfolio 1



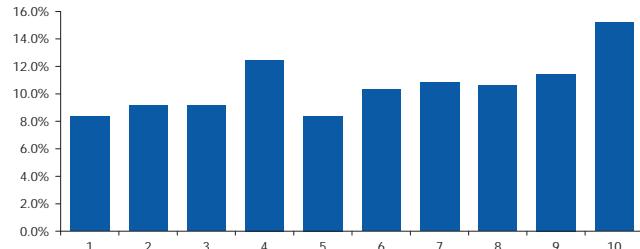
Size Factor

Size Factor in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.8%	21.2%	5%	65%	1	0.1%	-0.6%	5%	32%	1	0.2%	0.7%	5%	47%	1	0.8%	8.4%	5%	48%
2	1.3%	14.4%	5%	57%	2	0.4%	4.1%	4%	42%	2	0.5%	4.7%	5%	50%	2	0.9%	9.2%	5%	51%
3	1.4%	16.6%	5%	50%	3	0.5%	5.2%	5%	47%	3	0.3%	1.5%	6%	38%	3	0.9%	9.1%	5%	47%
4	1.6%	19.0%	5%	60%	4	1.0%	11.6%	5%	55%	4	0.6%	5.1%	6%	60%	4	1.1%	12.5%	5%	56%
5	1.0%	11.3%	5%	38%	5	0.7%	7.2%	5%	55%	5	0.5%	3.0%	6%	53%	5	0.8%	8.4%	5%	49%
6	1.0%	11.1%	5%	38%	6	1.1%	13.2%	5%	60%	6	0.4%	2.9%	6%	48%	6	1.0%	10.3%	5%	49%
7	1.2%	13.9%	5%	50%	7	0.9%	10.2%	5%	52%	7	0.7%	5.6%	7%	50%	7	1.0%	10.9%	6%	50%
8	0.9%	10.2%	5%	43%	8	1.2%	13.5%	6%	52%	8	0.6%	4.7%	7%	48%	8	1.0%	10.6%	6%	48%
9	0.9%	8.8%	6%	43%	9	1.4%	13.9%	8%	53%	9	1.1%	10.1%	8%	55%	9	1.2%	11.5%	7%	49%
10	1.4%	15.0%	6%	43%	10	1.8%	16.3%	11%	50%	10	1.5%	9.7%	13%	47%	10	1.7%	15.2%	10%	48%
Total Test				Total Test				Total Test				Total Test				Total Test			
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets
Universe	1.2%	2.6%	1.6%	651	Universe	0.9%	-3.1%	-3.4%	960	Universe	0.6%	-0.6%	-1.5%	975	Universe	1.0%	-0.2%	-0.9%	830
Long Short Strategy Statistics								Long Short Strategy Statistics								Long Short Strategy Statistics			
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10			
Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.
Long/Short	0.4%	3.2%	5%	58%	Long/Short	-1.8%	-22.8%	8%	40%	Long/Short	-1.3%	-21.8%	10%	52%	Long/Short	-0.9%	-13.96%	7.5%	49%
T-Stat				Avg Assets	T-Stat				Avg Assets	T-Stat				Avg Assets	T-Stat			Avg Assets	
Long/Short	0.61			131	Long/Short	-1.76			193	Long/Short	-1.06			196	Long/Short	-1.58			167

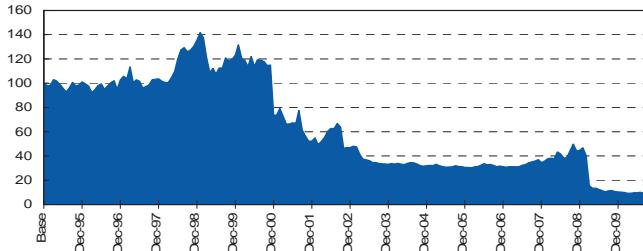
Portfolio Index Performance



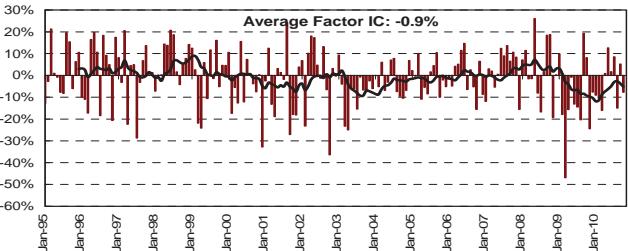
Portfolio Spread. Annual Returns



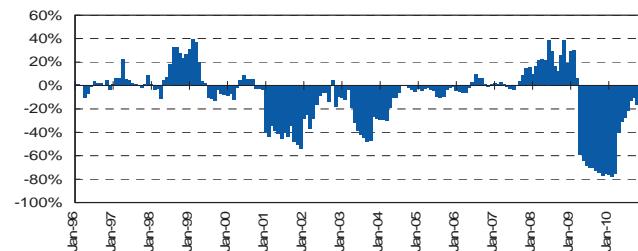
Cumulative Returns



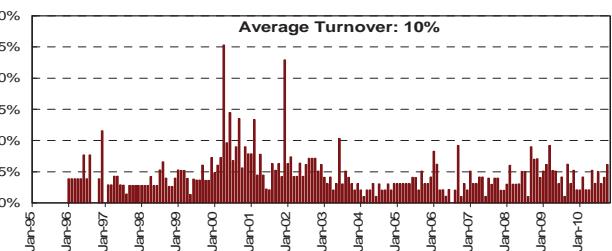
Information Co-Efficients (IC)

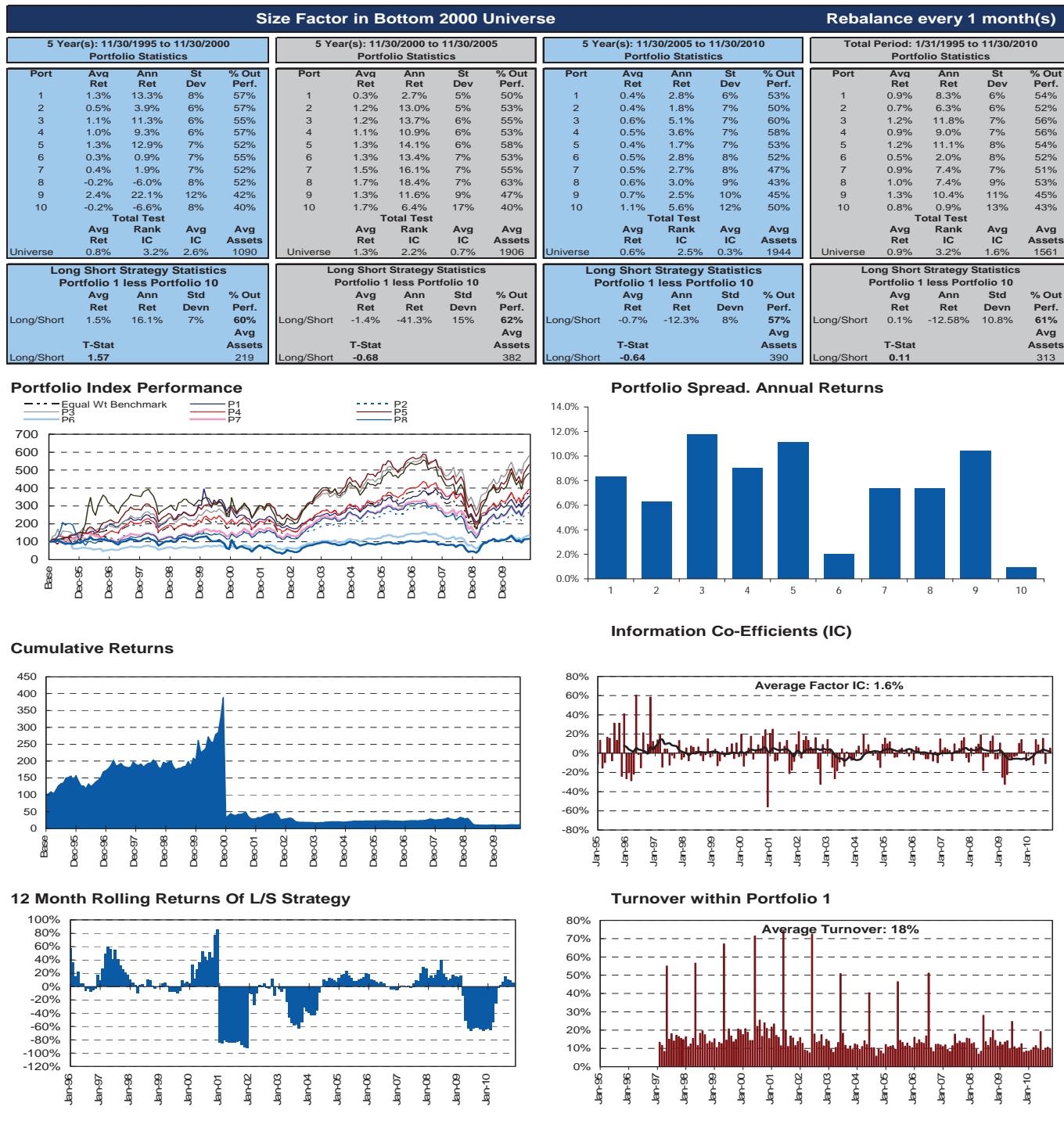


12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

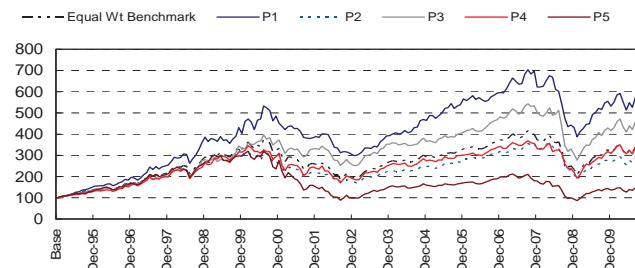




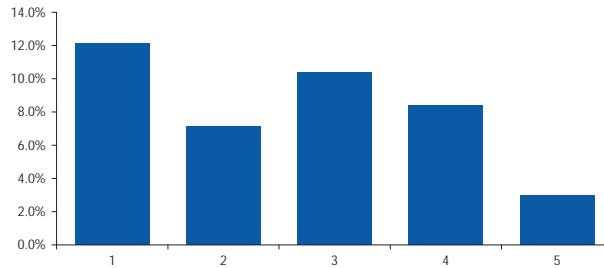
Composite General (Value, Growth, Quality, Long-Term Price Momentum)

Composite General in Top 200 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port				
1	2.1%	26.5%	6%	60%	1	0.3%	2.9%	4%	55%	1	0.4%	2.8%	5%	53%	1				
2	1.3%	14.8%	5%	43%	2	0.1%	0.4%	4%	52%	2	0.3%	2.0%	5%	45%	2				
3	1.7%	21.2%	5%	47%	3	0.3%	2.8%	4%	58%	3	0.5%	3.6%	6%	57%	3				
4	1.5%	17.7%	5%	42%	4	0.3%	1.2%	6%	53%	4	0.4%	3.6%	5%	53%	4				
5	1.3%	14.0%	6%	43%	5	-0.4%	-7.7%	8%	43%	5	0.1%	-0.7%	6%	50%	5				
Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets				
Universe	1.6%	1.7%	2.4%	162	Universe	0.1%	2.7%	3.2%	179	Universe	0.3%	0.7%	1.9%	197	Universe	0.8%	1.9%	2.8%	178
Long Short Strategy Statistics								Long Short Strategy Statistics											
Portfolio 1 less Portfolio 5				Portfolio 1 less Portfolio 5				Portfolio 1 less Portfolio 5				Portfolio 1 less Portfolio 5							
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.				
Long/Short	0.9%	10.4%	4%	57%	Long/Short	0.7%	5.6%	7%	55%	Long/Short	0.2%	1.6%	4%	50%	Long/Short				
T-Stat		Avg Assets		T-Stat		Avg Assets		T-Stat		Avg Assets		T-Stat		Avg Assets					
Long/Short	1.88	66		Long/Short	0.80	72		Long/Short	0.41	79		Long/Short	1.78	72					

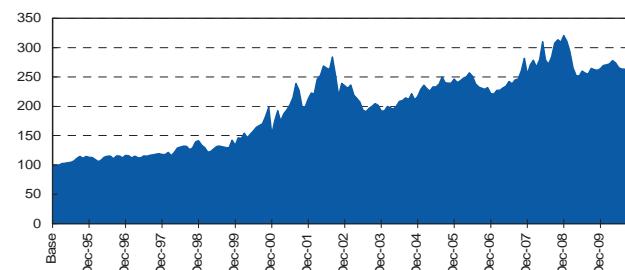
Portfolio Index Performance



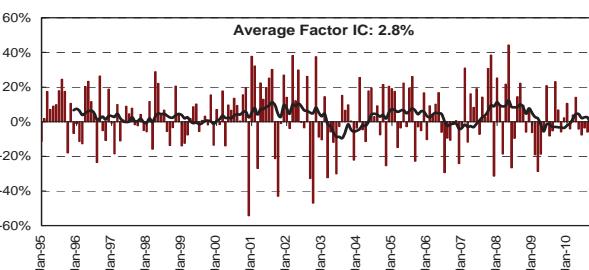
Portfolio Spread. Annual Returns



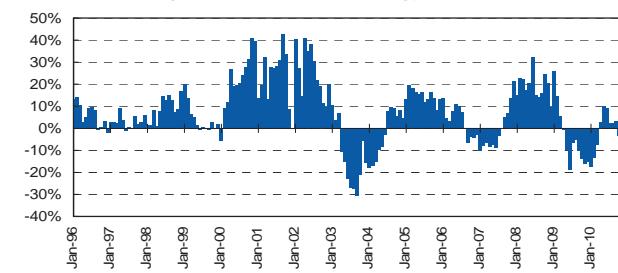
Cumulative Returns



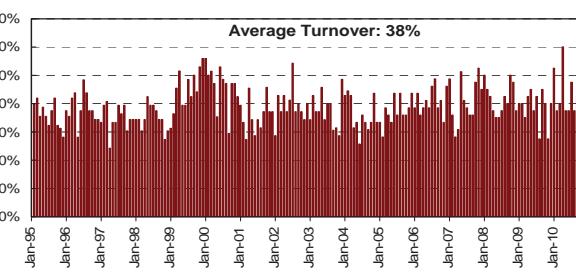
Information Co-Efficients (IC)

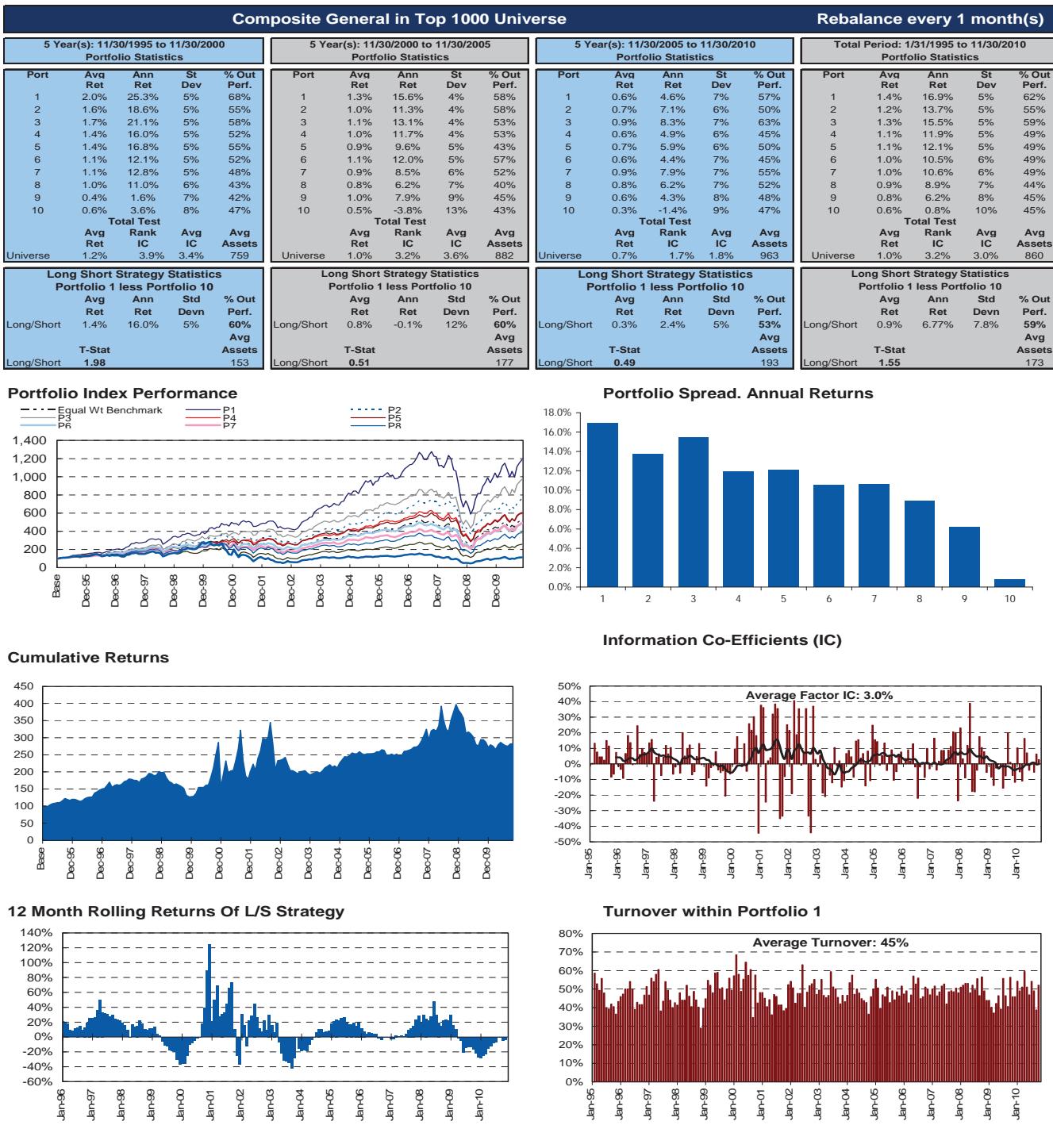


12 Month Rolling Returns Of L/S Strategy



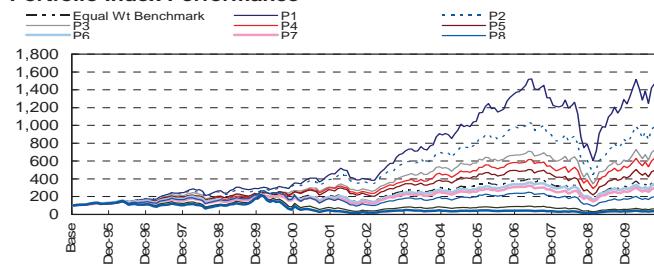
Turnover within Portfolio 1



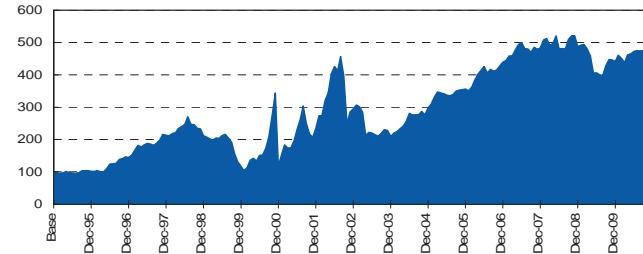


Composite General in Bottom 2000 Universe										Rebalance every 1 month(s)													
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010								
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.				
1	1.5%	17.6%	5%	62%	1	2.3%	29.0%	5%	68%	1	1.0%	8.1%	8%	65%	1	1.6%	18.8%	6%	64%				
2	1.5%	17.3%	5%	62%	2	1.8%	21.7%	5%	63%	2	0.8%	6.3%	7%	53%	2	1.4%	16.0%	6%	59%				
3	1.2%	13.9%	5%	57%	3	1.6%	19.4%	5%	67%	3	0.7%	5.6%	7%	58%	3	1.2%	13.6%	6%	59%				
4	1.0%	11.5%	5%	53%	4	1.6%	18.8%	5%	58%	4	0.7%	6.0%	7%	55%	4	1.2%	12.6%	6%	55%				
5	1.0%	11.0%	6%	48%	5	1.3%	14.3%	6%	53%	5	0.6%	4.0%	7%	40%	5	1.1%	10.9%	6%	49%				
6	0.6%	5.6%	6%	43%	6	1.1%	11.0%	7%	45%	6	0.6%	4.7%	7%	48%	6	0.9%	8.4%	7%	46%				
7	0.6%	4.6%	6%	42%	7	1.2%	11.1%	8%	42%	7	0.6%	3.7%	7%	42%	7	0.9%	7.4%	7%	42%				
8	0.8%	6.4%	8%	52%	8	0.7%	3.4%	9%	43%	8	0.4%	1.3%	8%	42%	8	0.7%	4.8%	8%	45%				
9	0.0%	-4.9%	10%	37%	9	0.4%	-3.5%	12%	35%	9	0.1%	-3.0%	9%	33%	9	0.3%	-2.6%	10%	35%				
10	-0.4%	-12.6%	11%	43%	10	0.5%	-8.0%	17%	38%	10	0.4%	-1.1%	9%	45%	10	0.3%	-5.8%	12%	43%				
Total Test					Total Test					Total Test					Total Test								
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	0.8%	6.2%	4.3%	1619	Universe	1.3%	7.5%	5.8%	1763	Universe	0.6%	3.0%	2.3%	1942	Universe	1.0%	5.5%	4.0%	1763
Long Short Strategy Statistics										Long Short Strategy Statistics													
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10								
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.
2.0%	21.3%	8%	58%	Long/Short	1.8%	5.2%	14%	62%	Long/Short	1.8%	5.2%	14%	62%	Long/Short	0.6%	6.8%	4%	63%	Long/Short	1.4%	10.57%	9.4%	61%
T-Stat	325			Long/Short	T-Stat	353			Long/Short	T-Stat	389			Long/Short	T-Stat	2.04			Long/Short	T-Stat	353		

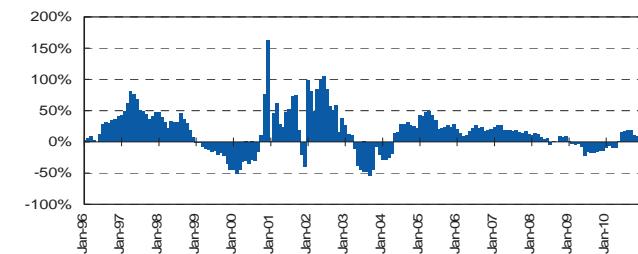
Portfolio Index Performance



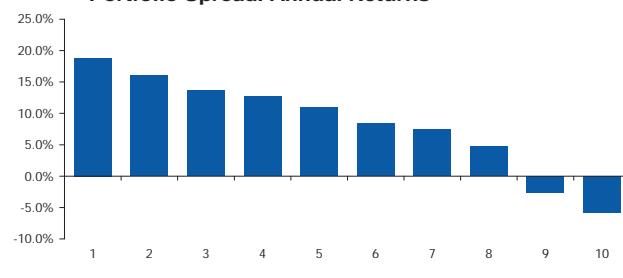
Cumulative Returns



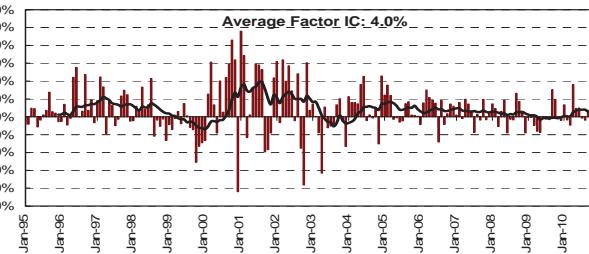
12 Month Rolling Returns Of L/S Strategy



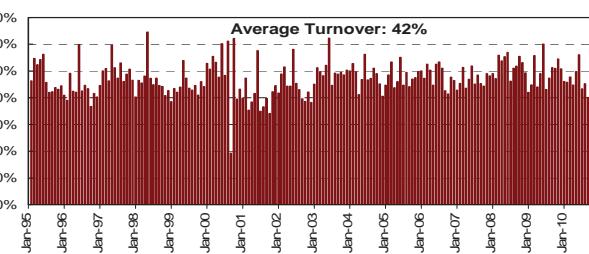
Portfolio Spread. Annual Returns

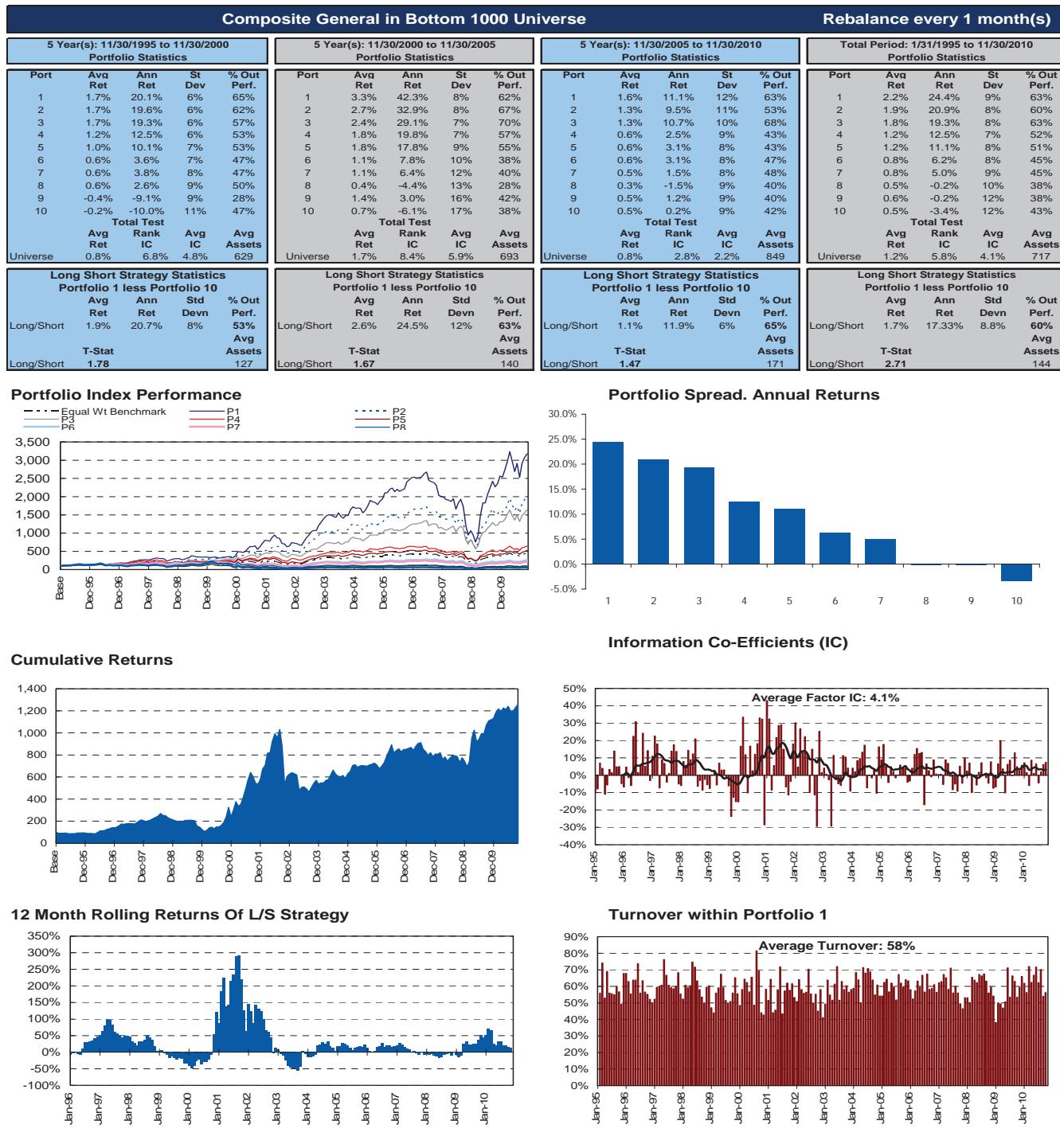


Information Co-Efficients (IC)



Turnover within Portfolio 1

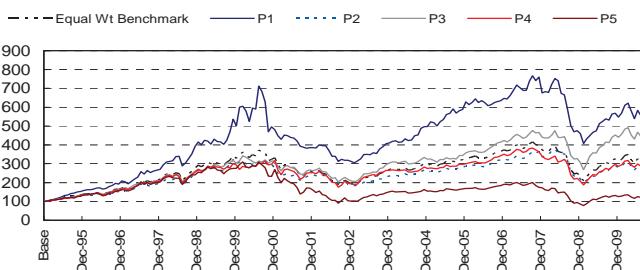




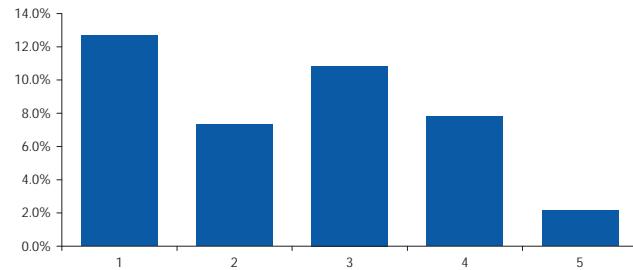
Composite General (Value, Growth, Quality, Long-Term Price Momentum, Short-Term Price Reversal)

Composite General with Reversion in Top 200 Universe							Rebalance every 1 month(s)																				
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010												
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics													
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.								
1	2.2%	25.6%	8%	58%	1	0.4%	4.4%	4%	55%	1	0.4%	2.6%	5%	55%	1	1.2%	12.7%	6%	58%								
2	1.5%	17.6%	5%	45%	2	0.0%	-0.5%	4%	47%	2	0.3%	1.7%	5%	42%	2	0.7%	7.3%	5%	45%								
3	1.5%	18.6%	4%	45%	3	0.3%	2.5%	5%	45%	3	0.8%	8.3%	5%	62%	3	1.0%	10.9%	5%	51%								
4	1.5%	18.1%	5%	57%	4	0.2%	0.3%	5%	48%	4	0.3%	2.0%	5%	47%	4	0.8%	7.8%	5%	50%								
5	1.2%	13.3%	5%	48%	5	-0.3%	-7.0%	8%	47%	5	0.0%	-3.0%	7%	40%	5	0.4%	2.2%	6%	45%								
Total Test					Total Test					Total Test					Total Test												
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	Avg Ret	Rank IC	Avg IC	Avg Assets	Universe								
1.6%	2.2%	2.8%	162		0.1%	3.5%	4.0%	179		0.3%	1.8%	3.2%	197		0.8%	2.7%	3.7%	178									
Long Short Strategy Statistics														Long Short Strategy Statistics													
Portfolio 1 less Portfolio 5														Portfolio 1 less Portfolio 5													
Avg Ret		Ann Ret		Std Devn		% Out Perf.		Avg Ret		Ann Ret		Std Devn		% Out Perf.		Avg Ret		Ann Ret		Std Devn		% Out Perf.					
Long/Short	1.0%	11.4%	5%	57%	Long/Short	0.7%	6.6%	6%	53%	Long/Short	0.4%	3.7%	4%	55%	Long/Short	0.8%	7.99%	5.0%	57%	Long/Short	0.7%	7.2%	7.2%	57%			
T-Stat		Avg Assets		T-Stat		Avg Assets		T-Stat		Avg Assets		T-Stat		Avg Assets		T-Stat		Avg Assets		T-Stat		Avg Assets					
1.68		66		0.91		72		0.70		79		2.11		72		0.80		2.7%		3.7%		178					

Portfolio Index Performance



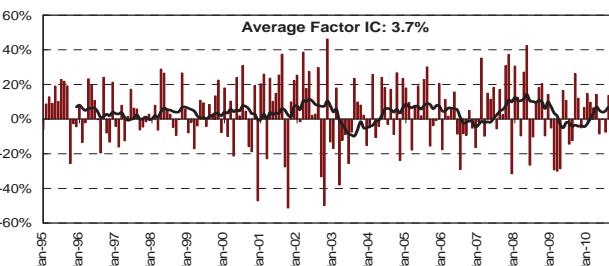
Portfolio Spread. Annual Returns



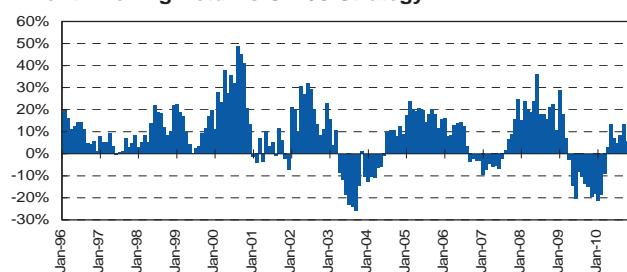
Cumulative Returns



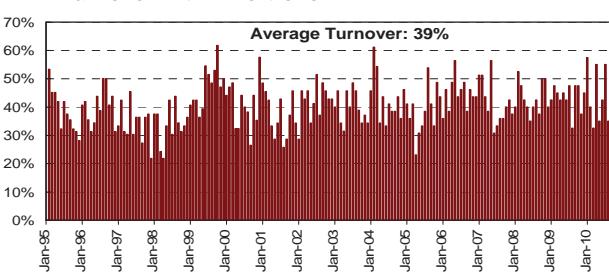
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

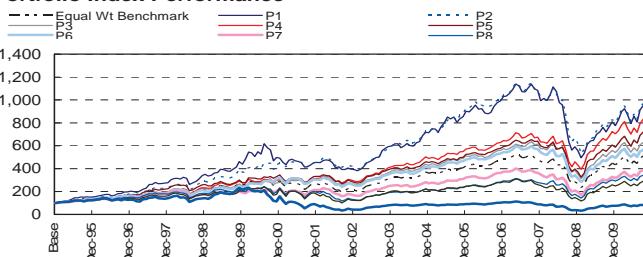


Turnover within Portfolio 1

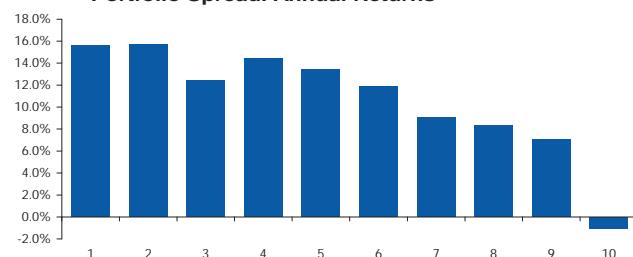


Composite General with Reversion in Top 1000 Universe										Rebalance every 1 month(s)									
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010				
Portfolio Statistics										Portfolio Statistics									
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	2.1%	25.0%	6%	65%	1	1.1%	12.3%	4%	55%	1	0.5%	3.4%	7%	58%	1	1.4%	15.6%	6%	61%
2	1.9%	23.1%	5%	60%	2	1.4%	17.2%	4%	70%	2	0.4%	3.1%	6%	50%	2	1.4%	15.7%	5%	61%
3	1.3%	14.5%	5%	57%	3	1.1%	13.2%	4%	53%	3	0.7%	5.8%	6%	52%	3	1.1%	12.5%	5%	55%
4	1.4%	17.0%	5%	58%	4	1.2%	14.3%	4%	55%	4	0.9%	9.1%	6%	55%	4	1.3%	14.4%	5%	55%
5	1.6%	18.7%	5%	60%	5	0.9%	9.5%	4%	57%	5	0.9%	8.0%	7%	52%	5	1.2%	13.4%	5%	57%
6	1.5%	17.2%	5%	55%	6	0.9%	10.1%	5%	55%	6	0.6%	5.2%	6%	43%	6	1.1%	11.9%	5%	51%
7	0.9%	9.7%	5%	38%	7	0.9%	9.3%	6%	37%	7	0.6%	5.1%	7%	40%	7	0.9%	9.1%	6%	38%
8	0.8%	7.5%	6%	42%	8	0.7%	5.1%	8%	38%	8	1.0%	8.6%	7%	53%	8	0.9%	8.3%	7%	44%
9	0.7%	6.5%	6%	40%	9	1.0%	7.2%	9%	47%	9	0.7%	4.3%	8%	40%	9	0.9%	7.0%	8%	42%
10	0.3%	-0.3%	8%	42%	10	0.4%	-5.8%	13%	42%	10	0.4%	-0.9%	10%	45%	10	0.4%	-1.1%	10%	42%
Total Test					Total Test					Total Test					Total Test				
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	Avg Ret	Rank IC	Avg IC	Avg Assets	Universe
1.2%	4.7%	4.1%	759	Universe	1.0%	4.0%	4.2%	882	Universe	0.7%	1.7%	1.8%	963	Universe	1.0%	3.7%	3.6%	860	Universe
Long Short Strategy Statistics Portfolio 1 less Portfolio 10										Long Short Strategy Statistics Portfolio 1 less Portfolio 10									
Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.
Long/Short	1.8%	21.6%	5%	63%	Long/Short	0.7%	0.2%	11%	62%	Long/Short	0.1%	-0.6%	6%	58%	Long/Short	0.9%	7.88%	7.6%	62%
T-Stat	Avg Assets			153	T-Stat	Avg Assets			177	T-Stat	Avg Assets			193	T-Stat	Avg Assets			173

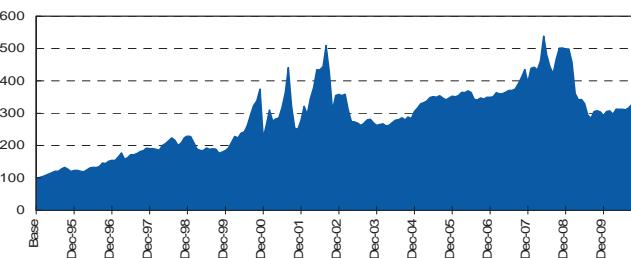
Portfolio Index Performance



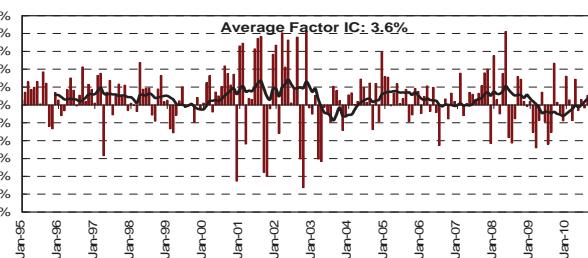
Portfolio Spread. Annual Returns



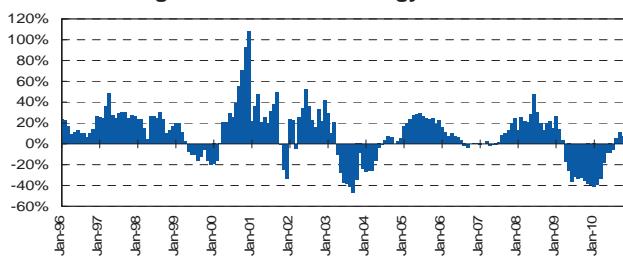
Cumulative Returns



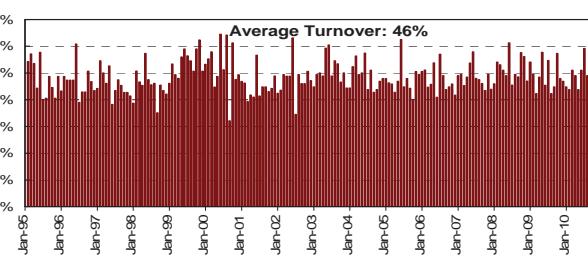
Information Co-Efficients (IC)

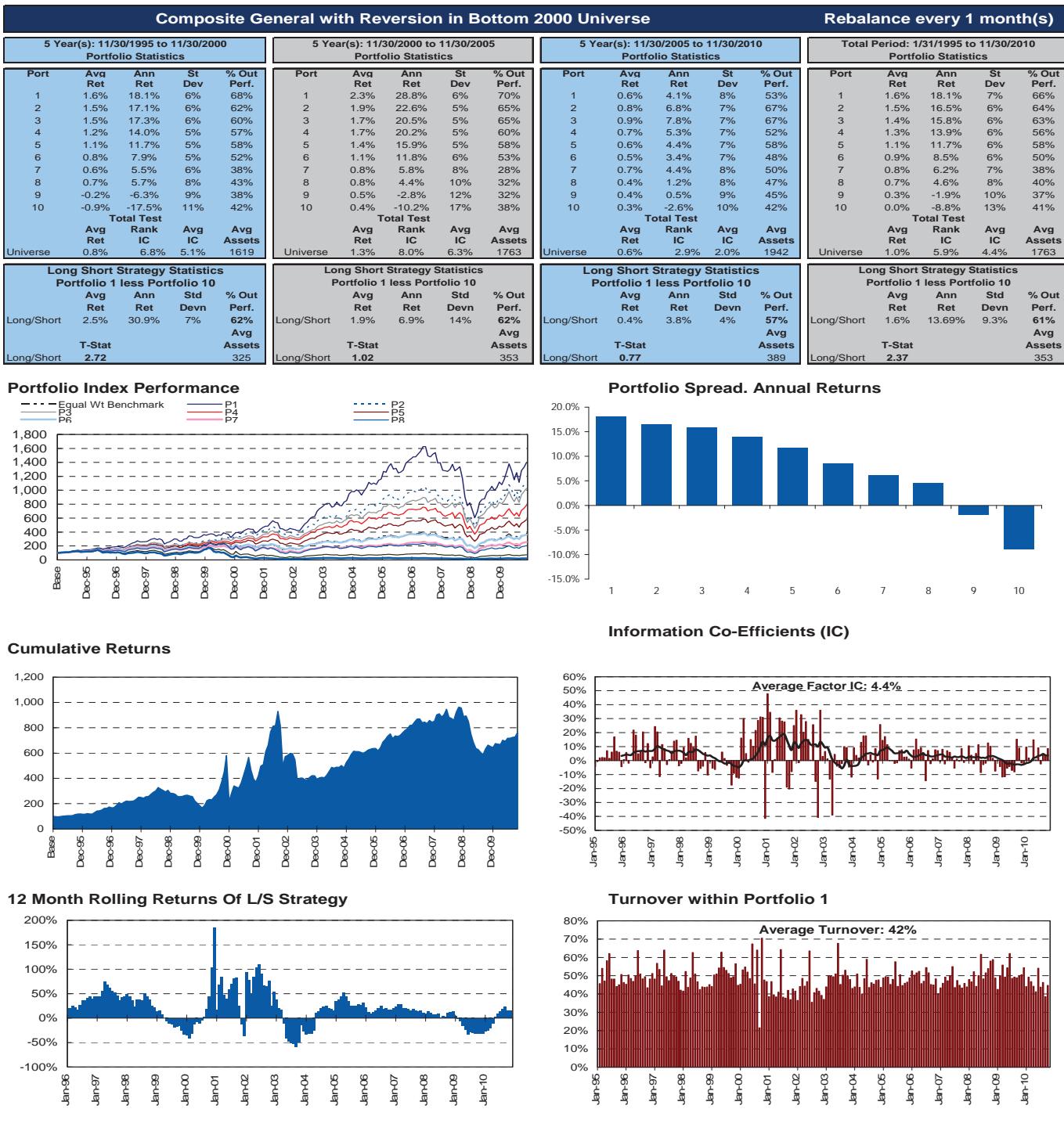


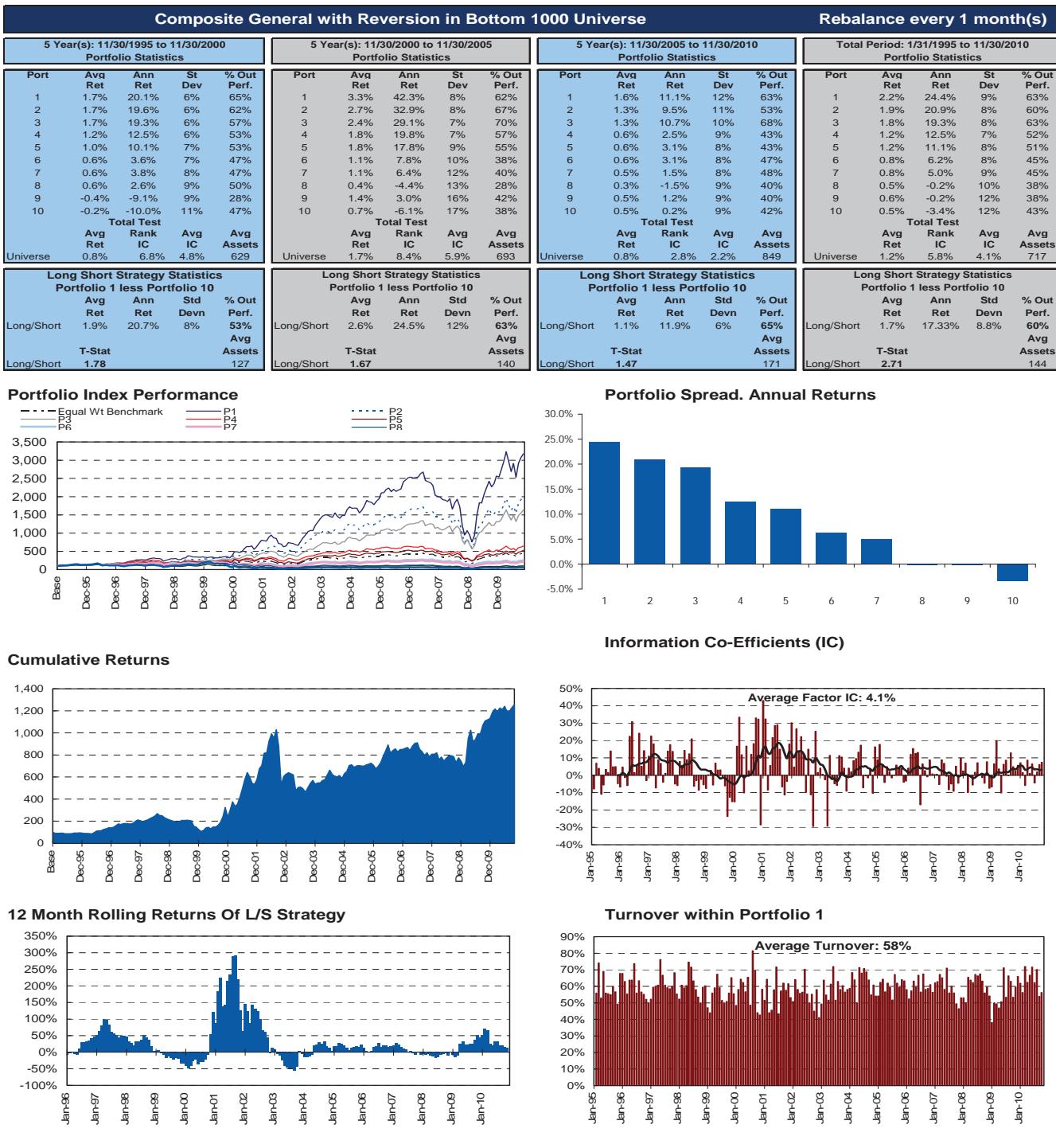
12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1



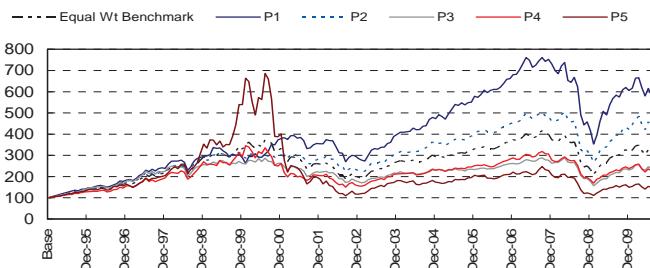




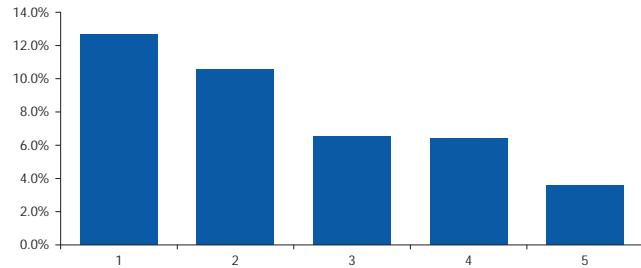
Composite Value

Composite Value in Top 200 Universe								Rebalance every 1 month(s)																
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010												
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics										
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.					
1	1.7%	20.1%	5%	48%	1	0.8%	9.5%	4%	62%	1	0.5%	3.8%	6%	53%	1	1.1%	12.7%	5%	55%					
2	1.4%	16.8%	4%	50%	2	0.6%	5.9%	4%	57%	2	0.5%	5.0%	5%	60%	2	0.9%	10.6%	4%	55%					
3	1.2%	13.4%	5%	42%	3	0.0%	-1.5%	4%	47%	3	0.4%	3.1%	5%	52%	3	0.6%	6.5%	4%	47%					
4	1.4%	15.2%	6%	40%	4	0.1%	-0.7%	5%	47%	4	0.3%	1.8%	5%	45%	4	0.7%	6.4%	5%	42%					
5	2.3%	24.6%	10%	50%	5	-0.8%	-13.0%	8%	47%	5	0.0%	-2.0%	6%	40%	5	0.6%	3.6%	8%	45%					
Total Test				Total Test				Total Test				Total Test				Total Test								
Avg Ret		Rank IC		Avg IC		Avg IC		Avg Assets		Avg Ret		Rank IC		Avg IC		Avg Assets		Avg Assets						
Universe	1.6%	-0.1%	0.0%	162	Universe	0.1%	6.4%	4.7%	179	Universe	0.3%	2.8%	3.2%	197	Universe	0.8%	3.1%	2.7%	178					
Long Short Strategy Statistics								Long Short Strategy Statistics								Long Short Strategy Statistics								
Portfolio 1 less Portfolio 5				Portfolio 1 less Portfolio 5				Portfolio 1 less Portfolio 5				Portfolio 1 less Portfolio 5				Portfolio 1 less Portfolio 5				Portfolio 1 less Portfolio 5				
Avg Ret		Ann Ret		Std Devn		% Out Perf.		Avg Ret		Ann Ret		Std Devn		% Out Perf.		Avg Ret		Ann Ret		Std Devn		% Out Perf.		
Long/Short	-0.7%	-13.1%	10%	50%	Long/Short	1.7%	19.1%	6%	57%	Long/Short	0.5%	5.5%	3%	60%	Long/Short	0.5%	3.33%	7.0%	56%	Long/Short	1.14	2.00	72	79
T-Stat		Avg Assets		T-Stat		Avg Assets		T-Stat		Avg Assets		T-Stat		Avg Assets		T-Stat		Avg Assets		T-Stat		Avg Assets		
Long/Short	-0.50	66			Long/Short					Long/Short					Long/Short					Long/Short				

Portfolio Index Performance



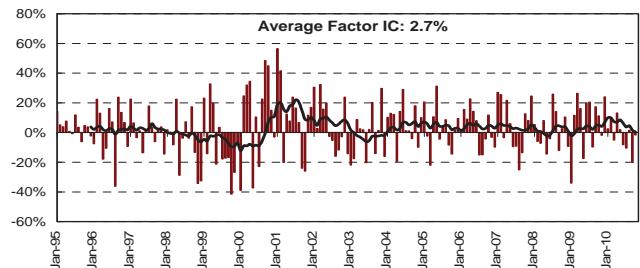
Portfolio Spread. Annual Returns



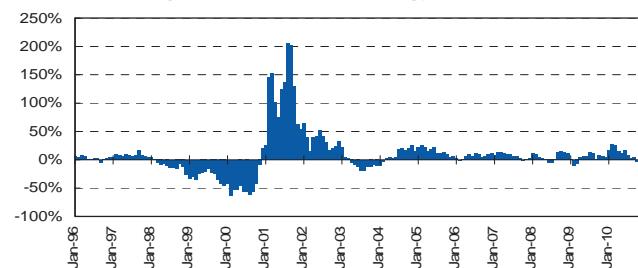
Cumulative Returns



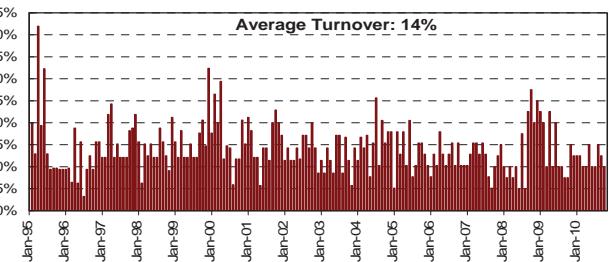
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

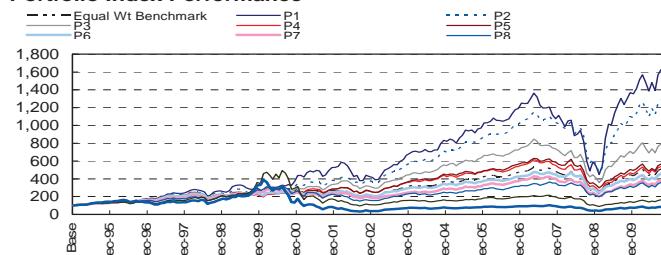


Turnover within Portfolio 1

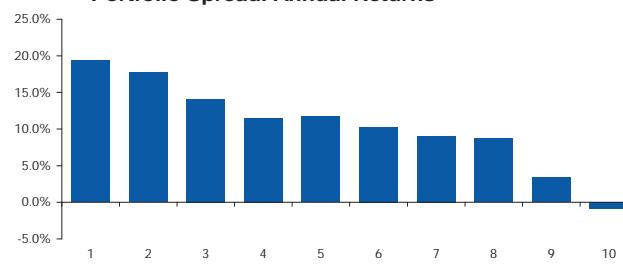


Composite Value in Top 1000 Universe										Rebalance every 1 month(s)													
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010								
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.				
1	1.7%	19.7%	6%	53%	1	2.0%	24.0%	6%	68%	1	1.5%	11.4%	11%	45%	1	1.8%	19.3%	8%	55%				
2	1.5%	17.6%	5%	52%	2	1.9%	23.7%	5%	73%	2	1.1%	9.4%	8%	53%	2	1.6%	17.7%	6%	59%				
3	1.3%	14.7%	5%	52%	3	1.6%	19.0%	4%	60%	3	0.7%	5.5%	7%	47%	3	1.3%	14.1%	6%	53%				
4	1.1%	12.2%	5%	50%	4	1.3%	15.2%	5%	48%	4	0.5%	3.7%	7%	47%	4	1.1%	11.5%	5%	48%				
5	1.2%	13.3%	5%	48%	5	1.2%	14.7%	4%	58%	5	0.5%	4.0%	6%	55%	5	1.1%	11.7%	5%	53%				
6	1.1%	11.6%	5%	47%	6	0.9%	10.2%	5%	50%	6	0.6%	5.2%	6%	58%	6	0.9%	10.3%	5%	51%				
7	1.2%	13.2%	5%	47%	7	0.6%	6.2%	5%	43%	7	0.6%	4.6%	6%	53%	7	0.9%	9.1%	5%	48%				
8	1.2%	12.2%	6%	50%	8	0.5%	3.5%	6%	40%	8	0.7%	6.2%	6%	42%	8	0.9%	8.7%	6%	45%				
9	1.8%	17.0%	9%	50%	9	-0.4%	-9.3%	9%	35%	9	0.2%	-0.4%	6%	47%	9	0.6%	3.4%	8%	44%				
10	0.5%	-0.4%	10%	43%	10	-0.1%	-10.1%	12%	45%	10	0.4%	1.1%	7%	40%	10	0.4%	-0.9%	10%	44%				
Total Test					Total Test					Total Test					Total Test								
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	1.2%	1.7%	1.8%	759	Universe	1.0%	7.5%	6.2%	882	Universe	0.7%	1.9%	1.7%	963	Universe	1.0%	3.6%	3.0%	860
Long Short Strategy Statistics																							
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10								
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.					
1.2%	8.8%	10%	58%	Long/Short	2.1%	23.5%	9%	55%	Long/Short	1.89	T-Stat	Avg Assets	177	Long/Short	1.1%	11.5%	7%	47%	Long/Short	1.31	T-Stat	Avg Assets	193
P-Stat	0.92			Long/Short					Long/Short					Long/Short					Long/Short				
P6	153																						

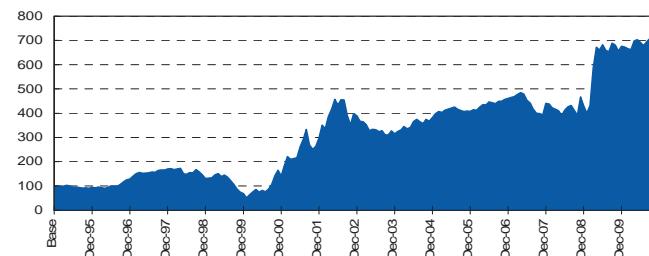
Portfolio Index Performance



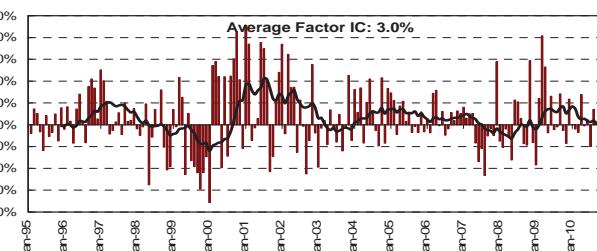
Portfolio Spread. Annual Returns



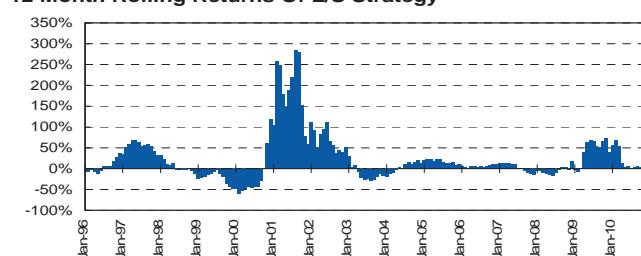
Cumulative Returns



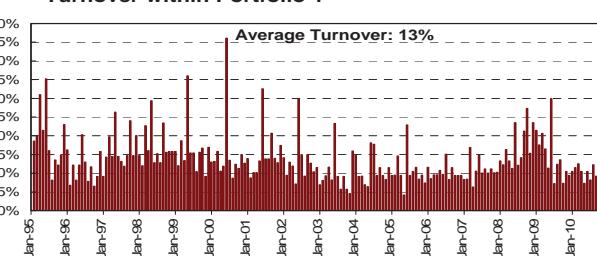
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

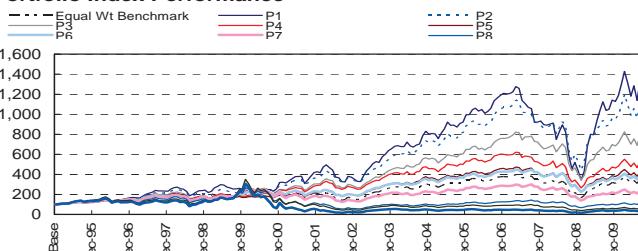


Turnover within Portfolio 1

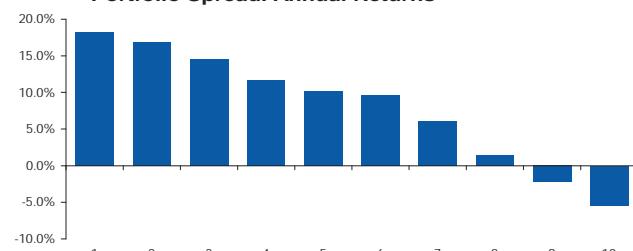


Composite Value in Bottom 2000 Universe										Rebalance every 1 month(s)									
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010				
Portfolio Statistics										Portfolio Statistics									
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.3%	14.4%	6%	65%	1	2.6%	31.3%	8%	70%	1	1.5%	9.5%	12%	58%	1	1.8%	18.3%	9%	63%
2	1.3%	14.4%	5%	58%	2	2.3%	28.2%	6%	62%	2	1.0%	7.8%	9%	62%	2	1.5%	16.9%	7%	59%
3	1.0%	11.6%	5%	48%	3	2.0%	23.8%	6%	60%	3	0.9%	7.4%	8%	65%	3	1.3%	14.6%	6%	57%
4	1.1%	12.0%	5%	45%	4	1.6%	19.5%	5%	57%	4	0.5%	2.8%	7%	50%	4	1.1%	11.7%	6%	49%
5	0.6%	5.7%	5%	40%	5	1.5%	18.4%	5%	58%	5	0.5%	3.6%	7%	52%	5	1.0%	10.1%	5%	49%
6	0.9%	9.8%	6%	52%	6	1.2%	13.7%	6%	55%	6	0.4%	2.8%	6%	45%	6	0.9%	9.6%	6%	50%
7	0.8%	6.9%	7%	53%	7	0.8%	7.0%	7%	38%	7	0.3%	0.7%	6%	43%	7	0.7%	6.0%	7%	44%
8	0.5%	0.9%	10%	48%	8	0.1%	-4.5%	9%	43%	8	0.5%	3.2%	7%	52%	8	0.5%	1.4%	8%	48%
9	0.5%	-1.8%	12%	52%	9	-0.1%	-8.1%	11%	33%	9	0.0%	-3.4%	7%	38%	9	0.3%	-2.2%	10%	43%
10	-0.1%	-10.1%	12%	47%	10	0.6%	-10.0%	19%	42%	10	0.3%	-1.4%	10%	47%	10	0.4%	-5.4%	14%	46%
Total Test					Total Test					Total Test					Total Test				
Avg Ret	0.8%	5.1%	3.5%	1619	Avg Ret	1.3%	9.0%	6.5%	1763	Avg Ret	0.6%	2.9%	2.3%	1942	Avg Ret	1.0%	5.3%	3.7%	1763
Long Short Strategy Statistics										Long Short Strategy Statistics									
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10				
Avg Ret	1.4%	11.8%	10%	53%	Avg Ret	2.0%	10.2%	14%	60%	Avg Ret	1.1%	12.1%	6%	63%	Avg Ret	1.4%	10.11%	10.0%	58%
Ret IC					T-Stat					T-Stat					T-Stat				
Assets	325				Assets	353				Assets	389				Assets	353			

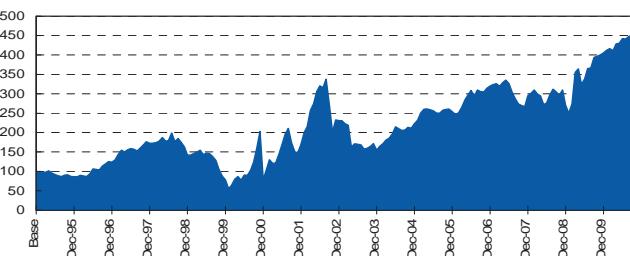
Portfolio Index Performance



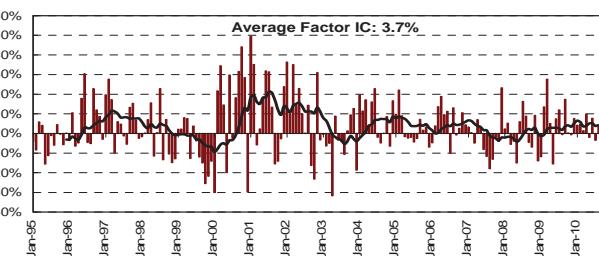
Portfolio Spread. Annual Returns



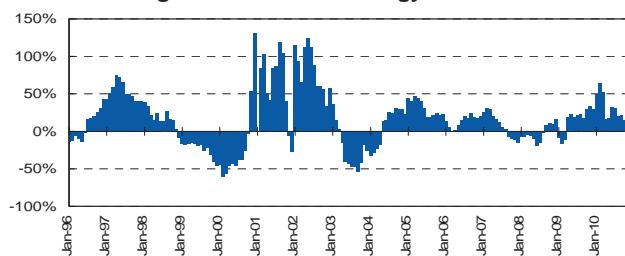
Cumulative Returns



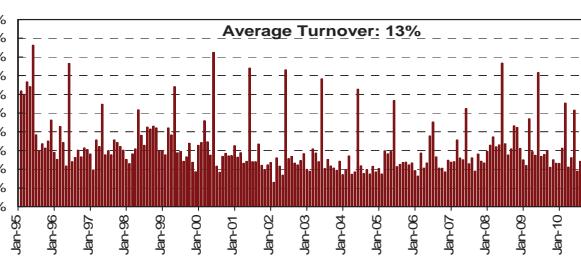
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

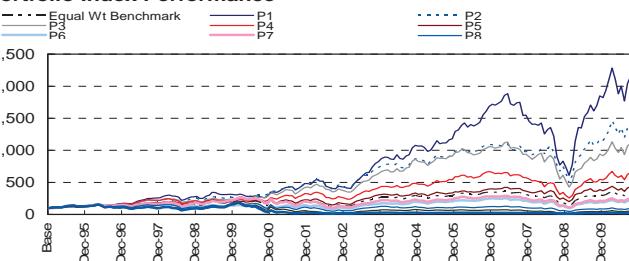


Turnover within Portfolio 1

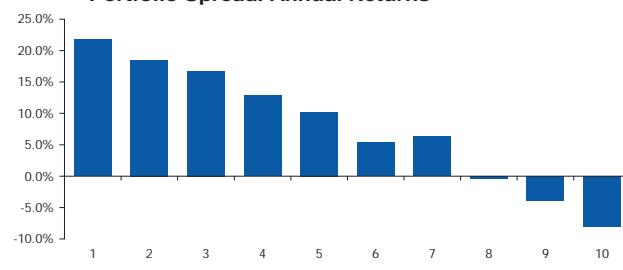


Composite Value in Bottom 1000 Universe								Rebalance every 1 month(s)															
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010											
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics									
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.				
1	1.4%	16.3%	6%	67%	1	2.7%	35.1%	6%	70%	1	1.6%	14.1%	11%	68%	1	1.9%	21.7%	8%	66%				
2	1.6%	18.3%	6%	68%	2	2.1%	25.3%	6%	58%	2	1.2%	10.2%	9%	58%	2	1.7%	18.5%	7%	62%				
3	1.4%	16.8%	5%	57%	3	2.3%	28.5%	6%	63%	3	0.8%	5.0%	9%	53%	3	1.5%	16.7%	7%	56%				
4	1.0%	10.5%	6%	55%	4	1.8%	21.5%	7%	60%	4	0.7%	4.5%	9%	43%	4	1.2%	12.8%	7%	54%				
5	0.8%	7.3%	6%	52%	5	1.4%	13.6%	8%	47%	5	0.9%	7.0%	8%	58%	5	1.1%	10.2%	8%	53%				
6	-0.1%	-3.4%	6%	32%	6	1.5%	13.6%	9%	55%	6	0.5%	2.2%	8%	48%	6	0.7%	5.3%	8%	46%				
7	0.8%	7.1%	7%	55%	7	1.0%	5.8%	11%	40%	7	0.6%	2.3%	9%	58%	7	0.9%	6.3%	9%	51%				
8	0.2%	-1.9%	8%	47%	8	0.8%	0.0%	13%	35%	8	0.2%	-2.1%	8%	40%	8	0.4%	-0.4%	10%	40%				
9	-0.3%	-9.8%	10%	38%	9	0.9%	-1.7%	16%	35%	9	0.1%	-4.2%	10%	35%	9	0.3%	-4.0%	12%	36%				
10	-0.9%	-18.0%	12%	40%	10	0.5%	-11.0%	19%	42%	10	0.5%	0.1%	10%	50%	10	0.2%	-8.0%	14%	44%				
Total Test				Total Test				Total Test				Total Test											
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets								
Universe	0.6%	7.7%	5.0%	815	Universe	1.5%	8.7%	6.2%	874	Universe	0.7%	3.8%	2.8%	969	Universe	1.0%	6.5%	4.4%	881				
Long Short Strategy Statistics Portfolio 1 less Portfolio 10								Long Short Strategy Statistics Portfolio 1 less Portfolio 10								Long Short Strategy Statistics Portfolio 1 less Portfolio 10							
Avg Ret				Avg Ret				Avg Ret				Avg Ret				Avg Ret				Avg Ret			
Long/Short	2.3%	26.0%	9%	60%	Long/Short	2.2%	10.4%	15%	63%	Long/Short	1.1%	12.4%	5%	62%	Long/Short	1.7%	14.55%	10.2%	61%	Long/Short	2.34	177	177
T-Stat				T-Stat				T-Stat				T-Stat				T-Stat				T-Stat			
P1				P2				P3				P4				P5				P6			
P7				P8				P9				P10				P11				P12			

Portfolio Index Performance



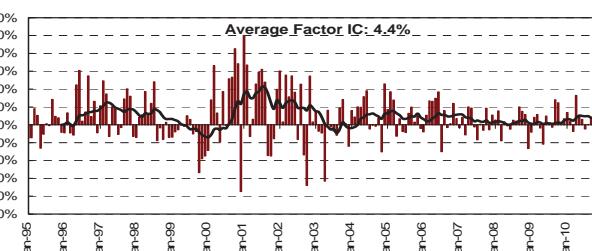
Portfolio Spread. Annual Returns



Cumulative Returns



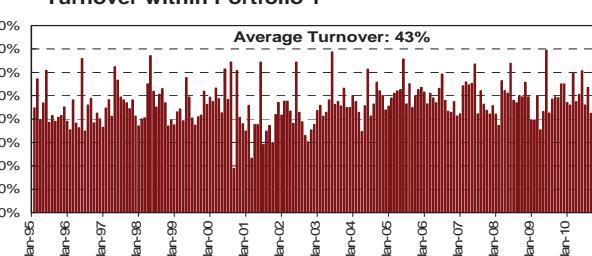
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



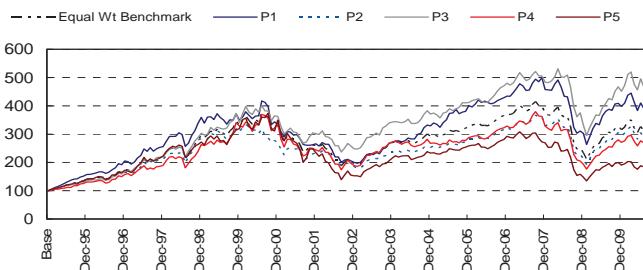
Turnover within Portfolio 1



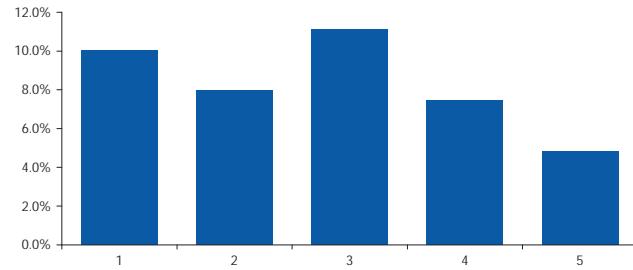
Composite General Blend (Value, Momentum)

Composite General Blend (Value, Momentum) in Top 200 Universe								Rebalance every 1 month(s)						
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010		
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.5%	17.6%	5%	53%	1	0.3%	2.5%	4%	57%	1	0.4%	3.7%	5%	55%
2	1.3%	15.5%	5%	43%	2	0.1%	0.0%	4%	52%	2	0.5%	4.5%	5%	57%
3	1.8%	21.6%	5%	58%	3	0.4%	3.4%	4%	48%	3	0.6%	5.3%	5%	63%
4	1.7%	20.4%	5%	53%	4	0.0%	-2.3%	5%	42%	4	0.3%	2.3%	5%	45%
5	1.6%	19.3%	6%	45%	5	-0.2%	-4.7%	7%	43%	5	-0.1%	-3.3%	6%	43%
Total Test				Total Test				Total Test				Total Test		
Avg Ret	1.6%	Rank IC	Avg IC	Avg Assets	Avg Ret	0.1%	Rank IC	Avg IC	Avg Assets	Avg Ret	0.3%	Rank IC	Avg IC	Avg Assets
Universe	0.0%	0.6%	158	158	Universe	0.1%	3.2%	2.6%	176	Universe	0.3%	2.2%	2.8%	196
Long Short Strategy Statistics														
Portfolio 1 less Portfolio 5														
Avg Ret				Avg Ret				Avg Ret				Avg Ret		
Long/Short	-0.1%	-2.1%	3%	52%	Long/Short	0.5%	4.4%	5%	67%	Long/Short	0.6%	6.4%	3%	55%
T-Stat				T-Stat				T-Stat				T-Stat		
Long/Short	-0.34		64		Long/Short	0.77		71		Long/Short	1.46		79	

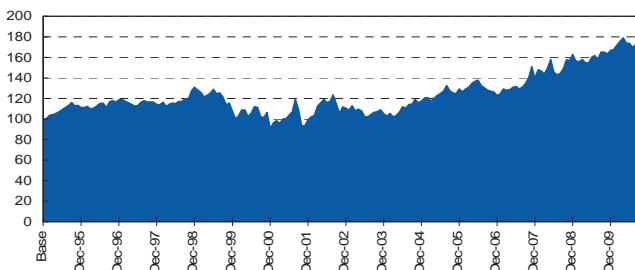
Portfolio Index Performance



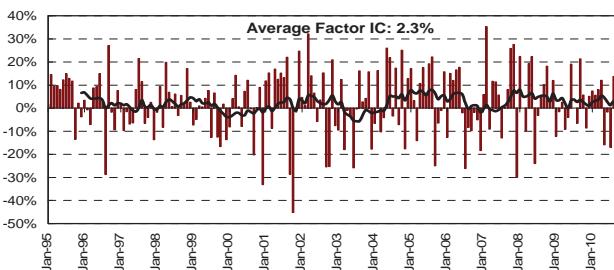
Portfolio Spread. Annual Returns



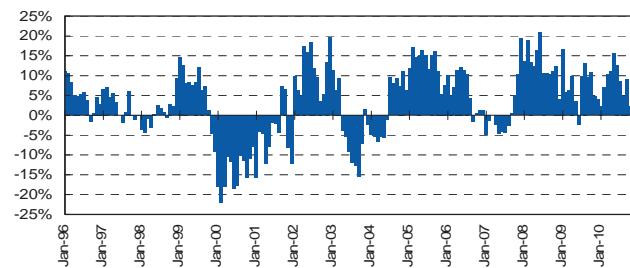
Cumulative Returns



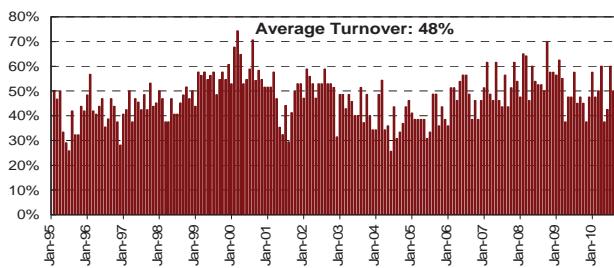
Information Co-Efficients (IC)

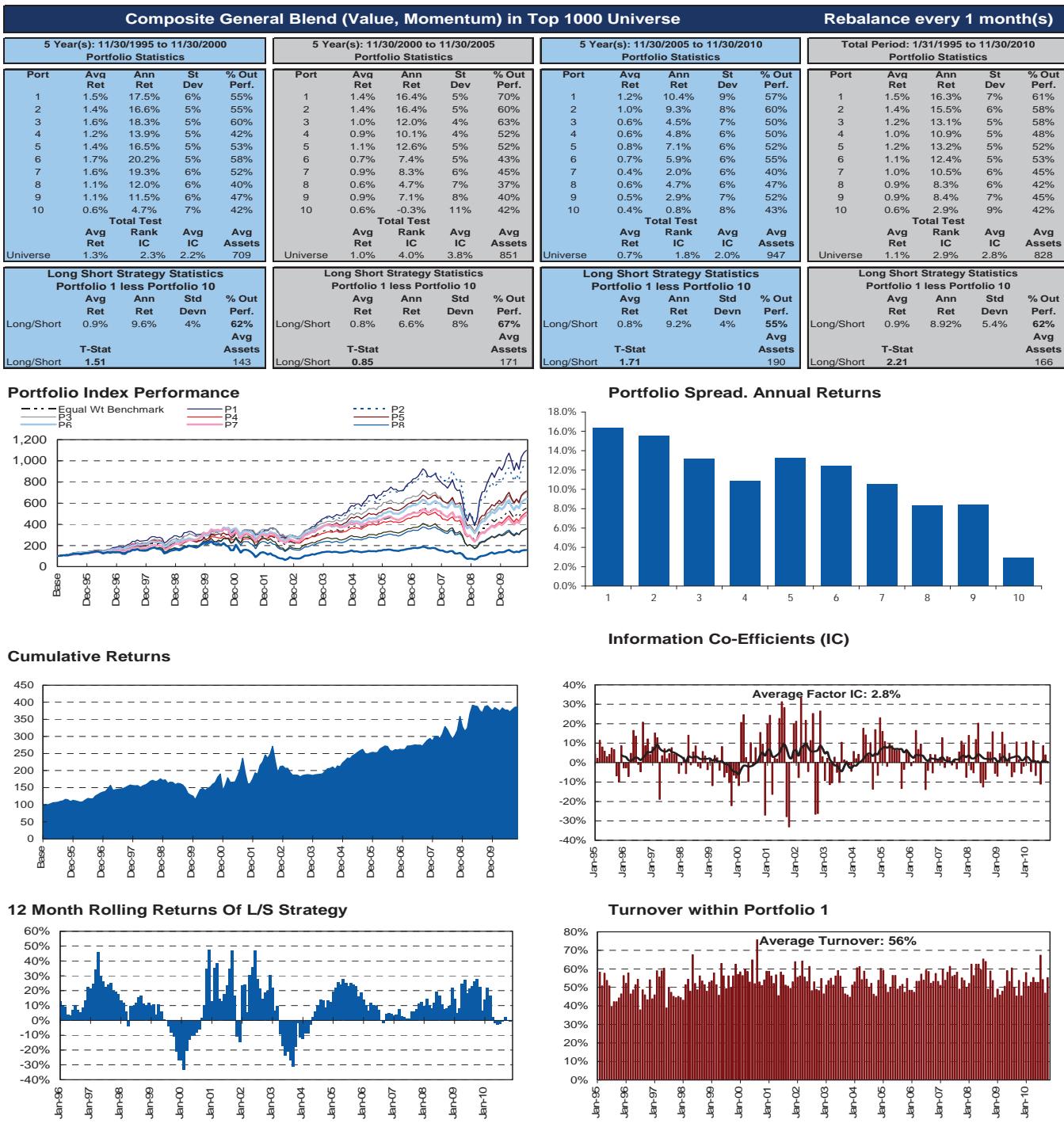


12 Month Rolling Returns Of L/S Strategy



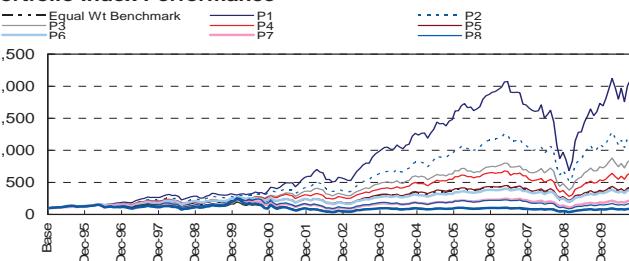
Turnover within Portfolio 1



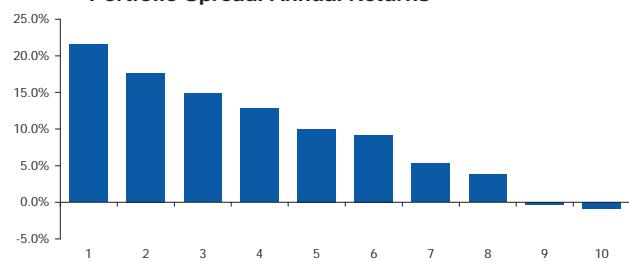


Composite General Blend (Value, Momentum) in Bottom 2000 Universe								Rebalance every 1 month(s)																
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010									
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics										
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.					
1	1.6%	18.8%	5%	62%	1	2.8%	35.5%	6%	68%	1	1.1%	8.6%	10%	67%	1	1.9%	21.5%	7%	65%					
2	1.6%	19.0%	6%	63%	2	2.1%	25.2%	6%	70%	2	0.9%	7.2%	9%	55%	2	1.6%	17.7%	7%	62%					
3	1.4%	16.2%	6%	53%	3	1.7%	20.2%	6%	58%	3	0.9%	7.3%	8%	67%	3	1.4%	14.9%	6%	58%					
4	1.2%	13.9%	6%	53%	4	1.5%	17.6%	6%	63%	4	0.6%	4.0%	8%	47%	4	1.2%	12.8%	6%	55%					
5	0.9%	9.5%	6%	48%	5	1.2%	13.3%	6%	55%	5	0.5%	3.5%	7%	42%	5	1.0%	10.0%	6%	49%					
6	1.0%	10.0%	7%	48%	6	1.0%	9.2%	7%	42%	6	0.6%	4.4%	7%	47%	6	1.0%	9.2%	7%	46%					
7	0.7%	5.2%	8%	35%	7	0.7%	4.5%	9%	40%	7	0.5%	3.3%	7%	58%	7	0.7%	5.3%	8%	44%					
8	1.0%	8.0%	9%	50%	8	0.5%	1.4%	9%	35%	8	0.2%	-1.2%	8%	38%	8	0.7%	3.8%	8%	41%					
9	0.1%	-3.7%	9%	33%	9	0.4%	-2.4%	12%	30%	9	0.3%	0.1%	8%	33%	9	0.4%	-0.4%	9%	35%					
10	0.2%	-3.9%	10%	50%	10	0.9%	-2.1%	15%	38%	10	0.3%	-0.9%	9%	38%	10	0.6%	-0.9%	11%	43%					
Total Test					Total Test					Total Test					Total Test									
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	1.0%	5.3%	3.8%	1310	Universe	1.3%	7.5%	5.8%	1489	Universe	0.6%	2.6%	2.1%	1773	Universe	1.0%	5.0%	3.7%	1508	
Long Short Strategy Statistics Portfolio 1 less Portfolio 10								Long Short Strategy Statistics Portfolio 1 less Portfolio 10								Long Short Strategy Statistics Portfolio 1 less Portfolio 10								
Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.
T-Stat	1.36				T-Stat	1.90	15.2%	11%	63%	T-Stat	1.31				T-Stat	1.84				T-Stat	2.33			
Long Short Strategy Statistics Portfolio 1 less Portfolio 10								Long Short Strategy Statistics Portfolio 1 less Portfolio 10								Long Short Strategy Statistics Portfolio 1 less Portfolio 10								
Long/Short	Avg Assets	263			Long/Short	Avg Assets	299			Long/Short	Avg Assets	356			Long/Short	Avg Assets	303			Long/Short	Avg Assets	303		

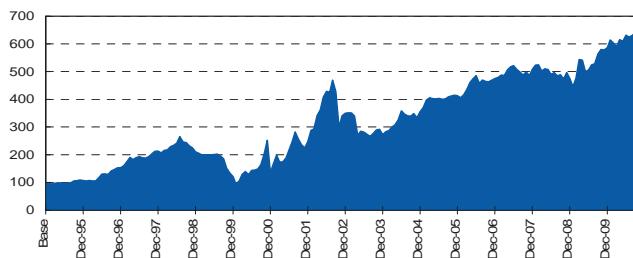
Portfolio Index Performance



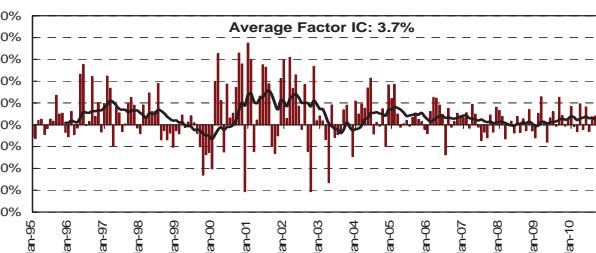
Portfolio Spread. Annual Returns



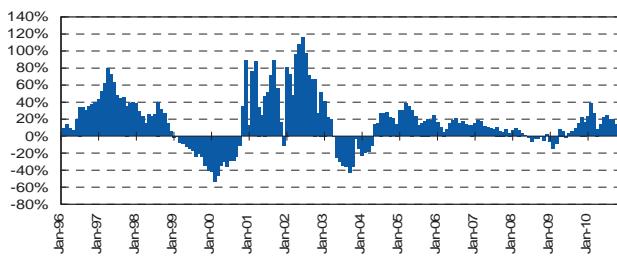
Cumulative Returns



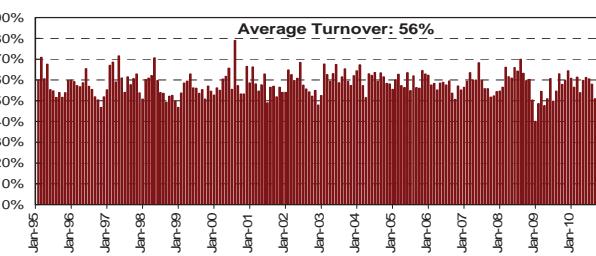
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

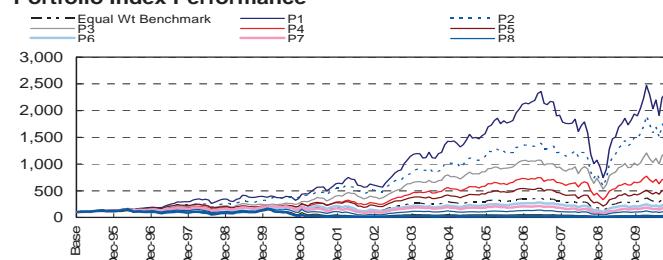


Composite General Blend (Value, Momentum) in Bottom 1000 Universe

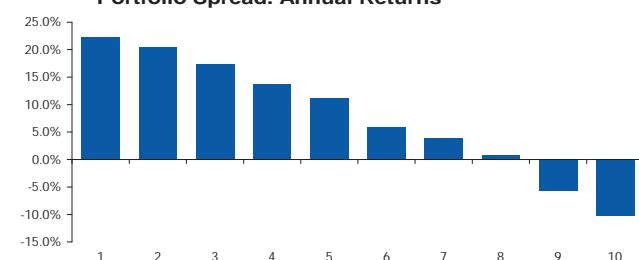
Rebalance every 1 month(s)

5 Year(s): 11/30/1995 to 11/30/2000 Portfolio Statistics					5 Year(s): 11/30/2000 to 11/30/2005 Portfolio Statistics					5 Year(s): 11/30/2005 to 11/30/2010 Portfolio Statistics					Total Period: 1/31/1995 to 11/30/2010 Portfolio Statistics								
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.				
1	1.6%	18.6%	6%	72%	1	2.9%	36.7%	7%	70%	1	1.3%	9.8%	10%	62%	1	2.0%	22.3%	8%	68%				
2	1.9%	22.4%	6%	67%	2	2.2%	26.5%	6%	65%	2	1.3%	11.4%	9%	70%	2	1.8%	20.5%	7%	66%				
3	1.4%	15.4%	6%	63%	3	2.3%	28.6%	6%	70%	3	1.0%	8.4%	8%	55%	3	1.6%	17.5%	7%	61%				
4	0.9%	9.8%	6%	55%	4	2.0%	23.7%	6%	63%	4	0.8%	6.0%	8%	55%	4	1.3%	13.8%	7%	57%				
5	0.9%	8.6%	6%	52%	5	1.6%	17.5%	8%	58%	5	0.7%	3.9%	9%	53%	5	1.2%	11.2%	7%	55%				
6	0.6%	5.8%	6%	55%	6	1.1%	8.1%	10%	33%	6	0.5%	2.2%	8%	48%	6	0.8%	6.0%	8%	44%				
7	0.5%	3.2%	7%	47%	7	1.0%	5.0%	11%	32%	7	0.4%	0.0%	9%	45%	7	0.7%	3.9%	9%	42%				
8	-0.1%	-4.6%	8%	37%	8	1.0%	1.7%	14%	42%	8	0.5%	1.2%	9%	43%	8	0.6%	0.8%	10%	41%				
9	-0.7%	-12.6%	9%	35%	9	0.8%	-3.8%	16%	37%	9	0.2%	-3.3%	9%	38%	9	0.1%	-5.7%	12%	36%				
10	-1.1%	-20.9%	12%	40%	10	0.4%	-13.0%	18%	38%	10	0.5%	-0.6%	11%	50%	10	0.0%	-10.3%	14%	44%				
Total Test					Total Test					Total Test					Total Test								
Avg Ret	Rank IC	Avg IC	Avg Assets		Avg Ret	Rank IC	Avg IC	Avg Assets		Avg Ret	Rank IC	Avg IC	Avg Assets		Avg Ret	Rank IC	Avg IC	Avg Assets					
Universe	0.6%	8.7%	6.1%	815	Universe	1.5%	9.2%	6.7%	874	Universe	0.7%	3.7%	2.5%	969	Universe	1.0%	7.1%	4.9%	881				
Long Short Strategy Statistics																							
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10								
Avg Ret	Ann Ret	Std Devn	% Out Perf.		Avg Ret	Ann Ret	Std Devn	% Out Perf.		Avg Ret	Ann Ret	Std Devn	% Out Perf.		Avg Ret	Ann Ret	Std Devn	% Out Perf.					
Long/Short	2.8%	33.4%	9%	62%	Long/Short	2.5%	16.2%	15%	62%	Long/Short	0.8%	8.7%	4%	57%	Long/Short	2.0%	18.65%	9.9%	59%				
T-Stat	Assets				T-Stat	Assets				T-Stat	Assets				T-Stat	Assets							
Long/Short	2.52	164				Long/Short	1.32	176				Long/Short	1.46	195				Long/Short	2.75	177			

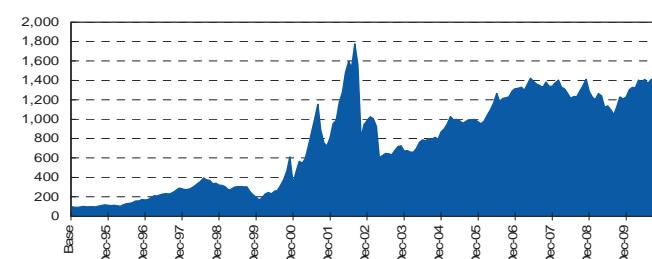
Portfolio Index Performance



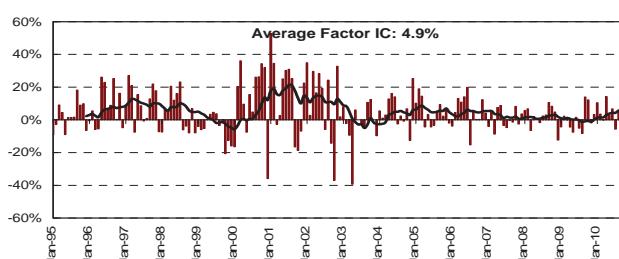
Portfolio Spread: Annual Returns



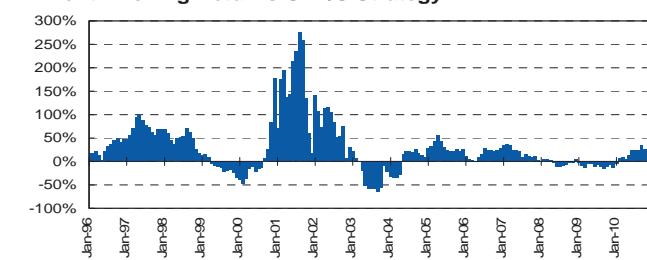
Cumulative Returns



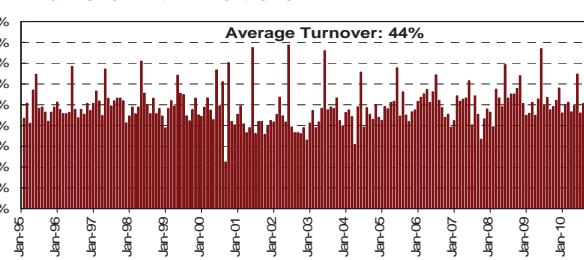
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



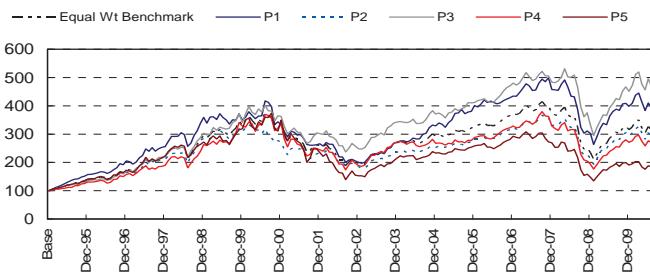
Turnover within Portfolio 1



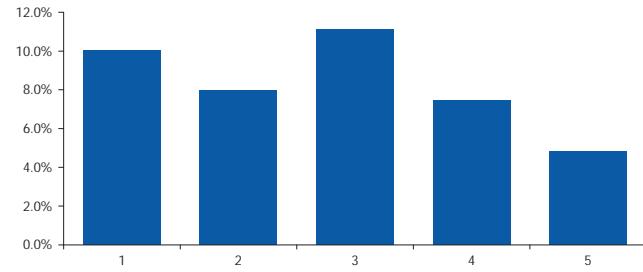
Composite General Blend (Value, Growth)

Composite General Blend (Value, Growth) in Top 200 Universe								Rebalance every 1 month(s)																			
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010												
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics									
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.								
1	1.5%	17.6%	5%	53%	1	0.3%	2.5%	4%	57%	1	0.4%	3.7%	5%	55%	1	0.9%	10.0%	5%	56%								
2	1.3%	15.5%	5%	43%	2	0.1%	0.0%	4%	52%	2	0.5%	4.5%	5%	57%	2	0.8%	8.0%	5%	51%								
3	1.8%	21.6%	5%	58%	3	0.4%	3.4%	4%	48%	3	0.6%	5.3%	5%	63%	3	1.0%	11.1%	5%	56%								
4	1.7%	20.4%	5%	53%	4	0.0%	-2.3%	5%	42%	4	0.3%	2.3%	5%	45%	4	0.7%	7.4%	5%	45%								
5	1.6%	19.3%	6%	45%	5	-0.2%	-4.7%	7%	43%	5	-0.1%	-3.3%	6%	43%	5	0.6%	4.8%	6%	45%								
Total Test					Total Test					Total Test					Total Test												
Avg Ret		Rank IC		Avg IC		Avg Ret		Rank IC		Avg IC		Avg Assets		Avg Ret		Rank IC		Avg IC		Avg Assets							
Universe	1.6%	0.0%	0.6%	158	Universe	0.1%	3.2%	2.6%	176	Universe	0.3%	2.2%	2.8%	196	Universe	0.8%	2.0%	2.3%	175	Universe	0.8%	2.0%	2.3%	175			
Long Short Strategy Statistics													Long Short Strategy Statistics														
Portfolio 1 less Portfolio 5					Portfolio 1 less Portfolio 5					Portfolio 1 less Portfolio 5					Portfolio 1 less Portfolio 5					Portfolio 1 less Portfolio 5							
Avg Ret		Ann Ret		Std Devn		% Out Perf.		Avg Ret		Ann Ret		Std Devn		% Out Perf.		Avg Ret		Ann Ret		Std Devn		% Out Perf.					
Long/Short	-0.1%	-2.1%	3%	52%	Long/Short	0.5%	4.4%	5%	67%	Long/Short	0.6%	6.4%	3%	55%	Long/Short	1.46	T-Stat	71	Long/Short	0.4%	3.46%	3.6%	59%	Long/Short	1.33	T-Stat	71
T-Stat		Avg Assets		T-Stat		Avg Assets		T-Stat		Avg Assets		T-Stat		Avg Assets		T-Stat		Avg Assets		T-Stat		Avg Assets					

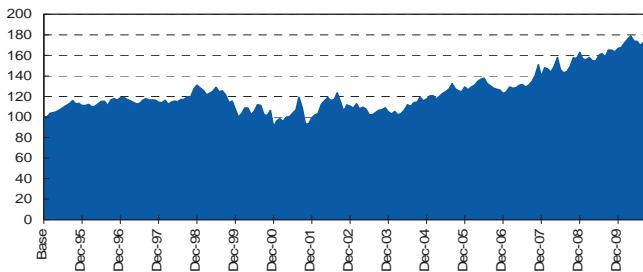
Portfolio Index Performance



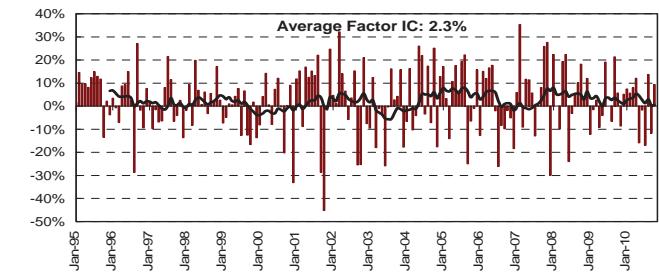
Portfolio Spread. Annual Returns



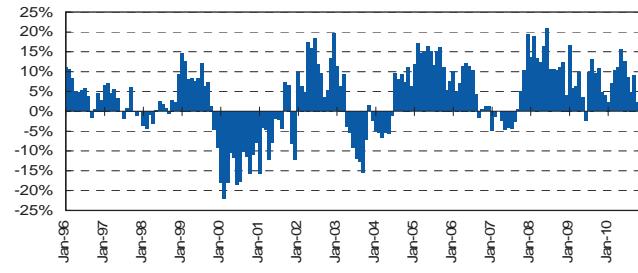
Cumulative Returns



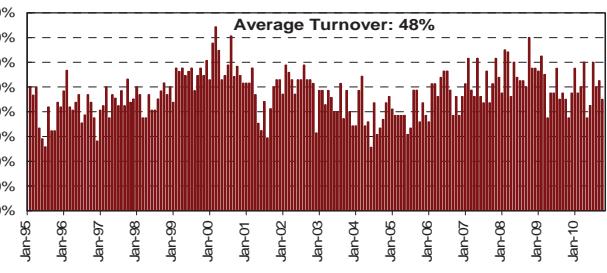
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

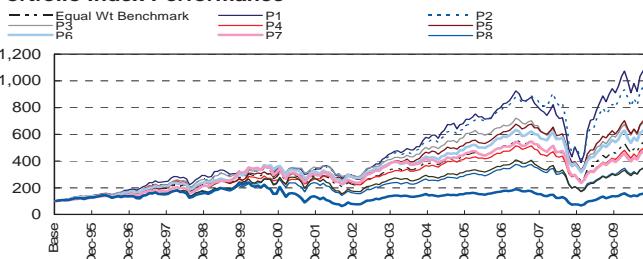


Turnover within Portfolio 1

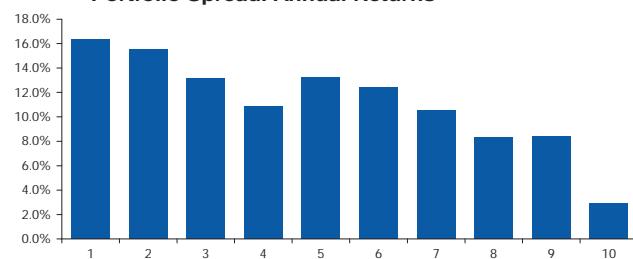


Composite General Blend (Value, Growth) in Top 1000 Universe										Rebalance every 1 month(s)													
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010								
Portfolio Statistics										Portfolio Statistics													
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.				
1	1.5%	17.5%	6%	55%	1	1.4%	16.4%	5%	70%	1	1.2%	10.4%	9%	57%	1	1.5%	16.3%	7%	61%				
2	1.4%	16.6%	5%	55%	2	1.4%	16.4%	5%	60%	2	1.0%	9.3%	8%	60%	2	1.4%	15.5%	6%	58%				
3	1.6%	18.3%	5%	60%	3	1.0%	12.0%	4%	63%	3	0.6%	4.5%	7%	50%	3	1.2%	13.1%	5%	58%				
4	1.2%	13.9%	5%	42%	4	0.9%	10.1%	4%	52%	4	0.6%	4.8%	6%	50%	4	1.0%	10.9%	5%	48%				
5	1.4%	16.5%	5%	53%	5	1.1%	12.6%	5%	52%	5	0.8%	7.1%	6%	52%	5	1.2%	13.2%	5%	52%				
6	1.7%	20.2%	5%	58%	6	0.7%	7.4%	5%	43%	6	0.7%	5.9%	6%	55%	6	1.1%	12.4%	5%	53%				
7	1.6%	19.3%	6%	52%	7	0.9%	8.3%	6%	45%	7	0.4%	2.0%	6%	40%	7	1.0%	10.5%	6%	45%				
8	1.1%	12.0%	6%	40%	8	0.6%	4.7%	7%	37%	8	0.6%	4.7%	6%	47%	8	0.9%	8.3%	6%	42%				
9	1.1%	11.5%	6%	47%	9	0.9%	7.1%	8%	40%	9	0.5%	2.9%	7%	52%	9	0.9%	8.4%	7%	45%				
10	0.6%	4.7%	7%	42%	10	0.6%	-0.3%	11%	42%	10	0.4%	0.8%	8%	43%	10	0.6%	2.9%	9%	42%				
Total Test					Total Test					Total Test					Total Test								
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	1.3%	2.3%	2.2%	709	Universe	1.0%	4.0%	3.8%	851	Universe	0.7%	1.8%	2.0%	947	Universe	1.1%	2.9%	2.8%	828
Long Short Strategy Statistics										Long Short Strategy Statistics													
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10								
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.					
0.9%	9.6%	4%	62%	Long/Short	0.8%	6.6%	8%	67%	Long/Short	0.8%	9.2%	4%	55%	Long/Short	0.9%	8.92%	5.4%	62%					
T-Stat	Avg Assets	T-Stat	Avg Assets	Long/Short	T-Stat	Avg Assets	T-Stat	Avg Assets	Long/Short	T-Stat	Avg Assets	T-Stat	Avg Assets	Long/Short	T-Stat	Avg Assets	T-Stat	Avg Assets					
1.51	143	0.85	171	1.71	190	2.21	166	1.71	190	2.21	166	2.21	166	1.71	190	2.21	166	2.21	166				

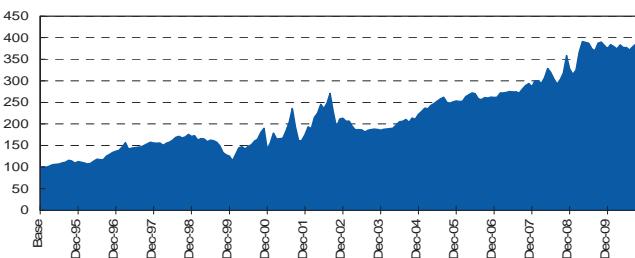
Portfolio Index Performance



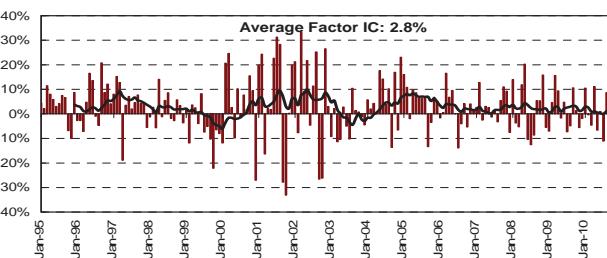
Portfolio Spread. Annual Returns



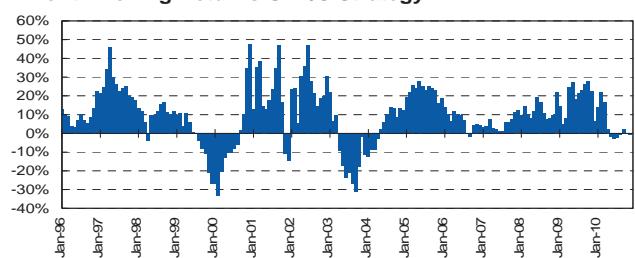
Cumulative Returns



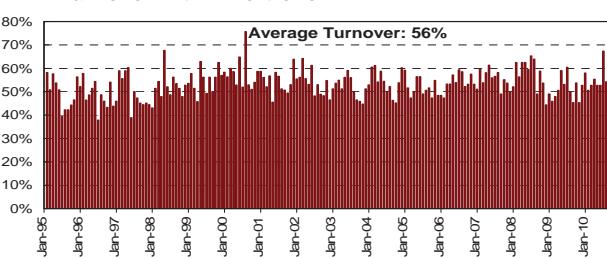
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

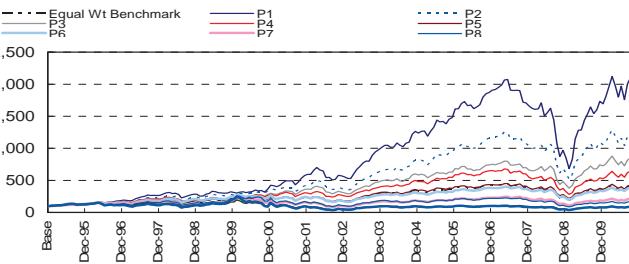


Turnover within Portfolio 1

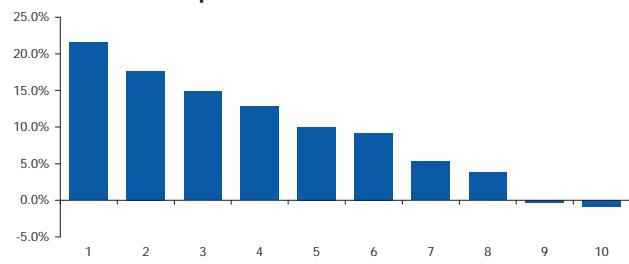


Composite General Blend (Value, Growth) in Bottom 2000 Universe								Rebalance every 1 month(s)																
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010									
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics										
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.					
1	1.6%	18.8%	5%	62%	1	2.8%	35.5%	6%	68%	1	1.1%	8.6%	10%	67%	1	1.9%	21.5%	7%	65%					
2	1.6%	19.0%	6%	63%	2	2.1%	25.2%	6%	70%	2	0.9%	7.2%	9%	55%	2	1.6%	17.7%	7%	62%					
3	1.4%	16.2%	6%	53%	3	1.7%	20.2%	6%	58%	3	0.9%	7.3%	8%	67%	3	1.4%	14.9%	6%	58%					
4	1.2%	13.9%	6%	53%	4	1.5%	17.6%	6%	63%	4	0.6%	4.0%	8%	47%	4	1.2%	12.8%	6%	55%					
5	0.9%	9.5%	6%	48%	5	1.2%	13.3%	6%	55%	5	0.5%	3.5%	7%	42%	5	1.0%	10.0%	6%	49%					
6	1.0%	10.0%	7%	48%	6	1.0%	9.2%	7%	42%	6	0.6%	4.4%	7%	47%	6	1.0%	9.2%	7%	46%					
7	0.7%	5.2%	8%	35%	7	0.7%	4.5%	9%	40%	7	0.5%	3.3%	7%	58%	7	0.7%	5.3%	8%	44%					
8	1.0%	8.0%	9%	50%	8	0.5%	1.4%	9%	35%	8	0.2%	-1.2%	8%	38%	8	0.7%	3.8%	8%	41%					
9	0.1%	-3.7%	9%	33%	9	0.4%	-2.4%	12%	30%	9	0.3%	0.1%	8%	33%	9	0.4%	-0.4%	9%	35%					
10	0.2%	-3.9%	10%	50%	10	0.9%	-2.1%	15%	38%	10	0.3%	-0.9%	9%	38%	10	0.6%	-0.9%	11%	43%					
Total Test					Total Test					Total Test					Total Test									
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	1.0%	5.3%	3.8%	1310	Universe	1.3%	7.5%	5.8%	1489	Universe	0.6%	2.6%	2.1%	1773	Universe	1.0%	5.0%	3.7%	1508	
Long Short Strategy Statistics Portfolio 1 less Portfolio 10								Long Short Strategy Statistics Portfolio 1 less Portfolio 10								Long Short Strategy Statistics Portfolio 1 less Portfolio 10								
Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.
T-Stat	1.36				T-Stat	1.90	15.2%	11%	63%	T-Stat	1.31				T-Stat	1.84				T-Stat	2.33			
Long Short Strategy Statistics Portfolio 1 less Portfolio 10								Long Short Strategy Statistics Portfolio 1 less Portfolio 10								Long Short Strategy Statistics Portfolio 1 less Portfolio 10								
Long/Short	Avg Assets	263			Long/Short	Avg Assets	299			Long/Short	Avg Assets	356			Long/Short	Avg Assets	303			Long/Short	Avg Assets	303		

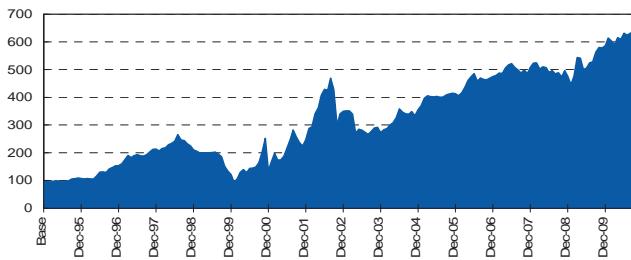
Portfolio Index Performance



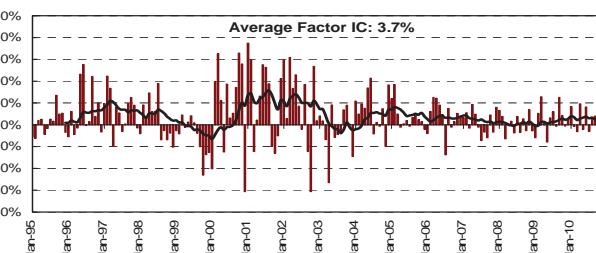
Portfolio Spread. Annual Returns



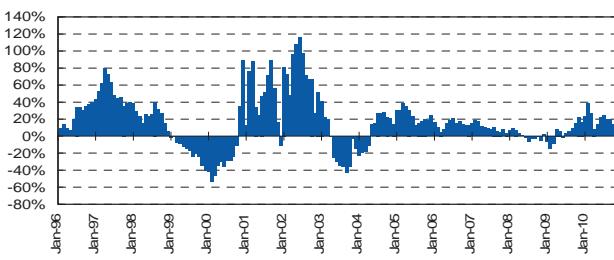
Cumulative Returns



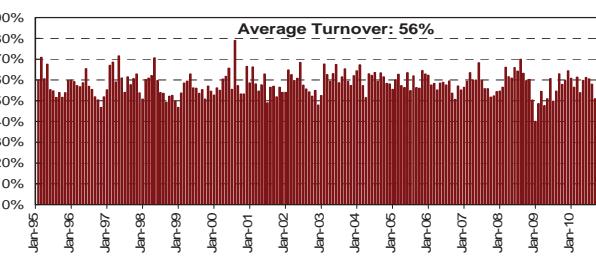
Information Co-Efficients (IC)

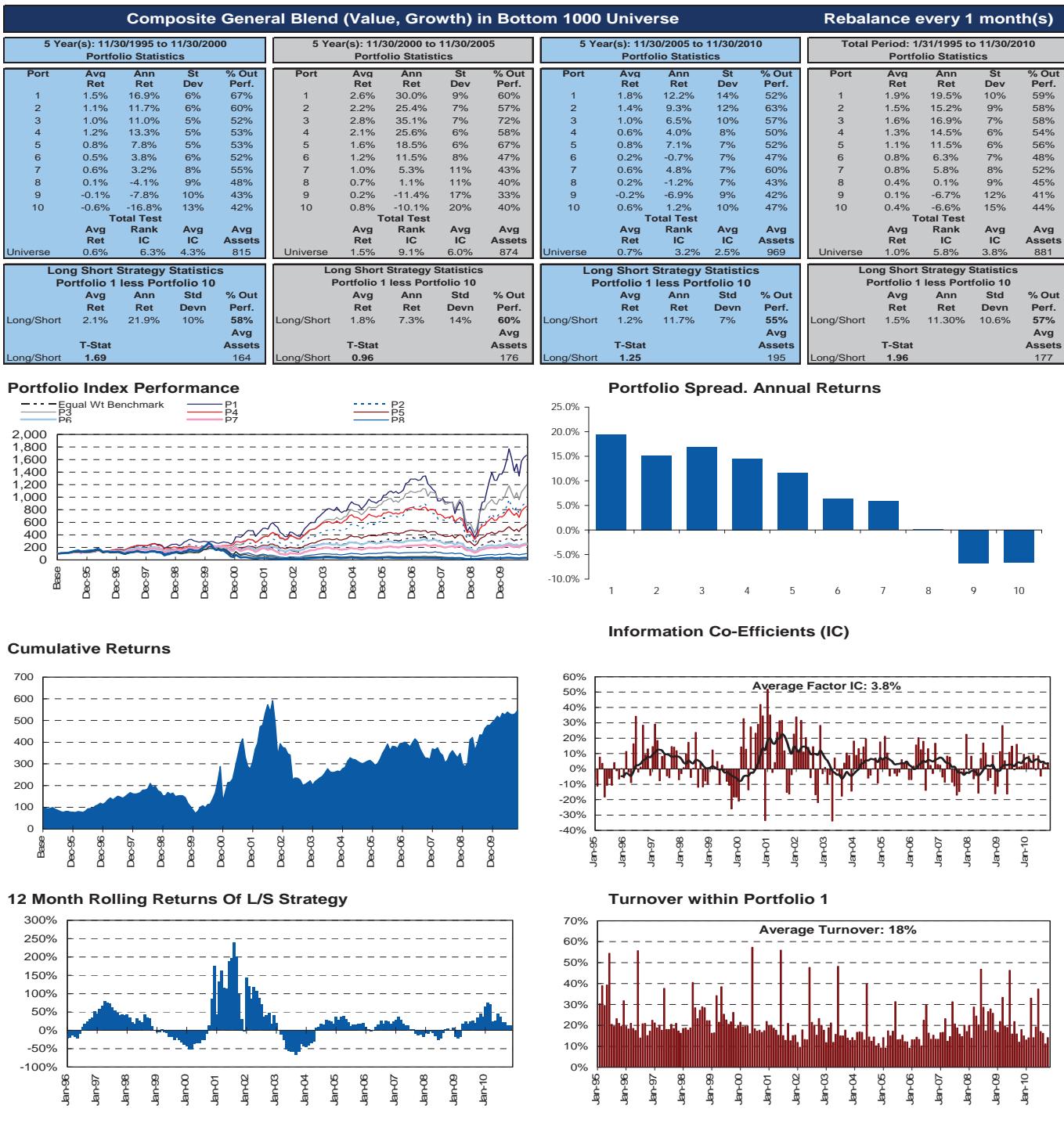


12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

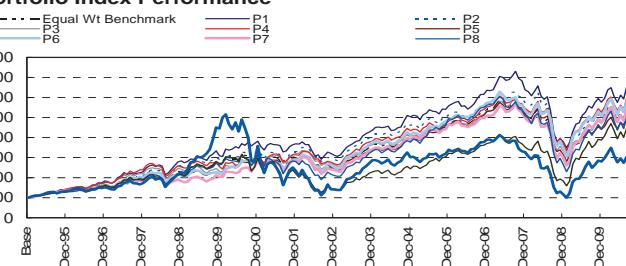




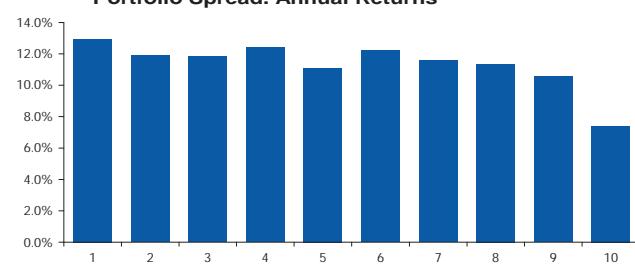
Composite Quality

Composite Quality in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.7%	20.7%	5%	58%	1	0.8%	8.6%	4%	48%	1	0.6%	4.8%	6%	43%	1	1.1%	12.9%	5%	51%
2	1.6%	18.6%	5%	58%	2	0.9%	10.2%	4%	55%	2	0.5%	3.7%	6%	45%	2	1.1%	11.9%	5%	53%
3	1.3%	15.4%	5%	45%	3	0.9%	10.8%	4%	52%	3	0.6%	5.1%	6%	53%	3	1.1%	11.8%	5%	50%
4	1.3%	15.1%	5%	53%	4	1.0%	11.3%	4%	53%	4	0.7%	6.5%	5%	52%	4	1.1%	12.4%	5%	53%
5	1.4%	16.0%	5%	55%	5	0.9%	10.6%	4%	58%	5	0.4%	3.4%	6%	42%	5	1.0%	11.1%	5%	51%
6	1.3%	15.5%	5%	47%	6	1.1%	12.1%	5%	60%	6	0.6%	5.6%	6%	48%	6	1.1%	12.2%	5%	51%
7	1.0%	11.7%	5%	42%	7	1.2%	13.7%	6%	58%	7	0.7%	5.3%	7%	48%	7	1.1%	11.6%	6%	49%
8	1.4%	15.8%	5%	45%	8	1.1%	11.9%	6%	58%	8	0.6%	3.8%	8%	52%	8	1.1%	11.4%	6%	50%
9	1.2%	12.7%	6%	48%	9	0.8%	5.1%	9%	53%	9	1.2%	10.4%	9%	57%	9	1.2%	10.6%	8%	52%
10	1.7%	17.2%	8%	52%	10	0.8%	1.9%	12%	53%	10	0.5%	-0.1%	11%	48%	10	1.1%	7.4%	10%	51%
Total Test				Total Test				Total Test				Total Test				Total Test			
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets
Universe	1.4%	2.6%	0.4%	754	Universe	1.0%	0.8%	1.2%	893	Universe	0.6%	1.3%	0.9%	923	Universe	1.1%	1.7%	0.9%	842
Long Short Strategy Statistics																			
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10				
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.
Long/Short	0.0%	-1.8%	6%	48%	Long/Short	-0.1%	-5.4%	9%	48%	Long/Short	0.0%	-2.2%	6%	52%	Long/Short	0.0%	-2.46%	6.9%	50%
T-Stat			Avg Assets	152	T-Stat			Avg Assets	179	T-Stat			Avg Assets	185	T-Stat			Avg Assets	169

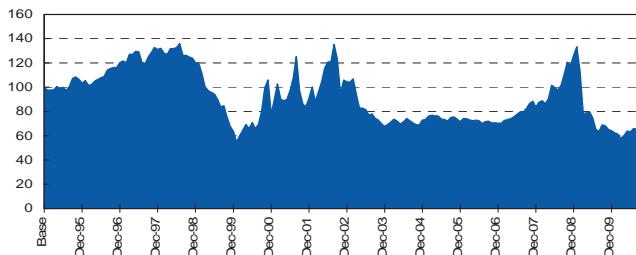
Portfolio Index Performance



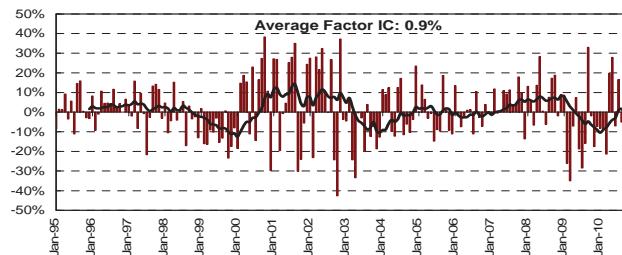
Portfolio Spread. Annual Returns



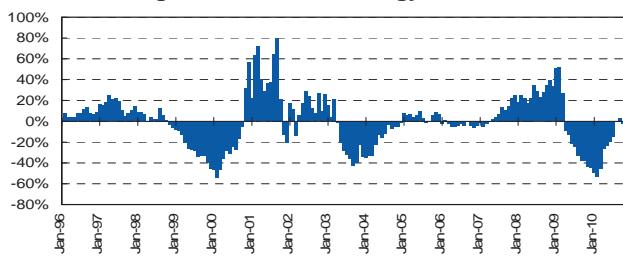
Cumulative Returns



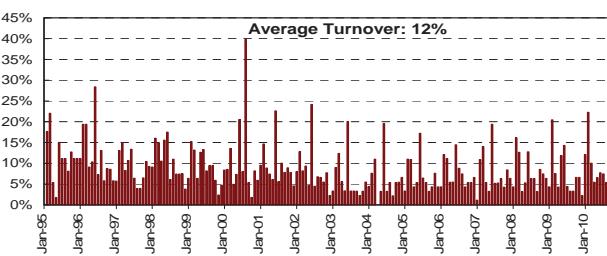
Information Co-Efficients (IC)

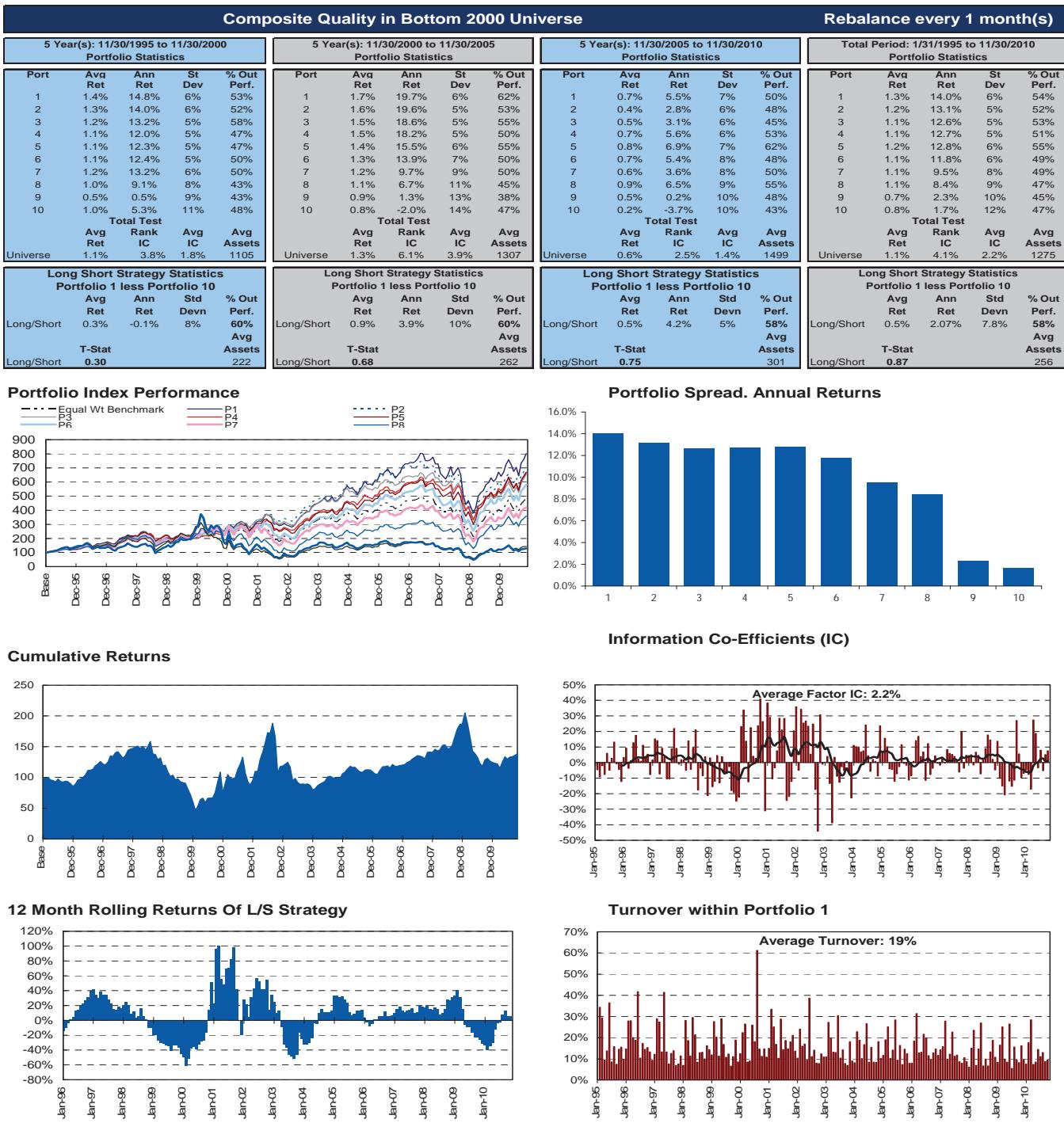


12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

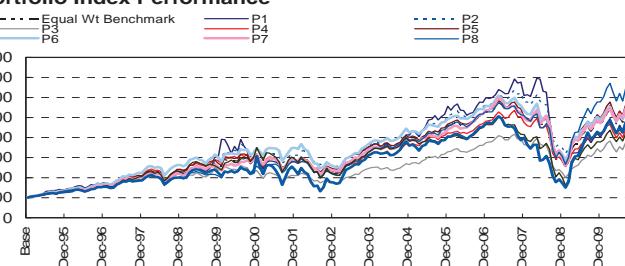




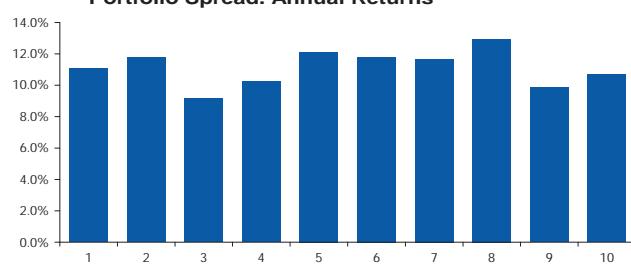
Composite Sentiment

Composite Sentiment in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.4%	13.7%	8%	47%	1	1.2%	13.4%	5%	58%	1	0.3%	0.9%	7%	57%	1	1.1%	11.1%	7%	54%
2	1.5%	17.2%	6%	45%	2	0.9%	9.5%	5%	53%	2	0.5%	4.2%	6%	50%	2	1.1%	11.8%	5%	50%
3	1.0%	10.7%	6%	42%	3	0.7%	7.2%	4%	45%	3	0.6%	5.0%	6%	52%	3	0.9%	9.2%	5%	46%
4	1.5%	17.6%	5%	53%	4	0.7%	7.3%	5%	40%	4	0.4%	2.8%	6%	38%	4	0.9%	10.2%	5%	43%
5	1.3%	15.6%	5%	53%	5	0.9%	10.4%	5%	43%	5	0.7%	6.4%	6%	55%	5	1.1%	12.1%	5%	51%
6	1.5%	18.5%	5%	62%	6	0.8%	8.7%	5%	45%	6	0.5%	4.2%	6%	38%	6	1.1%	11.8%	5%	50%
7	1.4%	16.7%	5%	53%	7	0.8%	8.7%	5%	43%	7	0.8%	6.5%	7%	55%	7	1.1%	11.7%	6%	51%
8	1.1%	12.0%	5%	42%	8	1.3%	14.2%	6%	57%	8	1.0%	9.6%	7%	47%	8	1.2%	13.0%	6%	48%
9	1.5%	17.6%	5%	57%	9	0.8%	6.8%	7%	43%	9	0.6%	2.6%	9%	40%	9	1.0%	9.8%	7%	46%
10	1.0%	11.7%	5%	38%	10	1.5%	12.1%	11%	47%	10	0.9%	5.2%	11%	47%	10	1.2%	10.7%	9%	43%
Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets				
Universe	1.3%	1.0%	0.1%	904	Universe	1.0%	0.8%	1.0%	951	Universe	0.6%	1.2%	1.0%	964	Universe	1.1%	1.2%	0.8%	937
Long Short Strategy Statistics								Long Short Strategy Statistics											
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.				
Long/Short	0.4%	1.7%	7%	50%	Long/Short	-0.3%	-8.2%	8%	60%	Long/Short	-0.6%	-11.6%	8%	58%	Long/Short	-0.1%	-5.14%	7.6%	57%
T-Stat	0.40		Avg Assets	T-Stat	-0.34		Avg Assets	T-Stat	-0.54		Avg Assets	T-Stat	-0.20		Avg Assets				
Long/Short	182			Long/Short	191			Long/Short	194			Long/Short	188						

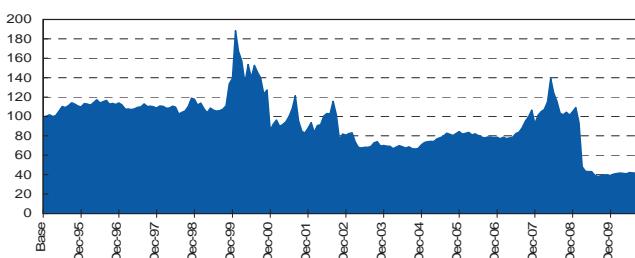
Portfolio Index Performance



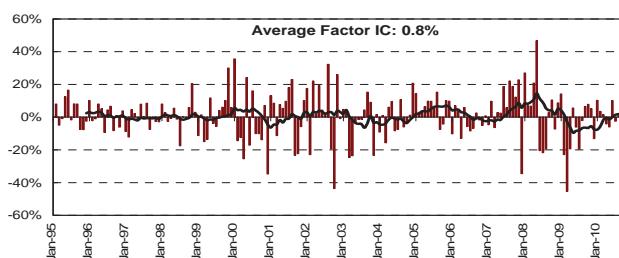
Portfolio Spread. Annual Returns



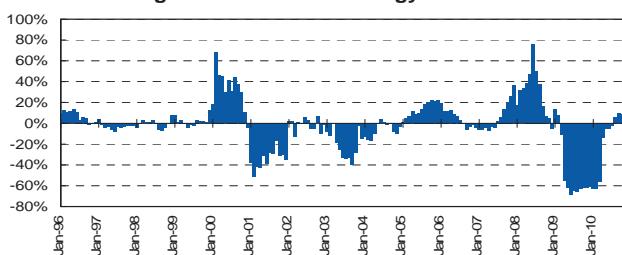
Cumulative Returns



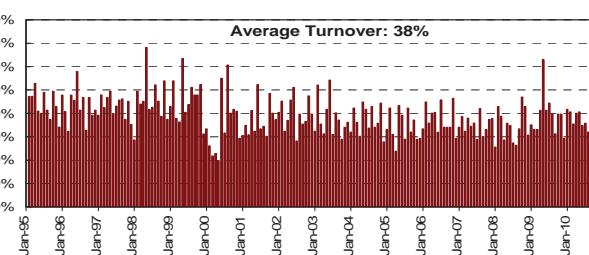
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy

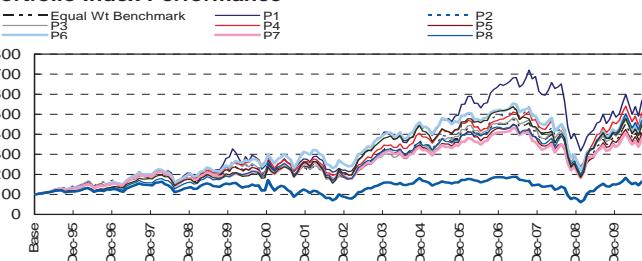


Turnover within Portfolio 1

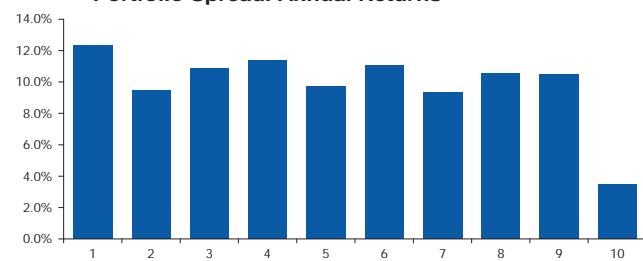


Composite Sentiment in Bottom 2000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.3%	12.1%	8%	55%	1	1.5%	16.7%	7%	63%	1	0.7%	5.1%	7%	62%	1	1.2%	12.3%	7%	60%
2	0.9%	7.8%	7%	55%	2	1.4%	14.7%	6%	60%	2	0.4%	1.1%	7%	48%	2	1.0%	9.5%	7%	56%
3	0.9%	9.1%	7%	58%	3	1.3%	14.2%	6%	57%	3	0.7%	5.5%	7%	53%	3	1.1%	10.8%	7%	56%
4	1.3%	13.8%	6%	62%	4	1.1%	11.4%	6%	53%	4	0.7%	5.6%	7%	52%	4	1.1%	11.4%	6%	56%
5	0.9%	9.0%	6%	50%	5	1.2%	12.9%	6%	50%	5	0.6%	3.8%	7%	50%	5	1.0%	9.7%	6%	51%
6	1.2%	13.4%	6%	60%	6	1.3%	14.2%	7%	50%	6	0.5%	2.4%	8%	43%	6	1.1%	11.0%	7%	51%
7	0.8%	8.5%	6%	50%	7	1.3%	13.0%	7%	50%	7	0.6%	3.6%	8%	47%	7	1.0%	9.4%	7%	49%
8	1.0%	10.4%	5%	45%	8	1.4%	14.0%	8%	52%	8	0.8%	5.8%	8%	45%	8	1.1%	10.5%	7%	45%
9	0.8%	8.7%	5%	50%	9	1.8%	18.5%	9%	53%	9	0.6%	2.7%	9%	45%	9	1.1%	10.5%	8%	48%
10	0.3%	1.0%	6%	37%	10	1.1%	6.0%	11%	33%	10	0.6%	1.4%	10%	42%	10	0.7%	3.5%	9%	36%
Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets				
Universe	0.9%	1.8%	1.1%	1699	Universe	1.3%	2.2%	1.7%	1770	Universe	0.6%	1.9%	1.5%	1806	Universe	1.0%	2.1%	1.6%	1752

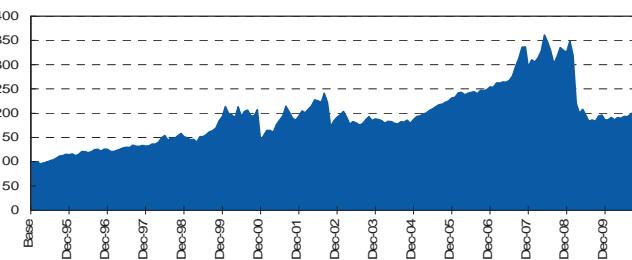
Portfolio Index Performance



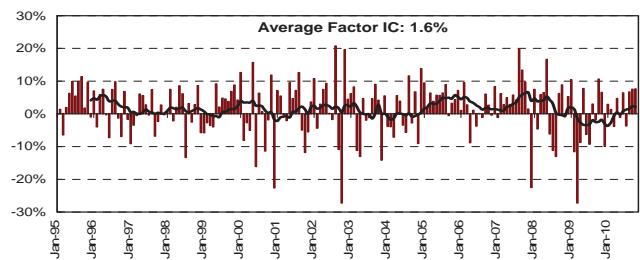
Portfolio Spread. Annual Returns



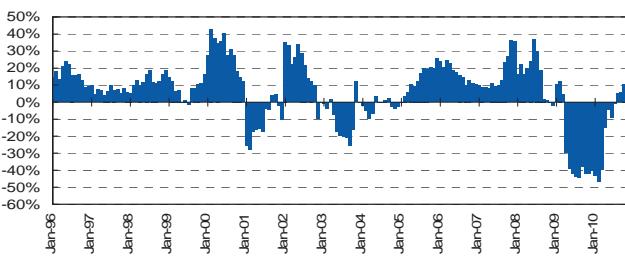
Cumulative Returns



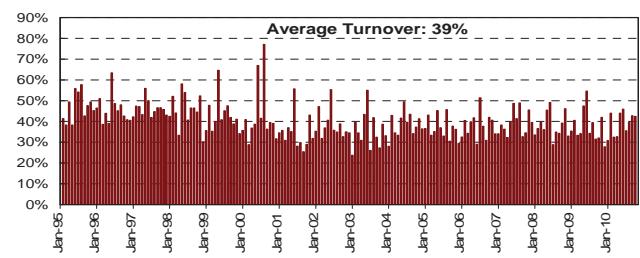
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



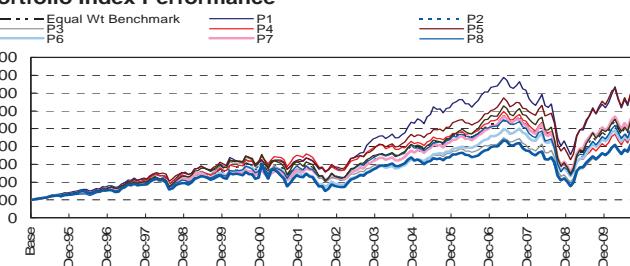
Turnover within Portfolio 1



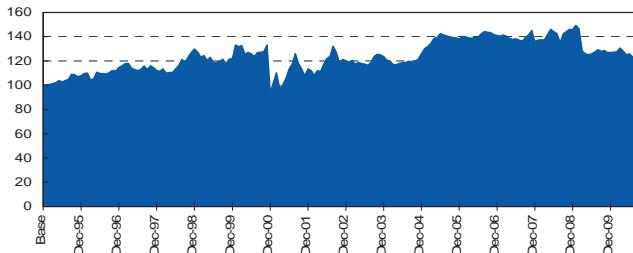
Composite Analyst Recommendation Change

Composite Recommendation Change in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010				Portfolio Statistics			
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.3%	15.4%	5%	45%	1	1.4%	16.5%	5%	62%	1	0.5%	3.6%	6%	43%	1	1.2%	13.4%	6%	52%
2	1.3%	14.5%	5%	52%	2	0.9%	9.8%	5%	57%	2	0.5%	3.6%	7%	52%	2	1.0%	10.9%	5%	53%
3	1.5%	17.7%	5%	52%	3	0.5%	4.7%	5%	38%	3	0.5%	4.0%	6%	47%	3	0.9%	9.7%	5%	45%
4	1.4%	17.0%	5%	57%	4	0.9%	9.3%	5%	42%	4	0.3%	1.5%	6%	38%	4	1.0%	10.5%	5%	46%
5	1.5%	17.9%	5%	60%	5	1.0%	11.0%	5%	50%	5	0.9%	8.1%	7%	55%	5	1.2%	13.6%	5%	55%
6	1.2%	14.3%	5%	48%	6	0.8%	8.1%	5%	48%	6	0.8%	6.6%	7%	62%	6	1.0%	10.9%	6%	53%
7	1.2%	13.2%	5%	50%	7	1.1%	11.8%	5%	47%	7	0.8%	7.4%	7%	58%	7	1.1%	11.9%	6%	51%
8	1.3%	15.5%	5%	57%	8	1.0%	11.2%	6%	48%	8	0.6%	4.7%	7%	42%	8	1.1%	11.2%	6%	48%
9	1.5%	17.1%	5%	48%	9	0.9%	8.9%	7%	48%	9	0.8%	5.8%	7%	62%	9	1.1%	11.9%	6%	54%
10	1.0%	11.2%	6%	37%	10	1.1%	9.1%	9%	48%	10	0.7%	5.1%	7%	40%	10	1.0%	9.7%	7%	43%
Total Test				Total Test				Total Test				Total Test				Portfolio Statistics			
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets
Universe	1.3%	0.8%	0.6%	902	Universe	1.0%	0.5%	1.1%	950	Universe	0.6%	-0.5%	-0.2%	962	Universe	1.1%	0.4%	0.6%	936
Long Short Strategy Statistics																			
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10				
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.
Long/Short	0.3%	3.3%	3%	58%	Long/Short	0.3%	1.8%	5%	55%	Long/Short	-0.2%	-2.4%	2%	47%	Long/Short	0.2%	1.33%	3.6%	55%
T-Stat	0.92		Avg Assets	T-Stat	0.44		Avg Assets	T-Stat	-0.55		Avg Assets	T-Stat	0.69		Avg Assets	T-Stat	0.69		Avg Assets

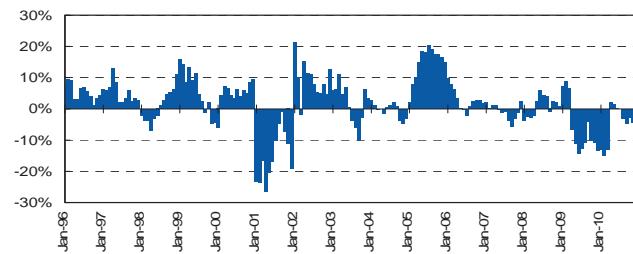
Portfolio Index Performance



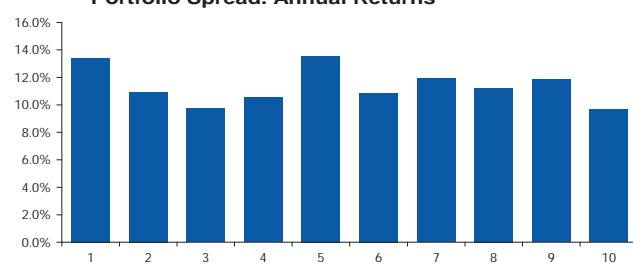
Cumulative Returns



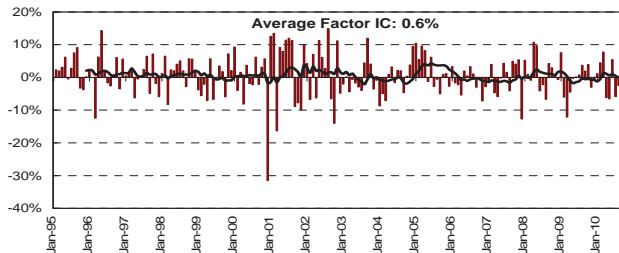
12 Month Rolling Returns Of L/S Strategy



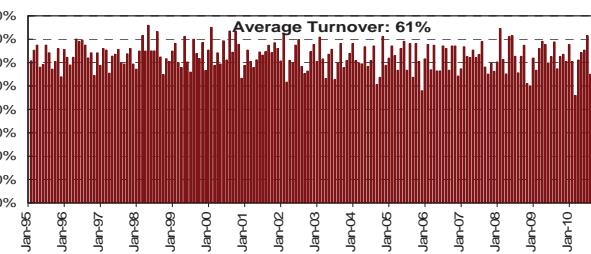
Portfolio Spread. Annual Returns



Information Co-Efficients (IC)



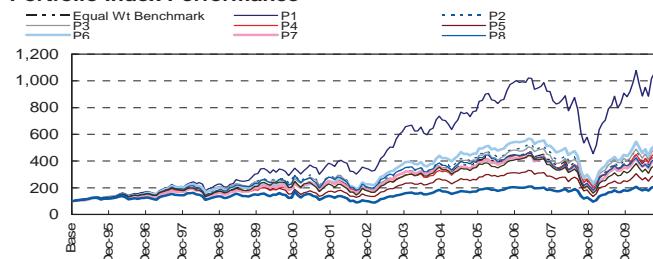
Turnover within Portfolio 1



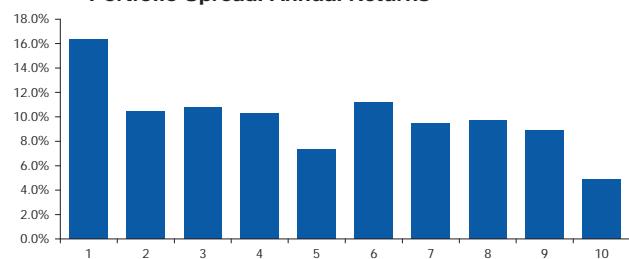
Composite Recommendation Change in Bottom 2000 Universe

5 Year(s): 11/30/1995 to 11/30/2000 Portfolio Statistics					5 Year(s): 11/30/2000 to 11/30/2005 Portfolio Statistics					5 Year(s): 11/30/2005 to 11/30/2010 Portfolio Statistics					Total Period: 1/31/1995 to 11/30/2010 Portfolio Statistics				
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.6%	17.6%	6%	65%	1	1.8%	21.5%	6%	68%	1	0.9%	7.5%	8%	62%	1	1.5%	16.4%	7%	65%
2	1.2%	12.7%	6%	52%	2	1.3%	12.8%	7%	50%	2	0.5%	2.6%	7%	55%	2	1.1%	10.5%	7%	53%
3	1.1%	12.0%	6%	55%	3	1.3%	13.2%	7%	58%	3	0.7%	4.4%	8%	53%	3	1.1%	10.8%	7%	55%
4	0.8%	8.1%	6%	45%	4	1.3%	14.0%	6%	53%	4	0.8%	5.9%	8%	60%	4	1.0%	10.3%	6%	52%
5	0.5%	4.0%	6%	38%	5	1.1%	11.4%	7%	38%	5	0.6%	3.2%	8%	42%	5	0.8%	7.3%	7%	41%
6	0.9%	9.3%	6%	52%	6	1.6%	18.3%	6%	57%	6	0.6%	3.2%	8%	48%	6	1.1%	11.2%	6%	52%
7	0.8%	7.8%	6%	48%	7	1.5%	15.0%	8%	48%	7	0.5%	2.8%	8%	55%	7	1.0%	9.5%	7%	49%
8	1.1%	11.7%	6%	52%	8	1.3%	12.4%	8%	37%	8	0.5%	1.9%	8%	47%	8	1.0%	9.7%	7%	45%
9	1.0%	10.4%	6%	57%	9	1.2%	11.4%	8%	38%	9	0.5%	2.1%	8%	47%	9	1.0%	8.9%	7%	47%
10	0.3%	1.0%	6%	43%	10	0.9%	6.9%	9%	32%	10	0.6%	4.3%	7%	48%	10	0.7%	4.9%	8%	41%
Total Test					Total Test					Total Test					Total Test				
Avg Ret					Avg Ret					Avg Ret					Avg Ret				
Rank					Rank					Rank					Rank				
IC					IC					IC					IC				
Avg Assets					Avg Assets					Avg Assets					Avg Assets				
Universe	0.9%	1.9%	2.0%	1690	Universe	1.3%	1.7%	1.9%	1760	Universe	0.6%	0.7%	0.6%	1790	Universe	1.0%	1.5%	1.6%	1741

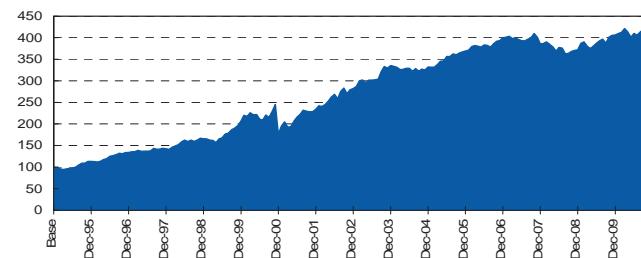
Portfolio Index Performance



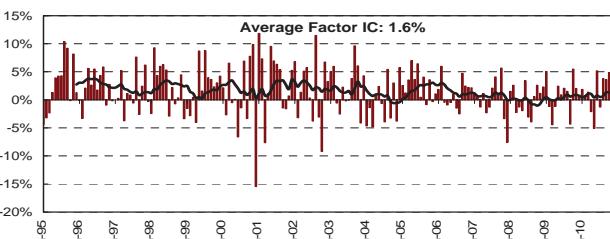
Portfolio Spread. Annual Returns



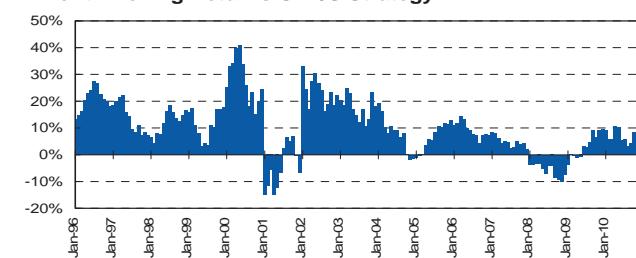
Cumulative Returns



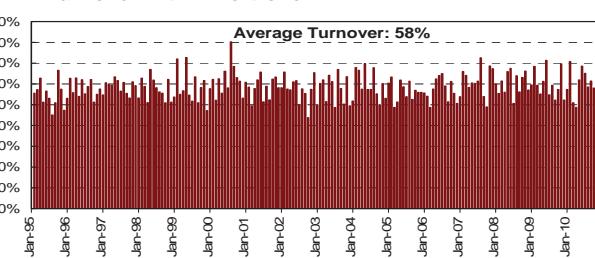
Information Co-Efficients (IC)



12 Month Rolling Returns Of L/S Strategy



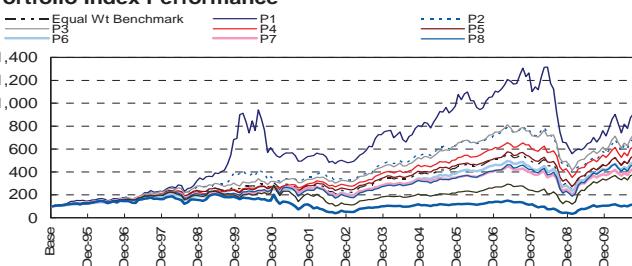
Turnover within Portfolio 1



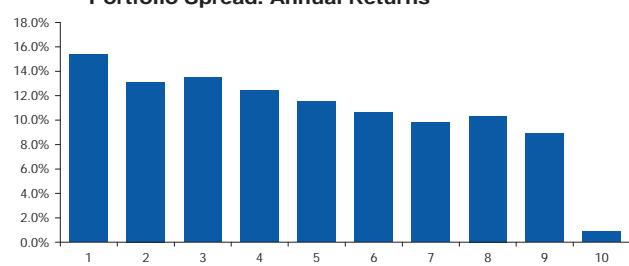
Composite 12 Month Price Momentum with 1 Month Price Reversion

Composite Price Momentum with Reversion in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010											
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics									
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.					
1	2.7%	30.2%	10%	60%	1	0.9%	10.5%	5%	63%	1	0.3%	0.5%	7%	57%					
2	1.7%	19.9%	6%	55%	2	1.1%	13.3%	4%	62%	2	0.4%	2.5%	6%	47%					
3	1.5%	17.4%	5%	58%	3	1.3%	16.4%	4%	63%	3	0.5%	3.8%	6%	53%					
4	1.3%	14.7%	5%	55%	4	1.2%	14.4%	4%	53%	4	0.6%	5.0%	5%	55%					
5	1.2%	14.4%	5%	48%	5	1.0%	12.2%	4%	47%	5	0.5%	4.6%	6%	52%					
6	1.1%	12.9%	5%	40%	6	1.0%	10.8%	5%	50%	6	0.6%	5.3%	6%	37%					
7	1.0%	11.7%	5%	40%	7	0.9%	9.1%	6%	48%	7	0.6%	4.7%	7%	53%					
8	1.1%	12.1%	5%	50%	8	1.0%	8.7%	7%	50%	8	0.9%	6.6%	8%	57%					
9	0.9%	9.6%	6%	43%	9	0.6%	0.9%	10%	38%	9	1.4%	12.4%	10%	57%					
10	0.6%	3.8%	7%	32%	10	0.4%	-4.9%	13%	43%	10	0.6%	-0.2%	12%	35%					
Total Test				Total Test				Total Test				Total Test							
Avg Ret	1.3%	4.4%	4.3%	909	Avg Ret	0.9%	3.7%	3.5%	956	Avg Ret	0.6%	0.5%	0.7%	961	Avg Ret	1.1%	2.9%	3.0%	941
Universe				Universe				Universe				Universe							
Long Short Strategy Statistics								Long Short Strategy Statistics				Long Short Strategy Statistics							
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg Ret	Long/Short	2.1%	22.0%	10%	Long/Short	0.5%	-2.8%	12%	63%	Long/Short	-0.3%	-11.1%	10%	65%	Long/Short	0.9%	3.02%	10.4%	64%
Ret	Long/Short			Std Devn	Long/Short			Avg Assets	Long/Short	Long/Short		Assets	Long/Short			Avg Assets	Long/Short		
Std Devn	Long/Short			% Out Perf.	T-Stat	0.35		Avg Assets	Long/Short	T-Stat	-0.22		Long/Short			Avg Assets	Long/Short		
% Out Perf.	Long/Short			Avg	Avg Assets			Avg Assets	Long/Short	Avg Assets		Long/Short			Avg Assets	Long/Short			
Avg	Long/Short			Avg Assets	T-Stat	1.68		Avg Assets	Long/Short	T-Stat	0.35		Long/Short			Avg Assets	Long/Short		
Avg Assets	Long/Short			Avg Assets	Avg Assets	183		Avg Assets	Long/Short	Avg Assets	192		Long/Short			Avg Assets	Long/Short		

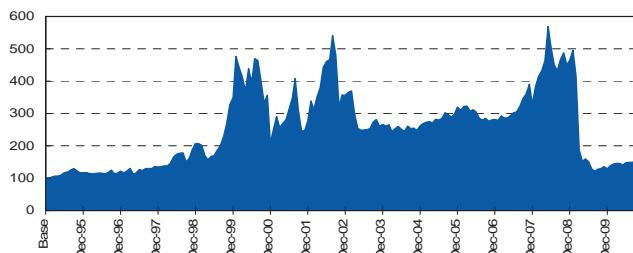
Portfolio Index Performance



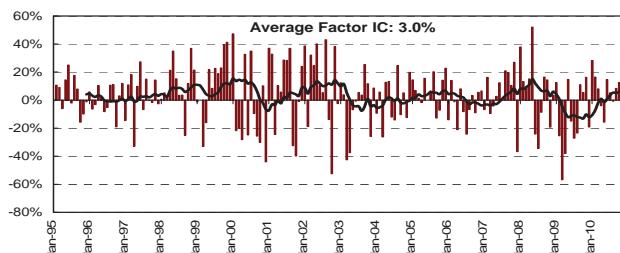
Portfolio Spread. Annual Returns



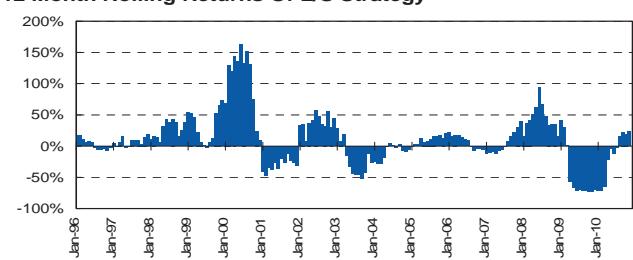
Cumulative Returns



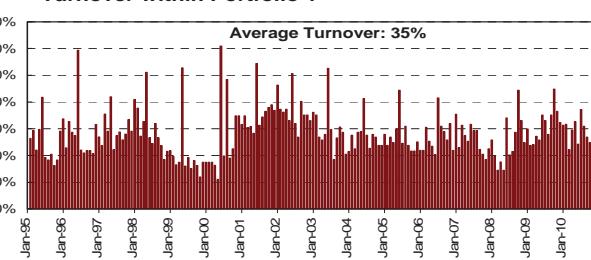
Information Co-Efficients (IC)

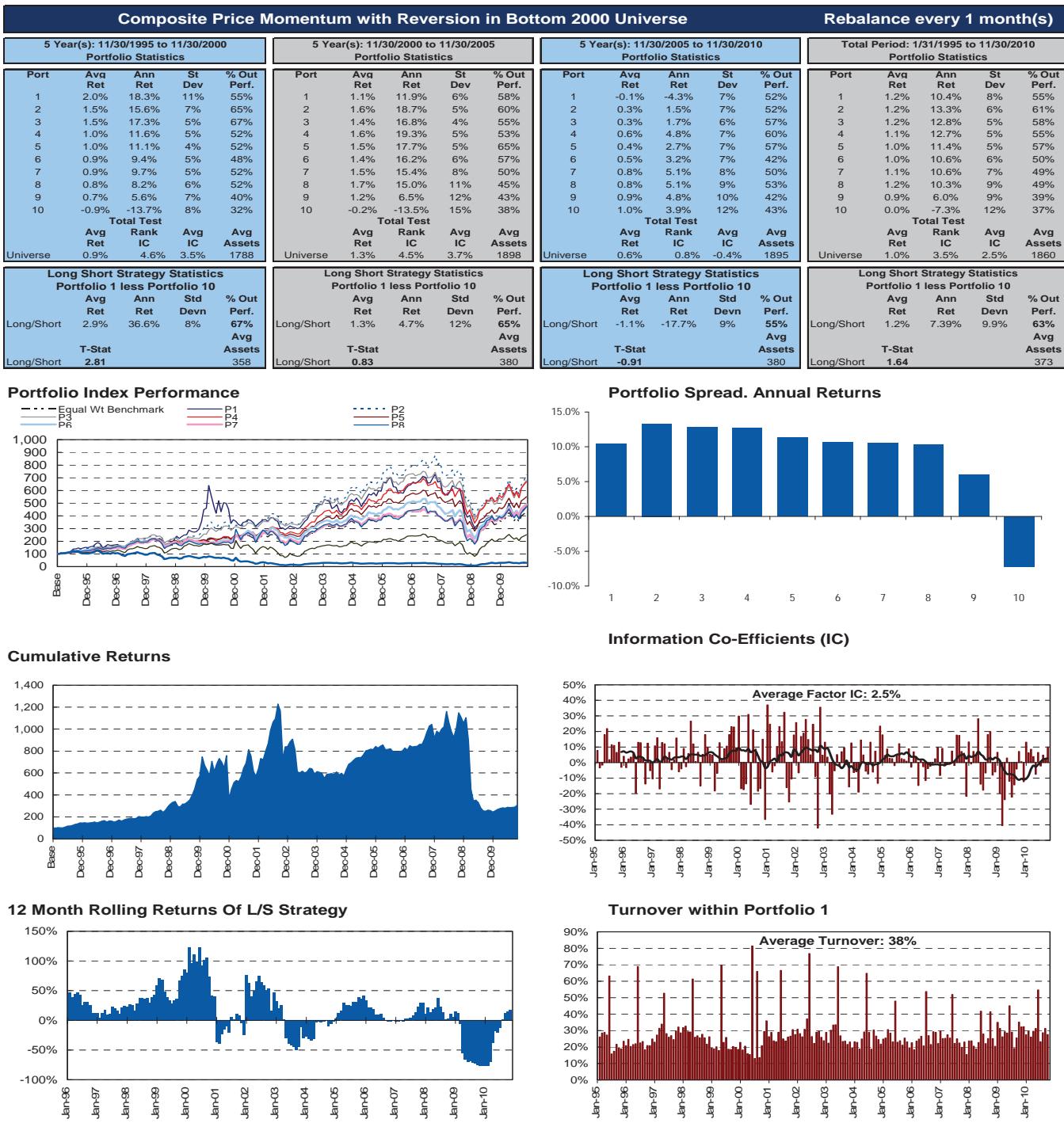


12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

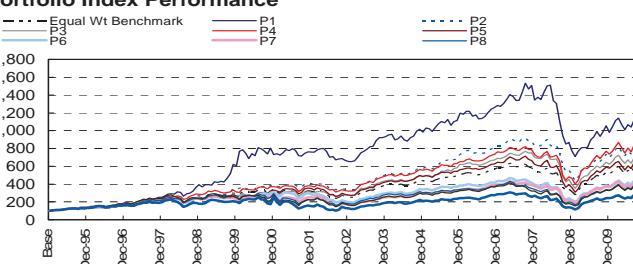




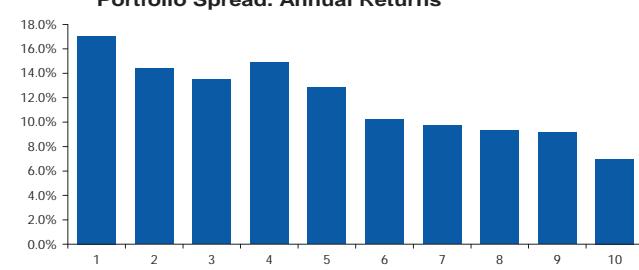
Composite 12 Month Price Momentum with 6 Month Price Acceleration

Composite Price with Acceleration in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010				Portfolio Statistics			
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	3.0%	39.3%	7%	67%	1	0.7%	8.3%	4%	53%	1	0.3%	1.9%	6%	52%	1	1.5%	17.1%	6%	57%
2	1.8%	21.9%	5%	58%	2	1.1%	13.6%	4%	58%	2	0.5%	4.4%	6%	43%	2	1.2%	14.4%	5%	54%
3	1.4%	16.3%	5%	43%	3	1.3%	15.3%	5%	58%	3	0.6%	5.2%	6%	52%	3	1.2%	13.5%	5%	52%
4	1.7%	21.5%	5%	62%	4	1.1%	12.5%	4%	60%	4	0.8%	7.5%	7%	50%	4	1.3%	14.9%	5%	57%
5	1.6%	18.7%	5%	55%	5	1.1%	13.0%	5%	53%	5	0.6%	4.5%	7%	50%	5	1.2%	12.8%	6%	51%
6	1.4%	16.1%	5%	47%	6	0.7%	6.1%	6%	33%	6	0.6%	4.7%	7%	48%	6	1.0%	10.2%	6%	43%
7	1.2%	13.0%	5%	43%	7	0.7%	5.8%	6%	43%	7	0.8%	6.1%	7%	52%	7	1.0%	9.7%	6%	46%
8	1.2%	12.8%	6%	48%	8	0.8%	7.0%	7%	48%	8	0.6%	4.1%	8%	52%	8	1.0%	9.3%	7%	49%
9	0.9%	9.4%	6%	48%	9	1.1%	8.5%	9%	45%	9	0.7%	5.1%	8%	52%	9	1.0%	9.2%	8%	49%
10	0.8%	6.8%	7%	45%	10	0.9%	4.9%	11%	47%	10	0.7%	4.6%	8%	45%	10	0.9%	7.0%	9%	45%
Total Test				Total Test				Total Test				Total Test				Portfolio Statistics			
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets
Universe	1.5%	2.9%	4.0%	667	Universe	1.0%	1.2%	1.8%	949	Universe	0.6%	0.2%	0.5%	955	Universe	1.1%	1.3%	2.1%	843
Long Short Strategy Statistics																			
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10				
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.
Long/Short	2.2%	25.6%	8%	60%	Long/Short	-0.2%	-10.4%	11%	55%	Long/Short	-0.4%	-6.6%	6%	53%	Long/Short	-0.6%	2.01%	8.3%	56%
T-Stat	2.14			Avg Assets	T-Stat	-0.14			Avg Assets	T-Stat	-0.45			Avg Assets	T-Stat	0.93			Avg Assets
Long/Short				134	Long/Short				191	Long/Short				192	Long/Short				169

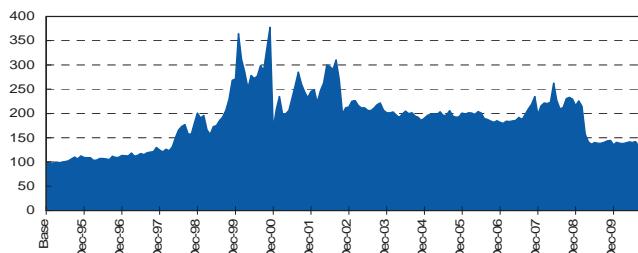
Portfolio Index Performance



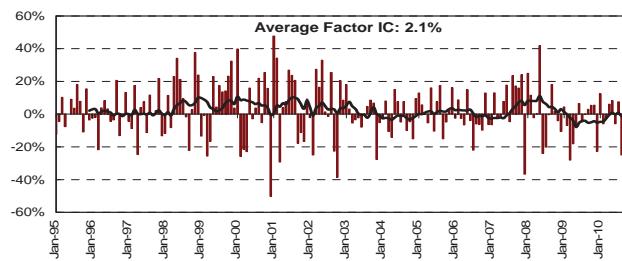
Portfolio Spread. Annual Returns



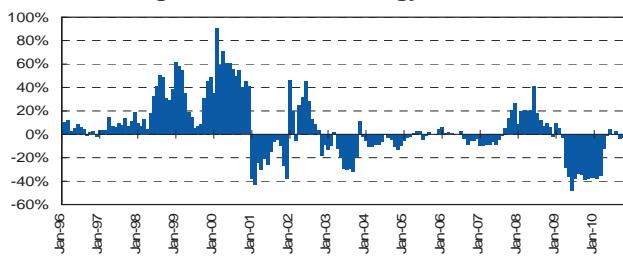
Cumulative Returns



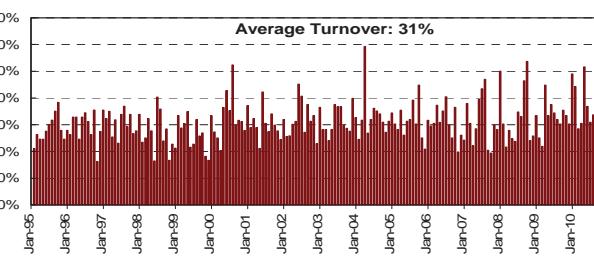
Information Co-Efficients (IC)

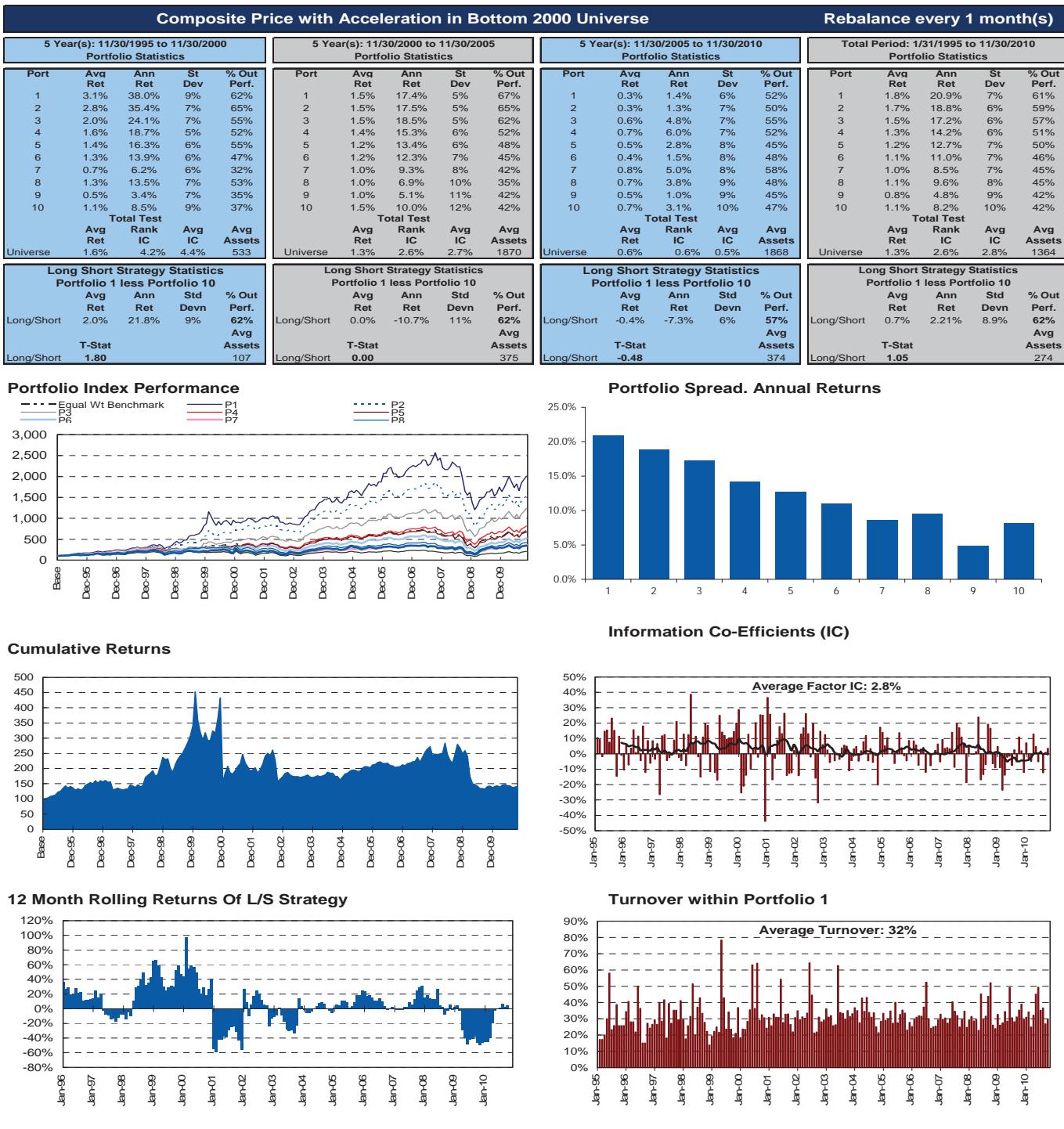


12 Month Rolling Returns Of L/S Strategy



Turnover within Portfolio 1

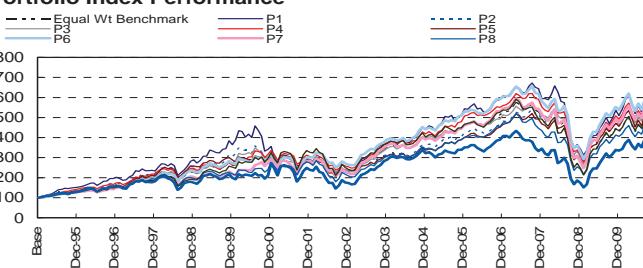




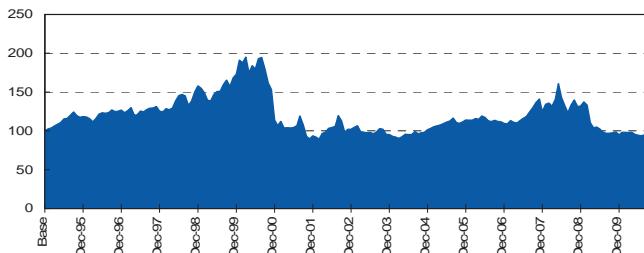
Composite Forward Earnings Momentum

Composite Earnings Momentum in Top 1000 Universe								Rebalance every 1 month(s)											
5 Year(s): 11/30/1995 to 11/30/2000				5 Year(s): 11/30/2000 to 11/30/2005				5 Year(s): 11/30/2005 to 11/30/2010				Total Period: 1/31/1995 to 11/30/2010							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.5%	17.4%	6%	58%	1	0.8%	8.7%	5%	57%	1	0.6%	5.1%	7%	55%	1	1.2%	12.5%	6%	58%
2	1.4%	15.8%	6%	57%	2	0.7%	7.5%	5%	52%	2	0.6%	5.4%	6%	57%	2	1.0%	11.0%	5%	55%
3	1.4%	16.8%	5%	57%	3	0.8%	9.2%	5%	52%	3	0.6%	5.1%	6%	40%	3	1.1%	11.6%	5%	49%
4	1.4%	16.8%	5%	52%	4	0.9%	9.6%	5%	53%	4	0.6%	4.6%	6%	50%	4	1.1%	11.9%	5%	53%
5	1.4%	16.5%	5%	53%	5	0.7%	6.8%	5%	38%	5	0.8%	7.3%	6%	57%	5	1.0%	11.4%	5%	49%
6	1.5%	17.7%	5%	52%	6	1.1%	12.2%	5%	52%	6	0.5%	3.6%	7%	42%	6	1.1%	12.0%	5%	47%
7	1.3%	15.3%	5%	35%	7	1.1%	11.3%	6%	55%	7	0.7%	5.9%	7%	53%	7	1.1%	11.8%	6%	47%
8	1.1%	13.0%	5%	43%	8	1.1%	11.0%	6%	42%	8	0.7%	5.3%	7%	47%	8	1.0%	10.6%	6%	42%
9	1.4%	16.6%	5%	42%	9	1.0%	9.9%	7%	47%	9	0.6%	3.0%	8%	47%	9	1.1%	11.0%	7%	45%
10	0.9%	9.3%	6%	37%	10	1.3%	11.8%	9%	52%	10	0.7%	4.0%	9%	52%	10	1.1%	9.4%	8%	46%
Total Test				Total Test				Total Test				Total Test				Total Test			
Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Rank IC	Avg IC	Avg Assets
Universe	1.3%	1.6%	1.5%	881	Universe	1.0%	-0.1%	0.4%	935	Universe	0.6%	0.8%	0.9%	961	Universe	1.1%	1.0%	1.2%	923
Long Short Strategy Statistics																			
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10				
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Avg Ret	Ann Ret	Std Devn	% Out Perf.
Long/Short	0.6%	6.2%	4%	60%	Long/Short	-0.5%	-7.5%	6%	55%	Long/Short	-0.1%	-2.3%	5%	50%	Long/Short	0.1%	-0.16%	5.0%	57%
T-Stat	1.04			Avg Assets	T-Stat	-0.62			Avg Assets	T-Stat	-0.12			Avg Assets	T-Stat	0.32			Avg Assets
Long/Short	177				Long/Short	188				Long/Short	193				Long/Short	185			

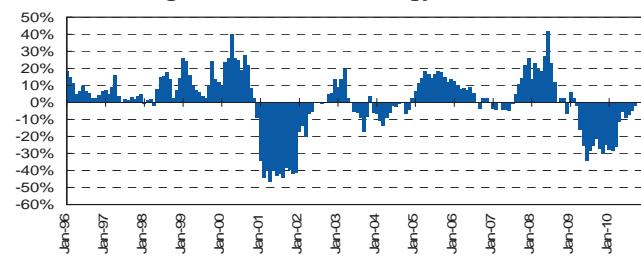
Portfolio Index Performance



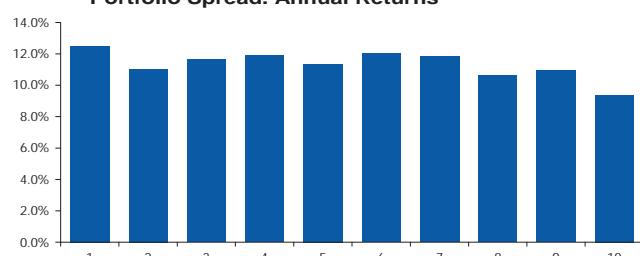
Cumulative Returns



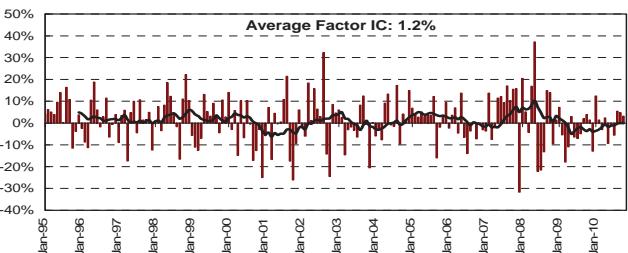
12 Month Rolling Returns Of L/S Strategy



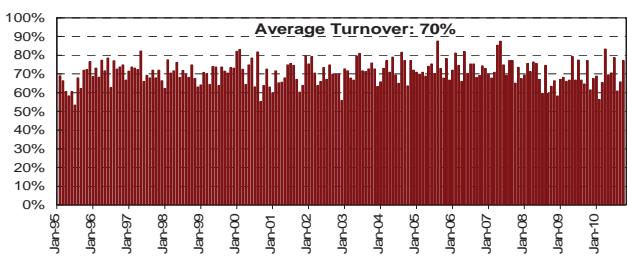
Portfolio Spread. Annual Returns

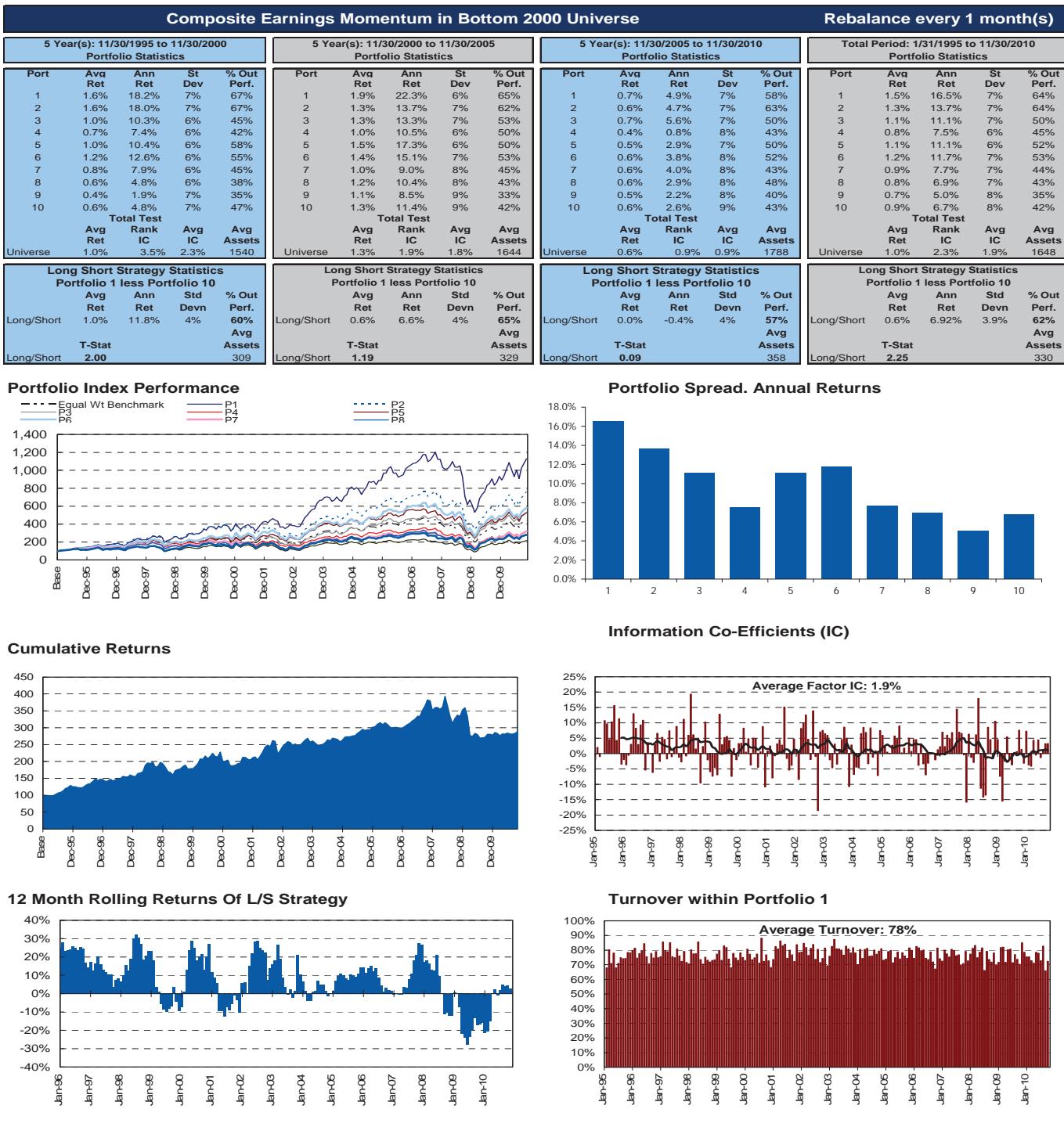


Information Co-Efficients (IC)



Turnover within Portfolio 1





Appendix III: Factor Definitions

VALUATION FACTORS

Cash Flow Yield	The ratio is calculated by taking the operational cash flow per share divided by the share price. Stocks with higher cash flow yield are allocated to the top decile as they tend to outperform stocks with lower cash flow yields.
Free Cash Flow Yield	The ratio is calculated by taking the free cash flow per share divided by the share price. Stocks with higher free cash flow yield are allocated to the top decile as they tend to outperform stocks with lower free cash flow yields.
CFROIIC	Cash flow return on invested capital is designed to measure the cash flow profitability of a company, which looks at how well the company generates cash flow relative to the capital it has invested into its business. The ratio is calculated by taking the operating cash flow divided by invested capital, defined as total debt plus net assets.
Cash Flow to Total Assets	This ratio indicates the cash a company can generate in relation to its size. The ratio is calculated by taking the company's cash flow from operations, normalized by total assets. Stocks with higher cash flow to total assets tend to outperform stocks with lower cash flow to total assets.
Free Cash Flow to Enterprise Value	This ratio measures the free cash flow that a company generates relative to its enterprise value. Stocks are ranked such that those with the highest ratio are allocated to the top decile and those with the lowest ratio to the bottom decile.
EBITDA to Enterprise Value	This ratio measures the company's EBITDA relative to its enterprise value. Stocks are ranked such that those with the highest ratio are allocated to the top decile and those with the lowest ratio to the bottom decile.
Earnings Yield	Stocks are ranked by their historical P/E ratio. Stocks with the lowest ratio are allocated to the top decile and those with the highest to the bottom decile.
Earnings Yield 1 Yr Fwd	A pro rata of consensus analyst FY1 and FY2 forecasts is used to create a 12-month forward earnings estimate number. Stocks are ranked such that those with the lowest ratio are allocated to the top decile and those with the highest to the bottom decile.
Earnings Yield 1 Yr Fwd Rel to 3 yr Hist	Stocks are ranked by their current forecast P/E ratio relative to their historical 3-year average P/E. Those stocks that are cheapest relative to their history are allocated to the top decile, and those that are most expensive to the bottom decile.
Earnings Yield 1 Yr Fwd Rel to Sector	Stocks are ranked based on their forecast P/E relative to their sector P/E. This alleviates the inherent sector bias from the factor with those stocks that are cheapest relative to their sector being allocated to the top decile.
Sales Yield	The ratio measures the relative valuation of a stock from the perspective of revenue generated. Stocks with the highest historical sales to price ratio are considered to be favorable and are expected to outperform and thus are allocated to the top decile.
Sales Yield FY1	The forward sales to price ratio employs analysts' end of FY1 forecasts on sales to convey information regarding the relative value of a company. Higher value of forward sales to price implies a higher forward stock price.
Sales Yield FY2	The forward sales to price ratio employs analysts' end of FY2 forecasts on sales to convey information regarding the relative value of a company. Higher value of forward sales to price implies a higher forward stock price.
Sales Yield Mean FY1 FY2	The factor ranks stocks by the average of FY1 and FY2 forward sales to price, where the stocks with the highest score are assigned to the top decile.
Sales to EV (Incl MV)	The ratio measures the relative valuation of a stock from the perspective of revenue generated, normalized by the company's enterprise value. Stock with the highest historical sales to enterprise value ratio are considered to be favorable and are expected to outperform.
Book Value Yield	The ratio is calculated by taking the historical book value divided by the share price. Those stocks with the lowest ratio are allocated to the top decile.
Dividend Yield	Stocks are ranked by their current annualized dividend yield such that the biggest dividend paying stocks are allocated to the top decile and the smallest dividend paying stocks or non-dividend paying stocks to the bottom decile.

QUALITY FACTORS

Asset Turnover	This factor is used to measure how efficiently assets are being used to produce revenue. Asset turnover is often used to measure a company's earnings prospects. A company with high asset turnover is heavily leveraged to any improvement in margins. The ratio is calculated by taking sales divided by total assets. Those stocks with the highest ratio are allocated to the top decile.
Asset Turnover 12 Month Change	This factor measures how efficiently a company is using its assets to produce revenue relative to its 1-year history. Stocks with the highest level of asset turnover growth are expected to outperform.
Interest Coverage	This factor measures how easily a company will be able to pay interest on its debt. It is calculated by dividing a company's EBIT by its interest expense. A higher ratio is desirable.
ROE	Stocks are ranked based on their historical return on equity. Those stocks with the highest ROE are allocated to the top decile.
Leverage	A firm with significantly more debt than equity is considered to be highly leveraged. The factor ranks the stocks such that those with the highest level of leverage are allocated to the top decile.
Current Ratio	The current ratio, a liquidity metric, measures a company's ability to pay short-term obligations. It compares a company's current assets to its current liabilities such that companies with a higher current ratio are allocated to the top decile.
Payout Ratio	The amount of earnings paid out in dividends to shareholders. Stocks with higher payout ratios were allocated to the top decile, while those with lower payout ratios to the bottom decile.

SENTIMENT FACTORS

Short Interest to Shares Outstanding	This factor is measured as the percentage of shares outstanding that are being shorted. A high level of short interest indicates negative sentiment toward the stock, thus it is expected that stocks with lower level of short interest outperform stocks with higher level of short interest. Stocks with a lower ratio are allocated to the top decile.
12 Month Change in Shares Outstanding	This factor measures the company's change in split-adjusted share count compared to 12 months ago. Stocks that decreased their share count are allocated to the top decile, while stocks that increased their share count are allocated to the bottom decile.
1 Month Chg in Recommendation	Stocks are ranked by their change in Consensus Recommendation over the last month. Those with the biggest improvement are allocated to the top decile (regardless of whether they have moved from Strong Sell to Sell or Buy to Strong Buy, etc). Those stocks with the biggest decline are allocated to the bottom decile.
3 Month Chg in Recommendation	Stocks are ranked by their change in Consensus Recommendation over the last 3 months. Those with the biggest improvement are allocated to the top decile (regardless of whether they have moved from Strong Sell to Sell or Buy to Strong Buy, etc). Those stocks with the biggest decline are allocated to the bottom decile.
Net Earnings Revisions FY1	A broad brush approach to earnings revisions that is arguably more suited to markets with questionable data quality. We calculate FY1 Net Revision by looking at all analyst revisions in the last 4 weeks and calculating the number of upward revisions less the number of downward revisions expressed as a percentage of the total number of revisions made. Net revisions are computed as: (Up revisions – Down Revisions)/Total Revisions.
Net Earnings Revisions FY2	A broad brush approach to earnings revisions that is arguably more suited to markets with questionable data quality. We calculate FY2 Net Revision by looking at all analyst revisions in the last 4 weeks and calculating the number of upward revisions less the number of downward revisions expressed as a percentage of the total number of revisions made. Net revisions are computed as: (Up revisions – Down Revisions)/Total Revisions.
6 Month Chg in Target Price Earnings CV (Mean EPSCVFY1 EPSCVFY2)	The factor looks at the 6-month change in mean analyst target price. A higher ratio is more desirable. We rank stocks by the average of FY1 and FY2 coefficient of variation. We use coefficient of variation as a proxy for earnings risk. Those stocks with the largest dispersion around earnings are being considered most 'risky' and are allocated to the bottom decile.
Earnings Estimates Count FY1	We rank stocks by Number of Consensus Estimates (FY1), which we use as an indication for analyst coverage. The top decile is formed using the most covered stocks, and the bottom decile is formed using the least covered stocks. This factor is often regarded as a proxy for information uncertainty. A higher ratio is more desirable.

TECHNICAL FACTORS

10 Day Relative Strength Indicator	A popular trader tool, the Relative Strength Indicator is used to highlight stocks as overbought or oversold. Generally an RSI of 80 or higher indicates an overbought stock and an RSI of sub 20 indicates an oversold stock. We calculate the RSI over 2 weeks (10 trading days), where stocks with the highest values are allocated to the bottom decile and stocks with the lowest values to the top decile as they are expected to mean-revert. $RSI = 100 - [100 / (1 + \{avg\ up\ days / avg\ down\ days\})]$.
30 Day Relative Strength Indicator	A popular trader tool, the Relative Strength Indicator is used to highlight stocks as overbought or oversold. Generally an RSI of 80 or higher indicates an overbought stock and an RSI of sub 20 indicates an oversold stock. We calculate the RSI over 6 weeks (30 trading days), where stocks with the highest values are allocated to the bottom decile and stocks with the lowest values to the top decile as they are expected to mean-revert. $RSI = 100 - [100 / (1 + \{avg\ up\ days / avg\ down\ days\})]$.
1 Month Price Momentum	The 1-Month Price Momentum factor is calculated by ranking stocks by their total return over the previous month. It is often employed 'in reverse' on account of the reversion that is observable in many markets and sectors. (Last months winners become this months losers and vice-versa.)
3 Month Price Momentum	The 3-Month Price Momentum factor is calculated by ranking stocks by their total return over the previous 3 months.
6 Month Price Momentum	The 6-Month Price Momentum factor is calculated by ranking stocks by their total return over the previous 6 months.
12 Month Price Momentum	The 12-Month Price Momentum factor is calculated by ranking stocks by their total return over the previous 12 months.
12 Month Price Momentum Vol Adj	The 12-Month Price Momentum Adjusted for Volatility factor is calculated by ranking stocks by their total return over the previous 12 months and normalized by the standard deviation of those returns for the same period.
3 Month Price Acceleration	To calculate the 3-Month Price Acceleration we perform a regression on a one-year period of daily prices to calculate the gradient of the trend (adjusted for volatility). We do the same thing "as of" 3 months ago and look at the change in the gradient to provide us with a measure of price acceleration. Stocks are ranked such that those stocks that have accelerated the most are awarded the highest scores and are allocated to the top decile.
6 Month Price Acceleration	To calculate the 6-Month Price Acceleration we perform a regression on a one-year period of daily prices to calculate the gradient of the trend (adjusted for volatility). We do the same thing "as of" 6 months ago and look at the change in the gradient to provide us with a measure of price acceleration. Stocks are ranked such that those stocks that have accelerated the most are awarded the highest scores and are allocated to the top decile.
Percent Off 52 Week High	This factor ranks stocks by their Percent Off 52-Week High. Those stocks that are trading closest to their highs are allocated to the top decile, and those stocks furthest from their highs are allocated to the bottom decile. This factor has a strong correlation with momentum.
12 Month Realized Volatility	This factor takes into account the stock's standard deviation using the last 12 months of total returns. The factor is constructed such that stocks with low realized volatility are allocated to the top decile, while stocks with high realized volatility are allocated to the bottom decile.
Specific Risk Factor	A stock's specific risk is the portion of the total risk that is related solely to a particular stock and is not explained by common factors. The greater a stock's specific risk the larger the proportion of return attributable to idiosyncratic rather than common factors. This factor was constructed such that stocks with low specific risk are allocated to the top decile and stocks with high specific risk to the bottom decile.

GROWTH FACTORS

1 Month Earnings Momentum Mean FY1 FY2	This factor ranks stocks by their 1-month Forward Earnings Momentum. For each stock we calculate the change in FY1 earnings over the last month and the change in FY2 earnings over the last month. We then calculate the 1-month revision number by taking the average of the change in FY1 and FY2. A higher ratio is more desirable.
3 Month Earnings Momentum Mean FY1 FY2	This factor ranks stocks by their 3-month Forward Earnings Momentum. For each stock we calculate the change in FY1 earnings over the last 3 months and the change in FY2 earnings over the last 3 months. We then calculate the 3-month revision number by taking the average of the change in FY1 and FY2. A higher ratio is more desirable.
Mean of 1 Month & 3 Month Earnings Momentum	This factor ranks stocks by their Composite Forward Earnings Momentum (1Mth + 3 Mth). For each stock we calculate the change in FY1 Earnings Forecast over the last month and the last 3 months as well as the change in FY2 Earnings Forecast over the last month and the last 3 months. We then calculate both a 3-month revision number and a 1-month revision number by taking their respective average of the change in FY1 and FY2. Finally we calculate the composite value as the average of the 1-month and 3-month values. A higher ratio is more desirable.
3 Month Earnings Momentum FY1 to FY2	To adjust for any risk associated with a stock's earnings revisions we normalized the 3-month Earnings Momentum by the coefficient of variation. This serves to penalize stocks with high earnings risk and reward stocks with high relatively earnings certainty. This is arguably a cleaner measurement of earnings revisions. A higher ratio is more desirable.
Earnings Growth 5 Yr Hist	Companies are ranked by their average annualized EPS growth over the past 5 years. Those companies with the highest average growth are allocated to the top decile, and those with the lowest average growth are allocated to the bottom decile.
Earnings Growth FY1 to FY2	Using consensus forecasts for FY1 and FY2 we calculate the forecast growth and then use this to rank our stock universe. Analysts tend to be overly optimistic with their growth forecasts, and this is reflected in the poor performance of this factor in most test universes.

COMPOSITE FACTORS

Composite General (Growth, Value, Quality, Momentum)	Price (20%), Earnings (30%), Value (30%), and Quality (20%) Composites are combined to create a JPMQ Composite Model. The model score provides a useful quantitative benchmark signal and is used by JPMQ as a reference benchmark for factor analysis.
Composite General (Growth, Value, Quality, Momentum, Reversion)	Long-Term Price Momentum and Short-Term Price Reversal (20%), Earnings (30%), Value (30%), and Quality (20%) Composites are combined to create a JPMQ Composite Model. The model score provides a useful quantitative benchmark signal and is used by JPMQ as a reference benchmark for factor analysis.
Composite Value	Price to Earnings, Price to Sales, and Price to Cash Flow ratios are equal weighted and combined to create the JPMQ Composite Value. The model score provides a useful quantitative benchmark signal and is used by JPMQ as a reference benchmark for factor analysis.
Composite General Blend (Value, Momentum)	JPMQ Composite Momentum and JPM Composite Value are combined equally to create a Value Momentum Composite. The model score provides a useful/typical quantitative benchmark signal.
Composite General Blend (Value, Growth)	JPMQ Composite Momentum and JPMQ Composite Growth are combined equally to create a Value Growth Composite. The model score provides a useful/typical quantitative benchmark signal.
Composite Quality	JPMQ Composite Quality combines 2 flavors of Value measures. ROE and Earnings Risk are normalized and combined equally to form the Composite.
Composite Sentiment	JPMQ Composite Sentiment Change equally combines the Analyst Recommendation Level, 3-Month Change in Analyst Recommendation, and Change in 6-Month Target Price.
Composite Recommendation Change	JPMQ Composite Recommendation Change equally combines the 1 Month and 3 Month Change in Analyst Recommendations factors.
Composite Price Momentum with ST Reversal	JPMQ Composite Price combines a volatility normalized 12-Month Price Momentum factor (75%) with a 1-Month Price Reversion factor (i.e., negative of 1-Month Price Momentum factor) (25%).
Composite Price Momentum	JPMQ Composite Price equally combines a volatility normalized 12-Month Price Momentum factor with a 6-Month Price Acceleration factor to form the Composite.
Composite Earnings Momentum	JPMQ Composite Momentum combines three flavors of momentum measure. Risk-adjusted 3-Month EPS Momentum, FY2 Net Revisions, and 1-Month Change in Recommendation are all normalized and combined equally to form the Composite.

Appendix IV: JPM Equity Quant Strategy Group

The J.P Morgan Global Equity Quant Strategy group is a research team focussed primarily on systematic alpha exploitation and behavioral strategies. It is a team of 12 analysts with desks located in Hong Kong, New York, London, Tokyo, Sydney, and Mumbai. We cover developed as well as emerging markets.

Our prior experience covers numerous equity-related disciplines including active portfolio management, risk management, portfolio optimization, trading, financial engineering, large-scale data processing, and technology.

Through our research we look to present new and (to us at least) interesting ideas that we thoroughly investigate (and back-test) to see if they make sense from an investment / trading perspective. (We therefore put more emphasis on the thinking process and the methodology than on the end results, and we are not afraid to present ideas that don't work.)

In addition to our research products, a large amount of our time is spent conducting bespoke/consultancy work for institutional equity clients.

While much of this work is provided to 'pure' quant managers, we also service pure stock-pickers. In particular, we help screening the universe for fundamental ideas and help our clients understand where risks lie in their portfolio (and how to manage them).

Infrastructure

Our custom-built quantitative infrastructure includes J.P. Morgan's largest front office non-tick database, which hosts historical estimates, fundamental and pricing data on thousands of global equities back over 15 years.

This database, in conjunction with our extensive back-testing and portfolio simulation tool-suite, underpins both our research and client/consultancy work. Our platform is maintained within the team, and we do not use any internal IT development resources, ensuring maximum flexibility.

Our Web Portal

<http://www.morganmarkets.com/quants> consolidates all of our latest research. It also includes all of our core research (the thought pieces with a long shelf life most likely to appeal to quant professionals), Factor Reference books (detailing the performance of more than 50 alpha drivers in different markets around the world), Intraday Factor monitoring tools, Synopsis of recent Academic papers, Excel screening tools, company tear-sheets, and samples of our bespoke work.

Please contact us if you need a login/password.

Sample Core Research

- Style timing using Macro Indicators in Asia
- Return on Equity: Is It Useful for Stock Picking?
- A Factor for All Seasons: Investigating Stock Level Periodic Seasonality
- Company Guidance - Can It Add Value to a Quant process?
- Are LOSS-MAKERS BAD VALUE? Negative Earners Outperform Expensive Stocks
- How to Improve Earnings Momentum Strategies
- Dynamic Factor Rotation Using Momentum and Price Overreaction
- Revisiting the Country & Sector Effects in Emerging Markets
- A Global Investigation into the Usefulness of Analyst Target Price Data
- True Market Surprise: A Global Event Study
- A Country Selection Strategy for Emerging Markets

Equity Quant Conference

We held our first equity quant conference in London in 2008 and followed up with conferences in 2009 and 2010. The 2010 conference attracted over 250 delegates from the quant community with over 20 countries represented. This is now a regular October fixture.

Contact

For more information please contact Steve Malin at (852) 2800-8568 or email quant_strategy@jpmorgan.com

Team biographies

Steve Malin is a senior quant analyst and head of the J.P. Morgan Global Quantitative Research team. He joined the firm in 2003 and in 2006 began publishing regional quantitative research focused on Asia Pacific markets. He was ranked 1st in the 2007 Asia Money Regional Quant Analyst survey, and in the Institutional Investor and Extel 2008 surveys the team ranked 1st in the All Asia Quantitative research category. Previously Mr. Malin was associated with C.S.F.B. Equity Research, where he worked 4 years. Prior to entering the finance industry he provided software consultancy services to a variety of industries in London, Dublin, and Sydney. He holds a B.Eng. from Bristol University, a P.G.Dip. in Knowledge Engineering, and a P.G.Cert.in Applied Finance.

Dr. Robert Smith joined the J.P. Morgan Equity Quantitative Research Team in July 2007 and focuses on the Asia Pacific markets. Prior to joining J.P. Morgan he completed his PhD in Computer Science (QUT) with research areas including trading automation, machine learning, and computer vision. After a B. Ec. majoring in Actuarial Studies from Macquarie University, Dr. Smith worked for five years as an Actuarial Analyst with Towers Perrin and for two years as a Structured Finance Analyst with the Commonwealth Bank of Australia. He also holds a Masters in IT, majoring in Software Engineering, and a Post-Graduate Diploma in Applied Finance and Investing.

Marco Dion is a senior quant analyst and head of the European Quant team. Mr. Dion joined J.P. Morgan in May 2007. He previously worked at Madoff Securities, where he was a senior trader responsible for managing the company's proprietary long/short equity book according to a fundamental as well as a systematic framework. Prior to that, Mr. Dion worked in a similar role at Mako Global, trading derivatives in Europe and Asia. He holds a BSc. in Finance from HEC Brussels.

Angelo Pessaris joined the J.P. Morgan European Quant Research team in June 2010. Prior to joining J.P. Morgan, he worked as at MSCI Barra focusing on extreme risk analysis for Value at Risk and Expected Shortfall. After completing a post-graduate research degree in Quantitative Finance from La Sorbonne University, Mr. Pessaris worked as a junior quant analyst for a Hedge Fund in Paris (SGAM-AI) and for Natixis Asset Management, where he mainly developed filtering methods and factor models dedicated to hedge fund replication, due diligence analysis, and dynamic allocation. Mr. Pessaris also holds a Master's Degree in Finance (majoring in Corporate Finance) and one in Theoretical Physics, both from Ecole Normale de Paris and Pierre & Marie Curie University Paris.

Satoshi Okamoto joined the J.P. Morgan Equity Quantitative Research Team in June 2010 as a senior quant analyst and focuses on Japanese markets. Before joining J.P. Morgan he worked for 3 years at Mitsubishi UFJ Morgan Stanley Securities as an equity quantitative strategist and desk strategist. Prior to that he worked at SPARX Asset Management, one of the largest hedge funds in Asia. He holds a BS in statistics from Rutgers, the State University of New Jersey.

Dubravko Lakos-Bujas joined the J.P. Morgan Equity Quantitative Strategy Team in June 2010 as a senior analyst focusing on the U.S. markets. Prior to joining J.P. Morgan, he worked for 6 years at Deutsche Bank Asset Management within the Quantitative Strategies Group. There he worked in various investment roles, predominantly as a quantitative research analyst, on their Global Macro, Quantitative Equity, and Strategic Asset Allocation strategies, and was a member of their

Investment Oversight Committee. Mr. Lakos-Bujas holds a Bachelor's degree in Economics and Finance from Wittenberg University; he is an active member of the university's Endowment Fund Investment Committee.

Berowne Hlavaty joined J.P. Morgan Australian Equity Research in 2005. Before joining J.P. Morgan he spent 7 years with MSCI/Barra. Mr. Hlavaty provided risk analysis, training, and technical support to clients using Barra's Equity, Fixed Income, and Performance Attribution products. He also designed custom solutions for clients using these products. He holds a Bachelor of Materials Engineering and a Masters of Information Science from the University of New South Wales.

Viquar Shaikh joined the J.P. Morgan Research team in October 2005. He's in charge of the Quant Support team in Mumbai, which works on upkeep of the in-house Quantitative database and developing and running bespoke client requests and Excel screens for the Asia, Australia, and European teams. Prior to join J.P. Morgan, he worked at Tata Share Registry. Mr. Shaikh has a Master's degree in Science from the Mumbai University and an advanced diploma in Software Engineering.

Latha Nair joined the J.P. Morgan Research team in 2005. Before joining J.P. Morgan, Ms. Nair was working as Software Engineer with Sansui Software Pvt. Ltd. and prior to that as Senior programmer with Visual Access Systems Pvt. Ltd. She holds a BSc in Physics from Bombay University. She also holds a professional diploma in Network centered computing from NIIT, Mumbai.

Arfi Khan joined the J.P. Morgan Quant Research team in 2007. Before joining J.P. Morgan he spent 3 years in the IT Sector working with blue-chip companies like I-Flex Solutions and Tech Mahindra Ltd. He is an Engineering Graduate and completed a B.E in Computers from Dayaneshwar Vidyapeeth Mumbai in 2004.

Vivek Shah joined the J.P. Morgan Quant Strategy team in April 2010. Prior to joining J.P. Morgan he interned at CrossBorder Capital and Financial Technologies (India) as Data Analyst and Research Analyst respectively. Mr. Shah holds a Master's degree in Financial Engineering from Kent State University and has a B.E. in Information Technology from Mumbai University

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Factor Reference Book - Europe

Summarising 20 Years of Backtests

- | On the fifth anniversary of the launch of the European Quant Research Desk, we decided to refresh and update the first ever research piece we published: the European Factor Reference Book.
- | The reason behind the publication of this piece is that we often get asked “What Styles/Factors work in Europe?” This Factor Reference Book serves to answer that question by looking at Factor performances historically across Europe.
- | In this piece, we backtest and summarise Factor/Style performances in Europe, then drill-down into European Sectors and finally wrap up with a summary of the performance of specific European sub-regions (Scandinavia, Continental Europe and UK).
- | Throughout our 20 years of backtest, we find Momentum and Sentiment (ie Earnings Momentum) based Factors to be extremely efficient drivers of returns in Europe (despite the period of struggle they experienced during the last financial crisis).
- | For the managers who do not mind the excess turnover, we also find (short term) mean-reversion Factors to be very strong sources of alpha. For managers with a conservative approach towards turnover, we find Valuation Factors based on financial statements to still be suitable performance drivers.
- | Interestingly, we find that *reported/actual* Factors work better than *forecasted* ones.
- | Another Factor worth highlighting due to its consistency through the backtesting period (and has picked up a lot of interest in recent times) is Free Cash-Flow Yield. This Factor has indeed experienced very limited drawdowns, has low turnover but has produced over time a positively skewed equity curve.
- | If you would like to discuss these results or would like to see this analysis performed for another region/set of Factors, please contact the desk (Quant_strategy@jpmorgan.com).

Global Equity Quant Strategies

Marco Dion ^{AC}

(44-20) 7134-5909

marco.x.dion@jpmorgan.com

J.P. Morgan Securities Ltd.

Viquar Shaikh ^{AC}

(44-20) 7134-5908

viquar.x.shaikh@jpmorgan.com

J.P. Morgan Securities Ltd.

Angelo Pessaris ^{AC}

(44-20) 7134-5907

angelo.pessaris@jpmorgan.com

J.P. Morgan Securities Ltd.

Steve Malin

(852) 2800 8568

steven.j.malin@jpmorgan.com

J.P. Morgan Securities (Asia Pacific) Limited

Robert Smith

(852) 2800 8569

robert.z.smith@jpmorgan.com

J.P. Morgan Securities (Asia Pacific) Limited

Dubravko Lakos-Bujas

(1-212) 622-3601

dubravko.lakos-bujas@jpmorgan.com

J.P. Morgan Securities LLC

Satoshi Okamoto

(81-3) 6736-8647

satoshi.okamoto@jpmorgan.com

JPMorgan Securities Japan Co., Ltd.

Berowne Hlavaty

(61-2) 9220-1591

berowne.d.hlavaty@jpmorgan.com

J.P. Morgan Securities Australia Limited

James Eustace

(61-2) 9220-1675

james.eustace@jpmorgan.com

J.P. Morgan Securities Australia Limited

See page 134 for analyst certification and important disclosures, including non-US analyst disclosures.

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JPM Quant Backtesting Process

We consider backtests to be the main tool to use in order to determine the value of a strategy. It is also what most Quantitative Managers use to test their own ideas.

A backtest simulates the investment decisions a defined Factor/strategy would have generated using historical data and computes a “theoretical” historic return profile. A backtest normally includes the following concepts:

- ! A backtest is run on an **investment universe**; typically a large index is used.

It is extremely important to continuously update the universe through time with the stock entries and exits to avoid several biases. The most famous example of a bias is the “survivorship bias” that affects tests that are carried on the current composition of an index with past market data, ignoring all the stocks that have gone bust or were acquired by their competitors. For purposes of this report, MSCI Europe Index (and various subsets) was used to conduct the testing.

- ! The **rebalancing period** or investment horizon is the interval between investment dates.

It defines when the investment decisions will be historically taken the composition of the portfolios updated. We test in the current piece a rebalance period of 1 month, which is commonly accepted by Quantitative managers as a good compromise between reactivity to the market and turnover constraints. Additionally, in some cases we used a lower rebalancing frequency (i.e. 3, 6, 12 month holding periods) for testing purposes, as certain Factors may be ‘slower moving’ and may exhibit a less pronounced Alpha decay.

- ! Lastly and very importantly the **Quant Factors** (ie Quant Strategies) are measurable pieces of information attached to stocks.

These Factors are used to rank the stocks and make the investment decisions (“P/E ratio” is a well known example of a Factor).

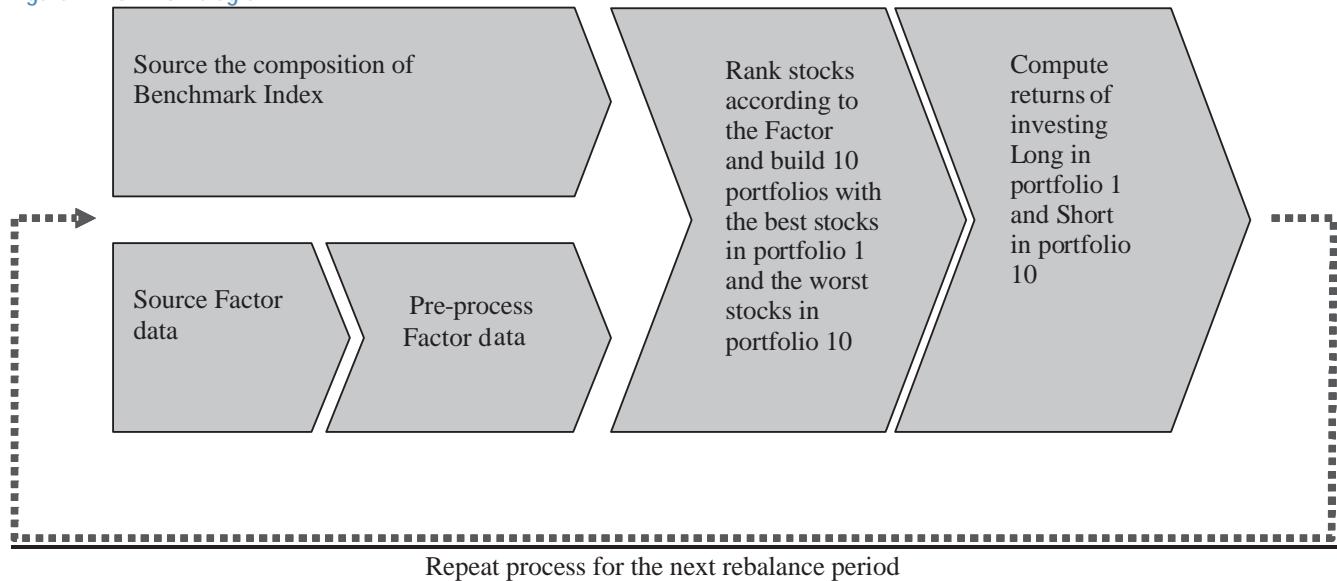
- o In this piece, Factors were run through a sector normalization process and transformed into Z-Scores. A Z-Score is a stock’s standardized exposure to a fundamental Factor (i.e. P/E ratio).

To compute a Factor’s Z-score for a given universe, the *average* Factor value of the universe was subtracted from each stock’s individual Factor *value* and that difference was then scaled by the *standard deviation* of Factor values for that universe. This standardization provided a set of Z-scores or “sector-neutral scores” with a mean of 0 and standard deviation of 1. To control for outliers and potential data errors, the Z-scores were then winsorized at +/- 3 standard deviations cross-sectionally.

- o Factors were classified in different “Families” depending on the anomaly they try to exploit. For purposes of this report, they have been sorted into six categories: Value, Growth, Quality, Sentiment, Technical, and Composite. Composite Factors were built by combining several “normalized” Factors together often with different “weights” or “Factor premiums”.
- o In this report we have ~ 70 of some of the most commonly used Factors. Please refer to the Appendix for a full list and description of Factors tested.

A work-flow diagram of the backtest process is illustrated in Figure 1 below. At the start of each rebalance period, the composition of the universe and the values of the Factor are sourced. Then, in the case of a backtest based on deciles, the top 10% of stocks according to the chosen Factor are selected as the Long investment and the bottom 10% of stocks are selected as the Short investment. At the end of each period, the returns of these decile portfolios are computed and stored; the process is repeated with the next rebalance.

Figure 1: Work-flow diagram



It is important to recognize that in Quantitative analysis, single Factor backtests are not meant to simulate a “real world” portfolio. To do so, constraints such as target risk, turnover, active asset exposure, leverage, etc need to be applied at a later stage in the portfolio construction phase. Instead, at this stage we are simply trying to identify if the signal under investigation contains any useful information.

Viewing the Results

Our Factor profile (an example of which is shown in Figure 2 below) shows a number of key charts and statistics that can help provide an understanding of the usefulness of a given Factor/strategy.

It is further broken down into a number of different components, all of which are explained in detail below.

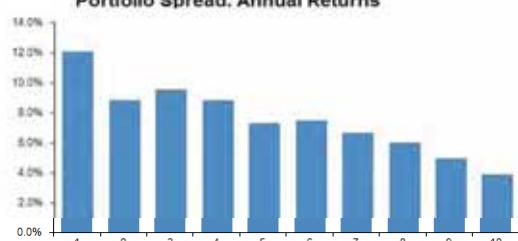
Figure 2: Backtest results - Factor profile

Net Revisions to FY2 [Up-Down]/[Up+Down]										Rebalance every 1 month(s)									
1 Year: 02/28/2011 to 02/28/2012					3 Years: 02/28/2009 to 02/29/2012					5 Years: 02/28/2007 to 02/29/2012					Total Period: 12/31/1993 to 02/28/2012				
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics	
Port	Avg	Avg	St	% Out	Port	Avg	Avg	St	% Out	Port	Avg	Avg	St	% Out	Port	Avg	Avg	St	% Out
1	-0.3%	-6.6%	7%	75%	1	2.1%	24.0%	7%	51%	1	0.2%	-1.5%	9%	62%	1	1.1%	12.1%	5%	50%
2	-0.6%	-11.1%	7%	53%	2	2.2%	25.5%	7%	58%	2	0.2%	-2.7%	8%	58%	2	0.9%	8.9%	8%	53%
3	0.2%	-0.6%	7%	75%	3	2.3%	27.2%	7%	59%	3	0.0%	-3.3%	8%	52%	3	0.9%	8.6%	8%	55%
4	-0.7%	-10.9%	8%	75%	4	2.3%	26.4%	8%	51%	4	0.1%	-3.2%	8%	55%	4	0.9%	8.6%	6%	53%
5	-1.1%	-15.2%	8%	25%	5	1.9%	21.1%	8%	31%	5	-0.3%	-7.6%	9%	33%	5	0.0%	7.3%	6%	46%
6	-0.9%	-13.8%	8%	50%	6	1.9%	21.1%	8%	29%	6	0.3%	-7.9%	8%	37%	6	0.8%	7.5%	8%	50%
7	-0.3%	-13.6%	8%	42%	7	2.2%	25.4%	9%	58%	7	0.1%	-3.1%	8%	52%	7	0.7%	8.7%	8%	48%
8	-0.9%	-13.8%	8%	42%	8	2.1%	23.5%	9%	47%	8	0.1%	-5.4%	9%	48%	8	0.7%	8.0%	8%	47%
9	-1.3%	-18.4%	9%	25%	9	2.0%	20.7%	9%	33%	9	0.0%	-4.4%	9%	40%	9	0.6%	8.0%	8%	40%
10	-1.9%	-23.5%	8%	21%	10	2.0%	21.1%	9%	47%	10	-0.2%	-7.0%	9%	50%	10	0.5%	3.9%	7%	42%
Total Test					Total Test					Total Test					Total Test				
Avg	Ref	Rank	Avg	Avg	Avg	Ref	Rank	Avg	Avg	Avg	Ref	Rank	Avg	Avg	Avg	Ref	Rank	Avg	Avg
Univers	-0.9%	6.2%	6.8%	448	Univers	2.1%	3.0%	2.4%	451	Univers	0.0%	2.2%	2.1%	482	Univers	0.0%	2.3%	2.3%	514
Strategy Statistics																			
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10				
Avg	Avg	Std	% Out	Port.	Avg	Avg	Std	% Out	Port.	Avg	Avg	Std	% Out	Port.	Avg	Avg	Std	% Out	
Length/short	1.6%	20.1%	2.7%	83%	Length/short	0.1%	-0.1%	3.9%	58%	Length/short	0.4%	3.6%	3.5%	62%	Length/short	0.0%	0.0%	2.8%	62%
Active Ref	0.2%	6.5%	1.8%	75%	Active Ref	0.0%	-0.8%	2.1%	61%	Active Ref	0.2%	2.2%	2.0%	62%	Active Ref	0.3%	3.8%	1.7%	60%
T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR	
Long/Short	7.8	2.1	90	1.8	Long/Short	0.1	0.0	91	0.1	Long/Short	0.8	0.3	0.0	0.3	Long/Short	3.8	0.7	104	0.6

Portfolio Index Performance

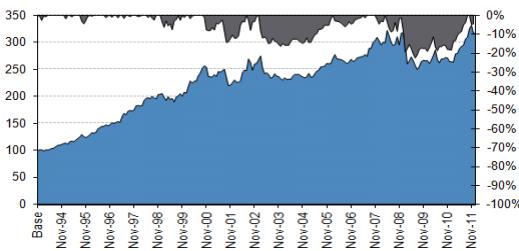


Portfolio Spread. Annual Returns

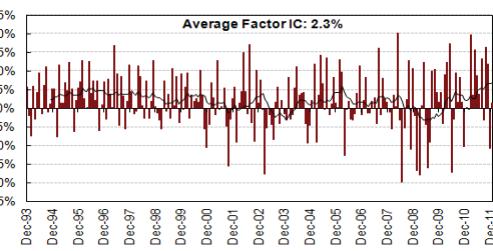


Cumulative (L/S) Returns

Max Drawdown: -22.3%

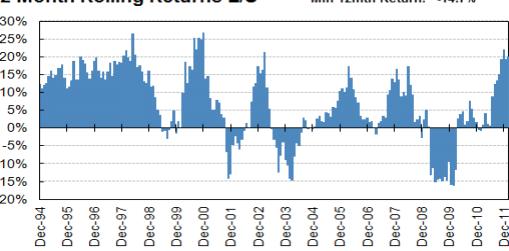


Information Co-Efficients (IC)

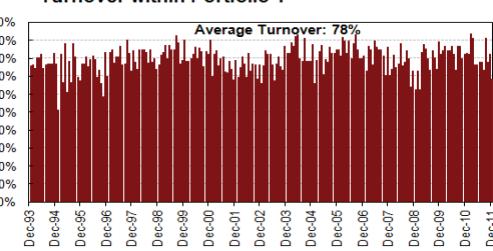


12 Month Rolling Returns L/S

Min 12mth Return: -14.7%



Turnover within Portfolio 1



Source: J.P. Morgan

Statistics Summary Table

The statistics summary table is the portion of our backtest output where the full backtesting picture can be seen.

Generally the table is broken down into three equal periods in addition to showing the overall results across the entire test period. A sample output is illustrated below in Figure 3.

We first focus our attention on Long, Short and Long-Short returns

Some of the key statistics to note are Long/Short average monthly returns (i.e. difference between top decile and bottom decile) and standard deviation of the Long/Short returns, which can simply be combined to compute the return per unit of risk (i.e. information ratio).

These statistics are included for both the overall strategy/portfolio as well as for the underlying portfolios (i.e. deciles). Observing the performance of the underlying deciles can indeed render itself useful, as some Factors might work better as “one-sided” Factors (Long or Short) rather than the typical “two-sided” Factors, used for identifying both Long and Short stock candidates.

Figure 3: Backtest results - statistics summary table

Cash Flow Yield										Rebalance every 1 month(s)									
5 Year(s): 11/30/1995 to 11/30/2000					5 Year(s): 11/30/2000 to 11/30/2005					5 Year(s): 11/30/2005 to 11/30/2010					Total Period: 1/31/1995 to 11/30/2010				
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics	
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.5%	16.9%	6%	60%	1	2.7%	32.9%	8%	63%	1	1.5%	11.2%	11%	52%	1	1.9%	20.6%	8%	58%
2	1.8%	22.0%	5%	70%	2	2.4%	29.6%	6%	67%	2	1.0%	7.5%	9%	60%	2	1.8%	20.2%	7%	65%
3	1.3%	15.4%	5%	62%	3	1.8%	21.3%	6%	67%	3	0.8%	6.8%	8%	67%	3	1.4%	15.0%	6%	63%
4	1.0%	10.2%	6%	57%	4	1.1%	11.1%	7%	53%	4	0.8%	7.4%	7%	62%	4	1.1%	10.7%	7%	57%
5	1.0%	10.9%	6%	62%	5	0.9%	7.9%	7%	47%	5	0.5%	3.1%	7%	47%	5	0.9%	8.4%	6%	53%
6	0.6%	5.0%	6%	48%	6	0.9%	9.3%	6%	43%	6	0.3%	0.9%	6%	40%	6	0.7%	6.4%	6%	44%
7	0.7%	6.1%	7%	38%	7	0.7%	6.5%	7%	45%	7	0.3%	1.4%	6%	45%	7	0.7%	5.8%	6%	43%
8	0.6%	2.9%	8%	43%	8	0.6%	4.1%	7%	28%	8	0.3%	1.0%	7%	50%	8	0.6%	3.8%	7%	41%
9	0.3%	-1.0%	9%	38%	9	0.3%	-0.6%	8%	27%	9	0.2%	-1.3%	8%	40%	9	0.4%	0.3%	8%	36%
10	-0.9%	-15.1%	9%	37%	10	1.1%	-0.2%	16%	37%	10	0.2%	-3.5%	10%	37%	10	0.2%	-5.1%	12%	37%
Total Test					Total Test					Total Test					Total Test				
Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	Avg Ret	Rank IC	Avg IC	Avg Assets	Universe	Avg Ret	Rank IC	Avg IC	Avg Assets	Universe
0.8%	5.8%	4.5%	1619	Universe	1.3%	6.6%	4.7%	1763	Universe	0.6%	2.9%	2.4%	1943	Universe	1.0%	5.0%	3.8%	1763	Universe
Long Short Strategy Statistics										Long Short Strategy Statistics									
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10				
Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	Long/Short	Avg Ret	Ann Ret	Std Devn	% Out Perf.	
2.4%	29.8%	6%	72%	Long/Short	1.6%	11.0%	11%	65%	Long/Short	1.3%	15.7%	4%	65%	Long/Short	1.7%	17.89%	7.3%	67%	
T-Stat		Avg Assets		Long/Short	T-Stat		Avg Assets		Long/Short	T-Stat		Avg Assets		Long/Short	T-Stat		Avg Assets		
3.07		325		Long/Short	1.15		353		Long/Short	2.56		389		Long/Short	3.19		353		

Source: J.P. Morgan

We then provide the analysis of the t-stat and the IC of the Factor/strategy

The t-statistic of Long/Short returns can also be found in the backtest results.

In addition to serving as an indicator as to the level of confidence that can be put into the backtest results, the t-statistic makes evident the difference between the returns of the “Long” and ‘Short’ portfolios. A t-stat > 2 (set at the 95% confidence limit) confirms that the hypothesis “that there is no significant difference between our Long and Short portfolios” can be rejected.

Furthermore, the statistics summary table shows the Factor IC (Information Coefficient), calculated as the monthly cross-sectional correlation between start-of-month Factor ranks and the subsequent 1 month Factor returns. Computed for every single month, the individual ICs are then averaged out to arrive at the Factor IC.

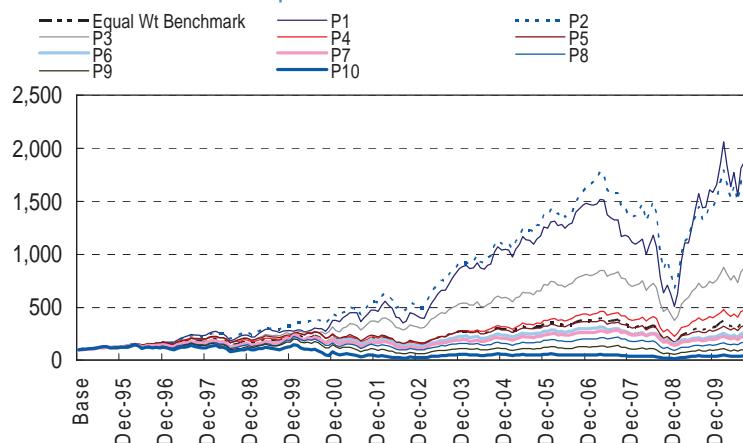
For example, if the strategy was perfect at picking stocks every month, the average IC would turn out to be 100%. In reality, no Quant strategy would come close to being that good of a stock picker. In fact, generally an IC greater than 3% (for monthly rebalanced strategies) is considered “good” amongst Quantitative analysts.

Typically, the IC statistic and Long/Short returns are used hand-in-hand as they tend to complement each other seemingly well. Indeed, while the returns simply characterize the difference in performance between the top and bottom deciles and is essentially based on the extremes of the Factor distribution, the IC statistic captures the entire distribution. So, for example, if a Factor’s Long/Short return displays solid results, but the Factor’s IC does not, one could conclude that Factor returns are mainly driven by extremes, more specifically by the top/bottom deciles.

Cumulative Long/Short Performance Chart

The deciles performance chart is a simple visual representation of the strategy performance over the test period. Each decile/portfolio is shown alongside the equal weighted benchmark (Figure 4).

Figure 4: Individual decile cumulative performance



Source: J.P. Morgan

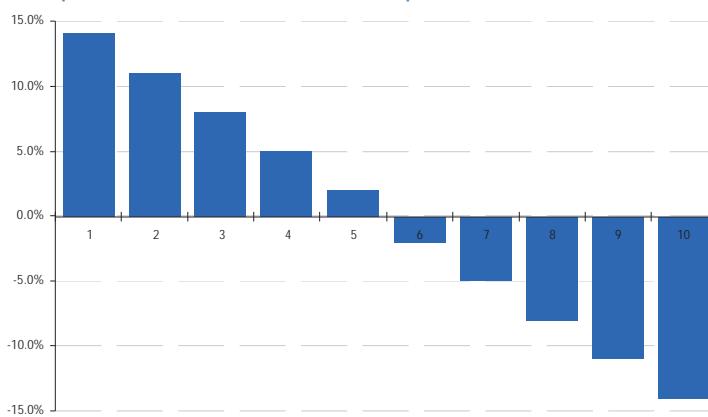
The Portfolio Pay-off Structure

When analyzing the usefulness of a signal, one is ideally looking for a linear pay-off structure (ie smooth historical returns for the portfolios created) and is hoping for the underlying portfolios (i.e. deciles) to be “monotonic”. Essentially, the desired outcome is a predictable spread in performance of the portfolios across the groupings - where ideally Decile 1 outperforms Decile 2; Decile 2 outperforms Decile 3; and so forth (on average) over the analysis period.

In our backtests, we hope for a smooth monotonic distribution of returns between deciles

For example, Figure 5 below shows an ideal monotonic spread, where the top 5 portfolios add value over time (with the top portfolio adding the most value). On the flip side, the bottom 5 portfolios detract value (with the bottom-most portfolio detracting the largest amount). Therefore, by going Long the top portfolio and Short the bottom portfolio, the spread or Long/Short return would be maximized.

Figure 5: Decile performance – the ideal monotonic spread



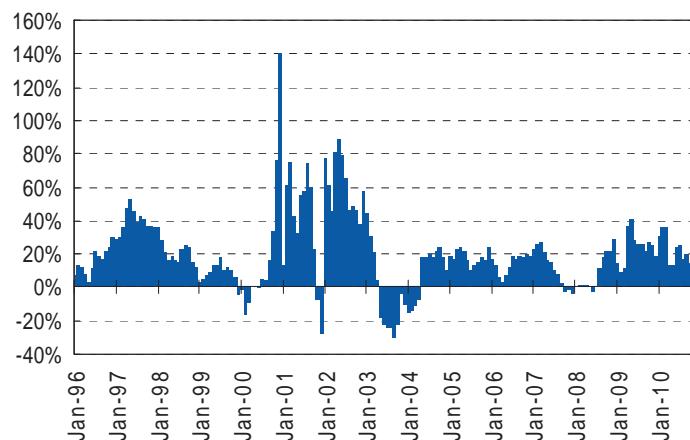
Source: J.P. Morgan

Rolling Long/Short Returns Chart

The clearest picture of the strategy making money can be illustrated by the rolling 12-month performance chart shown below (Figure 6). Note that the chart represents returns of the Long/Short strategy. In the instances where the line is above the x-axis, our 12 month returns have been positive and vice-versa for the lines below the x-axis.

This chart allows managers to easily identify periods of value add as well as drawdown periods for a particular strategy.

Figure 6: Rolling 12 month returns - when was the strategy profitable?



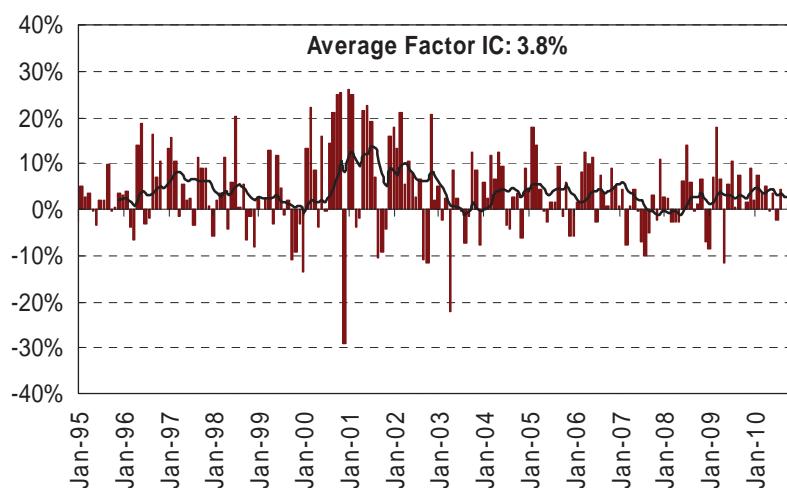
Source J.P. Morgan

Information Coefficient Chart

The chart below shows Factor IC (Information Coefficient) at each point in time over the backtest period (Figure 7). As explained earlier, when evaluating the effectiveness of the strategy, a positive correlation between Factor scores and the subsequent returns is desired. To verify the effectiveness, we compute the IC and consider that average IC's greater than 3% as "good" amongst Quantitative analysts.

In order to better highlight the cyclicity of the Factor studied, we have added a 12 month trend line to the chart.

Figure 7: The Factor IC chart



Source: J.P. Morgan

Hit Rate

Hit Rate is another important measure of a strategy's (consistent) success

The “Hit Rate” (or Success Rate) refers to a strategy’s frequency of success, and as such measures the consistency of a given strategy.

It is defined as the number of months out of the entire testing period in which the strategy made money. The Hit Rate can be found in the results section and is labeled as “% Outperformance”.

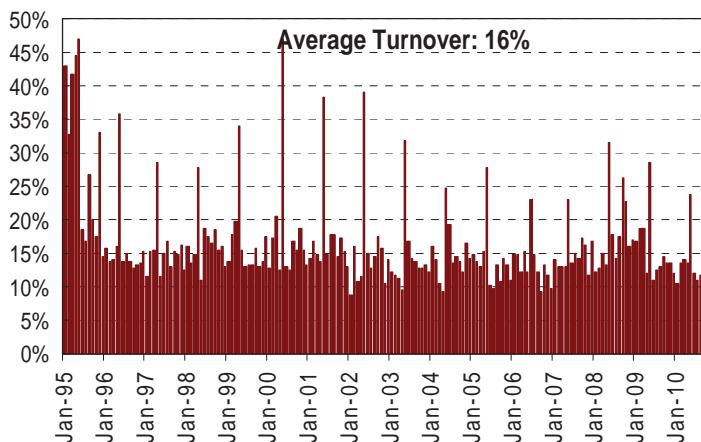
Clearly, it is preferred for a strategy to deliver consistent positive returns through time, rather than achieving all the outperformance from a few select months. A good Quant strategy would certainly have a hit rate in excess of 55%.

Turnover Chart

The turnover chart (Figure 8) depicts what percentage of the portfolio is being churned each month. It is imperative to note that turnover for many single Factor backtests could potentially be considerably elevated. Such strategies, whilst producing solid returns, would be impractical to implement in isolation for institutional investors, as transaction costs involved would be prohibitive.

However, a prohibitively high turnover does by no means suggest the strategy is of little use (on the contrary!). Such a strategy can indeed be employed in moderation as a small piece of a bigger engine. For instance, it could very well be included as one component of a multi-Factor Model with the dial turned towards some of the lower turnover Factors.

Figure 8: Turnover



Source: J.P. Morgan

Single Factor Backtests Summary

The last 5 years (since we have published our first [European Factor Reference Book](#)) have been roller-coaster years for the market and for Factor returns to say the least!

Almost every Factor has indeed experienced a significant cyclical in terms of returns with sustained periods of underperformance.

And whilst Hit Rates have overall stayed flat compared to our first publication, most Factors have seen their Information Coefficient (IC) decrease over time, implying that conventional Factor driven Models have experienced a relentless struggle for performance over the last 5 years.

The Factors backtested below are constructed with

- **Monthly rebalances**
- **The portfolios are sector neutral**
- **And constructed using a decile methodology**
- **Where the top decile represent the Long picks**
- **And the bottom decile the Short picks**
- **The positions are equally weighted in the portfolios**

This overall trend in the (higher) decay of Factor efficiencies has been well publicized by the press and various Quant groups and has instigated a revamp of the whole Quant industry.

It has also led Quant Managers to the quest for new data bases, inventive sources of Alpha and an ever increasing interest in discovering orthogonal Factors.

We have split the summary of (single) Factor performances in the section below by Factor Styles (ie "Factor Families") in Europe. This section is followed by a summary of our analysis ran at a sector level and then an investigation of the Factor returns per sub (European) regions like Scandinavia, UK and Continental Europe.

Earnings & Sentiment Factors

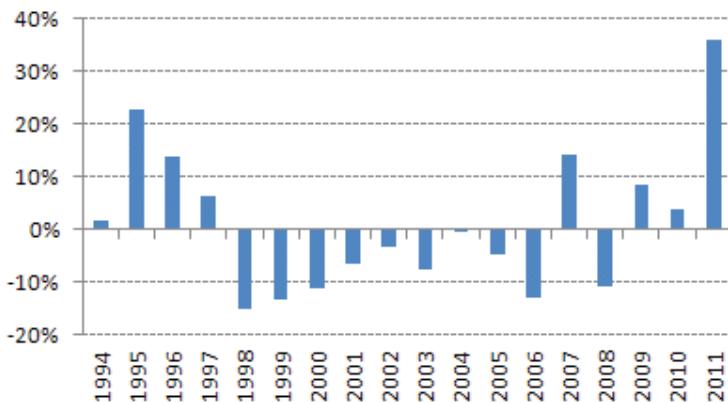
We club Factors like "Analyst Revisions", "% Change in Forecasts and Earnings Growth" in this category as they all represent the "Sentiment" and changes in the "Sentiment" of analyst consensus.

As we have observed over the years, in Europe the Factors looking at *changes* in EPS (ie Earnings Momentum etc) are more meaningful than Factors looking at the *level* of EPS itself (ie Earnings Growth expectations).

As a result, we find that many of the Factors we tested from this Family exhibited statistically significant results and all variants of Earnings Momentum we backtested (1 month, 3 months and "risk adjusted") exhibited good results (in-line with our 2007 paper).

EPS Growth (actual and expected) continues to be inadequate sources of Alpha; however the 5 year historical EPS Growth Factor experienced its most glorious year in 2011 with over 35% returns.

Figure 9: Annualized performance of Historical 5 years EPS Growth



Source: MSCI, IBES, J.P. Morgan

Price Factors

Short term mean-reversion was observed to be the most dominant alpha driver in the European region in the past, implying that regardless of market direction, over the very short term, stock prices do mean-revert.

We proxy this by using the “1 Month Price Momentum” (going Long the stocks that underperformed the most in the last month and going Short the stocks who performed the best). We also tested longer and shorter periods for this signal and found that the smaller the look-back period, the stronger the signal. “RSI 10 days” was for example by far the most successful Factor from a returns perspective with 12% annualized; however the strategy has its own pitfalls in implementation with a monthly one-way turnover of around 90%.

“12 Month Price Momentum” experienced strong ICs historically but again runs into major problem in terms of high volatility and huge drawdowns. Conditioning the Factor with monthly volatility over the same period seems to mitigate the drawdowns to a certain extent but not enough to remove the drawdowns. Both these Factors had a very good run in 2011.

Last year, we added stock level Seasonality¹ to our core set of Momentum driven Factors. We observed this Factor to be a very stable source of alpha with positive

¹ See "[Stock Seasonality Trading Model: How to Use Stock Periodic Seasonality to Improve Quant Model Performance](#)" (JP Morgan, 2011)

returns nearly 62% of the time. Especially noteworthy was the performance of this strategy during periods of distress (Tech Bubble, Financial Crisis etc). Similarly, in the last one year, the Factor has returned almost 20% Long/Short.

Quality Factors

Only a couple of Quality Factors had annualised returns over the test history significant enough to be mentioned. Whilst some Quant Managers do integrate Quality Factors in their Models (to avoid potential financial difficulty based on balance sheet issues) only the “Altman Z-Score” and “Asset Turnover” generate returns over 5% a year.

A greater benefit of using these strategies is the limited impact on transaction costs as a result of low-turnover. Indeed, since these metrics are based on financial statement data, the underlying data changes only a few times during a year.

Valuation Factors

As widely accepted, Value Factors generate attractive investment propositions and produce as a result appealing return profiles in Europe.

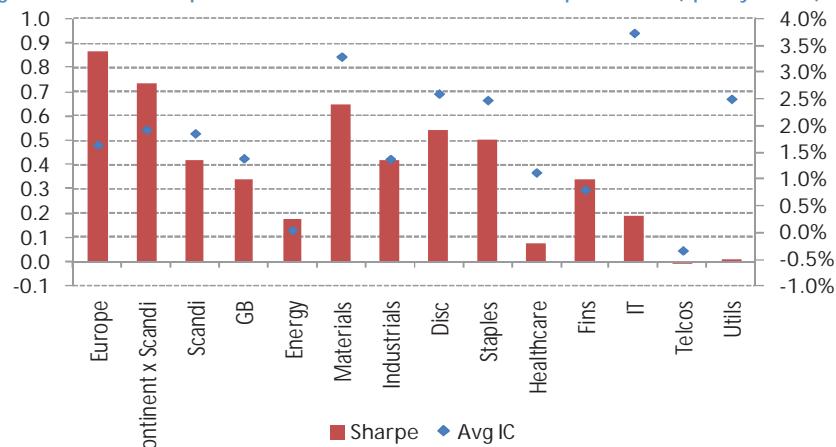
It is, however, worth mentioning that Valuations based on *actual*/reported numbers are better alpha drivers than *forward-looking*/forecasted ratios.

“Earnings Yield”, “Cash Earnings Yield” and “Dividend Yield”² all have done well through history with “Dividend Yield” enjoying a strong run since the onset of credit crisis.

“Cash-Flow” based metrics too have been generally successful as evidenced by an enviable success rate of nearly 63% for “Free Cash-Flow to Enterprise Value” (the second best t-stat and drawdown profile across all Factors in MSCI Europe).

² Some Quant Managers have argued that over the last 5 years, Dividend Yield has fallen into the Quality category and is therefore not a Value Factor anymore.

Figure 10: Annualized performance of Free Cash-Flow to Enterprise Value (split by sector)



Source: MSCI, IBES, J.P. Morgan

Barra Factors

We use Barra Factors in addition to our usual and more common definitions of Momentum, Value, Size and Volatility.

In all the tests ran with Barra Factors, Momentum (ie “Success”) seems to be the most interesting Factors as it displays the strongest average IC of all Barra Factors investigated.

It is however a pretty volatile Factor which can experience sustained periods of underperformance: it has for example lost over two-thirds of its value between February 2009 and September 2009.

On average, it has double digit ICs quite regularly but is the only Factor that has 7 months in its history where the IC breached 50%, 4 of these 7 months being on the negative side!

To illustrate the risk/reward of Barra’s Momentum Factor, consider the Factor’s performance over last 3 years: despite having a Hit Rate of 61%, the strategy has annualized returns of -16.6%. This can be majorly attributed to the February-September 2009 period mentioned above and the poor performance in 2012 so far.

Figure 11: Barra Momentum: Last 3 years performance in MSCI Europe

Strategy Statistics				
Portfolio 1 less Portfolio 10				
	Avg	Ann	Std	% Out
	Ret	Ret	Devn	Perf.
Long/Short	-0.8%	-16.6%	10.8%	61%
Active Ret	-0.6%	-7.4%	3.8%	50%
	T-Stat	Sharpe*	Assets	IR
Long/Short	-0.5	-0.4	89	-0.6

Source: MSCI, Barra, J.P. Morgan

The remaining Barra Factors did not generate results significant enough to merit consideration.

JPMorgan Quant Composite Factors

To conclude our brief Factor backtest summary, we decided to combine Factors to create “composite” (ie, blended) Factors.

A blended Factor approach works well in Europe with several Factors having statistically significant results.

In the backtests presented, we combined Factors to create our versions of Value, Quality, Growth and Momentum and composites of Styles thereon.

We have a fairly robust database infrastructure, so we are able to create and test blended Factors³.

Amongst those, the Q-Score Composite Model (an equal-weighted blend of 10 Factors representing Valuation, Earnings, Sentiment, Quality and Price Momentum) has the best statistical metrics through history.

We see the strong performance for our Q-Score not just on the broader MSCI Europe but also within several sector universes and the subsets of MSCI Europe (ie, Scandinavia, UK and Continental Europe).

Other Composite Factors that have produced attractive returns historically include a combination of longer term Price Momentum with shorter term Price Reversion, an equal-weighted combination of Value & Growth, and Value, Growth & Quality combinations.

³ If you would like to have combinations of Factors tested, please email Quant_strategy@jpmorgan.com

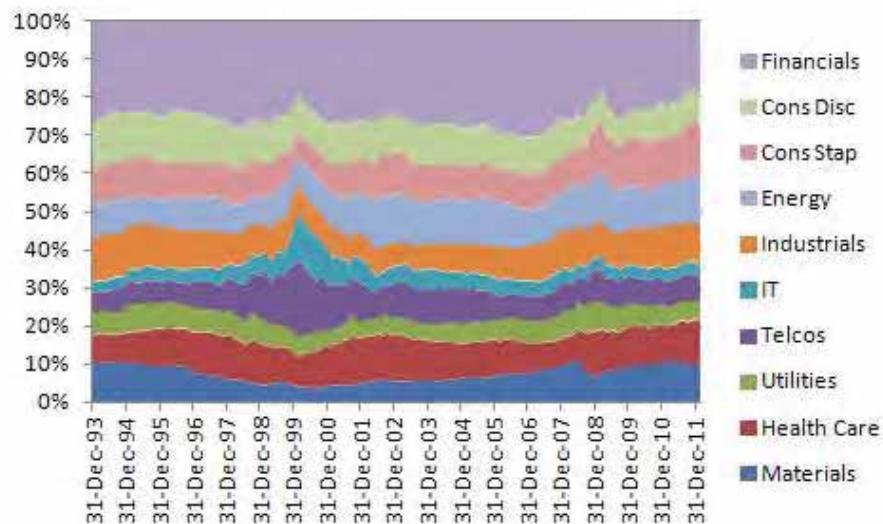
Sector Backtests Summary

Considering the predominance of sector biases in European, we decided to run a similar analysis to the one presented above but run at a sector level.

The second part of our analysis therefore focuses on the sector level backtesting results of those Factors.

It is worth noting that the results below are however not like-for-like analysis of Factors as sectors with poor representation cannot be tested for deciles (or even quintiles). We therefore run 2-3 portfolio tests on sectors like Energy, IT and Healthcare, while sectors like Consumer and Financials give us enough breadth to test using quintile baskets.

Figure 12: Sector weights in MSCI through time



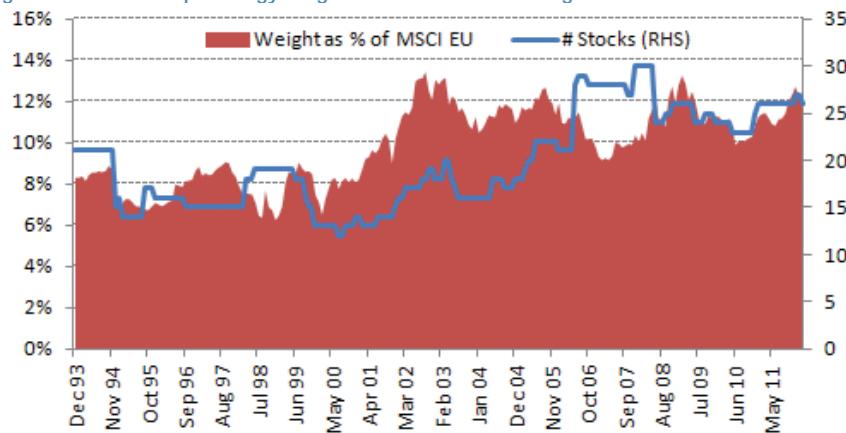
Source: MSCI, J.P. Morgan

MSCI Europe Energy

Energy, whilst significant in terms of index weights, is very poorly represented in terms of number of stocks throughout history (between 20 and 25 stocks).

The lower number of stocks in the universe does not permit the testing of the universe “extremes” as it would mean focusing on a number of stocks too small to generate relevant results. We therefore ran the backtests in the Energy sector as a 2-portfolio backtest.

Figure 13: MSCI Europe Energy weights and constituent changes over time



Source: MSCI, J.P. Morgan

Energy: a mean-reverting sector

The best alpha producing Factors in this sector seem to be mainly Reversion based. As a result, Factors like RSI, 1Month Price Reversion and also a combination of 12Month Price Momentum with short term Reversion have good return profiles.

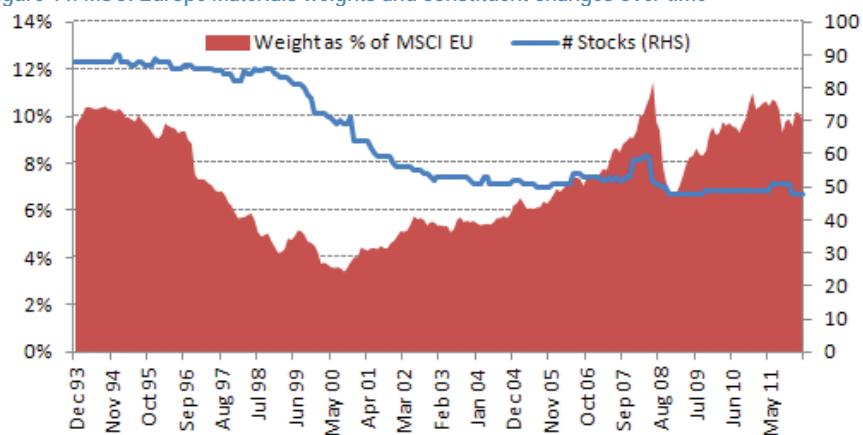
Cash-Flow Factors have a strong return profile as the strong IC of around 6% seems to suggest.

Volatility, Size and Quality all suffer in the sector with recurrent negative ICs and overall negative Long/Short returns.

MSCI Europe Materials

Whilst the representation of Materials in the MSCI Europe index has fluctuated through time, there are at the moment 48 stocks in the Materials space as compared to 88 in 1993; its weight in MSCI Europe is just under 10%, which is nearly the same as it was in December 1993.

Figure 14: MSCI Europe Materials weights and constituent changes over time



Source: MSCI, J.P. Morgan

Materials: a strong Value and Quality sector

Whilst, as explained above, it remains an extremely difficult strategy to implement in a normal investment process (due to its high turnover), short-term Mean-Reversion (“RSI 10 days”) is among the better performers through history on consistency, robustness and returns delivered.

Also, Value Factors in the Materials sector had very strong profiles with all conventional metrics returning good results. “EBITDA/EV” even exhibits a Sharpe ratio above 1. It also has the best IC, t-Stat, Hit-Rate and a turnover of only 10%.

Other efficient Factors in the sector were “Historical Earnings Yield”, “Free Cash Flow/Enterprise Value”, “Price/Cash Earnings” and “Forecast Earnings Yield” all generating decent backtesting profiles.

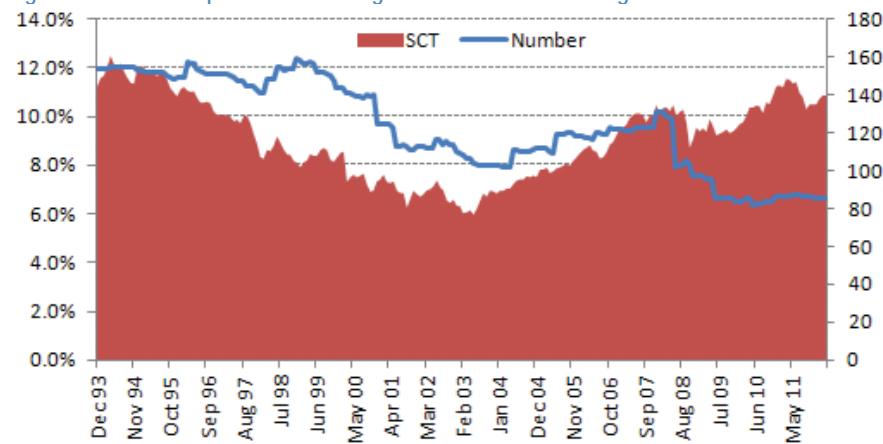
“Altman Z-Score” and “Change in EBIT Margin” were the standout Factors from the Quality Family. On the flip side, stocks with a higher gearing ratio strongly underperformed stocks with a lower gearing ratio.

Earnings & Sentiment Factors all had a particularly poor performance over time with only “One month change in Analyst Recommendation” displaying acceptable performance statistics (annualized Long/Short returns of 5% and t-stat of 2.5).

MSCI Europe Industrials

The representation of Industrials in MSCI Europe has been very similar to the representation of MSCI Materials Index: the number of constituents is down from over 150 to just over 80.

Figure 15: MSCI Europe Industrials weights and constituent changes over time



Source: MSCI, J.P. Morgan

“12 Months Price Momentum” seems to be a very efficient Factor in the Industrials sector and the volatility adjusted version of Price Momentum provides an even better returns profile.

Industrials: a Momentum and Growth/Earnings Momentum sector

“RSI 10 days” is again among the better Factors evidencing a strong mean-reversion bias of the Industrials sector.

Value Factors (overall) failed and “Altman Z-score” was the only Quality Factor of notable performance.

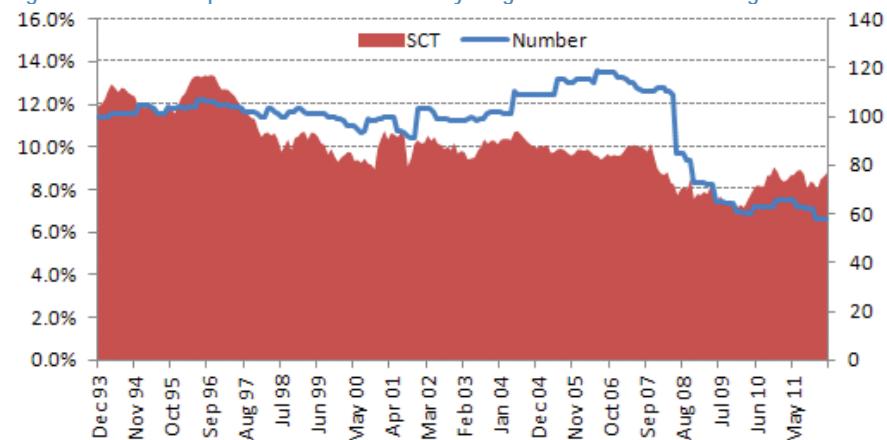
“Net Revisions” and a combination of “1-month and 3-month Earnings Momentum” had good return profiles but both Factors suffered big drawdowns (between 30-40%) at some stage during the period investigated.

“JPMorgan Price Composite” was the best performing Composite Factor (not a surprise given it combines 12 month Price Momentum with RSI 10 days and both were successful as mentioned earlier).

MSCI Europe Consumer Discretionary

The number of constituents in the Consumer Discretionary has come down from a high of almost 120 stocks to about 60.

Figure 16: MSCI Europe Consumer Discretionary weights and constituent changes over time



Source: MSCI, J.P. Morgan

Consumer Discretionary: a Growth/Earnings Momentum sector

An analysis of the sector reveals that Value and Quality Factors performed poorly with the exception of “Free Cash Flow/EV”.

“Dividend Yield”, which has been observed to be a bastion of safety in the last few years, has consistently lost money in this sector and is currently 73% down from its peak.

Factors from the Earnings & Sentiment Family were the most effective across the Discretionary sector, most Factors displaying strong test statistics. Of these, “Net Revisions” and “Change in Target Price (consensus)” had particularly good return profiles.

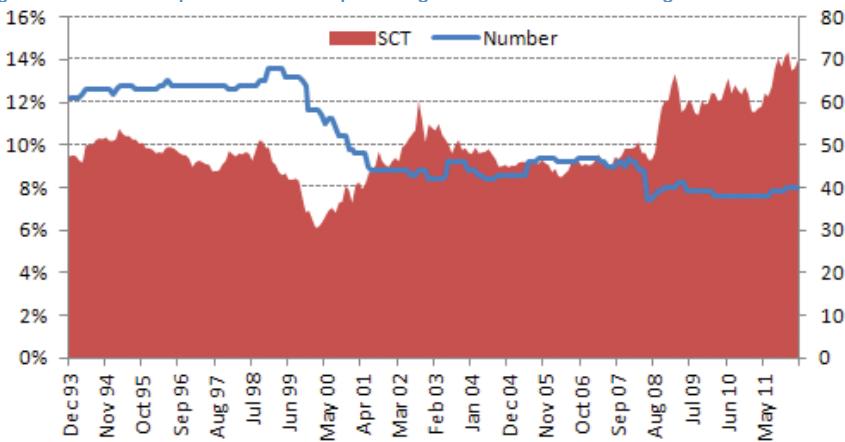
This is among the few sectors where we observed short term Mean-Reversion not to work efficiently. Medium to long term Price Momentum was effective and these are the standout Factors from the Price Family.

We found that most JPMorgan Composites had good statistics and return profiles.

MSCI Europe Consumer Staples

Consumer Staples has seen a decline in the number of constituent stocks (from 60 it had in mid 90s to 40 today) whilst its index representation by weight has increased from 9% in 1993 to about 14% in 2012.

Figure 17: MSCI Europe Consumer Staples weights and constituent changes over time



Source: MSCI, J.P. Morgan

Consumer Discretionary: a Value and Mean-Reversion sector

Throughout our analysis, we found that the only Quality Factor of note was “Change in ROE (over the past twelve months)”. All other Quality Factors were generally ineffective.

“Earnings Momentum (3 Month)” and “Net Analyst Revisions” were the only Earnings & Sentiment Factors to show a good returns profile. A combination of 1-month and 3-month Earnings Momentum had a similar performance to stand-alone 3-month Earnings Momentum Factor. “Analyst Recommendations” and 1 (or 3) month change in its value were either flat or negative. “Change in Target Price”, a good performer in other observed universes, was among the worst performer in the Factor group.

Most Value Factors performed well, notably “Dividend Yield”, “Earnings Yield”, “Forecast PE”, “Free Cash Flow/Enterprise Value” and “Sales Yield” (all based on historical reported numbers). It is however worth noting that “Historical Sales Yield” is the best out of all 70 Factors tested in the sector.

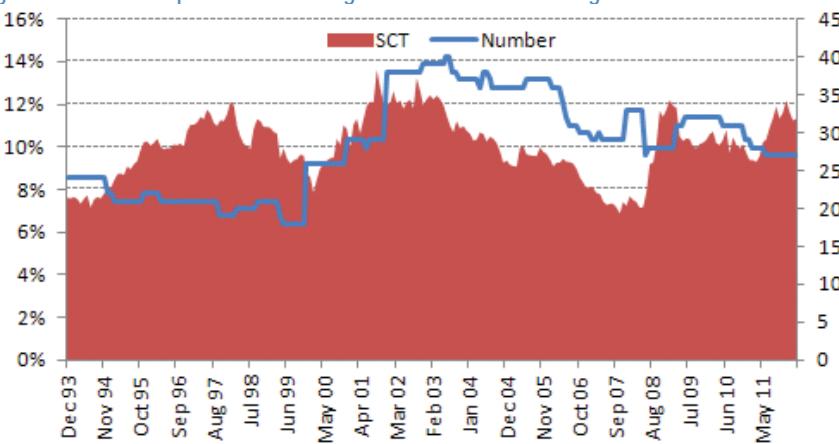
Short term Mean-Reversion was strongly evident in the sector whilst medium to long term Price Momentum suffered throughout the analysed period.

Q-Score had very strong statistics and was to be the best composite Factor presented. Other Composite Factors of note include Value to Risk and a value-biased blended flavor of Value, Growth, Price and Quality.

MSCI Europe Healthcare

Whilst the number of stocks has changed dramatically over time, the Healthcare sector is at present made of 27 stocks (compared to 24 in December 1993 and as many as 40 in 2003).

Figure 18: MSCI Europe Healthcare weights and constituent changes over time



Source: MSCI, J.P. Morgan

Healthcare: a Value sector

In our analysis we find that Price Momentum (medium to long term) displayed negative annualized returns due to significant drawdowns experienced throughout the period tested (between -50% to -70%); whilst Mean-Reversion (backed up by impressive t-stats and ICs) ensure these Factors rank the highest in our pool of Factors.

All Quality Factors showed negative or meager returns for the sector.

Similarly, Earnings & Sentiment Factors had a poor showing.

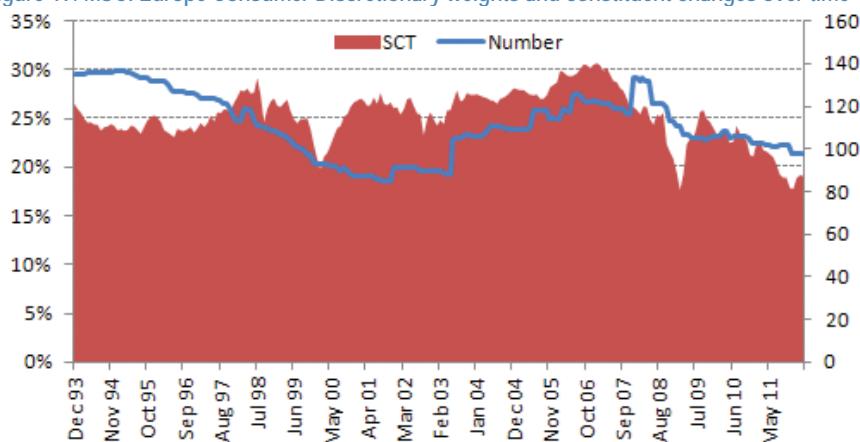
“Price/Cash Earnings” and “Price/Sales” had good returns but all other Value Factors did not display meaningful results.

Among JPMorgan Quant Composite Factors: Value-Momentum Model (without PEG ratio), Value-Growth-Momentum Model (with PEG ratio), the Composite Momentum Model and our Q-Score Composite were strong performers.

MSCI Europe Financials

Among the best represented sectors in Europe, Financials has a historical average weight of about 25% of the MSCI Europe index. This, at its peak in early 2007 was over 30% and the subsequent financial meltdown has seen a decrease to less than 20% at most recent levels. The number of constituents has come down from over 130 in mid-90s to just under a 100 in March 2012.

Figure 19: MSCI Europe Consumer Discretionary weights and constituent changes over time



Source: MSCI, J.P. Morgan

Financials: a Growth/Earnings Momentum and Value sector

Medium term Price Momentum has experienced consistent negative returns throughout history. Mean-Reversion Factors (like in the other sectors) produced impressive results with annualized returns between 6-8%.

All Quality and Earnings & Sentiment Factors had results with weak statistical significance and low Beta significantly outperformed high Beta.

Earnings Momentum shows overall positive returns for the period analysed.

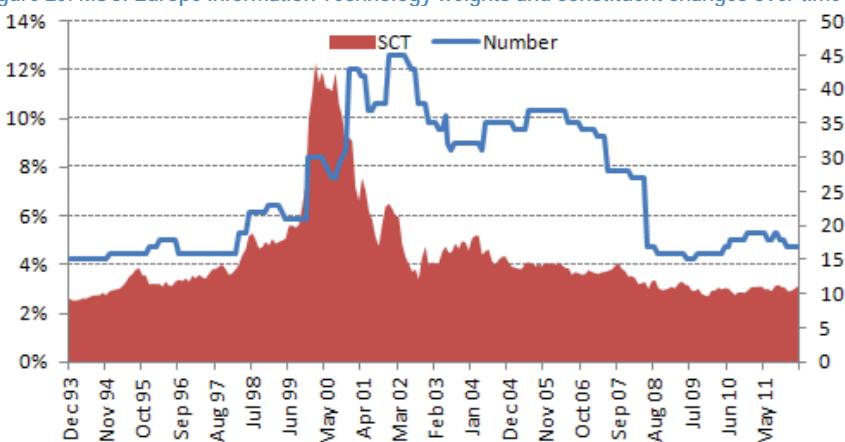
“Dividend Yield” and “Earnings Yield” (forecast as well as historical) were the best Value Factors in the Financials sector. Contrary to popular belief that “Price/Book” is the preferred metric for valuation in the Financials sector, we find that “Price/Earnings” outscores “Price/Book” in almost every statistic summary.

We find that most Composites have a good showing with ICs mostly in excess of 3% and t-stats generally over 2. The Sharpe ratios for our Composite Factors are between 0.4 and 0.6 (with the generic blend of Value, Momentum, Quality, and Price ranking best).

MSCI Europe Information Technology

Both Telcos and IT sectors saw a surge in their share of MSCI Europe during the tech-bubble. From a share of about 2.6% in 1993, MSCI Europe index weight of IT increased nearly five-fold to over 12% in early 2000. This also corresponded with the three-fold rise in the number of constituents from 15 to 45. The current index weight is however about 3% and there are 17 stocks in the MSCI Europe IT sector.

Figure 20: MSCI Europe Information Technology weights and constituent changes over time



Source: MSCI, J.P. Morgan

Information Technology: a Price and Growth/Earnings Momentum sector

Medium term Price Momentum and short-term Mean-Reversion were the dominant themes in the Price Family.

Most Earnings & Sentiment Factors did well in the sector too. “Net Revisions” and “Earnings Momentum” had between 8-14% annualized returns with t-stats over 2. “Historical Earnings Growth over 5 years” (generally not an effective Factor) exhibited a strong backtesting profile as well.

Another surprise was the importance applied by investors in the IT sector towards “Earnings uncertainty”. It was indeed a major Factor as evidenced by the strong *underperformance* of our “EPS Coefficient of Variation”⁴ Factor.

Most Quality Factors had inferior returns compared to other Styles and low beta names significantly outperformed high Beta names.

As intuitively expected, Value Factors also had mediocre when tested historically.

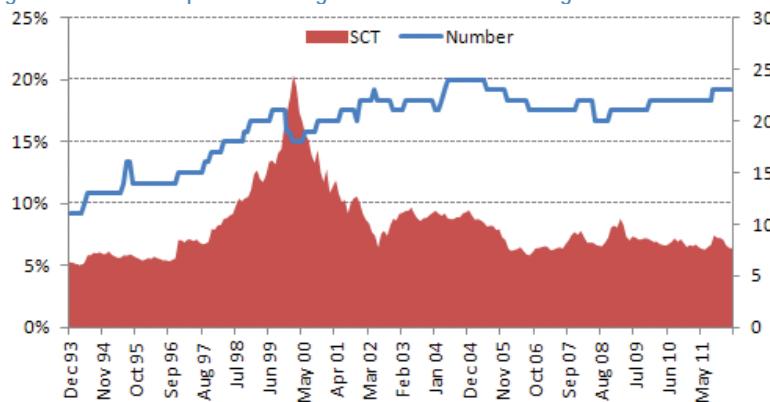
Q-Score is the top performing Factor for the sector with annualized returns of about 15% and a Sharpe of 0.8.

⁴ “Composite Coefficient of Variation” tracks the dispersion in consensus analyst estimates. Higher dispersion implies greater uncertainty over a stock’s future earnings.

MSCI Europe Telecommunications

Telcos is one of the few sectors that have actually seen an *increase* in the number of constituents through time (from 11 to 25).

Figure 21: MSCI Europe Telcos weights and constituent changes over time



Source: MSCI, J.P. Morgan

None of the Value, Quality and Barra Factors had a performance worth mentioning.

Telecoms: a difficult sector where Mean-Reversion and Earnings Momentum work slightly

“Earnings Momentum” and “6-month Change in Target Price” have been strong performers through time in the Telecommunications sector. The other Factors from the Earnings & Sentiment group either had paltry returns or were negative performers through history.

RSI as a Factor was a strong performer in the Price Family of Factors. All other Factors from the group had unremarkable statistics and were generally poor performers.

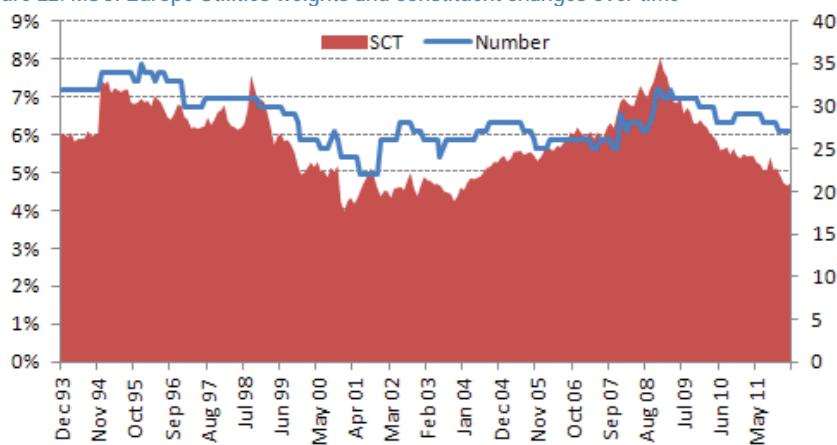
JPMorgan Composite Factors had a difficult time in the sector too.

None of the Factors had results that had any statistical significance, making this one of the very few groups where we don’t have a single Composite Factor of note.

MSCI Europe Utilities

Utilities makes up about 4.7% of MSCI Europe as at the latest rebalance (historical average: 5.8%). At its peak, it was about 8% of Europe (late 2008) and its lowest, it was around 4% (early 2001). In terms of number of stocks, there are over 30 Utilities.

Figure 22: MSCI Europe Utilities weights and constituent changes over time



Source: MSCI, J.P. Morgan

Utilities: a Mean-Reversion and Value sector

Quality and Earnings & Sentiment Factors had mediocre returns in the period tested.

“P/E relative to its own history”, “P/E (forecast and historical)” and “Price/Cash Earnings ratio” were the most effective valuation Factors in the sector.

Very short and medium term price reversion was also a dominant theme as we see 10 and 30-days RSI with strong outperformance. We also noticed an underperformance from “3 month Price Momentum”.

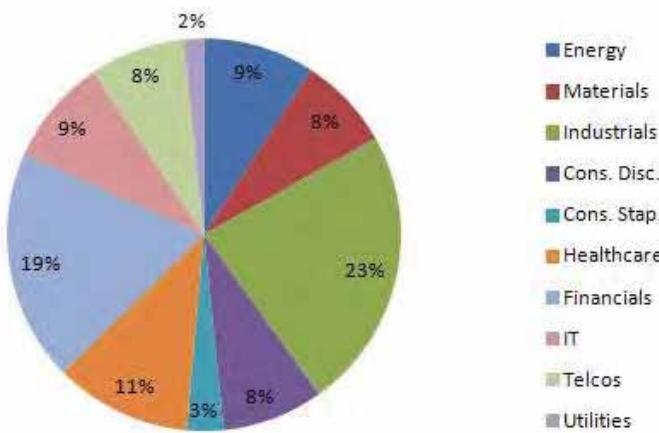
The Value Composite with blend of P/E and relative P/E was the strongest performing Composite, complemented well by Value-Growth-Momentum Model, Value-Momentum Model, Value-Momentum-Quality-Price Model and of course the Q-Score Composite.

Europe Sub-regions Backtests Summary

MSCI Scandinavia

Industrials and Financials are currently the two biggest sectors in Scandinavia. The general distribution in terms of index weights is shown below.

Figure 23: MSCI Scandinavia – Current sector weights



Source: MSCI, J.P. Morgan

Scandinavia: an Earnings Momentum driven region

In this particular sub region of MSCI Europe, we find Value, Quality and Barra Factors to be historically inconclusive in predicting stock returns as none of the Factors from these groups have statistically consistent results.

Earnings Momentum Factors on the other hand are the strongest drivers of returns in the Scandinavian region. These Factors had annualized returns between 6 and 8% and Sharpe ratios between 0.5 and 0.7.

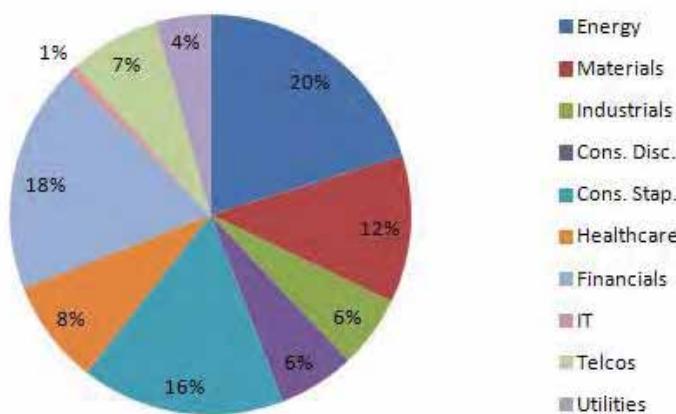
Very short and medium term price Reversion worked unfailingly in general as we see 10 and 30 days RSI with strong outperformance. We also noticed a strong underperformance from 3 and 6 month Price Momentum.

Most Composite Factors had inconclusive results with the exception of our Q-Score Model.

MSCI UK

Energy makes up about 20% of MSCI UK. The 3 next biggest sectors, with weights in excess of 10%, are Financials, Staples and Materials.

Figure 24: MSCI UK – Current sector weights



Source: MSCI, J.P. Morgan

None of the Barra Factors were found to be statistically relevant.

UK: a Value based region

Analyst views on the other hand seem very important in the UK as we find “Change in Consensus Recommendation” and “Net Revisions to FY2” performing successfully throughout history. On the other hand, Forecast and Historical Earnings Growth were (as expected) irrelevant from a backtesting perspective.

As for most sectors and regions, Mean- Reversion is once again a dominant theme in the UK. This is confirmed by Price Momentum generating negligible returns over time.

Similarly, most Valuation Factors have had a strong performance indicating a greater bias towards cheap versus expensive stocks. We find EBITDA/Enterprise Value and most Price based multiples (P/CF, P/E etc) to exhibit consistent superior returns.

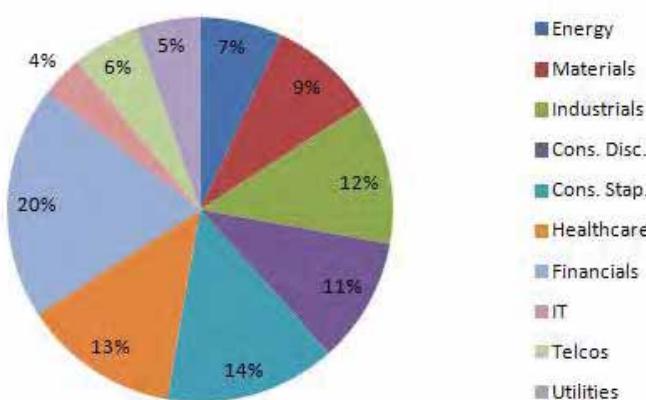
Also, “Internal Growth” and “Return on Equity (historical)” are two Quality Factors that have performed well in the UK. Apart from these, we do not observe any reliable Factor performance from this class of Factors.

As a result of the above, most Value based Composite Factors have performed well historically.

MSCI Continental Europe⁵

Financials is the largest sector in Europe, both in terms of index weight and index constituents (followed by Staples, Healthcare and Industrials on weights). Financials has 60 members while there are 50 in Industrials.

Figure 25: MSCI Continental Europe – Current sector weights



Source: MSCI, J.P. Morgan

Continental Europe: a blended universe

As in the UK, Earnings Momentum based Factors work very efficiently in the region. Most of those Factors had indeed very consistent returns and robust statistical metrics. Amongst them, we found that “Change in Consensus Recommendation” and “Net Revisions to FY2” performed successfully throughout history.

In what could be seen as a theme in terms of performance, we again see Reversion Factors to be extremely good performers.

Adding to this mix is the decent performance of “Volatility adjusted Price Momentum”, confirming the longer term Price Momentum characteristics of the Continental Europe region.

“Asset Turnover”, “Internal Growth” and “Altman Z-Score” are the Quality Factors observed having a strong performance in Continental Europe whilst having a higher “Sales Growth” does not necessarily translate into future stock outperformance.

“Dividend Yield” is the most successful valuation Factor, with a t-stat of over 3 (and turnover of less than 10%).

“Free Cash Flow to Enterprise Value” also had strong performance along with other Valuation metrics like P/E (historical and forecast), Price/Book and Price/Cash.

⁵ Ie Ex Scandinavia

Appendix 1: Backtesting Analysis

All the tables in this section are based on data sourced from MSCI, IBES, Reuters, Factset, Barra, and J.P. Morgan.

MSCI Europe

Table 1: Factor performance summary across MSCI Europe

Factor	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Annual Long Return	Annual Short Return	Annual Active Return	Sharpe	Max DD
Barra Factors										
Success (Barra)	547	4.1%	1.62	61.5%	25.3%	12.9%	-0.8%	6.4%	0.25	-68.9%
Value (Barra)	547	1.6%	1.63	53.7%	16.4%	10.8%	5.0%	5.3%	0.30	-56.9%
Size (Barra)	547	0.0%	-0.36	50.9%	7.4%	6.9%	6.9%	-2.2%	-0.15	-63.3%
Volatility (Barra)	547	-1.4%	0.02	49.1%	12.9%	4.2%	9.4%	-3.6%	-0.13	-83.9%
Earnings & Sentiment Factors										
6 Month Change in Target Price	496	2.8%	1.14	60.0%	28.6%	12.5%	3.4%	5.2%	0.30	-47.8%
Composite Forward Earnings Momentum (1Month + 3 Month)	506	2.6%	2.12	62.8%	43.9%	10.8%	2.0%	6.1%	0.44	-43.5%
Forward Earnings Momentum (1Month Change)	510	2.6%	2.91	66.1%	70.9%	12.5%	2.8%	7.6%	0.65	-37.3%
Forward Earnings Momentum (3Month Change)	507	2.4%	2.31	65.6%	37.2%	11.6%	2.1%	6.7%	0.49	-43.0%
Net Revisions to FY2 [Up-Down]/[Up + Down]	514	2.3%	2.99	61.9%	78.5%	12.1%	3.9%	6.6%	0.67	-22.3%
Forward Earnings Momentum (3Month) / Coefficient Of Variation	499	2.1%	1.81	60.1%	43.5%	10.4%	4.3%	4.3%	0.37	-35.2%
Net Revisions to FY1 [Up-Down]/[Up + Down]	514	2.0%	1.68	61.5%	77.6%	11.0%	5.9%	3.5%	0.35	-33.8%
3 Month Change in Consensus Recommendation	509	1.4%	2.70	61.4%	51.8%	9.7%	3.8%	5.1%	0.61	-21.9%
Consensus Recommendation	511	1.1%	1.18	55.5%	19.3%	8.0%	4.8%	2.3%	0.23	-46.7%
1 Month Change in Consensus Recommendation	513	1.0%	2.15	54.8%	87.8%	9.2%	5.4%	3.2%	0.48	-22.6%
5 years Historical Earnings Growth	492	0.4%	0.31	51.8%	8.2%	6.6%	5.8%	0.2%	0.03	-54.1%
Number of Consensus Estimates (FY1)	512	0.2%	0.57	52.8%	12.9%	7.6%	5.7%	0.9%	0.07	-39.8%
Forecast Earnings Growth FY1 to FY2	519	-1.2%	-1.31	47.7%	22.6%	4.7%	10.2%	-4.3%	-0.36	-62.9%
Composite Coefficient of Variation (Avg of FY1 and FY2)	507	-1.3%	-0.44	47.2%	22.2%	4.4%	8.6%	-3.0%	-0.18	-57.8%
Price Factors										
RSI 10 days (Reversion)	562	3.3%	4.74	60.6%	88.0%	15.3%	2.6%	12.5%	1.12	-18.6%
12 Month Price Momentum adjusted for volatility (Sharpe style)	542	2.8%	1.61	57.2%	30.6%	13.1%	4.4%	5.3%	0.31	-40.0%
12 Month Price Momentum	554	2.5%	1.12	56.4%	28.5%	12.9%	4.0%	3.3%	0.15	-60.1%
RSI 30 days (Reversion)	562	1.8%	2.20	52.3%	79.7%	11.6%	5.6%	6.1%	0.46	-28.1%
1 Month Price Reversion	563	1.7%	1.94	51.8%	87.4%	10.9%	5.3%	5.8%	0.39	-37.6%
6 Month Price Momentum	561	1.4%	0.94	55.0%	39.2%	12.7%	4.9%	2.4%	0.11	-44.9%
Percent Off 52 Week High	563	1.3%	-0.10	53.2%	42.6%	7.2%	4.0%	-2.9%	-0.14	-68.9%
Price Acceleration (6 Months)	551	0.4%	0.84	52.3%	32.3%	9.3%	6.0%	1.6%	0.14	-39.5%
3 Month Price Momentum	564	-0.2%	-0.31	51.4%	54.5%	8.6%	7.6%	-3.2%	-0.17	-58.3%
Price Acceleration (3 Months)	552	-0.8%	-0.93	47.2%	42.9%	7.4%	9.0%	-3.0%	-0.27	-43.5%
Quality Factors										
ALTMAN Z-score	516	2.1%	1.41	57.5%	3.9%	8.6%	-0.2%	5.0%	0.30	-43.0%
Internal Growth	558	1.3%	1.58	56.9%	12.6%	9.2%	5.1%	3.0%	0.33	-22.7%
Asset Turnover (Historical)	500	1.1%	2.88	62.3%	11.9%	9.0%	2.0%	6.1%	0.75	-24.1%
Historical Return On Equity	560	1.1%	0.68	56.0%	9.8%	8.5%	5.6%	1.1%	0.11	-29.1%
PIOTROSKI F-score (Fundamental Scorecard)	548	1.0%	1.15	56.9%	19.8%	7.7%	4.5%	2.3%	0.27	-31.3%
Asset Turnover (Historical)	515	0.9%	2.02	55.1%	4.6%	8.8%	4.4%	3.9%	0.51	-19.9%
Change In ROE Between Current and 12 Months Prior	513	0.8%	0.36	55.3%	18.4%	9.7%	8.5%	0.4%	0.04	-37.5%
Historical Returns Volatility Over Last Year	555	0.7%	0.22	47.2%	19.2%	9.1%	4.8%	-0.8%	-0.04	-62.1%
Interest Cover	447	0.6%	1.13	55.7%	8.7%	8.0%	4.2%	2.6%	0.26	-44.4%
Payout Ratio	565	0.2%	-0.14	49.1%	13.7%	4.4%	5.7%	-0.8%	-0.08	-40.2%

Factor	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Annual Long Return	Annual Short Return	Annual Active Return	Sharpe	Max DD
EBIT Margin Growth	509	0.1%	0.83	53.3%	13.1%	5.9%	3.7%	1.5%	0.18	-22.9%
Gearing	522	-0.3%	-0.85	46.1%	6.7%	3.0%	7.1%	-3.2%	-0.28	-47.9%
Liquidity	543	-0.5%	-1.70	46.9%	10.9%	5.3%	10.4%	-4.8%	-0.45	-72.1%
Historical Sales Growth	514	-1.0%	-1.74	48.5%	11.2%	2.3%	7.0%	-4.4%	-0.50	-53.6%
Historical BETA	549	-1.7%	-1.58	44.5%	26.8%	1.3%	10.7%	-7.8%	-0.44	-86.9%
Value Factors										
Historical Earnings Yield	566	1.8%	2.97	57.8%	15.2%	12.6%	4.4%	7.4%	0.66	-28.5%
Historical Dividend Yield	566	1.7%	2.93	54.1%	12.7%	12.6%	3.7%	7.6%	0.65	-25.1%
Free Cash Flow to Enterprise Value (Historical)	492	1.6%	3.26	62.9%	11.9%	8.9%	2.4%	5.7%	0.86	-11.8%
Historical P/Cash Earnings Ratio	472	1.5%	2.62	56.9%	15.0%	12.5%	4.2%	7.8%	0.57	-43.0%
1 year forward forecast PE	510	1.4%	1.47	55.0%	16.8%	10.3%	6.0%	4.1%	0.28	-57.7%
EBITDA to Enterprise Value	521	0.9%	1.29	52.7%	13.8%	6.1%	2.7%	2.9%	0.30	-31.9%
1 year forward forecast PE Relative To Sector	510	0.8%	0.54	53.7%	16.1%	9.1%	8.2%	0.8%	0.06	-58.6%
Cash Flow Yield FY1	480	0.8%	1.29	53.1%	15.7%	10.0%	6.5%	3.6%	0.24	-47.6%
Cash Flow Yield Mean of FY1 and FY2	476	0.7%	1.43	55.0%	15.6%	8.9%	5.0%	4.2%	0.27	-43.6%
Historical P/Book Value Ratio	566	0.7%	0.98	51.8%	11.9%	10.3%	8.4%	2.4%	0.16	-47.7%
Historical P/Sales Ratio	475	0.6%	0.93	54.9%	10.2%	9.1%	6.5%	3.3%	0.21	-30.0%
Cash Flow Yield FY2	478	0.6%	1.16	53.6%	15.5%	8.3%	5.5%	3.3%	0.20	-46.3%
1 year forward forecast PE Relative To History	488	0.4%	0.44	47.2%	23.3%	7.1%	6.9%	0.5%	0.03	-56.0%
JPMorgan Quant Composite Factors										
Composite Price with 1 Month Reversion	550	3.6%	2.28	62.4%	36.6%	14.5%	1.2%	8.9%	0.45	-53.7%
Composite Value Momentum Quality Price Model	507	2.9%	2.72	63.8%	49.0%	13.2%	4.0%	7.3%	0.59	-42.3%
Composite Value Momentum Model	505	2.8%	3.16	61.5%	57.0%	11.6%	3.5%	7.7%	0.71	-43.8%
Composite Value Momentum Quality Price Model (Value Biased)	507	2.7%	2.25	59.6%	47.9%	11.3%	5.1%	5.4%	0.48	-45.3%
Composite Momentum	514	2.5%	2.67	61.9%	71.9%	11.6%	3.7%	6.3%	0.59	-30.0%
Composite Value Growth Momentum Model	506	2.3%	1.96	56.4%	57.3%	9.1%	4.8%	4.4%	0.41	-47.9%
Composite Price	520	1.9%	1.54	60.1%	30.5%	13.0%	5.5%	4.5%	0.29	-36.0%
Value To Risk	500	1.7%	1.46	56.4%	18.3%	10.3%	5.6%	3.5%	0.29	-49.0%
Composite Quality	501	1.5%	0.91	57.3%	13.1%	8.5%	3.3%	2.0%	0.14	-39.3%
Composite Recommendation	511	1.4%	3.50	62.0%	61.7%	10.4%	3.5%	6.1%	0.83	-18.6%
Composite Value	506	1.3%	1.51	53.7%	20.6%	9.0%	4.8%	4.2%	0.29	-57.9%
Composite Value and Growth	507	0.5%	0.52	54.1%	19.9%	5.8%	5.8%	0.7%	0.05	-61.7%
Value To Growth	507	-0.1%	-0.01	52.3%	22.0%	3.7%	5.9%	-1.1%	-0.08	-63.1%
Q-Score Composite	507	3.6%	2.74	65.1%	49.8%	12.7%	2.7%	7.9%	0.60	-47.5%

MSCI Europe Energy

Table 2: Factor performance Summary across MSCI Europe Energy

Factor	Avg. Stocks	Avg. IC	T-Stat	Hit Rate	Turn Over	Annual Long Return	Annual Short Return	Annual Active Return	Sharpe	Max DD
Barra Factors										
Value (Barra)	19	4.1%	0.62	52.8%	9.1%	15.0%	11.8%	1.1%	0.07	-50.8%
Volatility (Barra)	19	4.1%	1.35	55.0%	6.8%	15.1%	11.4%	4.1%	0.23	-49.4%
Success (Barra)	19	2.8%	0.16	54.1%	14.4%	14.2%	13.0%	-0.6%	-0.04	-39.2%
Size (Barra)	19	-3.5%	-1.11	45.4%	2.7%	12.2%	14.8%	-5.8%	-0.34	-73.0%
Earnings & Sentiment Factors										
6 Month Change in Target Price	21	5.3%	2.51	59.0%	15.0%	22.4%	10.2%	10.2%	0.82	-24.2%
5 years Historical Earnings Growth	16	4.3%	0.43	47.2%	5.0%	15.8%	14.8%	0.4%	0.03	-47.9%
1 Month Change in Consensus Recommendation	17	1.7%	-0.16	49.3%	49.3%	14.7%	15.0%	-1.2%	-0.10	-38.2%
Forward Earnings Momentum (3Month) / Coefficient Of Variation	17	1.6%	0.78	50.9%	21.6%	17.0%	13.2%	1.7%	0.11	-26.6%
Forward Earnings Momentum (3Month Change)	17	0.9%	0.52	53.7%	20.2%	16.0%	13.4%	0.7%	0.05	-35.3%
Composite Forward Earnings Momentum (1Month + 3 Month)	17	0.6%	0.46	55.0%	23.8%	15.9%	13.7%	0.5%	0.03	-38.5%
Net Revisions to FY2 [Up-Down]/[Up + Down]	17	0.6%	0.02	49.5%	41.3%	15.3%	15.0%	-0.9%	-0.06	-61.7%
Consensus Recommendation	18	0.1%	0.71	53.7%	11.4%	16.4%	14.0%	1.3%	0.11	-55.3%
Composite Coefficient of Variation (Avg of FY1 and FY2)	17	0.1%	0.33	51.8%	12.8%	15.8%	15.2%	0.2%	0.01	-49.8%
Net Revisions to FY1 [Up-Down]/[Up + Down]	17	0.1%	-0.40	50.9%	38.6%	14.5%	15.9%	-2.4%	-0.17	-68.9%
Forward Earnings Momentum (1Month Change)	17	-0.2%	0.70	54.1%	39.8%	16.1%	13.8%	1.4%	0.09	-45.6%
3 Month Change in Consensus Recommendation	17	-0.9%	0.10	52.1%	27.3%	15.0%	14.8%	-0.7%	-0.05	-35.0%
Forecast Earnings Growth FY1 to FY2	18	-1.8%	-1.55	46.8%	11.3%	9.4%	18.3%	-7.3%	-0.43	-77.4%
Number of Consensus Estimates (FY1)	17	-2.1%	-1.65	45.4%	6.4%	12.5%	18.3%	-7.1%	-0.45	-79.8%
Price Factors										
RSI 30 days (Reversion)	19	8.3%	3.52	56.9%	44.5%	20.9%	7.9%	11.3%	0.80	-31.5%
RSI 10 days (Reversion)	19	7.6%	3.10	61.5%	51.2%	20.5%	8.4%	10.2%	0.68	-29.4%
1 Month Price Reversion	20	6.6%	2.63	60.1%	53.0%	17.8%	8.8%	8.0%	0.57	-28.3%
12 Month Price Momentum	19	2.5%	1.23	54.6%	15.2%	16.7%	10.0%	3.6%	0.21	-41.4%
12 Month Price Momentum adjusted for volatility (Sharpe style)	19	2.4%	0.36	53.8%	16.3%	14.7%	12.2%	0.1%	0.01	-53.9%
6 Month Price Momentum	19	-0.8%	-0.38	46.8%	20.3%	13.2%	13.9%	-2.7%	-0.17	-63.4%
3 Month Price Momentum	20	-3.2%	-1.65	45.4%	29.9%	11.0%	17.0%	-7.1%	-0.45	-82.2%
Price Acceleration (6 Months)	19	-3.4%	-1.08	46.3%	16.4%	13.1%	16.2%	-4.4%	-0.32	-55.9%
Price Acceleration (3 Months)	19	-4.3%	-2.03	44.0%	20.5%	11.1%	17.9%	-7.5%	-0.53	-76.6%
Percent Off 52 Week High	19	-4.6%	-1.38	51.4%	22.8%	12.6%	16.3%	-6.2%	-0.39	-69.6%
Quality Factors										
Change In ROE Between Current and 12 Months Prior	17	4.6%	1.56	55.3%	11.7%	17.2%	11.3%	4.5%	0.31	-28.1%
Historical Return On Equity	20	2.3%	0.85	54.1%	6.7%	15.6%	11.0%	1.9%	0.12	-48.3%
Gearing	20	2.0%	0.48	56.3%	3.2%	10.8%	10.6%	0.8%	0.06	-53.0%
Internal Growth	20	1.9%	1.54	54.6%	7.2%	16.1%	10.2%	4.3%	0.30	-31.6%
Historical BETA	20	1.4%	0.54	51.4%	17.0%	13.8%	13.1%	0.8%	0.06	-36.1%
Payout Ratio	20	0.3%	0.96	50.9%	6.9%	14.2%	12.1%	2.3%	0.15	-35.6%
PIOTROSKI F-score (Fundamental Scorecard)	21	0.2%	0.63	53.9%	9.6%	12.5%	8.7%	1.4%	0.11	-38.4%
Asset Turnover (Historical)	19	-0.8%	-0.67	47.3%	7.8%	9.4%	11.8%	-3.8%	-0.25	-64.4%
Interest Cover	19	-1.9%	-1.27	42.5%	5.1%	7.8%	12.8%	-7.3%	-0.42	-79.6%

Factor	Avg. Stocks	Avg. IC	T-Stat	Hit Rate	Turn Over	Annual Long Return	Annual Short Return	Annual Active Return	Sharpe	Max DD
Historical Returns Volatility Over Last Year	19	-2.8%	-2.09	42.9%	9.2%	10.0%	16.5%	-9.0%	-0.55	-86.1%
Liquidity	19	-3.3%	-0.76	47.4%	3.6%	13.2%	14.5%	-4.6%	-0.26	-78.6%
EBIT Margin Growth	19	-4.4%	-0.77	48.5%	9.0%	7.8%	12.5%	-4.9%	-0.29	-62.4%
ALTMAN Z-score	20	-4.9%	-1.11	41.9%	3.6%	7.7%	11.2%	-7.6%	-0.38	-79.4%
Asset Turnover (Historical)	20	-5.0%	-1.04	44.3%	2.0%	7.4%	10.8%	-7.0%	-0.36	-72.8%
Historical Sales Growth	20	-5.6%	-1.18	47.3%	6.8%	5.9%	13.1%	-6.5%	-0.39	-69.7%
Value Factors										
Cash Flow Yield FY1	17	6.5%	0.88	51.7%	7.7%	15.7%	12.5%	1.9%	0.14	-25.4%
Cash Flow Yield Mean of FY1 and FY2	17	6.1%	0.85	52.6%	7.1%	15.7%	12.7%	1.8%	0.14	-26.7%
Cash Flow Yield FY2	17	5.9%	1.76	56.9%	8.0%	17.3%	11.3%	4.6%	0.37	-26.7%
Historical Dividend Yield	20	4.6%	1.21	52.3%	7.5%	16.5%	9.6%	3.4%	0.21	-41.2%
Historical P/Cash Earnings Ratio	20	4.2%	1.46	53.7%	8.2%	16.2%	10.1%	3.9%	0.28	-29.3%
Historical Earnings Yield	20	4.1%	1.17	53.2%	8.0%	16.2%	10.5%	3.1%	0.20	-41.4%
1 year forward forecast PE	17	4.0%	0.56	47.7%	9.7%	16.0%	14.1%	0.9%	0.06	-40.7%
Historical P/Book Value Ratio	20	2.4%	1.12	50.9%	6.3%	15.5%	11.3%	2.9%	0.19	-38.6%
EBITDA to Enterprise Value	20	2.1%	0.48	49.1%	6.4%	12.1%	8.7%	0.8%	0.05	-55.3%
1 year forward forecast PE Relative To History	17	1.4%	0.70	51.8%	12.9%	16.6%	14.0%	1.5%	0.10	-43.0%
1 year forward forecast PE Relative To Sector	17	0.7%	-0.85	45.0%	8.4%	13.7%	16.6%	-3.8%	-0.27	-54.7%
Free Cash Flow to Enterprise Value (Historical)	20	0.0%	1.00	50.9%	6.1%	13.0%	5.5%	3.3%	0.18	-56.1%
Historical P/Sales Ratio	22	-4.4%	-1.44	45.9%	4.5%	10.6%	16.4%	-6.8%	-0.49	-59.5%
JPMorgan Quant Composite Factors										
Composite Price with 1 Month Reversion	19	4.8%	1.94	55.5%	18.4%	17.5%	8.9%	6.2%	0.39	-38.7%
Composite Value	17	4.2%	0.36	51.8%	10.7%	15.7%	14.5%	0.1%	0.01	-39.0%
Composite Value Momentum Model	17	4.2%	0.99	53.2%	28.5%	16.7%	13.3%	2.3%	0.16	-41.0%
Composite Value and Growth	17	3.3%	1.31	56.9%	12.4%	17.2%	12.8%	3.5%	0.24	-38.4%
Composite Value Growth Momentum Model	17	2.9%	0.57	56.9%	31.2%	15.8%	14.3%	0.9%	0.07	-50.5%
Value To Risk	17	2.8%	1.20	52.8%	11.9%	17.8%	13.1%	2.9%	0.22	-32.5%
Composite Value Momentum Quality Price Model (Value Biased)	17	2.6%	0.37	53.2%	26.1%	15.6%	14.5%	0.2%	0.01	-48.4%
Value To Growth	17	2.5%	1.27	55.0%	11.6%	16.9%	13.2%	3.3%	0.23	-52.5%
Composite Value Momentum Quality Price Model	17	2.3%	0.22	50.9%	25.0%	15.4%	14.7%	-0.3%	-0.02	-45.0%
Composite Momentum	17	1.5%	-0.50	49.1%	38.0%	14.3%	16.0%	-2.5%	-0.18	-64.2%
Composite Quality	17	0.7%	0.60	54.6%	10.1%	16.9%	13.7%	1.0%	0.07	-56.5%
Composite Recommendation	17	0.5%	-0.98	51.4%	31.9%	12.9%	16.9%	-4.4%	-0.30	-66.8%
Composite Price	18	0.7%	-0.07	46.8%	16.8%	15.6%	15.2%	-1.4%	-0.09	-53.5%
Q-Score Composite	17	4.1%	1.17	56.9%	26.8%	17.1%	13.0%	2.9%	0.21	-41.7%

MSCI Europe Materials

Table 3: Materials

Factor	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Annual Long Return	Annual Short Return	Annual Active Return	Sharpe	Max DD
Barra Factors										
Value (Barra)	62	3.9%	2.20	56.9%	12.1%	13.1%	7.1%	5.7%	0.47	-46.3%
Success (Barra)	62	1.8%	0.05	57.3%	18.5%	9.4%	9.1%	-1.1%	-0.07	-62.2%
Volatility (Barra)	62	0.5%	0.74	51.8%	8.9%	11.3%	10.8%	1.5%	0.09	-51.4%
Size (Barra)	62	-0.7%	-0.99	44.0%	5.5%	7.9%	10.8%	-3.7%	-0.29	-63.6%
Earnings & Sentiment Factors										
Forward Earnings Momentum (3Month) / Coefficient Of Variation	55	3.6%	1.55	60.1%	26.2%	12.6%	7.0%	4.1%	0.30	-48.2%
Forward Earnings Momentum (3Month Change)	57	2.6%	0.52	56.4%	24.6%	10.1%	7.7%	0.6%	0.04	-64.4%
Composite Forward Earnings Momentum (1Month + 3 Month)	57	2.4%	0.25	57.8%	28.5%	9.8%	8.3%	-0.4%	-0.02	-64.0%
6 Month Change in Target Price	47	2.0%	-0.54	61.0%	18.8%	11.4%	15.5%	-4.8%	-0.27	-65.1%
Forward Earnings Momentum (1Month Change)	57	1.9%	0.32	52.8%	49.1%	11.0%	9.3%	0.1%	0.01	-55.0%
Net Revisions to FY1 [Up-Down]/[Up + Down]	57	1.4%	1.07	58.7%	50.7%	11.3%	8.1%	2.1%	0.20	-29.6%
Net Revisions to FY2 [Up-Down]/[Up + Down]	57	1.3%	0.42	58.3%	51.9%	10.6%	8.9%	0.5%	0.04	-45.8%
1 Month Change in Consensus Recommendation	57	1.1%	2.48	56.7%	64.8%	12.0%	6.5%	5.0%	0.55	-23.5%
3 Month Change in Consensus Recommendation	56	1.1%	0.70	53.0%	36.0%	9.9%	8.4%	1.2%	0.11	-45.1%
Consensus Recommendation	57	1.1%	0.01	52.8%	13.4%	9.7%	9.5%	-0.5%	-0.05	-40.1%
Number of Consensus Estimates (FY1)	57	0.0%	-0.66	48.2%	8.0%	8.1%	10.3%	-2.5%	-0.21	-53.9%
5 years Historical Earnings Growth	54	-1.0%	-0.88	51.8%	6.0%	6.9%	10.1%	-3.6%	-0.27	-67.2%
Composite Coefficient of Variation (Avg of FY1 and FY2)	56	-1.6%	0.50	50.0%	12.8%	8.5%	8.6%	0.7%	0.05	-44.2%
Forecast Earnings Growth FY1 to FY2	58	-5.0%	-1.83	43.1%	14.6%	6.0%	12.5%	-5.6%	-0.48	-73.6%
Price Factors										
RSI 10 days (Reversion)	63	4.6%	3.62	61.5%	66.2%	14.9%	4.9%	9.1%	0.83	-30.5%
12 Month Price Momentum adjusted for volatility (Sharpe style)	61	2.5%	0.43	56.3%	25.6%	11.4%	9.1%	0.1%	0.01	-56.5%
RSI 30 days (Reversion)	63	2.3%	1.45	52.8%	56.0%	11.0%	7.8%	3.7%	0.28	-61.3%
1 Month Price Reversion	64	1.9%	1.44	55.0%	67.5%	10.8%	7.4%	3.7%	0.27	-55.1%
12 Month Price Momentum	63	1.7%	-0.13	54.6%	19.5%	10.0%	9.8%	-1.8%	-0.11	-62.4%
Price Acceleration (6 Months)	62	-0.2%	-0.62	53.7%	19.7%	8.5%	9.7%	-2.6%	-0.21	-56.0%
6 Month Price Momentum	64	-0.8%	-0.87	49.5%	27.6%	8.8%	11.5%	-4.4%	-0.28	-56.7%
3 Month Price Momentum	64	-0.9%	-0.39	48.2%	37.9%	9.9%	9.9%	-2.4%	-0.16	-65.8%
Percent Off 52 Week High	63	-1.1%	-0.99	52.8%	28.3%	8.7%	10.5%	-5.0%	-0.31	-64.7%
Price Acceleration (3 Months)	62	-1.7%	-1.24	49.5%	26.7%	6.3%	9.4%	-4.4%	-0.35	-63.1%
Quality Factors										
ALTMAN Z-score	54	5.2%	2.42	62.9%	4.8%	12.5%	4.5%	7.5%	0.61	-24.2%
Internal Growth	64	4.1%	1.81	56.9%	7.9%	11.8%	6.2%	4.9%	0.37	-42.9%
Asset Turnover (Historical)	53	3.9%	1.73	53.3%	3.1%	10.8%	5.9%	5.1%	0.41	-26.6%
Historical Return On Equity	63	3.5%	1.61	56.0%	6.6%	11.5%	6.1%	4.3%	0.32	-38.5%
Historical Sales Growth	53	2.4%	1.17	53.9%	8.0%	9.1%	5.2%	3.4%	0.25	-31.9%
Interest Cover	52	2.3%	1.92	56.3%	4.9%	10.4%	2.3%	6.7%	0.46	-37.6%
Asset Turnover (Historical)	51	2.1%	0.04	52.1%	8.7%	8.5%	7.8%	-0.9%	-0.06	-45.3%
EBIT Margin Growth	53	1.9%	2.58	55.7%	9.2%	12.4%	3.5%	7.8%	0.65	-25.6%
PIOTROSKI F-score (Fundamental Scorecard)	58	0.9%	0.70	50.9%	11.7%	9.5%	7.6%	1.4%	0.14	-26.5%
Liquidity	60	0.8%	0.36	51.6%	6.0%	9.4%	8.8%	0.2%	0.02	-49.1%
Payout Ratio	64	0.8%	0.75	51.8%	7.8%	9.8%	8.8%	1.4%	0.11	-40.8%

Factor	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Annual Long Return	Annual Short Return	Annual Active Return	Sharpe	Max DD
Historical BETA	62	0.7%	0.60	51.8%	14.9%	8.1%	8.2%	1.0%	0.06	-54.9%
Change In ROE Between Current and 12 Months Prior	59	0.5%	0.07	49.0%	13.2%	10.0%	9.5%	-0.5%	-0.04	-35.1%
Historical Returns Volatility Over Last Year	63	-0.3%	-0.50	49.5%	12.3%	10.4%	9.8%	-3.1%	-0.20	-70.3%
Gearing	54	-3.1%	-1.88	43.1%	3.7%	3.1%	9.4%	-7.3%	-0.55	-70.1%
Value Factors										
EBITDA to Enterprise Value	54	7.2%	3.84	64.7%	10.2%	16.3%	2.9%	12.8%	1.02	-25.4%
Historical Earnings Yield	64	6.6%	3.73	62.4%	10.9%	16.5%	5.4%	10.7%	0.85	-32.7%
Historical P/Cash Earnings Ratio	64	4.9%	2.68	57.3%	10.6%	15.0%	6.4%	8.0%	0.58	-40.8%
Cash Flow Yield FY1	55	3.8%	2.13	55.9%	10.8%	12.3%	5.7%	6.5%	0.45	-45.1%
1 year forward forecast PE	57	3.5%	2.12	57.3%	12.1%	13.1%	7.4%	6.1%	0.44	-48.7%
Free Cash Flow to Enterprise Value (Historical)	51	3.3%	2.55	56.9%	7.6%	11.9%	3.7%	6.9%	0.65	-16.9%
Cash Flow Yield Mean of FY1 and FY2	55	3.2%	2.00	57.8%	10.8%	12.0%	6.1%	6.1%	0.42	-49.8%
1 year forward forecast PE Relative To Sector	57	2.3%	1.57	55.0%	12.7%	11.9%	8.6%	3.8%	0.31	-33.7%
Cash Flow Yield FY2	55	2.3%	1.58	54.0%	10.5%	10.5%	6.4%	4.5%	0.31	-50.8%
Historical P/Book Value Ratio	64	1.5%	1.55	54.1%	7.7%	12.2%	7.5%	4.4%	0.30	-48.3%
Historical Dividend Yield	64	1.4%	0.89	52.8%	7.9%	11.9%	8.4%	1.9%	0.14	-42.9%
Historical P/Sales Ratio	37	1.3%	0.58	50.5%	8.0%	10.6%	7.9%	0.7%	0.04	-66.1%
1 year forward forecast PE Relative To History	53	0.4%	0.11	50.8%	17.9%	8.5%	8.6%	-0.5%	-0.04	-61.2%
JPMorgan Quant Composite Factors										
Composite Value Momentum Model	55	3.1%	1.09	56.0%	37.9%	10.7%	8.2%	2.5%	0.19	-47.2%
Value To Risk	55	2.9%	1.30	54.6%	14.3%	11.6%	7.5%	3.0%	0.25	-33.9%
Composite Price with 1 Month Reversion	63	2.8%	0.53	57.8%	24.0%	11.1%	8.7%	0.7%	0.04	-65.0%
Composite Value Momentum Quality Price Model	56	2.6%	0.04	55.5%	32.4%	8.1%	8.6%	-0.9%	-0.06	-62.6%
Composite Quality	56	2.6%	0.96	53.2%	10.7%	10.5%	6.2%	2.1%	0.16	-33.5%
Composite Value Momentum Quality Price Model (Value Biased)	56	2.3%	0.85	58.7%	32.4%	9.6%	7.8%	1.8%	0.13	-58.1%
Composite Value	56	2.3%	0.98	55.0%	15.2%	10.3%	8.5%	2.2%	0.16	-51.8%
Composite Momentum	57	2.3%	1.46	61.0%	46.8%	11.7%	7.3%	3.6%	0.28	-38.1%
Composite Value Growth Momentum Model	55	1.8%	1.05	54.6%	39.1%	10.6%	8.5%	2.4%	0.17	-54.5%
Composite Price	59	1.2%	0.14	51.4%	19.7%	10.8%	9.5%	-0.5%	-0.04	-54.2%
Composite Recommendation	56	1.0%	-0.08	50.0%	52.1%	7.7%	8.5%	-1.2%	-0.09	-42.7%
Composite Value and Growth	56	-0.2%	0.45	51.8%	14.9%	8.7%	9.2%	0.5%	0.03	-55.7%
Value To Growth	56	-1.9%	-0.12	51.8%	15.0%	7.3%	9.9%	-1.5%	-0.10	-64.9%
Q-Score Composite	56	3.3%	0.66	59.6%	33.5%	9.3%	7.7%	1.1%	0.08	-61.9%

MSCI Europe Industrials

Table 4: Factor performance summary across MSCI Europe Industrials

Factor	Avg. Stocks	Avg. IC	T-Stat	Hit Rate	Turn Over	Annual Long Return	Annual Short Return	Annual Active Return	Sharpe	Max DD
Barra Factors										
Success (Barra)	117	3.6%	1.90	61.9%	22.5%	12.3%	1.7%	6.8%	0.36	-55.0%
Value (Barra)	117	1.8%	1.79	56.4%	14.9%	9.6%	4.1%	5.1%	0.36	-42.1%
Volatility (Barra)	117	-0.4%	0.48	48.6%	11.2%	8.6%	9.5%	0.3%	0.02	-61.1%
Size (Barra)	117	-0.7%	-1.42	49.5%	7.7%	6.4%	11.1%	-5.3%	-0.39	-73.1%
Earnings & Sentiment Factors										
6 Month Change in Target Price	96	3.7%	0.77	54.3%	23.6%	17.2%	10.5%	3.2%	0.16	-41.9%
Net Revisions to FY2 [Up-Down]/[Up+Down]	111	3.3%	2.72	57.8%	64.7%	12.6%	2.7%	7.5%	0.59	-34.1%
Composite Forward Earnings Momentum (1Month + 3 Month)	109	2.9%	2.66	61.5%	35.8%	10.8%	-0.2%	8.7%	0.57	-40.6%
Forward Earnings Momentum (1Month Change)	110	2.9%	2.56	61.9%	61.0%	12.1%	3.3%	6.8%	0.56	-29.9%
Net Revisions to FY1 [Up-Down]/[Up+Down]	111	2.7%	2.07	61.0%	64.6%	10.8%	3.7%	5.3%	0.44	-41.9%
Forward Earnings Momentum (3Month Change)	109	2.3%	1.97	58.3%	30.6%	8.9%	0.4%	6.1%	0.40	-41.8%
Forward Earnings Momentum (3Month) / Coefficient Of Variation	108	2.0%	2.39	57.8%	34.6%	10.4%	1.0%	7.1%	0.51	-30.7%
3 Month Change in Consensus Recommendation	110	1.6%	1.22	52.6%	44.3%	9.1%	6.1%	2.5%	0.24	-44.4%
Consensus Recommendation	110	1.6%	1.27	55.0%	15.8%	7.6%	3.1%	3.0%	0.24	-39.3%
1 Month Change in Consensus Recommendation	110	0.7%	0.35	50.7%	78.8%	7.9%	6.9%	0.3%	0.03	-55.0%
Number of Consensus Estimates (FY1)	111	0.5%	0.26	50.5%	10.8%	6.3%	5.8%	-0.2%	-0.01	-50.8%
5 years Historical Earnings Growth	107	-0.8%	-0.91	49.1%	6.2%	7.1%	9.7%	-3.1%	-0.27	-46.2%
Composite Coefficient of Variation (Avg of FY1 and FY2)	110	-0.8%	0.14	49.5%	15.7%	6.0%	7.6%	-0.8%	-0.05	-50.3%
Forecast Earnings Growth FY1 to FY2	111	-0.9%	-0.88	49.1%	16.8%	3.6%	8.7%	-4.1%	-0.28	-67.6%
Price Factors										
12 Month Price Momentum adjusted for volatility (Sharpe style)	117	3.7%	2.42	58.7%	23.9%	15.2%	2.5%	9.1%	0.51	-43.4%
12 Month Price Momentum	120	3.2%	1.57	57.8%	23.5%	13.9%	3.8%	5.4%	0.28	-43.1%
RSI 10 days (Reversion)	122	3.1%	2.92	56.9%	78.5%	11.5%	2.2%	8.6%	0.64	-33.8%
Percent Off 52 Week High	123	2.5%	1.24	56.9%	35.3%	11.0%	1.7%	3.9%	0.19	-47.9%
6 Month Price Momentum	122	1.7%	0.89	56.0%	32.8%	11.7%	5.7%	2.2%	0.12	-51.7%
1 Month Price Reversion	122	1.2%	1.63	50.0%	79.5%	10.7%	5.2%	4.9%	0.31	-34.9%
RSI 30 days (Reversion)	122	1.0%	1.52	51.8%	68.0%	10.9%	6.1%	4.2%	0.29	-32.2%
Price Acceleration (6 Months)	121	1.0%	0.85	51.4%	25.3%	8.3%	4.6%	1.8%	0.14	-35.1%
3 Month Price Momentum	122	0.0%	0.11	53.2%	46.3%	9.9%	7.6%	-1.1%	-0.06	-41.9%
Price Acceleration (3 Months)	121	-0.6%	-0.82	47.2%	34.1%	6.1%	8.0%	-3.2%	-0.25	-57.9%
Quality Factors										
PIOTROSKI F-score (Fundamental Scorecard)	115	2.1%	0.57	54.5%	13.9%	8.4%	6.3%	1.1%	0.10	-28.2%
ALTMAN Z-score	108	2.0%	2.30	53.9%	5.2%	11.1%	2.2%	7.5%	0.57	-19.5%
Asset Turnover (Historical)	102	1.4%	0.97	51.5%	9.8%	8.1%	4.5%	2.5%	0.20	-41.9%
Historical Returns Volatility Over Last Year	121	1.0%	0.23	52.8%	16.0%	10.2%	6.0%	-0.7%	-0.04	-59.1%
Change In ROE Between Current and 12 Months Prior	111	0.5%	0.40	54.9%	14.9%	10.9%	9.3%	0.4%	0.04	-39.4%
Internal Growth	121	0.5%	-0.06	55.5%	10.1%	8.4%	7.7%	-1.0%	-0.08	-48.6%
Historical Return On Equity	122	0.4%	0.34	50.9%	8.0%	8.6%	6.1%	0.2%	0.02	-36.6%
Interest Cover	101	0.2%	1.26	50.9%	5.8%	10.2%	3.7%	4.0%	0.27	-49.8%
Payout Ratio	122	-0.2%	-0.51	49.5%	10.0%	5.2%	7.9%	-2.1%	-0.18	-56.3%
EBIT Margin Growth	105	-0.7%	0.09	49.1%	10.8%	7.7%	7.0%	-0.4%	-0.03	-35.8%

Factor	Avg. Stocks	Avg. IC	T-Stat	Hit Rate	Turn Over	Annual Long Return	Annual Short Return	Annual Active Return	Sharpe	Max DD
Gearing	108	-1.1%	-1.32	46.1%	4.2%	4.7%	10.3%	-5.5%	-0.41	-57.1%
Liquidity	119	-1.5%	-0.73	46.5%	8.8%	4.8%	8.0%	-3.3%	-0.24	-65.4%
Historical Sales Growth	106	-1.9%	-0.87	47.3%	8.4%	5.8%	9.5%	-4.1%	-0.30	-66.4%
Historical BETA	120	-2.1%	-0.85	42.2%	20.1%	2.8%	8.7%	-4.8%	-0.28	-72.0%
Value Factors										
Historical Dividend Yield	123	1.9%	1.66	57.3%	9.2%	9.9%	4.3%	4.3%	0.33	-50.1%
Free Cash Flow to Enterprise Value (Historical)	102	1.4%	1.73	52.1%	10.1%	8.6%	2.3%	4.7%	0.42	-18.9%
Historical P/Sales Ratio	70	1.2%	0.06	50.0%	9.1%	2.5%	2.6%	-5.1%	-0.16	-89.8%
Historical P/Cash Earnings Ratio	121	0.9%	0.63	54.6%	12.2%	6.3%	5.0%	1.1%	0.07	-58.2%
EBITDA to Enterprise Value	108	0.8%	0.98	51.5%	11.8%	7.0%	3.6%	2.5%	0.20	-30.1%
Historical P/Book Value Ratio	123	0.6%	0.57	48.6%	8.8%	8.2%	7.6%	0.9%	0.07	-49.2%
Historical Earnings Yield	123	0.6%	0.92	51.4%	13.3%	9.9%	6.7%	2.1%	0.15	-46.5%
1 year forward forecast PE	110	0.3%	1.11	50.0%	15.3%	9.3%	5.9%	2.9%	0.19	-57.9%
1 year forward forecast PE Relative To Sector	110	-0.3%	0.98	51.8%	15.7%	9.2%	6.8%	2.2%	0.17	-55.0%
Cash Flow Yield Mean of FY1 and FY2	108	-0.5%	0.27	52.1%	12.0%	5.8%	6.5%	-0.3%	-0.02	-52.8%
Cash Flow Yield FY1	108	-0.6%	0.08	48.8%	12.6%	5.4%	6.7%	-1.0%	-0.06	-57.5%
Cash Flow Yield FY2	108	-0.7%	0.07	48.8%	12.3%	5.5%	7.0%	-1.0%	-0.06	-51.8%
1 year forward forecast PE Relative To History	105	-1.7%	-0.61	45.1%	19.7%	5.1%	8.8%	-3.8%	-0.23	-76.9%
JPMorgan Quant Composite Factors										
Composite Price with 1 Month Reversion	119	4.1%	2.35	61.9%	29.6%	14.1%	1.1%	9.1%	0.47	-37.3%
Composite Momentum	111	3.0%	2.90	58.7%	58.9%	12.6%	2.0%	8.3%	0.64	-22.5%
Composite Value Momentum Quality Price Model	110	2.7%	2.45	57.3%	39.7%	11.3%	1.8%	7.3%	0.52	-44.8%
Composite Price	114	2.4%	1.28	56.4%	24.1%	13.4%	6.5%	3.7%	0.22	-48.0%
Composite Value Momentum Quality Price Model (Value Biased)	110	2.3%	2.30	58.3%	40.3%	9.0%	1.2%	6.4%	0.49	-46.4%
Composite Value Growth Momentum Model	110	2.1%	2.26	55.0%	48.7%	8.9%	2.3%	5.9%	0.48	-43.0%
Composite Value Momentum Model	110	2.0%	1.74	56.0%	48.1%	8.8%	3.4%	4.6%	0.35	-48.6%
Composite Recommendation	110	1.3%	1.31	52.9%	51.9%	10.1%	6.8%	2.7%	0.27	-43.6%
Composite Quality	108	0.5%	0.49	50.9%	11.2%	8.8%	5.2%	0.6%	0.04	-48.6%
Value To Risk	108	0.4%	1.33	53.2%	15.7%	10.5%	5.3%	3.5%	0.25	-51.7%
Composite Value and Growth	110	-0.4%	0.55	48.2%	17.7%	6.1%	5.9%	0.9%	0.06	-55.0%
Composite Value	110	-0.7%	0.51	45.0%	18.1%	8.7%	7.8%	0.7%	0.05	-59.7%
Value To Growth	110	-0.9%	0.31	49.1%	16.9%	6.0%	6.9%	-0.1%	-0.01	-50.2%
Q-Score Composite	110	3.4%	2.83	59.2%	41.7%	11.4%	0.4%	8.8%	0.62	-51.6%

MSCI Europe Consumer Discretionary

Table 5: Factor performance summary across MSCI Europe Consumer Discretionary sector

Factor	Stocks	Avg.	T-Stat	Rate	Turn Over	Annual Long Return	Annual Short Return	Annual Active Return	Sharpe	Max DD
Barra Factors										
Success (Barra)	93	4.5%	1.81	59.6%	21.0%	11.0%	-0.6%	6.7%	0.33	-48.0%
Value (Barra)	93	1.3%	0.55	53.2%	12.9%	7.7%	6.4%	0.6%	0.03	-66.6%
Size (Barra)	93	0.9%	0.04	52.3%	6.5%	7.6%	6.7%	-1.5%	-0.08	-74.2%
Volatility (Barra)	93	-1.7%	-1.11	48.2%	12.1%	0.8%	10.0%	-7.3%	-0.35	-83.7%
Earnings & Sentiment Factors										
6 Month Change in Target Price	86	4.2%	2.05	57.1%	21.2%	15.9%	-2.0%	12.9%	0.62	-43.1%
Net Revisions to FY2 [Up-Down]/[Up + Down]	89	3.6%	3.05	56.0%	62.4%	10.6%	-0.3%	9.0%	0.68	-18.9%
3 Month Change in Consensus Recommendation	86	3.2%	2.72	60.5%	44.0%	7.6%	-0.8%	7.6%	0.60	-15.3%
Forward Earnings Momentum (1Month Change)	86	3.0%	2.28	55.5%	60.5%	10.1%	0.5%	7.0%	0.48	-29.6%
Composite Forward Earnings Momentum (1Month + 3 Month)	86	2.9%	1.95	60.1%	35.5%	10.9%	1.7%	6.1%	0.39	-44.1%
Forward Earnings Momentum (3Month Change)	86	2.8%	1.98	59.2%	29.9%	10.2%	1.1%	6.1%	0.40	-45.4%
Net Revisions to FY1 [Up-Down]/[Up + Down]	88	2.6%	2.44	53.2%	62.0%	9.7%	0.6%	7.0%	0.52	-27.4%
Forward Earnings Momentum (3Month) / Coefficient Of Variation	85	2.1%	2.04	56.4%	33.4%	10.9%	2.1%	6.1%	0.42	-39.5%
Number of Consensus Estimates (FY1)	87	1.9%	1.22	61.0%	11.2%	8.7%	3.1%	3.4%	0.20	-61.6%
1 Month Change in Consensus Recommendation	87	1.4%	1.03	53.0%	78.1%	5.7%	2.8%	2.1%	0.19	-33.9%
Forecast Earnings Growth FY1 to FY2	88	1.0%	0.88	50.0%	16.8%	8.4%	5.9%	2.1%	0.13	-60.4%
Consensus Recommendation	87	0.5%	-0.60	48.2%	15.9%	5.5%	7.0%	-2.8%	-0.21	-61.4%
5 years Historical Earnings Growth	83	0.3%	-0.16	50.9%	6.7%	6.9%	6.5%	-1.5%	-0.11	-68.5%
Composite Coefficient of Variation (Avg of FY1 and FY2)	86	-0.8%	0.01	48.2%	16.1%	5.4%	8.1%	-1.7%	-0.09	-65.3%
Price Factors										
6 Month Price Momentum	95	4.1%	1.97	56.9%	32.7%	12.7%	-0.4%	7.8%	0.36	-41.1%
12 Month Price Momentum adjusted for volatility (Sharpe style)	92	4.2%	2.04	61.1%	23.5%	14.1%	2.3%	7.7%	0.41	-43.9%
12 Month Price Momentum	94	3.9%	1.88	57.3%	22.7%	13.2%	-0.2%	7.6%	0.33	-53.5%
Percent Off 52 Week High	96	3.8%	1.73	56.4%	34.6%	11.4%	-1.5%	6.7%	0.30	-46.9%
RSI 10 days (Reversion)	96	2.7%	1.59	53.2%	78.6%	7.1%	2.2%	4.7%	0.30	-47.9%
3 Month Price Momentum	96	1.7%	0.34	50.5%	46.8%	6.9%	3.1%	-0.5%	-0.02	-62.0%
Price Acceleration (6 Months)	93	1.4%	1.78	54.1%	24.7%	9.8%	3.0%	5.1%	0.35	-34.6%
1 Month Price Reversion	96	0.9%	1.13	52.8%	79.5%	7.6%	4.2%	3.2%	0.18	-57.4%
RSI 30 days (Reversion)	96	0.7%	1.30	54.6%	69.2%	6.9%	2.9%	3.8%	0.23	-50.2%
Price Acceleration (3 Months)	94	-0.5%	-0.74	45.9%	33.4%	4.7%	6.7%	-3.4%	-0.24	-58.1%
Quality Factors										
Asset Turnover (Historical)	88	1.7%	1.06	52.7%	9.6%	3.1%	-0.7%	2.7%	0.23	-35.3%
ALTMAN Z-score	92	1.6%	1.57	54.5%	5.7%	5.9%	-0.6%	4.9%	0.36	-44.5%
PIOTROSKI F-score (Fundamental Scorecard)	95	1.6%	0.38	49.7%	23.2%	7.4%	4.6%	0.4%	0.03	-42.7%
Payout Ratio	96	1.3%	1.14	54.1%	8.9%	6.5%	3.7%	2.9%	0.20	-43.1%
Historical Returns Volatility Over Last Year	94	1.2%	0.13	51.4%	16.2%	6.2%	2.5%	-1.3%	-0.07	-65.3%
Internal Growth	93	1.0%	0.23	53.2%	9.2%	7.9%	6.8%	-0.2%	-0.01	-43.7%
Liquidity	92	0.5%	0.20	50.2%	8.5%	6.5%	5.6%	-0.4%	-0.03	-55.4%
Interest Cover	88	0.3%	0.41	45.5%	6.2%	4.9%	1.8%	0.6%	0.04	-31.5%

Factor	Stocks	Avg.	T-Stat	Rate	Turn Over	Annual Long Return	Annual Short Return	Annual Active Return	Sharpe	Max DD
Asset Turnover (Historical)	90	0.2%	0.31	56.9%	3.5%	2.9%	0.7%	0.1%	0.01	-44.0%
Change In ROE Between Current and 12 Months Prior	86	0.0%	0.77	48.1%	15.1%	6.9%	3.4%	1.7%	0.11	-33.9%
Historical Return On Equity	94	-0.1%	-0.79	50.9%	7.3%	6.6%	8.4%	-4.0%	-0.26	-62.6%
Gearing	91	-0.1%	-0.64	46.7%	4.7%	1.0%	5.1%	-3.4%	-0.24	-70.1%
EBIT Margin Growth	89	-0.7%	-0.42	53.9%	11.5%	3.2%	4.6%	-2.6%	-0.18	-55.1%
Historical Sales Growth	90	-1.5%	-1.01	50.9%	8.7%	-0.9%	3.3%	-4.9%	-0.34	-67.6%
Historical BETA	93	-2.4%	-1.29	43.6%	20.4%	-0.6%	8.4%	-7.8%	-0.39	-89.5%
Value Factors										
Free Cash Flow to Enterprise Value (Historical)	87	2.6%	2.18	54.5%	9.2%	7.4%	0.1%	6.7%	0.54	-27.4%
Historical P/Sales Ratio	59	2.3%	0.79	50.9%	8.3%	5.9%	-2.3%	-0.5%	-0.01	-80.9%
Cash Flow Yield FY2	86	1.4%	0.77	50.2%	11.6%	6.6%	4.8%	1.7%	0.09	-56.4%
Historical P/Cash Earnings Ratio	95	1.1%	1.16	54.6%	11.4%	7.2%	3.0%	3.5%	0.18	-59.2%
Cash Flow Yield Mean of FY1 and FY2	85	1.1%	0.62	48.8%	11.4%	7.1%	5.9%	1.1%	0.06	-54.3%
Cash Flow Yield FY1	86	0.9%	0.87	51.7%	11.4%	7.6%	5.1%	2.2%	0.12	-52.5%
Historical P/Book Value Ratio	96	0.6%	0.52	51.8%	8.1%	7.0%	6.2%	0.5%	0.03	-61.4%
EBITDA to Enterprise Value	91	0.5%	1.16	50.3%	12.3%	4.1%	-0.1%	3.9%	0.24	-38.6%
Historical Earnings Yield	96	0.2%	0.04	52.3%	12.9%	4.2%	4.8%	-1.6%	-0.08	-70.3%
1 year forward forecast PE Relative To History	82	0.0%	-0.46	47.2%	20.3%	4.5%	8.5%	-3.8%	-0.21	-80.8%
1 year forward forecast PE	86	-0.1%	-0.21	49.1%	13.7%	3.2%	5.3%	-3.1%	-0.15	-80.5%
1 year forward forecast PE Relative To Sector	86	-0.5%	-0.57	45.4%	13.1%	2.7%	6.2%	-4.0%	-0.22	-78.0%
Historical Dividend Yield	96	-0.7%	-0.34	55.0%	10.2%	4.8%	6.2%	-2.8%	-0.16	-73.5%
JPMorgan Quant Composite Factors										
Composite Price with 1 Month Reversion	93	4.8%	2.35	58.3%	28.8%	14.7%	-0.4%	10.0%	0.46	-50.5%
Composite Price	88	3.6%	2.50	58.7%	23.5%	13.8%	1.7%	8.8%	0.52	-37.1%
Composite Momentum	88	3.5%	2.47	56.4%	56.7%	9.1%	-0.1%	7.3%	0.53	-31.0%
Composite Recommendation	87	3.2%	3.15	64.9%	52.0%	7.3%	-2.0%	8.7%	0.73	-13.7%
Composite Value Momentum Quality Price Model	86	3.1%	1.93	56.0%	37.3%	9.8%	2.0%	5.8%	0.39	-56.3%
Composite Value Momentum Quality Price Model (Value Biased)	86	2.7%	1.34	59.2%	36.8%	7.2%	2.1%	3.7%	0.24	-65.6%
Composite Value Growth Momentum Model	86	2.3%	1.41	58.3%	43.9%	6.3%	1.7%	4.1%	0.25	-64.9%
Composite Value Momentum Model	85	2.1%	0.69	53.7%	43.5%	4.7%	2.9%	1.3%	0.08	-67.9%
Value To Growth	85	1.1%	0.49	50.9%	16.7%	6.7%	6.4%	0.5%	0.03	-70.1%
Composite Quality	84	0.8%	0.11	53.2%	9.6%	7.2%	4.4%	-1.2%	-0.07	-61.6%
Composite Value and Growth	86	0.6%	0.08	50.5%	15.2%	5.2%	7.0%	-1.4%	-0.08	-74.2%
Value To Risk	84	0.4%	-0.16	47.7%	14.9%	4.7%	5.5%	-2.3%	-0.13	-77.4%
Composite Value	85	0.0%	0.11	49.5%	17.2%	4.6%	5.5%	-1.4%	-0.07	-80.5%
Q-Score Composite	86	3.6%	1.94	55.5%	38.4%	9.6%	1.2%	6.1%	0.39	-51.8%

MSCI Europe Consumer Staples

Table 6: Factor performance summary across MSCI Europe Consumer Staples sector

Factor	Avg. Stocks	Avg. IC	T-Stat	Hit Rate	Turn Over	Annual Long Return	Annual Short Return	Annual Active Return	Sharpe	Max DD
Barra Factors										
Value (Barra)	48	3.7%	1.72	55.5%	10.9%	13.9%	9.3%	4.0%	0.35	-18.8%
Success (Barra)	48	1.1%	0.11	52.3%	18.5%	11.0%	10.0%	-0.7%	-0.05	-61.0%
Size (Barra)	48	-0.4%	-0.88	50.9%	5.5%	9.1%	11.6%	-3.4%	-0.27	-61.6%
Volatility (Barra)	48	-1.1%	-0.56	45.9%	10.7%	8.4%	11.4%	-2.7%	-0.20	-65.1%
Earnings & Sentiment Factors										
Forward Earnings Momentum (3Month Change)	45	3.9%	2.24	59.2%	27.5%	13.3%	6.1%	5.6%	0.48	-29.8%
Net Revisions to FY1 [Up-Down]/[Up + Down]	46	3.6%	3.68	58.7%	52.2%	16.2%	6.3%	8.5%	0.85	-12.0%
Composite Forward Earnings Momentum (1Month + 3 Month)	45	3.6%	2.27	58.7%	31.5%	13.0%	5.9%	5.6%	0.49	-28.9%
Forward Earnings Momentum (3Month) / Coefficient Of Variation	44	2.2%	1.60	55.5%	28.7%	12.7%	7.6%	3.7%	0.32	-33.3%
Forward Earnings Momentum (1Month Change)	45	2.2%	1.15	54.1%	52.7%	11.7%	8.0%	2.5%	0.22	-39.9%
Consensus Recommendation	46	1.9%	0.90	56.0%	11.8%	11.8%	9.0%	1.7%	0.16	-39.5%
Net Revisions to FY2 [Up-Down]/[Up + Down]	46	1.8%	1.42	57.8%	52.3%	12.0%	8.2%	2.7%	0.29	-25.0%
1 Month Change in Consensus Recommendation	45	1.4%	-0.01	50.2%	62.2%	9.8%	9.6%	-0.5%	-0.05	-31.8%
3 Month Change in Consensus Recommendation	45	1.4%	0.33	48.4%	35.4%	9.1%	8.2%	0.3%	0.03	-50.1%
5 years Historical Earnings Growth	44	-0.8%	-1.37	44.5%	5.0%	8.0%	11.8%	-3.7%	-0.37	-71.5%
Number of Consensus Estimates (FY1)	46	-0.8%	-0.09	44.5%	7.2%	9.5%	9.7%	-1.1%	-0.09	-50.1%
Forecast Earnings Growth FY1 to FY2	45	-1.4%	-0.17	53.7%	15.8%	9.0%	10.0%	-1.0%	-0.09	-46.9%
6 Month Change in Target Price	39	-1.6%	-0.74	45.7%	19.5%	12.1%	14.5%	-3.1%	-0.30	-42.0%
Composite Coefficient of Variation (Avg of FY1 and FY2)	45	-2.6%	-0.84	45.9%	13.6%	7.4%	10.9%	-3.1%	-0.26	-68.1%
Price Factors										
1 Month Price Reversion	50	4.2%	2.49	56.4%	69.0%	13.0%	5.7%	6.4%	0.54	-29.9%
RSI 30 days (Reversion)	50	3.6%	1.86	53.2%	57.1%	13.8%	8.6%	4.4%	0.39	-28.1%
12 Month Price Momentum adjusted for volatility (Sharpe style)	49	2.0%	0.97	53.4%	25.1%	11.0%	5.8%	2.6%	0.14	-42.6%
12 Month Price Momentum	50	1.0%	0.54	55.0%	19.6%	11.4%	8.8%	0.8%	0.05	-52.8%
Price Acceleration (6 Months)	50	0.3%	-0.20	47.7%	19.7%	10.2%	10.6%	-1.0%	-0.10	-38.9%
Percent Off 52 Week High	50	-0.6%	-0.42	49.1%	29.8%	9.0%	9.6%	-2.7%	-0.17	-65.8%
6 Month Price Momentum	50	-0.9%	-0.70	52.3%	27.4%	9.5%	11.4%	-3.2%	-0.23	-51.2%
Price Acceleration (3 Months)	50	-1.5%	-0.68	46.8%	25.8%	9.0%	10.9%	-2.3%	-0.21	-50.8%
3 Month Price Momentum	50	-2.1%	-0.87	45.0%	38.4%	8.7%	10.8%	-3.3%	-0.26	-65.6%
Quality Factors										
Internal Growth	50	2.7%	0.81	50.0%	6.6%	11.7%	9.1%	1.5%	0.14	-38.8%
Asset Turnover (Historical)	41	2.6%	0.95	52.1%	8.1%	9.8%	6.9%	2.1%	0.21	-36.6%
Change In ROE Between Current and 12 Months Prior	47	2.1%	1.86	57.3%	13.7%	14.7%	9.0%	4.4%	0.40	-21.0%
ALTMAN Z-score	44	1.1%	1.74	53.9%	4.7%	10.6%	4.7%	4.6%	0.42	-30.8%
Historical Sales Growth	43	1.1%	1.58	58.1%	7.5%	10.5%	6.0%	3.8%	0.38	-24.3%
PIOTROSKI F-score (Fundamental Scorecard)	47	0.6%	0.00	50.9%	11.0%	9.0%	8.9%	-0.6%	-0.05	-38.8%
Interest Cover	42	0.5%	1.32	52.1%	4.7%	10.1%	4.8%	3.6%	0.30	-34.9%
Asset Turnover (Historical)	43	0.3%	0.70	51.5%	2.4%	9.9%	7.3%	1.5%	0.13	-32.0%
Historical Returns Volatility Over Last Year	50	0.3%	-0.45	50.9%	12.8%	9.8%	10.4%	-2.0%	-0.17	-54.9%
Liquidity	49	0.2%	0.01	49.8%	5.1%	9.3%	8.9%	-0.7%	-0.06	-57.6%

Factor	Avg. Stocks	Avg. IC	T-Stat	Hit Rate	Turn Over	Annual Long Return	Annual Short Return	Annual Active Return	Sharpe	Max DD
EBIT Margin Growth	42	-0.1%	0.95	50.9%	9.5%	9.0%	6.1%	2.1%	0.21	-36.9%
Gearing	44	-0.4%	-1.10	46.7%	3.5%	6.8%	10.7%	-3.5%	-0.34	-50.9%
Payout Ratio	50	-1.5%	-1.33	45.9%	6.7%	7.9%	11.6%	-3.7%	-0.36	-63.3%
Historical BETA	49	-1.6%	-0.41	50.5%	18.8%	9.7%	11.6%	-1.8%	-0.15	-73.4%
Value Factors										
Historical Dividend Yield	50	3.9%	2.02	53.7%	6.6%	13.0%	7.1%	4.8%	0.43	-18.1%
1 year forward forecast PE	45	3.4%	1.40	52.3%	11.6%	12.7%	8.1%	3.5%	0.27	-38.9%
Historical P/Sales Ratio	29	3.0%	2.04	48.2%	7.9%	15.0%	3.7%	9.1%	0.38	-36.3%
Free Cash Flow to Enterprise Value (Historical)	42	2.5%	2.02	53.3%	6.9%	10.3%	4.1%	5.4%	0.50	-17.2%
1 year forward forecast PE Relative To Sector	45	1.8%	1.36	50.9%	11.5%	10.8%	7.2%	3.1%	0.26	-26.5%
Historical P/Cash Earnings Ratio	50	1.8%	1.37	49.5%	9.4%	11.3%	7.5%	3.3%	0.26	-28.8%
1 year forward forecast PE Relative To History	43	1.8%	0.17	48.2%	17.9%	8.6%	8.3%	-0.2%	-0.02	-34.4%
Historical P/Book Value Ratio	50	0.7%	0.02	46.8%	6.5%	11.3%	11.7%	-0.7%	-0.06	-43.8%
Cash Flow Yield FY1	45	0.3%	0.35	47.9%	9.0%	9.5%	8.7%	0.2%	0.02	-40.6%
EBITDA to Enterprise Value	44	-0.3%	0.19	49.7%	10.5%	8.2%	7.9%	-0.2%	-0.02	-39.6%
Cash Flow Yield Mean of FY1 and FY2	44	-0.4%	-0.17	43.1%	8.9%	9.1%	10.2%	-1.5%	-0.11	-49.7%
Cash Flow Yield FY2	44	-0.4%	-0.14	46.9%	8.9%	9.1%	10.1%	-1.5%	-0.10	-47.9%
JPMorgan Quant Composite Factors										
Composite Value Momentum Quality Price Model	45	4.1%	2.32	57.8%	32.3%	12.6%	6.0%	5.3%	0.50	-26.9%
Composite Quality	45	4.0%	1.52	56.0%	8.2%	11.9%	6.1%	3.9%	0.30	-38.2%
Composite Value Momentum Quality Price Model (Value Biased)	45	3.8%	2.96	59.2%	34.6%	12.3%	4.4%	6.7%	0.66	-22.8%
Composite Value Momentum Model	45	3.5%	1.74	59.6%	43.6%	12.8%	8.3%	3.6%	0.37	-28.9%
Composite Price with 1 Month Reversion	49	2.9%	1.36	57.8%	24.0%	11.8%	6.0%	3.8%	0.25	-42.2%
Composite Value	45	2.5%	1.08	51.4%	15.3%	9.3%	6.1%	2.4%	0.19	-24.4%
Composite Momentum	46	2.5%	0.97	56.9%	47.9%	11.7%	8.7%	1.9%	0.17	-31.8%
Composite Value Growth Momentum Model	45	2.4%	1.48	55.5%	43.8%	11.3%	7.4%	3.1%	0.30	-18.2%
Composite Price	48	1.9%	1.10	55.5%	18.8%	12.3%	8.3%	2.5%	0.19	-34.8%
Composite Recommendation	45	1.1%	0.08	50.5%	51.1%	8.3%	8.0%	-0.6%	-0.05	-51.5%
Composite Value and Growth	45	0.7%	0.94	50.5%	14.0%	9.4%	6.8%	2.0%	0.16	-24.8%
Value To Growth	45	0.1%	0.89	54.1%	15.1%	9.5%	7.0%	1.9%	0.14	-37.0%
Q-Score Composite	45	4.9%	3.50	63.8%	36.9%	15.2%	4.9%	8.8%	0.80	-29.6%

MSCI Europe Healthcare

Table 7: Factor performance summary across MSCI Europe Healthcare

Factor	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Annual Long Return	Annual Short Return	Annual Active Return	Sharpe	Max DD
Barra Factors										
Success (Barra)	28	2.5%	0.39	51.8%	14.4%	14.0%	11.9%	0.3%	0.02	-44.9%
Value (Barra)	28	1.0%	0.23	50.9%	8.3%	13.3%	12.5%	-0.2%	-0.02	-45.2%
Volatility (Barra)	28	0.8%	0.39	49.5%	9.7%	13.0%	12.6%	0.3%	0.02	-49.9%
Size (Barra)	28	-1.5%	-0.92	49.1%	4.3%	11.4%	14.3%	-4.4%	-0.29	-78.2%
Earnings & Sentiment Factors										
Forward Earnings Momentum (1Month Change)	25	2.0%	1.27	56.0%	40.9%	15.1%	10.5%	3.1%	0.24	-25.9%
Net Revisions to FY2 [Up-Down]/[Up + Down]	26	1.8%	0.90	55.0%	39.7%	14.3%	11.4%	1.9%	0.15	-24.6%
Composite Forward Earnings Momentum (1Month + 3 Month)	25	1.1%	1.26	54.1%	24.7%	15.5%	10.6%	3.1%	0.23	-34.9%
Forward Earnings Momentum (3Month) / Coefficient Of Variation	25	0.8%	1.03	54.1%	21.3%	14.3%	10.8%	2.3%	0.18	-44.3%
Consensus Recommendation	25	0.8%	1.05	50.5%	9.5%	14.9%	11.3%	2.2%	0.19	-35.2%
3 Month Change in Consensus Recommendation	25	0.7%	0.17	50.2%	27.6%	13.7%	13.2%	-0.3%	-0.02	-39.9%
Forward Earnings Momentum (3Month Change)	25	0.7%	0.82	56.9%	21.3%	14.5%	11.4%	1.7%	0.13	-41.0%
6 Month Change in Target Price	29	0.6%	-0.34	46.7%	15.0%	10.5%	11.6%	-1.9%	-0.17	-32.3%
5 years Historical Earnings Growth	25	0.5%	0.19	49.1%	3.1%	13.1%	12.7%	-0.2%	-0.02	-46.8%
1 Month Change in Consensus Recommendation	26	0.0%	-0.04	50.2%	50.7%	12.9%	13.1%	-0.8%	-0.07	-41.9%
Composite Coefficient of Variation (Avg of FY1 and FY2)	25	-1.2%	-0.65	51.8%	11.3%	10.9%	14.0%	-3.1%	-0.22	-65.3%
Net Revisions to FY1 [Up-Down]/[Up + Down]	26	-1.2%	-0.48	47.2%	39.3%	12.1%	13.5%	-2.1%	-0.17	-38.6%
Number of Consensus Estimates (FY1)	25	-1.3%	-0.62	44.5%	5.9%	11.7%	13.5%	-2.9%	-0.21	-60.1%
Forecast Earnings Growth FY1 to FY2	26	-1.5%	-0.43	48.2%	11.9%	11.8%	14.1%	-2.2%	-0.16	-47.0%
Price Factors										
1 Month Price Reversion	28	4.9%	2.60	55.0%	53.3%	17.3%	8.7%	7.3%	0.56	-23.8%
RSI 30 days (Reversion)	28	4.7%	3.20	53.7%	43.5%	18.9%	7.2%	10.2%	0.71	-23.2%
Price Acceleration (3 Months)	28	1.8%	1.33	55.0%	18.9%	15.3%	11.0%	3.1%	0.25	-31.8%
Price Acceleration (6 Months)	28	1.7%	0.01	49.1%	14.8%	13.2%	13.0%	-0.7%	-0.06	-42.5%
12 Month Price Momentum	28	1.6%	-0.04	51.8%	15.5%	13.2%	12.7%	-1.2%	-0.08	-63.7%
6 Month Price Momentum	28	1.3%	-0.52	47.2%	21.7%	12.3%	13.5%	-2.6%	-0.19	-49.9%
12 Month Price Momentum adjusted for volatility (Sharpe style)	28	0.9%	-0.13	52.9%	15.8%	12.9%	12.8%	-1.5%	-0.10	-57.2%
3 Month Price Momentum	28	-0.1%	-0.01	50.9%	28.3%	13.3%	12.9%	-0.9%	-0.07	-53.2%
Percent Off 52 Week High	28	-1.2%	-1.38	50.5%	22.0%	10.7%	15.2%	-5.8%	-0.39	-68.6%
Quality Factors										
Asset Turnover (Historical)	29	1.0%	-0.62	47.9%	6.0%	8.1%	10.3%	-2.8%	-0.22	-39.5%
Payout Ratio	28	0.7%	0.43	54.1%	5.6%	13.5%	12.5%	0.5%	0.03	-45.7%
Internal Growth	28	0.6%	-0.19	51.4%	5.8%	13.1%	13.4%	-1.3%	-0.10	-51.2%
Historical Returns Volatility Over Last Year	28	0.3%	-0.06	49.8%	10.5%	12.5%	11.8%	-1.2%	-0.09	-57.0%
Interest Cover	29	0.2%	0.25	44.9%	3.5%	10.0%	8.6%	0.1%	0.01	-29.5%
Change In ROE Between Current and 12 Months Prior	26	-0.1%	0.35	51.0%	10.4%	14.2%	12.9%	0.3%	0.02	-46.7%
Historical Return On Equity	28	-0.5%	0.22	51.8%	4.0%	13.9%	12.7%	-0.2%	-0.01	-46.4%
Historical BETA	28	-1.0%	-0.70	45.0%	15.8%	11.9%	14.4%	-2.5%	-0.22	-51.4%
ALTMAN Z-score	30	-1.5%	-0.42	50.9%	3.4%	8.8%	9.8%	-2.4%	-0.18	-43.7%
Liquidity	28	-1.9%	0.07	49.3%	4.6%	14.4%	13.0%	-0.8%	-0.05	-65.7%
PIOTROSKI F-score (Fundamental Scorecard)	31	-1.9%	-0.44	48.5%	12.0%	8.6%	9.7%	-2.2%	-0.18	-44.1%

Factor	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Annual Long Return	Annual Short Return	Annual Active Return	Sharpe	Max DD
EBIT Margin Growth	29	-2.2%	-0.12	49.7%	7.0%	9.6%	9.6%	-1.3%	-0.10	-30.3%
Historical Sales Growth	29	-2.2%	-0.51	46.1%	5.6%	8.4%	10.8%	-2.8%	-0.20	-56.9%
Value Factors										
Historical P/Sales Ratio	33	5.4%	2.12	57.1%	4.7%	14.3%	6.2%	7.4%	0.60	-19.3%
Cash Flow Yield FY1	25	3.2%	1.50	54.0%	7.3%	15.7%	10.4%	4.0%	0.30	-41.2%
Cash Flow Yield Mean of FY1 and FY2	25	2.4%	1.35	52.6%	7.6%	15.5%	10.7%	3.5%	0.26	-43.9%
Cash Flow Yield FY2	25	2.0%	0.97	48.8%	7.5%	14.8%	11.6%	2.2%	0.17	-48.1%
1 year forward forecast PE	26	2.0%	0.60	48.2%	8.0%	13.6%	11.5%	1.0%	0.07	-38.7%
1 year forward forecast PE Relative To History	26	1.9%	0.84	52.8%	13.2%	13.9%	11.1%	1.9%	0.15	-55.4%
1 year forward forecast PE Relative To Sector	26	1.2%	0.27	50.9%	10.4%	13.1%	12.1%	0.0%	0.00	-41.1%
Historical P/Book Value Ratio	28	1.1%	0.89	46.3%	5.5%	14.4%	11.9%	1.8%	0.15	-49.7%
Free Cash Flow to Enterprise Value (Historical)	29	1.1%	0.50	49.1%	7.0%	10.5%	8.5%	0.9%	0.07	-23.1%
Historical Dividend Yield	29	1.1%	1.39	50.5%	5.9%	15.4%	10.7%	3.4%	0.27	-24.3%
Historical P/Cash Earnings Ratio	28	1.1%	2.43	57.3%	7.9%	16.9%	9.3%	6.3%	0.53	-32.9%
EBITDA to Enterprise Value	30	0.8%	1.34	50.3%	7.7%	11.7%	6.6%	3.9%	0.30	-34.6%
Historical Earnings Yield	28	0.0%	1.66	56.0%	9.4%	15.7%	10.4%	4.0%	0.34	-26.5%
JPMorgan Quant Composite Factors										
Composite Value Momentum Quality Price Model (Value Biased)	25	3.4%	1.39	54.6%	24.3%	14.7%	10.3%	3.2%	0.27	-28.9%
Composite Value Momentum Quality Price Model	25	3.3%	1.59	54.6%	22.8%	15.1%	9.9%	3.8%	0.32	-25.3%
Value To Risk	25	3.1%	1.16	52.3%	10.7%	14.2%	10.0%	2.6%	0.21	-34.3%
Composite Value Momentum Model	25	3.0%	3.64	60.6%	30.6%	18.1%	6.9%	9.8%	0.83	-22.2%
Composite Price	26	2.6%	1.15	56.9%	15.1%	14.7%	10.5%	2.6%	0.21	-42.8%
Composite Price with 1 Month Reversion	28	2.5%	0.68	51.4%	18.6%	14.8%	11.4%	1.3%	0.09	-45.6%
Composite Value Growth Momentum Model	25	2.2%	2.07	57.8%	31.0%	15.5%	9.4%	5.0%	0.44	-20.5%
Composite Momentum	26	1.7%	2.22	57.3%	35.7%	16.3%	9.2%	5.7%	0.47	-19.3%
Composite Value	25	1.2%	0.36	48.6%	11.1%	12.9%	12.0%	0.3%	0.02	-42.6%
Composite Quality	25	1.1%	0.70	50.9%	6.0%	14.2%	11.1%	1.3%	0.10	-44.0%
Composite Value and Growth	25	0.9%	0.85	50.0%	9.8%	13.7%	11.3%	1.7%	0.14	-40.5%
Value To Growth	25	0.0%	-0.12	48.6%	11.2%	12.0%	13.0%	-1.1%	-0.09	-40.3%
Composite Recommendation	26	-0.2%	-0.18	48.1%	31.4%	13.1%	13.8%	-1.3%	-0.10	-34.8%
Q-Score Composite	25	4.1%	1.99	58.7%	24.3%	15.8%	9.2%	4.9%	0.42	-29.8%

MSCI Europe Financials

Table 8: Factor performance summary across MSCI Europe Financials

Description	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Annual Long Return	Annual Short Return	Annual Active Return	Sharpe	Max DD
Barra Factors										
Value (Barra)	108	3.3%	2.73	59.6%	14.1%	9.2%	0.6%	9.3%	0.59	-53.6%
Success (Barra)	108	2.1%	0.22	54.1%	23.2%	5.8%	0.5%	-1.9%	-0.08	-70.1%
Size (Barra)	108	-1.8%	-2.44	44.0%	7.1%	2.0%	10.9%	-7.9%	-0.61	-82.1%
Volatility (Barra)	108	-2.0%	-0.19	48.2%	10.5%	1.7%	7.9%	-4.1%	-0.16	-81.3%
Earnings & Sentiment Factors										
6 Month Change in Target Price	106	3.5%	1.04	54.3%	25.5%	5.3%	-7.0%	5.4%	0.23	-59.5%
Forward Earnings Momentum (1Month Change)	102	3.2%	1.19	58.3%	64.8%	8.3%	1.4%	3.1%	0.20	-51.2%
Composite Forward Earnings Momentum (1Month + 3 Month)	101	3.1%	1.25	60.1%	38.4%	8.9%	0.2%	3.7%	0.20	-62.2%
Forward Earnings Momentum (3Month Change)	101	2.7%	1.05	56.4%	33.9%	8.4%	0.9%	2.8%	0.16	-58.4%
5 years Historical Earnings Growth	100	2.5%	1.42	56.4%	6.6%	7.8%	2.4%	3.6%	0.27	-47.3%
Consensus Recommendation	102	2.3%	1.79	62.4%	16.1%	7.7%	2.4%	4.6%	0.36	-46.6%
Forward Earnings Momentum (3Month) / Coefficient Of Variation	99	2.0%	0.75	57.8%	37.0%	8.5%	4.7%	1.4%	0.11	-32.3%
Net Revisions to FY2 [Up-Down]/[Up + Down]	102	1.6%	0.79	57.3%	67.6%	8.5%	4.9%	1.5%	0.12	-30.0%
Net Revisions to FY1 [Up-Down]/[Up + Down]	102	1.3%	0.47	50.9%	65.9%	8.7%	6.3%	0.6%	0.05	-40.0%
1 Month Change in Consensus Recommendation	102	1.0%	1.34	58.1%	78.4%	8.0%	4.0%	2.7%	0.27	-27.0%
3 Month Change in Consensus Recommendation	102	0.8%	0.38	54.9%	43.9%	6.3%	4.7%	0.4%	0.04	-33.7%
Number of Consensus Estimates (FY1)	102	-0.3%	0.38	54.1%	9.9%	4.3%	4.3%	0.2%	0.01	-38.7%
Composite Coefficient of Variation (Avg of FY1 and FY2)	101	-1.7%	-0.01	46.3%	17.6%	3.6%	6.4%	-1.6%	-0.09	-57.7%
Forecast Earnings Growth FY1 to FY2	104	-2.2%	-0.89	46.8%	19.0%	2.2%	7.8%	-4.5%	-0.28	-72.4%
Price Factors										
RSI 10 days (Reversion)	111	3.5%	2.66	58.3%	78.3%	8.7%	0.8%	7.5%	0.58	-23.5%
RSI 30 days (Reversion)	111	3.3%	2.12	56.4%	68.9%	9.5%	2.8%	6.6%	0.44	-26.4%
1 Month Price Reversion	110	2.6%	1.84	58.7%	79.5%	6.5%	0.4%	6.1%	0.36	-49.4%
12 Month Price Momentum	110	2.2%	0.24	56.0%	24.1%	7.3%	1.6%	-2.2%	-0.09	-71.7%
12 Month Price Momentum adjusted for volatility (Sharpe style)	107	1.9%	0.63	53.8%	25.0%	8.6%	2.5%	1.0%	0.05	-56.7%
Percent Off 52 Week High	111	1.1%	-0.69	48.6%	36.1%	3.6%	3.1%	-7.9%	-0.30	-87.0%
6 Month Price Momentum	111	0.3%	-0.20	54.6%	33.9%	5.6%	3.1%	-4.4%	-0.18	-71.6%
Price Acceleration (6 Months)	109	-0.8%	-0.93	52.3%	25.8%	3.3%	6.0%	-4.2%	-0.29	-56.2%
Price Acceleration (3 Months)	110	-2.2%	-2.17	42.2%	34.7%	3.0%	10.3%	-8.6%	-0.56	-80.8%
3 Month Price Momentum	111	-3.1%	-1.79	45.9%	47.6%	1.1%	7.5%	-11.6%	-0.51	-91.9%
Historical Returns Volatility Over Last Year	109	3.1%	0.93	55.5%	15.6%	7.7%	-1.7%	2.2%	0.10	-63.7%
Quality Factors										
Interest Cover	47	2.7%	1.16	58.1%	6.0%	7.0%	0.6%	3.8%	0.23	-34.7%
EBIT Margin Growth	99	1.6%	1.67	54.5%	10.2%	5.1%	-0.9%	4.7%	0.40	-21.4%
Historical Return On Equity	111	1.6%	0.46	50.0%	8.1%	5.1%	3.6%	0.6%	0.04	-55.0%
Internal Growth	111	1.6%	0.68	50.5%	10.4%	6.4%	4.7%	1.2%	0.10	-52.0%
ALTMAN Z-score	98	1.5%	0.76	56.9%	4.4%	3.8%	-2.0%	2.0%	0.12	-44.8%
Asset Turnover (Historical)	100	1.0%	0.31	53.3%	3.9%	4.0%	1.7%	0.1%	0.01	-47.9%
PIOTROSKI F-score (Fundamental Scorecard)	106	1.0%	0.34	52.1%	24.8%	2.3%	0.2%	0.3%	0.03	-40.7%
Change In ROE Between Current and 12 Months Prior	101	0.8%	-0.10	49.5%	16.3%	6.2%	6.2%	-0.8%	-0.07	-44.2%
Asset Turnover (Historical)	98	0.6%	-0.33	46.1%	9.5%	1.5%	2.0%	-1.5%	-0.14	-28.7%

Description	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Annual Long Return	Annual Short Return	Annual Active Return	Sharpe	Max DD
Payout Ratio	111	0.3%	-0.02	49.1%	10.8%	2.0%	3.9%	-1.0%	-0.07	-51.0%
Gearing	101	-0.4%	0.14	49.7%	2.9%	0.2%	1.2%	-0.4%	-0.03	-49.1%
Historical Sales Growth	100	-0.6%	-1.16	47.9%	9.3%	-0.1%	3.7%	-3.9%	-0.36	-60.3%
Liquidity	104	-1.1%	-0.15	48.4%	6.9%	4.2%	5.7%	-1.4%	-0.10	-53.6%
Historical BETA	107	-2.3%	-1.11	47.7%	19.0%	0.0%	9.0%	-7.2%	-0.35	-86.3%
Value Factors										
Historical Dividend Yield	111	4.3%	3.57	59.6%	11.1%	9.9%	-2.2%	11.1%	0.81	-37.2%
Historical Earnings Yield	111	3.7%	2.90	58.3%	13.5%	10.3%	0.5%	10.0%	0.63	-47.4%
1 year forward forecast PE	101	3.5%	2.62	61.9%	12.9%	8.7%	0.2%	9.4%	0.55	-57.2%
Historical P/Cash Earnings Ratio	21	2.5%	1.40	53.7%	11.1%	1.6%	-3.4%	4.7%	0.23	-47.0%
Historical P/Sales Ratio	36	2.1%	1.10	46.7%	8.7%	1.7%	-3.3%	4.3%	0.16	-42.9%
1 year forward forecast PE Relative To Sector	101	1.8%	1.67	51.4%	12.8%	5.8%	0.8%	5.1%	0.32	-51.7%
1 year forward forecast PE Relative To History	97	1.6%	1.29	54.4%	22.5%	7.2%	3.3%	4.5%	0.23	-38.2%
Historical P/Book Value Ratio	111	1.4%	1.49	56.0%	10.3%	7.1%	2.3%	5.2%	0.26	-61.5%
Free Cash Flow to Enterprise Value (Historical)	91	0.8%	1.47	48.5%	8.0%	2.1%	-2.8%	4.4%	0.34	-23.0%
Cash Flow Yield FY1	77	-0.6%	0.72	46.9%	14.8%	3.3%	3.2%	1.5%	0.08	-59.3%
Cash Flow Yield Mean of FY1 and FY2	74	-1.0%	1.03	50.2%	15.6%	2.7%	1.2%	3.1%	0.15	-62.9%
EBITDA to Enterprise Value	101	-1.0%	0.39	50.3%	9.7%	1.9%	0.0%	0.5%	0.05	-38.8%
Cash Flow Yield FY2	74	-1.1%	0.99	50.7%	15.8%	2.3%	1.1%	2.9%	0.14	-63.8%
JPMorgan Quant Composite Factors										
Composite Price with 1 Month Reversion	109	3.8%	0.90	57.3%	30.9%	8.0%	-0.9%	2.0%	0.08	-69.5%
Composite Value Momentum Model	101	3.6%	2.59	61.0%	48.9%	10.3%	2.5%	8.0%	0.56	-39.3%
Value To Risk	100	3.5%	2.28	60.6%	15.8%	9.1%	1.4%	7.0%	0.48	-55.1%
Composite Value Momentum Quality Price Model	101	3.2%	2.72	61.0%	39.9%	11.9%	1.8%	8.5%	0.59	-33.3%
Composite Value	101	3.1%	2.02	56.9%	17.9%	6.8%	0.1%	7.6%	0.39	-56.7%
Composite Value Momentum Quality Price Model (Value Biased)	101	3.0%	2.31	58.7%	38.5%	10.0%	2.9%	6.8%	0.49	-38.4%
Composite Value Growth Momentum Model	101	2.7%	2.08	56.0%	47.2%	9.1%	3.5%	5.9%	0.43	-38.0%
Composite Quality	100	2.5%	1.11	56.9%	13.9%	7.2%	1.0%	2.9%	0.18	-51.0%
Composite Momentum	102	2.3%	1.55	58.7%	62.6%	9.2%	2.7%	4.0%	0.30	-35.6%
Composite Value and Growth	101	1.5%	1.88	51.4%	15.6%	6.3%	0.6%	6.8%	0.36	-51.3%
Composite Recommendation	102	1.2%	0.15	48.1%	52.2%	6.4%	5.5%	-0.2%	-0.02	-37.8%
Value To Growth	101	0.9%	1.41	50.0%	16.6%	5.9%	2.7%	4.6%	0.24	-57.1%
Composite Price	103	0.5%	-0.35	55.0%	25.1%	5.8%	5.5%	-2.9%	-0.17	-56.4%
Q-Score Composite	101	4.3%	2.59	61.5%	41.8%	12.4%	1.3%	8.7%	0.55	-41.4%

MSCI Europe IT

Table 9: Factor performance summary across MSCI Europe IT

Factor	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Annual Long Return	Annual Short Return	Annual Active Return	Sharpe	Max DD
Barra Factors										
Success (Barra)	25	7.0%	2.16	60.6%	12.5%	12.0%	-1.3%	9.3%	0.41	-58.0%
Size (Barra)	25	2.8%	1.11	54.6%	5.0%	7.9%	3.4%	3.1%	0.18	-54.9%
Volatility (Barra)	25	1.4%	1.22	47.7%	7.9%	7.2%	3.6%	3.9%	0.19	-45.2%
Value (Barra)	25	-1.1%	-1.38	46.8%	9.0%	3.0%	8.7%	-6.6%	-0.40	-77.0%
Earnings & Sentiment Factors										
Net Revisions to FY2 [Up-Down]/[Up + Down]	23	6.6%	3.30	58.7%	38.0%	12.1%	-4.4%	14.1%	0.72	-39.1%
Composite Forward Earnings Momentum (1Month + 3 Month)	23	6.1%	2.17	55.5%	21.5%	10.2%	-2.4%	8.5%	0.43	-55.6%
Forward Earnings Momentum (1Month Change)	24	5.6%	1.72	50.9%	38.4%	9.2%	-0.9%	6.1%	0.32	-59.2%
Net Revisions to FY1 [Up-Down]/[Up + Down]	23	5.2%	3.16	61.5%	36.5%	11.6%	-3.5%	12.3%	0.69	-40.8%
Forward Earnings Momentum (3Month Change)	24	5.1%	2.13	53.7%	19.5%	9.8%	-2.2%	8.2%	0.42	-60.0%
5 years Historical Earnings Growth	22	4.5%	2.07	58.3%	4.4%	10.0%	1.1%	7.2%	0.41	-42.9%
Number of Consensus Estimates (FY1)	24	4.2%	0.73	55.0%	5.9%	4.9%	2.8%	1.4%	0.09	-57.0%
Consensus Recommendation	24	4.0%	1.29	56.4%	12.4%	7.3%	0.1%	3.9%	0.22	-57.1%
Forward Earnings Momentum (3Month) / Coefficient Of Variation	23	3.7%	1.32	56.4%	21.3%	6.0%	-2.0%	4.2%	0.22	-65.9%
1 Month Change in Consensus Recommendation	24	1.7%	0.08	51.2%	48.6%	4.0%	2.8%	-1.3%	-0.07	-69.4%
6 Month Change in Target Price	25	-0.1%	0.01	54.3%	13.8%	6.1%	4.2%	-1.6%	-0.09	-32.1%
3 Month Change in Consensus Recommendation	24	-0.5%	-0.06	49.3%	26.5%	3.8%	3.2%	-1.6%	-0.10	-54.4%
Forecast Earnings Growth FY1 to FY2	24	-3.6%	0.72	49.5%	9.8%	4.3%	3.4%	1.4%	0.07	-63.2%
Composite Coefficient of Variation (Avg. of FY1 and FY2)	24	-6.1%	-1.25	45.9%	10.3%	0.0%	8.4%	-7.0%	-0.37	-76.1%
Price Factors										
12 Month Price Momentum	24	7.3%	1.70	55.5%	13.8%	11.8%	0.0%	6.8%	0.29	-73.9%
6 Month Price Momentum	25	6.5%	2.26	58.7%	19.1%	13.4%	-1.0%	9.7%	0.44	-52.5%
12 Month Price Momentum adjusted for volatility (Sharpe style)	24	6.0%	1.39	54.3%	15.1%	9.7%	-0.3%	5.1%	0.23	-57.5%
3 Month Price Momentum	25	5.9%	1.87	57.8%	27.1%	11.3%	-0.9%	7.4%	0.34	-57.4%
Percent Off 52 Week High	26	5.0%	0.90	55.5%	18.8%	9.1%	0.7%	2.2%	0.10	-71.1%
Price Acceleration (3 Months)	25	1.9%	0.28	52.3%	19.5%	6.3%	4.9%	-0.4%	-0.02	-67.1%
RSI 10 days (Reversion)	26	1.7%	2.02	53.2%	50.0%	10.0%	0.3%	7.6%	0.39	-49.5%
Price Acceleration (6 Months)	25	1.1%	0.41	48.6%	14.7%	6.8%	4.5%	0.1%	0.01	-66.9%
1 Month Price Reversion	25	-2.5%	-0.50	51.8%	50.0%	3.8%	6.4%	-4.1%	-0.21	-74.7%
RSI 30 days (Reversion)	25	-2.8%	-1.25	44.0%	40.6%	2.4%	8.4%	-6.6%	-0.37	-80.1%
Quality Factors										
ALTMAN Z-score	27	3.4%	2.15	60.5%	4.6%	2.2%	-8.2%	8.4%	0.52	-33.4%
Asset Turnover (Historical)	26	2.5%	0.90	52.1%	7.2%	-1.3%	-6.8%	2.9%	0.15	-41.4%
Internal Growth	25	2.0%	1.03	53.2%	6.5%	8.3%	2.5%	2.8%	0.15	-51.0%
Change In ROE Between Current and 12 Months Prior	22	1.9%	0.08	53.4%	11.3%	6.7%	5.2%	-1.5%	-0.08	-66.1%
Interest Cover	24	1.5%	0.60	52.7%	5.8%	-0.8%	-5.6%	1.2%	0.06	-41.4%
Historical Return On Equity	25	1.4%	0.91	54.6%	5.8%	8.1%	2.3%	2.3%	0.12	-56.8%
PIOTROSKI F-score (Fundamental Scorecard)	28	0.9%	0.17	52.7%	10.6%	-2.2%	-2.6%	-0.8%	-0.04	-50.1%
EBIT Margin Growth	27	0.4%	-1.20	49.1%	8.2%	-5.1%	-1.2%	-6.8%	-0.40	-68.6%

Factor	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Annual Long Return	Annual Short Return	Annual Active Return	Sharpe	Max DD
Liquidity	25	0.3%	0.47	51.2%	5.5%	4.1%	3.9%	0.5%	0.03	-50.5%
Payout Ratio	25	0.0%	0.44	52.8%	5.9%	5.0%	5.2%	0.1%	0.01	-61.9%
Historical Returns Volatility Over Last Year	24	-0.1%	-0.10	50.7%	8.8%	7.2%	4.4%	-2.7%	-0.13	-66.8%
Asset Turnover (Historical)	27	-0.6%	-0.33	47.3%	3.0%	-3.3%	-2.8%	-2.8%	-0.17	-50.1%
Gearing	27	-1.3%	-0.39	46.7%	3.9%	-4.4%	-1.7%	-3.5%	-0.19	-68.6%
Historical Sales Growth	27	-3.2%	0.21	52.7%	6.3%	-2.3%	-3.9%	-0.8%	-0.04	-46.4%
Historical BETA	25	-5.8%	-2.49	41.7%	10.5%	-2.0%	12.2%	-12.4%	-0.64	-92.4%
Value Factors										
Free Cash Flow to Enterprise Value (Historical)	26	3.7%	1.03	53.3%	7.1%	0.1%	-6.3%	3.5%	0.19	-44.4%
1 year forward forecast PE Relative To Sector	24	0.2%	-1.18	50.9%	10.5%	1.9%	6.1%	-6.4%	-0.36	-83.4%
1 year forward forecast PE	24	0.1%	-0.10	48.6%	10.8%	4.5%	3.7%	-2.0%	-0.11	-45.6%
1 year forward forecast PE Relative To History	24	-0.2%	-0.73	47.7%	13.7%	0.9%	4.5%	-4.7%	-0.27	-66.0%
Historical Earnings Yield	25	-0.6%	-0.60	50.9%	8.7%	4.4%	5.9%	-4.2%	-0.23	-68.1%
Historical Dividend Yield	25	-2.0%	-0.29	48.6%	5.3%	5.5%	5.0%	-3.3%	-0.17	-70.8%
EBITDA to Enterprise Value	27	-2.1%	-0.68	47.3%	8.0%	-4.6%	-1.6%	-4.8%	-0.27	-69.5%
Historical P/Sales Ratio	20	-2.3%	0.15	43.6%	4.5%	0.9%	2.1%	-1.6%	-0.07	-62.2%
Cash Flow Yield Mean of FY1 and FY2	24	-3.3%	-1.90	43.6%	9.6%	-1.4%	7.7%	-9.7%	-0.52	-86.3%
Historical P/Book Value Ratio	25	-3.4%	-1.41	46.3%	6.3%	1.1%	9.1%	-8.4%	-0.42	-83.7%
Cash Flow Yield FY1	24	-3.5%	-1.58	42.2%	9.8%	0.0%	6.4%	-7.9%	-0.45	-81.2%
Cash Flow Yield FY2	24	-3.6%	-1.81	41.7%	9.1%	-1.7%	8.0%	-9.7%	-0.50	-85.1%
Historical P/Cash Earnings Ratio	25	-4.6%	-2.75	41.3%	7.4%	-1.0%	12.2%	-13.7%	-0.70	-93.9%
JPMorgan Quant Composite Factors										
Composite Value Momentum Quality Price Model	24	7.6%	3.21	60.6%	25.2%	12.0%	-4.1%	13.3%	0.70	-65.1%
Composite Price with 1 Month Reversion	24	7.3%	1.84	56.9%	16.9%	11.5%	0.3%	7.2%	0.33	-68.2%
Composite Value Momentum Quality Price Model (Value Biased)	24	6.8%	2.83	58.7%	26.3%	11.2%	-3.3%	11.8%	0.59	-60.8%
Composite Value Momentum Model	24	6.2%	2.36	56.4%	31.1%	10.4%	-2.5%	9.3%	0.48	-62.1%
Composite Price	22	6.0%	1.35	55.5%	14.4%	12.4%	3.6%	4.5%	0.21	-70.2%
Composite Momentum	24	5.9%	2.61	52.8%	34.2%	10.6%	-2.7%	10.5%	0.54	-64.6%
Composite Quality	23	4.7%	0.92	56.0%	6.9%	7.2%	0.7%	2.3%	0.12	-61.3%
Value To Risk	23	4.7%	0.58	49.1%	10.7%	6.3%	1.2%	0.8%	0.04	-52.8%
Composite Value Growth Momentum Model	24	4.6%	1.57	52.8%	31.8%	7.9%	-0.1%	5.5%	0.28	-63.9%
Composite Value	24	0.3%	-0.60	51.4%	13.2%	2.8%	5.3%	-3.9%	-0.22	-63.2%
Composite Recommendation	24	-0.1%	0.07	47.1%	30.2%	3.0%	2.0%	-1.1%	-0.07	-62.4%
Composite Value and Growth	24	-1.7%	-0.21	48.6%	13.9%	3.2%	5.0%	-2.1%	-0.13	-51.1%
Value To Growth	24	-4.1%	-0.87	45.0%	13.3%	1.4%	6.7%	-5.0%	-0.28	-71.8%
Q-Score Composite	24	7.0%	3.62	58.7%	25.8%	13.2%	-5.0%	15.3%	0.81	-47.8%

MSCI Europe Telecommunication Services

Table 10: Factor performance summary across MSCI Europe Telcos

Factor	Avg Stocks	Avg. IC	T-Stat	Hit Rate	Turn Over	Annual Long Return	Annual Short Return	Annual Active Return	Sharpe	Max DD
Barra Factors										
Success (Barra)	19	4.6%	1.26	53.2%	13.4%	14.0%	7.5%	3.6%	0.22	-44.6%
Value (Barra)	19	0.9%	0.54	55.0%	8.9%	12.2%	9.7%	0.8%	0.06	-37.4%
Size (Barra)	19	-0.7%	-0.63	45.9%	3.4%	10.1%	11.4%	-3.1%	-0.22	-74.0%
Volatility (Barra)	19	-3.1%	-0.51	47.7%	7.4%	8.4%	13.5%	-3.7%	-0.20	-72.9%
Earnings & Sentiment Factors										
Forward Earnings Momentum (3Month) / Coefficient Of Variation	17	5.6%	2.76	56.4%	22.0%	15.3%	5.0%	8.5%	0.60	-22.0%
6 Month Change in Target Price	20	4.1%	2.02	58.1%	12.8%	13.8%	5.6%	6.6%	0.65	-25.5%
Forward Earnings Momentum (3Month Change)	17	3.5%	2.12	57.3%	21.1%	14.7%	6.5%	6.2%	0.44	-22.6%
Net Revisions to FY1 [Up-Down]/[Up + Down]	18	2.6%	1.26	55.0%	37.8%	12.9%	7.9%	3.2%	0.23	-36.8%
Composite Forward Earnings Momentum (1Month + 3 Month)	17	2.5%	2.08	55.5%	23.8%	14.3%	6.5%	6.0%	0.43	-29.8%
Forward Earnings Momentum (1Month Change)	18	1.4%	0.75	51.4%	40.8%	11.8%	8.9%	1.4%	0.11	-44.2%
1 Month Change in Consensus Recommendation	18	1.2%	0.88	53.0%	49.5%	11.6%	8.9%	1.8%	0.15	-31.0%
Net Revisions to FY2 [Up-Down]/[Up + Down]	18	0.2%	1.26	57.3%	40.1%	12.8%	8.0%	3.1%	0.23	-52.0%
5 years Historical Earnings Growth	16	0.2%	0.73	51.8%	3.5%	11.1%	8.6%	1.4%	0.10	-30.9%
Consensus Recommendation	18	0.1%	-0.12	49.1%	9.9%	10.6%	10.3%	-1.1%	-0.09	-51.1%
3 Month Change in Consensus Recommendation	18	0.0%	-0.39	49.8%	27.4%	9.7%	11.1%	-2.1%	-0.16	-47.0%
Number of Consensus Estimates (FY1)	18	-0.1%	-0.28	48.2%	6.9%	9.7%	10.9%	-1.8%	-0.13	-64.5%
Composite Coefficient of Variation (Avg of FY1 and FY2)	18	-0.2%	0.00	44.0%	9.9%	9.9%	10.3%	-1.0%	-0.07	-50.2%
Forecast Earnings Growth FY1 to FY2	18	-1.0%	1.02	52.3%	10.1%	12.4%	9.6%	2.5%	0.17	-34.5%
Price Factors										
RSI 10 days (Reversion)	19	6.0%	3.39	57.8%	50.5%	16.3%	5.0%	10.6%	0.76	-26.3%
RSI 30 days (Reversion)	19	4.7%	1.92	56.0%	43.2%	14.0%	7.2%	5.9%	0.38	-32.9%
1 Month Price Reversion	19	3.9%	1.60	56.9%	52.4%	13.8%	8.0%	4.8%	0.30	-29.4%
12 Month Price Momentum	19	2.5%	0.71	54.6%	13.7%	12.2%	7.3%	1.3%	0.07	-48.4%
6 Month Price Momentum	19	2.0%	0.00	50.0%	19.4%	10.7%	9.4%	-1.6%	-0.09	-52.3%
12 Month Price Momentum adjusted for volatility (Sharpe style)	19	1.5%	0.10	52.4%	15.5%	10.7%	9.2%	-0.9%	-0.06	-44.1%
Price Acceleration (6 Months)	18	1.3%	-0.08	49.5%	14.5%	9.8%	9.9%	-1.4%	-0.09	-47.8%
3 Month Price Momentum	19	0.4%	-0.77	47.2%	28.8%	9.3%	11.5%	-4.7%	-0.27	-66.6%
Price Acceleration (3 Months)	18	-0.9%	-0.59	48.6%	20.7%	9.3%	10.7%	-3.2%	-0.21	-52.8%
Percent Off 52 Week High	19	-1.2%	-0.16	54.1%	23.2%	11.3%	10.1%	-2.2%	-0.13	-61.6%
Quality Factors										
Change In ROE Between Current and 12 Months Prior	18	5.0%	0.52	51.0%	12.2%	11.8%	9.9%	0.8%	0.06	-49.6%
Internal Growth	19	4.1%	-0.37	53.2%	6.8%	10.2%	10.9%	-2.3%	-0.16	-64.8%
Historical Return On Equity	19	3.8%	-0.77	50.9%	5.3%	9.5%	11.6%	-3.9%	-0.26	-63.0%
EBIT Margin Growth	21	3.6%	-0.20	58.1%	8.7%	6.9%	6.5%	-2.0%	-0.13	-55.8%
Asset Turnover (Historical)	21	3.4%	0.62	53.3%	4.0%	8.5%	5.3%	1.3%	0.10	-38.6%
Historical Sales Growth	21	2.9%	1.07	51.5%	5.5%	8.7%	5.4%	2.8%	0.23	-34.2%
ALTMAN Z-score	21	1.5%	0.10	50.9%	3.5%	7.3%	6.3%	-0.5%	-0.04	-40.6%
PIOTROSKI F-score (Fundamental Scorecard)	21	1.4%	1.16	59.9%	10.0%	8.8%	5.0%	2.9%	0.25	-25.6%
Interest Cover	20	1.1%	1.72	55.7%	5.4%	10.2%	3.1%	5.1%	0.41	-28.7%
Historical Returns Volatility Over Last Year	19	1.1%	-0.40	48.8%	9.6%	9.8%	9.3%	-3.1%	-0.18	-56.9%

Factor	Avg Stocks	Avg. IC	T-Stat	Hit Rate	Turn Over	Annual Long Return	Annual Short Return	Annual Active Return	Sharpe	Max DD
Gearing	21	0.1%	-0.61	44.9%	2.8%	5.9%	8.4%	-2.6%	-0.22	-52.9%
Historical BETA	18	-0.4%	0.13	51.8%	13.2%	9.4%	10.0%	-0.6%	-0.04	-58.2%
Payout Ratio	19	-0.6%	1.47	49.5%	7.2%	12.8%	8.5%	3.8%	0.28	-35.8%
Asset Turnover (Historical)	21	-0.7%	-0.21	49.7%	7.3%	6.1%	6.7%	-1.7%	-0.13	-54.4%
Liquidity	19	-2.9%	-1.38	47.9%	4.8%	7.6%	13.3%	-5.9%	-0.39	-82.1%
Value Factors										
Historical P/Sales Ratio	17	3.4%	1.23	52.6%	7.7%	7.1%	0.2%	5.0%	0.22	-35.8%
EBITDA to Enterprise Value	21	2.7%	0.48	52.7%	9.4%	8.2%	5.8%	0.8%	0.06	-33.9%
Cash Flow Yield FY1	18	2.6%	1.68	55.5%	6.0%	13.4%	7.1%	4.5%	0.34	-38.1%
Cash Flow Yield Mean of FY1 and FY2	18	2.6%	1.37	53.6%	6.2%	12.9%	7.7%	3.5%	0.26	-37.9%
Cash Flow Yield FY2	18	2.5%	1.02	53.1%	6.5%	12.2%	8.5%	2.4%	0.18	-37.1%
Historical P/Cash Earnings Ratio	19	2.4%	1.00	53.2%	7.1%	12.5%	8.7%	2.4%	0.16	-42.0%
Historical Dividend Yield	19	1.3%	-0.53	52.3%	6.3%	10.1%	11.3%	-2.6%	-0.19	-46.2%
Historical Earnings Yield	19	1.3%	-0.01	56.4%	11.1%	11.1%	10.5%	-1.2%	-0.08	-58.7%
1 year forward forecast PE Relative To Sector	18	1.1%	0.30	53.7%	5.4%	11.4%	9.3%	-0.1%	-0.01	-47.8%
1 year forward forecast PE	18	0.7%	0.46	52.3%	8.6%	11.9%	8.8%	0.5%	0.03	-46.5%
1 year forward forecast PE Relative To History	17	0.7%	0.84	53.9%	13.4%	12.2%	8.4%	2.1%	0.13	-34.1%
Free Cash Flow to Enterprise Value (Historical)	20	-0.3%	0.19	49.7%	7.7%	7.5%	6.0%	-0.2%	-0.01	-43.6%
Historical P/Book Value Ratio	19	-0.3%	1.42	54.1%	6.7%	12.7%	8.3%	4.1%	0.26	-45.6%
JPMorgan Quant Composite Factors										
Composite Price with 1 Month Reversion	19	4.5%	1.02	53.7%	18.0%	12.8%	7.0%	2.6%	0.15	-41.2%
Composite Value Momentum Quality Price Model	18	3.6%	1.64	54.6%	22.7%	13.9%	6.6%	4.8%	0.32	-35.5%
Composite Value Momentum Quality Price Model (Value Biased)	18	3.3%	1.53	55.5%	23.8%	13.6%	6.9%	4.3%	0.29	-34.7%
Composite Momentum	18	2.8%	1.75	58.3%	37.3%	13.5%	7.4%	4.6%	0.35	-39.2%
Composite Value Growth Momentum Model	18	2.7%	1.20	51.8%	33.0%	12.7%	8.1%	3.0%	0.22	-38.0%
Composite Value Momentum Model	18	2.4%	0.95	49.5%	30.3%	12.2%	8.6%	2.1%	0.16	-40.1%
Composite Price	17	2.0%	0.94	50.9%	15.0%	12.4%	7.6%	2.3%	0.14	-32.1%
Composite Value and Growth	18	1.6%	0.79	49.1%	12.2%	12.0%	8.7%	1.6%	0.12	-38.3%
Value To Growth	17	1.4%	1.07	50.9%	13.6%	12.5%	8.6%	2.6%	0.18	-53.2%
Composite Value	18	1.4%	0.99	48.6%	11.3%	12.6%	7.9%	2.4%	0.15	-43.7%
Composite Quality	17	1.4%	-1.27	47.2%	5.9%	8.2%	11.9%	-5.5%	-0.36	-70.7%
Value To Risk	18	1.1%	0.43	51.8%	9.7%	11.6%	8.6%	0.4%	0.02	-45.1%
Composite Recommendation	18	1.1%	-0.60	46.6%	32.1%	9.6%	11.6%	-2.7%	-0.21	-50.2%
Q-Score Composite	18	3.9%	1.40	53.7%	22.7%	13.4%	7.1%	3.8%	0.26	-40.8%

MSCI Europe Utilities

Table 11: Factor performance summary across MSCI Europe Utilities

Factor	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Annual Long Return	Annual Short Return	Annual Active Return	Sharpe	Max DD
Barra Factors										
Value (Barra)	28	2.7%	2.59	57.3%	9.1%	13.7%	6.3%	6.4%	0.57	-20.1%
Volatility (Barra)	28	1.6%	1.32	52.8%	6.9%	11.6%	8.3%	3.2%	0.25	-32.7%
Success (Barra)	28	-0.4%	-0.53	48.6%	15.5%	9.3%	10.5%	-2.5%	-0.19	-58.0%
Size (Barra)	28	-2.2%	-0.74	49.1%	3.1%	8.8%	11.2%	-2.8%	-0.23	-47.9%
Earnings & Sentiment Factors										
Net Revisions to FY1 [Up-Down]/[Up + Down]	26	2.6%	1.24	54.6%	39.4%	11.5%	8.5%	2.2%	0.25	-20.6%
1 Month Change in Consensus Recommendation	26	2.5%	0.15	49.3%	49.0%	9.6%	9.4%	-0.1%	-0.01	-45.2%
3 Month Change in Consensus Recommendation	25	2.0%	0.47	50.2%	28.4%	10.6%	9.6%	0.6%	0.07	-26.4%
6 Month Change in Target Price	26	1.7%	0.42	54.3%	13.2%	12.0%	10.0%	0.9%	0.09	-30.3%
Forward Earnings Momentum (3Month Change)	26	1.3%	0.66	51.4%	21.9%	10.8%	8.9%	1.0%	0.11	-23.7%
5 years Historical Earnings Growth	25	1.3%	1.29	54.6%	4.4%	11.5%	8.3%	2.7%	0.25	-23.4%
Consensus Recommendation	26	1.2%	0.28	51.4%	10.6%	10.1%	10.0%	0.2%	0.02	-28.0%
Composite Forward Earnings Momentum (1Month + 3 Month)	26	1.1%	1.18	52.3%	24.9%	11.3%	8.4%	2.1%	0.23	-22.5%
Forward Earnings Momentum (1Month Change)	26	1.1%	0.81	50.9%	41.9%	11.1%	9.0%	1.3%	0.15	-28.5%
Forward Earnings Momentum (3Month) / Coefficient Of Variation	25	1.0%	0.74	50.0%	21.9%	10.6%	8.7%	1.2%	0.13	-21.0%
Net Revisions to FY2 [Up-Down]/[Up + Down]	26	0.6%	-0.76	48.2%	41.9%	9.2%	10.9%	-2.1%	-0.22	-51.1%
Composite Coefficient of Variation (Avg of FY1 and FY2)	25	-0.5%	0.01	50.0%	11.6%	9.7%	9.9%	-0.6%	-0.05	-46.1%
Forecast Earnings Growth FY1 to FY2	26	-0.7%	0.19	51.8%	11.8%	10.2%	10.1%	-0.1%	-0.01	-37.1%
Number of Consensus Estimates (FY1)	26	-0.7%	-0.65	50.5%	6.0%	8.8%	11.3%	-2.4%	-0.21	-44.8%
Price Factors										
RSI 10 days (Reversion)	28	4.6%	2.79	56.0%	49.6%	13.6%	6.1%	6.4%	0.62	-11.5%
1 Month Price Reversion	28	4.3%	3.80	57.8%	52.9%	14.5%	5.1%	8.6%	0.87	-17.4%
RSI 30 days (Reversion)	28	3.9%	1.10	53.7%	42.4%	10.9%	8.5%	2.1%	0.21	-28.7%
Price Acceleration (6 Months)	27	-1.4%	-1.06	45.4%	15.0%	8.6%	11.3%	-3.5%	-0.30	-61.6%
12 Month Price Momentum adjusted for volatility (Sharpe style)	27	-1.7%	-0.66	47.1%	16.8%	8.5%	9.9%	-3.0%	-0.22	-58.2%
12 Month Price Momentum	28	-1.8%	-0.56	45.4%	15.7%	9.0%	10.1%	-2.7%	-0.20	-59.3%
Price Acceleration (3 Months)	27	-2.4%	-1.45	45.0%	19.4%	8.1%	11.6%	-3.7%	-0.38	-51.3%
Percent Off 52 Week High	28	-3.3%	-1.08	45.4%	23.0%	8.4%	11.0%	-4.1%	-0.31	-64.1%
6 Month Price Momentum	28	-3.8%	-1.09	46.8%	21.4%	8.1%	11.0%	-3.9%	-0.31	-60.7%
3 Month Price Momentum	28	-4.7%	-1.54	41.7%	29.3%	7.6%	11.8%	-5.1%	-0.41	-69.1%
Quality Factors										
Gearing	26	2.2%	0.73	50.3%	2.7%	8.0%	5.7%	1.4%	0.15	-28.0%
Change In ROE Between Current and 12 Months Prior	26	1.7%	0.26	51.9%	12.1%	10.4%	9.6%	0.1%	0.01	-27.0%
Payout Ratio	28	1.5%	-0.19	45.9%	6.3%	9.2%	10.4%	-1.1%	-0.10	-39.1%
Historical Return On Equity	28	1.4%	1.09	54.1%	5.5%	11.3%	8.1%	2.1%	0.21	-38.8%
ALTMAN Z-score	26	1.4%	-0.09	53.3%	2.7%	6.6%	7.0%	-0.6%	-0.07	-26.1%
EBIT Margin Growth	25	1.3%	0.73	54.5%	7.7%	7.8%	6.1%	1.3%	0.16	-24.5%
Internal Growth	28	0.7%	0.72	50.9%	6.6%	10.8%	8.9%	1.2%	0.12	-40.8%
PIOTROSKI F-score (Fundamental Scorecard)	27	0.5%	0.48	47.9%	8.8%	7.5%	6.7%	0.8%	0.08	-19.9%
Asset Turnover (Historical)	25	0.3%	-0.90	53.9%	2.4%	5.4%	8.2%	-2.7%	-0.28	-45.9%
Historical Sales Growth	25	0.3%	-0.73	51.5%	6.5%	5.8%	8.0%	-2.1%	-0.24	-43.6%

Factor	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Annual Long Return	Annual Short Return	Annual Active Return	Sharpe	Max DD
Asset Turnover (Historical)	25	-0.3%	-0.62	46.1%	6.9%	6.3%	7.8%	-1.7%	-0.21	-47.6%
Interest Cover	25	-0.4%	0.28	47.9%	3.5%	7.3%	6.4%	0.3%	0.03	-26.3%
Historical BETA	28	-0.8%	0.68	49.5%	16.6%	10.1%	9.0%	1.1%	0.10	-24.3%
Liquidity	28	-2.3%	-0.94	46.5%	6.0%	9.0%	11.3%	-2.5%	-0.27	-45.4%
Historical Returns Volatility Over Last Year	28	-2.5%	-1.68	45.0%	9.4%	7.3%	11.4%	-5.2%	-0.44	-66.7%
Value Factors										
1 year forward forecast PE Relative To History	24	7.5%	2.96	61.7%	13.9%	14.5%	5.1%	8.9%	0.70	-17.9%
Historical P/Cash Earnings Ratio	28	3.2%	2.01	56.4%	9.2%	12.4%	7.0%	4.6%	0.43	-21.5%
Cash Flow Yield FY1	25	3.0%	0.92	47.9%	7.9%	10.7%	8.4%	1.8%	0.17	-30.9%
Cash Flow Yield Mean of FY1 and FY2	25	2.9%	0.48	48.3%	7.2%	10.1%	9.0%	0.7%	0.06	-32.4%
1 year forward forecast PE Relative To Sector	26	2.8%	2.85	56.4%	10.7%	13.0%	6.7%	5.7%	0.64	-27.2%
1 year forward forecast PE	26	2.7%	2.49	56.4%	9.3%	13.7%	5.9%	6.9%	0.54	-23.5%
Cash Flow Yield FY2	25	2.7%	0.77	48.8%	7.4%	10.4%	8.7%	1.4%	0.13	-31.7%
Free Cash Flow to Enterprise Value (Historical)	25	2.5%	0.21	48.5%	5.4%	7.0%	6.7%	0.1%	0.01	-25.9%
Historical Earnings Yield	29	2.4%	2.18	52.3%	8.9%	12.8%	6.6%	5.2%	0.47	-27.3%
EBITDA to Enterprise Value	26	1.6%	0.84	55.1%	7.4%	8.2%	5.6%	1.8%	0.18	-26.1%
Historical Dividend Yield	28	0.9%	0.67	52.3%	6.5%	10.9%	8.6%	1.2%	0.10	-34.2%
Historical P/Book Value Ratio	29	0.8%	0.85	51.4%	6.8%	10.6%	8.8%	1.6%	0.15	-33.7%
Historical P/Sales Ratio	26	-0.8%	-0.29	48.2%	4.3%	8.2%	10.1%	-1.6%	-0.14	-35.2%
JPMorgan Quant Composite Factors										
Composite Value	26	5.7%	2.83	59.2%	11.6%	13.7%	6.0%	7.0%	0.63	-19.0%
Composite Value Momentum Model	25	4.8%	1.91	59.6%	31.8%	11.9%	7.6%	3.9%	0.41	-20.5%
Composite Value Growth Momentum Model	25	4.0%	2.08	58.3%	32.0%	12.3%	7.1%	4.5%	0.45	-20.8%
Composite Value Momentum Quality Price Model (Value Biased)	26	3.3%	1.72	58.3%	24.9%	12.1%	7.6%	3.6%	0.36	-27.0%
Composite Value and Growth	26	3.3%	2.16	54.1%	10.5%	12.7%	7.0%	5.0%	0.46	-17.5%
Value To Risk	25	2.6%	0.95	55.0%	8.5%	10.9%	8.2%	1.9%	0.17	-26.1%
Value To Growth	26	2.5%	2.10	56.4%	11.5%	12.8%	6.8%	5.2%	0.44	-22.8%
Composite Value Momentum Quality Price Model	26	2.4%	1.14	55.0%	24.6%	11.5%	8.2%	2.2%	0.22	-38.4%
Composite Momentum	26	1.9%	0.48	51.8%	39.2%	10.7%	9.3%	0.6%	0.06	-42.3%
Composite Recommendation	26	1.8%	0.02	50.0%	33.7%	9.7%	9.6%	-0.3%	-0.04	-25.3%
Composite Quality	25	1.5%	1.10	51.8%	8.2%	11.7%	7.8%	2.3%	0.20	-34.7%
Composite Price with 1 Month Reversion	27	0.3%	0.34	51.8%	19.3%	10.5%	8.7%	0.2%	0.01	-35.7%
Composite Price	26	-2.0%	-0.67	48.2%	14.6%	8.8%	10.4%	-2.7%	-0.22	-58.6%
Q-Score Composite	26	3.9%	2.31	60.1%	26.6%	13.0%	6.6%	5.2%	0.50	-21.2%

MSCI UK

Table 12: Factor performance summary across MSCI GB

Factor	Avg. Stocks	Avg. IC	T-Stat	Hit Rate	Turn Over	Annual Long Return	Annual Short Return	Annual Active Return	Sharpe	Max DD
Barra Factors										
Success (Barra)	117	3.2%	1.17	56.0%	23.6%	8.7%	0.0%	3.7%	0.16	-49.4%
Value (Barra)	117	2.9%	1.47	52.3%	12.9%	10.2%	3.5%	5.0%	0.25	-58.8%
Size (Barra)	117	0.4%	0.03	52.3%	6.3%	7.3%	5.9%	-1.1%	-0.07	-66.3%
Volatility (Barra)	117	-1.9%	-0.32	46.3%	9.9%	2.5%	8.2%	-4.7%	-0.19	-88.2%
Earnings & Sentiment Factors										
Net Revisions to FY2 [Up-Down]/[Up + Down]	127	2.3%	1.92	60.6%	66.0%	9.4%	3.7%	4.2%	0.40	-25.4%
6 Month Change in Target Price	126	2.2%	0.68	59.0%	24.0%	13.7%	7.9%	2.4%	0.14	-48.9%
Net Revisions to FY1 [Up-Down]/[Up + Down]	127	1.8%	1.01	57.8%	65.3%	7.7%	4.2%	1.9%	0.19	-31.7%
Composite Forward Earnings Momentum (1Month + 3 Month)	126	1.8%	0.32	57.8%	38.3%	7.3%	5.1%	0.1%	0.00	-50.2%
Forward Earnings Momentum (1Month Change)	127	1.6%	1.13	58.7%	63.8%	8.2%	4.1%	2.5%	0.21	-33.6%
1 Month Change in Consensus Recommendation	128	1.6%	2.05	55.8%	80.2%	8.7%	3.8%	4.3%	0.44	-26.0%
Forward Earnings Momentum (3Month) / Coefficient Of Variation	125	1.4%	0.59	54.1%	36.0%	6.2%	4.0%	0.9%	0.08	-41.3%
Forward Earnings Momentum (3Month Change)	126	1.2%	0.30	54.6%	33.5%	6.8%	4.6%	0.0%	0.00	-54.6%
5 years Historical Earnings Growth	123	1.2%	-0.27	49.5%	6.9%	6.2%	7.1%	-1.6%	-0.13	-60.8%
3 Month Change in Consensus Recommendation	126	0.6%	0.44	53.5%	46.4%	7.3%	6.3%	0.5%	0.06	-33.9%
Consensus Recommendation	127	0.4%	-0.21	49.5%	17.9%	5.3%	5.5%	-1.1%	-0.10	-47.6%
Number of Consensus Estimates (FY1)	126	0.1%	-0.21	49.1%	14.0%	5.9%	6.2%	-1.1%	-0.10	-46.5%
Composite Coefficient of Variation (Avg of FY1 and FY2)	126	-0.3%	0.29	49.1%	21.0%	5.7%	6.2%	0.0%	0.00	-39.0%
Forecast Earnings Growth FY1 to FY2	128	-1.7%	-1.34	47.2%	20.1%	4.7%	9.5%	-4.4%	-0.37	-62.2%
Price Factors										
RSI 10 days (Reversion)	132	4.7%	3.65	61.5%	78.9%	12.2%	0.1%	11.2%	0.83	-31.5%
1 Month Price Reversion	132	2.8%	2.35	56.9%	80.5%	8.6%	1.4%	7.1%	0.50	-35.3%
RSI 30 days (Reversion)	131	2.0%	1.11	52.8%	69.2%	8.4%	5.4%	2.7%	0.19	-56.6%
12 Month Price Momentum	130	1.7%	0.63	56.4%	24.3%	8.5%	2.8%	0.8%	0.04	-56.5%
12 Month Price Momentum adjusted for volatility (Sharpe style)	125	1.6%	0.35	52.4%	24.7%	7.8%	4.7%	-0.1%	-0.01	-52.6%
Percent Off 52 Week High	132	-0.2%	-0.64	49.5%	35.3%	4.4%	4.7%	-5.3%	-0.25	-71.1%
6 Month Price Momentum	131	-0.6%	-0.71	46.8%	34.5%	7.0%	8.2%	-5.0%	-0.26	-69.3%
Price Acceleration (6 Months)	128	-1.0%	-1.31	45.9%	25.1%	5.3%	8.6%	-4.4%	-0.36	-56.2%
3 Month Price Momentum	132	-1.9%	-1.18	45.4%	47.7%	3.2%	6.9%	-6.2%	-0.36	-80.1%
Price Acceleration (3 Months)	129	-2.4%	-2.27	42.7%	34.0%	3.6%	10.3%	-7.4%	-0.58	-77.4%
Quality Factors										
Internal Growth	127	2.4%	2.22	57.8%	9.6%	9.3%	3.9%	4.8%	0.48	-27.2%
ALTMAN Z-score	124	1.9%	1.53	56.9%	4.3%	7.7%	1.1%	4.6%	0.35	-31.0%
Historical Return On Equity	129	1.7%	2.04	55.0%	7.2%	8.9%	3.4%	4.4%	0.44	-25.5%
Asset Turnover (Historical)	122	1.7%	0.80	52.1%	10.2%	5.3%	2.3%	1.7%	0.16	-29.9%
Interest Cover	115	1.5%	0.62	50.3%	7.5%	7.3%	4.6%	1.3%	0.11	-40.1%
Payout Ratio	132	0.9%	1.03	52.3%	10.4%	6.3%	4.0%	2.4%	0.18	-46.0%
EBIT Margin Growth	123	0.9%	1.79	52.1%	11.7%	7.8%	3.2%	4.1%	0.44	-14.0%
PIOTROSKI F-score (Fundamental Scorecard)	130	0.8%	0.29	51.5%	15.7%	4.2%	2.9%	0.3%	0.03	-33.1%
Asset Turnover (Historical)	124	0.4%	0.80	53.3%	4.0%	4.3%	1.2%	1.7%	0.16	-34.7%
Historical Returns Volatility Over Last Year	128	0.2%	-0.26	49.5%	16.9%	6.3%	4.7%	-2.8%	-0.15	-67.2%

Factor	Avg. Stocks	Avg. IC	T-Stat	Hit Rate	Turn Over	Annual Long Return	Annual Short Return	Annual Active Return	Sharpe	Max DD
Change In ROE Between Current and 12 Months Prior	117	-0.1%	0.46	52.9%	17.0%	9.2%	8.0%	0.6%	0.07	-22.9%
Gearing	125	-0.3%	-1.26	47.3%	5.8%	1.6%	6.1%	-4.2%	-0.38	-53.0%
Historical Sales Growth	123	-0.7%	-0.59	48.5%	9.2%	3.3%	4.6%	-2.3%	-0.21	-34.3%
Liquidity	130	-0.8%	-1.46	48.8%	9.5%	5.5%	9.3%	-4.6%	-0.40	-67.5%
Historical BETA	131	-2.6%	-1.06	41.7%	24.1%	1.9%	9.5%	-6.5%	-0.34	-86.6%
Value Factors										
Historical Earnings Yield	132	2.5%	2.53	53.2%	14.6%	11.4%	3.2%	7.5%	0.54	-51.8%
Cash Flow Yield FY1	114	1.9%	1.60	53.1%	14.4%	10.2%	4.9%	4.8%	0.31	-44.6%
EBITDA to Enterprise Value	125	1.9%	2.84	58.1%	12.9%	9.4%	-1.0%	9.8%	0.73	-31.5%
Historical P/Cash Earnings Ratio	116	1.8%	2.65	56.4%	13.7%	10.1%	2.1%	7.8%	0.57	-35.3%
1 year forward forecast PE	127	1.7%	1.92	55.0%	14.6%	10.2%	3.3%	5.9%	0.38	-59.3%
Cash Flow Yield Mean of FY1 and FY2	113	1.7%	1.94	54.5%	14.3%	10.9%	4.3%	6.1%	0.40	-42.8%
Cash Flow Yield FY2	114	1.5%	1.89	53.1%	14.5%	9.8%	3.8%	5.8%	0.39	-45.1%
Free Cash Flow to Enterprise Value (Historical)	123	1.4%	1.40	55.1%	10.4%	7.0%	3.4%	2.9%	0.34	-23.7%
1 year forward forecast PE Relative To Sector	127	1.1%	1.65	51.4%	14.5%	9.2%	3.9%	4.7%	0.32	-56.5%
Historical Dividend Yield	132	0.9%	1.27	53.2%	10.9%	6.4%	1.2%	3.6%	0.22	-50.8%
1 year forward forecast PE Relative To History	121	0.4%	0.54	49.7%	21.4%	8.0%	6.7%	0.9%	0.05	-62.2%
Historical P/Book Value Ratio	132	0.0%	0.83	52.3%	9.1%	7.9%	5.9%	1.8%	0.13	-47.2%
Historical P/Sales Ratio	122	-0.5%	0.27	45.9%	7.6%	6.6%	6.4%	0.1%	0.01	-48.0%
JPMorgan Quant Composite Factors										
Composite Price with 1 Month Reversion	129	3.1%	1.40	57.3%	30.8%	10.4%	1.9%	4.5%	0.23	-56.0%
Composite Value Momentum Model	125	2.8%	2.03	59.2%	48.4%	9.0%	3.6%	4.9%	0.43	-33.3%
Composite Value Momentum Quality Price Model	126	2.7%	1.83	54.1%	39.9%	9.7%	3.6%	4.6%	0.38	-34.2%
Composite Momentum	127	2.6%	1.79	56.9%	59.7%	8.0%	3.1%	3.7%	0.38	-25.2%
Composite Value Momentum Quality Price Model (Value Biased)	126	2.6%	2.01	55.5%	39.5%	9.6%	3.9%	4.7%	0.42	-29.5%
Composite Value Growth Momentum Model	126	2.5%	2.36	59.2%	48.0%	9.7%	3.7%	5.6%	0.51	-29.3%
Composite Quality	122	1.8%	1.14	54.6%	11.3%	9.0%	4.4%	2.6%	0.21	-40.4%
Value To Risk	123	1.5%	1.99	56.9%	16.3%	10.4%	3.2%	5.8%	0.41	-53.5%
Composite Value	125	1.4%	2.10	56.0%	17.5%	10.6%	3.6%	6.5%	0.43	-52.4%
Composite Value and Growth	126	1.3%	1.70	54.1%	16.4%	7.7%	3.0%	4.7%	0.34	-49.8%
Value To Growth	126	1.2%	1.28	51.8%	17.2%	7.2%	4.3%	2.9%	0.25	-51.8%
Composite Recommendation	127	1.1%	1.46	56.3%	54.5%	7.8%	4.4%	2.9%	0.31	-26.8%
Composite Price	121	0.4%	0.15	50.0%	24.9%	9.2%	7.4%	-0.6%	-0.04	-48.5%
Q-Score Composite	126	3.3%	2.01	58.7%	40.8%	9.5%	2.6%	5.3%	0.42	-41.4%

MSCI Continental Europe

Table 13: Factor performance summary across MSCI Continental Europe

Factor	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Annual Long Return	Annual Short Return	Annual Active Return	Sharpe	Max DD
Barra Factors										
Success (Barra)	334	4.0%	1.52	61.0%	20.6%	10.5%	-0.1%	5.3%	0.25	-60.0%
Value (Barra)	334	1.2%	1.41	52.8%	12.4%	7.8%	4.4%	3.9%	0.26	-50.6%
Size (Barra)	334	-0.1%	-1.11	48.2%	5.0%	5.6%	8.2%	-4.1%	-0.32	-66.5%
Volatility (Barra)	334	-1.7%	-0.24	45.4%	10.2%	3.1%	8.9%	-4.0%	-0.17	-77.6%
Earnings & Sentiment Factors										
Forward Earnings Momentum (1Month Change)	302	2.8%	2.32	63.8%	62.5%	9.5%	2.9%	4.9%	0.51	-29.3%
Composite Forward Earnings Momentum (1Month + 3 Month)	300	2.8%	2.69	65.6%	37.5%	10.0%	1.0%	6.9%	0.59	-39.8%
Forward Earnings Momentum (3Month Change)	301	2.6%	2.68	63.8%	32.4%	9.9%	0.9%	6.9%	0.59	-41.3%
Net Revisions to FY2 [Up-Down]/[Up + Down]	306	2.4%	2.93	62.8%	65.6%	9.3%	2.4%	5.5%	0.66	-18.7%
6 Month Change in Target Price	289	2.4%	1.09	61.9%	23.4%	9.7%	2.3%	4.3%	0.30	-41.7%
Forward Earnings Momentum (3Month) / Coefficient Of Variation	294	2.3%	2.57	60.6%	36.0%	9.9%	3.3%	5.1%	0.57	-30.9%
Net Revisions to FY1 [Up-Down]/[Up + Down]	305	2.2%	2.67	59.6%	64.5%	9.6%	3.1%	5.1%	0.60	-20.6%
3 Month Change in Consensus Recommendation	302	1.9%	2.94	57.2%	43.1%	7.8%	2.4%	4.9%	0.67	-17.6%
Consensus Recommendation	303	1.7%	1.54	58.3%	14.2%	8.2%	4.4%	2.9%	0.32	-33.6%
1 Month Change in Consensus Recommendation	303	1.2%	2.86	58.1%	77.5%	8.2%	3.4%	4.2%	0.65	-10.0%
Number of Consensus Estimates (FY1)	305	0.5%	0.44	51.4%	9.3%	6.7%	5.2%	0.5%	0.04	-47.2%
5 years Historical Earnings Growth	290	-0.5%	-1.48	49.1%	7.0%	4.1%	6.7%	-2.8%	-0.38	-60.1%
Forecast Earnings Growth FY1 to FY2	308	-0.9%	-0.36	47.2%	18.9%	3.8%	5.9%	-1.2%	-0.13	-45.0%
Composite Coefficient of Variation (Avg of FY1 and FY2)	300	-2.0%	-1.47	45.4%	17.7%	3.1%	9.2%	-4.7%	-0.40	-67.8%
12 Month Price Momentum adjusted for volatility (Sharpe style)	315	2.8%	1.87	59.6%	24.4%	11.9%	3.2%	5.8%	0.38	-34.9%
Price Factors										
RSI 10 days (Reversion)	335	2.4%	2.92	58.3%	78.7%	9.8%	2.8%	6.8%	0.65	-16.2%
12 Month Price Momentum	331	2.1%	1.18	60.6%	23.2%	10.7%	2.9%	3.4%	0.18	-54.3%
Percent Off 52 Week High	336	1.8%	0.72	57.8%	34.0%	8.6%	2.0%	1.3%	0.07	-57.2%
6 Month Price Momentum	336	1.6%	0.49	56.4%	32.8%	8.9%	4.3%	0.3%	0.02	-45.9%
RSI 30 days (Reversion)	335	1.4%	2.23	52.3%	68.9%	10.1%	4.2%	5.9%	0.48	-18.2%
1 Month Price Reversion	337	1.1%	1.40	55.0%	79.2%	9.0%	5.4%	3.5%	0.27	-28.0%
Price Acceleration (6 Months)	330	0.7%	0.86	52.3%	25.2%	7.8%	4.7%	1.6%	0.15	-38.6%
3 Month Price Momentum	337	-0.2%	-0.33	51.8%	46.8%	6.4%	5.9%	-2.8%	-0.16	-52.0%
Price Acceleration (3 Months)	330	-0.3%	-0.69	46.3%	34.0%	6.6%	7.7%	-2.4%	-0.22	-49.4%
Quality Factors										
ALTMAN Z-score	304	2.4%	2.01	53.9%	3.4%	7.0%	-2.7%	6.8%	0.48	-33.3%
Historical Returns Volatility Over Last Year	333	1.5%	0.59	52.8%	15.2%	8.9%	3.7%	0.9%	0.05	-57.5%
Asset Turnover (Historical)	301	1.2%	2.21	60.5%	3.9%	6.6%	2.7%	3.8%	0.57	-16.4%
PIOTROSKI F-score (Fundamental Scorecard)	321	1.1%	0.80	57.5%	16.0%	5.6%	3.2%	1.6%	0.17	-34.2%
Historical Return On Equity	336	0.8%	0.50	54.1%	8.5%	7.0%	5.2%	0.6%	0.07	-33.9%
Change In ROE Between Current and 12 Months Prior	309	0.8%	1.35	54.4%	16.5%	9.2%	6.1%	2.3%	0.29	-22.9%
Internal Growth	335	0.8%	0.00	51.8%	10.7%	7.1%	6.8%	-0.3%	-0.04	-34.5%
Asset Turnover (Historical)	290	0.6%	0.67	52.7%	11.1%	3.8%	2.8%	1.0%	0.15	-18.8%
Interest Cover	253	0.3%	2.01	56.9%	7.7%	7.3%	1.9%	4.2%	0.51	-23.5%
Liquidity	319	0.2%	-0.03	49.3%	7.7%	7.6%	8.1%	-0.7%	-0.06	-47.3%

Factor	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Annual Long Return	Annual Short Return	Annual Active Return	Sharpe	Max DD
Payout Ratio	337	-0.1%	-0.27	53.2%	10.7%	5.1%	6.6%	-0.9%	-0.11	-44.2%
Gearing	306	-0.2%	-0.58	52.1%	4.7%	2.6%	4.7%	-1.6%	-0.20	-38.2%
EBIT Margin Growth	297	-0.5%	0.32	54.5%	12.2%	5.6%	4.3%	0.4%	0.05	-28.1%
Historical BETA	323	-1.1%	-0.87	45.4%	21.3%	2.7%	7.8%	-3.9%	-0.27	-69.7%
Historical Sales Growth	301	-1.5%	-1.96	46.1%	10.4%	0.7%	5.2%	-4.1%	-0.55	-52.5%
Value Factors										
Historical Dividend Yield	338	2.4%	3.08	60.6%	9.5%	10.8%	3.2%	6.8%	0.69	-22.3%
Free Cash Flow to Enterprise Value (Historical)	281	1.9%	2.82	62.3%	9.6%	6.1%	-0.2%	5.5%	0.74	-10.8%
Historical Earnings Yield	338	1.9%	2.78	59.2%	12.7%	9.7%	3.8%	5.7%	0.62	-29.7%
Historical P/Sales Ratio	180	1.8%	1.37	55.5%	10.3%	9.1%	2.8%	4.6%	0.22	-51.5%
1 year forward forecast PE	301	1.7%	1.51	52.8%	13.6%	8.4%	5.2%	3.5%	0.30	-41.6%
Historical P/Cash Earnings Ratio	274	1.5%	2.06	58.7%	11.4%	10.1%	4.8%	5.1%	0.44	-45.7%
1 year forward forecast PE Relative To History	286	1.2%	1.34	53.9%	20.6%	7.4%	4.1%	3.7%	0.27	-38.0%
Historical P/Book Value Ratio	337	1.1%	1.56	50.9%	9.6%	9.5%	6.0%	4.1%	0.31	-36.0%
1 year forward forecast PE Relative To Sector	301	0.9%	0.85	54.6%	13.7%	7.0%	6.0%	1.5%	0.15	-42.5%
Cash Flow Yield Mean of FY1 and FY2	286	0.7%	1.24	55.5%	12.0%	7.5%	5.0%	3.0%	0.23	-36.8%
Cash Flow Yield FY1	289	0.7%	1.47	55.5%	12.0%	8.1%	4.7%	3.8%	0.29	-37.6%
EBITDA to Enterprise Value	305	0.6%	1.10	57.5%	11.5%	4.6%	2.3%	2.3%	0.25	-33.6%
Cash Flow Yield FY2	287	0.6%	1.08	55.0%	11.8%	7.8%	5.8%	2.6%	0.19	-38.1%
JPMorgan Quant Composite Factors										
Composite Value Momentum Quality Price Model	300	3.4%	4.27	63.8%	38.9%	12.0%	2.0%	9.0%	1.00	-25.0%
Composite Value Momentum Quality Price Model (Value Biased)	300	3.1%	4.09	62.4%	39.0%	10.3%	2.1%	8.0%	0.95	-32.4%
Composite Price with 1 Month Reversion	329	3.0%	1.65	61.0%	29.5%	10.7%	1.6%	5.4%	0.30	-50.8%
Composite Value Momentum Model	300	3.0%	3.52	64.2%	48.0%	9.4%	2.1%	7.4%	0.81	-34.0%
Composite Momentum	305	2.8%	3.87	67.9%	60.0%	11.2%	1.9%	7.9%	0.89	-21.9%
Composite Value Growth Momentum Model	299	2.4%	3.45	68.3%	48.1%	9.4%	2.9%	6.8%	0.79	-35.3%
Value To Risk	296	2.4%	2.13	54.1%	15.1%	9.3%	4.1%	4.6%	0.46	-25.9%
Composite Price	313	2.0%	1.12	52.8%	24.2%	10.0%	4.9%	2.7%	0.20	-29.8%
Composite Quality	299	1.9%	1.39	54.1%	11.6%	7.8%	3.0%	2.8%	0.28	-28.9%
Composite Recommendation	301	1.7%	3.31	61.8%	50.7%	8.6%	2.4%	5.6%	0.76	-19.3%
Composite Value	300	1.5%	1.36	56.0%	17.9%	7.4%	4.5%	3.4%	0.26	-45.9%
Composite Value and Growth	300	0.6%	0.58	52.8%	16.6%	5.8%	5.8%	0.9%	0.07	-49.5%
Value To Growth	300	-0.1%	0.79	54.6%	17.9%	6.0%	5.4%	1.6%	0.12	-48.4%
Q-Score Composite	300	3.8%	4.20	67.4%	41.1%	12.3%	0.7%	10.1%	0.98	-27.6%

MSCI Scandinavia

Table 14: Factor performance summary across MSCI Scandinavia

Factor	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Annual Long Return	Annual Short Return	Annual Active Return	Sharpe	Max DD
Barra Factors										
Success (Barra)	95	3.4%	0.75	60.1%	17.1%	14.6%	10.1%	1.5%	0.09	-49.8%
Value (Barra)	95	2.0%	1.06	51.8%	11.0%	15.5%	11.3%	2.7%	0.18	-45.5%
Size (Barra)	95	0.5%	0.03	49.5%	5.5%	12.0%	11.4%	-0.5%	-0.05	-51.8%
Volatility (Barra)	95	-0.6%	-0.40	50.0%	8.2%	10.1%	15.6%	-3.4%	-0.18	-78.1%
Earnings & Sentiment Factors										
Composite Forward Earnings Momentum (1Month + 3 Month)	80	3.7%	2.71	61.5%	29.3%	17.2%	8.0%	7.0%	0.60	-29.8%
Forward Earnings Momentum (3Month Change)	80	3.5%	2.52	61.9%	26.1%	17.5%	8.5%	6.6%	0.55	-28.4%
Forward Earnings Momentum (1Month Change)	80	3.1%	1.20	57.8%	51.6%	14.4%	10.3%	2.4%	0.23	-40.4%
Forward Earnings Momentum (3Month) / Coefficient Of Variation	81	2.8%	3.04	61.9%	27.3%	17.4%	7.8%	7.5%	0.68	-20.2%
6 Month Change in Target Price	81	2.3%	0.31	58.1%	19.8%	16.4%	13.8%	0.5%	0.04	-36.0%
5 years Historical Earnings Growth	78	2.0%	1.71	54.6%	6.0%	14.6%	10.4%	3.6%	0.36	-45.2%
Net Revisions to FY1 [Up-Down]/[Up + Down]	82	1.7%	1.03	55.5%	53.7%	13.8%	11.0%	1.8%	0.20	-43.3%
Net Revisions to FY2 [Up-Down]/[Up + Down]	82	1.4%	0.88	54.6%	54.4%	13.1%	10.4%	1.5%	0.16	-33.4%
3 Month Change in Consensus Recommendation	81	1.3%	0.18	50.7%	37.6%	11.6%	11.3%	0.0%	0.00	-29.3%
Consensus Recommendation	81	0.5%	-0.18	50.9%	14.5%	11.6%	12.6%	-0.9%	-0.09	-43.3%
1 Month Change in Consensus Recommendation	82	0.4%	-0.43	48.4%	66.8%	10.0%	11.3%	-1.3%	-0.14	-44.7%
Number of Consensus Estimates (FY1)	81	0.3%	-0.22	48.2%	8.5%	11.5%	12.6%	-1.2%	-0.11	-58.9%
Composite Coefficient of Variation (Avg of FY1 and FY2)	81	-2.0%	-0.30	49.1%	14.5%	11.9%	14.3%	-1.5%	-0.13	-52.4%
Forecast Earnings Growth FY1 to FY2	83	-3.0%	-1.07	43.1%	14.3%	10.0%	14.2%	-3.4%	-0.30	-59.0%
Price Factors										
RSI 10 days (Reversion)	95	4.4%	4.75	61.9%	66.7%	20.4%	6.9%	12.4%	1.12	-17.9%
RSI 30 days (Reversion)	95	3.1%	2.99	56.0%	56.9%	16.5%	8.3%	7.4%	0.67	-31.0%
1 Month Price Reversion	95	2.8%	3.31	59.6%	69.3%	18.3%	8.6%	9.1%	0.75	-31.5%
12 Month Price Momentum	93	2.3%	0.46	57.3%	19.3%	14.0%	10.9%	0.5%	0.04	-41.8%
12 Month Price Momentum adjusted for volatility (Sharpe style)	89	1.9%	0.21	56.7%	20.1%	13.5%	11.8%	-0.2%	-0.02	-47.1%
Percent Off 52 Week High	95	0.6%	-1.03	50.9%	30.0%	10.7%	12.4%	-4.8%	-0.31	-67.8%
6 Month Price Momentum	95	0.6%	-0.73	52.8%	27.5%	12.1%	13.3%	-3.1%	-0.23	-48.7%
Price Acceleration (6 Months)	93	-0.3%	-0.43	51.8%	19.7%	12.2%	12.9%	-1.5%	-0.15	-51.2%
3 Month Price Momentum	95	-0.7%	-1.51	47.7%	38.6%	11.0%	14.6%	-5.2%	-0.41	-67.4%
Price Acceleration (3 Months)	93	-1.5%	-1.94	48.6%	26.6%	10.8%	15.3%	-4.9%	-0.49	-62.1%
Quality Factors										
Asset Turnover (Historical)	87	2.3%	1.51	55.7%	9.0%	12.7%	7.8%	3.6%	0.36	-31.7%
Historical Return On Equity	96	1.9%	1.36	55.0%	7.9%	14.8%	10.7%	2.8%	0.27	-29.1%
Internal Growth	96	1.6%	1.04	54.1%	9.4%	13.5%	10.9%	1.9%	0.20	-25.7%
PIOTROSKI F-score (Fundamental Scorecard)	97	1.5%	1.76	50.9%	12.0%	11.1%	6.9%	3.6%	0.44	-19.7%
Change In ROE Between Current and 12 Months Prior	88	1.3%	1.77	60.2%	14.7%	15.9%	11.0%	3.6%	0.39	-17.5%
EBIT Margin Growth	89	1.1%	0.82	52.1%	10.2%	11.9%	9.7%	1.6%	0.18	-27.2%
Historical Returns Volatility Over Last Year	94	0.6%	0.08	50.9%	12.8%	14.9%	12.3%	-0.6%	-0.05	-35.5%
Asset Turnover (Historical)	89	0.5%	0.21	51.5%	3.1%	9.3%	8.2%	0.0%	0.00	-43.4%
ALTMAN Z-score	90	0.5%	0.53	46.1%	4.0%	11.8%	9.3%	1.0%	0.09	-29.5%

Factor	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Annual Long Return	Annual Short Return	Annual Active Return	Sharpe	Max DD
Gearing	91	0.1%	-0.87	47.9%	4.9%	8.8%	12.3%	-3.0%	-0.28	-50.0%
Payout Ratio	96	0.1%	0.28	49.5%	10.0%	11.2%	11.8%	0.1%	0.01	-47.0%
Interest Cover	79	-0.2%	0.24	52.1%	6.5%	8.8%	7.7%	0.1%	0.01	-46.4%
Historical BETA	95	-0.6%	-0.01	49.1%	15.2%	12.3%	14.6%	-1.1%	-0.07	-59.4%
Historical Sales Growth	90	-0.8%	-0.14	49.7%	8.5%	10.3%	11.5%	-0.9%	-0.09	-43.2%
Liquidity	94	-0.9%	0.27	51.6%	7.5%	12.7%	12.6%	0.1%	0.01	-46.8%
Value Factors										
Historical Earnings Yield	96	2.4%	1.74	55.5%	11.7%	15.4%	10.3%	4.0%	0.36	-36.9%
Historical Dividend Yield	96	2.1%	1.02	53.2%	7.4%	14.5%	10.6%	2.1%	0.18	-45.1%
Free Cash Flow to Enterprise Value (Historical)	89	1.9%	1.72	50.9%	8.4%	14.1%	8.2%	4.2%	0.42	-23.4%
Historical P/Cash Earnings Ratio	82	1.6%	1.45	50.9%	11.1%	14.8%	10.2%	3.5%	0.29	-41.4%
EBITDA to Enterprise Value	91	1.3%	1.43	53.9%	10.4%	12.7%	7.7%	3.7%	0.33	-31.7%
1 year forward forecast PE	82	1.3%	1.24	53.7%	13.1%	15.4%	11.4%	3.1%	0.23	-48.3%
Cash Flow Yield FY1	77	0.6%	1.55	50.2%	11.9%	14.6%	9.4%	4.2%	0.31	-36.9%
1 year forward forecast PE Relative To Sector	82	0.3%	0.40	51.8%	12.2%	12.9%	12.3%	0.4%	0.04	-44.5%
Historical P/Sales Ratio	86	0.3%	0.89	57.1%	6.8%	13.5%	11.1%	2.6%	0.21	-30.9%
Cash Flow Yield Mean of FY1 and FY2	77	0.1%	0.85	50.2%	11.4%	13.0%	10.3%	1.9%	0.13	-38.6%
Historical P/Book Value Ratio	96	-0.3%	1.03	47.7%	8.2%	13.7%	11.0%	2.2%	0.18	-45.0%
Cash Flow Yield FY2	77	-0.4%	0.62	47.9%	11.5%	12.0%	10.5%	1.1%	0.08	-37.9%
1 year forward forecast PE Relative To History	80	-0.5%	0.10	49.2%	18.0%	12.4%	13.0%	-0.4%	-0.03	-44.8%
JPMorgan Quant Composite Factors										
Composite Price with 1 Month Reversion	92	3.8%	1.82	60.6%	24.4%	15.7%	8.5%	4.8%	0.37	-30.5%
Composite Value Momentum Model	80	2.6%	1.74	59.6%	40.6%	13.9%	9.6%	3.7%	0.36	-27.5%
Composite Value Momentum Quality Price Model	81	2.2%	0.47	58.3%	33.6%	12.2%	10.7%	0.6%	0.05	-46.0%
Composite Momentum	82	2.2%	1.13	55.0%	49.4%	13.7%	10.2%	2.2%	0.22	-31.0%
Value To Risk	80	2.1%	0.98	55.0%	13.9%	13.6%	10.4%	2.0%	0.17	-44.2%
Composite Quality	81	2.1%	0.99	50.0%	10.4%	14.1%	9.9%	2.1%	0.17	-51.6%
Composite Value Momentum Quality Price Model (Value Biased)	81	1.8%	0.26	56.0%	35.0%	11.5%	11.0%	0.1%	0.01	-42.3%
Composite Recommendation	80	1.3%	-0.25	48.4%	43.8%	11.2%	12.0%	-0.9%	-0.10	-31.3%
Composite Value Growth Momentum Model	80	1.3%	0.90	55.0%	42.0%	12.9%	11.4%	1.6%	0.16	-28.8%
Composite Price	86	1.2%	0.33	54.6%	19.5%	13.1%	11.4%	0.2%	0.02	-40.7%
Composite Value	81	1.1%	1.10	55.0%	15.1%	14.1%	11.5%	2.3%	0.20	-35.1%
Composite Value and Growth	81	-0.9%	-0.15	48.2%	15.1%	11.8%	13.8%	-1.1%	-0.09	-44.4%
Value To Growth	81	-2.0%	-0.49	47.7%	15.5%	10.1%	13.9%	-2.3%	-0.18	-43.6%
Q-Score Composite	81	3.4%	1.83	62.4%	35.5%	14.9%	9.0%	4.3%	0.38	-33.0%

Appendix 2: Full Backtest Results

The tests for MSCI Europe are profiled on the following pages. We do not include the profiles for individual sectors, Scandinavia, Continental Europe ex Scandinavia and UK (GB). If you would like to view profiles for these regions / sectors, please email Quant_strategy@jpmorgan.com.

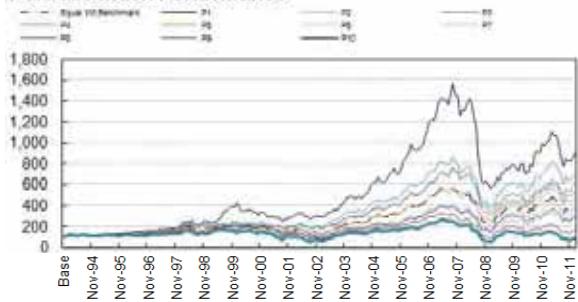
All the tables and charts in this section are based on data sourced from MSCI, IBES, Reuters, Factset, Barra, and J.P. Morgan.

Success (Barra)

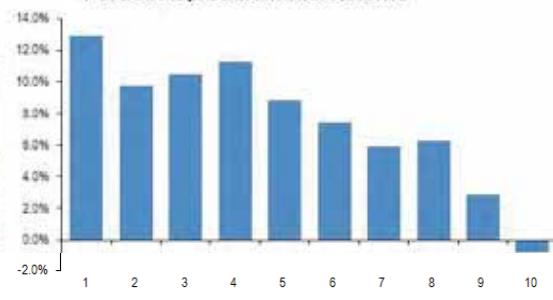
Success (Barra)						Rebalance every 1 month(s)																		
1 Year: 02/28/2011 to 02/29/2012 Portfolio Statistics						3 Years(s): 02/28/2009 to 02/28/2012 Portfolio Statistics						5 Year(s): 02/28/2007 to 02/29/2012 Portfolio Statistics						Total Period: 12/31/1993 to 02/29/2012 Portfolio Statistics						
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.					
1	-0.7%	-10.5%	8%	50%	1	1.5%	10.3%	7%	50%	1	-0.2%	-5.8%	8%	55%	1	1.2%	12.9%	6%	59%					
2	-0.1%	-3.9%	7%	75%	2	1.9%	21.7%	7%	61%	2	0.0%	2.7%	7%	62%	2	0.0%	9.8%	5%	59%					
3	0.4%	2.2%	7%	92%	3	1.8%	21.6%	7%	56%	3	0.2%	-0.7%	7%	60%	3	1.0%	10.5%	5%	58%					
4	-0.3%	-6.5%	7%	83%	4	2.0%	23.1%	7%	58%	4	0.2%	-0.9%	7%	63%	4	1.0%	11.3%	5%	57%					
5	-0.7%	-10.4%	7%	76%	5	2.0%	23.4%	7%	56%	5	0.2%	-1.5%	8%	57%	5	0.0%	8.8%	6%	51%					
6	-0.2%	-5.6%	8%	75%	6	2.6%	31.0%	8%	69%	6	0.4%	0.4%	8%	63%	6	0.0%	7.5%	6%	47%					
7	-0.8%	-0.5%	8%	50%	7	2.3%	27.0%	8%	53%	7	0.1%	-3.9%	9%	48%	7	0.7%	5.9%	6%	42%					
8	-0.6%	-11.1%	8%	58%	8	2.4%	26.5%	9%	53%	8	0.2%	-2.2%	9%	57%	8	0.7%	6.3%	7%	42%					
9	-1.6%	-21.3%	9%	25%	9	2.1%	21.2%	10%	36%	9	-0.4%	-10.1%	10%	35%	9	0.5%	2.9%	7%	39%					
10	-3.9%	-42.5%	11%	17%	10	2.4%	19.1%	14%	42%	10	-0.8%	-18.1%	13%	37%	10	0.4%	-0.8%	10%	38%					
Total Test						Total Test						Total Test						Total Test						
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg		
Ref	IC	IC	IC	Assets	Ref	IC	IC	IC	Assets	Ref	IC	IC	IC	Assets	Ref	IC	IC	IC	Assets	Ref	IC	IC	Assets	
Universe	-0.8%	10.1%	15.0%	461	Universe	2.1%	1.6%	3.3%	442	Universe	0.0%	3.9%	5.3%	490	Universe	0.8%	3.5%	4.1%	547					
Strategy Statistics																				Strategy Statistics				
Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10						
Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out	
Ret	Ret	Devn	Perf.		Ret	Ret	Ret	Perf.		Ret	Ret	Ret	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.	
Long/Short	3.3%	43.2%	7.1%	83%	Long/Short	-0.8%	-18.6%	10.0%	61%	Long/Short	0.7%	1.9%	9.4%	65%	Long/Short	0.8%	6.4%	7.5%	61%	Long/Short	0.8%	6.4%	7.5%	61%
Active Ret	0.2%	1.7%	2.7%	50%	Active Ret	-0.6%	-7.4%	3.8%	50%	Active Ret	-0.1%	-2.5%	3.0%	55%	Active Ret	-0.4%	-4.2%	3.3%	59%	Active Ret	-0.4%	-4.2%	3.3%	59%
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR	
Long/Short	1.8	1.1	93	0.2	Long/Short	-0.5	-0.4	89	-0.6	Long/Short	0.5	8.1	29	-0.2	Long/Short	1.0	0.2	110	0.4	Long/Short	1.0	0.2	110	0.4

* Annualized Risk-Free Rate of 6%

Portfolio Index Performance

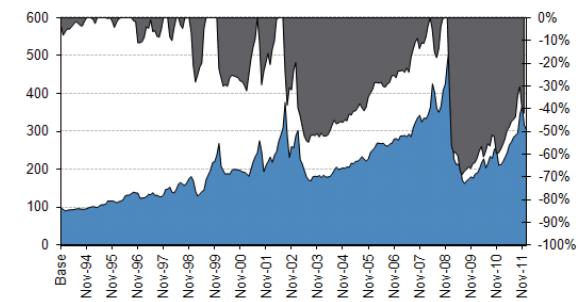


Portfolio Spread. Annual Returns

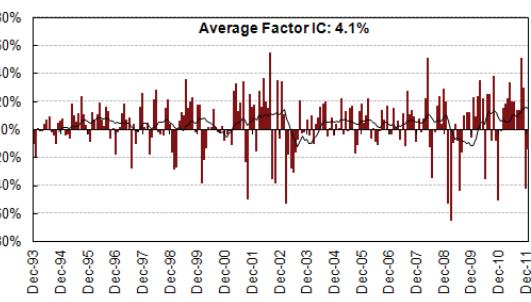


Cumulative (L/S) Returns

Max Drawdown: -68.9%

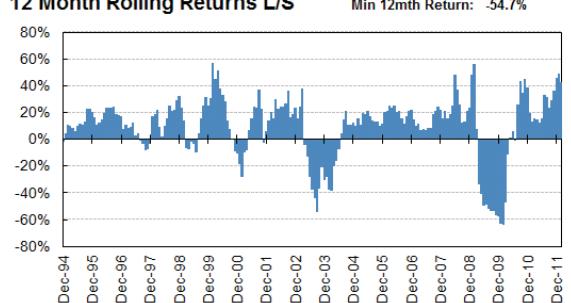


Information Co-Efficients (IC)

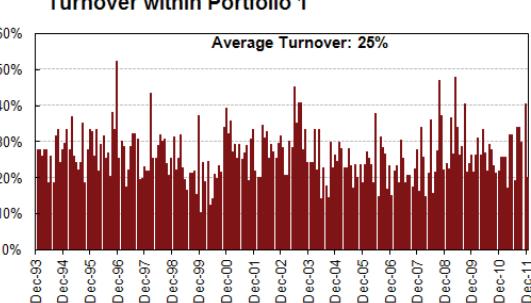


12 Month Rolling Returns L/S

Min 12mth Return: -54.7%



Turnover within Portfolio 1

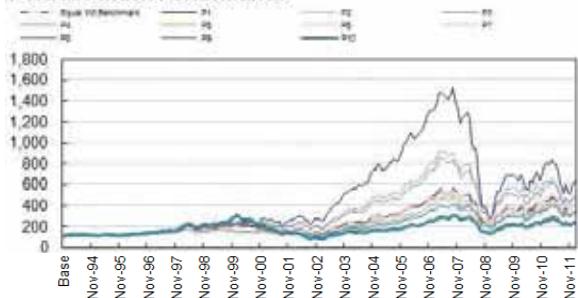


Value (Barra)

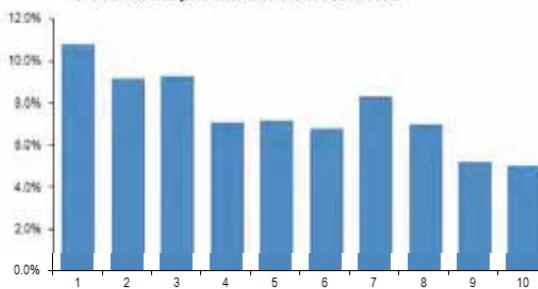
Value (Barra)						
1 Year: 02/28/2011 to 02/29/2012					Rebalance every 1 month(s)	
Portfolio Statistics					Portfolio Statistics	
Port	Avg Ret	Ann Ret	St Dev	% Out.	Port	Avg Ret
1	-1.4%	-21.2%	11%	33%	1	3.1%
2	-1.8%	-22.9%	8%	17%	2	2.2%
3	-0.9%	-13.3%	8%	50%	3	2.0%
4	-0.8%	-12.8%	8%	50%	4	2.3%
5	-1.1%	-14.0%	7%	50%	5	1.6%
6	-0.4%	-7.8%	8%	83%	6	2.3%
7	-0.8%	-9.8%	7%	42%	7	1.9%
8	-0.5%	-4.3%	7%	67%	8	1.8%
9	-0.5%	-8.8%	7%	67%	9	1.9%
10	-0.3%	-5.6%	8%	75%	10	1.9%
Total Test					Total Test	
Avg Ret					Avg Ret	
Ref IC					Ref IC	
Assets					Assets	
Universe	-0.8%	-7.6%	-8.2%	461	Universe	2.1%
Strategy Statistics						
Portfolio 1 less Portfolio 10						
Avg Ret	Ann Ret	Std Dev	% Out.		Avg Ret	Ann Ret
Long/Short	-1.1%	-14.2%	5.6%	33%	Long/Short	1.2%
Active Ret	-0.6%	7.6%	3.9%	33%	Active Ret	1.0%
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*
Long/Short	-0.7	-0.7	93	-0.8	Long/Short	1.0
Strategy Statistics						
Portfolio 1 less Portfolio 10						
Avg Ret	Ann Ret	Std Dev	% Out.		Avg Ret	Ann Ret
Long/Short	-1.2%	-12.0%	7.0%	44%	Long/Short	-0.6%
Active Ret	-0.6%	11.4%	5.0%	53%	Active Ret	-0.4%
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*
Long/Short	1.0	0.5	89	0.7	Long/Short	1.0

* Standardized Profit/Freq Ratio of 0.5

Portfolio Index Performance

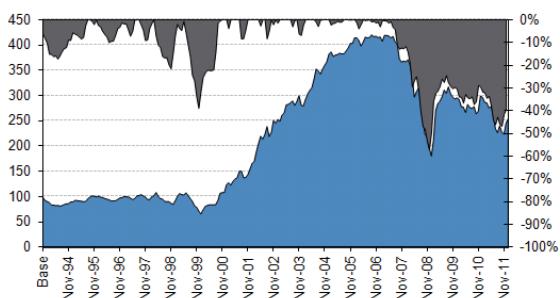


Portfolio Spread. Annual Returns

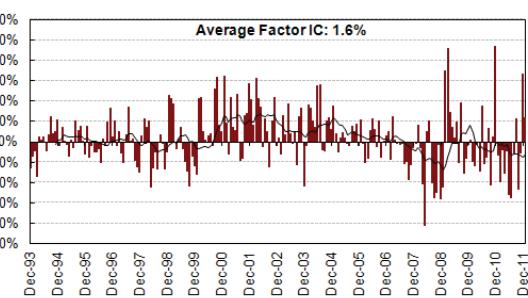


Cumulative (L/S) Returns

Max Drawdown: -56.9%

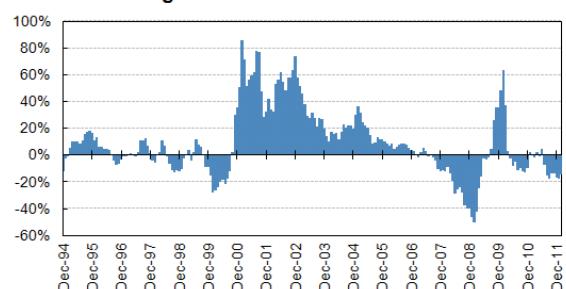


Information Co-Efficients (IC)

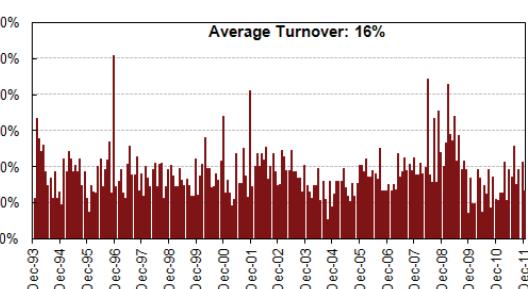


12 Month Rolling Returns L/S

Min 12mth Return: -28.9%



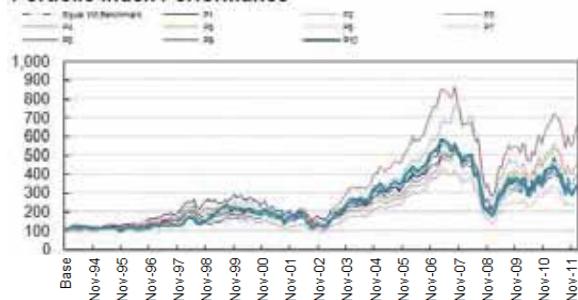
Turnover within Portfolio 1



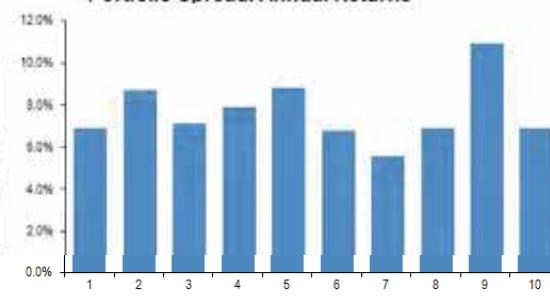
Size (Barra)

Size (Barra)						Rebalance every 1 month(s)																	
1 Year: 02/28/2011 to 02/29/2012 Portfolio Statistics						3 Years(s): 02/28/2009 to 02/28/2012 Portfolio Statistics						5 Year(s): 02/28/2007 to 02/29/2012 Portfolio Statistics						Total Period: 12/31/1993 to 02/29/2012 Portfolio Statistics					
Port.	Avg Ret.	Ann Ret.	St. Dev.	% Out. Perf.	Port.	Avg Ret.	Ann Ret.	St. Dev.	% Out. Perf.	Port.	Avg Ret.	Ann Ret.	St. Dev.	% Out. Perf.	Port.	Avg Ret.	Ann Ret.	St. Dev.	% Out. Perf.				
1	-0.9%	-12.4%	7%	33%	1	1.3%	14.1%	7%	31%	1	-0.2%	-5.7%	7%	47%	1	0.7%	9.9%	5%	49%				
2	-0.9%	-13.2%	8%	50%	2	1.6%	20.1%	8%	42%	2	0.0%	-4.9%	8%	50%	2	0.9%	8.7%	6%	51%				
3	-0.9%	-13.2%	8%	58%	3	2.2%	24.7%	9%	50%	3	0.1%	-3.5%	9%	55%	3	0.8%	7.1%	6%	48%				
4	-0.4%	-8.3%	8%	67%	4	2.0%	21.8%	8%	42%	4	0.1%	-2.7%	8%	50%	4	0.8%	7.8%	6%	47%				
5	-0.4%	-8.0%	8%	83%	5	2.4%	20.5%	8%	69%	5	0.4%	0.3%	8%	70%	5	0.9%	8.8%	6%	53%				
6	-0.7%	-10.8%	8%	50%	6	2.3%	25.2%	8%	56%	6	0.1%	-2.9%	8%	67%	6	0.7%	6.8%	6%	49%				
7	-1.2%	-17.1%	8%	25%	7	2.2%	25.2%	8%	44%	7	-0.2%	-6.5%	9%	45%	7	0.6%	5.6%	6%	45%				
8	-1.3%	-17.7%	8%	17%	8	1.9%	20.6%	8%	44%	8	-0.3%	-7.3%	8%	45%	8	0.7%	6.9%	6%	47%				
9	0.2%	-1.7%	8%	92%	9	2.7%	32.7%	8%	57%	9	0.1%	-2.8%	9%	53%	9	1.1%	10.9%	7%	55%				
10	-1.8%	-22.5%	8%	42%	10	2.2%	23.6%	9%	47%	10	-0.3%	-8.5%	9%	38%	10	0.8%	6.9%	7%	45%				
Total Test					Total Test					Total Test					Total Test								
Avg	Rack	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg					
Ref.	IC	IC	Assets		Ref.	IC	IC	Assets		Ref.	IC	IC	Assets		Ref.	IC	IC	Assets					
Universe	-0.8%	1.3%	2.4%	461	Universe	-2.1%	-1.9%	442		Universe	0.0%	0.9%	0.9%	490	Universe	0.8%	0.6%	0.6%	547				
Strategy Statistics																							
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10								
Avg	Ann	Std	% Out.		Avg	Ann	Std	% Out.		Avg	Ann	Std	% Out.		Avg	Ann	Std	% Out.					
Ret.	Ret.	Devn.	Perf.		Ret.	Ret.	Devn.	Perf.		Ret.	Ret.	Devn.	Perf.		Ret.	Ret.	Devn.	Perf.					
Long/Short	0.9%	11.3%	2.9%	58%	Long/Short	-0.8%	-10.7%	4.3%	44%	Long/Short	0.1%	-0.2%	4.2%	53%	Long/Short	-0.1%	-2.2%	4.1%	51%				
Active Ret.	0.0%	-0.6%	1.6%	33%	Active Ret.	-0.8%	8.9%	2.0%	31%	Active Ret.	-0.2%	-2.6%	2.1%	47%	Active Ret.	-0.1%	-1.4%	2.0%	49%				
T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR					
Long/Short	1.1	1.1	.93	-0.1	Long/Short	-1.2	-0.7	.89	-1.3	Long/Short	0.1	0.0	.99	-0.4	Long/Short	-0.4	-0.2	.110	-0.2				

Portfolio Index Performance

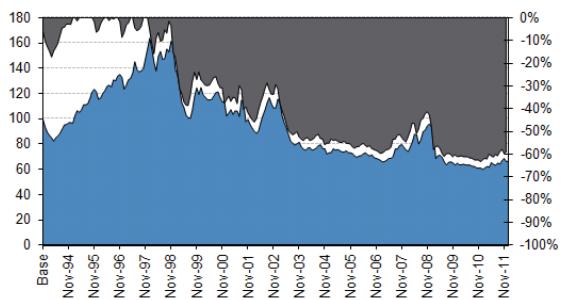


Portfolio Spread. Annual Returns

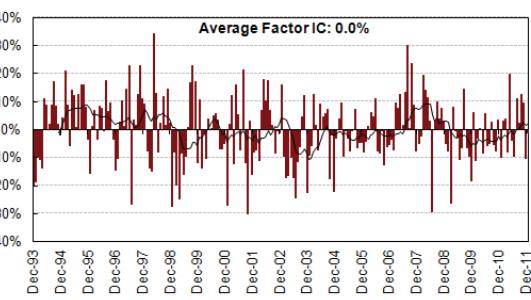


Cumulative (L/S) Returns

Max Drawdown: -63.3%

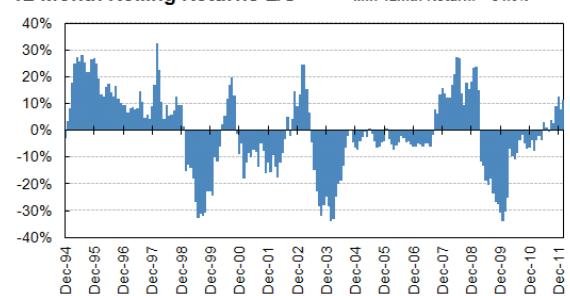


Information Co-Efficients (IC)

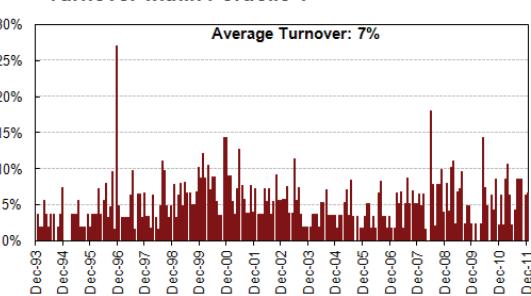


12 Month Rolling Returns L/S

Min 12mth Return: -34.0%



Turnover within Portfolio 1



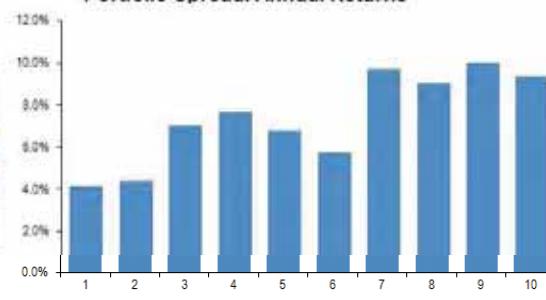
Volatility (Barra)

Volatility (Barra)						Rebalance every 1 month(s)																	
1 Year: 02/28/2011 to 02/29/2012 Portfolio Statistics						3 Years(s): 02/28/2009 to 02/28/2012 Portfolio Statistics						5 Year(s): 02/28/2007 to 02/29/2012 Portfolio Statistics						Total Period: 12/31/1993 to 02/29/2012 Portfolio Statistics					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.				
1	-3.3%	-38.7%	12%	25%	1	2.5%	21.4%	14%	42%	1	-0.2%	-12.8%	13%	43%	1	0.0%	4.2%	10%	50%				
2	-2.1%	-27.3%	11%	33%	2	2.9%	31.3%	11%	58%	2	-0.1%	-7.8%	11%	45%	2	0.7%	4.4%	8%	45%				
3	-0.7%	-13.2%	10%	33%	3	2.7%	30.4%	10%	47%	3	0.0%	-5.3%	10%	43%	3	0.8%	7.0%	7%	49%				
4	-0.7%	-12.0%	9%	42%	4	2.0%	30.7%	9%	50%	4	0.2%	-2.3%	9%	50%	4	0.8%	7.7%	6%	49%				
5	-0.7%	-11.8%	9%	50%	5	2.2%	25.3%	8%	53%	5	-0.1%	-5.6%	9%	43%	5	0.7%	6.8%	6%	50%				
6	-0.0%	-12.5%	7%	58%	6	1.9%	17.0%	7%	39%	6	-0.2%	-6.2%	8%	50%	6	0.6%	5.0%	6%	45%				
7	-0.7%	-10.6%	7%	42%	7	1.8%	17.0%	7%	39%	7	-0.2%	-5.1%	7%	50%	7	0.9%	9.7%	5%	53%				
8	0.0%	-2.1%	6%	75%	8	1.8%	20.9%	6%	56%	8	0.1%	-1.8%	7%	63%	8	0.0%	9.1%	5%	53%				
9	0.3%	1.9%	5%	75%	9	1.5%	17.8%	5%	44%	9	0.0%	-1.5%	6%	52%	9	0.9%	10.0%	4%	54%				
10	0.5%	5.0%	4%	75%	10	1.5%	18.6%	6%	53%	10	0.2%	1.3%	6%	52%	10	0.8%	9.4%	4%	54%				
Total Test				Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank	Avg IC	Avg Assets	Avg Ret	Rank	Avg IC	Avg Assets	Avg Ret	Rank	Avg IC	Avg Assets	Avg Ret	Rank	Avg IC	Avg Assets	Avg Ret	Rank	Avg IC	Avg Assets				
Universe	-0.8%	-13.7%	-15.1%	461	Universe	2.1%	0.7%	0.2%	442	Universe	0.0%	-2.5%	-2.6%	490	Universe	0.8%	-2.0%	-1.4%	547				
Strategy Statistics Portfolio 1 less Portfolio 10																							
Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out				
Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.				
Long/Short	-3.8%	-40.4%	9.7%	25%	Long/Short	1.0%	5.2%	11.1%	42%	Long/Short	-0.5%	-10.7%	10.0%	43%	Long/Short	0.0%	-3.6%	8.1%	49%				
Active Ret	-2.5%	-27.1%	5.5%	25%	Active Ret	0.4%	2.6%	8.7%	42%	Active Ret	-0.2%	-4.6%	8.0%	43%	Active Ret	0.0%	-1.2%	5.1%	50%				
T-Stat	Sharper*	Assets	IR	T-Stat	Sharper*	Assets	IR	T-Stat	Sharper*	Assets	IR	T-Stat	Sharper*	Assets	IR	T-Stat	Sharper*	Assets	IR				
Long/Short	-1.4	-1.2	.93	-1.4	Long/Short	0.5	0.1	.89	0.1	Long/Short	-0.4	-0.3	.99	-0.2	Long/Short	0.0	-0.1	.110	-0.1				

Portfolio Index Performance

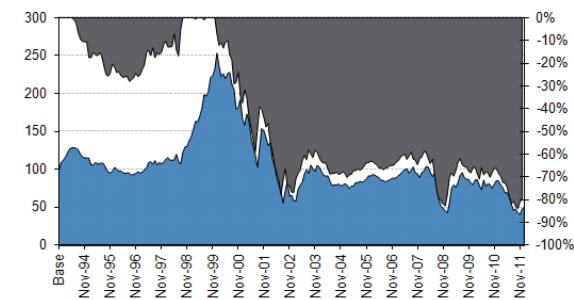


Portfolio Spread. Annual Returns

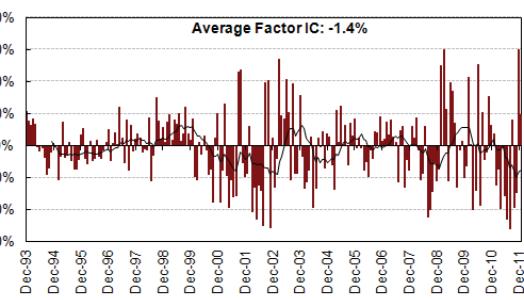


Cumulative (L/S) Returns

Max Drawdown: -83.9%

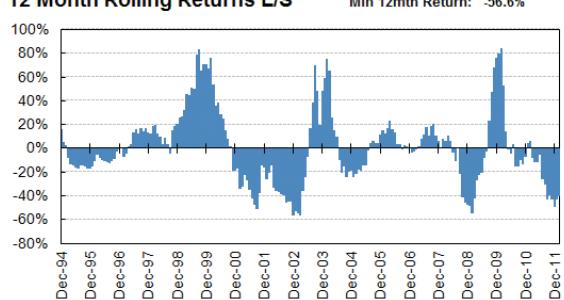


Information Co-Efficients (IC)

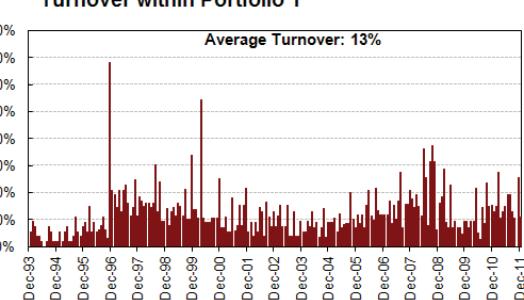


12 Month Rolling Returns L/S

Min 12mth Return: -56.6%



Turnover within Portfolio 1



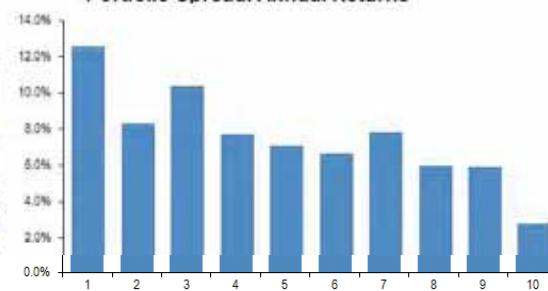
Forward Earnings Momentum (1Month Change)

Forward Earnings Momentum (1Mth Change)								Rebalance every 1 month(s)											
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/29/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 12/31/1993 to 02/29/2012							
Portfolio Statistics								Portfolio Statistics											
Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port				
Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref				
1	-1.1%	-15.4%	8%	50%	1	1.9%	20.7%	8%	39%	1	0.0%	-4.2%	8%	50%	1	1.2%	12.5%	6%	59%
2	-1.0%	-13.7%	7%	50%	2	1.7%	19.4%	7%	44%	2	-0.1%	-4.8%	8%	57%	2	0.8%	8.3%	6%	56%
3	0.9%	-3.3%	7%	75%	3	2.4%	20.4%	7%	64%	3	0.3%	-1.1%	8%	58%	3	1.0%	10.4%	6%	53%
4	-0.1%	-4.3%	7%	92%	4	2.4%	28.7%	7%	75%	4	0.0%	-4.0%	8%	58%	4	0.8%	7.7%	6%	54%
5	-0.7%	-10.3%	7%	67%	5	1.8%	20.3%	8%	50%	5	-0.2%	-7.0%	8%	48%	5	0.7%	7.1%	6%	53%
6	-0.3%	-7.5%	8%	82%	6	2.3%	25.8%	8%	67%	6	0.1%	-2.9%	8%	63%	6	0.7%	6.7%	6%	50%
7	-0.8%	-10.0%	7%	75%	7	2.4%	27.9%	8%	67%	7	0.3%	-0.8%	8%	65%	7	0.8%	7.8%	6%	51%
8	-0.6%	-9.9%	8%	58%	8	2.1%	23.5%	8%	47%	8	-0.1%	-5.7%	9%	50%	8	0.7%	6.0%	6%	45%
9	-1.5%	-20.5%	9%	33%	9	2.0%	21.7%	9%	47%	9	-0.2%	-7.1%	9%	48%	9	0.7%	5.8%	7%	44%
10	-2.5%	-30.1%	9%	17%	10	2.1%	20.9%	11%	39%	10	-0.3%	-8.2%	10%	40%	10	0.5%	2.8%	7%	44%
Total Test				Total Test				Total Test				Total Test							
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg				
Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref				
Universe	-0.9%	4.6%	7.0%	447	Universe	2.1%	1.6%	1.6%	450	Universe	0.0%	1.8%	2.2%	451	Universe	0.8%	2.4%	2.8%	510
Strategy Statistics																			
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out				
Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.				
Long/Short	1.5%	18.6%	3.1%	83%	Long/Short	-0.3%	-4.2%	4.5%	64%	Long/Short	0.3%	2.1%	4.3%	60%	Long/Short	0.7%	7.6%	3.4%	66%
Active Ret	-0.3%	3.1%	1.4%	50%	Active Ret	-0.2%	-3.0%	1.7%	39%	Active Ret	0.0%	-0.1%	1.9%	50%	Active Ret	0.4%	4.4%	1.8%	59%
T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat				
Long/Short	1.8	1.7	90	-0.7	Long/Short	-0.3	-0.3	91	-0.5	Long/Short	0.5	0.1	29	0.8	Long/Short	2.9	0.6	103	0.7

Portfolio Index Performance

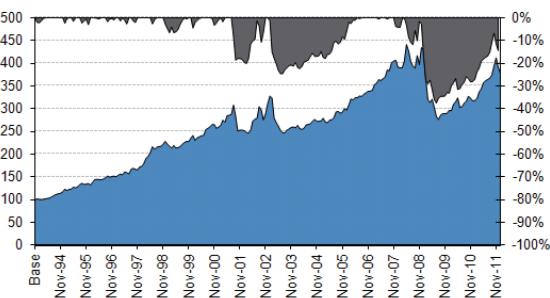


Portfolio Spread. Annual Returns

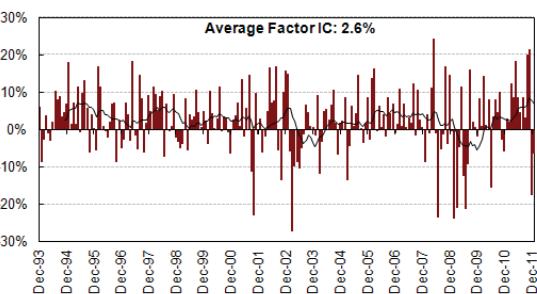


Cumulative (L/S) Returns

Max Drawdown: -37.3%

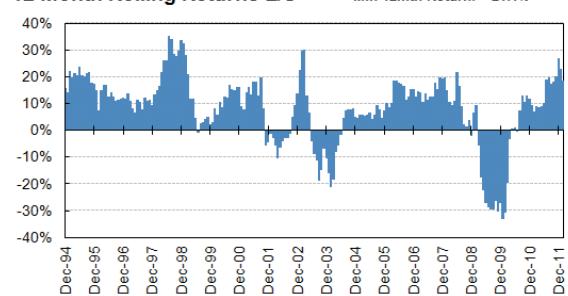


Information Co-Efficients (IC)

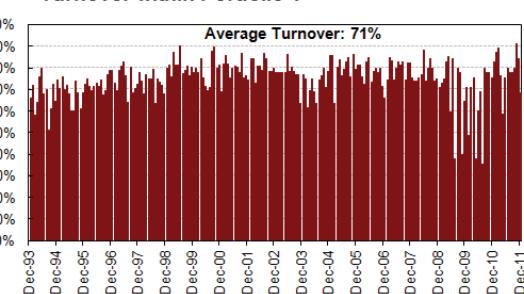


12 Month Rolling Returns L/S

Min 12mth Return: -21.1%



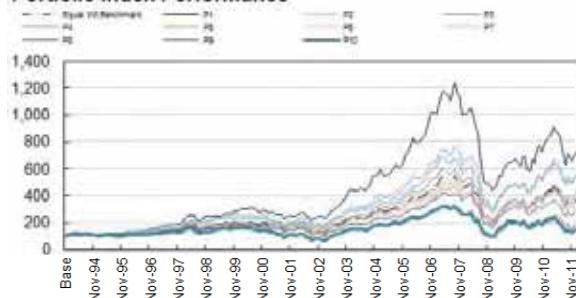
Turnover within Portfolio 1



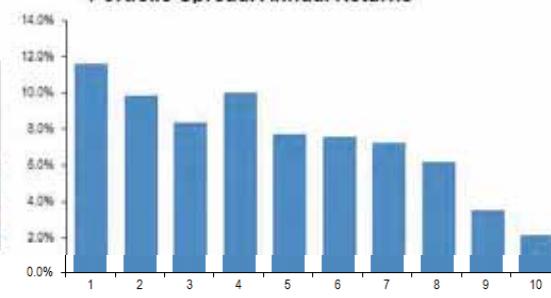
Forward Earnings Momentum (3Month Change)

Forward Earnings Momentum (3Mth Change)						Rebalance every 1 month(s)																						
1 Year: 02/28/2011 to 02/29/2012						3 Years(s): 02/28/2009 to 02/29/2012						5 Year(s): 02/28/2007 to 02/29/2012						Total Period: 12/31/1993 to 02/29/2012										
Portfolio Statistics						Portfolio Statistics						Portfolio Statistics						Portfolio Statistics										
Port.	Avg. Ret.	Ann. Dev.	St. % Out.	% Out. Perf.	Port.	Avg. Ret.	Ann. Dev.	St. % Out.	% Out. Perf.	Port.	Avg. Ret.	Ann. Dev.	St. % Out.	% Out. Perf.	Port.	Avg. Ret.	Ann. Dev.	St. % Out.	% Out. Perf.	Port.	Avg. Ret.	Ann. Dev.	St. % Out.	% Out. Perf.				
1	-0.7%	-11.5%	0%	58%	1	1.7%	18.7%	7%	42%	1	-0.2%	-4.1%	8%	47%	1	1.1%	11.8%	6%	80%	1	1.1%	11.8%	6%	80%				
2	-0.7%	-10.2%	7%	67%	2	1.9%	21.8%	7%	58%	2	0.0%	-3.5%	8%	55%	2	0.9%	9.8%	6%	57%	2	0.9%	9.8%	6%	57%				
3	0.1%	-1.7%	7%	100%	3	2.2%	25.7%	7%	67%	3	0.0%	-4.1%	8%	55%	3	0.8%	8.4%	5%	54%	3	0.8%	8.4%	5%	54%				
4	-0.1%	-3.7%	0%	83%	4	2.3%	27.7%	7%	64%	4	0.2%	-1.4%	8%	65%	4	1.0%	10.0%	6%	56%	4	1.0%	10.0%	6%	56%				
5	-0.4%	-7.2%	7%	50%	5	2.1%	24.7%	8%	53%	5	0.1%	-2.6%	8%	53%	5	0.8%	7.7%	6%	47%	5	0.8%	7.7%	6%	47%				
6	-0.6%	-9.4%	7%	58%	6	2.4%	27.7%	8%	61%	6	0.2%	-1.7%	8%	60%	6	0.8%	7.6%	6%	51%	6	0.8%	7.6%	6%	51%				
7	-0.5%	-10.3%	9%	75%	7	2.3%	26.9%	8%	67%	7	0.2%	-1.6%	9%	63%	7	0.8%	7.3%	6%	50%	7	0.8%	7.3%	6%	50%				
8	-0.8%	-13.3%	9%	50%	8	2.1%	22.7%	8%	44%	8	0.0%	-4.3%	9%	52%	8	0.7%	6.2%	6%	45%	8	0.7%	6.2%	6%	45%				
9	-1.8%	-22.7%	8%	17%	9	2.1%	22.8%	10%	36%	9	-0.2%	-8.0%	10%	38%	9	0.5%	3.5%	7%	39%	9	0.5%	3.5%	7%	39%				
10	-2.9%	-34.1%	10%	8%	10	1.9%	17.6%	11%	33%	10	-0.5%	-13.0%	11%	29%	10	0.5%	2.1%	8%	39%	10	0.5%	2.1%	8%	39%				
Total Test						Total Test						Total Test						Total Test										
Avg. Ref.	Rank	Avg. Ref.	Avg. Rank	Ref. IC	Assets	Avg. Ref.	Rank	Avg. Ref.	Avg. Rank	Ref. IC	Assets	Avg. Ref.	Rank	Avg. Ref.	Avg. Rank	Ref. IC	Assets	Avg. Ref.	Rank	Avg. Ref.	Avg. Rank	Ref. IC	Assets					
Universe	-0.9%	7.5%	10.7%	446		Universe	-2.1%	2.1%	2.1%	449		Universe	0.0%	2.2%	2.7%	490		Universe	0.8%	2.9%	2.4%	507						
Strategy Statistics												Strategy Statistics																
Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10										
Avg. Ret.	Ret.	Ann. Dev.	Std. % Out.	Perf.		Avg. Ret.	Ret.	Ann. Dev.	Std. % Out.	Perf.		Avg. Ret.	Ret.	Ann. Dev.	Std. % Out.	Perf.	Avg. Ret.	Ret.	Ann. Dev.	Std. % Out.	Perf.	Avg. Ret.	Ret.	Ann. Dev.	Std. % Out.	Perf.		
Long/Short	2.2%	29.0%	4.3%	83%		Long/Short	-0.2%	-4.6%	5.7%	64%		Long/Short	0.4%	3.3%	5.2%	67%		Long/Short	0.8%	8.7%	4.0%	66%		Long/Short	0.8%	8.7%	4.0%	66%
Active Ret.	0.1%	1.4%	1.8%	58%		Active Ret.	-0.4%	-5.1%	2.8%	42%		Active Ret.	-0.2%	-2.4%	2.6%	47%		Active Ret.	0.3%	3.5%	2.1%	40%		Active Ret.	T-Stat Sharpe*	Assets IR	Long/Short	0.6
Long/Short	1.8	2.0	90	0.2		Long/Short	-0.2	-0.2	90	-0.5		Long/Short	0.6	8.2	29	-0.3		Long/Short	2.3	0.5	102	0.5		Long/Short	2.3	0.5	102	0.5

Portfolio Index Performance

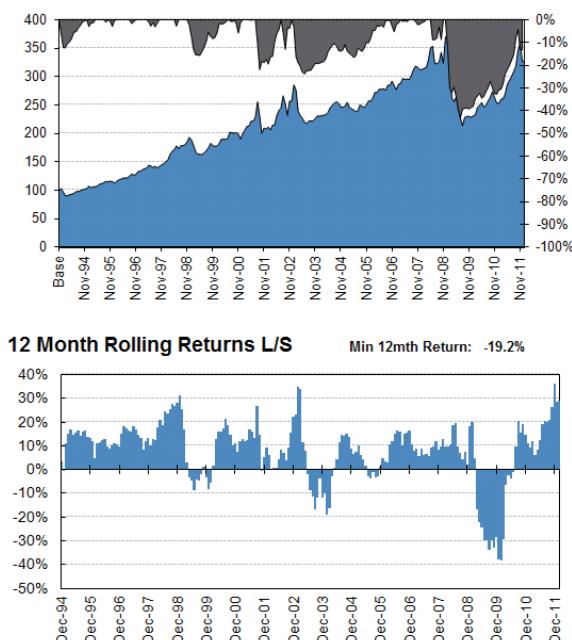


Portfolio Spread. Annual Returns

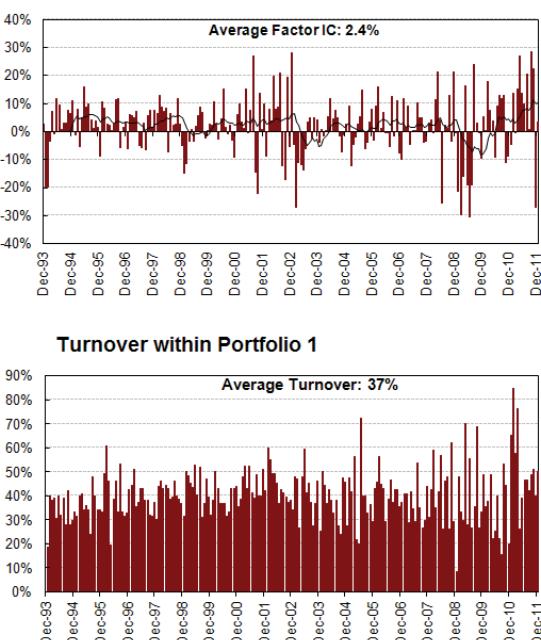


Cumulative (L/S) Returns

Max Drawdown: -43.0%

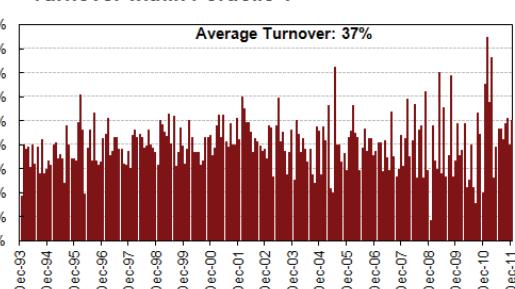


Information Co-Efficients (IC)



Turnover within Portfolio 1

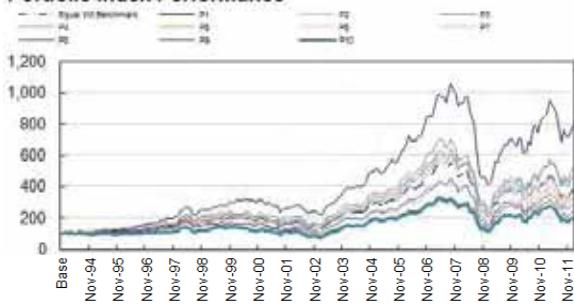
Average Turnover: 37%



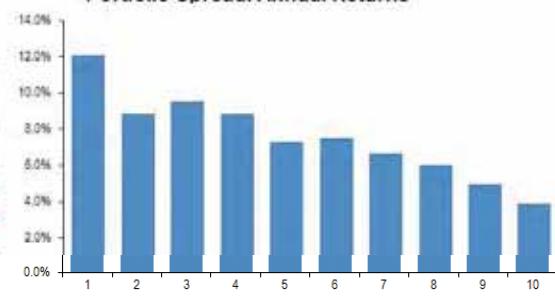
Net Revisions to FY2 [Up-Down]/[Up + Down]

Net Revisions to FY2 [Up-Down]/[Up+Down]						Rebalance every 1 month(s)																		
1 Year: 02/28/2011 to 02/29/2012 Portfolio Statistics						3 Years(s): 02/28/2009 to 02/28/2012 Portfolio Statistics						5 Year(s): 02/28/2007 to 02/29/2012 Portfolio Statistics						Total Period: 12/31/1993 to 02/29/2012 Portfolio Statistics						
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.					
1	-0.3%	-6.6%	7%	75%	1	2.1%	24.0%	7%	51%	1	0.2%	-1.5%	8%	82%	1	1.1%	12.1%	5%	80%					
2	-0.8%	-11.1%	7%	58%	2	2.2%	26.5%	7%	58%	2	0.2%	-1.7%	8%	58%	2	0.9%	8.9%	6%	53%					
3	0.2%	-0.6%	7%	75%	3	2.3%	27.2%	7%	56%	3	0.0%	-3.3%	8%	52%	3	0.9%	0.5%	6%	55%					
4	-0.7%	-10.9%	8%	75%	4	2.3%	26.4%	8%	61%	4	0.1%	-1.2%	8%	55%	4	0.9%	8.8%	6%	53%					
5	-1.1%	-15.2%	8%	25%	5	1.9%	21.1%	8%	31%	5	-0.3%	-7.6%	9%	33%	5	0.8%	7.3%	6%	46%					
6	-0.6%	-13.8%	8%	50%	6	1.9%	21.1%	8%	39%	6	-0.3%	-7.9%	8%	37%	6	0.8%	7.5%	6%	50%					
7	-0.9%	-13.6%	8%	42%	7	2.2%	25.4%	8%	58%	7	0.1%	-3.1%	9%	53%	7	0.7%	8.7%	6%	45%					
8	-0.6%	-13.0%	8%	42%	8	2.1%	23.5%	9%	47%	8	-0.1%	-5.4%	9%	48%	8	0.7%	6.0%	6%	47%					
9	-1.3%	-18.4%	9%	25%	9	2.0%	20.7%	9%	33%	9	0.0%	-4.4%	9%	40%	9	0.6%	5.0%	6%	40%					
10	-1.9%	-23.5%	8%	25%	10	2.0%	21.1%	9%	47%	10	-0.2%	-7.0%	9%	50%	10	0.5%	3.9%	7%	42%					
Total Test						Total Test						Total Test						Total Test						
Avg	Rank	Avg	Avg			Avg	Rank	Avg	Avg			Avg	Rank	Avg	Avg			Avg	Rank	Avg	Avg			
Ref	IC	IC	Assets			Ref	IC	IC	Assets			Ref	IC	IC	Assets			Ref	IC	IC	Assets			
Universe	-0.9%	8.2%	4.8%	448		Universe	2.1%	3.0%	2.4%	451		Universe	0.0%	2.2%	2.1%	482		Universe	0.8%	2.3%	2.3%	514		
<small>* Success Rate/Pct. Prob. of 95%.</small>																								
<small>Strategy Statistics</small>																								
Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10						
Avg	Ann	Std	% Out			Avg	Ann	Std	% Out			Avg	Ann	Std	% Out			Avg	Ann	Std	% Out			
Ret	Ret	Devn	Perf.			Ret	Ret	Devn	Perf.			Ret	Ret	Devn	Perf.			Ret	Ret	Devn	Perf.			
Long/Short	1.6%	20.1%	2.7%	83%		Long/Short	0.1%	-0.1%	3.6%	58%		Long/Short	0.4%	3.0%	3.5%	62%		Long/Short	0.8%	6.6%	2.8%	62%		
Active Ret	0.5%	8.5%	1.8%	75%		Active Ret	0.0%	0.8%	2.1%	61%		Active Ret	0.2%	2.2%	2.0%	62%		Active Ret	0.3%	3.9%	1.7%	60%		
T-Stat	Sharpe*	Assets	IR			T-Stat	Sharpe*	Assets	IR			T-Stat	Sharpe*	Assets	IR			T-Stat	Sharpe*	Assets	IR			
Long/Short	2.0	2.1	90	1.0		Long/Short	0.1	0.0	91	-61		Long/Short	0.8	8.3	29	0.3		Long/Short	3.0	10.7	104	0.6		

Portfolio Index Performance

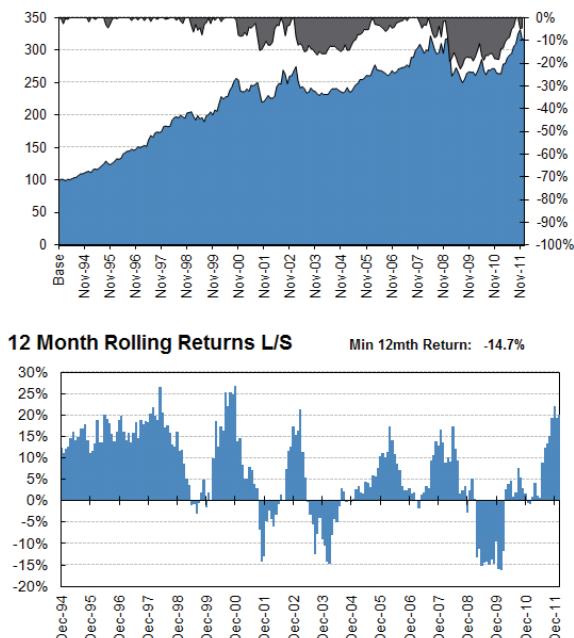


Portfolio Spread. Annual Returns

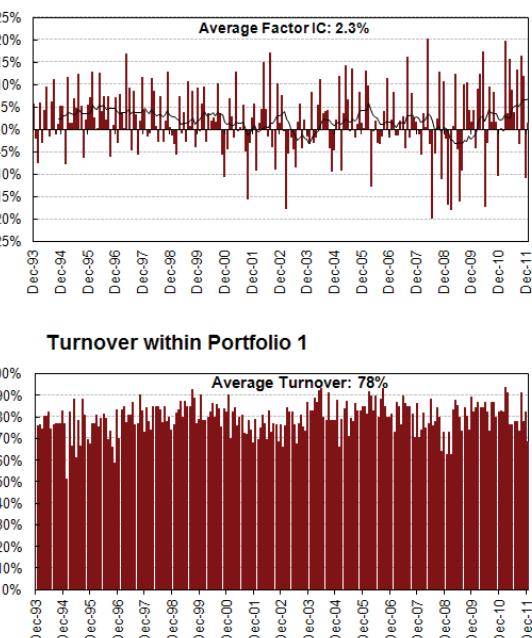


Cumulative (L/S) Returns

Max Drawdown: -22.3%



Information Co-Efficients (IC)

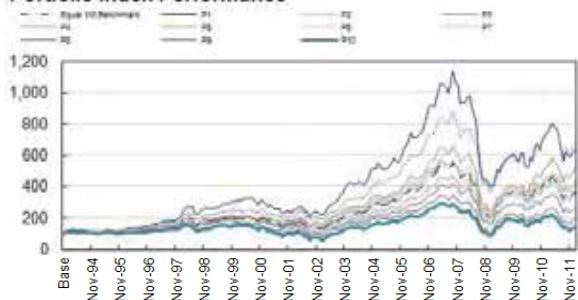


Composite Forward Earnings Momentum (1Month + 3 Month)

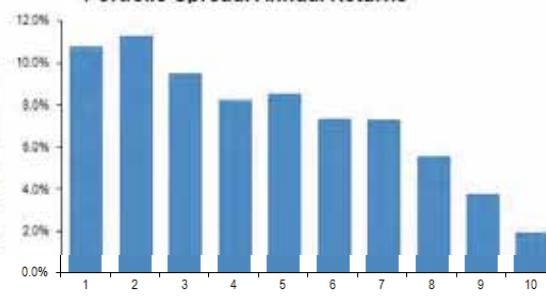
Composite Forward Earnings Momentum (1Mth + 3 Mth)								Rebalance every 1 month(s)											
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/28/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 12/31/1993 to 02/29/2012							
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics					
Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port				
Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref				
1	-0.9%	-13.0%	7%	33%	1	1.8%	10.3%	7%	42%	1	-0.3%	-6.0%	8%	45%	1	1.0%	10.0%	6%	80%
2	-0.3%	-6.0%	7%	75%	2	2.0%	23.6%	7%	53%	2	0.2%	-1.3%	8%	57%	2	1.0%	11.2%	5%	61%
3	0.1%	-1.4%	7%	83%	3	2.4%	29.5%	7%	67%	3	0.2%	-2.0%	8%	60%	3	0.9%	0.5%	8%	56%
4	-0.3%	-5.9%	7%	58%	4	2.2%	25.4%	7%	56%	4	0.0%	-3.3%	8%	52%	4	0.8%	8.2%	5%	51%
5	-0.2%	-4.5%	7%	58%	5	2.3%	27.6%	8%	53%	5	0.1%	-2.9%	8%	52%	5	0.9%	8.5%	6%	50%
6	-0.5%	-8.8%	7%	58%	6	2.4%	28.8%	8%	81%	6	0.2%	-2.1%	8%	58%	6	0.8%	7.3%	6%	52%
7	-0.5%	10.3%	9%	50%	7	2.1%	23.0%	8%	33%	7	0.2%	-1.9%	8%	48%	7	0.8%	7.3%	6%	44%
8	-1.4%	-10.1%	9%	50%	8	1.0%	20.0%	8%	50%	8	-0.1%	-5.7%	9%	53%	8	0.7%	5.5%	6%	47%
9	-1.8%	-20.9%	9%	25%	9	2.2%	23.4%	9%	33%	9	-0.3%	-8.5%	10%	37%	9	0.5%	3.8%	7%	39%
10	-2.8%	-33.0%	10%	8%	10	2.3%	18.4%	11%	33%	10	-0.5%	-11.8%	10%	33%	10	0.5%	2.0%	8%	40%
Total Test				Total Test				Total Test				Total Test							
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg				
Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref				
Universe	-0.8%	7.3%	10.0%	446	Universe	2.1%	2.4%	2.2%	449	Universe	0.0%	2.5%	2.9%	490	Universe	0.8%	1.0%	2.8%	506
Strategy Statistics								Strategy Statistics											
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out				
Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.				
Long/Short	1.3%	24.6%	4.3%	83%	Long/Short	-0.4%	-6.7%	5.8%	61%	Long/Short	0.2%	1.3%	5.1%	62%	Long/Short	0.0%	6.1%	4.0%	63%
Active Ret	0.0%	-0.7%	1.8%	33%	Active Ret	-0.5%	-6.0%	2.6%	42%	Active Ret	-0.2%	-3.1%	2.0%	45%	Active Ret	0.2%	2.7%	2.1%	60%
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat				
Long/Short	1.8	1.7	90	-0.1	Long/Short	-0.4	-0.3	90	-0.7	Long/Short	0.4	0.1	29	-0.3	Long/Short	2.1	0.4	102	0.4

* Standard P/B/Fwd Ratio of 0.5

Portfolio Index Performance

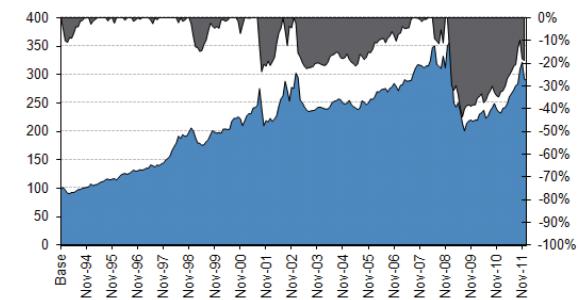


Portfolio Spread. Annual Returns

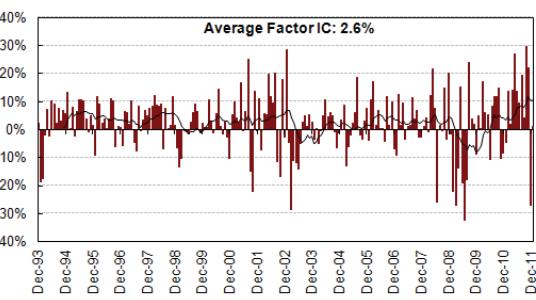


Cumulative (L/S) Returns

Max Drawdown: -43.5%

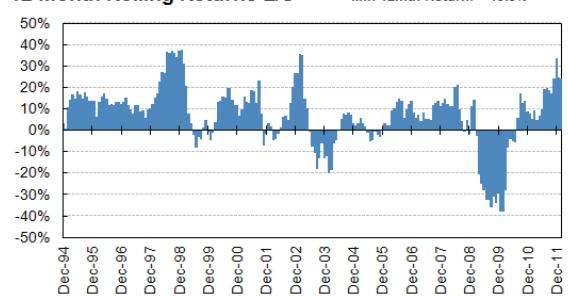


Information Co-Efficients (IC)

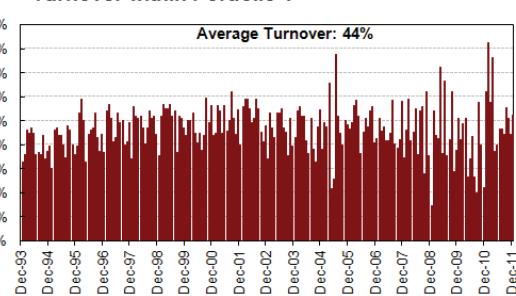


12 Month Rolling Returns L/S

Min 12mth Return: -19.9%



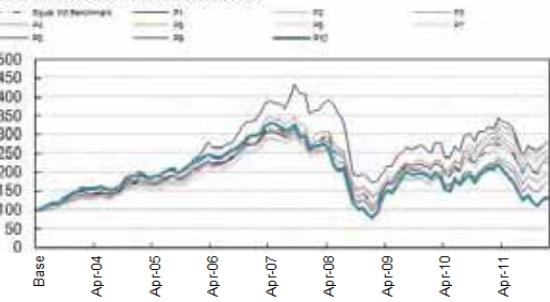
Turnover within Portfolio 1



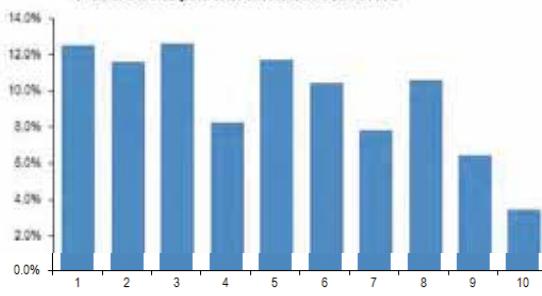
6 Month Change in Target Price

6M change in Target Price					Rebalance every 1 month(s)														
1 Year: 02/28/2011 to 02/29/2012 Portfolio Statistics					3 Years(s): 02/28/2009 to 02/28/2012 Portfolio Statistics					5 Year(s): 02/28/2007 to 02/29/2012 Portfolio Statistics					Total Period: 05/31/2003 to 02/29/2012 Portfolio Statistics				
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	-0.8%	-12.1%	7%	50%	1	1.8%	17.7%	7%	50%	1	0.0%	-3.8%	8%	50%	1	1.2%	12.5%	7%	53%
2	-0.6%	-0.1%	7%	58%	2	2.0%	23.1%	7%	53%	2	0.2%	-1.2%	7%	58%	2	1.1%	11.8%	6%	54%
3	-0.2%	-5.2%	8%	83%	3	2.3%	27.8%	7%	67%	3	0.2%	-1.0%	8%	62%	3	1.2%	12.6%	6%	54%
4	-0.5%	-10.0%	7%	67%	4	1.9%	20.8%	7%	56%	4	-0.2%	-5.9%	8%	48%	4	0.9%	8.2%	7%	47%
5	-0.1%	-4.6%	8%	83%	5	2.2%	25.9%	8%	51%	5	0.2%	-0.9%	8%	63%	5	1.1%	11.7%	6%	51%
6	-0.1%	-4.4%	7%	75%	6	2.3%	26.6%	8%	47%	6	0.2%	-1.6%	8%	55%	6	1.1%	10.4%	7%	51%
7	-0.8%	-10.1%	8%	67%	7	1.9%	20.8%	8%	53%	7	-0.1%	-5.3%	8%	48%	7	0.9%	7.8%	7%	45%
8	-0.7%	-12.1%	8%	50%	8	2.7%	31.9%	9%	64%	8	0.2%	-2.3%	9%	58%	8	1.1%	10.6%	7%	51%
9	-1.5%	-21.2%	9%	33%	9	2.1%	21.5%	10%	38%	9	-0.3%	-8.0%	10%	35%	9	0.8%	8.4%	8%	39%
10	-3.2%	-36.0%	10%	8%	10	2.1%	19.4%	11%	39%	10	-0.7%	-14.7%	11%	33%	10	0.7%	3.4%	9%	43%
Total Test					Total Test					Total Test					Total Test				
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg	
Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets	
Universe	-0.9%	8.3%	10.1%	445	Universe	2.1%	1.2%	2.7%	450	Universe	0.0%	3.0%	4.0%	488	Universe	1.0%	2.3%	2.8%	486
Strategy Statistics																			
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10				
Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out	
Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.	
Long/Short	2.4%	30.3%	5.4%	75%	Long/Short	-0.5%	-8.6%	8.9%	61%	Long/Short	0.7%	6.3%	6.3%	67%	Long/Short	0.5%	5.2%	4.9%	60%
Active Ret	0.0%	-0.1%	2.1%	50%	Active Ret	-0.5%	-8.3%	2.7%	50%	Active Ret	0.0%	-0.2%	2.8%	50%	Active Ret	0.2%	2.2%	2.3%	53%
T-Stat	Sharper	Assets	IR		T-Stat	Sharper	Assets	IR		T-Stat	Sharper	Assets	IR		T-Stat	Sharper	Assets	IR	
Long/Short	1.5	1.8	90	0.0	Long/Short	-0.4	-0.4	91	-0.7	Long/Short	0.9	0.3	38	0.8	Long/Short	1.1	0.3	100	0.3

Portfolio Index Performance

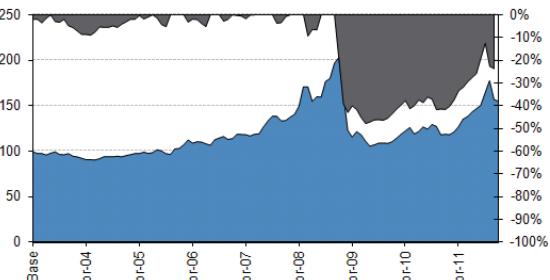


Portfolio Spread. Annual Returns

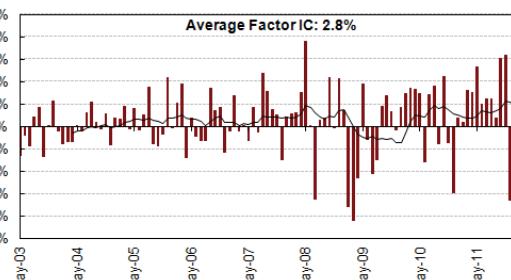


Cumulative (L/S) Returns

Max Drawdown: -47.8%

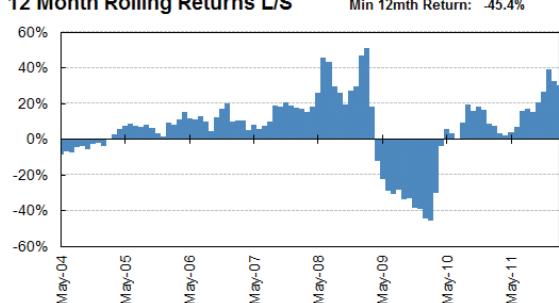


Information Co-Efficients (IC)

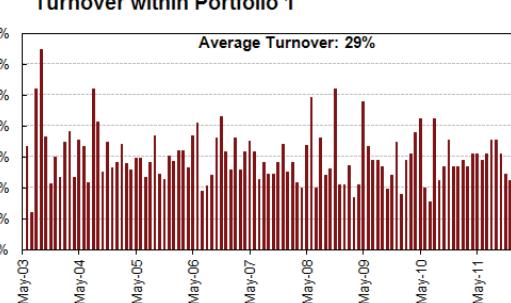


12 Month Rolling Returns L/S

Min 12mth Return: -45.4%



Turnover within Portfolio 1

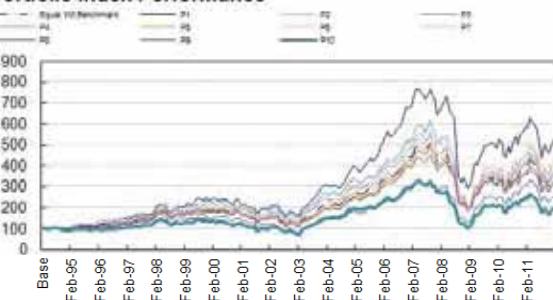


3 Month Change in Consensus Recommendation

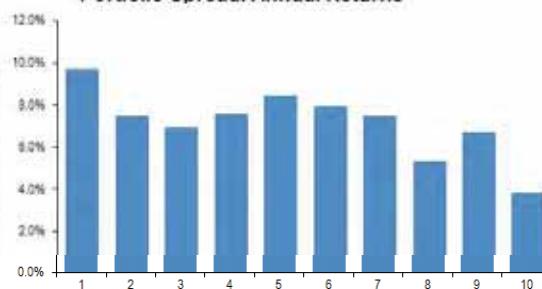
3 Mth Change in Consensus Recommendation								Rebalance every 1 month(s)												
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/28/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 03/31/1994 to 02/29/2012								
Portfolio Statistics								Portfolio Statistics												
Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port					
Ref	Ret	Net	Dev	Perf.	Ref	Ret	Net	Dev	Perf.	Ref	Ret	Net	Dev	Perf.	Ref					
1	-0.6%	-0.6%	8%	50%	1	1.9%	21.9%	8%	38%	1	-0.1%	-5.0%	8%	45%	1	1.0%	9.7%	6%	56%	
2	-0.9%	-13.9%	8%	42%	2	2.2%	24.5%	8%	58%	2	-0.1%	-5.6%	8%	53%	2	0.8%	7.5%	6%	55%	
3	-0.6%	-0.9%	8%	58%	3	1.9%	21.1%	8%	42%	3	-0.1%	-4.8%	8%	50%	3	0.7%	6.9%	6%	49%	
4	-0.8%	-12.2%	7%	50%	4	1.9%	21.1%	8%	44%	4	-0.2%	-5.5%	8%	43%	4	0.8%	7.0%	6%	47%	
5	-0.3%	-6.6%	8%	67%	5	2.0%	31.6%	8%	51%	5	0.4%	9.7%	8%	62%	5	0.9%	8.4%	6%	52%	
6	-1.0%	-14.5%	8%	42%	6	2.1%	23.0%	8%	47%	6	-0.1%	-5.3%	8%	48%	6	0.8%	7.9%	6%	47%	
7	-0.7%	-11.8%	8%	50%	7	2.1%	23.3%	8%	58%	7	0.0%	-4.8%	9%	50%	7	0.8%	7.5%	6%	51%	
8	-1.3%	-17.4%	7%	33%	8	2.3%	26.8%	8%	56%	8	0.2%	-2.2%	8%	53%	8	0.6%	5.4%	6%	42%	
9	-0.8%	-11.8%	7%	50%	9	1.8%	20.1%	8%	39%	9	0.0%	-3.9%	8%	48%	9	0.7%	6.7%	6%	45%	
10	-1.6%	-20.3%	8%	33%	10	2.2%	24.1%	9%	47%	10	-0.3%	-7.9%	9%	38%	10	0.5%	3.8%	6%	41%	
Total Test				Total Test				Total Test				Total Test								
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg					
Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref					
Universe	-0.9%	1.3%	3.5%	445	Universe	-2.1%	-0.3%	448		Universe	0.0%	0.1%	0.9%	448		Universe	0.8%	1.1%	1.4%	509
Strategy Statistics																				
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10								
Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out					
Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.					
Long/Short	1.0%	12.4%	1.9%	67%	Long/Short	-0.3%	-3.3%	2.2%	50%	Long/Short	0.2%	2.5%	2.5%	58%	Long/Short	0.4%	5.1%	2.4%	61%	
Active Ret	0.3%	3.7%	1.0%	50%	Active Ret	-0.2%	-2.0%	1.0%	36%	Active Ret	0.0%	0.5%	1.4%	49%	Active Ret	0.2%	2.4%	1.4%	56%	
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		
Long/Short	1.8	1.9	90	1.1	Long/Short	-0.7	-0.4	90	-0.6	Long/Short	0.7	0.3	38	-0.1	Long/Short	2.7	0.6	103	0.5	

* Standard P/B/Fwd P/B of 0.5

Portfolio Index Performance

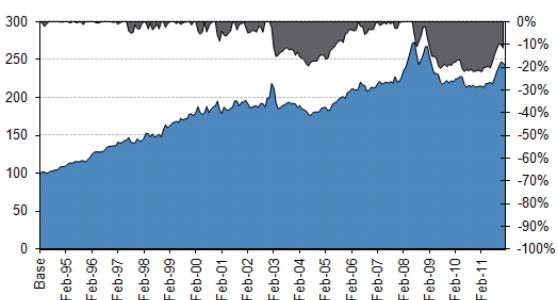


Portfolio Spread. Annual Returns

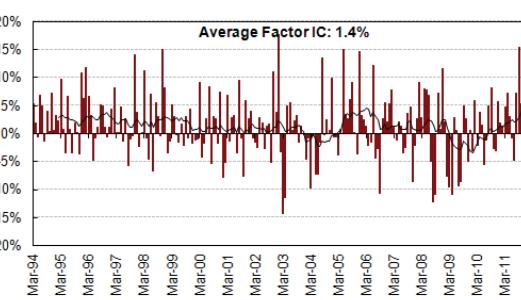


Cumulative (L/S) Returns

Max Drawdown: -21.9%



Information Co-Efficients (IC)

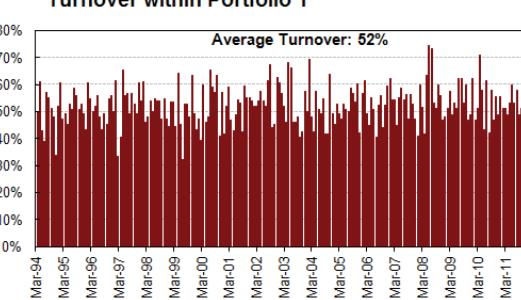


12 Month Rolling Returns L/S

Min 12mth Return: -14.5%



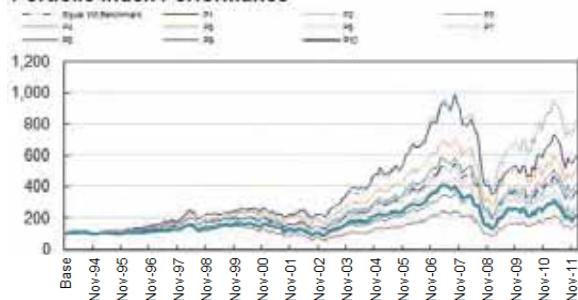
Turnover within Portfolio 1



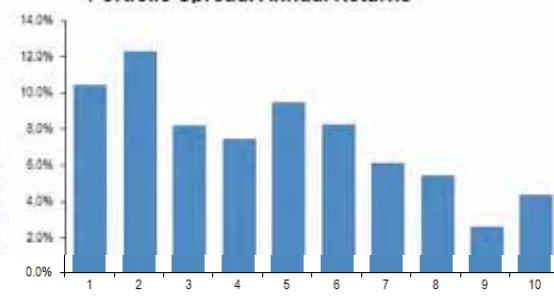
Risk Adjusted 3 Month Earnings Momentum

Forward Earnings Momentum (3Mth Change) / Coefficient Of Variation								Rebalance every 1 month(s)											
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/28/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 12/31/1993 to 02/29/2012							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port				
	Ret	Ret	Dev	Perf.		Ret	Ret	Dev	Perf.		Ret	Ret	Dev	Perf.		Ret			
1	-0.5%	-8.5%	8%	75%	1	1.8%	20.0%	7%	53%	1	-0.2%	-5.6%	8%	53%	1	1.0%	10.4%	5%	80%
2	-0.4%	-6.8%	6%	75%	2	2.4%	29.1%	7%	64%	2	0.3%	-0.3%	8%	62%	2	1.1%	12.3%	6%	66%
3	-0.7%	-11.2%	7%	67%	3	2.1%	24.2%	7%	56%	3	0.0%	-4.2%	8%	52%	3	0.8%	8.2%	6%	54%
4	-0.5%	-10.4%	8%	50%	4	2.0%	22.2%	8%	30%	4	-0.2%	-6.8%	8%	35%	4	0.8%	7.4%	6%	48%
5	-0.3%	-6.2%	7%	75%	5	2.2%	24.4%	8%	53%	5	0.1%	-3.3%	8%	48%	5	0.9%	9.5%	6%	56%
6	-0.5%	-8.5%	8%	67%	6	2.4%	28.3%	8%	58%	6	0.3%	-1.2%	8%	62%	6	0.0%	8.3%	6%	51%
7	-1.2%	-17.3%	8%	42%	7	2.1%	22.9%	9%	44%	7	0.0%	-4.9%	9%	48%	7	0.7%	8.1%	6%	45%
8	-0.8%	-12.6%	9%	50%	8	2.3%	26.2%	9%	44%	8	0.2%	-3.1%	9%	48%	8	0.6%	5.4%	6%	42%
9	-1.4%	-19.5%	9%	25%	9	2.0%	21.7%	9%	42%	9	-0.1%	-6.0%	9%	43%	9	0.4%	2.6%	6%	38%
10	-2.0%	-25.3%	9%	17%	10	1.9%	18.7%	9%	42%	10	-0.4%	-10.1%	9%	35%	10	0.6%	4.3%	7%	44%
Total Test				Total Test				Total Test				Total Test							
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg				
Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref				
Univers	-0.9%	5.4%	5.8%	443	Univers	2.1%	1.4%	1.7%	445	Univers	0.0%	1.3%	1.8%	487	Univers	0.8%	2.6%	2.1%	499
Strategy Statistics																			
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out				
Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.				
Long/Short	1.6%	-18.9%	3.7%	83%	Long/Short	-0.1%	-2.1%	4.4%	58%	Long/Short	0.3%	2.1%	4.2%	62%	Long/Short	0.4%	4.3%	3.3%	60%
Active Ret	0.4%	4.8%	1.6%	75%	Active Ret	-0.3%	-4.4%	2.8%	53%	Active Ret	-0.2%	-2.2%	2.6%	53%	Active Ret	0.2%	2.2%	1.9%	60%
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat				
Long/Short	1.5	1.8	82	0.9	Long/Short	-0.1	-0.1	90	-0.5	Long/Short	0.5	0.1	38	-0.2	Long/Short	1.8	0.4	101	0.1

Portfolio Index Performance

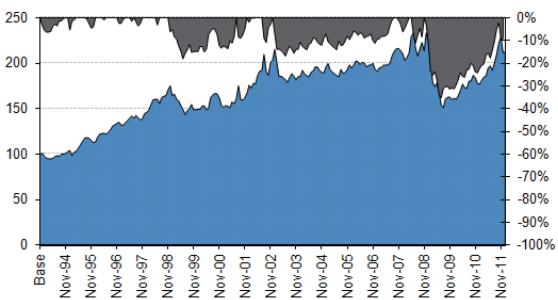


Portfolio Spread. Annual Returns

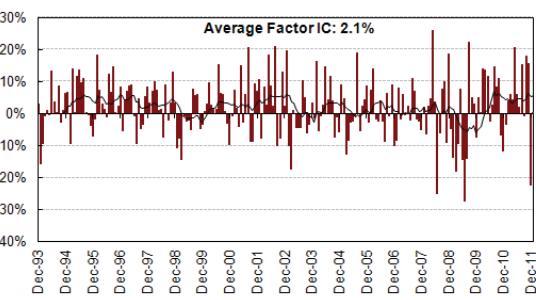


Cumulative (L/S) Returns

Max Drawdown: -35.2%

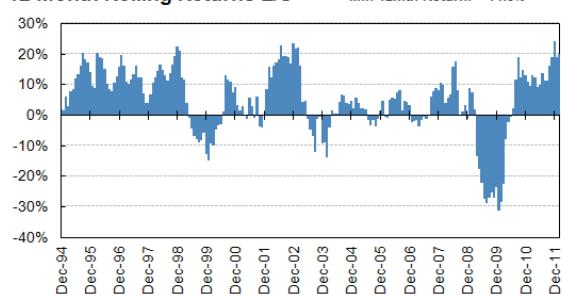


Information Co-Efficients (IC)

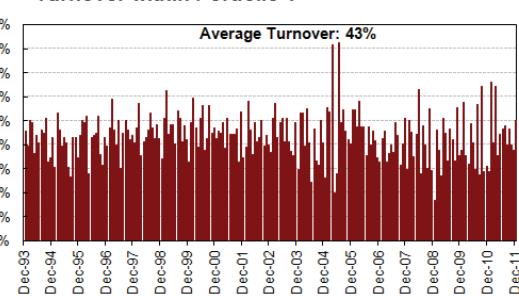


12 Month Rolling Returns L/S

Min 12mth Return: -14.8%



Turnover within Portfolio 1



Net Revisions to FY1 [Up-Down]/[Up + Down]

Net Revisions to FY1 [Up-Down]/[Up+Down]										Rebalance every 1 month(s)									
1 Year: 02/28/2011 to 02/29/2012					3 Years: 02/28/2009 to 02/29/2012					5 Year(s): 02/28/2007 to 02/29/2012					Total Period: 12/31/1993 to 02/29/2012				
Portfolio Statistics					Portfolio Statistics					Portfolio Statistics					Portfolio Statistics				
Port.	Avg Ret.	Ann Ret.	St. Dev.	% Out. Perf.	Port.	Avg Ret.	Ann Ret.	St. Dev.	% Out. Perf.	Port.	Avg Ret.	Ann Ret.	St. Dev.	% Out. Perf.	Port.	Avg Ret.	Ann Ret.	St. Dev.	% Out. Perf.
1	-0.3%	-6.8%	7%	75%	1	2.1%	24.2%	7%	53%	1	0.1%	-2.4%	8%	57%	1	1.0%	11.0%	5%	58%
2	-0.5%	-10.4%	8%	75%	2	2.4%	21.8%	8%	72%	2	0.3%	-0.5%	8%	67%	2	1.0%	10.8%	8%	60%
3	-0.1%	-4.2%	7%	92%	3	2.1%	24.6%	7%	64%	3	0.0%	-3.5%	8%	60%	3	0.9%	9.8%	8%	55%
4	-0.3%	-5.2%	8%	67%	4	2.2%	25.1%	8%	56%	4	0.0%	-3.4%	8%	52%	4	0.9%	9.1%	6%	54%
5	-1.9%	-14.3%	7%	50%	5	1.7%	18.8%	8%	33%	5	-0.4%	-9.0%	8%	33%	5	0.7%	6.3%	6%	46%
6	-0.7%	-10.6%	8%	56%	6	2.2%	25.5%	8%	53%	6	-0.1%	-5.2%	9%	47%	6	0.0%	7.3%	6%	49%
7	-1.8%	-22.9%	9%	25%	7	2.0%	21.4%	9%	47%	7	-0.1%	-5.5%	9%	58%	7	0.7%	6.0%	6%	45%
8	-1.1%	-14.0%	8%	42%	8	2.2%	24.9%	8%	53%	8	-0.1%	-5.8%	9%	48%	8	0.0%	7.1%	6%	48%
9	-1.3%	-18.3%	9%	50%	9	1.8%	18.8%	9%	42%	9	-0.1%	-5.5%	9%	47%	9	0.5%	3.3%	6%	39%
10	-1.5%	-19.6%	9%	25%	10	2.3%	24.4%	8%	50%	10	0.1%	-4.5%	9%	45%	10	0.7%	5.3%	7%	41%
Total Test					Total Test					Total Test					Total Test				
Avg Ret.	Rank IC	Avg Ret.	Rank IC	Avg Assets	Avg Ret.	Rank IC	Avg Ret.	Rank IC	Avg Assets	Avg Ret.	Rank IC	Avg Ret.	Rank IC	Avg Assets	Avg Ret.	Rank IC	Avg Ret.	Rank IC	Avg Assets
Universe	-0.9%	5.0%	5.3%	447	Universe	2.1%	2.4%	1.7%	451	Universe	0.0%	1.8%	1.0%	401	Universe	0.8%	2.2%	2.0%	514
Strategy Statistics																			
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10				
Avg Ret.	Ann Ret.	Std	% Out. Perf.		Avg Ret.	Ann Ret.	Std	% Out. Perf.		Avg Ret.	Ann Ret.	Std	% Out. Perf.		Avg Ret.	Ann Ret.	Std	% Out. Perf.	
Long/Short	1.1%	13.7%	2.6%	67%	Long/Short	-0.2%	-2.9%	3.4%	53%	Long/Short	0.0%	-0.1%	3.2%	60%	Long/Short	0.3%	3.5%	2.9%	61%
Active Ret.	0.5%	6.4%	1.5%	75%	Active Ret.	0.0%	-0.6%	2.0%	53%	Active Ret.	0.1%	1.3%	1.9%	57%	Active Ret.	0.2%	2.7%	1.7%	58%
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR	
Long/Short	1.5	1.5	9.0	1.2	Long/Short	-0.3	-0.2	9.1	4.1	Long/Short	0.1	0.0	9.9	8.2	Long/Short	1.7	0.3	10.4	0.5

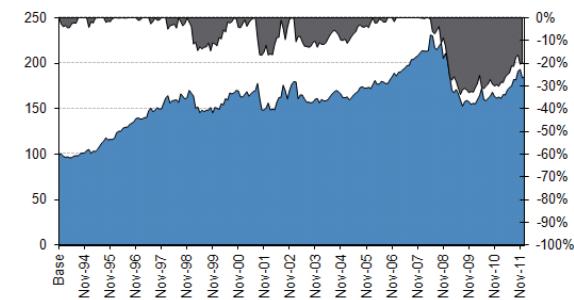
⁴ Information from Figures 40Rn and 30



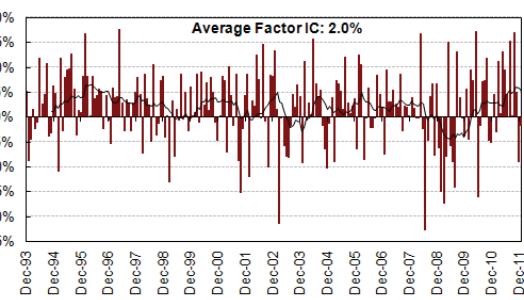
Cumulative (L/S) Returns



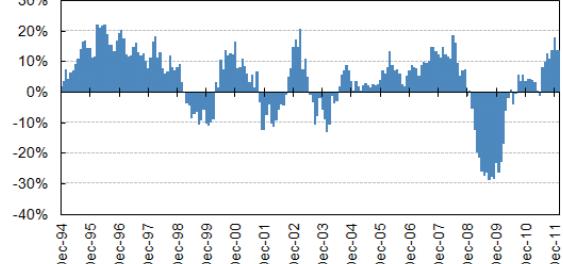
Information Co-Efficients (IC)



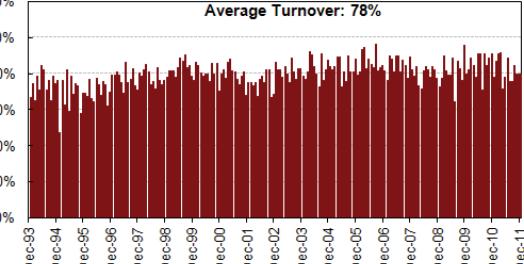
12 Month Rolling Returns L/S



Turnover within Portfolio 1



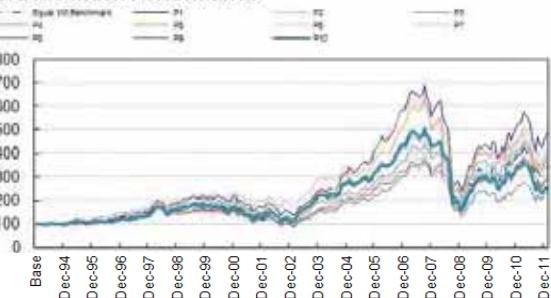
Turnover within Portfolio 1



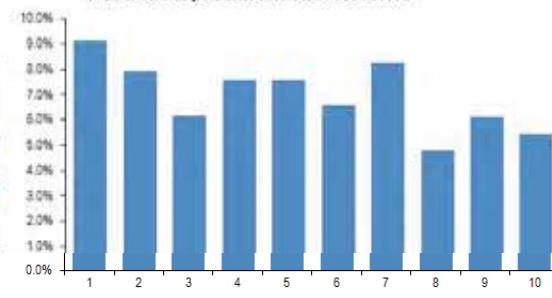
1 Month Change in Consensus Recommendation

1 Mth Change in Consensus Recommendation							Rebalance every 1 month(s)																						
1 Year: 02/28/2011 to 02/29/2012					3 Years(s): 02/28/2009 to 02/28/2012					5 Year(s): 02/28/2007 to 02/29/2012					Total Period: 01/31/1994 to 02/29/2012														
Portfolio Statistics							Portfolio Statistics							Portfolio Statistics															
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.										
1	-0.4%	-8.1%	8%	58%	1	2.3%	27.0%	8%	56%	1	0.1%	-3.8%	9%	52%	1	0.9%	9.2%	6%	57%										
2	-0.1%	-4.7%	8%	75%	2	2.8%	31.7%	8%	67%	2	0.3%	-1.2%	8%	55%	2	0.8%	7.8%	6%	49%										
3	-0.3%	-13.2%	8%	42%	3	1.8%	20.1%	8%	44%	3	-0.1%	-4.7%	8%	50%	3	0.7%	6.1%	8%	47%										
4	-0.5%	-10.2%	8%	50%	4	2.1%	24.1%	8%	53%	4	0.1%	-3.0%	8%	52%	4	0.8%	7.5%	6%	48%										
5	-1.4%	-17.9%	8%	33%	5	1.9%	21.1%	8%	53%	5	-0.2%	-6.5%	8%	50%	5	0.8%	7.6%	6%	54%										
6	-0.7%	-11.1%	8%	67%	6	2.3%	27.1%	8%	58%	6	0.1%	-2.6%	8%	55%	6	0.7%	6.6%	6%	48%										
7	-0.8%	-9.9%	8%	67%	7	2.1%	23.7%	8%	50%	7	-0.2%	-6.1%	8%	47%	7	0.8%	8.3%	6%	54%										
8	-0.6%	-10.2%	8%	58%	8	1.0%	21.3%	8%	29%	8	-0.1%	-4.9%	8%	47%	8	0.6%	4.9%	6%	45%										
9	-1.3%	-18.0%	8%	33%	9	2.2%	24.9%	8%	47%	9	0.2%	-1.9%	8%	52%	9	0.7%	6.1%	6%	44%										
10	-2.0%	-24.2%	8%	17%	10	1.7%	17.4%	8%	39%	10	-0.5%	-10.0%	8%	37%	10	0.6%	5.4%	6%	48%										
Total Test					Total Test					Total Test					Total Test														
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg											
Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets											
Universe	-0.9%	3.8%	4.9%	447	Universe	2.1%	1.9%	450		Universe	0.0%	1.2%	1.4%	451	Universe	0.7%	1.0%	1.0%	513										
Strategy Statistics														Strategy Statistics															
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10									
Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out	
Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.	
Long/Short	1.6%	20.1%	2.0%	83%	Long/Short	0.6%	7.6%	2.0%	61%	Long/Short	0.5%	6.4%	2.1%	57%	Long/Short	0.3%	3.2%	1.9%	55%	Long/Short	0.2%	2.0%	1.3%	57%	Long/Short	2.1	0.5	103	85
Active Ret	0.4%	5.4%	0.8%	58%	Active Ret	0.2%	2.4%	1.0%	56%	Active Ret	0.1%	0.9%	1.4%	52%	Active Ret	0.2%	2.0%	1.3%	57%	Active Ret	0.1%	0.9%	1.4%	52%	Active Ret	0.2%	2.0%	1.3%	57%
T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR	
Long/Short	2.7	2.9	90	1.9	Long/Short	1.9	1.1	91	0.7	Long/Short	2.0	0.9	99	0.2	Long/Short	2.1	0.5	103	85	Long/Short	2.1	0.5	103	85	Long/Short	2.1	0.5	103	85

Portfolio Index Performance

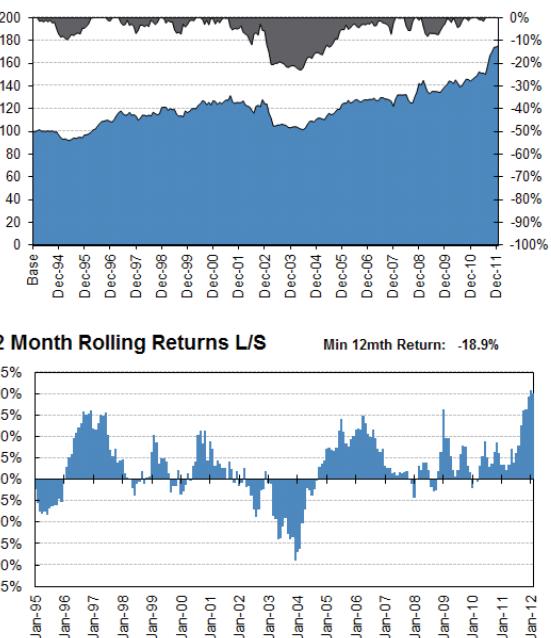


Portfolio Spread. Annual Returns

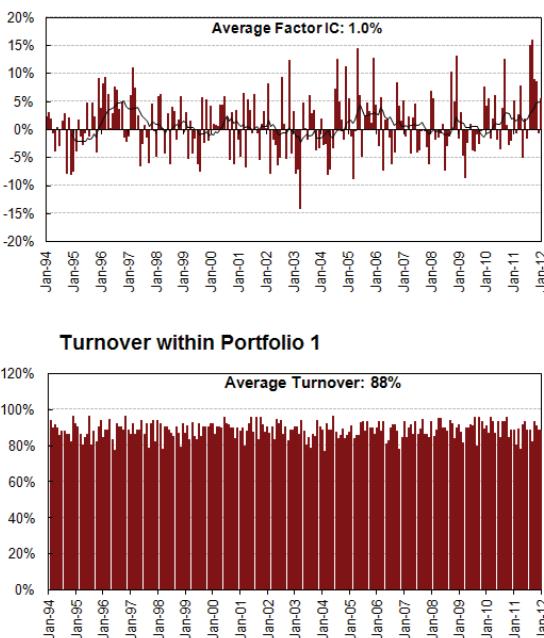


Cumulative (L/S) Returns

Max Drawdown: -22.6%

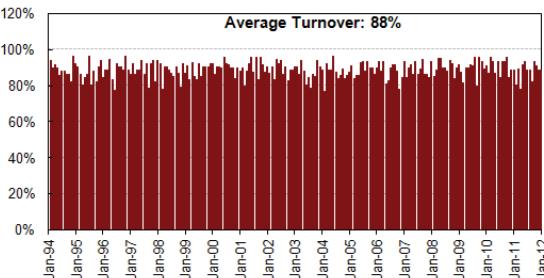


Information Co-Efficients (IC)



Turnover within Portfolio 1

Average Turnover: 88%



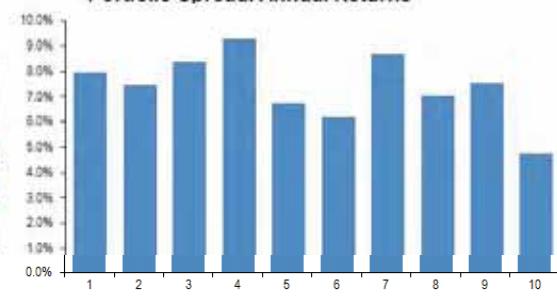
Consensus Recommendation

Consensus Recommendation							Rebalance every 1 month(s)																				
1 Year: 02/28/2011 to 02/29/2012					3 Years(s): 02/28/2009 to 02/28/2012					5 Year(s): 02/28/2007 to 02/29/2012					Total Period: 12/31/1993 to 02/29/2012												
Portfolio Statistics					Portfolio Statistics					Portfolio Statistics					Portfolio Statistics												
Port.	Avg. Ret.	Ann. Ret.	St. Dev.	% Out. Perf.	Port.	Avg. Ret.	Ann. Ret.	St. Dev.	% Out. Perf.	Port.	Avg. Ret.	Ann. Ret.	St. Dev.	% Out. Perf.	Port.	Avg. Ret.	Ann. Ret.	St. Dev.	% Out. Perf.								
1	-0.3%	-6.9%	8%	75%	1	2.0%	22.4%	7%	53%	1	-0.2%	-6.4%	8%	48%	1	0.8%	8.0%	6%	55%								
2	-0.5%	-6.8%	9%	58%	2	2.0%	22.2%	8%	50%	2	0.0%	-3.7%	8%	58%	2	0.8%	7.4%	6%	52%								
3	-0.9%	-12.2%	8%	50%	3	1.9%	21.1%	8%	50%	3	-0.1%	-5.6%	9%	53%	3	0.9%	8.4%	6%	55%								
4	-0.8%	-12.8%	8%	42%	4	2.3%	25.7%	8%	50%	4	0.3%	-0.8%	9%	58%	4	0.9%	9.3%	6%	54%								
5	-0.2%	-6.4%	8%	92%	5	2.4%	28.4%	8%	64%	5	0.0%	-5.0%	9%	53%	5	0.7%	8.7%	6%	50%								
6	-0.9%	-12.8%	8%	75%	6	2.1%	23.7%	8%	50%	6	-0.1%	-5.6%	8%	52%	6	0.7%	8.2%	6%	48%								
7	-0.8%	-12.1%	7%	50%	7	2.4%	28.8%	8%	58%	7	0.2%	-2.2%	8%	52%	7	0.9%	8.7%	6%	52%								
8	-0.5%	-9.0%	8%	50%	8	2.3%	26.9%	8%	39%	8	0.0%	-4.0%	9%	42%	8	0.8%	7.0%	6%	48%								
9	-1.5%	-19.5%	8%	25%	9	2.2%	24.9%	8%	53%	9	0.0%	-4.3%	8%	50%	9	0.8%	7.5%	6%	49%								
10	-2.3%	-25.7%	8%	17%	10	1.3%	12.9%	8%	31%	10	-0.4%	-8.2%	8%	35%	10	0.6%	4.8%	6%	38%								
Total Test					Total Test					Total Test					Total Test												
Avg. Ret.	Rank	Avg. IC	Avg. Assets		Avg. Ret.	Rank	Avg. IC	Avg. Assets		Avg. Ret.	Rank	Avg. IC	Avg. Assets		Avg. Ret.	Rank	Avg. IC	Avg. Assets									
Universe	-0.9%	3.3%	6.9%	448	Universe	2.1%	2.1%	450		Universe	0.0%	1.0%	1.7%	490		Universe	0.8%	1.0%	1.1%	511							
Strategy Statistics														Strategy Statistics													
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10							
Avg. Ret.	Ann. Ret.	Std. Devn.	% Out.	Perf.	Avg. Ret.	Ann. Ret.	Std. Devn.	% Out.	Perf.	Avg. Ret.	Ann. Ret.	Std. Devn.	% Out.	Perf.	Avg. Ret.	Ann. Ret.	Std. Devn.	% Out.	Perf.	Avg. Ret.	Ann. Ret.	Std. Devn.	% Out.	Perf.			
Long/Short	2.0%	25.2%	2.3%	75%	Long/Short	2.0%	7.4%	2.7%	64%	Long/Short	0.2%	1.0%	2.8%	58%	Long/Short	0.2%	2.3%	2.9%	56%	Long/Short	0.0%	0.3%	1.5%	55%			
Active Ret.	0.9%	6.8%	1.0%	75%	Active Ret.	-0.1%	-1.7%	1.6%	53%	Active Ret.	-0.2%	-2.3%	1.6%	48%	Active Ret.	-0.2%	-2.3%	2.9%	56%	Active Ret.	-0.1%	-1.7%	1.5%	55%			
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR				
Long/Short	3.8	3.4	90	1.9	Long/Short	1.4	0.8	91	-0.3	Long/Short	0.5	0.2	92	-0.4	Long/Short	1.2	0.2	103	0.1	Long/Short	1.2	0.2	103	0.1			

Portfolio Index Performance

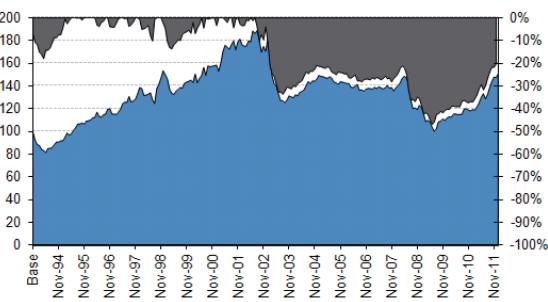


Portfolio Spread. Annual Returns

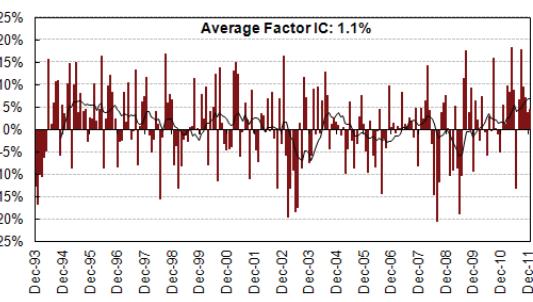


Cumulative (L/S) Returns

Max Drawdown: -46.7%

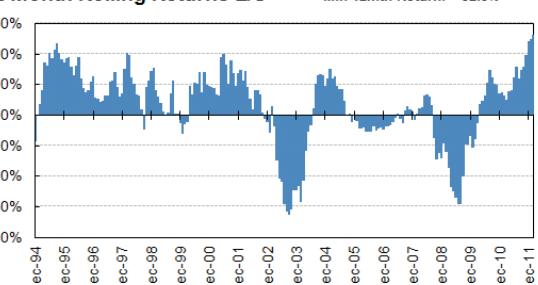


Information Co-Efficients (IC)

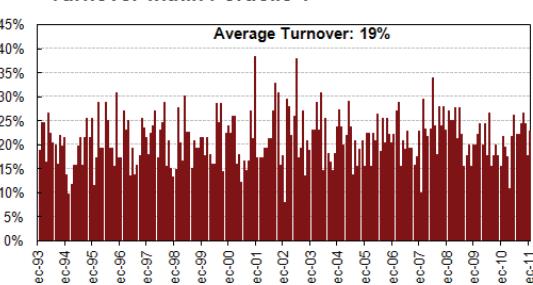


12 Month Rolling Returns L/S

Min 12mth Return: -32.5%



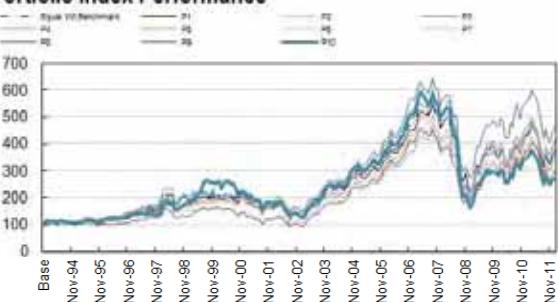
Turnover within Portfolio 1



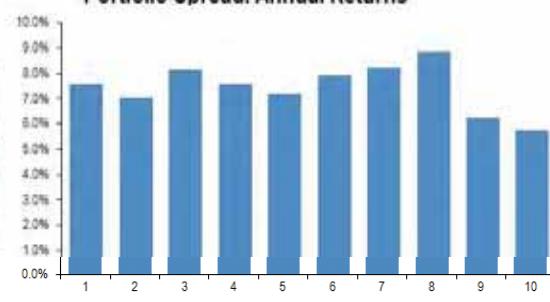
Number of Consensus Estimates (FY1)

Number of Consensus Estimates (FY1)						Rebalance every 1 month(s)																	
1 Year: 02/28/2011 to 02/29/2012						3 Years(s): 02/28/2009 to 02/29/2012						5 Year(s): 02/28/2007 to 02/29/2012						Total Period: 12/31/1993 to 02/29/2012					
Portfolio Statistics						Portfolio Statistics						Portfolio Statistics						Portfolio Statistics					
Port.	Avg	Ret	Ann	St	% Outf.	Port.	Avg	Ret	Ann	St	% Outf.	Port.	Avg	Ret	Ann	St	% Outf.	Port.	Avg	Ret	Ann	St	% Outf.
1	-0.9%	-13.7%	9%	58%		1	1.9%	19.6%	8%	42%		1	0.1%	-3.5%	9%	48%		1	0.8%	7.6%	6%	48%	
2	-0.4%	-7.6%	8%	67%		2	2.2%	29.5%	8%	58%		2	0.2%	-1.6%	8%	58%		2	0.8%	7.1%	6%	50%	
3	-0.7%	-10.8%	8%	58%		3	2.8%	29.4%	9%	58%		3	0.1%	-3.7%	9%	52%		3	0.9%	8.1%	6%	52%	
4	-1.1%	-15.0%	7%	25%		4	2.1%	23.9%	8%	44%		4	-0.2%	-6.7%	9%	40%		4	0.8%	7.0%	6%	51%	
5	-0.6%	-10.6%	8%	58%		5	2.2%	24.4%	8%	50%		5	0.0%	-4.1%	9%	48%		5	0.8%	7.2%	6%	48%	
6	-0.3%	-6.7%	7%	75%		6	2.3%	27.3%	8%	81%		6	0.3%	-0.4%	8%	60%		6	0.0%	7.9%	6%	52%	
7	-0.3%	-5.6%	7%	75%		7	2.3%	26.7%	8%	61%		7	0.0%	-4.2%	8%	52%		7	0.8%	8.2%	6%	55%	
8	-1.3%	-16.0%	8%	50%		8	1.8%	19.6%	8%	50%		8	0.0%	-3.8%	8%	53%		8	0.0%	8.8%	6%	56%	
9	-1.5%	-19.9%	8%	25%		9	1.9%	22.1%	7%	42%		9	-0.2%	-5.8%	8%	38%		9	0.7%	5.2%	6%	47%	
10	-1.7%	-21.3%	8%	25%		10	1.8%	18.8%	8%	33%		10	-0.6%	-11.9%	9%	35%		10	0.7%	5.7%	6%	47%	
Total Test						Total Test						Total Test						Total Test					
Avg	Rank	Avg	Avg	Avg		Avg	Rank	Avg	Avg	Avg		Avg	Rank	Avg	Avg	Avg		Avg	Rank	Avg	Avg	Avg	
Ref	IC	IC	IC	Assets		Ref	IC	IC	IC	Assets		Ref	IC	IC	IC	Assets		Ref	IC	IC	IC	Assets	
Universe	-0.9%	2.4%	3.8%	448		Universe	2.1%	0.7%	0.7%	450		Universe	0.0%	1.3%	1.6%	490		Universe	0.8%	1.0%	1.0%	512	
Strategy Statistics												Strategy Statistics											
Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10					
Avg	Ann	Std	% Outf.			Avg	Ann	Std	% Outf.			Avg	Ann	Std	% Outf.			Avg	Ann	Std	% Outf.		
Ret	Ret	Devn	Perf.			Ret	Ret	Devn	Perf.			Ret	Ret	Devn	Perf.			Ret	Ret	Devn	Perf.		
Long/Short	0.8%	0.7%	2.2%	67%		Long/Short	0.1%	0.7%	2.2%	58%		Long/Short	0.7%	0.1%	2.8%	63%		Long/Short	0.1%	0.9%	3.8%	53%	
Active Ret	0.0%	-0.1%	1.7%	58%		Active Ret	-0.2%	-3.0%	1.3%	42%		Active Ret	0.1%	1.1%	1.7%	48%		Active Ret	0.0%	0.2%	1.8%	48%	
T-Stat	Sharpe*	Assets	IR			T-Stat	Sharpe*	Assets	IR			T-Stat	Sharpe*	Assets	IR			T-Stat	Sharpe*	Assets	IR		
Long/Short	1.3	1.3	90	0.0		Long/Short	0.2	0.1	91	-0.6		Long/Short	1.9	0.8	29	0.2		Long/Short	0.6	0.1	103	0.0	

Portfolio Index Performance

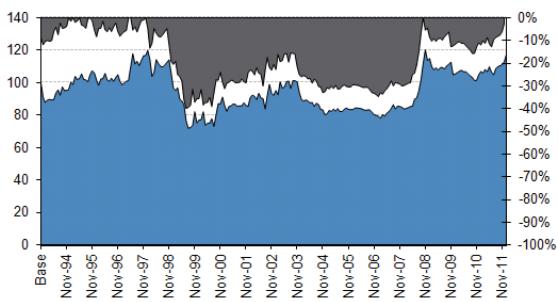


Portfolio Spread. Annual Returns

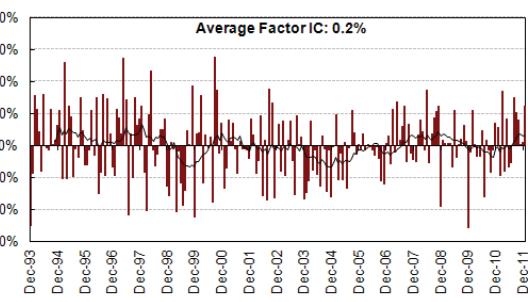


Cumulative (L/S) Returns

Max Drawdown: -39.8%

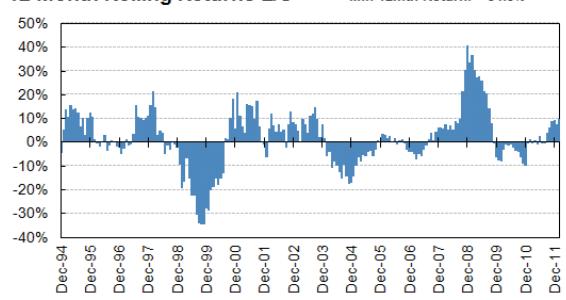


Information Co-Efficients (IC)

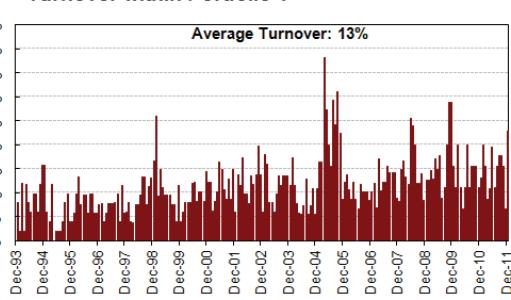


12 Month Rolling Returns L/S

Min 12mth Return: -34.5%



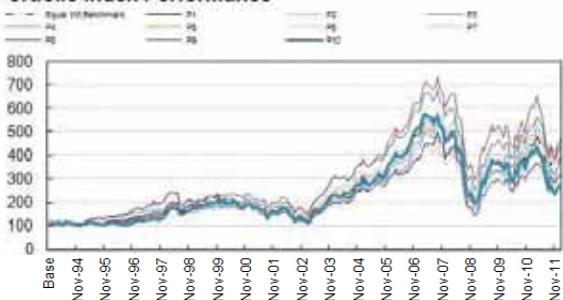
Turnover within Portfolio 1



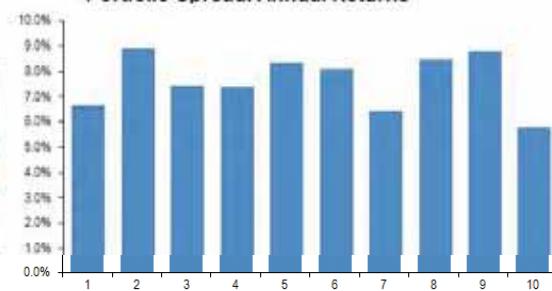
5 years Historical Earnings Growth

5 years Historical Earnings Growth								Rebalance every 1 month(s)															
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/28/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 12/31/1993 to 02/29/2012											
Portfolio Statistics								Portfolio Statistics															
Port	Avg	Ret	Ann	St	% Out	Port	Avg	Ret	Ann	St	% Out	Port	Avg	Ret	Ann	St	% Out						
	Ref	Ret	Dev	Perf.		1	2.5%	30.3%	8%	58%		1	0.1%	-3.4%	9%	58%							
1	-0.4%	-6.6%	7%	50%		2	2.6%	32.9%	7%	61%		2	0.3%	-0.9%	8%	62%							
2	0.0%	-2.4%	7%	75%		3	2.2%	26.2%	8%	50%		3	0.1%	-3.3%	8%	55%							
3	-0.5%	-0.5%	8%	67%		4	2.3%	26.8%	8%	50%		4	0.0%	-4.5%	9%	48%							
4	-0.4%	-7.9%	8%	67%		5	2.4%	28.0%	8%	51%		5	0.1%	-2.2%	8%	55%							
5	-0.1%	-4.1%	8%	67%		6	2.0%	22.4%	8%	42%		6	0.0%	-4.0%	8%	43%							
6	-0.7%	-11.2%	7%	50%		7	2.1%	24.5%	8%	50%		7	-0.1%	-4.8%	8%	48%							
7	-0.3%	-7.0%	8%	75%		8	1.0%	20.5%	8%	42%		8	-0.2%	-5.8%	8%	45%							
8	-1.2%	-16.1%	8%	33%		9	1.7%	10.2%	9%	36%		9	-0.1%	-5.7%	9%	45%							
9	-1.8%	-24.0%	9%	33%		10	1.4%	12.1%	10%	39%		10	-0.5%	-11.7%	9%	38%							
10	-3.0%	-34.0%	9%	17%		Total Test	Avg	Rank	Avg	Avg		Total Test	Avg	Rank	Avg	Avg							
	Ref	IC	IC	Assets			Avg	Rank	Avg	Avg			Avg	Rank	Avg	Avg	Avg						
Universe	-0.8%	8.9%	8.9%	431		Universe	2.1%	4.5%	3.9%	439		Universe	0.0%	3.2%	2.7%	476		Universe	0.8%	1.2%	0.4%	462	
Strategy Statistics																							
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10											
Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out								
Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.								
Long/Short	2.8%	35.5%	3.6%	75%	Long/Short	1.1%	13.8%	3.2%	58%	Long/Short	0.7%	8.0%	3.2%	58%	Long/Short	0.1%	0.2%	2.7%	52%				
Active Ret	0.5%	5.8%	1.8%	50%	Active Ret	0.4%	5.0%	1.5%	58%	Active Ret	0.2%	1.8%	2.0%	58%	Active Ret	0.0%	-0.7%	1.8%	50%				
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR					
Long/Short	2.5	2.8	87	0.9	Long/Short	2.1	1.3	88	1.0	Long/Short	1.8	8.8	95	0.3	Long/Short	0.3	0.0	99	-0.1				

Portfolio Index Performance

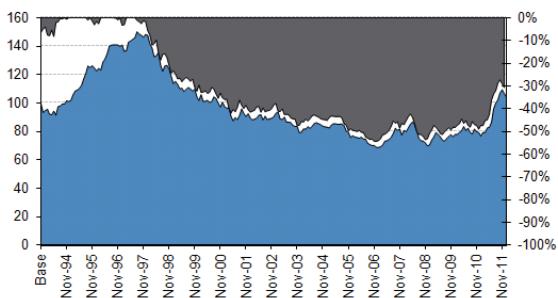


Portfolio Spread. Annual Returns

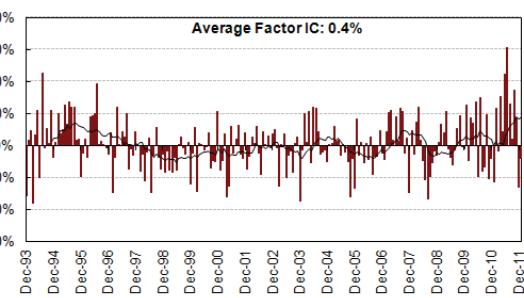


Cumulative (L/S) Returns

Max Drawdown: -54.1%

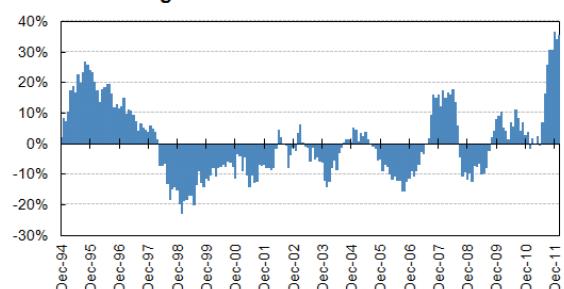


Information Co-Efficients (IC)

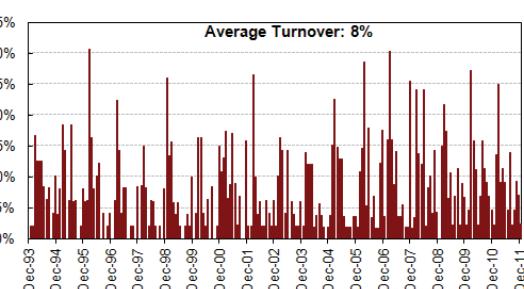


12 Month Rolling Returns L/S

Min 12mth Return: -22.9%



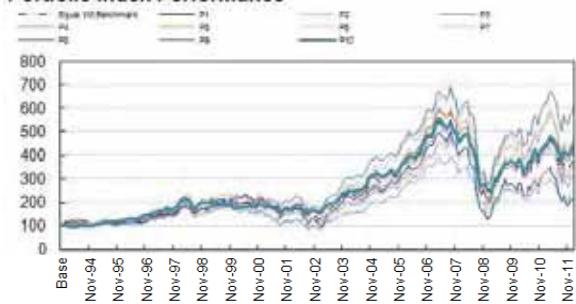
Turnover within Portfolio 1



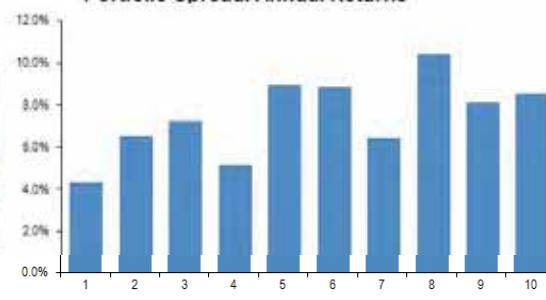
Composite Coefficient of Variation (Avg of FY1 and FY2)

Composite Coefficient of Variation (Avg of FY1 and FY2)						Rebalance every 1 month(s)																							
1 Year: 02/28/2011 to 02/29/2012						3 Years(s): 02/28/2009 to 02/29/2012						5 Year(s): 02/28/2007 to 02/29/2012						Total Period: 12/31/1993 to 02/29/2012											
Portfolio Statistics						Portfolio Statistics						Portfolio Statistics						Portfolio Statistics											
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.					
1	-2.0%	-33.5%	9%	17%	1	2.1%	20.0%	11%	42%	1	-0.5%	-13.4%	11%	33%	1	0.7%	4.4%	0%	45%	1	0.7%	4.4%	0%	45%					
2	-1.8%	-22.9%	9%	17%	2	2.1%	21.5%	9%	42%	2	0.0%	-9.7%	9%	48%	2	0.8%	6.5%	7%	49%	2	0.8%	6.5%	7%	51%					
3	-1.6%	-21.3%	9%	33%	3	2.1%	22.7%	9%	44%	3	0.0%	-5.1%	9%	45%	3	0.8%	7.3%	7%	51%	3	0.8%	7.3%	7%	51%					
4	-0.8%	-12.3%	9%	42%	4	2.1%	23.1%	9%	44%	4	-0.2%	-6.7%	9%	42%	4	0.5%	5.1%	6%	47%	4	0.5%	5.1%	6%	47%					
5	-0.7%	-11.2%	8%	67%	5	2.0%	23.1%	8%	56%	5	0.2%	-1.7%	8%	62%	5	0.9%	9.0%	6%	55%	5	0.9%	9.0%	6%	55%					
6	-0.9%	-13.2%	8%	42%	6	2.2%	24.4%	8%	47%	6	0.1%	-3.6%	8%	58%	6	0.0%	8.8%	6%	54%	6	0.0%	8.8%	6%	54%					
7	-0.2%	-5.4%	7%	57%	7	2.2%	25.9%	8%	54%	7	0.0%	-4.6%	8%	57%	7	0.7%	6.4%	6%	46%	7	0.7%	6.4%	6%	46%					
8	0.0%	-3.0%	7%	67%	8	2.5%	29.8%	7%	67%	8	0.4%	0.6%	8%	57%	8	1.0%	10.4%	6%	53%	8	1.0%	10.4%	6%	53%					
9	0.9%	-2.7%	7%	75%	9	2.0%	24.2%	9%	53%	9	-0.1%	-4.6%	7%	45%	9	0.8%	8.2%	5%	50%	9	0.8%	8.2%	5%	50%					
10	0.2%	0.9%	8%	75%	10	1.8%	21.4%	8%	53%	10	0.0%	-1.9%	6%	52%	10	0.8%	8.6%	5%	52%	10	0.8%	8.6%	5%	52%					
Total Test						Total Test						Total Test						Total Test											
Avg	Rank	Avg	Rank	Avg	Ref	IC	IC	Assets	Ref	IC	IC	Assets	Ref	IC	IC	Assets	Ref	IC	IC	Assets	Ref	IC	IC	Assets					
Universe	-0.9%	-12.0%	-13.7%	445	Universe	2.1%	-3.2%	447	Universe	0.0%	-3.2%	-3.4%	480	Universe	0.8%	-2.1%	-1.3%	507	Universe	0.8%	-2.1%	-1.3%	507	Universe	0.8%	-2.1%	-1.3%	507	
Strategy Statistics												Strategy Statistics																	
Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10											
Avg	Ann	Std	% Out	Perf.	Ref	Ret	Ret	Devn	Perf.	Ref	Ret	Ann	Std	% Out	Perf.	Ref	Ret	Ret	Devn	Perf.	Ref	Ret	Ann	Std	% Out				
Long/Short	-3.2%	-32.8%	4.6%	17%	Long/Short	0.2%	1.3%	8.9%	42%	Long/Short	-0.6%	-8.4%	5.0%	37%	Long/Short	-0.1%	-3.0%	4.8%	47%	Long/Short	-0.4%	-0.2	102	-0.2	Long/Short	-0.1%	-3.0%	4.8%	45%
Active Ret	-2.0%	-22.3%	2.6%	17%	Active Ret	0.0%	-0.8%	3.8%	42%	Active Ret	-0.6%	-7.3%	3.4%	33%	Active Ret	-0.1%	-2.0%	2.8%	45%	Active Ret	-0.6	-0.4	38	-0.6	Active Ret	-0.1%	-2.0%	2.8%	45%
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR	
Long/Short	-2.4	-2.1	90	-2.5	Long/Short	0.3	0.1	90	-61	Long/Short	-0.8	-0.4	38	-61	Long/Short	-0.4	-0.2	102	-0.2	Long/Short	-0.4	-0.2	102	-0.2	Long/Short	-0.4	-0.2	102	-0.2

Portfolio Index Performance

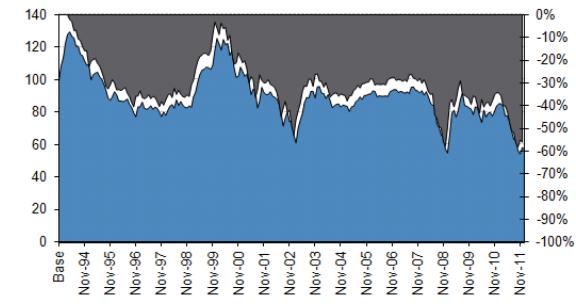


Portfolio Spread. Annual Returns

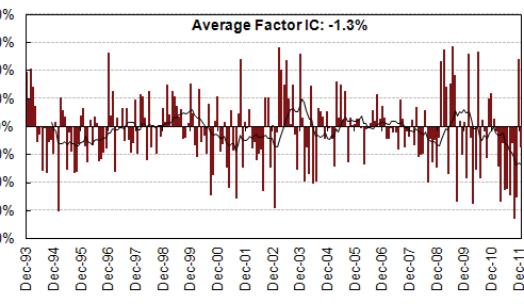


Cumulative (L/S) Returns

Max Drawdown: -57.8%

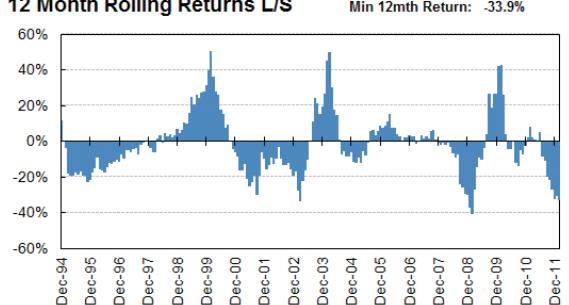


Information Co-Efficients (IC)

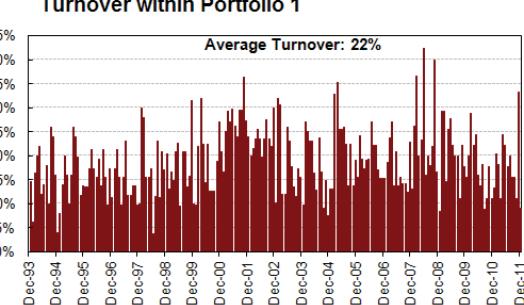


12 Month Rolling Returns L/S

Min 12mth Return: -33.9%



Turnover within Portfolio 1



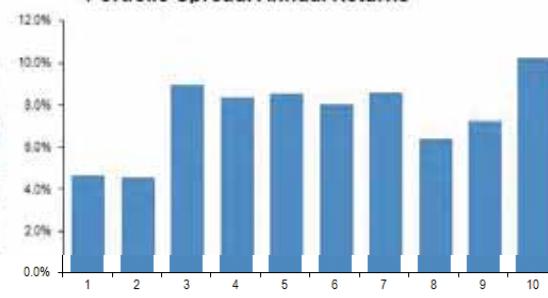
Forecast Earnings Growth FY1 to FY2

Forecast Earnings Growth FY1 to FY2								Rebalance every 1 month(s)												
1 Year: 02/28/2011 to 02/29/2012					3 Years(s): 02/28/2009 to 02/28/2012					5 Year(s): 02/28/2007 to 02/29/2012					Total Period: 12/31/1993 to 02/29/2012					
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics						
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	
1	-2.0%	-33.1%	10%	25%	1	2.0%	10.6%	10%	44%	1	-0.3%	-8.5%	10%	47%	1	0.7%	4.7%	0%	40%	
2	-1.7%	-21.8%	8%	25%	2	1.9%	10.4%	9%	39%	2	-0.4%	-9.0%	9%	38%	2	0.6%	4.5%	7%	42%	
3	-0.8%	-12.1%	8%	67%	3	2.1%	24.0%	0%	53%	3	0.2%	-1.8%	8%	57%	3	0.9%	8.9%	8%	55%	
4	-1.2%	-15.5%	8%	42%	4	1.5%	10.5%	7%	31%	4	-0.3%	-7.1%	8%	45%	4	0.8%	8.3%	0%	48%	
5	-0.1%	-3.7%	7%	83%	5	2.2%	25.9%	7%	51%	5	0.1%	-2.8%	8%	55%	5	0.9%	8.5%	6%	58%	
6	-0.4%	-7.2%	7%	67%	6	2.3%	25.5%	8%	58%	6	0.0%	-4.0%	8%	53%	6	0.8%	8.0%	6%	58%	
7	0.1%	-2.6%	8%	92%	7	2.4%	29.1%	8%	67%	7	0.2%	-1.7%	8%	57%	7	0.9%	8.8%	6%	47%	
8	-0.4%	-7.4%	7%	67%	8	2.4%	29.4%	8%	81%	8	0.0%	-3.8%	8%	52%	8	0.7%	6.4%	6%	44%	
9	-0.9%	-13.4%	8%	42%	9	2.1%	24.3%	8%	56%	9	-0.1%	-4.4%	8%	50%	9	0.7%	7.2%	0%	46%	
10	-0.2%	-6.0%	8%	83%	10	2.4%	28.4%	8%	64%	10	0.2%	-1.4%	8%	63%	10	1.0%	10.2%	0%	54%	
Total Test					Total Test					Total Test					Total Test					
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		
Ref	IC	IC	IC	Assets	Ref	IC	IC	IC	Assets	Ref	IC	IC	IC	Assets	Ref	IC	IC	IC	Assets	
Universe	-0.9%	-8.6%	-9.8%	448	Universe	-2.1%	-3.0%	-4.5%	451	Universe	0.0%	-1.9%	-1.9%	482	Universe	0.8%	-1.2%	-1.2%	519	
Strategy Statistics																Strategy Statistics				
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					
Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		
Ret	Ret	Devn	Perf.		Ret	Ret	Retn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		
Long/Short	-2.5%	-27.5%	2.7%	25%	Long/Short	-0.5%	-6.0%	3.5%	47%	Long/Short	-0.5%	-8.8%	3.2%	43%	Long/Short	-0.3%	-4.3%	3.4%	48%	
Active Ret	-2.0%	-21.8%	2.6%	25%	Active Ret	-0.1%	-2.3%	3.0%	44%	Active Ret	0.3%	-3.8%	2.6%	47%	Active Ret	-0.1%	-1.8%	2.5%	48%	
T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		
Long/Short	-3.3	-2.9	90	-2.4	Long/Short	-0.8	-0.5	91	-0.2	Long/Short	-1.3	-0.6	99	-0.4	Long/Short	-1.3	-0.4	104	-0.2	

Portfolio Index Performance

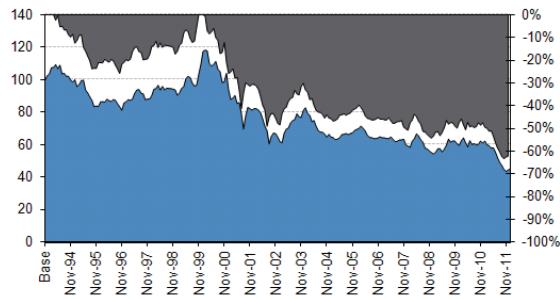


Portfolio Spread. Annual Returns

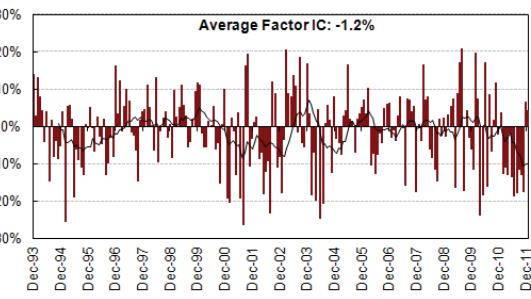


Cumulative (L/S) Returns

Max Drawdown: -62.9%

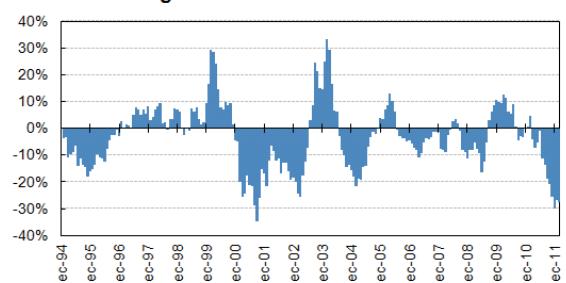


Information Co-Efficients (IC)

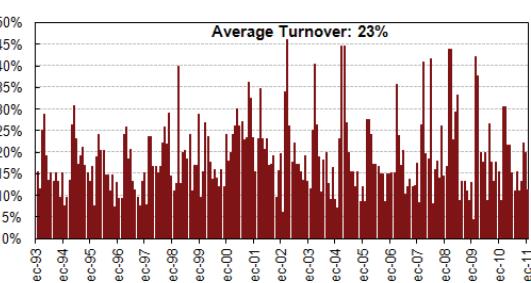


12 Month Rolling Returns L/S

Min 12mth Return: -34.6%



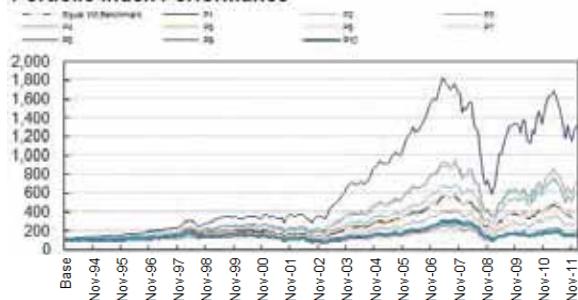
Turnover within Portfolio 1



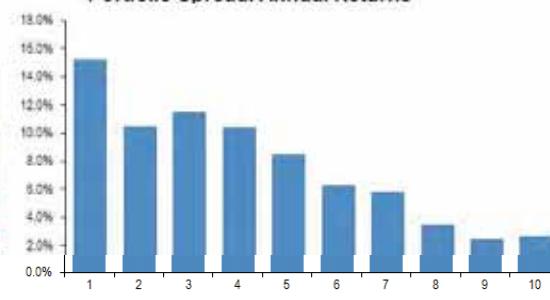
RSI 10 days (Reversion)

RSI 10 day (Reversion)						Rebalance every 1 month(s)																		
1 Year: 02/28/2011 to 02/29/2012 Portfolio Statistics						3 Years(s): 02/28/2009 to 02/28/2012 Portfolio Statistics						5 Year(s): 02/28/2007 to 02/29/2012 Portfolio Statistics						Total Period: 12/31/1993 to 02/29/2012 Portfolio Statistics						
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.					
1	-1.4%	-10.9%	8%	25%	1	2.7%	30.8%	8%	50%	1	0.1%	-1.7%	9%	45%	1	1.4%	15.3%	7%	59%					
2	-1.0%	-14.7%	9%	42%	2	2.0%	21.9%	8%	44%	2	-0.1%	-5.2%	8%	48%	2	1.0%	10.5%	6%	56%					
3	-0.5%	-0.1%	8%	50%	3	2.4%	20.3%	8%	53%	3	0.2%	-2.5%	9%	52%	3	1.1%	11.5%	8%	60%					
4	-0.9%	-14.0%	8%	58%	4	2.6%	30.3%	8%	54%	4	0.4%	0.0%	9%	58%	4	1.0%	10.4%	6%	56%					
5	-0.3%	-6.8%	8%	67%	5	2.4%	27.6%	8%	58%	5	0.1%	-3.0%	9%	52%	5	0.9%	8.5%	6%	50%					
6	-0.6%	-13.3%	8%	42%	6	2.2%	25.4%	8%	50%	6	0.1%	-3.2%	9%	57%	6	0.7%	6.3%	6%	48%					
7	-1.0%	-14.2%	8%	42%	7	2.0%	21.9%	8%	39%	7	-0.1%	-4.7%	8%	45%	7	0.6%	5.8%	6%	43%					
8	-1.0%	-14.6%	8%	33%	8	2.0%	21.4%	8%	33%	8	-0.1%	-5.8%	8%	38%	8	0.5%	3.5%	6%	38%					
9	-0.5%	-8.6%	7%	67%	9	1.8%	20.0%	8%	39%	9	-0.2%	-5.8%	8%	45%	9	0.4%	2.4%	6%	40%					
10	-0.8%	-11.4%	7%	58%	10	1.2%	12.7%	7%	38%	10	-0.5%	-6.9%	7%	45%	10	0.4%	2.6%	5%	39%					
Total Test						Total Test						Total Test						Total Test						
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank			
Ref	IC	IC	IC	Assets	Ref	IC	IC	IC	Assets	Ref	IC	IC	IC	Assets	Ref	IC	IC	IC	Assets	Ref	IC			
Universe	-0.8%	-1.9%	-3.8%	461	Universe	2.1%	3.3%	3.1%	465	Universe	0.0%	1.8%	1.5%	505	Universe	0.8%	4.2%	3.3%	582	Universe	0.8%	4.2%		
Strategy Statistics																				Strategy Statistics				
Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10						
Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann			
Ret	Ret	Devn	Perf.		Ret	Ret	Rnt	Devn	Perf.	Ret	Ret	Retn	Devn	Perf.	Ret	Ret	Retn	Devn	Perf.	Ret	Ret	Perf.		
Long/Short	-0.7%	-8.0%	2.8%	33%	Long/Short	1.4%	17.6%	3.9%	64%	Long/Short	0.6%	8.7%	3.8%	53%	Long/Short	1.0%	12.5%	3.2%	61%	Long/Short	0.8%	7.3%	2.0%	59%
Active Ret	-0.5%	-7.2%	1.8%	25%	Active Ret	0.5%	8.3%	2.4%	50%	Active Ret	0.1%	1.3%	2.1%	45%	Active Ret	0.7%	7.3%	2.0%	59%	Active Ret	0.7%	7.3%	2.0%	59%
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets		
Long/Short	-0.8	-0.8	93	-1.1	Long/Short	2.2	1.3	94	9.7	Long/Short	1.3	0.5	102	0.2	Long/Short	4.7	1.1	113	1.1	Long/Short	4.7	1.1	113	1.1

Portfolio Index Performance

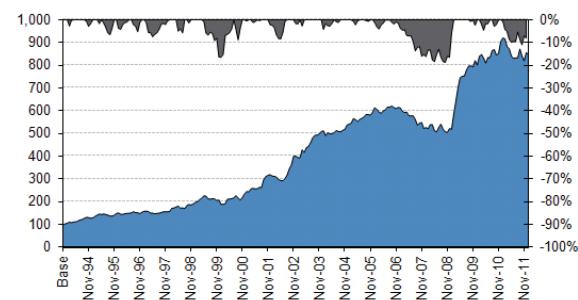


Portfolio Spread. Annual Returns

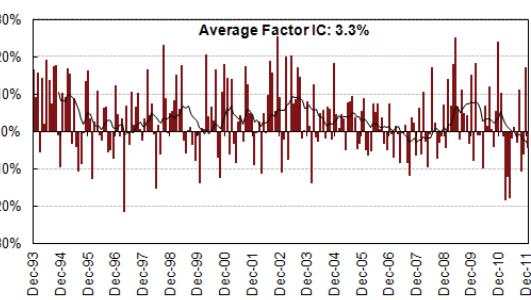


Cumulative (L/S) Returns

Max Drawdown: -18.6%

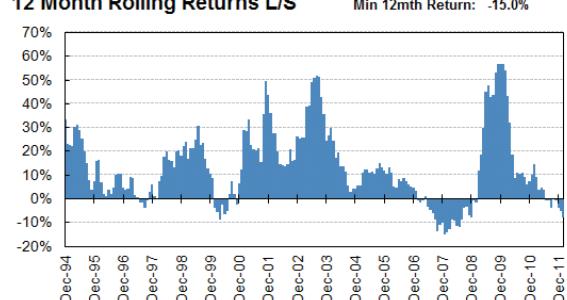


Information Co-Efficients (IC)

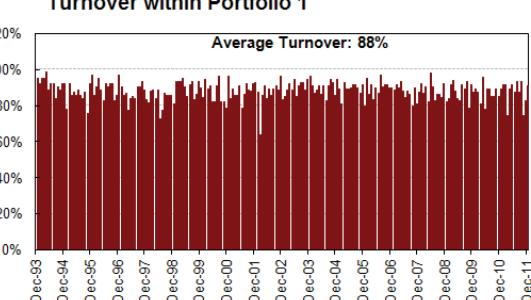


12 Month Rolling Returns L/S

Min 12mth Return: -15.0%



Turnover within Portfolio 1



RSI 30 days (Reversion)

RSI 30 day (Reversion)								Rebalance every 1 month(s)											
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/28/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 12/31/1993 to 02/29/2012							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port	Avg Ret	Ann Ret	St Dev	% Out.	Port	Avg Ret	Ann Ret	St Dev	% Out.	Port	Avg Ret	Ann Ret	St Dev	% Out.	Port				
1	-2.6%	-30.1%	8%	25%	1	2.0%	20.2%	9%	44%	1	-0.2%	-7.6%	10%	45%	1	1.2%	11.6%	7%	54%
2	-0.9%	-11.2%	9%	42%	2	2.5%	29.1%	9%	53%	2	0.2%	-2.0%	9%	50%	2	1.1%	11.2%	7%	57%
3	-0.6%	-10.2%	8%	50%	3	2.4%	20.3%	9%	53%	3	0.0%	-5.3%	9%	45%	3	0.9%	8.0%	8%	51%
4	-0.8%	-12.8%	9%	50%	4	2.3%	25.2%	9%	54%	4	0.0%	-4.3%	9%	57%	4	0.8%	7.7%	6%	50%
5	-0.2%	-6.1%	8%	67%	5	2.2%	25.1%	8%	50%	5	0.0%	-3.7%	8%	48%	5	0.9%	8.9%	6%	53%
6	-0.8%	-12.5%	8%	67%	6	2.2%	24.5%	8%	61%	6	0.0%	-4.6%	8%	53%	6	0.7%	8.7%	6%	48%
7	-0.9%	-12.9%	9%	67%	7	2.2%	24.6%	8%	54%	7	0.0%	-3.7%	8%	58%	7	0.8%	7.3%	6%	53%
8	-0.5%	-6.2%	7%	67%	8	2.1%	23.0%	8%	47%	8	-0.1%	-4.7%	8%	48%	8	0.5%	4.3%	6%	41%
9	-0.7%	-11.0%	7%	75%	9	1.8%	20.5%	7%	44%	9	-0.1%	-4.2%	8%	48%	9	0.5%	4.5%	6%	42%
10	-0.7%	-8.9%	6%	58%	10	1.5%	10.3%	7%	39%	10	-0.2%	-4.9%	7%	48%	10	0.6%	5.6%	5%	43%
Total Test	Avg	Rank	Avg	Avg	Total Test	Avg	Rank	Avg	Avg	Total Test	Avg	Rank	Avg	Avg	Total Test				
Ref	IC	IC	IC	Assets	Ref	IC	IC	IC	Assets	Ref	IC	IC	IC	Assets	Ref	IC	IC	Assets	
Universe	-0.8%	-4.1%	-6.3%	461	Universe	2.1%	1.5%	0.7%	484	Universe	0.0%	0.3%	-0.4%	505	Universe	0.8%	2.7%	1.8%	582
<small>* Standard P/B/P/E Ratio of 0.5</small>																			
<small>Strategy Statistics</small>																			
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg	Ann	Std	% Out.	Avg	Ann	Std	% Out.	Avg	Ann	Std	% Out.	Avg	Ann	Std	% Out.				
Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.				
Long/Short	-1.9%	-21.4%	4.2%	8%	Long/Short	0.5%	4.7%	4.2%	47%	Long/Short	0.0%	-1.3%	3.8%	42%	Long/Short	0.8%	6.1%	3.8%	52%
Active Ret	-1.8%	-19.0%	2.4%	25%	Active Ret	-0.2%	-2.2%	2.6%	44%	Active Ret	-0.2%	-2.4%	2.3%	45%	Active Ret	0.4%	4.1%	2.3%	54%
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR	
Long/Short	1.8	-1.5	93	-2.4	Long/Short	0.7	0.3	94	-0.3	Long/Short	-0.1	-0.1	102	-0.3	Long/Short	2.2	0.5	113	0.5

Portfolio Index Performance

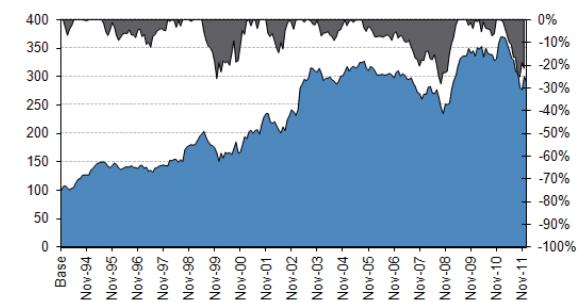


Portfolio Spread. Annual Returns

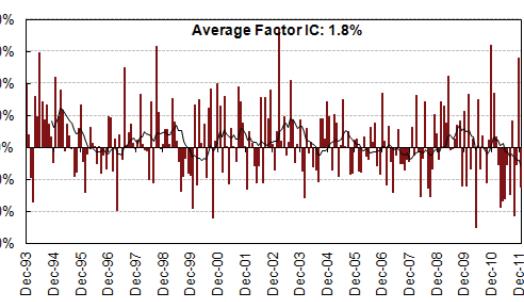


Cumulative (L/S) Returns

Max Drawdown: -28.1%

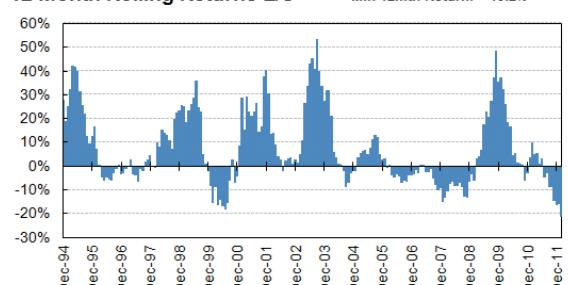


Information Co-Efficients (IC)

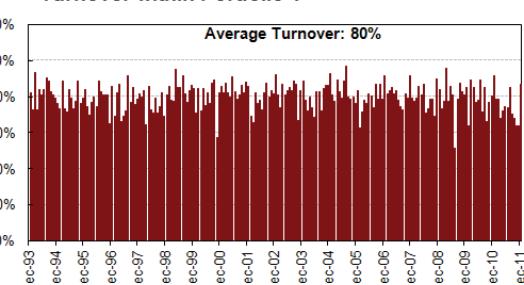


12 Month Rolling Returns L/S

Min 12mth Return: -18.2%



Turnover within Portfolio 1

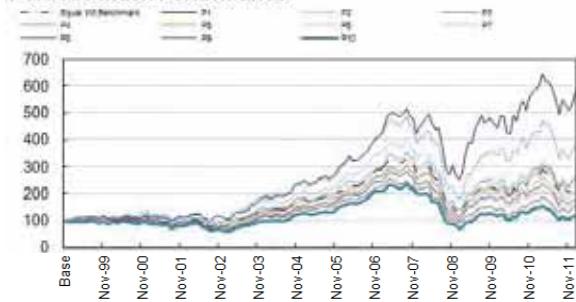


Seasonality

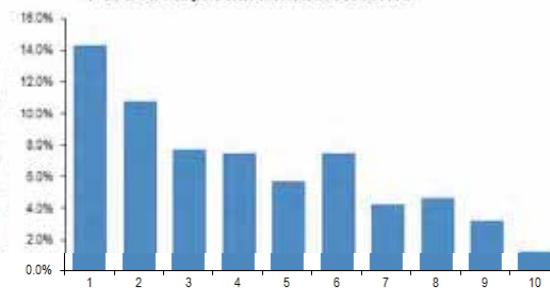
Seasonality (MSCI Europe)								Rebalance every 1 month(s)											
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/28/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 12/31/1998 to 02/29/2012							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port				
Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref				
1	0.1%	-1.9%	7%	67%	1	2.8%	32.0%	8%	57%	1	0.9%	8.7%	8%	70%	1	1.3%	14.3%	6%	82%
2	-0.6%	-10.7%	8%	67%	2	2.5%	28.9%	8%	58%	2	0.2%	-1.5%	8%	55%	2	1.1%	10.8%	7%	58%
3	0.0%	-3.6%	8%	83%	3	2.7%	32.9%	8%	67%	3	0.4%	0.5%	9%	83%	3	0.8%	7.7%	8%	53%
4	-0.8%	-12.2%	8%	58%	4	2.1%	23.0%	8%	56%	4	0.1%	-2.9%	8%	50%	4	0.8%	7.5%	6%	54%
5	-1.0%	-13.9%	8%	42%	5	2.2%	25.3%	8%	53%	5	0.0%	-4.7%	9%	52%	5	0.7%	5.7%	7%	46%
6	-0.0%	-13.6%	8%	50%	6	2.1%	23.0%	8%	50%	6	-0.1%	-5.8%	8%	45%	6	0.0%	7.4%	6%	50%
7	-1.1%	-15.5%	7%	50%	7	1.7%	17.9%	8%	38%	7	-0.3%	-6.8%	8%	42%	7	0.6%	4.2%	6%	41%
8	-1.2%	-17.2%	8%	33%	8	2.1%	23.3%	8%	50%	8	-0.1%	-5.7%	8%	48%	8	0.6%	4.7%	7%	47%
9	-0.8%	-12.7%	8%	50%	9	1.8%	19.6%	8%	47%	9	-0.3%	-7.4%	8%	45%	9	0.5%	3.3%	6%	43%
10	-1.4%	-16.8%	8%	33%	10	1.7%	18.4%	8%	38%	10	-0.6%	-10.7%	9%	38%	10	0.3%	1.3%	7%	42%
Total Test				Total Test				Total Test				Total Test							
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg				
Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref				
Universe	-0.8%	5.0%	5.8%	396	Universe	2.1%	3.9%	4.1%	398	Universe	0.0%	4.3%	4.3%	416	Universe	0.8%	3.0%	2.7%	417
Strategy Statistics																			
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out				
Ret	Ret	Ret	Devn	Ret	Ret	Ret	Devn	Ret	Ret	Ret	Devn	Ret	Ret	Ret	Devn				
Long/Short	1.5%	18.2%	2.5%	75%	Long/Short	0.9%	11.1%	2.6%	64%	Long/Short	1.5%	18.3%	3.0%	70%	Long/Short	1.0%	12.2%	2.7%	62%
Active Ret	0.8%	10.4%	2.0%	67%	Active Ret	0.5%	5.9%	1.8%	67%	Active Ret	0.9%	10.7%	1.8%	70%	Active Ret	0.8%	8.9%	1.7%	62%
T-Stat	Sharper	Assets	IR		T-Stat	Sharper	Assets	IR		T-Stat	Sharper	Assets	IR		T-Stat	Sharper	Assets	IR	
Long/Short	2.1	2.2	79	1.5	Long/Short	2.1	1.2	80	1.0	Long/Short	3.7	1.7	83	1.7	Long/Short	4.8	1.3	83	1.2

* Standard Pairs Ratio of 5%

Portfolio Index Performance

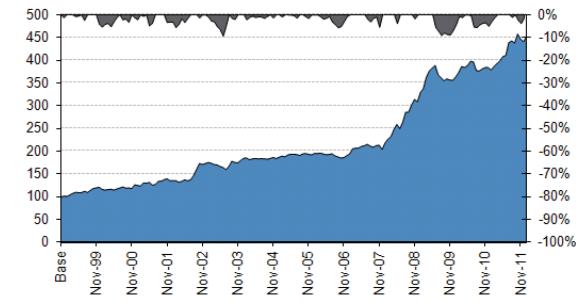


Portfolio Spread. Annual Returns

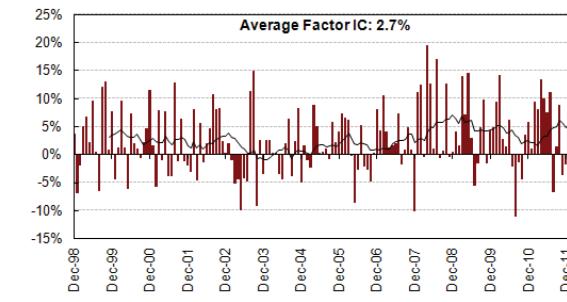


Cumulative (L/S) Returns

Max Drawdown: -9.0%

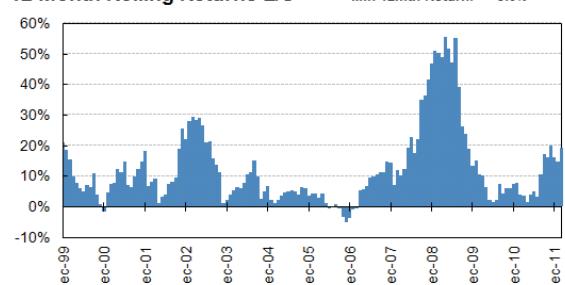


Information Co-Efficients (IC)

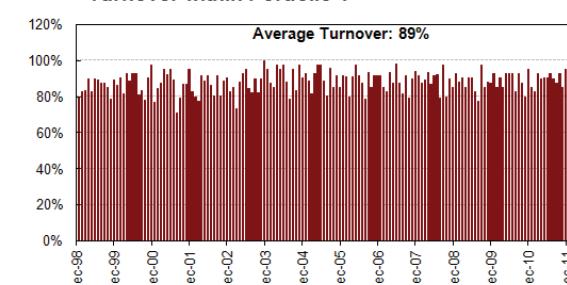


12 Month Rolling Returns L/S

Min 12mth Return: -5.0%



Turnover within Portfolio 1



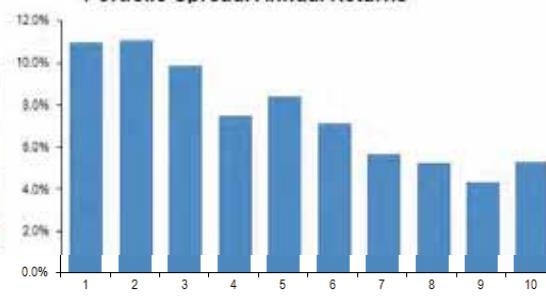
1 Month Price Reversion

1 Mth Price Reversion						Rebalance every 1 month(s)																		
1 Year: 02/28/2011 to 02/29/2012 Portfolio Statistics						3 Years(s): 02/28/2009 to 02/28/2012 Portfolio Statistics						5 Year(s): 02/28/2007 to 02/29/2012 Portfolio Statistics						Total Period: 12/31/1993 to 02/29/2012 Portfolio Statistics						
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.					
1	-2.8%	-32.2%	9%	17%	1	2.1%	21.1%	10%	42%	1	-0.5%	-11.6%	11%	35%	1	1.2%	10.9%	8%	56%					
2	-0.7%	-12.4%	9%	25%	2	2.2%	24.5%	9%	39%	2	0.6%	-4.5%	9%	43%	2	1.1%	11.1%	6%	53%					
3	-0.6%	-10.7%	9%	50%	3	2.2%	25.6%	9%	56%	3	0.0%	-4.2%	9%	52%	3	1.0%	9.9%	6%	58%					
4	-0.7%	-11.3%	8%	50%	4	2.2%	26.3%	8%	61%	4	0.0%	-3.3%	8%	55%	4	0.8%	7.5%	6%	50%					
5	-0.3%	-9.9%	7%	58%	5	2.3%	26.5%	8%	61%	5	0.3%	-0.4%	8%	65%	5	0.6%	8.4%	6%	55%					
6	-0.6%	-9.5%	8%	67%	6	2.2%	25.2%	7%	58%	6	0.1%	-2.4%	8%	60%	6	0.7%	7.1%	6%	48%					
7	-0.7%	-11.0%	7%	50%	7	2.2%	25.8%	8%	50%	7	0.0%	-3.4%	8%	47%	7	0.6%	5.7%	6%	47%					
8	-0.6%	-10.1%	8%	50%	8	2.1%	23.5%	8%	50%	8	-0.1%	-4.8%	8%	42%	8	0.6%	5.3%	6%	41%					
9	0.0%	-2.5%	7%	67%	9	2.0%	23.4%	8%	53%	9	0.0%	-3.8%	8%	53%	9	0.5%	4.4%	6%	45%					
10	-1.3%	-16.6%	7%	50%	10	1.6%	16.9%	8%	44%	10	-0.2%	-0.0%	8%	48%	10	0.6%	5.3%	6%	47%					
Total Test						Total Test						Total Test						Total Test						
Avg	Rank	Avg	Avg			Avg	Rank	Avg	Avg			Avg	Rank	Avg	Avg			Avg	Rank	Avg	Avg			
Ref	IC	IC	Assets			Ref	IC	IC	Assets			Ref	IC	IC	Assets			Ref	IC	IC	Assets			
Universe	-0.8%	-3.5%	-6.3%	461		Universe	2.1%	1.4%	0.3%	465		Universe	0.0%	0.3%	-1.0%	505		Universe	0.8%	3.2%	1.7%	583		
Strategy Statistics																				Strategy Statistics				
Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10						
Avg	Ann	Std	% Out			Avg	Ann	Std	% Out			Avg	Ann	Std	% Out			Avg	Ann	Std	% Out			
Ret	Ret	Devn	Perf.			Ret	Ret	Devn	Perf.			Ret	Ret	Devn	Perf.			Ret	Ret	Devn	Perf.			
Long/Short	-1.5%	-16.9%	3.9%	25%		Long/Short	0.5%	5.2%	4.0%	53%		Long/Short	-0.3%	-4.0%	4.1%	40%		Long/Short	0.8%	5.8%	4.3%	52%		
Active Ret	-1.9%	-21.2%	2.7%	17%		Active Ret	0.0%	-0.7%	3.4%	42%		Active Ret	-0.4%	-5.8%	3.2%	35%		Active Ret	0.4%	4.1%	2.9%	55%		
T-Stat	Sharper*	Assets	IR			T-Stat	Sharper*	Assets	IR			T-Stat	Sharper*	Assets	IR			T-Stat	Sharper*	Assets	IR			
Long/Short	-1.3	-1.3	93	-2.2		Long/Short	0.7	0.4	94	-0.1		Long/Short	-0.5	-0.3	102	-0.5		Long/Short	1.3	0.4	113	0.4		

Portfolio Index Performance

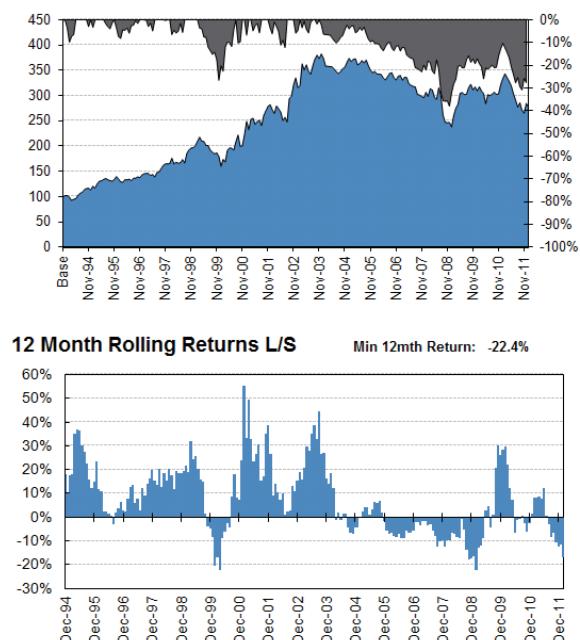


Portfolio Spread. Annual Returns

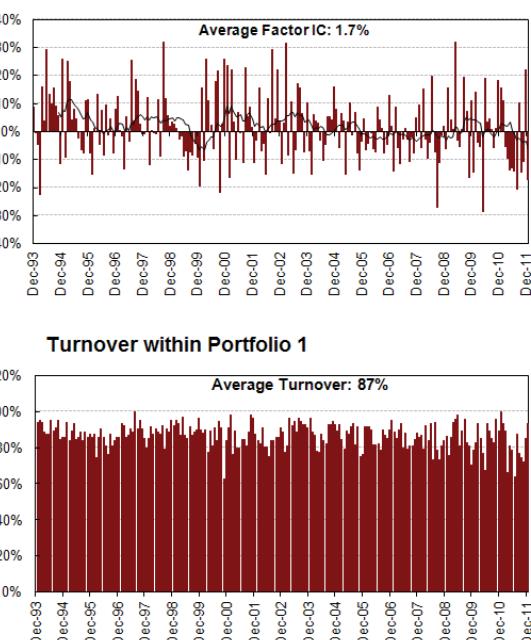


Cumulative (L/S) Returns

Max Drawdown: -37.6%



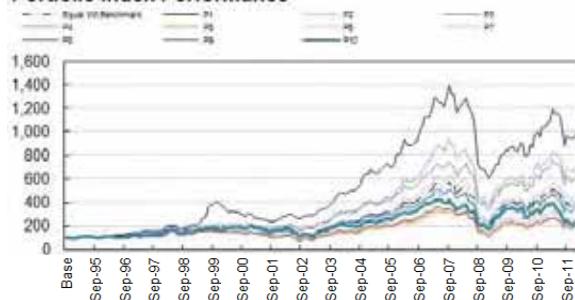
Information Co-Efficients (IC)



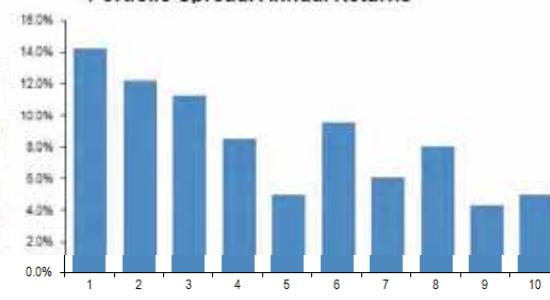
12 Month Price Momentum adjusted for volatility

12 Month Price Momentum adjusted for volatility (Sharpe style)						Rebalance every 1 month(s)																	
1 Year: 02/28/2011 to 02/29/2012						3 Years(s): 02/28/2009 to 02/28/2012						5 Year(s): 02/28/2007 to 02/29/2012						Total Period: 10/31/1994 to 02/29/2012					
Portfolio Statistics						Portfolio Statistics						Portfolio Statistics						Portfolio Statistics					
Port	Avg	Ann	Std	St	% Out	Port	Avg	Ann	Std	% Out	Perf.	Port	Avg	Ann	Std	% Out	Perf.	Port	Avg	Ann	Std	% Out	Perf.
Ref	Ret	Ret	Dev	Dev	Perf.	1	1.8%	18.4%	0%	58%		1	0.0%	-2.2%	7%	58%		1	1.3%	14.2%	0%	55%	
1	-0.4%	-7.1%	7%	67%		2	2.1%	25.2%	7%	61%		2	0.3%	-0.4%	8%	65%		2	1.1%	12.2%	0%	63%	
2	0.0%	-3.4%	7%	62%		3	2.0%	23.4%	7%	67%		3	0.3%	-0.1%	7%	68%		3	1.0%	11.3%	5%	58%	
3	-0.4%	-7.5%	7%	63%		4	2.5%	29.5%	0%	64%		4	0.3%	-1.1%	8%	57%		4	0.9%	8.5%	0%	52%	
4	-0.2%	-5.2%	8%	75%		5	2.5%	29.8%	8%	56%		5	0.1%	-3.7%	9%	52%		5	0.6%	5.0%	0%	41%	
5	-0.3%	-6.2%	8%	67%		6	2.4%	29.1%	8%	64%		6	0.3%	-1.3%	9%	57%		6	1.0%	9.6%	9%	54%	
6	-0.5%	-8.8%	8%	58%		7	2.3%	26.1%	0%	50%		7	0.3%	-1.5%	9%	50%		7	0.7%	8.1%	7%	42%	
7	-0.3%	-7.2%	9%	50%		8	2.5%	27.8%	9%	50%		8	0.2%	-2.0%	9%	45%		8	0.0%	8.0%	7%	47%	
8	-1.0%	-15.1%	8%	33%		9	2.2%	23.5%	9%	44%		9	-0.2%	-7.7%	9%	40%		9	0.6%	4.3%	7%	44%	
9	-1.4%	-19.2%	9%	33%		10	1.4%	11.6%	10%	33%		10	-0.4%	-8.7%	10%	42%		10	0.7%	5.0%	7%	43%	
10	-3.7%	-39.5%	9%	8%		Total Test	Avg	Rank	Avg	Jug		Total Test	Avg	Rank	Avg	Jug		Total Test	Avg	Rank	Avg	Jug	
						Ref	IC	IC	IC	Assets		Ref	IC	IC	IC	Assets		Ref	IC	IC	IC	Assets	
Universe	-0.8%	-10.4%	11.4%	455		Universe	2.2%	2.3%	2.8%	457		Universe	0.1%	2.6%	5.0%	445		Universe	0.0%	2.8%	3.0%	441	
Strategy Statistics												Strategy Statistics											
Portfolio 1 less Portfolio 10												Portfolio 1 less Portfolio 10											
Avg	Ann	Std	% Out			Avg	Ann	Std	% Out			Avg	Ann	Std	% Out			Avg	Ann	Std	% Out		
Ret	Ret	Devn	Perf.			Ret	Ret	Devn	Perf.			Ret	Ret	Devn	Perf.			Ret	Ret	Devn	Perf.		
Long/Short	3.3%	46.0%	4.7%	83%		Long/Short	0.2%	-0.4%	8.3%	61%		Long/Short	0.4%	3.4%	5.5%	62%		Long/Short	0.0%	5.0%	5.2%	58%	
Active Ret	0.4%	4.8%	3.0%	67%		Active Ret	-0.8%	-7.2%	3.6%	56%		Active Ret	-0.1%	-1.3%	3.3%	58%		Active Ret	0.4%	4.1%	3.4%	55%	
T-Stat	Sharper*	Assets	IR			T-Stat	Sharper*	Assets	IR			T-Stat	Sharper*	Assets	IR			T-Stat	Sharper*	Assets	IR		
Long/Short	2.4	2.8	92	0.5		Long/Short	0.2	0.0	92	-0.6		Long/Short	0.6	8.2	90	-0.1		Long/Short	1.7	0.3	89	0.4	

Portfolio Index Performance

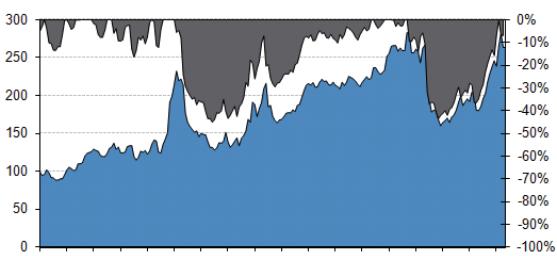


Portfolio Spread. Annual Returns

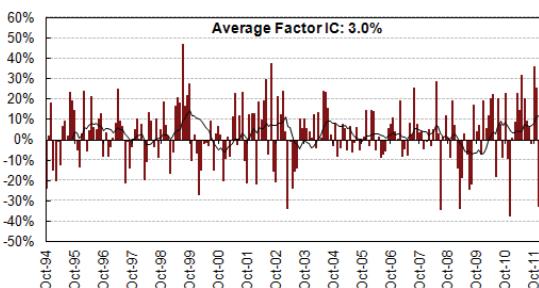


Cumulative (L/S) Returns

Max Drawdown: -44.7%

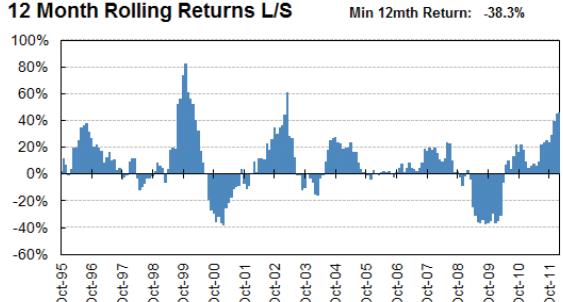


Information Co-Efficients (IC)

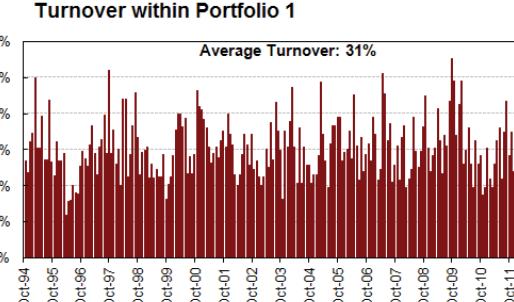


12 Month Rolling Returns L/S

Min 12mth Return: -38.3%



Turnover within Portfolio 1



12 Month Price Momentum

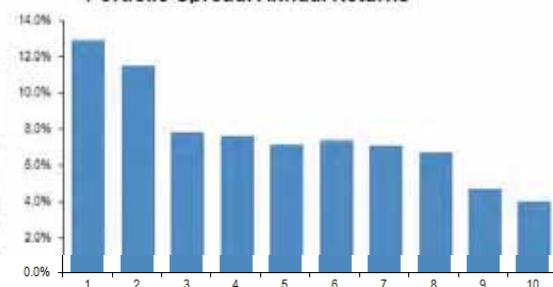
1 Year: 02/28/2011 to 02/29/2012					3 Years(s): 02/28/2009 to 02/28/2012					5 Year(s): 02/28/2007 to 02/29/2012					Total Period: 12/31/1993 to 02/29/2012				
Portfolio Statistics					Portfolio Statistics					Portfolio Statistics					Portfolio Statistics				
Port	Avg	Ann	St	% Outf.	Port	Avg	Ann	St	% Outf.	Port	Avg	Ann	St	% Outf.	Port	Avg	Ann	St	% Outf.
Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.
1	-0.6%	-10.4%	7%	58%	1	1.5%	15.9%	7%	50%	1	0.0%	-3.2%	7%	57%	1	1.2%	12.9%	6%	57%
2	-0.2%	-5.4%	7%	75%	2	1.9%	22.2%	7%	56%	2	0.1%	-1.6%	7%	58%	2	1.1%	11.5%	5%	61%
3	-0.7%	-11.3%	7%	67%	3	1.7%	18.3%	7%	56%	3	-0.2%	-5.0%	8%	53%	3	0.8%	7.9%	5%	54%
4	-0.2%	-4.5%	8%	67%	4	2.1%	23.9%	7%	50%	4	0.1%	-2.5%	8%	53%	4	0.8%	7.6%	5%	49%
5	-0.2%	-4.6%	7%	75%	5	2.2%	26.6%	7%	50%	5	0.2%	-0.5%	8%	56%	5	0.7%	7.1%	5%	48%
6	-0.3%	-6.7%	7%	58%	6	2.3%	26.1%	8%	53%	6	0.2%	-2.1%	8%	55%	6	0.8%	7.3%	6%	49%
7	-0.1%	-4.7%	8%	58%	7	2.4%	27.8%	9%	50%	7	0.2%	-2.1%	9%	52%	7	0.8%	7.1%	6%	47%
8	-1.0%	-14.9%	8%	25%	8	2.4%	26.6%	9%	39%	8	-0.1%	-5.8%	9%	40%	8	0.8%	6.7%	7%	40%
9	-1.0%	-15.4%	9%	42%	9	2.7%	30.5%	10%	47%	9	0.0%	-5.7%	10%	45%	9	0.7%	4.7%	7%	43%
10	-3.9%	-41.7%	10%	17%	10	2.1%	18.8%	12%	42%	10	-0.7%	-15.5%	12%	42%	10	0.7%	4.0%	9%	48%
Total Test	Avg	Rank	Avg	Avg	Total Test	Avg	Rank	Avg	Avg	Total Test	Avg	Rank	Avg	Avg	Total Test	Avg	Rank	Avg	Avg
Ref	IC	IC	IC	Assets	Ref	IC	IC	IC	Assets	Ref	IC	IC	IC	Assets	Ref	IC	IC	IC	Assets
Universe	-0.8%	8.8%	11.0%	461	Universe	2.1%	0.4%	1.5%	464	Universe	0.0%	2.5%	3.4%	500	Universe	0.8%	2.0%	2.5%	544
Strategy Statistics																			
Portfolio 1 less Portfolio 10																			
Arg	Avg	Ann	Std	% Outf.	Arg	Avg	Ann	Std	% Outf.	Arg	Avg	Ann	Std	% Outf.	Arg	Avg	Ann	Std	% Outf.
Ret	Ret	Ret	Devn	Perf.	Ret	Ret	Ret	Devn	Perf.	Ret	Ret	Ret	Devn	Perf.	Ret	Ret	Ret	Devn	Perf.
Long/Short	3.3%	44.0%	8.0%	83%	Long/Short	-0.7%	-12.2%	8.5%	61%	Long/Short	0.7%	4.0%	7.5%	63%	Long/Short	0.5%	3.3%	6.3%	56%
Active Ret	0.2%	1.8%	2.8%	58%	Active Ret	-0.7%	8.3%	3.4%	50%	Active Ret	0.0%	-0.6%	3.2%	57%	Active Ret	0.4%	3.8%	3.2%	57%
T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR	
Long/Short	1.9	2.1	93	0.2	Long/Short	-0.5	-0.4	94	-0.7	Long/Short	0.7	8.2	101	-0.1	Long/Short	1.1	0.1	112	0.4

* Annualized Risk-Free Rate of 5%

Portfolio Index Performance

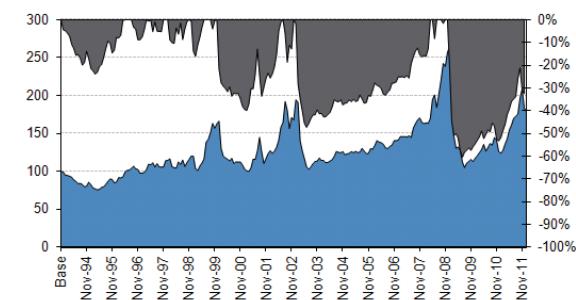


Portfolio Spread. Annual Returns

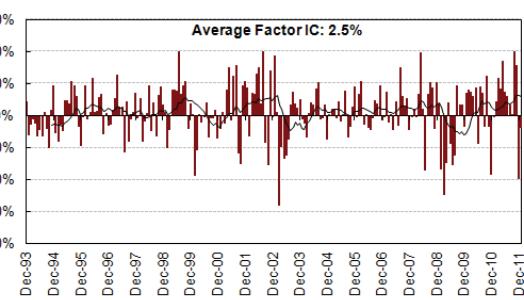


Cumulative (L/S) Returns

Max Drawdown: -60.1%

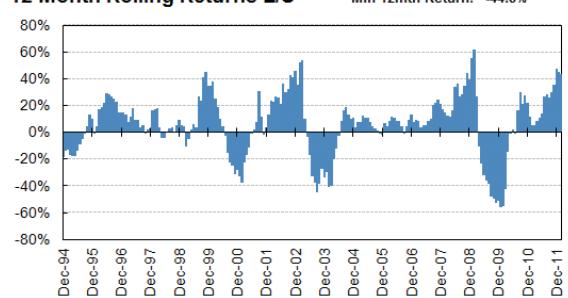


Information Co-Efficients (IC)



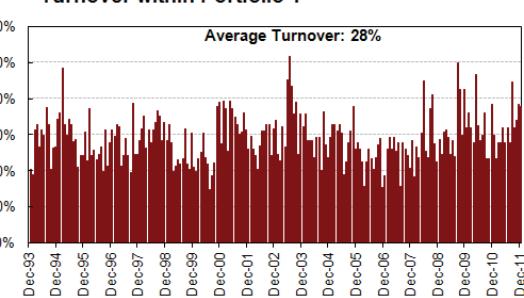
12 Month Rolling Returns L/S

Min 12mth Return: -44.8%



Turnover within Portfolio 1

Average Turnover: 28%

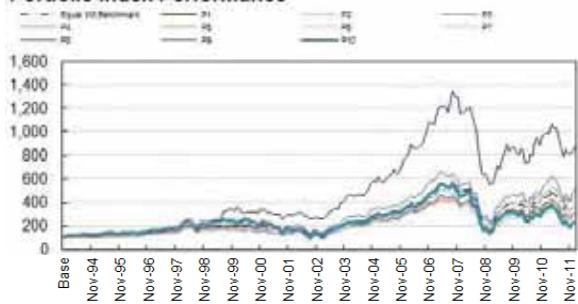


6 Month Price Momentum

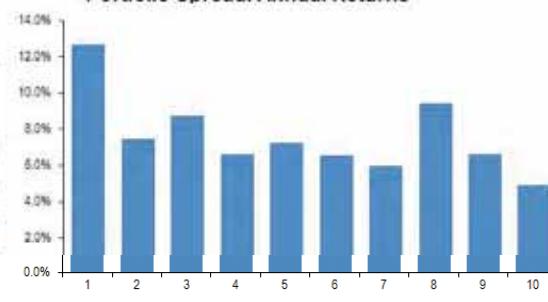
6 Mth Price Momentum							Rebalance every 1 month(s)																						
1 Year: 02/28/2011 to 02/29/2012					3 Years(s): 02/28/2009 to 02/28/2012					5 Year(s): 02/28/2007 to 02/29/2012					Total Period: 12/31/1993 to 02/29/2012														
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics															
Port	Avg	Ret	Ann	St	% Out	Port	Avg	Ret	Ann	St	% Out	Port	Avg	Ret	Ann	St	% Out	Port	Avg	Ret	Ann	St	% Out						
	Ref	Ret	Dev	Perf.			Ref	Ret	Ann	St	Perf.		Ref	Ret	Ann	St	Perf.		Ref	Ret	Ann	St	Perf.						
1	-0.0%	-12.3%	0%	50%		1	1.5%	15.4%	7%	44%		1	-0.1%	-4.0%	7%	50%		1	1.2%	12.7%	6%	57%							
2	-0.4%	-6.6%	6%	67%		2	1.7%	19.5%	7%	58%		2	-0.1%	-3.9%	7%	58%		2	0.7%	7.4%	5%	52%							
3	-0.3%	-5.9%	7%	67%		3	2.1%	24.4%	7%	58%		3	0.2%	-1.3%	8%	60%		3	0.8%	8.7%	5%	52%							
4	-0.2%	-12.5%	7%	58%		4	1.9%	21.2%	7%	44%		4	-0.1%	-4.5%	8%	50%		4	0.7%	6.5%	5%	45%							
5	-0.6%	-9.3%	7%	58%		5	2.3%	26.6%	8%	53%		5	0.2%	-1.6%	8%	55%		5	0.8%	7.3%	6%	50%							
6	-0.2%	-6.1%	8%	75%		6	2.2%	25.5%	8%	81%		6	0.1%	-3.5%	8%	60%		6	0.7%	6.5%	6%	43%							
7	-0.5%	-8.6%	8%	75%		7	2.3%	26.7%	8%	81%		7	-0.1%	-5.6%	8%	47%		7	0.7%	6.0%	6%	44%							
8	-0.4%	-6.6%	9%	50%		8	2.6%	30.3%	9%	56%		8	0.2%	-2.6%	9%	52%		8	1.0%	9.4%	7%	54%							
9	-1.5%	-20.0%	9%	25%		9	2.3%	24.5%	10%	36%		9	0.1%	-4.7%	10%	43%		9	0.8%	5.5%	7%	44%							
10	-2.7%	-32.8%	11%	17%		10	2.3%	21.2%	12%	44%		10	-0.5%	-13.5%	12%	38%		10	0.8%	4.9%	9%	46%							
Total Test	Avg	Rank	Avg	Avg		Total Test	Avg	Rank	Avg	Avg		Total Test	Avg	Rank	Avg	Avg		Total Test	Avg	Rank	Avg	Avg							
Ref	Ret	IC	IC	Assets		Ref	IC	IC	IC	Assets		Ref	IC	IC	IC	Assets		Ref	IC	IC	IC	Assets							
Universe	-0.8%	4.7%	8.1%	461		Universe	2.1%	-0.6%	0.8%	465		Universe	0.0%	1.3%	2.5%	504		Universe	0.8%	0.4%	1.4%	561							
Strategy Statistics														Strategy Statistics															
Portfolio 1 less Portfolio 10														Portfolio 1 less Portfolio 10															
Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out	Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std			
Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn			
Long/Short	1.8%	21.4%	8.3%	67%	Long/Short	-0.3%	-11.9%	7.4%	53%	Long/Short	0.4%	2.4%	5.8%	57%	Long/Short	0.4%	2.4%	6.1%	55%	Long/Short	0.4%	3.8%	2.9%	57%	Long/Short	0.9	0.1	113	64
Active Ret	-0.1%	-1.3%	2.8%	50%	Active Ret	-0.8%	-7.3%	2.8%	44%	Active Ret	-0.1%	-1.1%	2.8%	56%	Active Ret	-0.4%	-3.8%	2.9%	57%	Active Ret	-0.5	0.1	102	-0.1					
T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR	T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets			
Long/Short	1.0	1.0	93	-0.1	Long/Short	-0.0	-0.5	94	-0.8	Long/Short	0.5	0.1	102	-0.1	Long/Short	0.5	0.1	102	-0.1	Long/Short	0.9	0.1	113	64					

* Annualized Profit/Fee Ratio of 85

Portfolio Index Performance

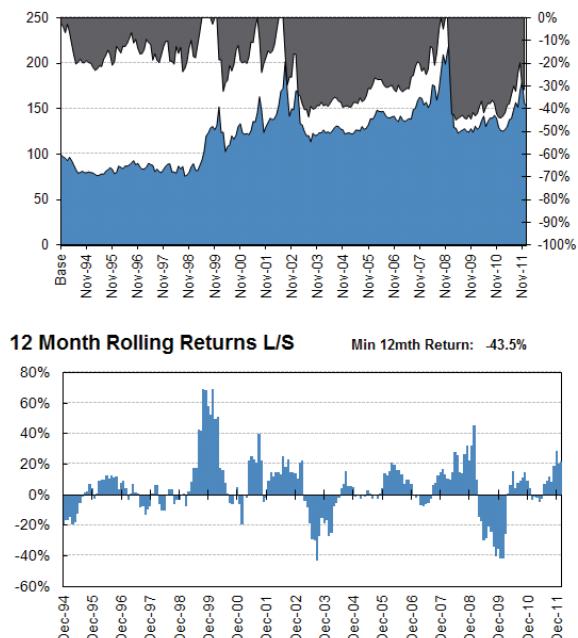


Portfolio Spread. Annual Returns

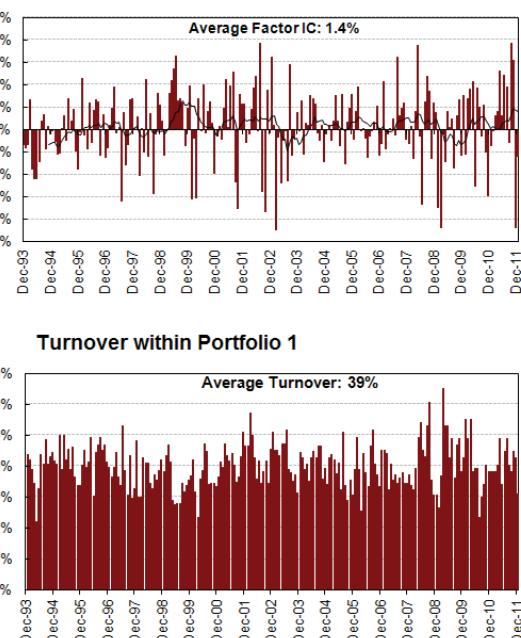


Cumulative (L/S) Returns

Max Drawdown: -44.9%



Information Co-Efficients (IC)

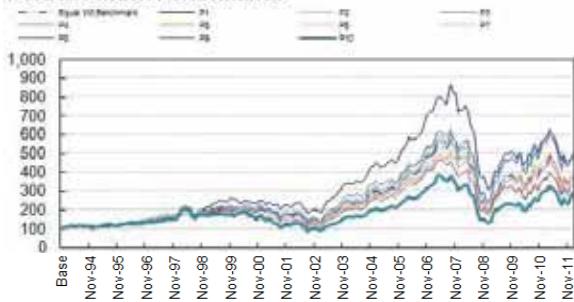


Price Acceleration (6 Months)

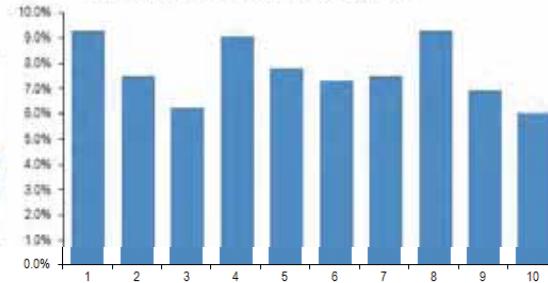
Price Acceleration 6M								Rebalance every 1 month(s)																														
1 Year: 02/28/2011 to 02/29/2012 Portfolio Statistics				3 Years(s): 02/28/2009 to 02/29/2012 Portfolio Statistics				5 Year(s): 02/28/2007 to 02/29/2012 Portfolio Statistics				Total Period: 12/31/1993 to 02/29/2012 Portfolio Statistics																										
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.														
1	-1.1%	-13.0%	0%	67%	1	1.5%	17.2%	7%	47%	1	-0.3%	-7.1%	7%	47%	1	0.9%	9.3%	0%	54%	1	0.9%	9.3%	0%	54%														
2	-1.0%	-12.7%	7%	33%	2	1.8%	20.4%	7%	39%	2	-0.3%	-7.1%	8%	43%	2	0.8%	7.5%	0%	50%	2	0.8%	7.5%	0%	50%														
3	-1.4%	-18.4%	7%	33%	3	1.5%	15.7%	7%	39%	3	-0.5%	-9.5%	8%	38%	3	0.7%	6.2%	0%	47%	3	0.7%	6.2%	0%	47%														
4	-1.0%	-14.1%	0%	58%	4	2.3%	27.0%	0%	56%	4	0.3%	-1.0%	8%	50%	4	0.9%	9.1%	0%	57%	4	0.9%	9.1%	0%	57%														
5	-1.2%	-16.0%	0%	33%	5	2.5%	28.7%	0%	64%	5	0.2%	-2.1%	9%	53%	5	0.8%	7.8%	0%	48%	5	0.8%	7.8%	0%	48%														
6	-1.0%	-14.5%	0%	33%	6	2.1%	23.2%	0%	44%	6	0.0%	-4.9%	9%	47%	6	0.0%	7.3%	0%	49%	6	0.0%	7.3%	0%	49%														
7	-0.8%	-13.2%	0%	33%	7	2.1%	23.9%	0%	44%	7	0.1%	-2.8%	8%	50%	7	0.8%	7.5%	0%	45%	7	0.8%	7.5%	0%	45%														
8	-0.5%	-0.7%	0%	58%	8	2.5%	29.6%	0%	53%	8	0.3%	-1.4%	9%	55%	8	0.0%	9.3%	0%	52%	8	0.0%	9.3%	0%	49%														
9	-0.3%	-6.6%	0%	75%	9	2.2%	24.9%	0%	53%	9	0.1%	-3.9%	9%	50%	9	0.8%	6.9%	0%	49%	9	0.8%	6.9%	0%	49%														
10	0.1%	-3.4%	0%	67%	10	2.7%	31.7%	0%	53%	10	0.2%	-2.0%	9%	52%	10	0.7%	6.0%	0%	48%	10	0.7%	6.0%	0%	48%														
Total Test				Total Test				Total Test				Total Test				Total Test				Total Test																		
Avg	Rank	Avg	Avg	Avg	Rank	Avg	Avg	Avg	Rank	Avg	Avg	Avg	Rank	Avg	Avg	Avg	Rank	Avg	Avg	Avg	Rank	Avg	Avg	Avg														
Ref	IC	IC	Assets	Ref	IC	IC	Assets	Ref	IC	IC	Assets	Ref	IC	IC	Assets	Ref	IC	IC	Assets	Ref	IC	IC	Assets	Ref	IC	IC	Assets											
Universe	-0.0%	-3.4%	-3.5%	452	Universe	2.1%	-2.2%	-2.0%	458	Universe	0.0%	-1.3%	-1.1%	466	Universe	0.8%	0.0%	0.4%	551	Universe	0.8%	0.0%	0.4%	551	Universe	0.0%	0.0%	0.0%	551									
Strategy Statistics																				Strategy Statistics																		
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10														
Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out											
Ret	Ret	Devn	Perf.	Ret	Ret	Ret	Perf.	Ret	Ret	Ret	Perf.	Ret	Ret	Ret	Perf.	Ret	Ret	Ret	Perf.	Ret	Ret	Ret	Perf.	Ret	Ret	Ret	Perf.											
Long/Short	-1.1%	-13.8%	4.3%	42%	Long/Short	-1.2%	-14.0%	3.9%	47%	Long/Short	-0.6%	-7.2%	3.6%	50%	Long/Short	-0.2%	1.6%	3.3%	52%	Long/Short	-0.1%	0.9%	1.9%	54%	Long/Short	-0.8%	0.1	1.1	51									
Active Ret	-0.2%	-3.2%	2.7%	67%	Active Ret	-0.8%	-7.2%	2.3%	47%	Active Ret	-0.3%	-4.2%	2.1%	47%	Active Ret	-0.1%	0.9%	1.9%	54%	Active Ret	-T Stat	Sharpe*	Assets	IR	Long/Short	-1.2	-0.6	100	-0.6									
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR										
Long/Short	-0.3	-0.9	91	-0.3	Long/Short	-1.8	-1.0	92	-0.9	Long/Short	-0.6	-0.6	100	-0.6	Long/Short	-0.2	-0.1	111	-0.1	Long/Short	-0.8	-0.1	111	-0.1	Long/Short	-0.6	-0.1	111	-0.1									

* assumes P/B/P/E Ratio of 5.5

Portfolio Index Performance

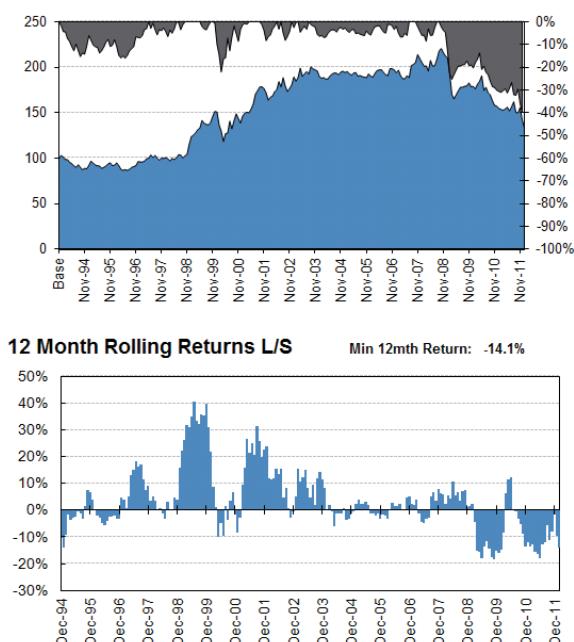


Portfolio Spread. Annual Returns

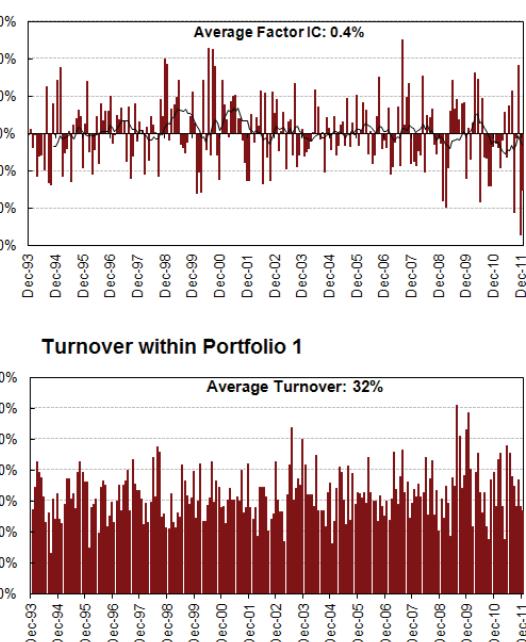


Cumulative (L/S) Returns

Max Drawdown: -39.5%

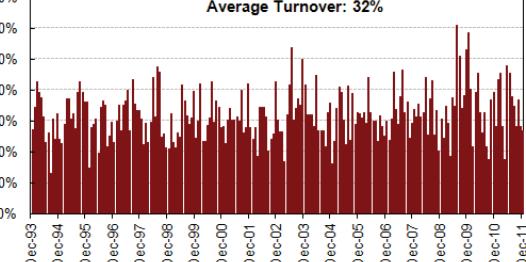


Information Co-Efficients (IC)



Turnover within Portfolio 1

Average Turnover: 32%



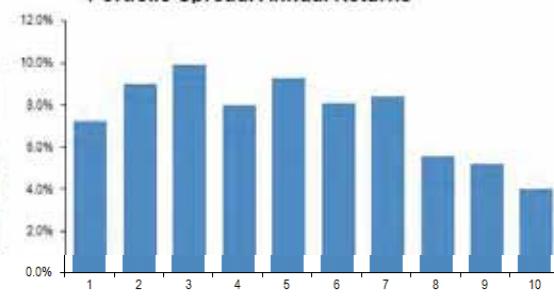
Percent Off 52 Week High

Percent Off 52 Week High						Rebalance every 1 month(s)																		
1 Year: 02/28/2011 to 02/29/2012 Portfolio Statistics						3 Years(s): 02/28/2009 to 02/28/2012 Portfolio Statistics						5 Year(s): 02/28/2007 to 02/29/2012 Portfolio Statistics						Total Period: 12/31/1993 to 02/29/2012 Portfolio Statistics						
Port	Avg	Ann	St	% Out	Perf.	Port	Avg	Ann	St	% Out	Perf.	Port	Avg	Ann	St	% Out	Perf.	Port	Avg	Ann	St	% Out	Perf.	
1	-0.2%	-3.9%	0%	67%		1	1.1%	11.9%	0%	38%		1	-0.3%	-5.5%	0%	40%		1	0.7%	7.2%	5%	46%		
2	-0.4%	-7.2%	7%	67%		2	1.9%	18.1%	0%	50%		2	0.1%	-1.7%	7%	58%		2	0.8%	0.0%	5%	54%		
3	-0.5%	-7.6%	6%	75%		3	1.8%	21.1%	6%	56%		3	0.0%	-3.0%	7%	57%		3	0.9%	0.9%	5%	56%		
4	-0.3%	-6.5%	7%	83%		4	2.1%	25.2%	7%	58%		4	0.1%	-3.0%	0%	58%		4	0.8%	0.0%	5%	56%		
5	-0.4%	-8.1%	8%	83%		5	2.2%	20.0%	8%	69%		5	0.2%	-1.1%	8%	65%		5	0.9%	0.2%	6%	53%		
6	-0.3%	-6.5%	8%	75%		6	2.3%	25.9%	8%	56%		6	0.1%	-2.9%	8%	57%		6	0.8%	8.1%	6%	51%		
7	-0.3%	-7.5%	8%	67%		7	2.5%	29.1%	0%	58%		7	0.2%	-1.8%	9%	57%		7	0.9%	8.4%	6%	53%		
8	-0.9%	-14.7%	10%	42%		8	2.7%	30.9%	10%	58%		8	0.0%	-5.2%	10%	48%		8	0.7%	5.6%	7%	44%		
9	-1.3%	-18.8%	10%	33%		9	2.7%	29.5%	11%	47%		9	0.0%	-6.4%	11%	42%		9	0.7%	5.2%	8%	44%		
10	-3.7%	-40.4%	11%	17%		10	2.2%	19.1%	12%	42%		10	-0.7%	-15.4%	12%	40%		10	0.7%	4.0%	9%	47%		
Total Test						Total Test						Total Test						Total Test						
Avg	Rank	Avg	Avg			Avg	Rank	Avg	Avg			Avg	Rank	Avg	Avg			Avg	Rank	Avg	Avg			
Ref	IC	IC	Assets			Ref	IC	IC	Assets			Ref	IC	IC	Assets			Ref	IC	IC	Assets			
Universe	-0.8%	8.4%	14.0%	461		Universe	-2.1%	-1.1%	465			Universe	0.0%	3.5%	505			Universe	0.8%	0.7%	1.3%	583		
Strategy Statistics																								
Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10						
Avg	Ann	Std	% Out			Avg	Ann	Std	% Out			Avg	Ann	Std	% Out			Avg	Ann	Std	% Out			
Ret	Ret	Devn	Perf.			Ret	Ret	Ret	Perf.			Ret	Ret	Devn	Perf.			Ret	Ret	Devn	Perf.			
Long/Short	3.5%	48.5%	8.2%	75%		Long/Short	-1.1%	-18.0%	8.3%	56%		Long/Short	0.4%	1.1%	7.5%	58%		Long/Short	0.0%	-2.9%	5.3%	53%		
Active Ret	0.7%	7.8%	2.6%	67%		Active Ret	-1.0%	-12.0%	3.2%	36%		Active Ret	-0.3%	-3.6%	3.1%	40%		Active Ret	-0.1%	-1.6%	2.5%	46%		
T-Stat	Sharpe*	Assets	IR			T-Stat	Sharpe*	Assets	IR			T-Stat	Sharpe*	Assets	IR			T-Stat	Sharpe*	Assets	IR			
Long/Short	2.0	2.2	93	0.9		Long/Short	-0.8	-0.6	94	-1.1		Long/Short	0.4	8.0	102	-0.3		Long/Short	-0.1	-0.1	113	-0.2		

Portfolio Index Performance

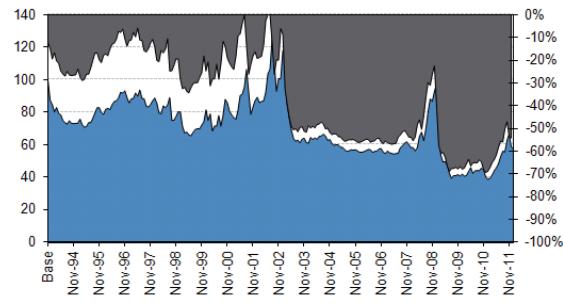


Portfolio Spread. Annual Returns

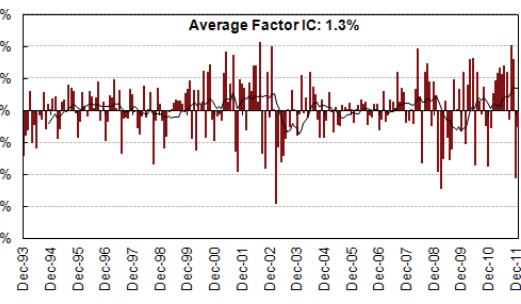


Cumulative (L/S) Returns

Max Drawdown: -68.9%

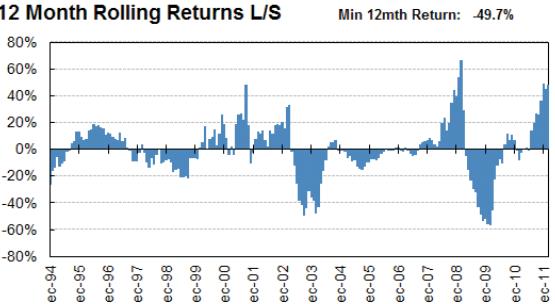


Information Co-Efficients (IC)

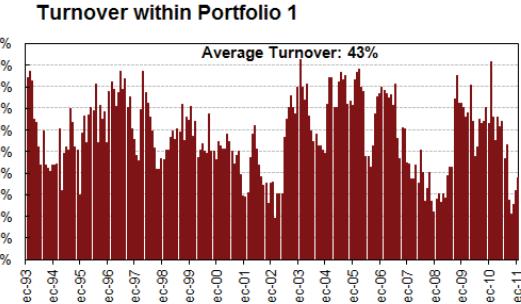


12 Month Rolling Returns L/S

Min 12mth Return: -49.7%



Turnover within Portfolio 1



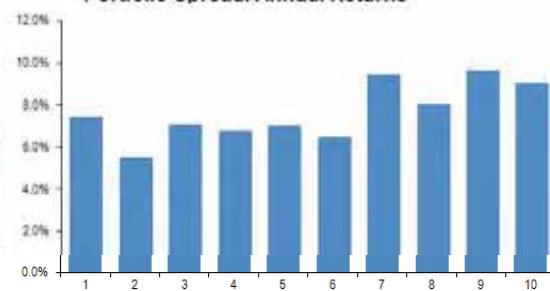
Price Acceleration (3 Months)

Price Acceleration 3M								Rebalance every 1 month(s)											
1 Year: 02/28/2011 to 02/29/2012 Portfolio Statistics				3 Years(s): 02/28/2009 to 02/29/2012 Portfolio Statistics				5 Year(s): 02/28/2007 to 02/29/2012 Portfolio Statistics				Total Period: 12/31/1993 to 02/29/2012 Portfolio Statistics							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	-0.7%	-10.1%	0%	58%	1	1.8%	20.4%	7%	38%	1	-0.1%	-7.7%	7%	43%	1	0.7%	7.4%	5%	45%
2	-1.4%	-18.1%	7%	25%	2	1.5%	16.0%	7%	39%	2	-0.4%	-8.6%	8%	37%	2	0.6%	5.5%	6%	44%
3	-1.1%	-14.0%	7%	42%	3	1.9%	21.4%	8%	50%	3	-0.2%	-6.2%	8%	47%	3	0.8%	7.1%	6%	44%
4	-1.0%	-14.5%	8%	33%	4	2.4%	27.7%	8%	55%	4	-0.1%	-5.4%	9%	47%	4	0.7%	5.8%	6%	50%
5	-1.2%	-17.1%	8%	25%	5	1.9%	21.2%	8%	42%	5	-0.3%	-7.0%	9%	38%	5	0.8%	7.0%	6%	53%
6	-1.0%	-14.2%	8%	50%	6	2.1%	24.3%	8%	47%	6	0.0%	-4.2%	8%	45%	6	0.7%	6.5%	6%	50%
7	-1.1%	-15.4%	8%	33%	7	2.1%	23.9%	8%	50%	7	0.1%	-3.0%	9%	52%	7	0.9%	8.4%	6%	55%
8	-0.7%	-11.9%	9%	42%	8	2.1%	23.8%	9%	47%	8	0.0%	-4.6%	8%	48%	8	0.8%	8.0%	6%	50%
9	0.0%	-4.4%	8%	75%	9	2.5%	29.1%	9%	53%	9	0.5%	1.6%	9%	60%	9	1.0%	9.7%	9%	51%
10	0.0%	-3.9%	9%	67%	10	2.7%	31.2%	9%	56%	10	0.3%	-1.7%	9%	55%	10	0.9%	9.0%	7%	51%
Total Test				Total Test				Total Test				Total Test				Total Test			
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg	
Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets	
Universe	-0.8%	-3.3%	-3.8%	453	Universe	2.1%	-2.4%	-2.0%	453	Universe	0.0%	-2.0%	-1.8%	495	Universe	0.8%	-1.5%	-0.6%	522
Strategy Statistics																			
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10			
Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out
Long/Short	-0.8%	-9.5%	3.8%	42%	Long/Short	-0.9%	-11.0%	3.9%	39%	Long/Short	-0.4%	-4.9%	3.6%	45%	Long/Short	-0.2%	-3.0%	3.2%	47%
Active Ret	0.1%	0.8%	2.7%	58%	Active Ret	-0.3%	-4.1%	2.1%	36%	Active Ret	0.0%	-0.8%	2.2%	43%	Active Ret	-0.1%	-0.0%	1.8%	45%
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR	
Long/Short	-0.7	92	0.1		Long/Short	-1.4	-0.8	91	-0.6	Long/Short	-0.8	-0.4	100	-0.1	Long/Short	-0.9	-0.3	111	-0.1

Portfolio Index Performance

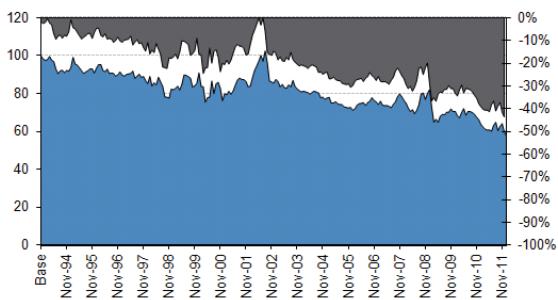


Portfolio Spread. Annual Returns

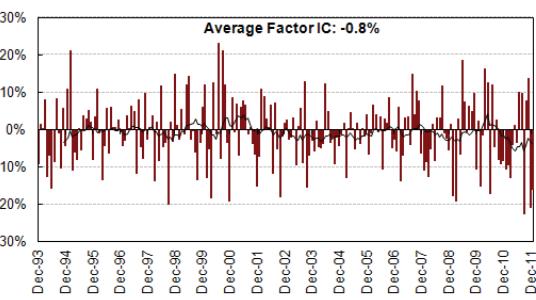


Cumulative (L/S) Returns

Max Drawdown: -43.5%

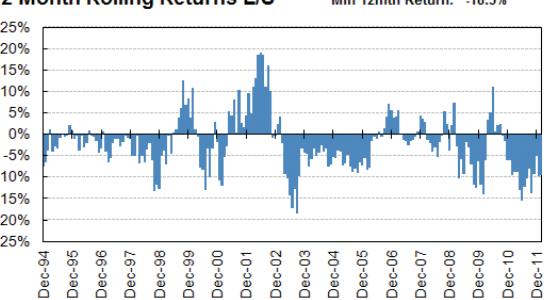


Information Co-Efficients (IC)

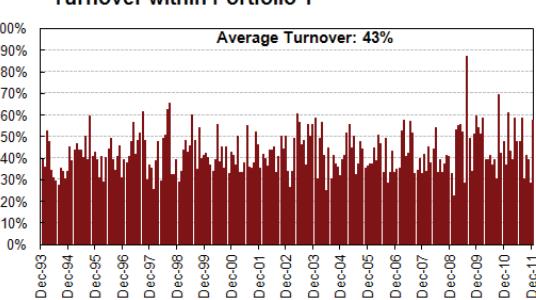


12 Month Rolling Returns L/S

Min 12mth Return: -18.5%



Turnover within Portfolio 1

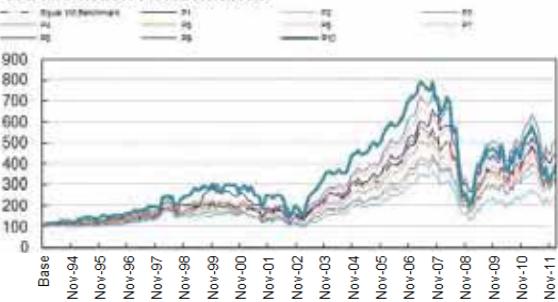


3 Month Price Momentum

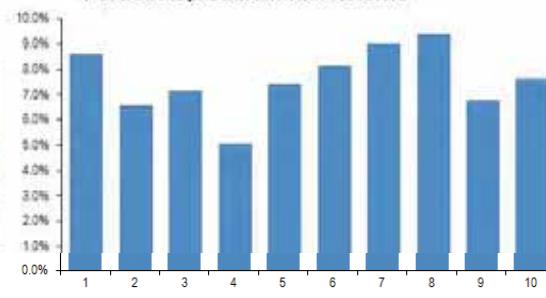
3 Mth Price Momentum							Rebalance every 1 month(s)																						
1 Year: 02/28/2011 to 02/29/2012					3 Years(s): 02/28/2009 to 02/28/2012					5 Year(s): 02/28/2007 to 02/29/2012					Total Period: 12/31/1993 to 02/29/2012														
Portfolio Statistics					Portfolio Statistics					Portfolio Statistics					Portfolio Statistics														
Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out										
Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.										
1	-0.0%	-0.2%	0%	50%	1	1.7%	19.3%	7%	42%	1	0.0%	-3.1%	7%	52%	1	0.0%	0.0%	0%	50%										
2	-0.3%	-5.8%	7%	75%	2	2.0%	22.3%	7%	53%	2	0.1%	-2.0%	8%	55%	2	0.7%	6.6%	5%	46%										
3	-0.2%	-5.1%	7%	83%	3	2.3%	27.8%	7%	60%	3	0.2%	-1.4%	8%	68%	3	0.7%	7.2%	5%	52%										
4	-0.1%	-3.5%	7%	83%	4	2.0%	23.5%	7%	58%	4	-0.1%	-4.6%	8%	53%	4	0.5%	5.0%	0%	41%										
5	-0.6%	-10.2%	8%	67%	5	2.0%	22.3%	7%	61%	5	0.0%	-3.9%	8%	62%	5	0.8%	7.4%	6%	53%										
6	-0.8%	-11.5%	7%	42%	6	2.2%	25.0%	8%	50%	6	0.2%	-1.5%	8%	58%	6	0.8%	8.1%	6%	40%										
7	-0.5%	-0.7%	8%	58%	7	2.4%	27.9%	8%	58%	7	0.0%	-3.9%	8%	52%	7	0.9%	9.0%	6%	55%										
8	-0.0%	-13.1%	9%	50%	8	2.2%	24.7%	8%	53%	8	0.0%	-4.0%	9%	50%	8	1.0%	9.4%	6%	54%										
9	-2.0%	-25.0%	10%	42%	9	2.1%	21.7%	10%	53%	9	-0.3%	-8.4%	10%	50%	9	0.8%	6.8%	7%	49%										
10	-2.3%	-29.0%	10%	25%	10	2.4%	23.4%	12%	42%	10	-0.4%	-12.1%	11%	35%	10	1.0%	7.6%	8%	47%										
Total Test					Total Test					Total Test					Total Test														
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg											
Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets											
Universe	-0.0%	8.7%	9.3%	461	Universe	-2.1%	-0.1%	0.4%	465	Universe	0.0%	1.1%	2.2%	505	Universe	0.0%	-1.7%	-0.2%	584										
Strategy Statistics														Strategy Statistics															
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10									
Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out	
Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.	
Long/Short	1.7%	20.4%	5.1%	58%	Long/Short	-0.7%	-10.0%	8.3%	42%	Long/Short	0.4%	2.0%	5.0%	52%	Long/Short	-0.1%	-3.2%	5.5%	51%	Long/Short	-0.1%	-3.2%	5.5%	50%	Long/Short	-0.3%	-0.2%	114	0.0
Active Ret	0.2%	2.0%	2.2%	50%	Active Ret	-0.4%	-4.9%	2.1%	42%	Active Ret	0.0%	0.0%	2.3%	52%	Active Ret	0.0%	0.1%	2.8%	50%	Active Ret	0.0%	0.1%	2.8%	50%	Active Ret	0.0%	0.1%	102	0.0
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR	
Long/Short	1.1	1.2	93	0.3	Long/Short	-0.0	-0.5	94	-0.7	Long/Short	0.5	8.1	102	0.0	Long/Short	-0.3	-0.2	114	0.0	Long/Short	-0.3	-0.2	114	0.0	Long/Short	-0.3	-0.2	114	0.0

* Annualized Profit/Freq Ratio of 0.5

Portfolio Index Performance

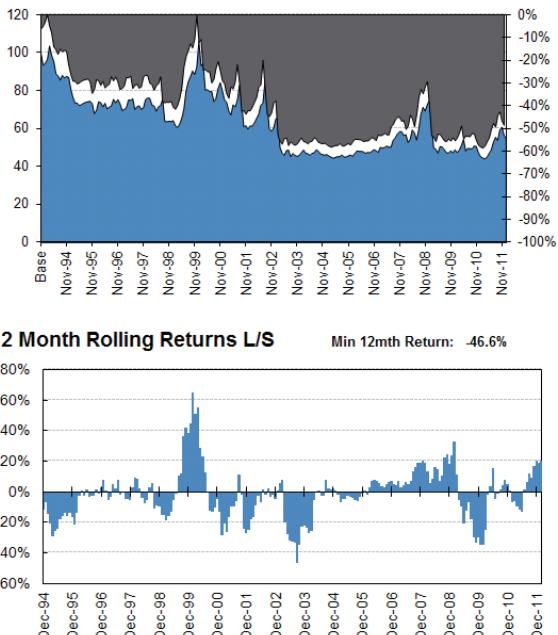


Portfolio Spread. Annual Returns

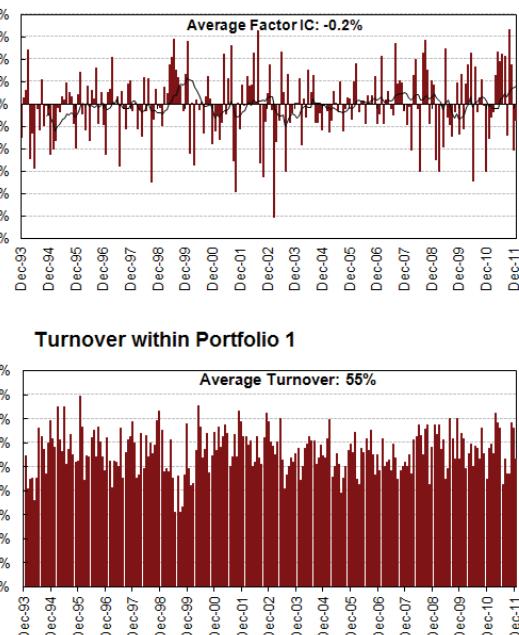


Cumulative (L/S) Returns

Max Drawdown: -58.3%

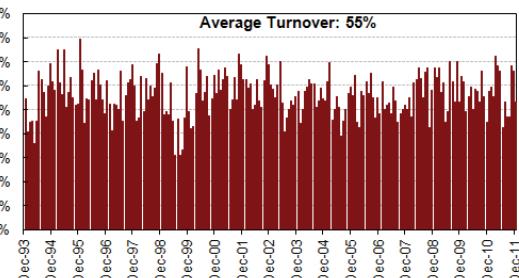


Information Co-Efficients (IC)



Turnover within Portfolio 1

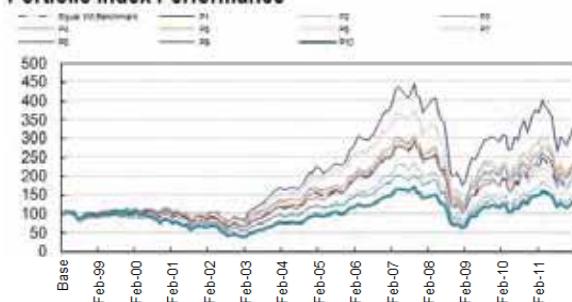
Average Turnover: 55%



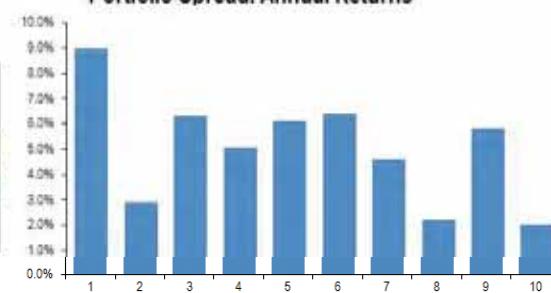
Asset Turnover (Historical)

Asset Turnover Growth (Historical)								Rebalance every 1 month(s)											
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/28/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 03/31/1998 to 02/29/2012							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	-0.7%	-11.0%	9%	50%	1	2.1%	23.4%	8%	50%	1	0.1%	-2.5%	8%	63%	1	0.9%	9.0%	6%	32%
2	-0.8%	-12.0%	8%	50%	2	2.0%	22.2%	8%	47%	2	-0.1%	-5.8%	8%	52%	2	0.5%	2.8%	7%	50%
3	-0.4%	-8.0%	8%	67%	3	2.3%	26.5%	8%	50%	3	0.2%	-1.0%	8%	52%	3	0.7%	6.3%	6%	50%
4	-1.6%	-21.7%	9%	33%	4	1.9%	20.8%	9%	42%	4	-0.2%	-6.2%	9%	43%	4	0.6%	5.0%	7%	46%
5	-1.6%	-20.2%	8%	25%	5	2.0%	22.8%	8%	53%	5	0.0%	-3.5%	8%	53%	5	0.7%	6.1%	6%	54%
6	-0.6%	-8.5%	7%	50%	6	2.0%	22.8%	8%	44%	6	-0.1%	-6.1%	8%	45%	6	0.7%	6.4%	7%	53%
7	-1.0%	-13.5%	7%	50%	7	2.0%	21.3%	8%	50%	7	0.1%	-6.3%	9%	50%	7	0.6%	4.6%	7%	49%
8	-0.5%	-8.2%	7%	83%	8	2.2%	23.9%	9%	50%	8	-0.1%	-5.7%	9%	45%	8	0.4%	2.2%	7%	46%
9	-0.4%	-7.5%	7%	58%	9	2.4%	29.1%	8%	61%	9	0.1%	-2.6%	8%	52%	9	0.7%	5.8%	7%	50%
10	-0.8%	-11.4%	7%	50%	10	2.5%	29.5%	8%	61%	10	0.2%	-1.9%	9%	58%	10	0.4%	2.0%	7%	46%
Total Test	Avg Ret	Rank IC	Avg IC	Avg Assets	Total Test	Avg Ret	Rank IC	Avg IC	Avg Assets	Total Test	Avg Ret	Rank IC	Avg IC	Avg Assets	Total Test	Avg Ret	Rank IC	Avg IC	Avg Assets
Universe	-0.8%	-0.5%	-0.5%	448	Universe	2.1%	-0.9%	452	Universe	0.0%	-0.2%	-0.3%	451	Universe	0.8%	0.9%	0.9%	500	
<small>* Standard Pairs Ratio of 0.5</small>																			
<small>Strategy Statistics: Portfolio 1 less Portfolio 10</small>																			
Avg Ann Std % Out				Avg Ann Std % Out				Avg Ann Std % Out				Avg Ann Std % Out							
Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.				
Long/Short	0.1%	0.9%	2.6%	50%	Long/Short	-0.4%	-5.4%	2.5%	44%	Long/Short	-0.1%	-1.1%	2.1%	55%	Long/Short	0.5%	6.1%	2.3%	62%
Active Ret	0.2%	1.9%	1.6%	50%	Active Ret	-0.1%	-1.0%	1.5%	50%	Active Ret	0.1%	1.5%	1.4%	53%	Active Ret	0.3%	3.6%	1.3%	62%
T-Stat Sharpe* Assets IR	0.1	0.1	90	0.3	T-Stat Sharpe* Assets IR	-1.0	-0.6	91	-0.2	T-Stat Sharpe* Assets IR	-0.3	-0.2	99	0.3	T-Stat Sharpe* Assets IR	2.9	0.8	101	0.8

Portfolio Index Performance

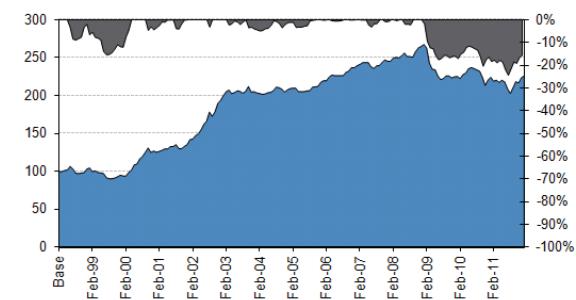


Portfolio Spread. Annual Returns

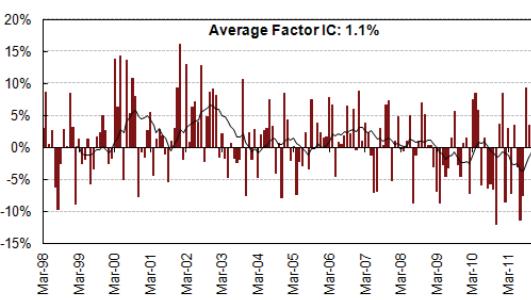


Cumulative (L/S) Returns

Max Drawdown: -24.1%

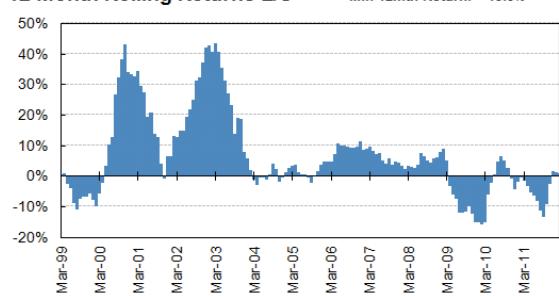


Information Co-Efficients (IC)

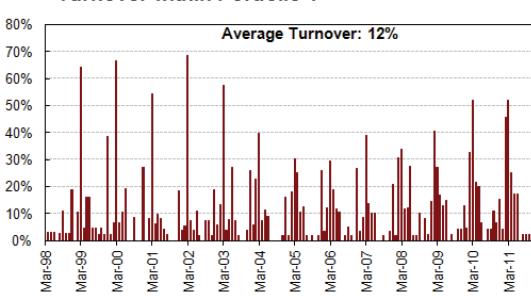


12 Month Rolling Returns L/S

Min 12mth Return: -15.8%



Turnover within Portfolio 1



ALTMAN Z-score

ALTMAN Z-score								Rebalance every 1 month(s)												
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/28/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 03/31/1998 to 02/29/2012								
Portfolio Statistics								Portfolio Statistics												
Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port					
Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref					
1	0.5%	3.2%	7%	75%	1	2.4%	30.0%	7%	51%	1	0.4%	1.4%	7%	60%	1	0.9%	8.6%	6%	53%	
2	-0.1%	-5.6%	0%	67%	2	2.7%	33.0%	8%	72%	2	0.5%	1.6%	8%	68%	2	0.9%	8.6%	6%	62%	
3	-0.6%	-10.6%	8%	50%	3	2.0%	22.8%	7%	50%	3	0.2%	-1.3%	8%	55%	3	0.8%	7.3%	6%	57%	
4	-0.8%	-13.2%	9%	50%	4	2.1%	24.0%	8%	50%	4	0.2%	-2.4%	8%	55%	4	0.5%	4.9%	7%	48%	
5	-0.3%	-7.2%	8%	58%	5	2.5%	30.1%	8%	56%	5	0.5%	1.0%	9%	63%	5	0.6%	7.3%	7%	55%	
6	-0.5%	-8.6%	8%	58%	6	2.1%	24.8%	7%	58%	6	0.2%	-1.5%	8%	58%	6	0.6%	5.2%	6%	52%	
7	-1.1%	-14.8%	7%	58%	7	1.8%	20.4%	8%	50%	7	0.0%	-3.9%	8%	55%	7	0.7%	8.2%	6%	54%	
8	-1.0%	-13.5%	7%	58%	8	1.5%	15.8%	7%	42%	8	-0.5%	-0.2%	8%	45%	8	0.4%	1.9%	6%	48%	
9	-0.9%	-12.6%	8%	33%	9	2.1%	22.3%	10%	38%	9	-0.5%	-16.5%	10%	38%	9	0.3%	0.8%	7%	46%	
10	-3.7%	-39.6%	10%	25%	10	1.8%	14.2%	12%	38%	10	-1.0%	-18.3%	12%	30%	10	0.4%	-0.2%	9%	43%	
Total Test	Avg	Rank	Avg	Avg	Total Test	Avg	Rank	Avg	Avg	Total Test	Avg	Rank	Avg	Avg	Total Test					
Ref	IC	IC	IC	Assets	Ref	IC	IC	IC	Assets	Ref	IC	IC	IC	Assets	Ref	IC	IC	Assets		
Universe	-0.9%	11.3%	9.9%	448	Universe	2.1%	5.7%	451	455	Universe	0.0%	5.2%	5.3%	486	486	Universe	0.6%	2.7%	2.1%	515
Strategy Statistics																				
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10								
Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out					
Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.					
Long/Short	4.2%	59.4%	8.4%	83%	Long/Short	0.6%	3.8%	7.7%	64%	Long/Short	1.4%	15.1%	5.6%	68%	Long/Short	0.5%	5.0%	4.7%	57%	
Active Ret	1.3%	18.0%	2.3%	75%	Active Ret	0.3%	3.3%	2.3%	61%	Active Ret	0.4%	4.6%	2.1%	60%	Active Ret	0.2%	2.7%	1.8%	53%	
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		
Long/Short	2.2	2.7	90	2.1	Long/Short	0.5	0.1	92	9.4	Long/Short	1.6	8.7	100	8.6	Long/Short	1.4	0.3	104	8.4	

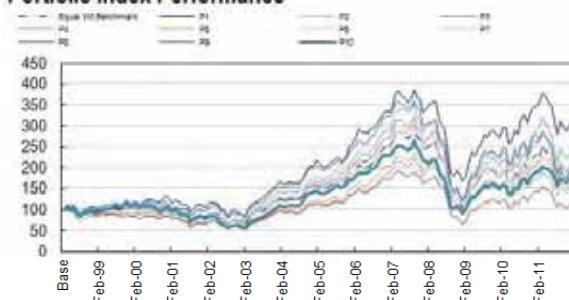
Portfolio Index Performance



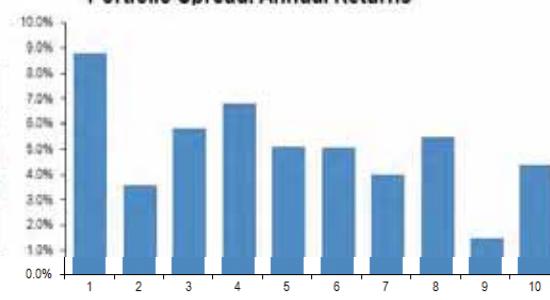
Asset Turnover (Historical)

Asset Turnover (Historical)						Rebalance every 1 month(s)																	
1 Year: 02/28/2011 to 02/29/2012 Portfolio Statistics						3 Years(s): 02/28/2009 to 02/28/2012 Portfolio Statistics						5 Year(s): 02/28/2007 to 02/29/2012 Portfolio Statistics						Total Period: 03/31/1998 to 02/29/2012 Portfolio Statistics					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.				
1	-0.4%	-7.1%	7%	50%	1	2.1%	24.3%	7%	56%	1	0.2%	-0.6%	8%	60%	1	0.9%	8.8%	6%	50%				
2	-0.3%	-6.4%	7%	75%	2	1.9%	22.1%	7%	53%	2	0.1%	-2.7%	8%	57%	2	0.5%	3.6%	6%	47%				
3	-1.1%	-16.1%	9%	25%	3	2.0%	22.0%	8%	42%	3	0.0%	-4.2%	9%	45%	3	0.7%	5.8%	7%	51%				
4	-0.3%	-13.4%	8%	50%	4	2.3%	26.1%	8%	53%	4	0.1%	-1.0%	9%	53%	4	0.8%	6.8%	7%	50%				
5	0.0%	-3.5%	8%	83%	5	2.7%	32.1%	8%	51%	5	0.3%	-0.3%	9%	63%	5	0.7%	5.1%	7%	53%				
6	-0.0%	-13.6%	8%	42%	6	2.0%	21.7%	8%	47%	6	-0.1%	-4.8%	8%	50%	6	0.6%	5.1%	7%	48%				
7	-1.5%	19.6%	8%	33%	7	2.2%	22.9%	8%	38%	7	-0.3%	-8.5%	9%	38%	7	0.6%	4.0%	7%	45%				
8	-2.0%	-24.9%	9%	33%	8	2.0%	20.4%	9%	47%	8	-0.3%	-8.2%	9%	43%	8	0.7%	5.5%	7%	52%				
9	-1.0%	-15.4%	9%	67%	9	2.1%	23.2%	9%	56%	9	-0.2%	-5.7%	9%	50%	9	0.3%	1.5%	7%	38%				
10	-0.2%	-4.4%	8%	67%	10	2.1%	25.4%	7%	53%	10	-0.1%	-4.6%	8%	48%	10	0.6%	4.4%	6%	51%				
Total Test	Avg Ret	Rank	Avg Ret	Avg Assets	Total Test	Avg Ret	Rank	Avg Ret	Avg Assets	Total Test	Avg Ret	Rank	Avg Ret	Avg Assets	Total Test	Avg Ret	Rank	Avg Ret	Avg Assets				
Universe	-0.8%	2.4%	2.1%	458	Universe	2.1%	0.5%	1.4%	452	Universe	0.0%	1.7%	1.4%	503	Universe	0.6%	1.1%	0.9%	515				
<small>* Standard P/B/P/E Ratio of 0.5</small>																							
<small>Strategy Statistics - Portfolio 1 less Portfolio 10</small>																							
<small>Portfoilo 1 Avg Ann Std % Out Ret Ret Devn Perf.</small>																							
Long/Short	-0.2%	-2.2%	1.3%	50%	Long/Short	-0.1%	-1.0%	1.3%	56%	Long/Short	0.3%	3.0%	2.0%	57%	Long/Short	0.3%	3.8%	2.2%	59%				
Active Ret	0.4%	5.3%	1.3%	50%	Active Ret	-0.1%	-0.8%	1.6%	56%	Active Ret	0.2%	2.8%	1.6%	60%	Active Ret	0.3%	3.2%	1.5%	58%				
T-Stat Sharpe* Assets IR	-0.5	-0.5	92	1.2	T-Stat Sharpe* Assets IR	-0.2	-0.2	93	0.1	T-Stat Sharpe* Assets IR	1.2	0.5	101	0.5	T-Stat Sharpe* Assets IR	2.0	0.5	104	0.6				

Portfolio Index Performance

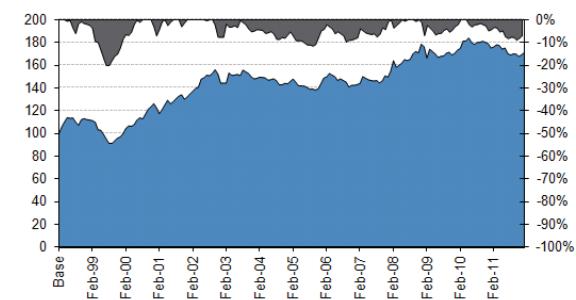


Portfolio Spread. Annual Returns

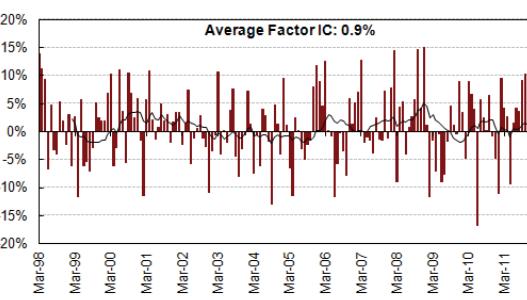


Cumulative (L/S) Returns

Max Drawdown: -19.9%

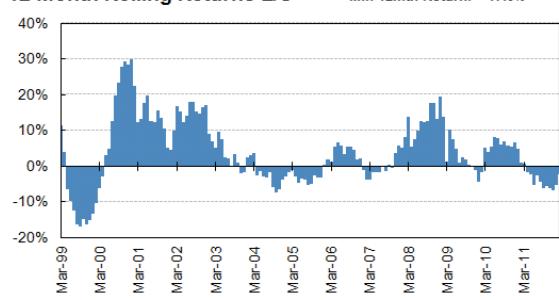


Information Co-Efficients (IC)

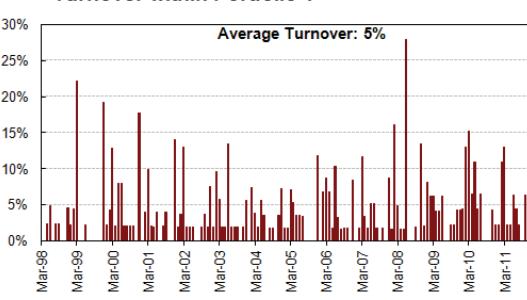


12 Month Rolling Returns L/S

Min 12mth Return: -17.0%



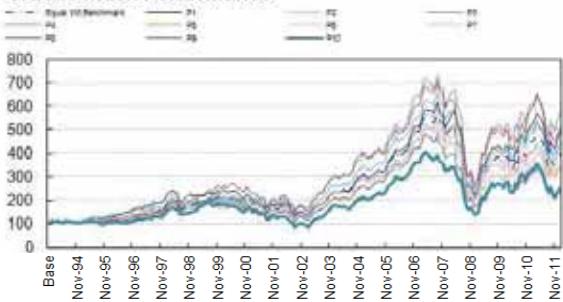
Turnover within Portfolio 1



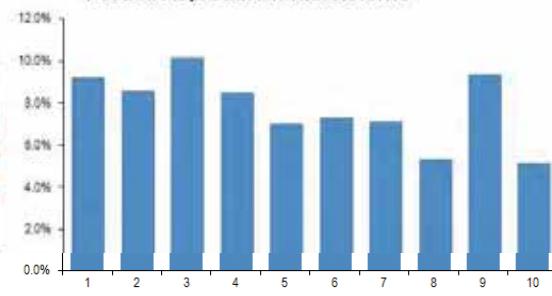
Internal Growth

Internal Growth						Rebalance every 1 month(s)																		
1 Year: 02/28/2011 to 02/29/2012 Portfolio Statistics						3 Years(s): 02/28/2009 to 02/28/2012 Portfolio Statistics						5 Year(s): 02/28/2007 to 02/29/2012 Portfolio Statistics						Total Period: 12/31/1993 to 02/29/2012 Portfolio Statistics						
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.					
1	-0.2%	-6.0%	8%	75%	1	2.8%	30.5%	8%	67%	1	0.3%	-1.0%	9%	82%	1	0.9%	9.2%	6%	56%					
2	-0.5%	-8.4%	8%	87%	2	2.5%	29.2%	8%	61%	2	0.2%	-2.2%	8%	55%	2	0.9%	8.6%	6%	50%					
3	-0.1%	-4.7%	8%	67%	3	2.7%	32.4%	8%	67%	3	0.2%	-1.8%	9%	60%	3	1.0%	10.2%	6%	58%					
4	-1.0%	-14.4%	8%	50%	4	2.1%	23.7%	8%	53%	4	0.0%	-4.6%	9%	53%	4	0.9%	8.5%	6%	51%					
5	-0.3%	-6.6%	8%	75%	5	2.2%	25.9%	8%	53%	5	0.0%	-4.1%	9%	50%	5	0.8%	7.0%	6%	48%					
6	-0.0%	-13.3%	7%	50%	6	1.9%	20.8%	8%	39%	6	-0.1%	-5.0%	8%	47%	6	0.0%	7.3%	6%	46%					
7	-1.0%	-14.3%	7%	42%	7	1.6%	17.3%	8%	33%	7	-0.1%	-5.4%	8%	47%	7	0.7%	7.1%	6%	45%					
8	-1.4%	-18.2%	8%	42%	8	1.4%	14.0%	7%	42%	8	-0.5%	-8.2%	8%	43%	8	0.6%	5.4%	6%	48%					
9	-1.0%	-14.9%	8%	58%	9	2.1%	23.8%	8%	56%	9	0.1%	-3.5%	8%	52%	9	0.9%	9.3%	6%	52%					
10	-2.0%	-25.2%	9%	33%	10	2.1%	21.8%	10%	47%	10	-0.2%	-7.3%	9%	36%	10	0.6%	5.1%	7%	43%					
Total Test						Total Test						Total Test						Total Test						
Avg	Rank	Avg	Avg			Avg	Rank	Avg	Avg			Avg	Rank	Avg	Avg			Avg	Rank	Avg	Avg			
Ref	IC	IC	Assets			Ref	IC	IC	Assets			Ref	IC	IC	Assets			Ref	IC	IC	Assets			
Universe	-0.8%	3.8%	6.5%	455		Universe	2.1%	3.1%	2.4%	480		Universe	0.0%	2.4%	1.8%	480		Universe	0.8%	1.9%	1.5%	528		
Strategy Statistics																				Strategy Statistics				
Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10						
Avg	Ann	Std	% Out			Avg	Ann	Std	% Out			Avg	Ann	Std	% Out			Avg	Ann	Std	% Out			
Ret	Ret	Down	Perf.			Ret	Ret	Down	Perf.			Ret	Ret	Down	Perf.			Ret	Ret	Down	Perf.			
Long/Short	1.8%	23.8%	2.5%	83%		Long/Short	0.5%	5.1%	3.1%	53%		Long/Short	0.5%	5.7%	2.8%	60%		Long/Short	0.3%	3.0%	2.6%	57%		
Active Ret	0.8%	8.0%	1.0%	75%		Active Ret	0.4%	5.2%	1.3%	67%		Active Ret	0.3%	3.7%	1.4%	62%		Active Ret	0.1%	1.3%	1.5%	56%		
T-Stat	Sharpe*	Assets	IR			T-Stat	Sharpe*	Assets	IR			T-Stat	Sharpe*	Assets	IR			T-Stat	Sharpe*	Assets	IR			
Long/Short	2.5	2.1	92	2.2		Long/Short	0.9	0.5	93	1.1		Long/Short	1.4	0.8	100	0.7		Long/Short	1.6	0.3	112	0.2		

Portfolio Index Performance

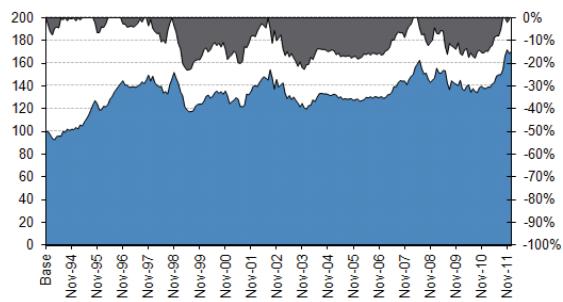


Portfolio Spread. Annual Returns

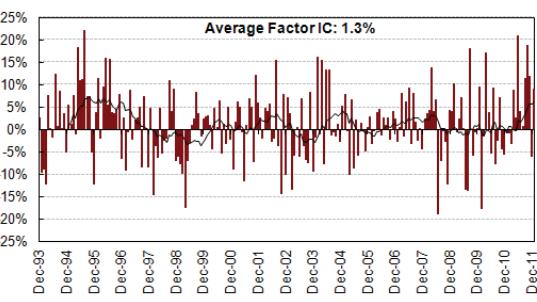


Cumulative (L/S) Returns

Max Drawdown: -22.7%

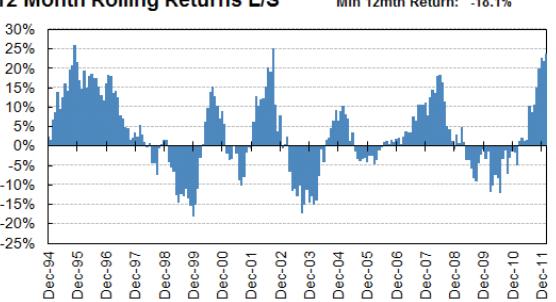


Information Co-Efficients (IC)

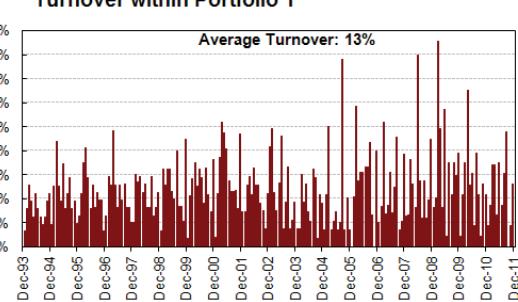


12 Month Rolling Returns L/S

Min 12mth Return: -18.1%



Turnover within Portfolio 1



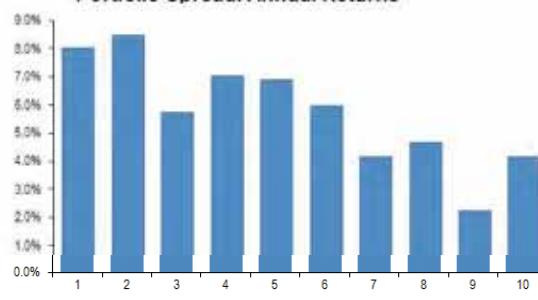
Interest Cover

Interest Cover							Rebalance every 1 month(s)																				
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/28/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 03/31/1998 to 02/29/2012															
Portfolio Statistics							Portfolio Statistics							Portfolio Statistics													
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.									
1	-0.3%	-0.4%	7%	50%	1	2.0%	23.2%	6%	47%	1	0.2%	-0.5%	7%	58%	1	0.8%	8.0%	6%	50%								
2	0.4%	2.4%	7%	67%	2	2.8%	35.1%	7%	61%	2	0.5%	2.1%	8%	53%	2	0.9%	8.5%	6%	51%								
3	-0.5%	-0.9%	8%	50%	3	2.0%	22.9%	7%	44%	3	0.2%	-0.8%	8%	53%	3	0.7%	5.8%	6%	53%								
4	-0.7%	-11.2%	8%	25%	4	2.5%	28.8%	8%	44%	4	0.2%	-2.4%	9%	42%	4	0.8%	7.0%	7%	47%								
5	-0.5%	8.5%	7%	50%	5	2.3%	26.7%	8%	56%	5	0.4%	0.7%	8%	62%	5	0.7%	8.9%	6%	52%								
6	-0.2%	-6.2%	9%	67%	6	2.3%	27.1%	8%	69%	6	0.4%	1.0%	8%	63%	6	0.7%	6.0%	6%	51%								
7	-0.8%	10.9%	9%	42%	7	2.1%	24.2%	8%	53%	7	-0.3%	-7.7%	9%	42%	7	0.6%	4.2%	7%	49%								
8	-0.4%	-0.3%	9%	67%	8	2.3%	25.8%	9%	56%	8	-0.3%	-8.2%	9%	45%	8	0.6%	4.7%	7%	49%								
9	-1.2%	-15.7%	7%	25%	9	1.9%	20.6%	8%	39%	9	0.1%	-3.3%	8%	48%	9	0.4%	2.2%	7%	42%								
10	-1.4%	-18.3%	7%	33%	10	1.8%	20.3%	8%	38%	10	-0.1%	-4.7%	8%	43%	10	0.6%	4.2%	7%	48%								
Total Test				Total Test				Total Test				Total Test															
Avg	Rank	Avg	Avg	Ref	IC	IC	Assets	Avg	Rank	Avg	Avg	Ref	IC	IC	Assets												
Universe	-0.5%	5.4%	3.4%	368				Universe	2.2%	2.4%	0.4%	377				Universe	0.7%	1.7%	0.6%	447							
Strategy Statistics														Strategy Statistics													
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10											
Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out				
Long/Short	1.1%	13.5%	2.1%	92%	Long/Short	0.1%	1.0%	2.5%	61%	Long/Short	0.3%	3.0%	2.2%	60%	Long/Short	0.3%	2.8%	2.9%	56%	Long/Short	0.1%	1.6%	1.8%	50%			
Active Ret	0.2%	2.2%	1.0%	50%	Active Ret	-0.2%	-3.0%	1.8%	47%	Active Ret	0.1%	1.0%	1.7%	58%	Active Ret	0.1%	1.6%	1.8%	50%	Active Ret	T-Stat	Sharpe*	Assets	IR			
Long/Short	1.8	1.9	.75	0.3	Long/Short	0.3	0.1	.70	-0.5	Long/Short	1.1	0.5	.80	0.2	Long/Short	1.1	0.3	.90	0.1	Long/Short	Average Risk-Free Rate of 0.5						

Portfolio Index Performance

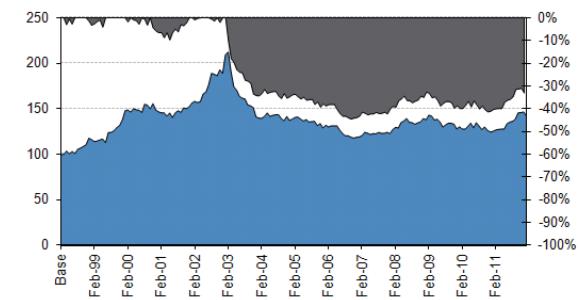


Portfolio Spread. Annual Returns

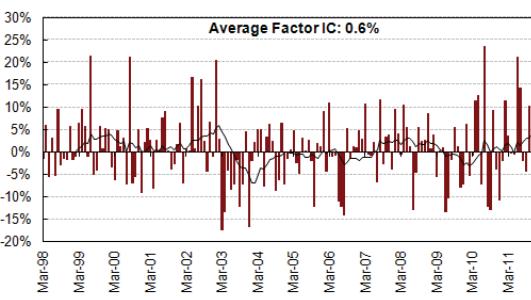


Cumulative (L/S) Returns

Max Drawdown: -44.4%

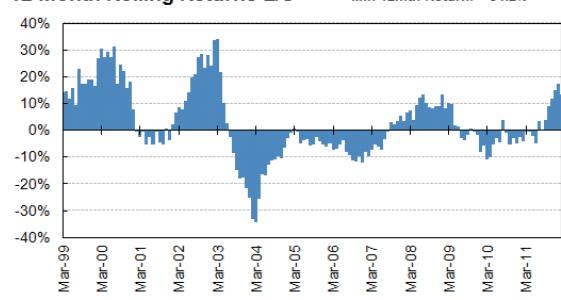


Information Co-Efficients (IC)

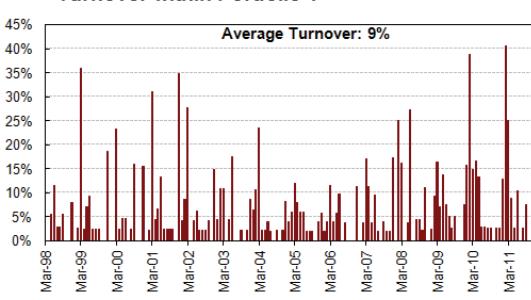


12 Month Rolling Returns L/S

Min 12mth Return: -34.2%



Turnover within Portfolio 1

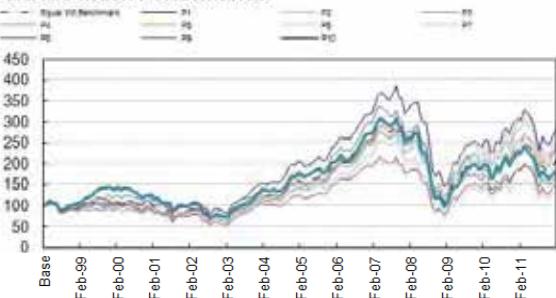


PIOTROSKI F-score (Fundamental Scorecard)

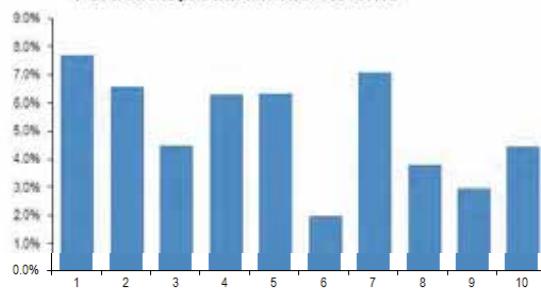
PIOTROSKI F-score (Fundamental Scorecard)								Rebalance every 1 month(s)								
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/29/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 03/31/1998 to 02/29/2012				
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		
Port	Avg	Ann	St	St	% Out	Port	Avg	Ann	St	St	% Out	Port	Avg	Ann	St	% Out
Ref	Ret	Ret	Dev	Perf.		1	2.1%	24.8%	7%	50%		1	0.1%	-2.7%	8%	57%
1	-0.5%	-0.7%	0%	58%		2	2.3%	26.3%	8%	54%		2	0.3%	-1.6%	9%	67%
2	-0.9%	-13.9%	0%	50%		3	1.9%	21.2%	7%	50%		3	-0.1%	-5.5%	8%	55%
3	-1.1%	-16.1%	0%	42%		4	2.5%	28.1%	9%	54%		4	0.3%	-1.0%	9%	58%
4	-0.4%	-0.1%	0%	58%		5	2.2%	25.4%	8%	58%		5	0.2%	-1.6%	8%	63%
5	0.0%	-3.4%	0%	67%		6	1.9%	17.2%	8%	36%		6	-0.5%	-8.8%	8%	37%
6	-1.1%	-14.8%	0%	42%		7	2.8%	29.6%	0%	58%		7	0.5%	1.0%	9%	52%
7	-0.8%	-13.2%	0%	58%		8	1.7%	17.7%	0%	44%		8	-0.6%	-10.8%	9%	37%
8	-0.6%	-0.7%	0%	67%		9	2.2%	24.9%	9%	47%		9	0.0%	-4.8%	9%	45%
9	-1.5%	-19.4%	0%	33%		10	2.1%	23.5%	8%	50%		10	-0.3%	-7.9%	9%	43%
10	-1.4%	-18.2%	0%	42%		Total Test	Avg	Rank	Avg	Rank		Total Test	Avg	Rank	Avg	Rank
							Ref	IC	IC	Assets			Ref	IC	IC	Assets
Universe	-0.8%	2.2%	3.1%	461		Universe	2.1%	1.4%	1.3%	488		Universe	0.0%	2.0%	1.9%	506
Strategy Statistics																
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				
Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	
Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	
Long/Short	1.0%	12.0%	1.0%	67%	Long/Short	0.0%	0.0%	2.5%	50%	Long/Short	0.4%	4.3%	2.2%	60%		
Active Ret	0.4%	4.5%	1.1%	58%	Active Ret	0.0%	-0.1%	1.6%	50%	Active Ret	0.1%	1.3%	1.4%	57%		
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR			
Long/Short	1.8	1.9	53	1.1	Long/Short	0.1	0.0	94	0.0	Long/Short	1.3	8.0	102	0.3		

* Standard Deviation Ratio of 0.5

Portfolio Index Performance

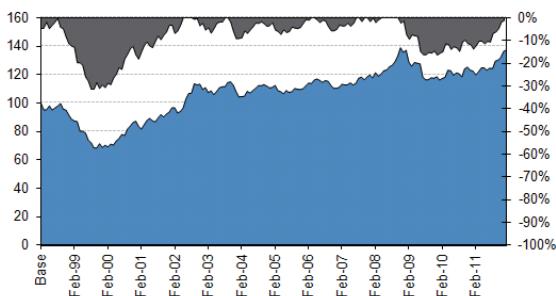


Portfolio Spread. Annual Returns

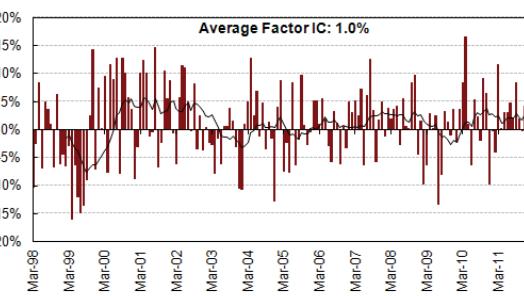


Cumulative (L/S) Returns

Max Drawdown: -31.3%

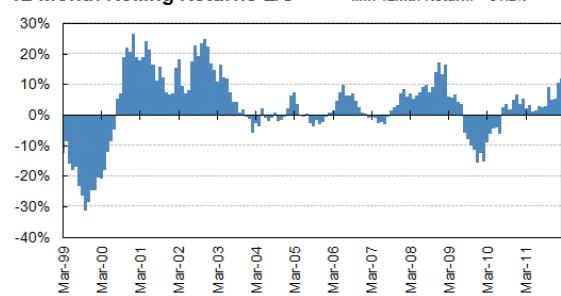


Information Co-Efficients (IC)

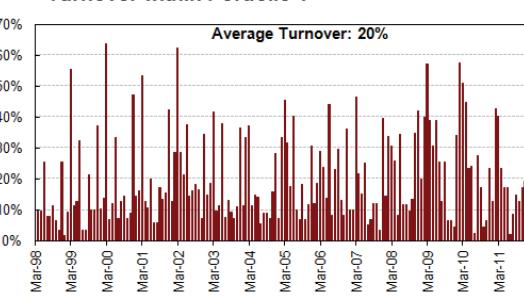


12 Month Rolling Returns L/S

Min 12mth Return: -31.2%



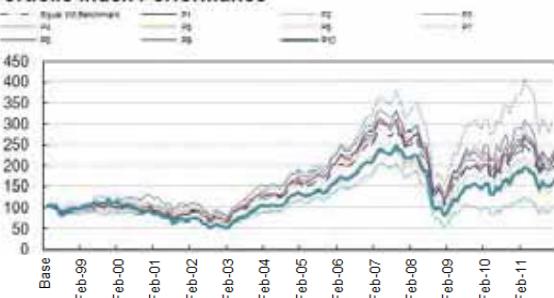
Turnover within Portfolio 1



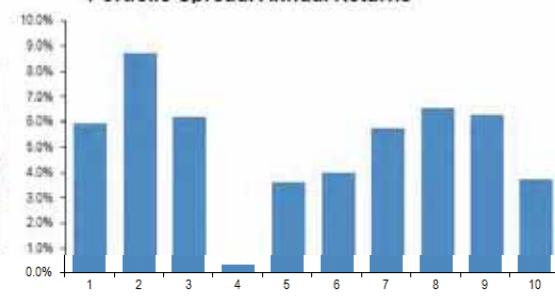
EBIT Margin Growth

EBIT Margin Growth					Rebalance every 1 month(s)															
1 Year: 02/28/2011 to 02/29/2012 Portfolio Statistics					3 Years(s): 02/28/2009 to 02/28/2012 Portfolio Statistics					5 Year(s): 02/28/2007 to 02/29/2012 Portfolio Statistics					Total Period: 03/31/1998 to 02/29/2012 Portfolio Statistics					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	
1	-0.4%	-0.1%	0%	75%	1	2.1%	24.4%	0%	54%	1	0.0%	-4.6%	8%	57%	1	0.7%	5.9%	7%	56%	
2	-0.9%	-13.3%	8%	58%	2	2.3%	26.4%	8%	58%	2	0.3%	0.0%	8%	60%	2	0.9%	8.7%	6%	59%	
3	-0.4%	-8.2%	8%	67%	3	2.3%	27.1%	0%	58%	3	0.2%	-2.6%	9%	60%	3	0.7%	6.2%	7%	53%	
4	-0.5%	-10.3%	8%	58%	4	2.2%	24.7%	9%	50%	4	-0.4%	-19.2%	10%	45%	4	0.3%	0.3%	7%	47%	
5	-0.4%	-8.1%	8%	50%	5	2.3%	26.4%	8%	47%	5	-0.1%	-5.7%	8%	42%	5	0.5%	3.6%	6%	47%	
6	-1.4%	-19.1%	0%	50%	6	1.9%	21.4%	0%	50%	6	0.0%	-4.0%	8%	52%	6	0.5%	4.0%	7%	49%	
7	-1.7%	-20.7%	7%	25%	7	1.7%	18.5%	8%	38%	7	0.0%	-3.6%	8%	45%	7	0.7%	5.7%	6%	48%	
8	-1.3%	-17.5%	8%	33%	8	1.0%	21.0%	8%	44%	8	0.0%	-4.0%	8%	40%	8	0.7%	6.5%	7%	52%	
9	-0.8%	-10.7%	6%	42%	9	2.1%	23.9%	8%	42%	9	0.1%	-3.0%	8%	45%	9	0.7%	6.3%	7%	49%	
10	-0.7%	-10.1%	7%	67%	10	2.3%	25.5%	8%	59%	10	0.0%	-4.5%	9%	60%	10	0.5%	3.7%	7%	51%	
Total Test					Total Test					Total Test					Total Test					
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		
Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets		
Universe	-0.8%	1.4%	1.8%	440	Universe	2.1%	0.6%	448		Universe	0.0%	0.1%	-0.1%	480		Universe	0.8%	0.8%	0.1%	509
Strategy Statistics																				
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					
Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		
Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		
Long/Short	0.2%	2.8%	2.4%	42%	Long/Short	-0.1%	-2.1%	2.5%	47%	Long/Short	0.0%	-0.7%	2.5%	47%	Long/Short	0.2%	1.5%	2.4%	53%	
Active Ret	0.4%	5.1%	1.2%	75%	Active Ret	0.0%	0.0%	1.8%	64%	Active Ret	0.0%	-0.5%	1.8%	57%	Active Ret	0.1%	0.8%	1.8%	56%	
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		
Long/Short	0.3	0.3	89	1.2	Long/Short	-0.3	-0.2	90	0.0	Long/Short	-0.1	-0.1	98	-0.1	Long/Short	0.8	0.2	103	0.1	

Portfolio Index Performance

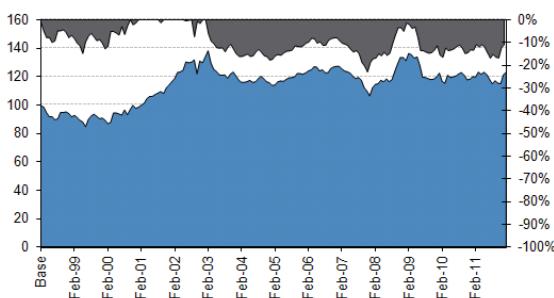


Portfolio Spread. Annual Returns

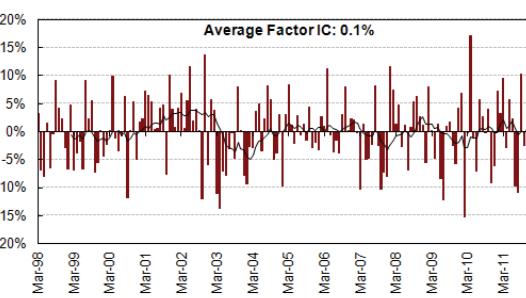


Cumulative (L/S) Returns

Max Drawdown: -22.9%

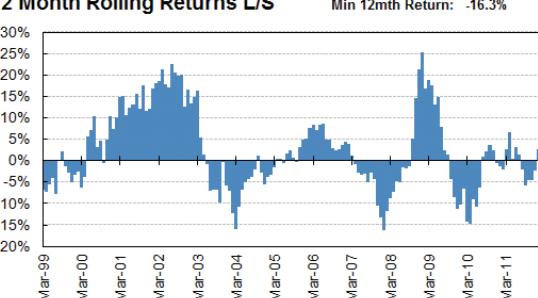


Information Co-Efficients (IC)

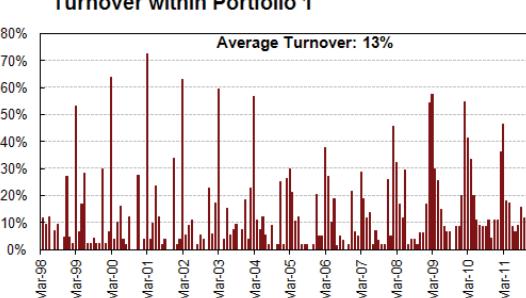


12 Month Rolling Returns L/S

Min 12mth Return: -16.3%



Turnover within Portfolio 1



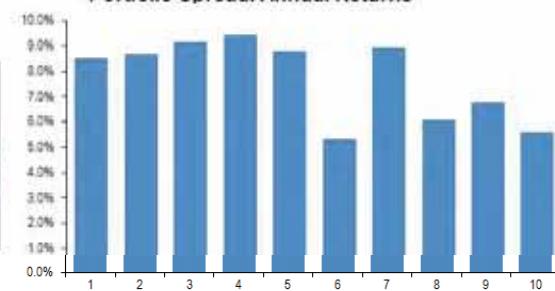
Historical Return on Equity

Historical Return On Equity								Rebalance every 1 month(s)											
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/28/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 12/31/1993 to 02/29/2012							
Portfolio Statistics								Portfolio Statistics											
Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port				
Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref				
1	0.0%	-2.3%	7%	83%	1	2.4%	29.2%	7%	54%	1	0.2%	-0.8%	8%	63%	1	0.8%	8.5%	6%	56%
2	-0.5%	-8.5%	7%	92%	2	2.2%	26.2%	8%	64%	2	0.2%	-1.8%	8%	68%	2	0.9%	8.7%	6%	56%
3	-0.2%	-5.5%	8%	92%	3	2.5%	29.8%	8%	72%	3	-0.1%	-5.5%	9%	60%	3	0.9%	9.2%	6%	56%
4	-0.5%	-9.2%	7%	67%	4	2.3%	26.7%	8%	54%	4	0.4%	9.8%	8%	67%	4	0.9%	9.4%	6%	50%
5	-0.5%	-8.8%	7%	58%	5	2.3%	26.5%	8%	50%	5	0.1%	-2.7%	8%	53%	5	0.9%	8.8%	6%	49%
6	-0.5%	-8.2%	8%	67%	6	2.0%	23.0%	8%	44%	6	-0.1%	-6.0%	8%	45%	6	0.6%	5.3%	6%	41%
7	-0.7%	-11.4%	8%	58%	7	2.0%	22.3%	8%	47%	7	-0.1%	-5.2%	8%	50%	7	0.9%	8.9%	6%	54%
8	-1.0%	-14.3%	8%	50%	8	1.8%	19.9%	8%	44%	8	-0.2%	-6.0%	8%	48%	8	0.7%	6.1%	6%	45%
9	-2.1%	-25.3%	8%	17%	9	1.8%	16.9%	8%	44%	9	-0.2%	-5.4%	8%	52%	9	0.7%	6.8%	6%	49%
10	2.5%	-29.9%	10%	33%	10	2.0%	19.4%	10%	44%	10	0.4%	9.9%	10%	36%	10	0.7%	5.6%	7%	45%
Total Test				Total Test				Total Test				Total Test							
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg				
Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref				
Universe	-0.8%	8.4%	8.6%	458	Universe	2.1%	3.3%	4.1	481	Universe	0.0%	2.9%	2.4%	486	Universe	0.8%	1.8%	1.6%	580
Strategy Statistics																			
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out				
Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.				
Long/Short	2.5%	33.3%	3.8%	75%	Long/Short	0.4%	3.9%	4.2%	58%	Long/Short	0.6%	6.0%	3.5%	65%	Long/Short	0.1%	1.1%	3.0%	56%
Active Ret	0.9%	11.1%	1.2%	83%	Active Ret	0.3%	3.0%	1.8%	64%	Active Ret	0.2%	2.7%	1.5%	63%	Active Ret	0.0%	0.4%	1.5%	55%
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR	
Long/Short	2.3	2.5	92	2.7	Long/Short	0.6	0.3	93	0.5	Long/Short	1.3	8.0	100	0.5	Long/Short	0.7	0.1	113	0.1

Portfolio Index Performance

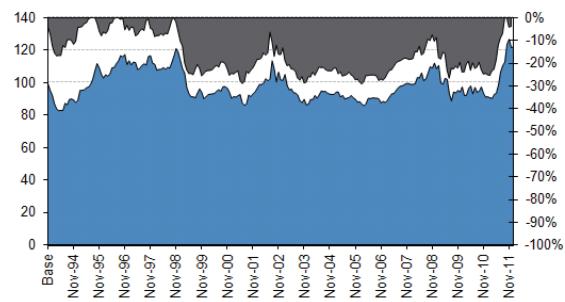


Portfolio Spread. Annual Returns

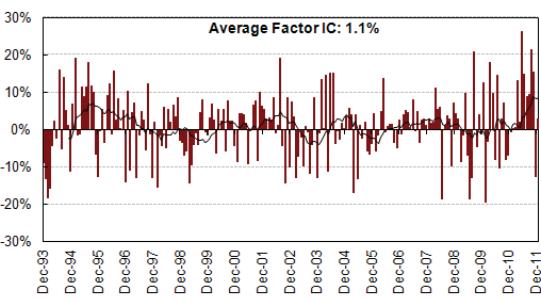


Cumulative (L/S) Returns

Max Drawdown: -29.1%

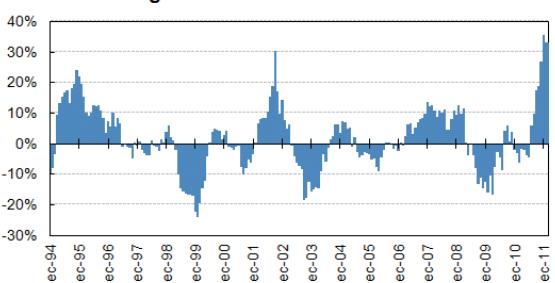


Information Co-Efficients (IC)

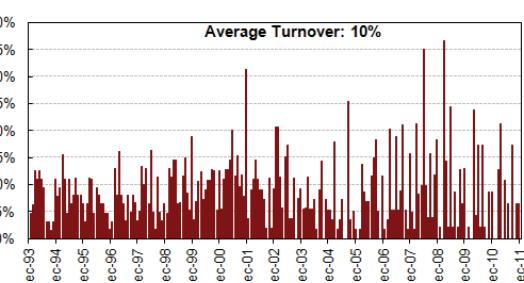


12 Month Rolling Returns L/S

Min 12mth Return: -24.1%



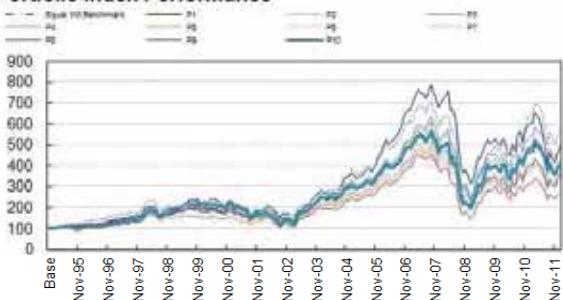
Turnover within Portfolio 1



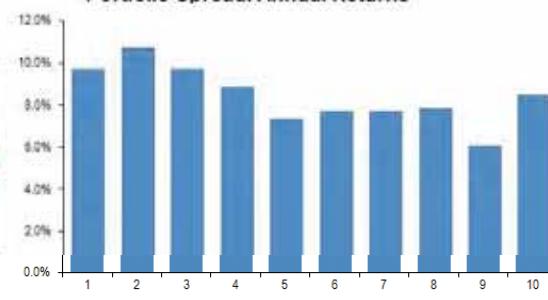
12 Month Change in ROE

Change In ROE Between Current and 12 Mths Prior								Rebalance every 1 month(s)												
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/28/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 12/31/1994 to 02/29/2012								
Portfolio Statistics								Portfolio Statistics												
Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port					
Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref	Ret				
1	-1.3%	-10.9%	10%	50%	1	1.8%	15.9%	8%	42%	1	-0.2%	-6.0%	8%	52%	1	1.0%	9.7%	6%	56%	
2	-0.7%	-10.9%	8%	58%	2	2.7%	33.5%	8%	72%	2	0.3%	-1.1%	8%	62%	2	1.0%	10.7%	6%	58%	
3	-0.6%	-9.0%	7%	58%	3	2.3%	26.9%	7%	56%	3	0.3%	-0.9%	8%	63%	3	0.9%	9.7%	6%	58%	
4	-0.7%	-12.4%	8%	50%	4	2.1%	23.5%	8%	44%	4	0.0%	-1.7%	8%	52%	4	0.9%	8.9%	6%	49%	
5	-0.6%	-10.4%	8%	50%	5	1.6%	20.4%	8%	42%	5	-0.1%	-4.7%	8%	48%	5	0.8%	7.3%	6%	44%	
6	-0.0%	-12.4%	7%	42%	6	2.1%	23.9%	8%	44%	6	0.1%	-3.0%	8%	45%	6	0.8%	7.7%	6%	48%	
7	-0.7%	10.7%	7%	50%	7	2.1%	24.3%	8%	50%	7	0.0%	-3.6%	8%	50%	7	0.8%	7.7%	6%	48%	
8	-0.5%	-0.5%	8%	42%	8	2.1%	23.6%	8%	39%	8	-0.1%	-5.9%	9%	35%	8	0.8%	7.8%	6%	41%	
9	-1.0%	-13.9%	8%	33%	9	2.1%	23.4%	8%	44%	9	-0.2%	-5.8%	9%	42%	9	0.7%	6.1%	6%	44%	
10	-1.2%	-15.8%	7%	42%	10	2.4%	28.1%	8%	55%	10	0.1%	-3.5%	9%	53%	10	0.9%	8.5%	7%	50%	
Total Test				Total Test				Total Test				Total Test								
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg					
Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref					
Universe	-0.8%	-0.7%	-0.8%	433	Universe	2.1%	0.0%	435		Universe	0.0%	0.8%	0.0%	462		Universe	0.9%	1.2%	0.8%	513
Strategy Statistics																				
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10								
Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out					
Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.					
Long/Short	-0.1%	-1.7%	3.1%	50%	Long/Short	-0.9%	-10.3%	3.1%	44%	Long/Short	-0.3%	-3.7%	3.0%	52%	Long/Short	0.1%	0.4%	2.7%	59%	
Active Ret	-0.5%	-5.8%	2.0%	50%	Active Ret	-0.8%	-6.7%	1.8%	42%	Active Ret	-0.2%	-2.4%	1.7%	52%	Active Ret	0.1%	1.2%	1.7%	56%	
T-Stat	Sharper ^a	Assets	IR		T-Stat	Sharper ^a	Assets	IR		T-Stat	Sharper ^a	Assets	IR		T-Stat					
Long/Short	-0.1	-0.2	.87	-0.8	Long/Short	-1.0	-1.0	.88	-1.1	Long/Short	-0.7	-0.4	.93	-0.4	Long/Short	0.4	0.0	103	0.2	

Portfolio Index Performance

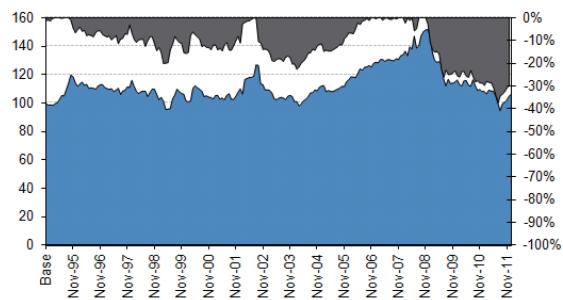


Portfolio Spread. Annual Returns

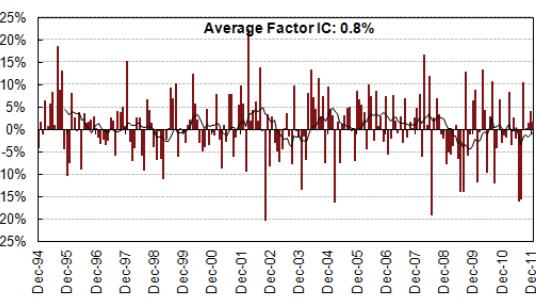


Cumulative (L/S) Returns

Max Drawdown: -37.5%

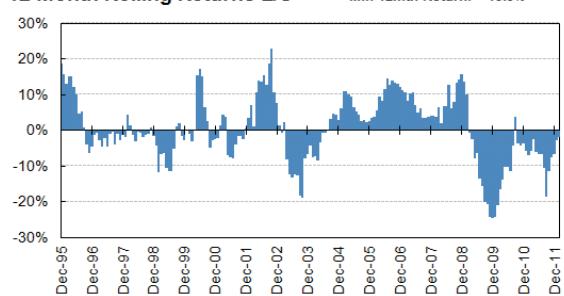


Information Co-Efficients (IC)

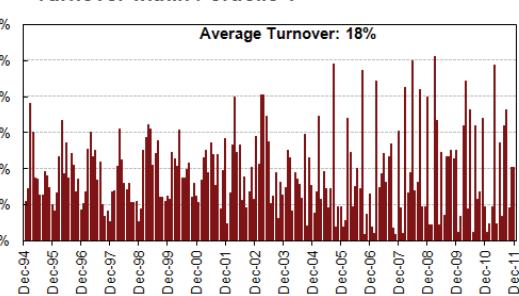


12 Month Rolling Returns L/S

Min 12mth Return: -18.9%



Turnover within Portfolio 1

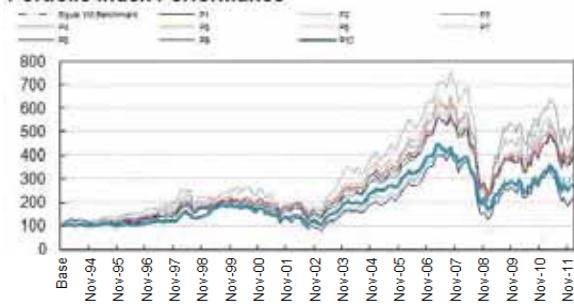


Payout Ratio

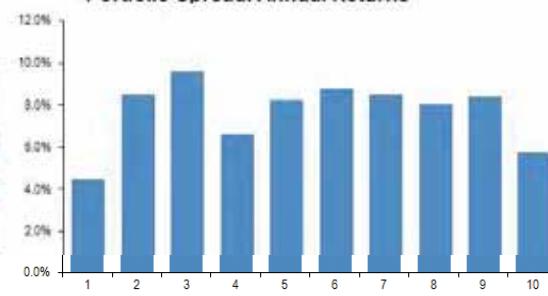
Payout Ratio								Rebalance every 1 month(s)																							
1 Year: 02/28/2011 to 02/29/2012 Portfolio Statistics								3 Years(s): 02/28/2009 to 02/28/2012 Portfolio Statistics								5 Year(s): 02/28/2007 to 02/29/2012 Portfolio Statistics								Total Period: 12/31/1993 to 02/29/2012 Portfolio Statistics							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.							
1	-2.4%	-28.5%	9%	25%	1	2.0%	20.1%	9%	47%	1	-0.3%	-8.0%	10%	48%	1	0.0%	4.4%	7%	43%	1	0.0%	4.4%	7%	43%							
2	-1.3%	-10.1%	9%	17%	2	2.3%	24.3%	10%	44%	2	-0.1%	-6.8%	10%	45%	2	0.9%	8.5%	7%	51%	2	0.9%	8.5%	7%	51%							
3	-0.7%	-11.5%	9%	58%	3	2.8%	30.4%	9%	53%	3	0.3%	-8.2%	9%	50%	3	1.0%	9.5%	8%	51%	3	1.0%	9.5%	8%	51%							
4	-0.1%	-4.7%	8%	75%	4	2.3%	27.1%	8%	57%	4	0.1%	-1.1%	8%	53%	4	0.7%	6.5%	6%	50%	4	0.7%	6.5%	6%	50%							
5	-1.0%	-13.9%	7%	50%	5	2.1%	23.8%	8%	53%	5	-0.2%	-6.0%	8%	47%	5	0.8%	8.2%	6%	51%	5	0.8%	8.2%	6%	51%							
6	-0.3%	-5.7%	7%	83%	6	2.4%	28.8%	7%	69%	6	0.1%	-2.8%	8%	60%	6	0.9%	8.8%	6%	58%	6	0.9%	8.8%	6%	58%							
7	-0.5%	-8.0%	8%	50%	7	2.0%	22.8%	7%	53%	7	0.1%	-2.6%	8%	58%	7	0.8%	8.5%	5%	52%	7	0.8%	8.5%	5%	52%							
8	-0.6%	-10.3%	8%	75%	8	1.0%	21.3%	8%	50%	8	0.0%	-3.8%	8%	53%	8	0.0%	8.0%	6%	51%	8	0.0%	8.4%	5%	46%							
9	-0.1%	-4.4%	7%	67%	9	2.0%	22.5%	7%	47%	9	0.0%	-2.8%	7%	50%	9	0.8%	8.4%	5%	46%	9	0.8%	8.4%	5%	46%							
10	-1.3%	-16.6%	7%	25%	10	1.5%	17.1%	7%	38%	10	-0.3%	-7.1%	8%	42%	10	0.0%	5.7%	6%	40%	10	0.0%	5.7%	6%	40%							
Total Test				Total Test				Total Test				Total Test				Total Test				Total Test											
Avg	Rank	Avg	Avg	Ref	IC	IC	Assets	Avg	Rank	Avg	Avg	Ref	IC	IC	Assets	Avg	Rank	Avg	Avg	Ref	IC	IC	Assets								
Univers	-0.8%	-3.3%	-3.8%	459				Univers	2.1%	0.7%	484					Univers	0.0%	-0.2%	-0.1%	505				Univers	0.8%	0.0%	0.2%	585			
Strategy Statistics																															
Portfolio 1 less Portfolio 10								Portfolio 1 less Portfolio 10								Portfolio 1 less Portfolio 10								Portfolio 1 less Portfolio 10							
Avg	Ann	Std	% Out	Ref	Ret	Rnt	Devn	Perf.	Avg	Ann	Std	% Out	Ref	Ret	Rnt	Devn	Perf.	Avg	Ann	Std	% Out	Ref	Ret	Rnt	Devn	Perf.					
Long/Short	-1.1%	-13.0%	3.3%	33%	Long/Short	0.4%	3.9%	3.1%	44%	Long/Short	0.0%	-0.6%	3.1%	45%	Long/Short	0.0%	-0.8%	2.8%	49%	Long/Short	0.1%	-0.1%	114	-0.4	Long/Short	0.1%	-0.1%	114	-0.4		
Active Ret	-1.6%	-17.4%	2.6%	25%	Active Ret	-0.2%	-2.2%	2.3%	47%	Active Ret	-0.3%	-3.6%	2.2%	48%	Active Ret	-0.2%	-2.6%	2.1%	43%	Active Ret	-0.2%	-2.6%	2.1%	43%	Active Ret	-0.2%	-2.6%	2.1%	43%		
T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR			
Long/Short	-1.1	-1.1	92	-1.9	Long/Short	0.7	0.4	94	-0.3	Long/Short	0.0	-0.1	102	-0.5	Long/Short	0.1	-0.1	114	-0.4	Long/Short	0.1	-0.1	114	-0.4	Long/Short	0.1	-0.1	114	-0.4		

* Standard Pairs Ratio of 0.5

Portfolio Index Performance

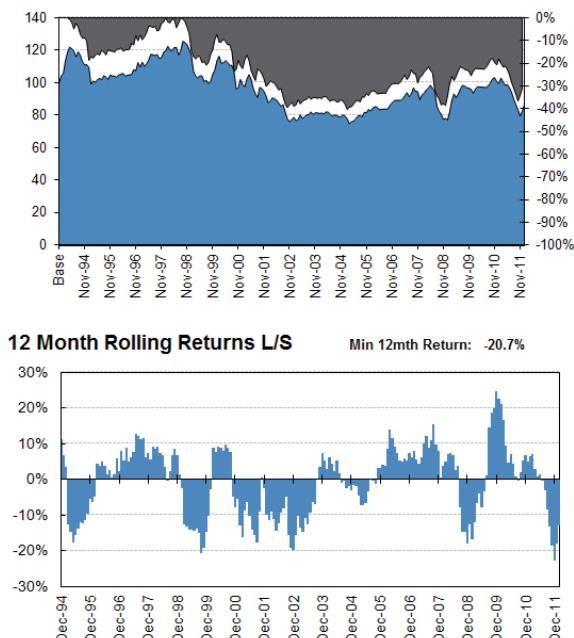


Portfolio Spread. Annual Returns

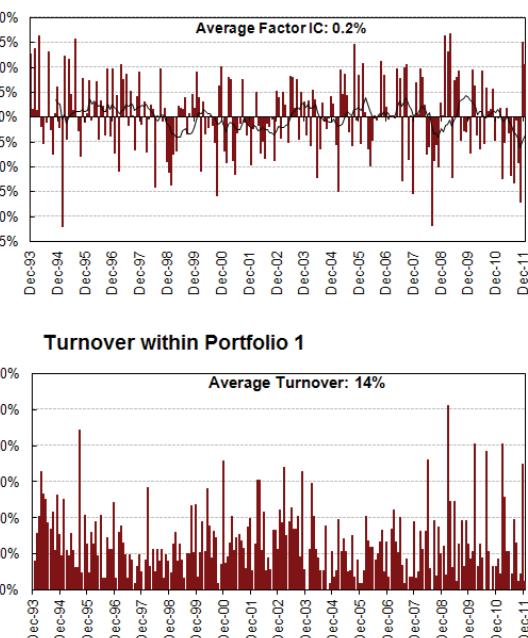


Cumulative (L/S) Returns

Max Drawdown: -40.2%

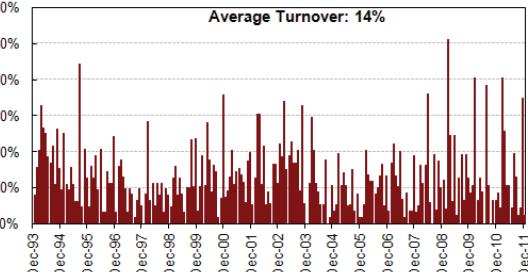


Information Co-Efficients (IC)



Turnover within Portfolio 1

Average Turnover: 14%



12 Months Returns Volatility

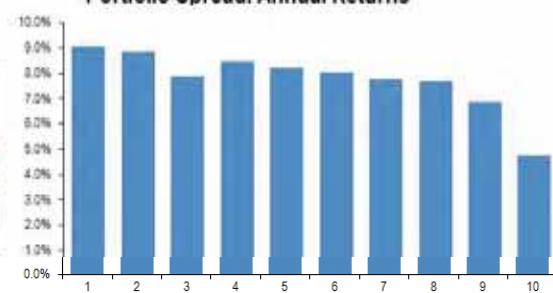
Historical Returns Volatility Over Last Year in LOCAL Currency								Rebalance every 1 month(s)											
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/28/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 12/31/1993 to 02/29/2012							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port				
Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref				
1	0.0%	-2.4%	0%	75%	1	1.9%	23.0%	6%	53%	1	0.1%	-1.3%	8%	52%	1	0.8%	9.1%	5%	50%
2	0.4%	2.0%	6%	75%	2	2.0%	24.4%	6%	53%	2	0.2%	-0.5%	7%	58%	2	0.8%	8.8%	5%	53%
3	-0.5%	-8.0%	7%	67%	3	1.8%	20.3%	7%	47%	3	0.0%	-2.6%	7%	50%	3	0.8%	7.9%	5%	49%
4	-0.4%	-7.9%	7%	67%	4	1.9%	21.8%	7%	47%	4	0.0%	-1.5%	8%	53%	4	0.8%	8.5%	5%	57%
5	-0.4%	-7.7%	8%	83%	5	2.0%	22.8%	8%	50%	5	-0.1%	-5.2%	8%	45%	5	0.8%	8.2%	6%	51%
6	-0.0%	-12.4%	8%	33%	6	2.4%	27.8%	8%	53%	6	0.2%	-1.7%	8%	50%	6	0.8%	8.1%	6%	48%
7	-1.3%	-17.8%	8%	50%	7	2.0%	21.2%	9%	53%	7	0.0%	-5.0%	9%	57%	7	0.8%	7.7%	6%	53%
8	-0.6%	-11.7%	9%	58%	8	2.5%	29.1%	9%	58%	8	0.0%	-5.2%	10%	58%	8	0.8%	7.6%	7%	49%
9	-1.8%	-24.2%	10%	25%	9	2.4%	25.3%	10%	47%	9	-0.3%	-8.7%	10%	42%	9	0.9%	5.9%	8%	48%
10	-2.6%	-31.3%	10%	17%	10	2.3%	23.7%	11%	42%	10	-0.2%	-8.7%	11%	42%	10	0.8%	4.8%	8%	48%
Total Test				Total Test				Total Test				Total Test							
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg				
Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref				
Universe	-0.8%	10.1%	12.2%	455	Universe	2.1%	1.2%	1.8%	462	Universe	0.0%	2.4%	2.6%	501	Universe	0.8%	1.7%	0.7%	555
Strategy Statistics																			
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out				
Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.				
Long/Short	2.6%	33.9%	5.2%	75%	Long/Short	-0.5%	-7.6%	8.3%	50%	Long/Short	0.3%	1.9%	5.7%	48%	Long/Short	0.1%	-0.8%	5.4%	47%
Active Ret	0.8%	9.5%	2.6%	75%	Active Ret	-0.2%	-3.1%	2.8%	53%	Active Ret	0.1%	0.8%	2.0%	52%	Active Ret	0.0%	-0.1%	2.2%	50%
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat				
Long/Short	1.7	1.9	92	1.1	Long/Short	-0.4	-0.3	93	-0.3	Long/Short	0.4	0.1	101	0.1	Long/Short	0.2	0.0	112	0.0

* Standard Dev/Pearson Ratio of 0.5

Portfolio Index Performance

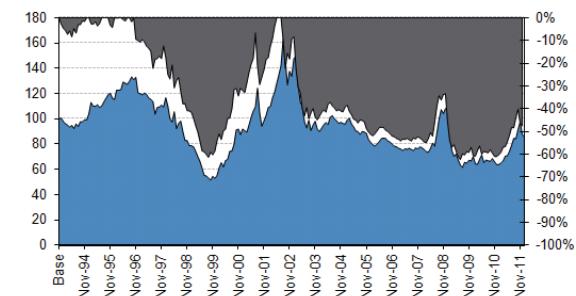


Portfolio Spread. Annual Returns

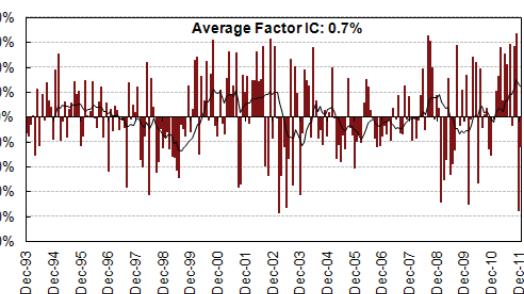


Cumulative (L/S) Returns

Max Drawdown: -62.1%

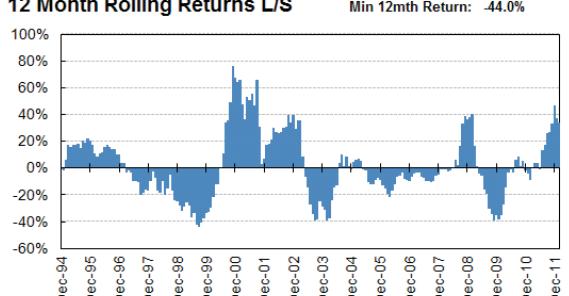


Information Co-Efficients (IC)

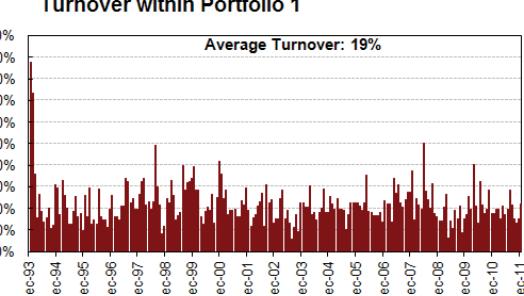


12 Month Rolling Returns L/S

Min 12mth Return: -44.0%



Turnover within Portfolio 1

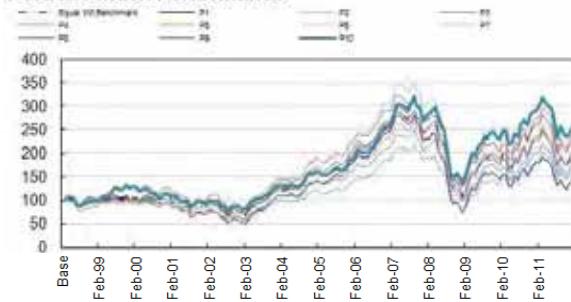


Gearing

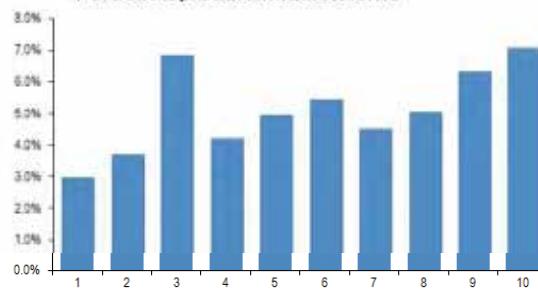
Gearing								Rebalance every 1 month(s)											
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/28/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 03/31/1998 to 02/29/2012							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port.	Avg. Ret.	Ann. Dev.	St. % Out.	Port.	Avg. Ret.	Ann. Dev.	St. % Out.	Port.	Avg. Ret.	Ann. Dev.	St. % Out.	Port.	Avg. Ret.	Ann. Dev.	St. % Out.				
1	-1.2%	-17.3%	9%	50%	1	2.3%	25.8%	9%	47%	1	-0.4%	-9.4%	10%	37%	1	0.5%	3.0%	8%	42%
2	-0.6%	-10.5%	8%	58%	2	2.5%	29.5%	8%	67%	2	0.2%	-2.3%	8%	55%	2	0.5%	3.7%	7%	49%
3	-0.4%	-8.6%	8%	58%	3	2.2%	24.5%	9%	47%	3	0.1%	-2.8%	8%	52%	3	0.8%	6.8%	7%	52%
4	-0.7%	-11.0%	7%	50%	4	2.0%	22.8%	7%	47%	4	0.0%	-1.5%	8%	53%	4	0.5%	4.2%	6%	45%
5	-1.2%	-16.6%	8%	33%	5	2.1%	24.2%	8%	47%	5	0.1%	-3.5%	9%	52%	5	0.6%	4.9%	7%	51%
6	-0.7%	-11.9%	9%	67%	6	2.0%	22.8%	8%	58%	6	-0.2%	-7.3%	9%	52%	6	0.7%	5.5%	7%	55%
7	-1.0%	-14.0%	7%	50%	7	2.1%	23.9%	9%	47%	7	-0.2%	-6.7%	9%	43%	7	0.8%	4.5%	7%	53%
8	-1.0%	-13.5%	7%	33%	8	1.0%	21.7%	8%	29%	8	-0.1%	-5.4%	8%	45%	8	0.6%	5.1%	7%	47%
9	-0.6%	-9.5%	8%	57%	9	2.0%	22.3%	8%	47%	9	0.1%	-2.5%	8%	55%	9	0.7%	6.3%	7%	52%
10	-0.8%	-11.5%	7%	42%	10	2.0%	23.0%	7%	44%	10	0.3%	-1.1%	8%	50%	10	0.7%	7.1%	6%	50%
Total Test				Total Test				Total Test				Total Test							
Avg. Ref.	Rank IC	Avg. IC	Avg. Assets	Avg. Ref.	Rank IC	Avg. IC	Avg. Assets	Avg. Ref.	Rank IC	Avg. IC	Avg. Assets	Avg. Ref.	Rank IC	Avg. IC	Avg. Assets				
Universe	-0.8%	-0.7%	-1.2%	456	Universe	2.1%	0.8%	481	Universe	0.0%	-1.1%	-1.0%	503	Universe	0.6%	-0.6%	-0.3%	522	
Strategy Statistics																			
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg. Ret.	Ann. Dev.	Std. Perf.	% Out.	Avg. Ret.	Ann. Dev.	Std. Perf.	% Out.	Avg. Ret.	Ann. Dev.	Std. Perf.	% Out.	Avg. Ret.	Ann. Dev.	Std. Perf.	% Out.				
Long/Short	-0.4%	-5.8%	3.2%	58%	Long/Short	0.4%	3.5%	3.7%	47%	Long/Short	-0.7%	-8.3%	3.6%	33%	Long/Short	-0.2%	-3.2%	3.3%	46%
Active Ret.	-0.4%	-4.9%	1.0%	50%	Active Ret.	0.2%	2.3%	2.1%	47%	Active Ret.	0.3%	-4.3%	2.0%	37%	Active Ret.	-0.1%	-1.5%	1.8%	42%
T-Stat	Sharpe*	Assets	IR	T-Stat	Sharpe*	Assets	IR	T-Stat	Sharpe*	Assets	IR	T-Stat	Sharpe*	Assets	IR				
Long/Short	-0.5	-0.5	92	-0.8	Long/Short	0.6	0.3	93	0.3	Long/Short	-0.7	102	-0.6	Long/Short	-0.8	-0.3	105	-0.2	

* Success Rate 95% of 95

Portfolio Index Performance

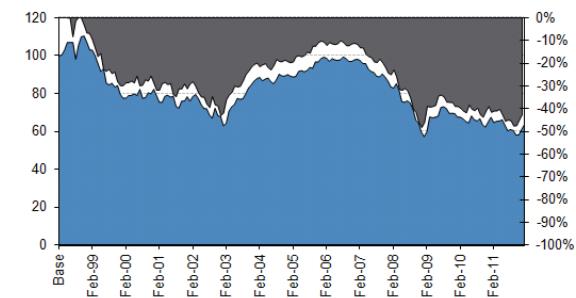


Portfolio Spread. Annual Returns

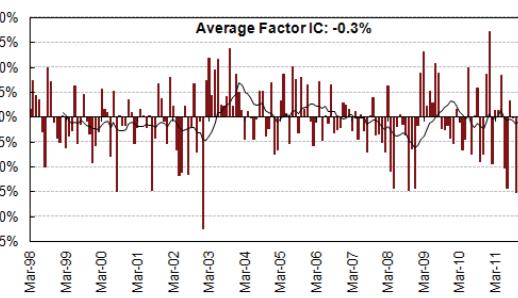


Cumulative (L/S) Returns

Max Drawdown: -47.9%

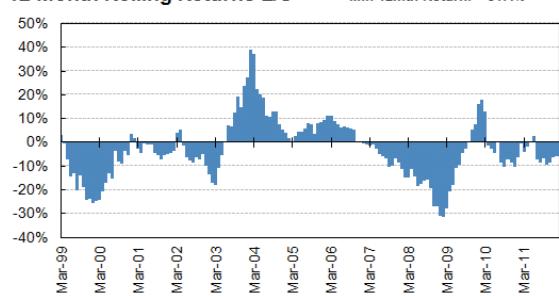


Information Co-Efficients (IC)

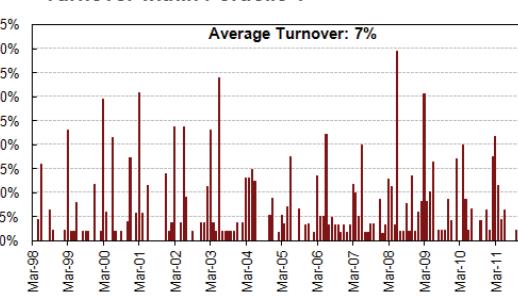


12 Month Rolling Returns L/S

Min 12mth Return: -31.4%



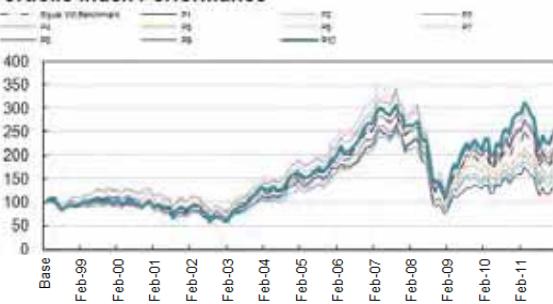
Turnover within Portfolio 1



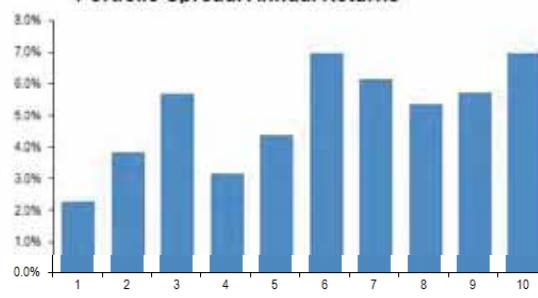
Historical Sales Growth

Historical Sales Growth							Rebalance every 1 month(s)																				
1 Year: 02/28/2011 to 02/29/2012					3 Years(s): 02/28/2009 to 02/28/2012			5 Year(s): 02/28/2007 to 02/29/2012					Total Period: 03/31/1998 to 02/29/2012														
Portfolio Statistics							Portfolio Statistics							Portfolio Statistics													
Port	Avg	Ann	St	% Out.	Port	Avg	Ann	St	% Out.	Port	Avg	Ann	St	% Out.	Port	Avg	Ann	St	% Out.	Port	Avg	Ann	St	% Out.	Perf.		
1	-1.0%	-15.0%	9%	33%	1	2.0%	21.9%	8%	44%	1	-0.4%	-9.1%	9%	47%	1	0.5%	2.3%	7%	50%	1	0.5%	2.3%	7%	50%			
2	-0.3%	-7.2%	8%	75%	2	2.1%	24.2%	8%	53%	2	-0.1%	-5.0%	8%	55%	2	0.5%	3.8%	7%	50%	2	0.5%	3.8%	7%	50%			
3	-0.8%	-13.2%	10%	42%	3	2.1%	22.6%	8%	44%	3	0.0%	-5.0%	9%	45%	3	0.7%	5.7%	7%	45%	3	0.7%	5.7%	7%	45%			
4	-0.7%	-11.0%	8%	50%	4	1.9%	21.9%	8%	33%	4	-0.1%	-5.9%	8%	43%	4	0.5%	3.2%	7%	47%	4	0.5%	3.2%	7%	47%			
5	-0.5%	-8.6%	8%	67%	5	2.3%	26.5%	8%	44%	5	0.0%	-4.0%	9%	48%	5	0.6%	4.4%	7%	49%	5	0.6%	4.4%	7%	49%			
6	-0.3%	-6.8%	8%	67%	6	2.2%	25.1%	8%	50%	6	0.1%	-2.4%	8%	52%	6	0.8%	7.0%	6%	53%	6	0.8%	7.0%	6%	53%			
7	-1.5%	-19.1%	7%	33%	7	2.0%	21.8%	8%	53%	7	-0.2%	-5.9%	8%	52%	7	0.7%	6.1%	7%	56%	7	0.7%	6.1%	7%	56%			
8	-1.5%	-19.0%	7%	25%	8	1.9%	20.8%	8%	42%	8	0.1%	-2.3%	8%	48%	8	0.6%	5.4%	6%	40%	8	0.6%	5.4%	6%	40%			
9	-1.0%	-13.7%	7%	58%	9	2.3%	20.0%	8%	58%	9	0.1%	-3.0%	8%	50%	9	0.7%	5.7%	7%	51%	9	0.7%	5.7%	7%	51%			
10	-0.7%	-11.4%	8%	67%	10	2.5%	30.5%	9%	55%	10	0.3%	-0.9%	9%	57%	10	0.8%	7.0%	7%	54%	10	0.8%	7.0%	7%	54%			
Total Test					Total Test					Total Test					Total Test					Total Test							
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg				
Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets				
Univers	-0.8%	3.0%	0.5%	458	Univers	2.1%	-0.9%	-1.5%	481	Univers	0.0%	-0.8%	-1.5%	502	Univers	0.8%	-0.8%	-1.0%	514	Univers	0.8%	-0.8%	-1.0%	514	*		
Strategy Statistics														Strategy Statistics													
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10							
Avg	Ann	Std	% Out.		Avg	Ann	Std	% Out.		Avg	Ann	Std	% Out.		Avg	Ann	Std	% Out.		Avg	Ann	Std	% Out.				
Long/Short	-0.3%	-3.4%	1.2%	42%	Long/Short	-0.6%	-7.6%	2.4%	53%	Long/Short	-0.7%	-8.0%	2.6%	50%	Long/Short	-0.3%	-4.4%	2.5%	49%	Long/Short	-0.3%	-4.4%	2.5%	49%			
Active Ret	-0.2%	-2.0%	1.2%	33%	Active Ret	-0.2%	-2.0%	1.6%	44%	Active Ret	-0.4%	-4.4%	1.9%	47%	Active Ret	-0.2%	-2.4%	1.8%	50%	Active Ret	-0.2%	-2.4%	1.8%	50%			
T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR				
Long/Short	-0.8	-0.8	92	-0.5	Long/Short	-1.0	-0.9	93	-0.4	Long/Short	-1.9	-0.9	101	-0.7	Long/Short	-1.7	-0.9	104	-0.4	Long/Short	-1.7	-0.9	104	-0.4			

Portfolio Index Performance

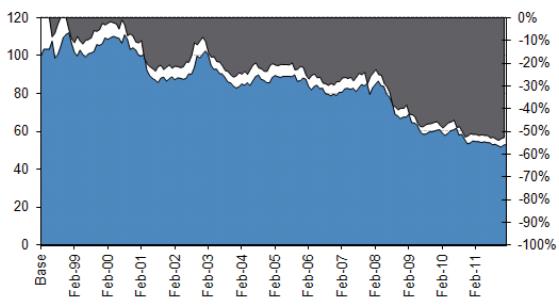


Portfolio Spread. Annual Returns

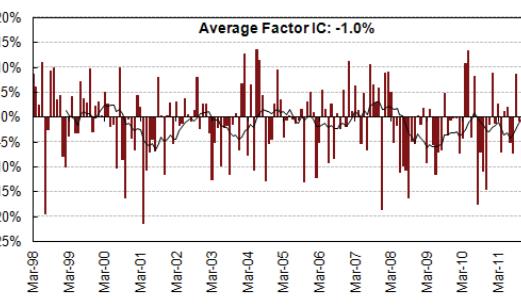


Cumulative (L/S) Returns

Max Drawdown: -53.6%

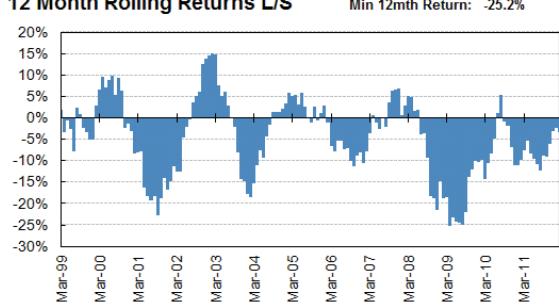


Information Co-Efficients (IC)

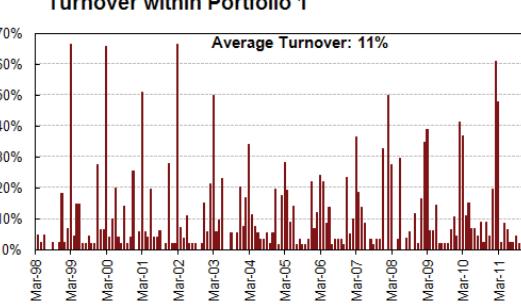


12 Month Rolling Returns L/S

Min 12mth Return: -25.2%



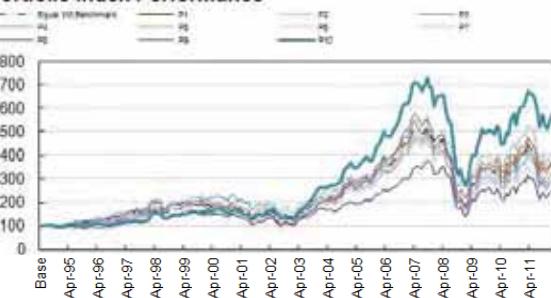
Turnover within Portfolio 1



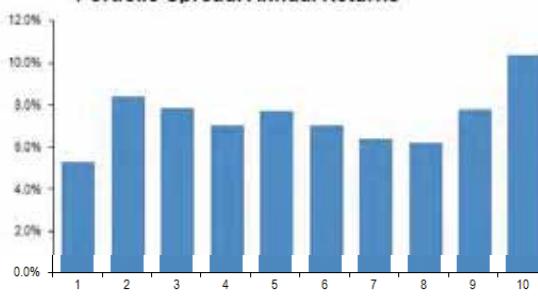
Liquidity

Liquidity							Rebalance every 1 month(s)																				
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/28/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 05/31/1994 to 02/29/2012															
Portfolio Statistics							Portfolio Statistics							Portfolio Statistics													
Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out								
Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.								
1	-0.8%	-13.7%	9%	50%	1	2.0%	20.9%	9%	50%	1	0.1%	-3.8%	9%	53%	1	0.0%	5.3%	6%	46%								
2	-1.0%	-14.9%	8%	58%	2	2.0%	21.9%	8%	56%	2	0.1%	-2.7%	8%	62%	2	0.8%	8.4%	6%	52%								
3	-0.4%	-7.3%	8%	75%	3	2.3%	25.8%	8%	61%	3	0.2%	-1.5%	8%	60%	3	0.8%	7.8%	6%	51%								
4	-0.5%	-9.9%	8%	42%	4	2.3%	26.1%	8%	50%	4	-0.1%	-5.2%	9%	47%	4	0.8%	7.0%	6%	45%								
5	-0.8%	-12.9%	8%	50%	5	2.3%	27.3%	8%	61%	5	0.1%	-3.4%	8%	55%	5	0.8%	7.7%	6%	49%								
6	-0.4%	-8.5%	8%	67%	6	2.2%	25.2%	8%	56%	6	0.0%	-4.7%	8%	52%	6	0.8%	7.0%	6%	51%								
7	-0.6%	-10.1%	8%	50%	7	2.2%	25.0%	8%	39%	7	-0.1%	-5.9%	9%	38%	7	0.7%	6.4%	6%	45%								
8	-2.4%	-27.6%	8%	0%	8	1.8%	18.4%	9%	36%	8	-0.4%	-8.4%	9%	37%	8	0.7%	6.2%	6%	52%								
9	-0.9%	-13.6%	8%	33%	9	1.8%	20.0%	8%	44%	9	-0.2%	-5.6%	8%	45%	9	0.8%	7.8%	6%	52%								
10	-0.3%	-5.9%	7%	58%	10	2.4%	28.8%	7%	47%	10	0.2%	-1.4%	8%	48%	10	1.0%	10.4%	6%	52%								
Total Test				Total Test				Total Test				Total Test															
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg									
Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets									
Universe	-0.8%	0.3%	-0.1%	458	Universe	2.1%	-0.1%	-0.1%	458	Universe	0.0%	0.9%	1.0%	500	Universe	0.8%	0.0%	-0.5%	543								
Strategy Statistics														Strategy Statistics													
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10											
Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out								
Ret	Ret	Dev	Perf.	Ret	Ret	Dev	Perf.	Ret	Ret	Dev	Perf.	Ret	Ret	Dev	Perf.	Ret	Ret	Dev	Perf.								
Long/Short	-0.6%	-7.2%	3.5%	42%	Long/Short	-0.4%	-5.6%	2.8%	47%	Long/Short	-0.1%	-1.9%	2.6%	50%	Long/Short	-0.4%	-4.8%	3.1%	47%								
Active Ret	0.0%	-0.6%	2.0%	50%	Active Ret	-0.2%	-2.2%	1.7%	50%	Active Ret	0.1%	1.0%	1.8%	53%	Active Ret	-0.2%	-2.0%	1.7%	46%								
T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR									
Long/Short	-0.6	-0.6	93	-0.1	Long/Short	-1.0	-0.6	92	-0.4	Long/Short	-0.4	-0.2	101	0.2	Long/Short	-1.7	-0.4	102	-0.3								

Portfolio Index Performance

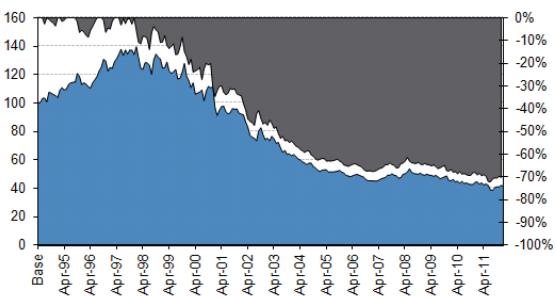


Portfolio Spread. Annual Returns

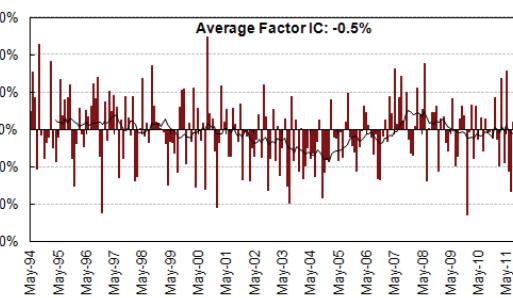


Cumulative (L/S) Returns

Max Drawdown: -72.1%

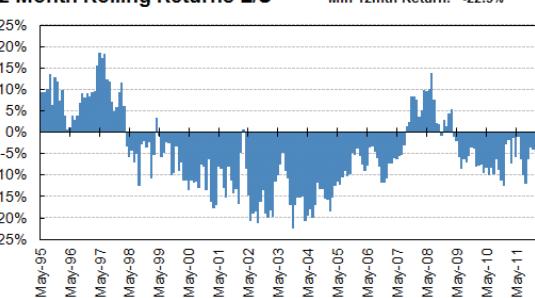


Information Co-Efficients (IC)

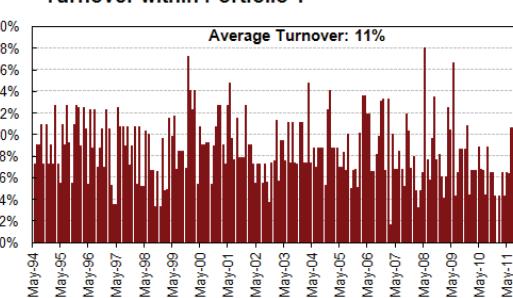


12 Month Rolling Returns L/S

Min 12mth Return: -22.5%



Turnover within Portfolio 1



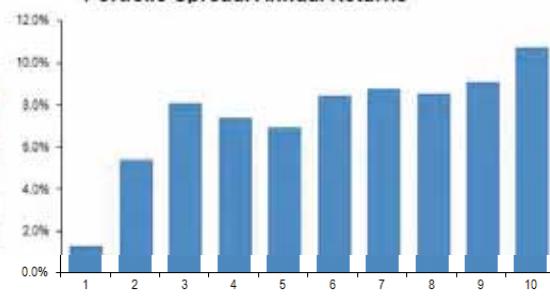
Historical BETA

Historical BETA							Rebalance every 1 month(s)													
1 Year: 02/28/2011 to 02/29/2012 Portfolio Statistics					3 Years(s): 02/28/2009 to 02/28/2012 Portfolio Statistics					5 Year(s): 02/28/2007 to 02/29/2012 Portfolio Statistics					Total Period: 01/31/1993 to 02/29/2012 Portfolio Statistics					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	
1	-2.1%	-25.9%	10%	25%	1	2.7%	30.1%	11%	58%	1	-0.2%	-0.0%	11%	47%	1	0.4%	1.3%	0%	44%	
2	-2.0%	-24.9%	9%	17%	2	2.2%	24.1%	9%	53%	2	0.0%	-0.1%	10%	53%	2	0.7%	5.4%	7%	47%	
3	-0.6%	-11.1%	9%	42%	3	2.5%	27.9%	9%	53%	3	0.1%	-4.4%	9%	48%	3	0.9%	8.1%	7%	50%	
4	-1.1%	-15.7%	8%	33%	4	2.4%	26.8%	9%	56%	4	0.0%	-4.7%	9%	52%	4	0.8%	7.4%	6%	48%	
5	-0.6%	-10.5%	8%	58%	5	2.3%	27.0%	8%	51%	5	0.1%	-3.3%	8%	52%	5	0.7%	6.9%	6%	50%	
6	-0.6%	-10.3%	8%	42%	6	2.1%	24.1%	8%	47%	6	-0.2%	-6.1%	8%	43%	6	0.0%	8.4%	6%	54%	
7	-0.4%	-7.6%	7%	50%	7	1.7%	19.1%	7%	33%	7	0.0%	-4.0%	8%	47%	7	0.9%	8.8%	5%	54%	
8	-0.9%	-12.9%	7%	67%	8	1.8%	19.7%	7%	56%	8	-0.1%	-4.1%	8%	57%	8	0.0%	8.5%	5%	50%	
9	0.3%	1.8%	6%	67%	9	1.9%	22.5%	6%	42%	9	0.0%	-3.1%	7%	47%	9	0.9%	9.1%	5%	51%	
10	-0.2%	-4.9%	6%	75%	10	1.5%	17.2%	6%	47%	10	0.2%	-0.3%	6%	56%	10	1.0%	10.7%	5%	56%	
Total Test					Total Test					Total Test					Total Test					
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		
Ref	IC	IC	IC	Assets	Ref	IC	IC	IC	Assets	Ref	IC	IC	IC	Assets	Ref	IC	IC	IC	Assets	
Universe	-0.8%	-8.1%	-8.8%	461	Universe	2.1%	1.5%	1.5%	465	Universe	0.0%	-0.8%	-1.2%	506	Universe	0.8%	-1.6%	-1.7%	549	
* Isolated Portfolios Ratio of 0.5																				
Strategy Statistics																				
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					
Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		
Ret	Ret	Devn	Perf.		Ret	Ret	Ret	Perf.		Ret	Ret	Ret	Perf.		Ret	Ret	Devn	Perf.		
Long/Short	-5.9%	-21.3%	4.7%	25%	Long/Short	1.2%	13.8%	8.1%	53%	Long/Short	-0.4%	-6.1%	5.0%	43%	Long/Short	-0.5%	-7.8%	5.1%	44%	
Active Ret	-1.3%	-14.8%	2.4%	25%	Active Ret	0.8%	7.0%	3.7%	56%	Active Ret	0.2%	2.7%	3.6%	47%	Active Ret	-0.4%	-4.8%	3.1%	44%	
T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		
Long/Short	-1.4	-1.3	.93	-1.11	Long/Short	1.2	0.6	.94	.5	Long/Short	-0.5	-0.3	1.02	-0.2	Long/Short	-1.0	-0.4	1.11	-0.4	

Portfolio Index Performance

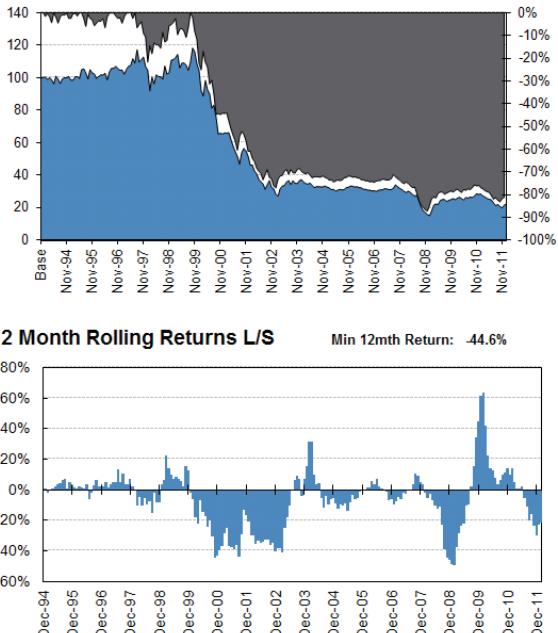


Portfolio Spread. Annual Returns

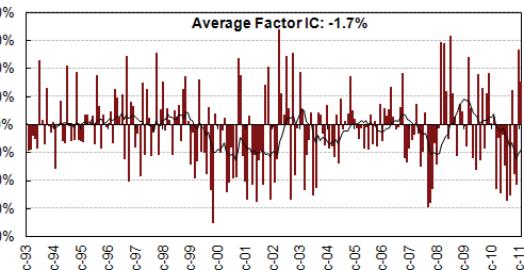


Cumulative (L/S) Returns

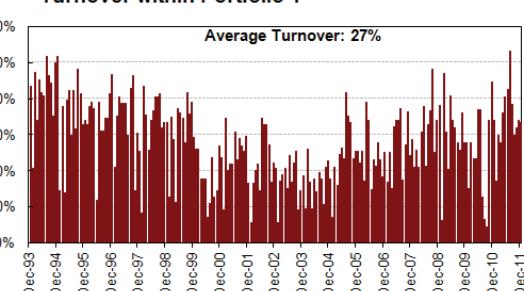
Max Drawdown: -86.9%



Information Co-Efficients (IC)



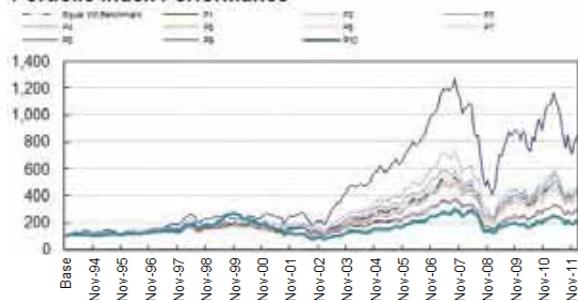
Turnover within Portfolio 1



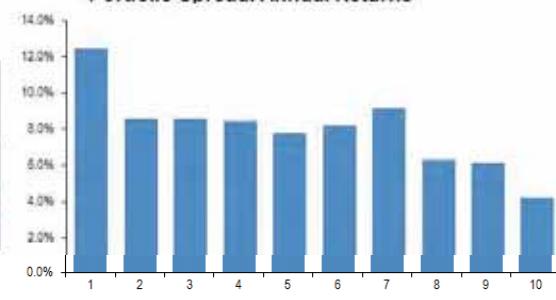
Historical P/Cash Earnings Ratio

Historical P/Cash Earnings Ratio										Rebalance every 1 month(s)										
1 Year: 02/28/2011 to 02/29/2012					3 Years(s): 02/28/2009 to 02/28/2012					5 Year(s): 02/28/2007 to 02/29/2012					Total Period: 12/31/1993 to 02/29/2012					
Portfolio Statistics					Portfolio Statistics					Portfolio Statistics					Portfolio Statistics					
Port	Avg	Ret	Ann	St	Port	Avg	Ret	Ann	St	Port	Avg	Ret	Ann	St	Port	Avg	Ret	Ann	St	
	Ref	Ret	Dev	% Out		Ref	Ret	Dev	Perf.		Ref	Ret	Dev	Perf.		Ref	Ret	Dev	Perf.	
1	-1.6%	-21.5%	9%	25%	1	2.5%	26.9%	10%	44%	1	0.1%	-4.1%	10%	43%	1	1.2%	12.5%	7%	52%	
2	-1.1%	-17.5%	10%	42%	2	2.0%	22.1%	9%	47%	2	-0.2%	-6.7%	9%	42%	2	0.0%	8.6%	6%	55%	
3	-0.2%	-5.5%	9%	50%	3	2.3%	26.7%	9%	50%	3	0.1%	-3.4%	8%	45%	3	0.9%	11.5%	6%	55%	
4	-1.0%	-14.4%	8%	33%	4	2.1%	24.7%	7%	50%	4	0.3%	0.0%	7%	52%	4	0.8%	8.4%	6%	50%	
5	-0.2%	-5.8%	8%	58%	5	2.4%	27.8%	8%	58%	5	0.2%	-1.5%	8%	52%	5	0.8%	7.8%	6%	49%	
6	-0.7%	-10.4%	7%	42%	6	2.1%	25.0%	7%	50%	6	0.1%	-2.8%	8%	47%	6	0.0%	8.2%	6%	48%	
7	0.4%	2.3%	7%	75%	7	2.8%	32.0%	7%	54%	7	0.5%	2.8%	7%	63%	7	0.9%	9.1%	5%	54%	
8	0.2%	0.7%	7%	83%	8	2.1%	26.0%	6%	81%	8	0.2%	-1.3%	7%	57%	8	0.7%	6.3%	5%	49%	
9	0.0%	-2.5%	7%	87%	9	2.0%	24.0%	7%	50%	9	0.2%	-1.0%	7%	52%	9	0.7%	6.1%	5%	44%	
10	-0.4%	-7.7%	7%	58%	10	1.6%	17.9%	7%	44%	10	0.1%	-2.8%	8%	50%	10	0.5%	4.2%	6%	42%	
Total Test					Total Test					Total Test					Total Test					
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		
Ref	IC	IC	IC	Assets	Ref	IC	IC	IC	Assets	Ref	IC	IC	IC	Assets	Ref	IC	IC	IC	Assets	
Universe	-0.5%	-8.1%	-8.0%	384	Universe	2.2%	-0.6%	-0.4%	384	Universe	0.2%	-1.7%	-1.4%	420	Universe	0.8%	1.7%	1.5%	472	
Strategy Statistics																				
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					
Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		
Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		
Long/Short	-1.2%	-13.5%	3.2%	25%	Long/Short	0.8%	9.3%	4.8%	47%	Long/Short	0.0%	-0.8%	4.5%	47%	Long/Short	0.7%	7.8%	4.0%	57%	
Active Ret	-1.1%	-13.0%	2.3%	25%	Active Ret	0.3%	2.8%	3.2%	44%	Active Ret	0.0%	-0.8%	2.8%	43%	Active Ret	0.4%	4.8%	2.8%	52%	
T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		
Long/Short	-1.3	-1.2	78	-1.6	Long/Short	1.1	0.6	78	0.3	Long/Short	0.8	0.0	85	-0.1	Long/Short	2.6	0.6	95	0.5	

Portfolio Index Performance

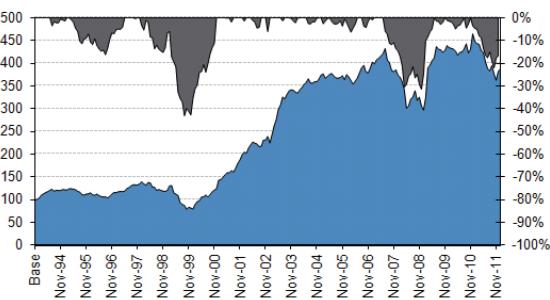


Portfolio Spread. Annual Returns

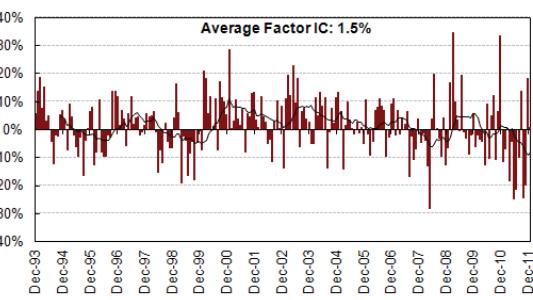


Cumulative (L/S) Returns

Max Drawdown: -43.0%

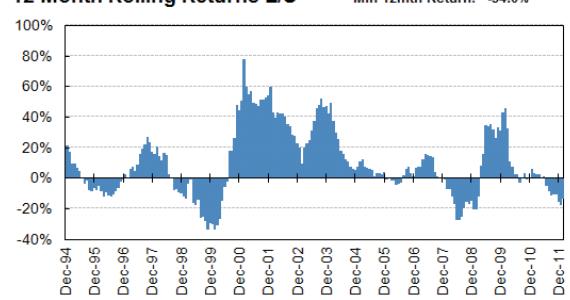


Information Co-Efficients (IC)

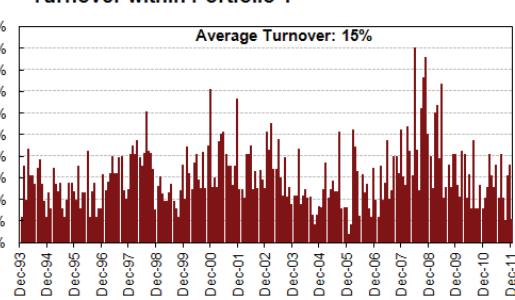


12 Month Rolling Returns L/S

Min 12mth Return: -34.0%



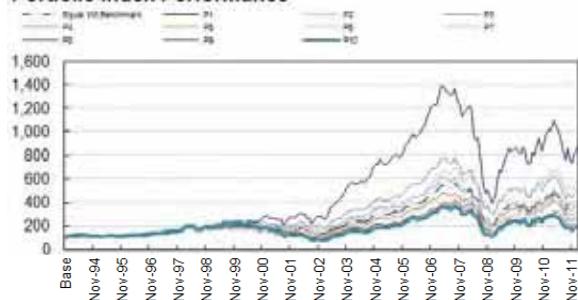
Turnover within Portfolio 1



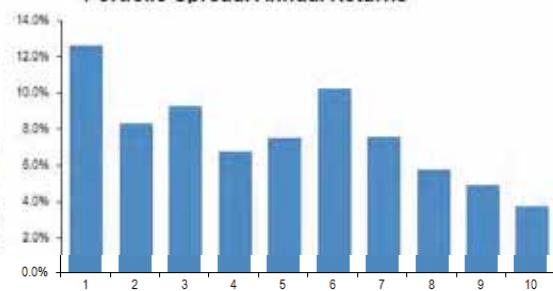
Historical Dividend Yield

Historical Dividend Yield							Rebalance every 1 month(s)																				
1 Year: 02/28/2011 to 02/29/2012					3 Years(s): 02/28/2009 to 02/28/2012					5 Year(s): 02/28/2007 to 02/29/2012					Total Period: 12/31/1993 to 02/29/2012												
Portfolio Statistics					Portfolio Statistics					Portfolio Statistics					Portfolio Statistics												
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.								
1	-1.0%	-14.8%	8%	50%	1	2.8%	29.6%	0%	58%	1	-0.1%	-5.8%	10%	48%	1	1.2%	12.6%	7%	56%								
2	-0.5%	-8.8%	7%	58%	2	2.2%	25.9%	8%	53%	2	0.0%	-4.4%	8%	48%	2	0.8%	8.3%	6%	49%								
3	-1.2%	-15.8%	8%	42%	3	1.7%	18.5%	0%	50%	3	-0.2%	-5.4%	8%	45%	3	0.9%	9.2%	6%	52%								
4	-1.0%	-14.5%	8%	50%	4	1.9%	21.2%	0%	30%	4	-0.1%	-5.2%	8%	38%	4	0.7%	6.8%	6%	40%								
5	-0.8%	-12.1%	8%	58%	5	2.1%	24.3%	8%	53%	5	0.1%	-2.6%	8%	57%	5	0.8%	7.6%	6%	51%								
6	-0.3%	-6.5%	7%	58%	6	2.3%	28.6%	7%	53%	6	0.3%	0.0%	8%	58%	6	1.0%	10.2%	5%	57%								
7	0.3%	-0.1%	8%	92%	7	2.4%	28.6%	7%	61%	7	0.4%	1.2%	8%	68%	7	0.8%	7.5%	6%	50%								
8	-0.4%	-0.2%	8%	75%	8	2.2%	25.3%	8%	58%	8	0.0%	-3.4%	8%	60%	8	0.7%	5.7%	6%	52%								
9	-0.7%	-11.2%	8%	58%	9	1.8%	18.2%	8%	44%	9	-0.2%	-7.1%	8%	42%	9	0.6%	4.9%	6%	45%								
10	-2.7%	-30.6%	9%	17%	10	2.1%	21.4%	10%	44%	10	-0.3%	-0.3%	10%	43%	10	0.6%	3.7%	7%	43%								
Total Test					Total Test					Total Test					Total Test												
Avg Ret	Rank IC	Avg IC	Avg Assets		Avg Ret	Rank IC	Avg IC	Avg Assets		Avg Ret	Rank IC	Avg IC	Avg Assets		Avg Ret	Rank IC	Avg IC	Avg Assets									
Universe	-0.8%	0.7%	1.8%	459	Universe	2.1%	0.7%	1.7%	465	Universe	0.0%	0.0%	0.2%	505	Universe	0.8%	1.7%	1.7%	585								
Strategy Statistics														Strategy Statistics													
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10							
Avg Ret	Ann Ret	Std	% Out Perf.		Avg Ret	Ann Ret	Std	% Out Perf.		Avg Ret	Ann Ret	Std	% Out Perf.		Avg Ret	Ann Ret	Std	% Out Perf.		Avg Ret	Ann Ret	Std	% Out Perf.				
Long/Short	1.7%	21.4%	2.4%	75%	Long/Short	0.5%	5.2%	2.9%	61%	Long/Short	0.2%	1.7%	3.0%	52%	Long/Short	0.7%	7.6%	3.4%	54%	Long/Short	0.4%	5.0%	2.3%	56%			
Active Ret	-0.2%	-2.2%	1.6%	50%	Active Ret	0.6%	5.4%	2.1%	58%	Active Ret	-0.1%	1.5%	2.3%	48%	Active Ret	-0.4%	8.2%	Assets	IR	Long/Short	2.9	8.2	102	-0.2			
T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		Long/Short	2.4	2.5	92	-0.4			

Portfolio Index Performance

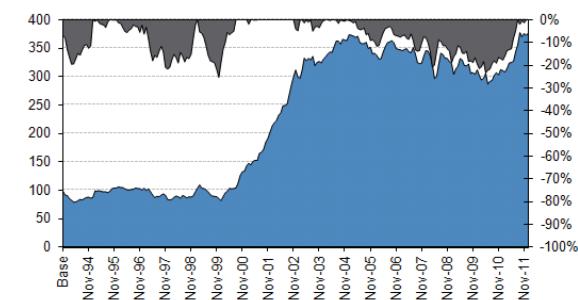


Portfolio Spread. Annual Returns

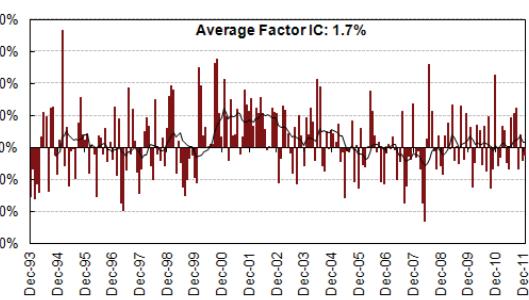


Cumulative (L/S) Returns

Max Drawdown: -25.1%

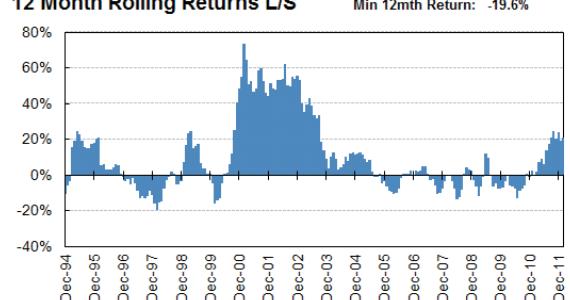


Information Co-Efficients (IC)



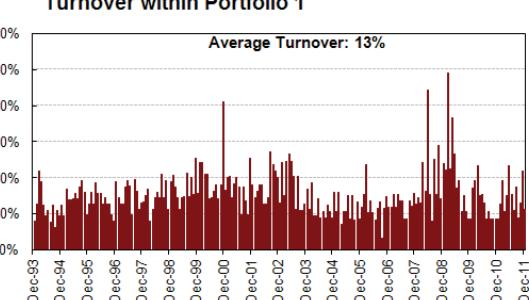
12 Month Rolling Returns L/S

Min 12mth Return: -19.6%



Turnover within Portfolio 1

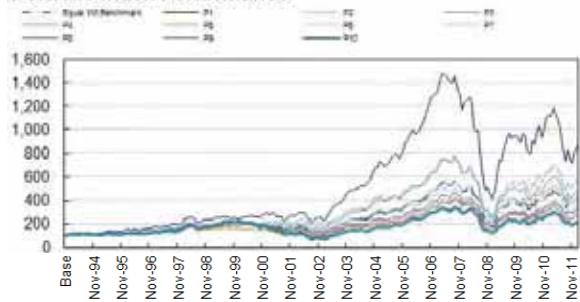
Average Turnover: 13%



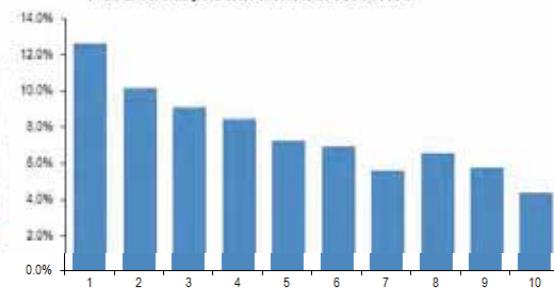
Historical Earnings Yield

Historical Earnings Yield										Rebalance every 1 month(s)									
1 Year: 02/28/2011 to 02/29/2012					3 Years(s): 02/28/2009 to 02/29/2012					5 Year(s): 02/28/2007 to 02/29/2012					Total Period: 12/31/1993 to 02/29/2012				
Portfolio Statistics					Portfolio Statistics					Portfolio Statistics					Portfolio Statistics				
Port	Avg	Ann	Std	% Out	Port	Avg	Ann	Std	% Out	Port	Avg	Ann	Std	% Out	Port	Avg	Ann	Std	% Out
Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.
1	-1.7%	-23.1%	10%	25%	1	2.8%	26.0%	10%	44%	1	-0.2%	-4.0%	10%	43%	1	1.2%	12.6%	7%	59%
2	-0.8%	-12.2%	8%	58%	2	2.6%	29.9%	9%	58%	2	0.2%	-2.7%	9%	52%	2	1.0%	10.2%	6%	55%
3	-0.9%	-14.8%	8%	67%	3	2.2%	24.3%	9%	56%	3	-0.1%	-5.5%	9%	53%	3	0.9%	9.1%	6%	53%
4	-0.8%	-11.8%	8%	58%	4	2.2%	25.0%	9%	44%	4	0.1%	-2.4%	9%	50%	4	0.8%	8.4%	6%	47%
5	0.3%	0.7%	8%	92%	5	2.5%	30.4%	8%	67%	5	0.3%	-0.2%	8%	60%	5	0.8%	7.2%	6%	47%
6	-0.5%	-8.8%	7%	50%	6	1.9%	21.9%	7%	47%	6	-0.2%	-5.2%	8%	48%	6	0.7%	6.8%	5%	51%
7	-0.4%	-8.0%	7%	67%	7	1.9%	21.3%	7%	50%	7	-0.2%	-6.0%	8%	50%	7	0.6%	5.8%	6%	44%
8	-0.6%	-9.9%	7%	42%	8	1.8%	19.8%	7%	39%	8	-0.1%	-4.2%	8%	48%	8	0.7%	6.5%	6%	45%
9	-1.0%	-14.2%	7%	50%	9	1.7%	18.4%	8%	42%	9	0.0%	-4.0%	8%	53%	9	0.6%	5.7%	6%	47%
10	-1.8%	-22.4%	8%	25%	10	1.5%	19.8%	9%	44%	10	-0.1%	-6.4%	9%	45%	10	0.6%	4.4%	7%	47%
Total Test					Total Test					Total Test					Total Test				
Avg	Rack	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rack	Avg	Avg		Avg	Rack	Avg	Avg	
Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets	
Universe	-0.8%	-1.3%	-0.6%	461	Universe	2.1%	1.7%	1.4%	465	Universe	0.0%	0.0%	-0.3%	506	Universe	0.8%	2.6%	1.8%	585
Strategy Statistics																			
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10				
Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out	
Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.	
Long/Short	0.1%	0.4%	2.5%	42%	Long/Short	0.7%	7.6%	3.8%	50%	Long/Short	0.0%	-1.2%	3.7%	48%	Long/Short	0.8%	7.4%	3.2%	58%
Active Ret	-0.9%	-10.6%	2.3%	25%	Active Ret	0.4%	5.0%	3.1%	44%	Active Ret	-0.2%	-2.3%	2.9%	43%	Active Ret	0.4%	5.1%	2.2%	59%
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR	
Long/Short	0.1	0.0	93	-1.3	Long/Short	1.1	0.6	94	0.5	Long/Short	-0.1	-0.1	102	-0.2	Long/Short	3.0	0.7	114	0.7

Portfolio Index Performance

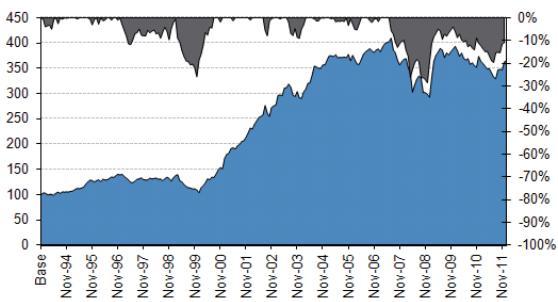


Portfolio Spread. Annual Returns

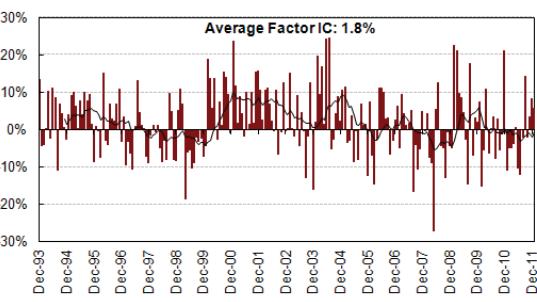


Cumulative (L/S) Returns

Max Drawdown: -28.5%

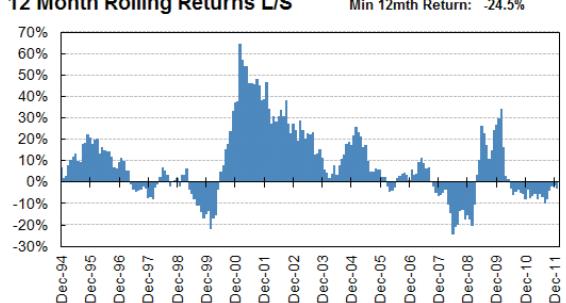


Information Co-Efficients (IC)

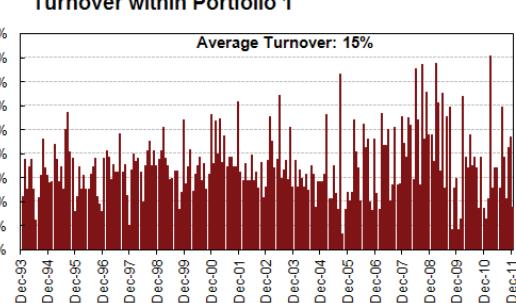


12 Month Rolling Returns L/S

Min 12mth Return: -24.5%



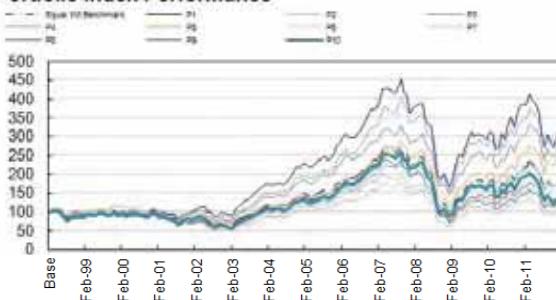
Turnover within Portfolio 1



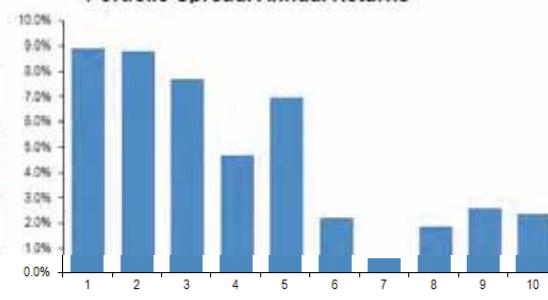
Free Cash Flow to Enterprise Value (Historical)

Free Cash Flow to Enterprise Value (Historical)					Rebalance every 1 month(s)															
1 Year: 02/28/2011 to 02/29/2012					3 Years(s): 02/28/2009 to 02/28/2012					5 Year(s): 02/28/2007 to 02/29/2012					Total Period: 03/31/1998 to 02/29/2012					
Portfolio Statistics					Portfolio Statistics					Portfolio Statistics					Portfolio Statistics					
Port	Avg	Ann	Std	% Outf.	Port	Avg	Ann	Std	% Outf.	Port	Avg	Ann	Std	% Outf.	Port	Avg	Ann	Std	% Outf.	
1	-1.0%	-15.0%	9%	33%	1	2.3%	25.1%	9%	50%	1	0.2%	-2.0%	9%	55%	1	0.9%	8.9%	7%	61%	
2	-0.3%	-6.7%	8%	67%	2	2.3%	27.3%	8%	56%	2	0.3%	-0.3%	8%	58%	2	0.9%	8.8%	6%	60%	
3	-0.3%	-7.3%	8%	67%	3	2.1%	23.9%	7%	56%	3	0.2%	-0.6%	8%	60%	3	0.8%	7.7%	6%	57%	
4	-0.5%	-10.1%	8%	67%	4	2.0%	23.5%	7%	53%	4	0.2%	-1.0%	8%	57%	4	0.5%	4.7%	6%	48%	
5	0.2%	-0.3%	8%	83%	5	2.0%	31.7%	7%	51%	5	0.4%	1.6%	8%	65%	5	0.6%	7.0%	6%	53%	
6	-0.8%	-12.0%	8%	50%	6	2.1%	23.9%	9%	53%	6	-0.1%	-5.5%	8%	47%	6	0.4%	2.2%	7%	46%	
7	-1.2%	-15.2%	8%	50%	7	2.1%	23.2%	9%	47%	7	-0.2%	-7.3%	9%	43%	7	0.3%	0.6%	7%	39%	
8	-0.8%	-12.0%	8%	58%	8	2.0%	22.0%	9%	47%	8	-0.4%	-8.4%	9%	40%	8	0.4%	1.8%	7%	42%	
9	-1.0%	-14.0%	7%	50%	9	2.0%	22.8%	8%	47%	9	-0.4%	-8.0%	9%	40%	9	0.4%	2.5%	7%	47%	
10	-2.4%	-28.0%	8%	17%	10	1.7%	16.7%	9%	44%	10	-0.3%	-8.8%	9%	48%	10	0.5%	2.4%	7%	47%	
Total Test					Total Test					Total Test					Total Test					
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		
Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets		
Universe	-0.8%	3.1%	5.5%	457	Universe	2.1%	1.5%	2.2%	483	Universe	0.0%	2.5%	2.1%	504	Universe	0.6%	2.1%	1.6%	492	
Strategy Statistics										Strategy Statistics										
Portfolio 1 less Portfolio 10										Portfolio 1 less Portfolio 10										
Avg	Ann	Std	% Outf.		Avg	Ann	Std	% Outf.		Avg	Ann	Std	% Outf.		Avg	Ann	Std	% Outf.		
Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		
Long/Short	1.4%	17.5%	1.7%	83%	Long/Short	0.6%	6.0%	1.7%	61%	Long/Short	0.5%	6.0%	1.8%	62%	Long/Short	0.5%	5.7%	1.9%	63%	
Active Ret	-0.2%	-2.8%	1.6%	33%	Active Ret	0.1%	1.5%	1.5%	50%	Active Ret	0.2%	2.1%	1.3%	55%	Active Ret	0.3%	4.1%	1.4%	61%	
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		
Long/Short	2.0	3.0	92	-0.5	Long/Short	1.9	1.1	93	0.3	Long/Short	2.2	1.0	102	0.5	Long/Short	3.3	0.9	99	0.9	

Portfolio Index Performance

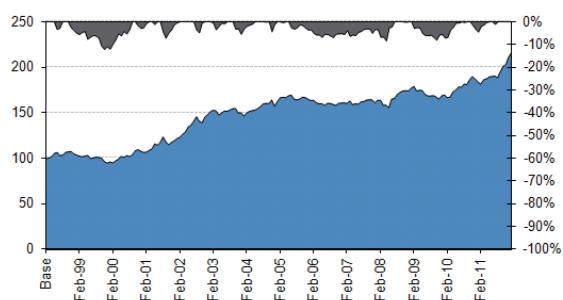


Portfolio Spread. Annual Returns

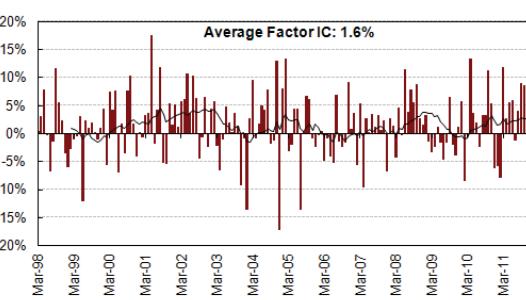


Cumulative (L/S) Returns

Max Drawdown: -11.8%

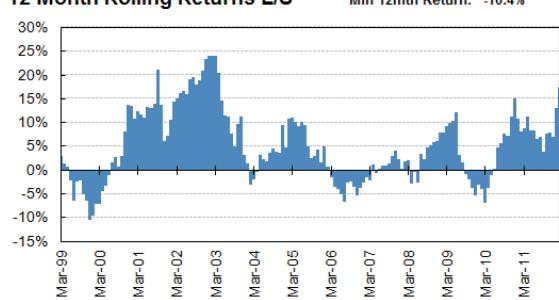


Information Co-Efficients (IC)

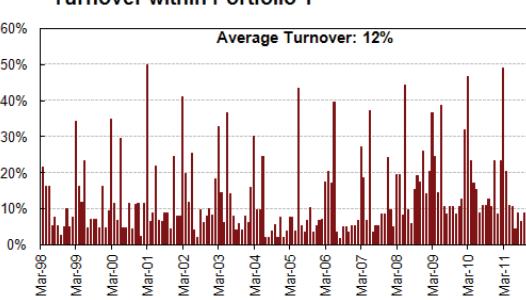


12 Month Rolling Returns L/S

Min 12mth Return: -10.4%



Turnover within Portfolio 1



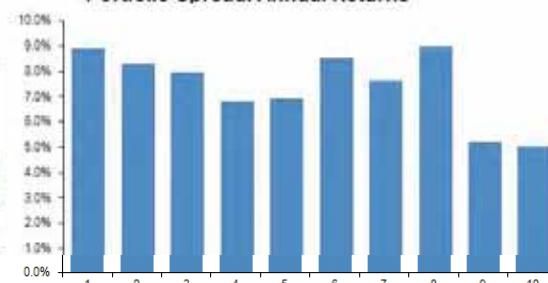
Cash Flow Yield Mean of FY1 and FY2

Cash Flow Yield Mean of FY1 and FY2								Rebalance every 1 month(s)											
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/28/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 07/31/1994 to 02/28/2012							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port				
	Ret	Ret	Dev	Perf.		Ret	Ret	Dev	Perf.		Ret	Ret	Dev	Perf.		Ret			
1	-3.1%	-35.0%	10%	17%	1	2.1%	20.5%	11%	42%	1	-0.4%	-10.7%	11%	37%	1	1.0%	8.9%	0%	50%
2	-1.5%	-19.8%	9%	25%	2	2.1%	21.3%	10%	38%	2	-0.2%	-7.7%	10%	33%	2	0.9%	8.3%	7%	54%
3	-0.6%	-10.7%	9%	50%	3	2.2%	24.5%	9%	44%	3	-0.1%	-5.9%	9%	42%	3	0.8%	7.9%	6%	51%
4	-1.3%	-17.2%	8%	17%	4	1.9%	20.3%	8%	31%	4	-0.1%	-6.0%	9%	38%	4	0.7%	6.8%	0%	48%
5	-0.8%	-13.2%	8%	67%	5	2.0%	22.4%	8%	51%	5	-0.1%	-4.7%	8%	55%	5	0.7%	6.9%	6%	51%
6	-0.3%	-6.0%	7%	67%	6	2.2%	25.4%	7%	53%	6	0.2%	-1.7%	8%	58%	6	0.8%	6.5%	6%	53%
7	-0.1%	-4.7%	7%	75%	7	2.4%	20.2%	7%	51%	7	0.3%	-0.3%	8%	60%	7	0.8%	7.6%	6%	50%
8	0.2%	0.1%	6%	67%	8	2.4%	30.2%	7%	58%	8	0.4%	0.9%	7%	55%	8	0.9%	9.0%	5%	50%
9	0.0%	-2.5%	7%	92%	9	2.2%	26.0%	7%	57%	9	0.3%	0.6%	7%	68%	9	0.6%	5.2%	5%	46%
10	0.0%	-2.6%	7%	67%	10	1.7%	19.6%	8%	50%	10	0.1%	-2.1%	7%	58%	10	0.6%	5.0%	6%	47%
Total Test				Total Test				Total Test				Total Test							
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg				
Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref				
Universe	-0.8%	-10.8%	-13.1%	422	Universe	2.1%	-2.9%	-3.6%	417	Universe	0.0%	-3.8%	-3.6%	451	Universe	0.8%	0.7%	0.7%	478
Strategy Statistics																			
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out				
Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.				
Long/Short	-3.1%	-32.3%	4.5%	17%	Long/Short	0.4%	3.2%	6.1%	44%	Long/Short	-0.4%	-6.7%	5.3%	40%	Long/Short	0.4%	4.2%	4.5%	59%
Active Ret	-2.4%	-28.4%	3.5%	17%	Active Ret	0.0%	0.7%	3.8%	42%	Active Ret	-0.4%	-5.2%	3.3%	37%	Active Ret	0.2%	2.3%	2.8%	50%
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat				
Long/Short	-2.4	-2.1	.85	-2.1	Long/Short	0.4	0.2	.84	-0.1	Long/Short	-0.6	-0.4	.91	-0.5	Long/Short	1.4	0.3	.96	0.2

Portfolio Index Performance

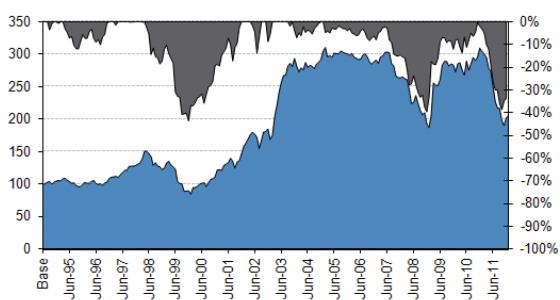


Portfolio Spread. Annual Returns



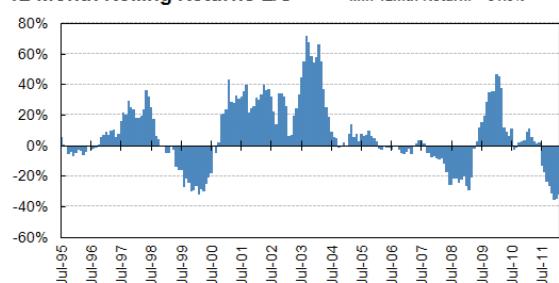
Cumulative (L/S) Returns

Max Drawdown: -43.6%

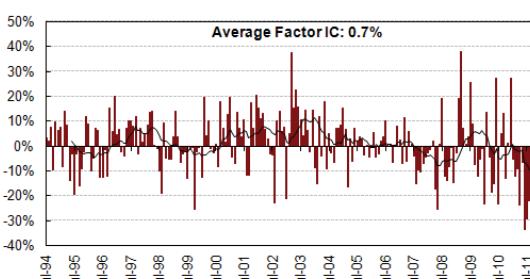


12 Month Rolling Returns L/S

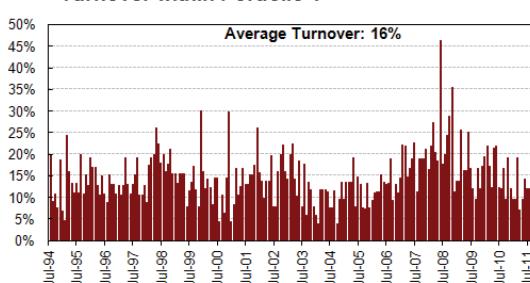
Min 12mth Return: -31.9%



Information Co-Efficients (IC)



Turnover within Portfolio 1

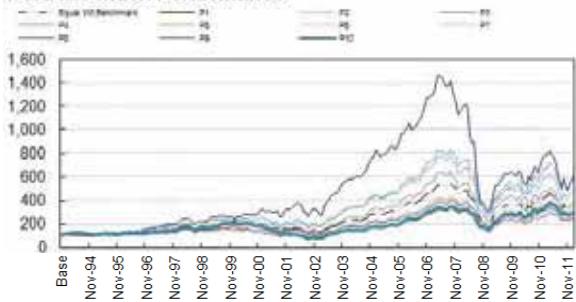


1 year forward forecast PE

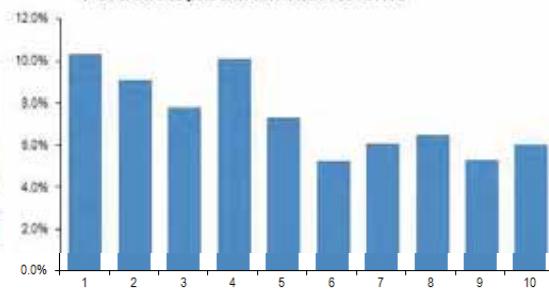
1 year forward forecast PE										Rebalance every 1 month(s)									
1 Year: 02/28/2011 to 02/29/2012					3 Years(s): 02/28/2009 to 02/29/2012					5 Year(s): 02/28/2007 to 02/29/2012					Total Period: 12/31/1993 to 02/29/2012				
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics	
Port	Avg	Ann	Std	% Out	Port	Avg	Ann	Std	% Out	Port	Avg	Ann	Std	% Out	Port	Avg	Ann	Std	% Out
1	-1.8%	-23.8%	10%	33%	1	2.4%	25.9%	10%	58%	1	-0.7%	-14.4%	11%	48%	1	1.1%	10.3%	7%	50%
2	-1.3%	-18.3%	9%	42%	2	2.1%	22.6%	9%	50%	2	-0.2%	-8.7%	9%	48%	2	0.9%	9.1%	6%	53%
3	-1.4%	-19.4%	8%	33%	3	2.0%	21.6%	9%	39%	3	-0.2%	-8.6%	9%	40%	3	0.8%	7.8%	6%	48%
4	-0.3%	-13.8%	8%	42%	4	2.2%	25.5%	9%	44%	4	0.0%	-4.9%	9%	42%	4	1.0%	10.1%	6%	59%
5	0.0%	-3.1%	8%	67%	5	2.4%	27.9%	8%	56%	5	0.3%	-0.5%	8%	63%	5	0.8%	7.3%	6%	47%
6	-1.2%	-16.4%	7%	42%	6	1.9%	21.0%	8%	53%	6	0.1%	-3.1%	8%	60%	6	0.6%	5.3%	6%	45%
7	-0.7%	-11.2%	8%	58%	7	2.1%	23.8%	7%	53%	7	0.0%	-4.0%	8%	53%	7	0.6%	6.1%	6%	44%
8	0.2%	-0.3%	7%	67%	8	1.9%	21.7%	7%	44%	8	0.1%	-1.8%	7%	55%	8	0.7%	6.5%	6%	45%
9	-0.1%	-4.2%	7%	75%	9	2.0%	22.8%	7%	50%	9	0.1%	-2.2%	8%	55%	9	0.6%	5.3%	6%	44%
10	-1.3%	-16.8%	7%	58%	10	2.1%	23.4%	8%	56%	10	0.2%	-1.3%	8%	56%	10	0.7%	6.0%	6%	48%
Total Test					Total Test					Total Test					Total Test				
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg	
Ref.	IC	IC	Assets		Ref.	IC	IC	Assets		Ref.	IC	IC	Assets		Ref.	IC	IC	Assets	
Universe	-0.9%	-5.5%	-4.1%	447	Universe	2.1%	0.0%	-0.5%	450	Universe	0.0%	-1.3%	-2.8%	451	Universe	0.8%	-2.4%	1.4%	510
Strategy Statistics																			
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10				
Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out	
Long/Short	-0.4%	-8.4%	4.9%	33%	Long/Short	0.3%	2.7%	4.6%	47%	Long/Short	-0.9%	-11.3%	5.0%	42%	Long/Short	0.4%	4.1%	4.2%	59%
Active Ret.	-0.9%	-10.7%	3.1%	33%	Active Ret.	0.3%	3.2%	3.1%	58%	Active Ret.	-0.7%	-8.2%	3.4%	48%	Active Ret.	0.3%	3.5%	2.7%	58%
T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR	
Long/Short	-0.3	-0.4	90	-1.0	Long/Short	0.4	0.2	91	0.3	Long/Short	-1.4	-0.7	99	-0.7	Long/Short	1.5	0.3	103	0.4

* Standard P/B/P/E Ratio of 5.0

Portfolio Index Performance

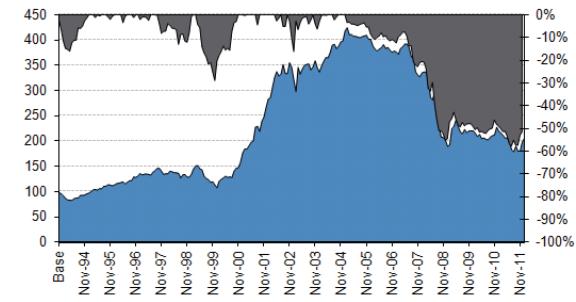


Portfolio Spread. Annual Returns

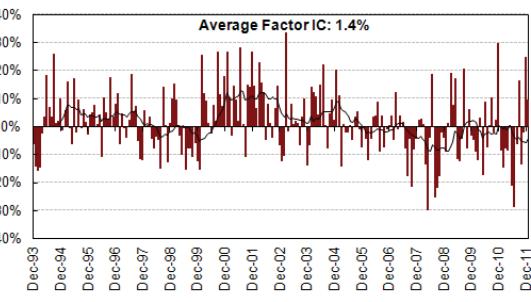


Cumulative (L/S) Returns

Max Drawdown: -57.7%

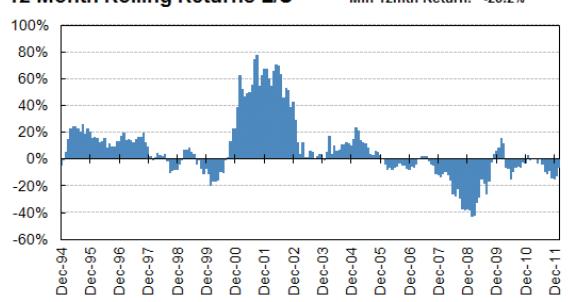


Information Co-Efficients (IC)

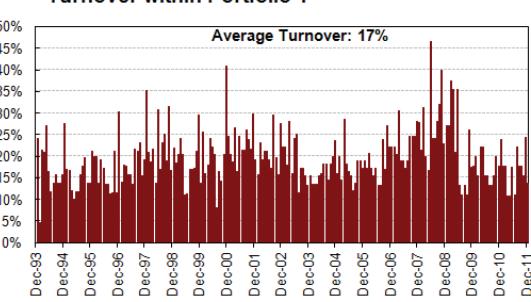


12 Month Rolling Returns L/S

Min 12mth Return: -28.2%



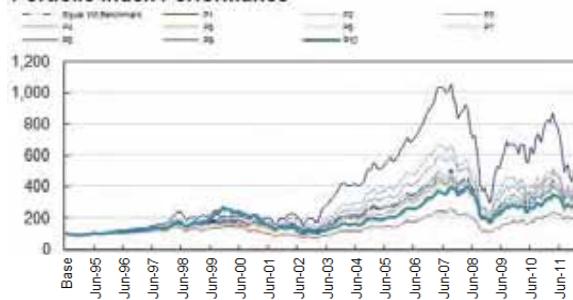
Turnover within Portfolio 1



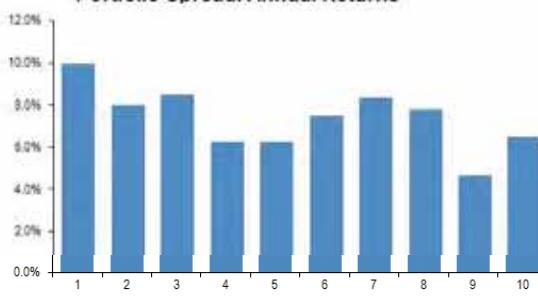
Cash Flow Yield FY1

Cash Flow Yield FY1								Rebalance every 1 month(s)																							
1 Year: 02/28/2011 to 02/29/2012					3 Years(s): 02/28/2009 to 02/28/2012					5 Year(s): 02/28/2007 to 02/29/2012					Total Period: 07/31/1994 to 02/29/2012																
Portfolio Statistics								Portfolio Statistics								Portfolio Statistics															
Port	Avg Ret	Ann Ret	St Dev	% Out.	Port	Avg Ret	Ann Ret	St Dev	% Out.	Port	Avg Ret	Ann Ret	St Dev	% Out.	Port	Avg Ret	Ann Ret	St Dev	% Out.	Port	Avg Ret	Ann Ret	St Dev	% Out.							
1	-3.1%	-35.3%	10%	17%	1	2.2%	21.0%	11%	42%	1	-0.3%	-10.1%	11%	37%	1	1.1%	10.0%	8%	54%	1	1.1%	10.0%	8%	54%							
2	-1.7%	-21.9%	9%	25%	2	1.9%	19.5%	10%	39%	2	-0.3%	-8.5%	9%	33%	2	0.9%	8.0%	7%	50%	2	0.9%	8.0%	7%	50%							
3	-0.3%	-7.5%	9%	58%	3	2.3%	26.3%	8%	50%	3	0.0%	-4.2%	9%	45%	3	0.9%	8.5%	8%	50%	3	0.9%	8.5%	8%	50%							
4	-1.8%	-22.0%	8%	17%	4	1.7%	17.9%	8%	35%	4	-0.2%	-6.5%	8%	43%	4	0.7%	6.3%	6%	49%	4	0.7%	6.3%	6%	49%							
5	-0.3%	-7.5%	9%	58%	5	2.0%	22.2%	8%	44%	5	-0.1%	-4.9%	8%	45%	5	0.7%	6.3%	6%	44%	5	0.7%	6.3%	6%	44%							
6	-0.5%	-10.2%	8%	25%	6	2.3%	26.3%	8%	54%	6	0.0%	-3.0%	8%	57%	6	0.8%	7.5%	6%	50%	6	0.8%	7.5%	6%	50%							
7	-0.5%	-8.1%	7%	58%	7	2.4%	29.2%	7%	67%	7	0.5%	1.8%	8%	68%	7	0.8%	8.3%	6%	54%	7	0.8%	8.3%	6%	54%							
8	0.3%	1.5%	6%	75%	8	2.2%	27.2%	7%	56%	8	0.2%	-1.4%	8%	55%	8	0.8%	7.8%	5%	50%	8	0.8%	7.8%	5%	50%							
9	0.5%	3.8%	7%	75%	9	2.3%	28.0%	7%	61%	9	0.3%	0.0%	7%	60%	9	0.5%	4.7%	5%	43%	9	0.5%	4.7%	5%	43%							
10	-0.4%	-7.0%	7%	58%	10	1.8%	20.9%	7%	50%	10	0.2%	-1.7%	8%	58%	10	0.7%	6.5%	6%	48%	10	0.7%	6.5%	6%	48%							
Total Test					Total Test					Total Test					Total Test					Total Test											
Avg Ret	Rank	Avg Ret	Avg Ret	% Out.	Avg Ret	Rank	Avg Ret	Avg Ret	% Out.	Avg Ret	Rank	Avg Ret	Avg Ret	% Out.	Avg Ret	Rank	Avg Ret	Avg Ret	% Out.	Avg Ret	Rank	Avg Ret	Avg Ret	% Out.							
Universe	-0.8%	-10.5%	-12.3%	42%	Universe	2.1%	-2.9%	-3.5%	41%	Universe	0.0%	-3.6%	-3.5%	454	Universe	0.8%	0.9%	0.8%	480	Universe	0.8%	0.9%	0.8%	480							
Strategy Statistics								Strategy Statistics								Strategy Statistics								Strategy Statistics							
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10						
Avg Ret	Ret	Ann Ret	Std Dev	% Out.	Avg Ret	Ret	Ann Ret	Std Dev	% Out.	Avg Ret	Ret	Ann Ret	Std Dev	% Out.	Avg Ret	Ret	Ann Ret	Std Dev	% Out.	Avg Ret	Ret	Ann Ret	Std Dev	% Out.	Avg Ret	Ret	Ann Ret	Std Dev	% Out.		
Long/Short	-2.7%	-28.8%	4.2%	17%	Long/Short	0.4%	2.7%	5.7%	44%	Long/Short	-0.5%	-6.7%	5.0%	37%	Long/Short	0.4%	3.6%	4.4%	53%	Long/Short	0.4%	3.6%	4.4%	53%	Long/Short	0.4%	3.6%	4.4%	53%		
Active Ret	-2.3%	-24.0%	3.5%	17%	Active Ret	0.1%	-0.1%	3.9%	42%	Active Ret	0.3%	-4.4%	3.4%	37%	Active Ret	0.3%	3.3%	2.8%	54%	Active Ret	0.3%	3.3%	2.8%	54%	Active Ret	0.3%	3.3%	2.8%	54%		
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR			
Long/Short	-2.2	-2.0	85	-2.1	Long/Short	0.4	0.1	85	0.0	Long/Short	-0.7	-0.4	92	-0.4	Long/Short	1.3	0.2	97	0.1	Long/Short	1.3	0.2	97	0.1	Long/Short	1.3	0.2	97	0.1		

Portfolio Index Performance

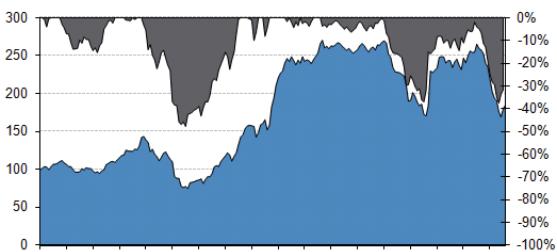


Portfolio Spread. Annual Returns

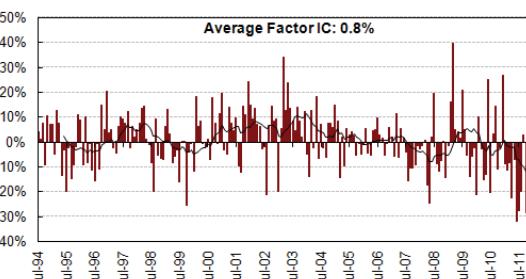


Cumulative (L/S) Returns

Max Drawdown: -47.6%

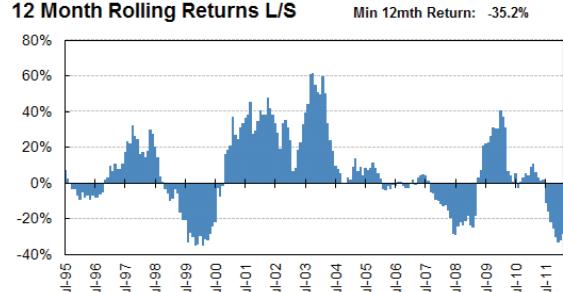


Information Co-Efficients (IC)



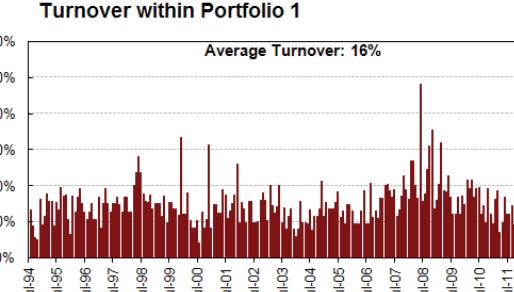
12 Month Rolling Returns L/S

Min 12mth Return: -35.2%



Turnover within Portfolio 1

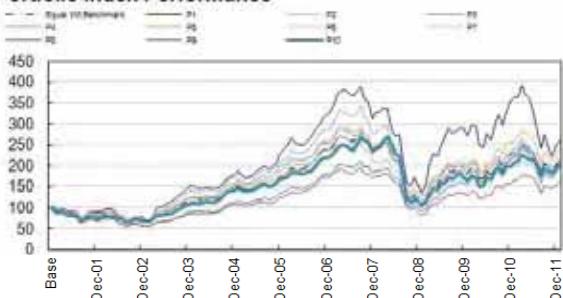
Average Turnover: 16%



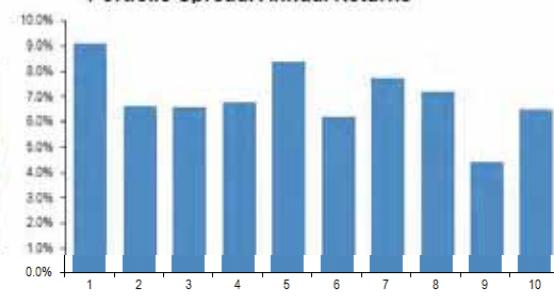
Historical P/Sales Ratio

Historical P/Sales Ratio								Rebalance every 1 month(s)											
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/28/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 01/31/2001 to 02/28/2012							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port				
Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref				
1	-2.3%	-23.2%	10%	17%	1	2.3%	24.4%	10%	42%	1	0.1%	-4.4%	10%	38%	1	1.1%	0.1%	0%	47%
2	-0.7%	-11.7%	9%	50%	2	2.0%	20.7%	0%	47%	2	-0.2%	-8.8%	9%	43%	2	0.8%	6.8%	8%	50%
3	-0.4%	-8.9%	9%	58%	3	2.3%	25.9%	0%	58%	3	0.1%	-3.4%	9%	52%	3	0.8%	6.5%	7%	54%
4	-1.0%	-14.2%	8%	25%	4	2.1%	23.8%	0%	42%	4	0.0%	-4.2%	8%	43%	4	0.8%	6.8%	7%	51%
5	-0.3%	-6.0%	7%	58%	5	2.1%	24.6%	7%	50%	5	0.2%	-1.4%	8%	47%	5	0.9%	8.4%	6%	53%
6	0.2%	-1.4%	8%	25%	6	2.1%	25.2%	7%	50%	6	0.1%	-2.6%	8%	50%	6	0.7%	6.2%	6%	45%
7	0.0%	-2.7%	7%	58%	7	2.1%	24.9%	7%	47%	7	0.2%	-0.6%	7%	48%	7	0.8%	7.7%	6%	50%
8	-0.1%	-3.1%	7%	67%	8	2.7%	23.6%	7%	69%	8	0.6%	3.8%	7%	67%	8	0.0%	7.2%	6%	53%
9	0.1%	-1.6%	7%	67%	9	2.2%	26.1%	7%	47%	9	0.2%	-1.3%	7%	47%	9	0.0%	4.4%	6%	37%
10	-0.1%	-3.5%	6%	67%	10	2.1%	23.7%	7%	59%	10	0.2%	-1.9%	8%	57%	10	0.7%	6.5%	6%	54%
Total Test				Total Test				Total Test				Total Test							
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Jug		Avg	Rank	Avg	Avg		Avg				
Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref				
Universe	-0.5%	-7.5%	-9.7%	405	Universe	-2.2%	-2.3%	-1.0%	407	Universe	0.1%	-2.5%	-1.0%	446	Universe	0.8%	0.2%	0.8%	475
Strategy Statistics																			
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out				
Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.				
Long/Short	-2.2%	-24.0%	4.5%	33%	Long/Short	0.3%	2.4%	5.2%	44%	Long/Short	-0.1%	-1.9%	4.6%	48%	Long/Short	0.4%	3.3%	4.5%	55%
Active Ret	-1.8%	-20.2%	2.9%	17%	Active Ret	0.2%	1.2%	3.9%	42%	Active Ret	0.0%	-0.6%	3.0%	38%	Active Ret	0.3%	3.3%	3.1%	47%
T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat				
Long/Short	1.7	-1.5	82	-2.0	Long/Short	0.4	0.1	82	0.1	Long/Short	-0.1	-0.1	90	-0.1	Long/Short	0.9	0.2	96	0.1

Portfolio Index Performance

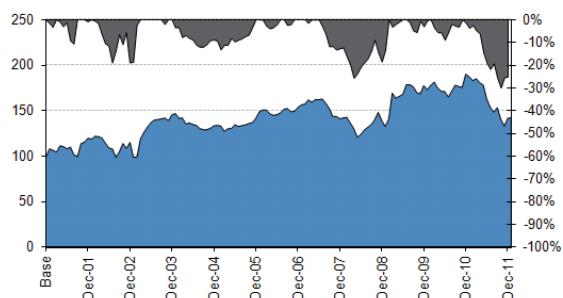


Portfolio Spread. Annual Returns

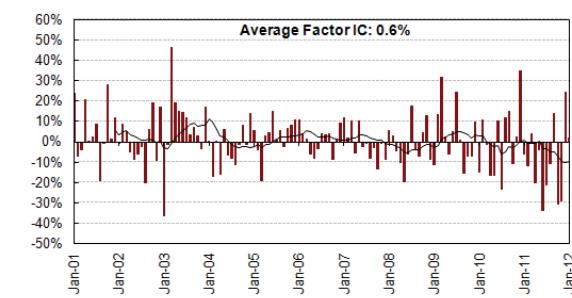


Cumulative (L/S) Returns

Max Drawdown: -30.0%

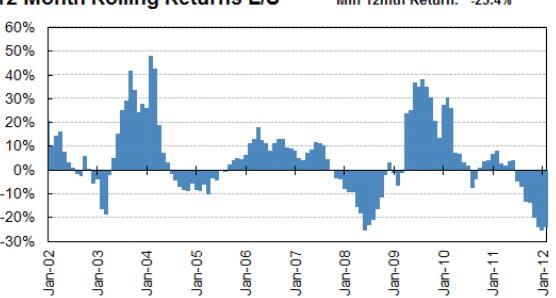


Information Co-Efficients (IC)

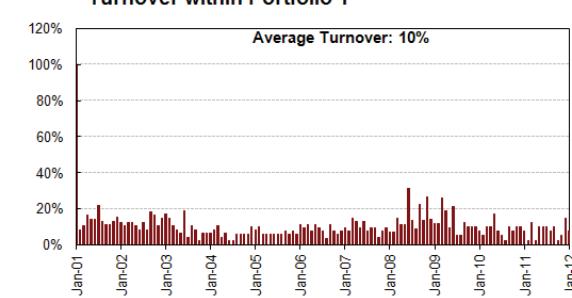


12 Month Rolling Returns L/S

Min 12mth Return: -25.4%



Turnover within Portfolio 1



Cash Flow Yield FY2

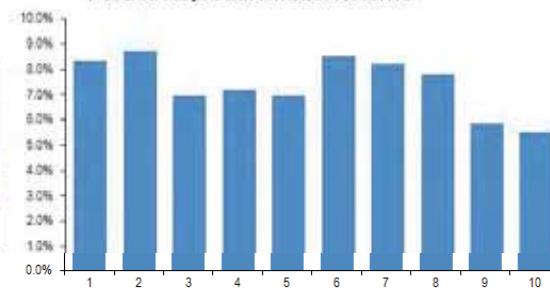
Cash Flow Yield FY2								Rebalance every 1 month(s)																																									
1 Year: 02/28/2011 to 02/29/2012					Portfolio Statistics			3 Years(s): 02/28/2009 to 02/28/2012					Portfolio Statistics			5 Year(s): 02/28/2007 to 02/29/2012					Portfolio Statistics			Total Period: 07/31/1994 to 02/28/2012					Portfolio Statistics																				
Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out															
1	-3.2%	-36.6%	11%	17%	1	2.3%	22.2%	11%	39%	1	-0.4%	-11.0%	11%	37%	1	1.0%	8.3%	6%	50%	2	0.9%	8.7%	7%	49%	3	0.8%	7.0%	6%	50%	4	0.8%	7.2%	6%	54%															
2	-1.2%	-18.0%	9%	33%	2	2.1%	21.7%	10%	42%	2	-0.2%	-7.7%	9%	35%	2	0.9%	8.7%	6%	49%	3	0.8%	7.0%	6%	50%	4	0.8%	7.2%	6%	46%																				
3	-1.0%	-14.6%	8%	67%	3	2.1%	22.8%	9%	61%	3	-0.1%	-5.9%	9%	55%	3	0.8%	7.0%	6%	50%	4	0.8%	7.2%	6%	46%	5	0.8%	7.2%	6%	46%																				
4	-1.3%	-17.4%	8%	33%	4	1.9%	21.3%	9%	47%	4	-0.2%	-6.5%	8%	47%	4	0.8%	7.2%	6%	54%	5	0.7%	6.9%	6%	46%	6	0.2%	6.4%	6%	53%																				
5	-0.8%	-12.5%	8%	42%	5	1.8%	18.9%	8%	39%	5	-0.2%	-6.0%	8%	40%	5	0.7%	6.9%	6%	46%	6	0.3%	-0.3%	8%	65%	7	0.8%	8.2%	6%	49%																				
6	-0.2%	-6.4%	8%	75%	6	2.3%	27.2%	8%	64%	6	0.3%	-0.3%	8%	65%	6	0.8%	8.5%	6%	53%	7	0.3%	-0.4%	8%	57%	8	0.8%	8.2%	6%	49%																				
7	-0.1%	-3.5%	7%	75%	7	2.4%	29.8%	7%	61%	7	0.4%	0.9%	7%	58%	7	0.8%	7.8%	5%	51%	8	0.4%	0.9%	7%	68%	9	0.6%	5.8%	5%	49%																				
8	0.1%	-1.1%	7%	75%	8	2.3%	29.5%	7%	56%	8	0.4%	0.9%	7%	58%	8	0.6%	5.8%	5%	49%	9	0.3%	0.5%	7%	68%	10	0.6%	5.5%	6%	45%																				
9	0.1%	-1.1%	7%	75%	9	2.1%	25.7%	7%	54%	9	0.1%	-1.7%	7%	55%	9	0.6%	5.5%	6%	45%	10	0.6%	5.5%	6%	45%	Total Test	Avg	Rank	Avg	Avg	Total Test	Avg	Rank	Avg	Avg	Total Test	Avg	Rank	Avg	Avg	Total Test	Avg	Rank	Avg	Avg	Total Test	Avg	Rank	Avg	Avg
10	0.1%	-1.1%	7%	67%	10	1.8%	20.8%	8%	50%	10	0.1%	-1.7%	7%	55%	10	0.6%	5.5%	6%	45%	11	0.6%	5.5%	6%	45%	12	0.6%	5.5%	6%	45%	13	0.6%	5.5%	6%	45%															
Univers	-0.8%	-11.2%	-13.8%	422	Univers	2.1%	-2.9%	-3.8%	418	Univers	2.1%	-3.0%	-3.8%	418	Univers	0.0%	-3.0%	-3.8%	470	Univers	0.8%	0.5%	0.6%	470	Univers	0.8%	0.5%	0.6%	470	Univers	0.0%	-3.0%	-3.8%	470															
Strategy Statistics								Strategy Statistics								Strategy Statistics								Strategy Statistics																									
Portfolio 1 less Portfolio 10					Portfolio Statistics			Portfolio 1 less Portfolio 10					Portfolio Statistics			Portfolio 1 less Portfolio 10					Portfolio Statistics			Portfolio 1 less Portfolio 10					Portfolio Statistics																				
Avg	Avg	Ann	Std	% Out	Port	Avg	Ann	Std	% Out	Port	Avg	Ann	Std	% Out	Port	Avg	Ann	Std	% Out	Port	Avg	Ann	Std	% Out	Port	Avg	Ann	Std	% Out	Port	Avg	Ann	Std	% Out															
Ret	Ret	Devn	Perf.		Ret	Ret	Ret	Devn	Perf.	Ret	Ret	Ret	Devn	Perf.	Ret	Ret	Ret	Devn	Perf.	Ret	Ret	Ret	Devn	Perf.	Ret	Ret	Ret	Devn	Perf.	Ret	Ret	Ret	Devn	Perf.															
Long/Short	-3.3%	-34.1%	5.0%	17%	Long/Short	0.5%	3.7%	6.8%	39%	Long/Short	-0.5%	-7.2%	5.8%	38%	Long/Short	0.4%	3.3%	4.7%	54%	Long/Short	0.4%	3.3%	4.7%	54%	Long/Short	0.2%	1.0%	2.0%	50%	Long/Short	1.2	0.2	0.6	0.2															
Active Ret	-2.4%	-26.2%	3.8%	17%	Active Ret	0.2%	1.1%	4.3%	39%	Active Ret	-0.4%	-5.2%	3.7%	37%	Active Ret	-0.4%	-5.2%	3.7%	37%	Active Ret	-0.2%	-1.0%	2.0%	50%	Active Ret	-0.6	-0.4	0.1	-0.4	Long/Short	-0.6	-0.4	0.1	-0.4															
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR																
Long/Short	-2.3	-2.0	0.5	-2.0	Long/Short	0.5	0.2	0.5	0.1	Long/Short	-0.6	-0.4	0.1	-0.4	Long/Short	-0.6	-0.4	0.1	-0.4	Long/Short	-0.6	-0.4	0.1	-0.4	Long/Short	-0.6	-0.4	0.1	-0.4	Long/Short	-0.6	-0.4	0.1	-0.4															

* Annualized P/B/Fwd Ratio of 0.5

Portfolio Index Performance

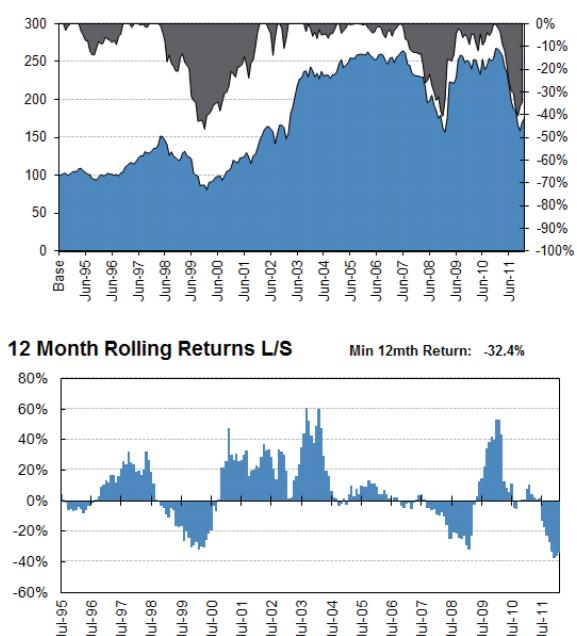


Portfolio Spread. Annual Returns

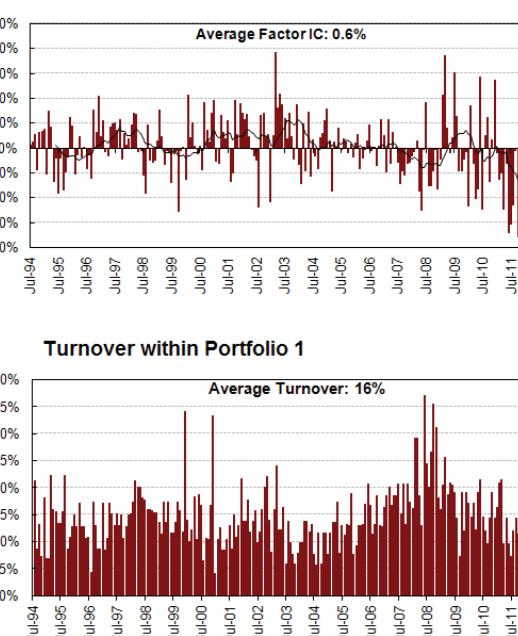


Cumulative (L/S) Returns

Max Drawdown: -46.3%

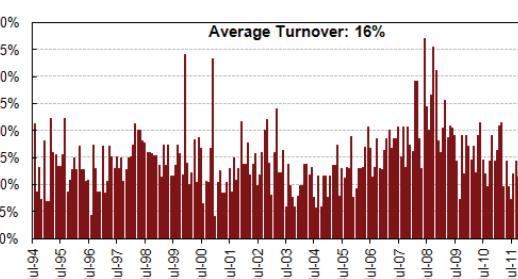


Information Co-Efficients (IC)



Turnover within Portfolio 1

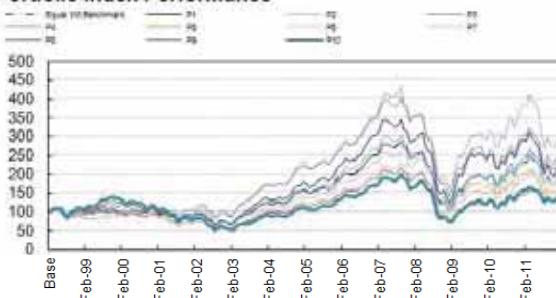
Average Turnover: 16%



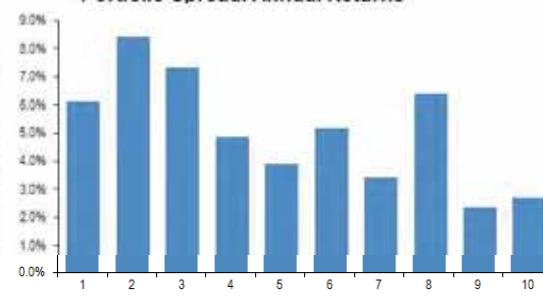
EBITDA to Enterprise Value

EBITDA to Enterprise Value																				
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/28/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 03/31/1998 to 02/29/2012								
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics								
Port.	Avg. Ret.	Ann. Ret.	St. Dev.	% Out.	Port.	Avg. Ret.	Ann. Ret.	St. Dev.	% Out.	Port.	Avg. Ret.	Ann. Ret.	St. Dev.	% Out.	Port.	Avg. Ret.	Ann. Ret.	St. Dev.	% Out.	Perf.
1	-1.6%	-21.4%	9%	17%	1	2.1%	22.4%	9%	33%	1	-0.1%	-5.5%	9%	38%	1	0.8%	6.1%	7%	51%	
2	-1.4%	-19.1%	8%	42%	2	2.2%	24.0%	9%	58%	2	0.1%	-2.8%	9%	60%	2	0.9%	8.4%	7%	61%	
3	-0.8%	-12.5%	9%	50%	3	2.1%	23.7%	9%	44%	3	-0.1%	-5.3%	9%	45%	3	0.8%	7.3%	7%	53%	
4	-1.1%	-15.4%	8%	58%	4	2.1%	23.0%	9%	56%	4	-0.2%	-6.1%	9%	52%	4	0.6%	4.9%	7%	49%	
5	-1.1%	-15.3%	8%	33%	5	1.6%	19.6%	8%	31%	5	-0.3%	-7.3%	8%	37%	5	0.5%	3.8%	7%	45%	
6	-0.9%	-13.5%	8%	58%	6	2.5%	20.2%	9%	58%	6	0.2%	-2.6%	9%	48%	6	0.7%	5.2%	7%	48%	
7	-1.0%	-15.0%	8%	42%	7	2.2%	24.4%	9%	44%	7	0.0%	-4.3%	8%	45%	7	0.5%	3.4%	6%	48%	
8	0.1%	-1.6%	7%	67%	8	2.2%	26.8%	7%	50%	8	0.2%	-0.9%	7%	55%	8	0.7%	6.6%	6%	52%	
9	-0.3%	-5.2%	7%	75%	9	1.8%	21.3%	7%	61%	9	-0.2%	-5.9%	8%	62%	9	0.4%	2.3%	9%	50%	
10	-0.5%	-8.9%	7%	58%	10	2.2%	25.9%	8%	64%	10	0.1%	-3.2%	9%	60%	10	0.5%	2.7%	7%	46%	
Total Test				Total Test				Total Test				Total Test								
Avg. Ret.	Rank	Avg. IC	Avg. Assets	Avg. Ret.	Rank	Avg. IC	Avg. Assets	Avg. Ret.	Rank	Avg. IC	Avg. Assets	Avg. Ret.	Rank	Avg. IC	Avg. Assets					
Universe	-0.9%	-8.0%	-4.5%	452	Universe	-2.1%	-1.8%	-0.8%	457	Universe	0.0%	-1.5%	-0.8%	501	Universe	0.8%	1.0%	0.8%	521	
Strategy Statistics																				
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10								
Avg. Ret.	Ann. Ret.	Std. Dev.	% Out.	Avg. Ret.	Ann. Ret.	Std. Dev.	% Out.	Avg. Ret.	Ann. Ret.	Std. Dev.	% Out.	Avg. Ret.	Ann. Ret.	Std. Dev.	% Out.					
Long/Short	-1.0%	-12.2%	3.0%	25%	Long/Short	-0.1%	-1.9%	2.8%	36%	Long/Short	-0.2%	-2.3%	2.5%	38%	Long/Short	0.3%	2.9%	2.8%	53%	
Active Ret.	-0.7%	-8.6%	2.1%	17%	Active Ret.	0.0%	-0.4%	1.9%	33%	Active Ret.	0.0%	-0.7%	1.6%	38%	Active Ret.	0.1%	1.3%	1.5%	51%	
T-Stat	Sharper* Assets	IR		T-Stat	Sharper* Assets	IR		T-Stat	Sharper* Assets	IR		T-Stat	Sharper* Assets	IR						
Long/Short	-1.2	-1.2	.91	-1.2	Long/Short	-0.2	-0.2	.92	-0.1	Long/Short	-0.5	-0.3	1.01	-0.1	Long/Short	1.3	0.3	1.05	0.2	

Portfolio Index Performance

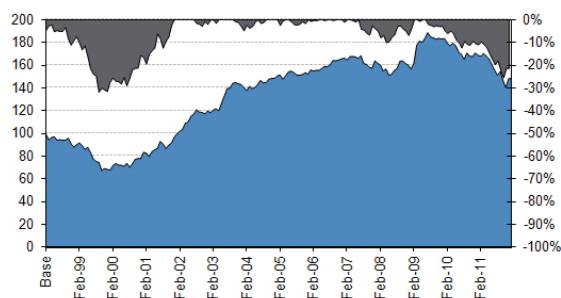


Portfolio Spread. Annual Returns

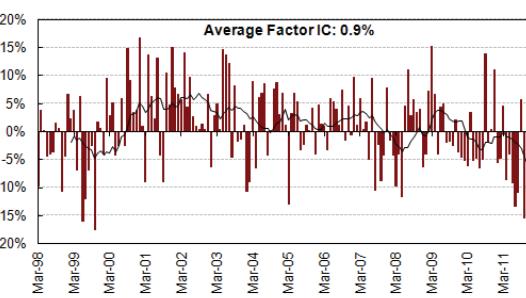


Cumulative (L/S) Returns

Max Drawdown: -31.9%

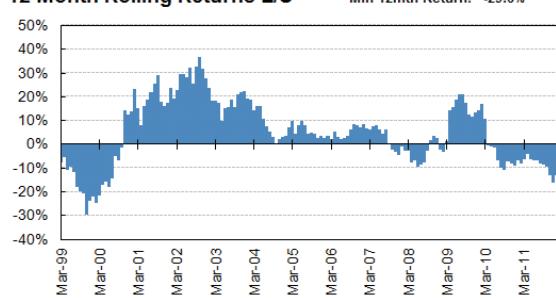


Information Co-Efficients (IC)

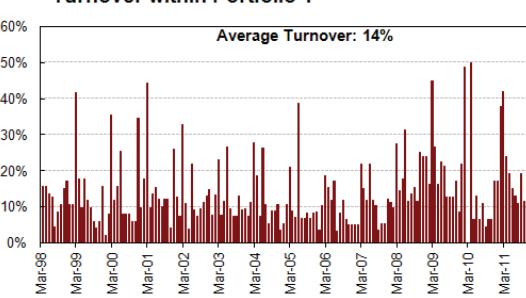


12 Month Rolling Returns L/S

Min 12mth Return: -29.6%



Turnover within Portfolio 1



Historical P/Book Value Ratio

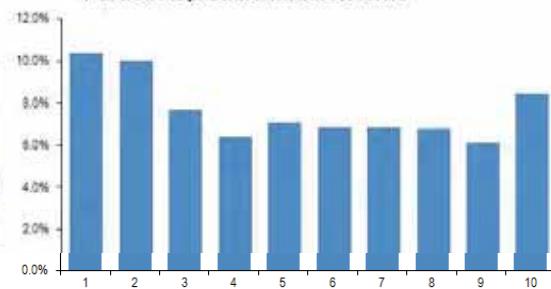
Historical P/Book Value Ratio							Rebalance every 1 month(s)												
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/28/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 12/31/1993 to 02/29/2012							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port.	Avg. Ret.	Ann. Ret.	St. Dev.	% Out.	Port.	Avg. Ret.	Ann. Ret.	St. Dev.	% Out.	Port.	Avg. Ret.	Ann. Ret.	St. Dev.	% Out.					
1	-2.0%	-33.9%	11%	17%	1	2.2%	21.2%	11%	39%	1	-0.3%	-10.6%	11%	35%					
2	-2.0%	-23.9%	8%	17%	2	2.3%	24.9%	9%	47%	2	-0.2%	-8.8%	9%	42%					
3	-0.6%	-10.8%	8%	50%	3	1.8%	19.3%	9%	36%	3	-0.3%	-8.4%	9%	38%					
4	-0.8%	-13.4%	9%	75%	4	2.2%	23.7%	9%	50%	4	0.0%	-5.2%	9%	45%					
5	-0.7%	-11.9%	8%	50%	5	2.3%	26.0%	8%	53%	5	0.0%	-4.0%	8%	48%					
6	-0.8%	-12.4%	8%	33%	6	2.1%	23.4%	8%	50%	6	0.0%	-3.5%	8%	47%					
7	-0.5%	-8.7%	8%	50%	7	2.2%	25.7%	8%	53%	7	0.0%	-3.9%	8%	52%					
8	-0.6%	-11.8%	7%	58%	8	2.0%	22.5%	7%	58%	8	0.2%	-1.1%	8%	63%					
9	0.4%	2.2%	6%	75%	9	2.2%	26.5%	6%	56%	9	0.2%	-1.1%	7%	62%					
10	0.4%	3.2%	6%	83%	10	2.0%	24.1%	6%	58%	10	0.3%	-0.3%	7%	80%					
Total Test				Total Test				Total Test				Total Test							
Avg. Ref.	Rank IC	Avg. IC	Avg. Assets	Avg. Ref.	Rank IC	Avg. IC	Avg. Assets	Avg. Ref.	Rank IC	Avg. IC	Avg. Assets	Avg. Ref.	Rank IC	Avg. IC	Avg. Assets				
Universe	-0.8%	-10.3%	-13.0%	461	Universe	2.1%	-2.5%	-2.6%	465	Universe	0.0%	-3.6%	-5.0%	505	Universe	0.8%	0.4%	0.7%	585
Strategy Statistics																			
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg. Ret.	Ann. Ret.	Std. Dev.	% Out.	Avg. Ret.	Ann. Ret.	Std. Dev.	% Out.	Avg. Ret.	Ann. Ret.	Std. Dev.	% Out.	Avg. Ret.	Ann. Ret.	Std. Dev.	% Out.				
Long/Short	-3.3%	-34.5%	8.1%	25%	Long/Short	0.2%	0.1%	8.9%	44%	Long/Short	-0.6%	-8.9%	5.0%	42%					
Active Ret.	-2.0%	-22.3%	3.8%	17%	Active Ret.	0.1%	0.2%	4.3%	39%	Active Ret.	0.3%	-4.6%	3.7%	35%					
T-Stat Sharpe* Assets IR	1.9	1.6	93	-1.7	T-Stat Sharpe* Assets IR	0.2	0.0	94	0.0	T-Stat Sharpe* Assets IR	-0.6	-0.4	102	-0.4					

*Assumes Risk Free Rate of 0%

Portfolio Index Performance

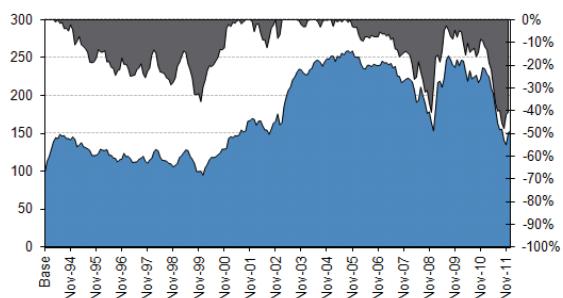


Portfolio Spread. Annual Returns

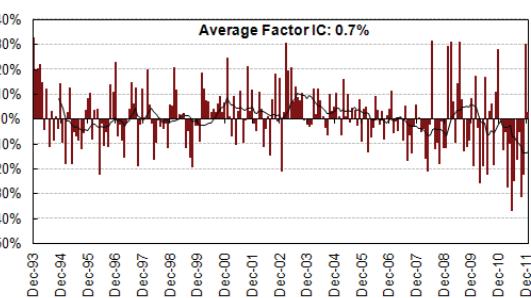


Cumulative (L/S) Returns

Max Drawdown: -47.7%

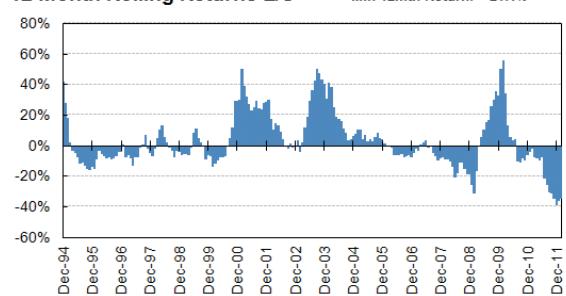


Information Co-Efficients (IC)

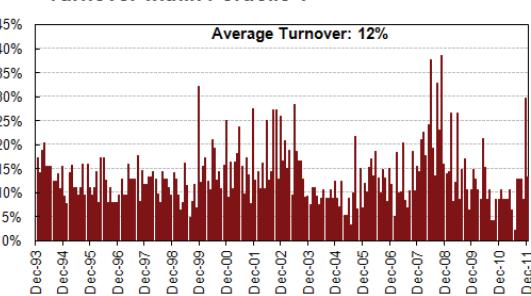


12 Month Rolling Returns L/S

Min 12mth Return: -21.1%



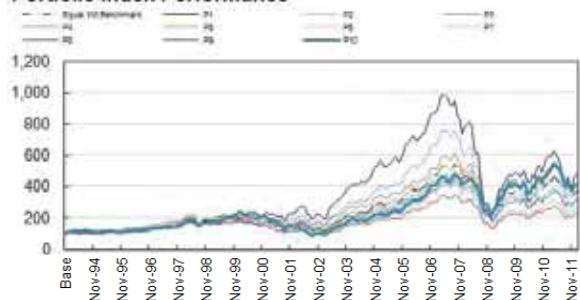
Turnover within Portfolio 1



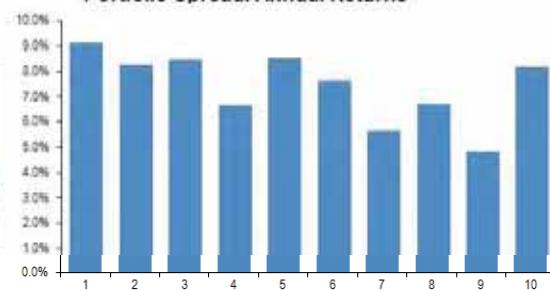
1 year forward PE Relative to Sector

1 year forward forecast PE Relative To Sector								Rebalance every 1 month(s)											
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/28/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 12/31/1993 to 02/29/2012							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port				
Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref				
1	-1.2%	-18.5%	10%	25%	1	2.5%	28.6%	9%	50%	1	-0.4%	-11.1%	10%	38%	1	1.0%	9.1%	7%	53%
2	-1.2%	-17.4%	8%	33%	2	2.1%	23.2%	0%	50%	2	-0.3%	-8.9%	9%	43%	2	0.9%	8.2%	6%	53%
3	-0.9%	-13.3%	8%	50%	3	2.2%	24.5%	0%	44%	3	0.1%	-3.4%	9%	50%	3	0.9%	8.5%	6%	50%
4	-0.7%	-11.8%	8%	67%	4	1.8%	19.9%	0%	44%	4	-0.1%	-5.4%	8%	47%	4	0.7%	6.7%	6%	49%
5	-1.2%	-16.0%	7%	33%	5	2.2%	25.0%	8%	47%	5	0.2%	-1.7%	8%	52%	5	0.9%	8.5%	6%	50%
6	-0.9%	-13.8%	8%	50%	6	2.3%	26.3%	8%	58%	6	0.2%	-1.5%	8%	60%	6	0.8%	7.6%	6%	50%
7	-0.5%	-8.5%	7%	58%	7	2.1%	23.7%	8%	42%	7	-0.1%	-5.3%	8%	50%	7	0.6%	5.7%	6%	48%
8	-0.2%	-4.7%	7%	75%	8	1.0%	22.0%	7%	53%	8	0.0%	-3.2%	8%	55%	8	0.7%	6.7%	5%	49%
9	-0.5%	-8.5%	7%	42%	9	1.8%	20.7%	7%	44%	9	-0.1%	-4.8%	8%	47%	9	0.5%	4.8%	5%	44%
10	-1.2%	-16.3%	7%	50%	10	2.1%	22.9%	8%	53%	10	0.3%	-0.1%	8%	53%	10	0.8%	8.2%	6%	48%
Total Test				Total Test				Total Test				Total Test							
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg				
Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref				
Universe	-0.9%	-3.9%	-1.4%	447	Universe	2.1%	0.2%	450		Universe	0.0%	-1.5%	-2.1%	451	Universe	0.8%	1.3%	0.8%	510
Strategy Statistics																			
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out				
Ret	Ret	Down	Perf.	Ret	Ret	Down	Perf.	Ret	Ret	Down	Perf.	Ret	Ret	Down	Perf.				
Long/Short	0.0%	-1.1%	4.4%	33%	Long/Short	0.5%	4.8%	4.1%	44%	Long/Short	-0.8%	-0.8%	4.4%	40%	Long/Short	0.1%	0.8%	3.8%	54%
Active Ret	-0.4%	-4.8%	2.8%	25%	Active Ret	0.4%	5.0%	2.3%	50%	Active Ret	-0.4%	-5.3%	2.8%	38%	Active Ret	0.2%	2.2%	2.3%	53%
T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat				
Long/Short	0.0	-0.1	90	-0.5	Long/Short	0.7	0.3	91	0.6	Long/Short	-1.4	-0.6	29	-0.6	Long/Short	0.5	0.1	103	0.3

Portfolio Index Performance

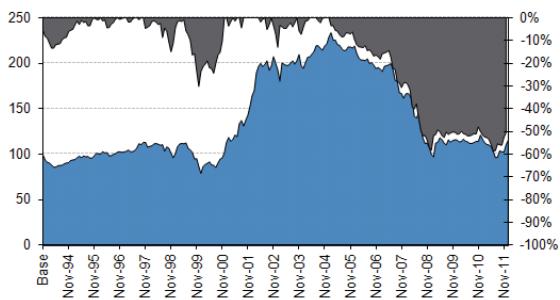


Portfolio Spread. Annual Returns

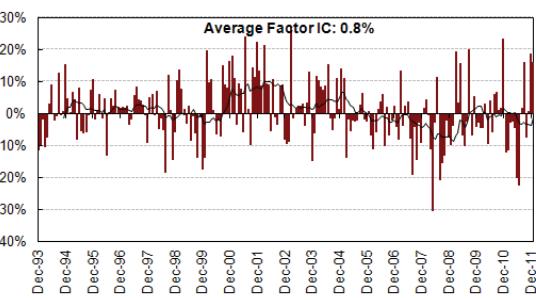


Cumulative (L/S) Returns

Max Drawdown: -58.6%

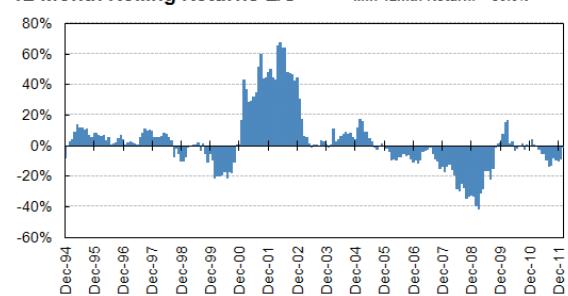


Information Co-Efficients (IC)

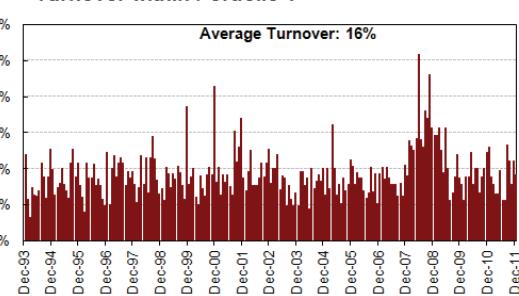


12 Month Rolling Returns L/S

Min 12mth Return: -30.0%



Turnover within Portfolio 1



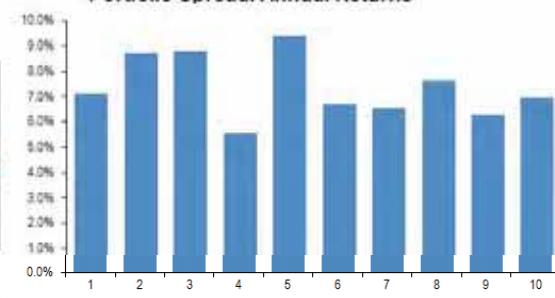
1 year forward PE Relative to History

1 year forward forecast PE Relative To History								Rebalance every 1 month(s)											
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/28/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 01/31/1996 to 02/29/2012							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port.	Avg. Ret.	Ann. Dev.	St. % Out.	Port.	Avg. Ret.	Ann. Dev.	St. % Out.	Port.	Avg. Ret.	Ann. Dev.	St. % Out.	Port.	Avg. Ret.	Ann. Dev.	St. % Out.				
1	-1.8%	-23.4%	10%	25%	1	2.4%	25.4%	10%	47%	1	-0.4%	-11.0%	11%	43%	1	0.9%	7.1%	0%	49%
2	-1.3%	-18.3%	9%	42%	2	2.1%	22.8%	9%	47%	2	-0.2%	-7.1%	9%	48%	2	0.9%	8.7%	7%	51%
3	-0.5%	-0.1%	8%	50%	3	2.3%	27.1%	9%	53%	3	0.2%	-2.6%	9%	55%	3	0.9%	8.8%	8%	56%
4	-0.4%	-0.2%	8%	50%	4	2.1%	23.5%	8%	47%	4	-0.2%	-0.6%	9%	40%	4	0.7%	5.5%	0%	39%
5	-0.7%	-10.3%	7%	58%	5	2.3%	27.7%	8%	54%	5	0.3%	0.2%	8%	65%	5	0.9%	9.4%	6%	54%
6	-1.0%	-14.4%	7%	58%	6	1.9%	20.7%	8%	58%	6	-0.2%	-6.8%	8%	50%	6	0.7%	8.7%	6%	49%
7	-0.7%	-10.9%	7%	50%	7	1.8%	20.2%	7%	33%	7	0.0%	-3.0%	8%	50%	7	0.7%	8.5%	6%	49%
8	0.1%	-1.5%	7%	67%	8	2.5%	30.9%	7%	56%	8	0.2%	-1.2%	8%	52%	8	0.8%	7.6%	6%	52%
9	-0.8%	-11.5%	7%	58%	9	1.8%	20.2%	8%	47%	9	0.0%	-3.1%	8%	50%	9	0.7%	8.3%	0%	49%
10	-1.5%	-19.5%	8%	42%	10	2.0%	21.0%	9%	53%	10	0.1%	-3.1%	8%	53%	10	0.8%	6.9%	7%	48%
Total Test				Total Test				Total Test				Total Test							
Avg. Ref.	Rank	Avg. IC	Avg. Assets	Avg. Ref.	Rank	Avg. IC	Avg. Assets	Avg. Ref.	Rank	Avg. IC	Avg. Assets	Avg. Ref.	Rank	Avg. IC	Avg. Assets				
Universe	-0.9%	-3.8%	-2.1%	430	Universe	2.1%	0.3%	0.2%	430	Universe	0.0%	-0.8%	-1.7%	471	Universe	0.8%	1.1%	0.4%	488
Strategy Statistics																			
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg. Ret.	Ann. Dev.	Std. Perf.	% Out.	Avg. Ret.	Ann. Dev.	Std. Perf.	% Out.	Avg. Ret.	Ann. Dev.	Std. Perf.	% Out.	Avg. Ret.	Ann. Dev.	Std. Perf.	% Out.				
Long/Short	-0.3%	-3.8%	3.9%	33%	Long/Short	-0.4%	-4.4%	4.2%	42%	Long/Short	-0.5%	-6.8%	5.0%	42%	Long/Short	0.1%	0.5%	4.5%	47%
Active Ret.	-0.9%	-10.8%	3.0%	25%	Active Ret.	0.3%	3.2%	3.1%	47%	Active Ret.	0.4%	-4.8%	3.3%	43%	Active Ret.	0.1%	0.9%	3.1%	49%
T-Stat	Sharper Assets	IR		T-Stat	Sharper Assets	IR		T-Stat	Sharper Assets	IR		T-Stat	Sharper Assets	IR					
Long/Short	-0.2	-0.3	0.0	1.1	Long/Short	0.6	0.3	0.7	0.3	Long/Short	-0.7	-0.4	0.5	-0.4	Long/Short	0.4	0.0	0.0	0.1

Portfolio Index Performance

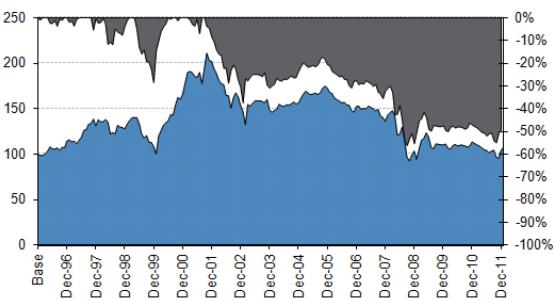


Portfolio Spread. Annual Returns

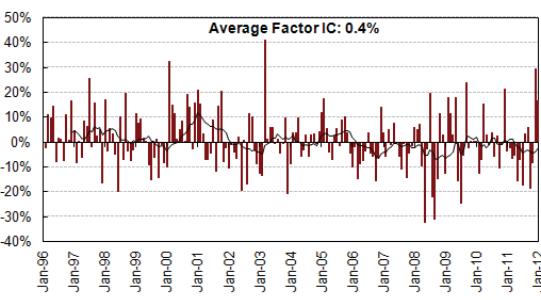


Cumulative (L/S) Returns

Max Drawdown: -56.0%

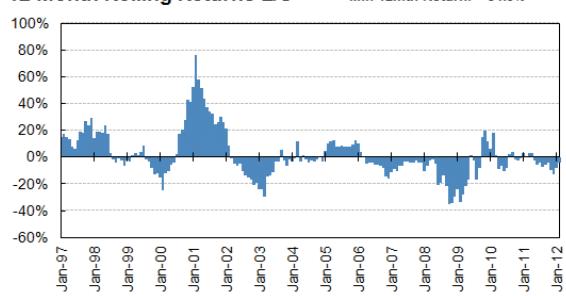


Information Co-Efficients (IC)

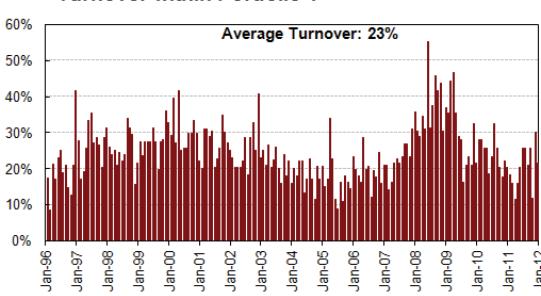


12 Month Rolling Returns L/S

Min 12mth Return: -34.9%



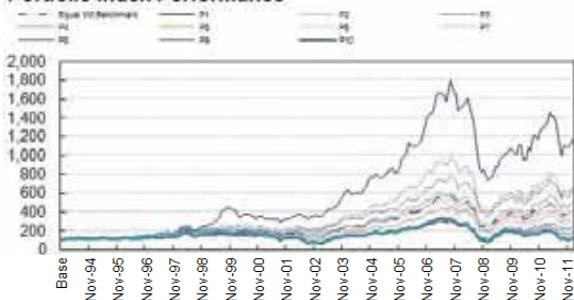
Turnover within Portfolio 1



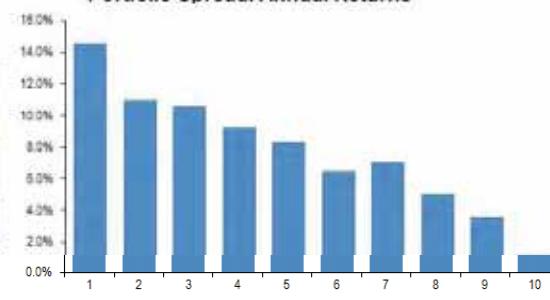
Composite Price with 1 Month Reversion

Composite Price with 1 Month Reversion							Rebalance every 1 month(s)																				
1 Year: 02/28/2011 to 02/29/2012					3 Years(s): 02/28/2009 to 02/28/2012					5 Year(s): 02/28/2007 to 02/29/2012					Total Period: 12/31/1993 to 02/29/2012												
Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics		Portfolio Statistics													
Port	Avg	Ann	Std	% Out	Port	Avg	Ann	Std	% Out	Port	Avg	Ann	Std	% Out	Port	Avg	Ann	Std	% Out								
Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.								
1	-0.7%	-11.3%	8%	42%	1	1.8%	17.2%	7%	44%	1	-0.1%	-4.1%	7%	52%	1	1.3%	14.5%	6%	58%								
2	-0.6%	-0.9%	7%	75%	2	1.7%	18.7%	7%	50%	2	-0.1%	-4.5%	7%	55%	2	1.0%	11.0%	5%	54%								
3	-0.4%	-7.4%	8%	58%	3	1.8%	21.1%	7%	53%	3	0.2%	-1.1%	7%	63%	3	1.0%	10.6%	5%	57%								
4	-0.2%	-5.4%	7%	63%	4	2.2%	26.1%	7%	54%	4	0.2%	-1.7%	8%	60%	4	0.9%	9.2%	5%	55%								
5	-0.2%	-4.7%	7%	63%	5	2.7%	32.7%	8%	64%	5	0.5%	1.6%	8%	63%	5	0.8%	8.3%	6%	54%								
6	-0.5%	-8.3%	7%	67%	6	2.1%	23.8%	8%	50%	6	0.0%	-4.1%	8%	53%	6	0.7%	6.5%	6%	47%								
7	-0.5%	-8.5%	8%	50%	7	2.1%	23.9%	8%	39%	7	-0.1%	-5.6%	9%	43%	7	0.8%	7.1%	6%	48%								
8	-0.4%	-7.7%	8%	58%	8	2.6%	31.0%	9%	58%	8	0.2%	-2.2%	9%	50%	8	0.6%	5.1%	6%	42%								
9	-1.5%	-20.5%	9%	42%	9	2.5%	27.5%	10%	50%	9	-0.1%	-5.4%	10%	45%	9	0.6%	3.6%	7%	41%								
10	-3.4%	-38.0%	10%	17%	10	1.8%	15.5%	12%	31%	10	-0.8%	-15.6%	11%	28%	10	0.4%	1.2%	8%	39%								
Total Test					Total Test					Total Test					Total Test												
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg									
Ref	IC	IC	IC	Assets	Ref	IC	IC	IC	Assets	Ref	IC	IC	IC	Assets	Ref	IC	IC	IC	Assets								
Universe	-0.8%	7.7%	10.4%	461	Universe	2.1%	1.3%	2.1%	464	Universe	0.0%	2.9%	3.5%	466	Universe	0.8%	1.6%	1.8%	550								
Strategy Statistics														Strategy Statistics													
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10							
Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out				
Ret	Ret	Devn	Perf.		Ret	Ret	Dev	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.				
Long/Short	2.7%	35.5%	8.1%	83%	Long/Short	-0.3%	-6.8%	7.7%	67%	Long/Short	0.7%	6.0%	6.8%	64%	Long/Short	0.9%	8.9%	5.7%	62%	Long/Short	0.9%	8.9%	5.7%	58%			
Active Ret	0.1%	1.2%	2.7%	42%	Active Ret	-0.8%	-7.1%	3.4%	44%	Active Ret	-0.1%	-1.3%	3.1%	52%	Active Ret	0.5%	5.2%	3.1%	58%	Active Ret	0.5%	5.2%	3.1%	58%			
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR				
Long/Short	1.8	1.7	93	8.1	Long/Short	-0.2	-0.3	94	-0.6	Long/Short	0.8	0.3	101	-0.1	Long/Short	2.3	0.5	111	0.5	Long/Short	2.3	0.5	111	0.5			

Portfolio Index Performance

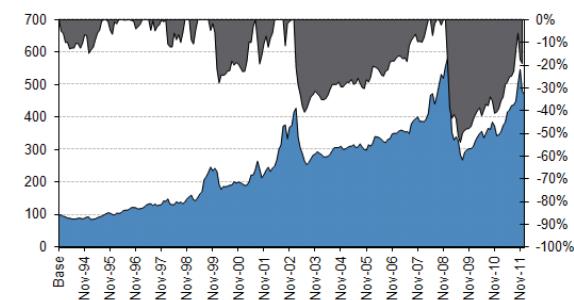


Portfolio Spread. Annual Returns

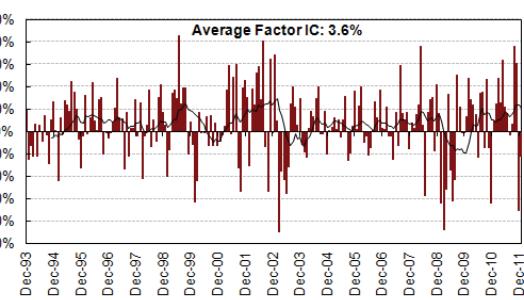


Cumulative (L/S) Returns

Max Drawdown: -53.7%

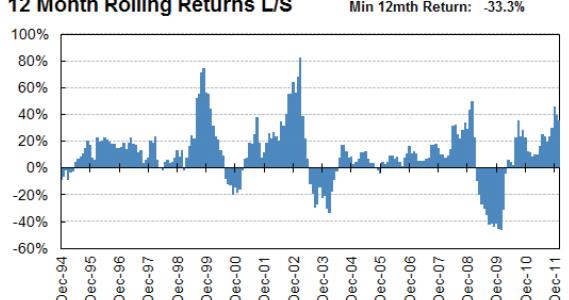


Information Co-Efficients (IC)

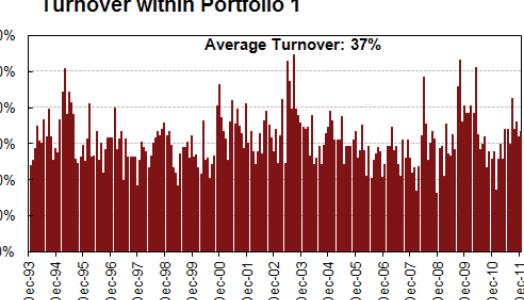


12 Month Rolling Returns L/S

Min 12mth Return: -33.3%



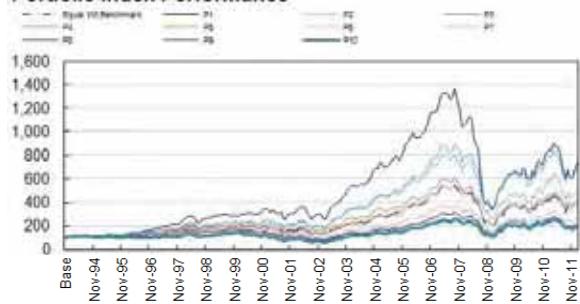
Turnover within Portfolio 1



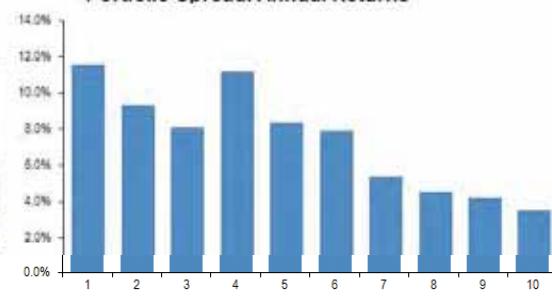
Composite Value Momentum Model

Composite Value Momentum Model								Rebalance every 1 month(s)												
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/29/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 12/31/1993 to 02/29/2012								
Portfolio Statistics								Portfolio Statistics												
Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port					
Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref	Ret	Ret	Dev	Perf.	Ref					
1	-0.8%	-13.1%	9%	58%	1	2.8%	30.1%	0%	61%	1	-0.3%	-9.1%	10%	47%	1	1.2%	11.8%	7%	80%	
2	-0.9%	-13.9%	9%	50%	2	2.2%	25.3%	8%	58%	2	-0.2%	-8.7%	9%	47%	2	0.9%	9.3%	6%	56%	
3	-0.5%	-8.8%	8%	67%	3	2.3%	25.2%	0%	56%	3	0.0%	-4.9%	9%	48%	3	0.8%	8.1%	8%	50%	
4	-0.8%	-12.4%	8%	58%	4	2.2%	24.8%	0%	56%	4	0.1%	-2.5%	0%	62%	4	1.1%	11.2%	6%	51%	
5	-0.5%	-8.1%	7%	83%	5	2.2%	25.6%	8%	61%	5	0.1%	-2.2%	8%	60%	5	0.8%	8.4%	6%	57%	
6	-0.0%	-12.3%	7%	58%	6	2.1%	24.0%	0%	53%	6	0.1%	-3.2%	8%	55%	6	0.8%	7.9%	6%	51%	
7	-1.0%	-14.7%	8%	42%	7	1.9%	20.6%	0%	38%	7	-0.1%	-4.9%	8%	48%	7	0.8%	5.4%	6%	44%	
8	-0.0%	-13.0%	7%	58%	8	1.8%	20.0%	0%	39%	8	0.0%	-3.4%	8%	50%	8	0.5%	4.5%	6%	43%	
9	-0.5%	-8.4%	7%	50%	9	1.8%	20.3%	0%	44%	9	-0.2%	-5.4%	8%	45%	9	0.5%	4.2%	6%	41%	
10	-1.9%	-24.0%	8%	33%	10	2.0%	20.2%	0%	47%	10	0.0%	-4.0%	9%	50%	10	0.5%	3.5%	6%	39%	
Total Test				Total Test				Total Test				Total Test								
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg					
Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref					
Universe	-0.9%	1.5%	3.6%	447	Universe	2.1%	2.0%	450		Universe	0.0%	0.8%	0.1%	490		Universe	0.8%	1.3%	2.8%	505
Strategy Statistics																				
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10								
Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out					
Ret	Ret	Devn	Perf.	Ret	Ret	Ret	Perf.	Ret	Ret	Ret	Perf.	Ret	Ret	Devn	Perf.					
Long/Short	1.2%	14.6%	3.2%	58%	Long/Short	0.6%	7.0%	3.2%	58%	Long/Short	-0.3%	-4.7%	3.6%	47%	Long/Short	0.7%	7.7%	3.1%	61%	
Active Ret	0.1%	0.9%	2.1%	58%	Active Ret	0.5%	5.6%	1.7%	61%	Active Ret	-0.3%	-3.4%	2.3%	47%	Active Ret	0.4%	4.4%	2.0%	60%	
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		
Long/Short	1.3	1.3	90	0.1	Long/Short	1.2	0.6	91	0.9	Long/Short	-0.7	-0.4	99	-0.4	Long/Short	1.2	0.7	102	0.6	

Portfolio Index Performance

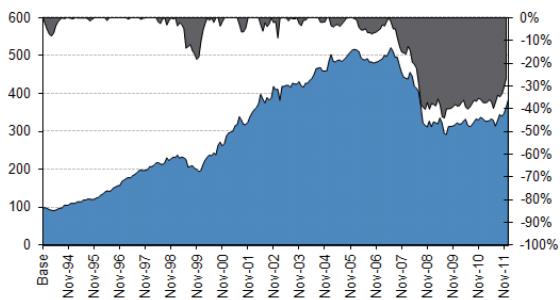


Portfolio Spread. Annual Returns

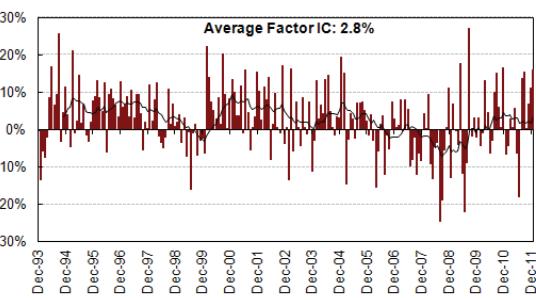


Cumulative (L/S) Returns

Max Drawdown: -43.8%

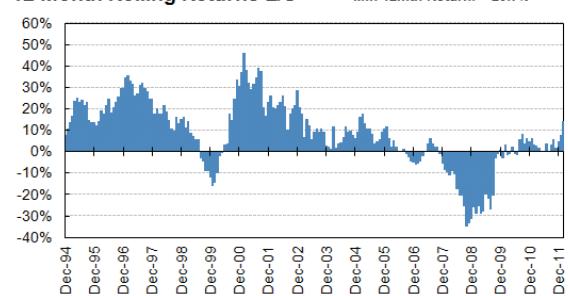


Information Co-Efficients (IC)

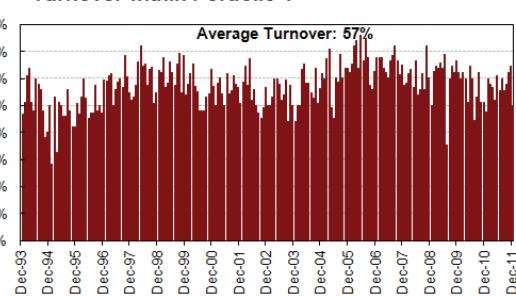


12 Month Rolling Returns L/S

Min 12mth Return: -20.7%



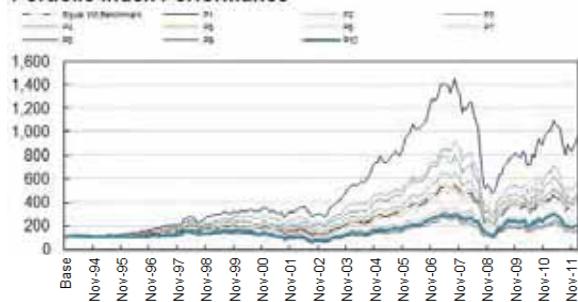
Turnover within Portfolio 1



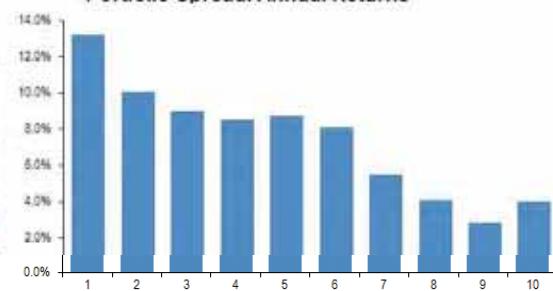
Composite Value Momentum Quality Price Model

Composite Value Momentum Quality Price Model								Rebalance every 1 month(s)												
1 Year: 02/28/2011 to 02/29/2012					3 Years(s): 02/28/2009 to 02/28/2012					5 Year(s): 02/28/2007 to 02/29/2012					Total Period: 12/31/1993 to 02/29/2012					
Portfolio Statistics					Portfolio Statistics					Portfolio Statistics					Portfolio Statistics					
Port.	Avg. Ret.	Ann. Ret.	Std. Dev.	% Out. Perf.	Port.	Avg. Ret.	Ann. Ret.	Std. Dev.	% Out. Perf.	Port.	Avg. Ret.	Ann. Ret.	Std. Dev.	% Out. Perf.	Port.	Avg. Ret.	Ann. Ret.	Std. Dev.	% Out. Perf.	
1	-0.2%	-5.3%	7%	67%	1	2.2%	25.6%	7%	51%	1	-0.1%	-5.7%	8%	53%	1	1.2%	13.2%	6%	54%	
2	-0.9%	-13.8%	8%	42%	2	2.1%	23.6%	8%	42%	2	-0.1%	-1.1%	8%	43%	2	1.0%	10.1%	6%	55%	
3	-1.0%	-15.0%	8%	67%	3	1.9%	21.5%	8%	50%	3	-0.3%	-7.2%	8%	45%	3	0.9%	9.0%	6%	60%	
4	-0.3%	-7.0%	7%	83%	4	2.2%	25.9%	7%	51%	4	-0.1%	-5.0%	8%	55%	4	0.9%	8.5%	6%	56%	
5	-0.3%	-6.7%	8%	76%	5	2.4%	27.6%	8%	58%	5	0.2%	-1.2%	8%	57%	5	0.9%	8.7%	6%	55%	
6	-0.9%	-13.1%	8%	42%	6	2.3%	27.1%	8%	61%	6	0.2%	-1.1%	8%	62%	6	0.0%	0.1%	6%	53%	
7	-0.9%	-12.9%	7%	42%	7	2.0%	21.6%	8%	38%	7	0.1%	-3.2%	8%	47%	7	0.6%	5.5%	6%	43%	
8	-0.5%	-9.4%	8%	50%	8	2.1%	23.7%	8%	44%	8	-0.1%	-5.3%	9%	48%	8	0.5%	4.1%	6%	39%	
9	-1.4%	-18.5%	8%	25%	9	1.8%	18.8%	8%	39%	9	-0.2%	-8.7%	8%	40%	9	0.4%	2.8%	6%	35%	
10	-2.1%	-25.2%	8%	17%	10	2.2%	21.9%	10%	42%	10	0.0%	-5.4%	9%	40%	10	0.6%	4.0%	7%	40%	
Total Test					Total Test					Total Test					Total Test					
Avg. Ref.	Rank	Avg. Ref.	Avg. Ref.		Avg. Ref.	Rank	Avg. Ref.	Avg. Ref.		Avg. Ref.	Rank	Avg. Ref.	Avg. Ref.		Avg. Ref.	Rank	Avg. Ref.	Avg. Ref.		
Ref. IC	IC	IC	IC	Assets	Ref. IC	IC	IC	IC	Assets	Ref. IC	IC	IC	IC	Assets	Ref. IC	IC	IC	IC	Assets	
Universe	-0.9%	4.7%	6.8%	447	Universe	2.1%	2.2%	4.5%	450	Universe	0.0%	1.3%	1.1%	490	Universe	0.8%	3.5%	2.9%	507	
Strategy Statistics																Strategy Statistics				
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					
Avg. Ret.	Ann. Ret.	Std. Dev.	% Out. Perf.		Avg. Ret.	Ann. Ret.	Std. Dev.	% Out. Perf.		Avg. Ret.	Ann. Ret.	Std. Dev.	% Out. Perf.		Avg. Ret.	Ann. Ret.	Std. Dev.	% Out. Perf.		
Long/Short	1.9%	25.0%	3.7%	75%	Long/Short	0.0%	-1.5%	4.9%	53%	Long/Short	-0.1%	-2.4%	4.5%	57%	Long/Short	0.7%	7.3%	3.5%	64%	
Active Ret.	0.7%	8.1%	1.6%	67%	Active Ret.	0.1%	0.4%	2.2%	61%	Active Ret.	-0.1%	-1.4%	2.3%	53%	Active Ret.	0.4%	5.2%	1.9%	64%	
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		
Long/Short	1.8	1.9	90	1.4	Long/Short	0.0	-0.1	91	0.0	Long/Short	-0.2	-0.2	99	-0.2	Long/Short	2.7	0.6	102	0.8	

Portfolio Index Performance

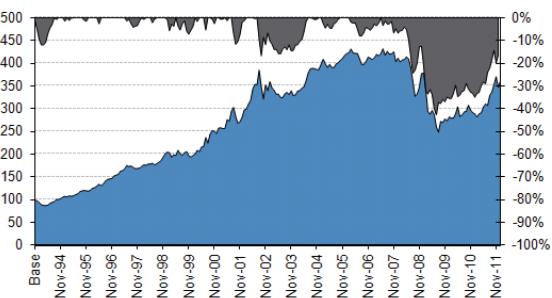


Portfolio Spread. Annual Returns

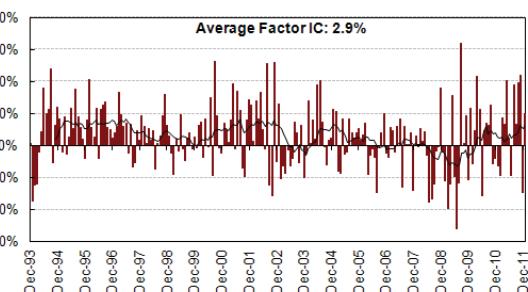


Cumulative (L/S) Returns

Max Drawdown: -42.3%

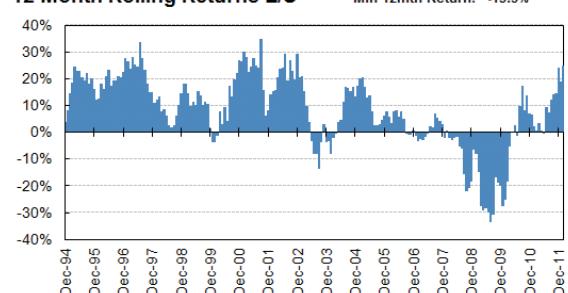


Information Co-Efficients (IC)

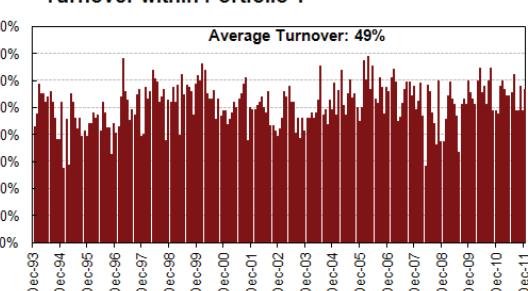


12 Month Rolling Returns L/S

Min 12mth Return: -13.5%



Turnover within Portfolio 1

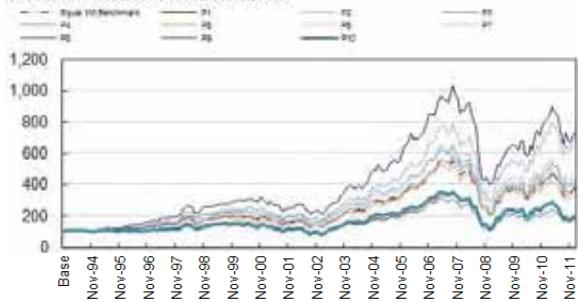


Composite Momentum

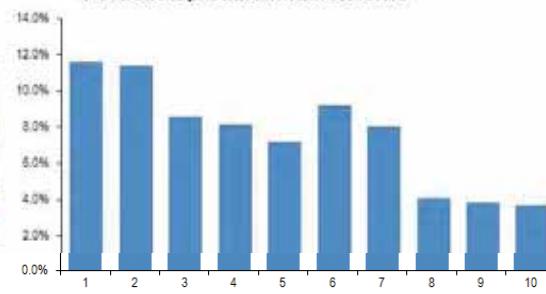
Composite Momentum								Rebalance every 1 month(s)											
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/28/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 12/31/1993 to 02/29/2012							
Portfolio Statistics								Portfolio Statistics											
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	-0.6%	-0.6%	7%	83%	1	2.0%	22.4%	7%	54%	1	0.1%	-2.6%	8%	62%	1	1.1%	11.6%	6%	63%
2	0.1%	-2.0%	7%	75%	2	2.8%	34.1%	8%	72%	2	0.4%	0.9%	8%	55%	2	1.1%	11.4%	6%	61%
3	-0.6%	-10.2%	8%	75%	3	2.2%	26.0%	8%	64%	3	0.2%	-2.0%	8%	65%	3	0.9%	8.5%	6%	53%
4	-0.3%	-5.5%	8%	67%	4	2.3%	25.2%	8%	58%	4	-0.1%	-5.7%	9%	43%	4	0.8%	8.1%	6%	49%
5	-0.9%	12.8%	7%	58%	5	1.9%	21.1%	8%	47%	5	-0.2%	-6.0%	8%	43%	5	0.7%	7.2%	6%	47%
6	-0.3%	-7.1%	8%	58%	6	2.1%	23.8%	8%	53%	6	0.1%	-2.8%	8%	52%	6	0.8%	8.2%	6%	53%
7	-0.9%	-13.0%	8%	42%	7	2.1%	23.4%	8%	53%	7	0.0%	3.6%	8%	52%	7	0.8%	8.0%	6%	52%
8	-0.3%	-7.1%	8%	50%	8	2.2%	25.4%	8%	39%	8	-0.1%	-8.1%	9%	37%	8	0.5%	4.1%	6%	39%
9	-2.2%	-27.3%	9%	25%	9	1.5%	16.2%	9%	36%	9	-0.3%	-7.6%	9%	43%	9	0.5%	3.8%	6%	39%
10	-2.5%	-29.3%	9%	17%	10	1.9%	18.4%	10%	39%	10	-0.4%	-8.6%	10%	40%	10	0.5%	3.7%	7%	41%
Total Test				Total Test				Total Test				Total Test							
Avg Ret	Rank	Avg IC	Avg Assets	Avg Ret	Rank	Avg IC	Avg Assets	Avg Ret	Rank	Avg IC	Avg Assets	Avg Ret	Rank	Avg IC	Avg Assets				
Universe	-0.9%	7.3%	8.8%	448	Universe	-2.1%	3.7%	3.5%	451	Universe	0.0%	2.9%	5.0%	451	Universe	0.8%	2.8%	2.5%	514
Strategy Statistics																			
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg Ret	Ann Ret	Std Dev	% Out Perf.	Avg Ret	Ann Ret	Std Dev	% Out Perf.	Avg Ret	Ann Ret	Std Dev	% Out Perf.	Avg Ret	Ann Ret	Std Dev	% Out Perf.				
Long/Short	1.9%	24.8%	2.9%	75%	Long/Short	0.1%	-0.2%	4.4%	58%	Long/Short	0.5%	4.7%	4.0%	60%	Long/Short	0.8%	8.3%	3.1%	62%
Active Ret	0.3%	3.1%	1.4%	83%	Active Ret	-0.1%	-2.0%	2.2%	64%	Active Ret	0.1%	1.0%	2.2%	62%	Active Ret	0.3%	3.3%	1.8%	63%
T-Stat Sharpe* Assets IR	2.2	2.4	90	0.6	T-Stat Sharpe* Assets IR	0.1	0.0	91	-0.3	T-Stat Sharpe* Assets IR	0.9	0.3	99	0.1	T-Stat Sharpe* Assets IR	2.7	1.0	103	0.5

* Standard Pairs/Pairs of 25

Portfolio Index Performance

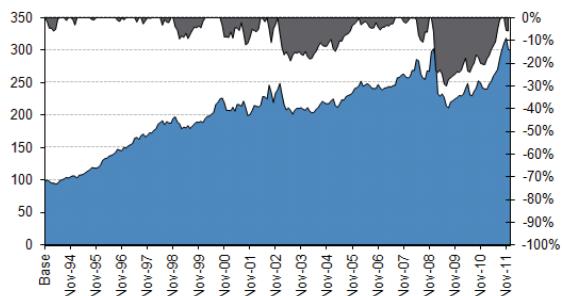


Portfolio Spread. Annual Returns

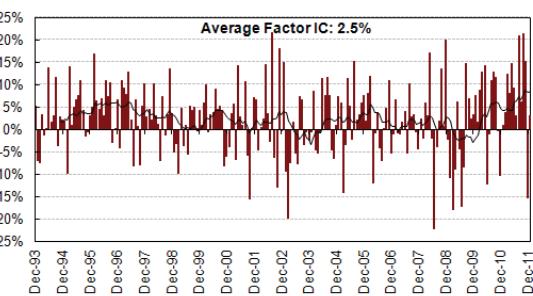


Cumulative (L/S) Returns

Max Drawdown: -30.0%

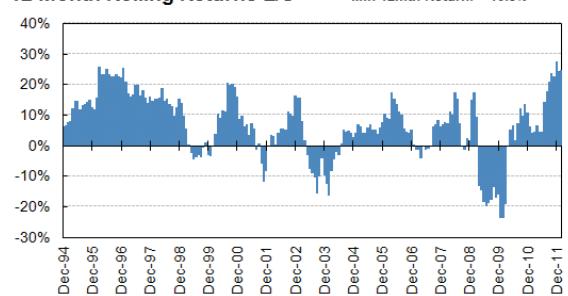


Information Co-Efficients (IC)

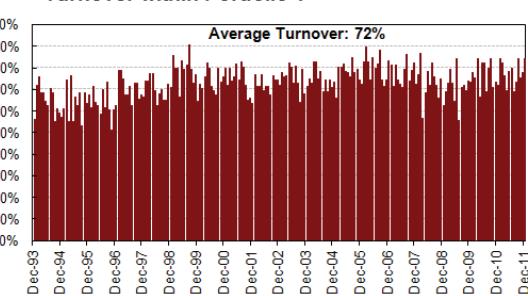


12 Month Rolling Returns L/S

Min 12mth Return: -16.5%



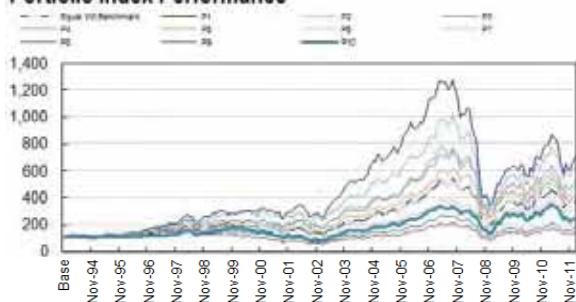
Turnover within Portfolio 1



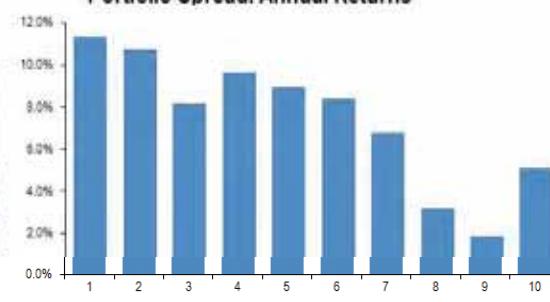
Value Momentum Quality Price Model (Value Biased)

Composite Value Momentum Quality Price Model (Value Biased)							Rebalance every 1 month(s)																					
1 Year: 02/28/2011 to 02/29/2012					3 Years(s): 02/28/2009 to 02/28/2012					5 Year(s): 02/28/2007 to 02/29/2012					Total Period: 12/31/1993 to 02/29/2012													
Portfolio Statistics					Portfolio Statistics					Portfolio Statistics					Portfolio Statistics													
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.									
1	-0.7%	-11.0%	9%	75%	1	2.3%	26.9%	8%	53%	1	-0.4%	-0.4%	9%	42%	1	1.1%	11.3%	6%	58%									
2	-0.8%	-11.6%	7%	67%	2	2.3%	27.2%	8%	67%	2	-0.1%	-5.6%	8%	60%	2	1.0%	10.7%	6%	59%									
3	-1.3%	-17.7%	8%	42%	3	1.6%	17.3%	8%	31%	3	-0.4%	-8.1%	8%	43%	3	0.8%	11.2%	6%	53%									
4	-0.7%	-11.1%	8%	33%	4	2.0%	22.5%	8%	39%	4	-0.1%	-4.7%	8%	45%	4	0.9%	9.7%	6%	51%									
5	-1.1%	-14.8%	8%	42%	5	2.2%	24.9%	8%	50%	5	0.2%	-1.9%	8%	53%	5	0.9%	9.0%	6%	52%									
6	-0.5%	-8.8%	8%	75%	6	2.3%	27.2%	8%	53%	6	0.3%	-0.9%	8%	53%	6	0.8%	0.4%	6%	51%									
7	-0.5%	-8.9%	8%	67%	7	2.3%	25.8%	8%	53%	7	0.3%	-0.3%	8%	57%	7	0.7%	0.8%	6%	50%									
8	-0.4%	-7.6%	8%	75%	8	1.9%	21.0%	8%	42%	8	-0.1%	-5.2%	8%	47%	8	0.4%	3.2%	6%	38%									
9	-0.9%	-13.2%	8%	50%	9	1.9%	20.7%	8%	50%	9	-0.1%	-5.3%	8%	48%	9	0.3%	1.9%	6%	32%									
10	-1.9%	-23.1%	8%	42%	10	2.2%	23.6%	10%	50%	10	0.0%	-4.4%	9%	47%	10	0.6%	5.1%	6%	43%									
Total Test					Total Test					Total Test					Total Test													
Avg Ref	Rank	Avg IC	Avg Assets		Avg Ref	Rank	Avg IC	Avg Assets		Avg Ref	Rank	Avg IC	Avg Assets		Avg Ref	Rank	Avg IC	Avg Assets										
Universe	-0.9%	1.3%	3.3%	447	Universe	2.1%	1.5%	1.8%	450	Universe	0.0%	0.2%	-0.1%	480	Universe	0.8%	1.3%	2.7%	507									
* Standardized Portfolio Returns of 95																												
Strategy Statistics														Strategy Statistics														
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10								
Avg Ret	Ann Ret	Std	% Out		Avg Ret	Ann Ret	Std	% Out		Avg Ret	Ann Ret	Std	% Out		Avg Ret	Ann Ret	Std	% Out		Avg Ret	Ann Ret	Std	% Out		Avg Ret	Ann Ret	Std	% Out
Long/Short	1.2%	14.6%	3.2%	58%	Long/Short	0.1%	0.7%	3.5%	47%	Long/Short	-0.4%	-5.3%	3.6%	43%	Long/Short	0.5%	5.4%	3.2%	60%	Long/Short	0.3%	3.9%	1.8%	58%	T-Stat	Sharpe*	Assets	IR
Active Ret	0.2%	2.2%	1.8%	75%	Active Ret	0.2%	2.5%	1.8%	53%	Active Ret	-0.3%	-4.2%	1.9%	42%	Active Ret	0.3%	3.9%	1.8%	58%	Long/Short	-0.8	-0.4	29	-0.6	T-Stat	Sharpe*	Assets	IR
Long/Short	1.3	1.3	90	0.4	Long/Short	0.2	0.1	91	0.4	Long/Short	-0.8	-0.4	29	-0.6	Long/Short	2.3	0.5	102	0.6	Long/Short	2.3	0.5	102	0.6				

Portfolio Index Performance

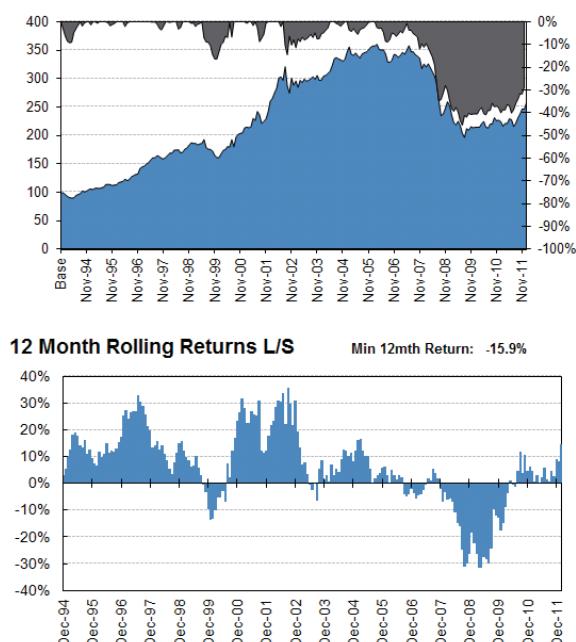


Portfolio Spread. Annual Returns

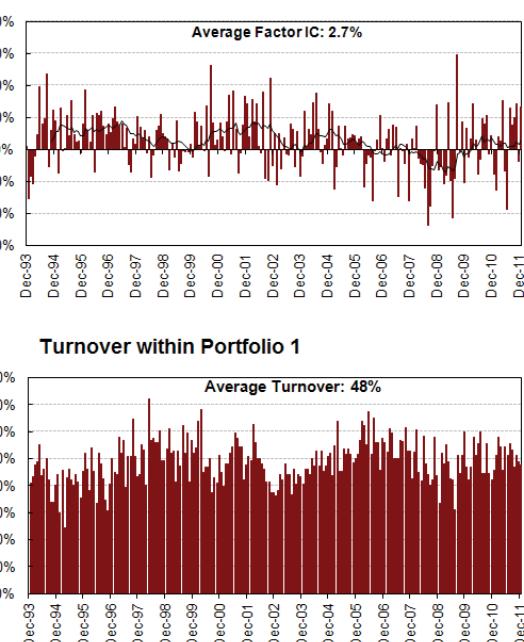


Cumulative (L/S) Returns

Max Drawdown: -45.3%

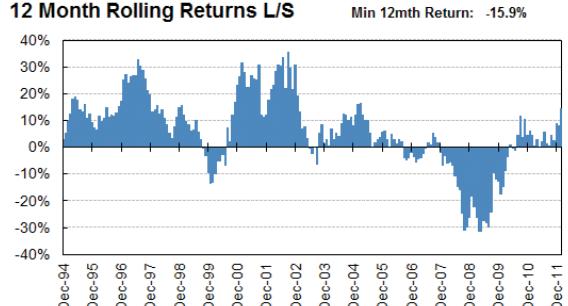


Information Co-Efficients (IC)

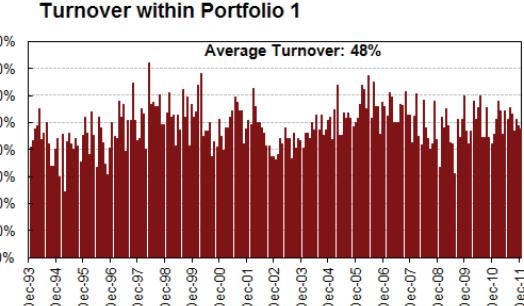


12 Month Rolling Returns L/S

Min 12mth Return: -15.9%



Turnover within Portfolio 1

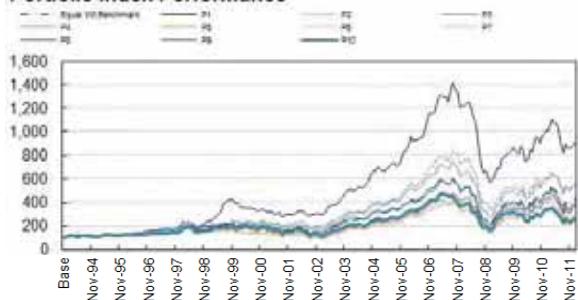


Composite Price

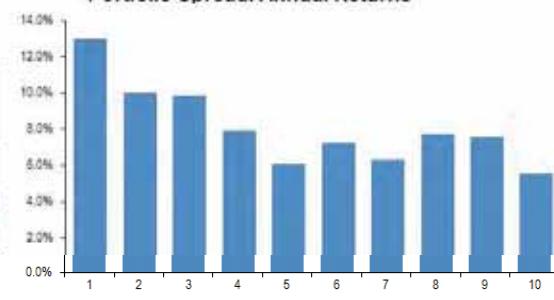
Composite Price							Rebalance every 1 month(s)																						
1 Year: 02/28/2011 to 02/29/2012					3 Years(s): 02/28/2009 to 02/28/2012					5 Year(s): 02/28/2007 to 02/29/2012					Total Period: 12/31/1993 to 02/29/2012														
Portfolio Statistics					Portfolio Statistics					Portfolio Statistics					Portfolio Statistics														
Port	Avg Ret	Ann Ret	Std	% Outf. Perf.	Port	Avg Ret	Ann Ret	Std	% Outf. Perf.	Port	Avg Ret	Ann Ret	Std	% Outf. Perf.	Port	Avg Ret	Ann Ret	Std	% Outf. Perf.										
1	-0.7%	-10.0%	8%	67%	1	1.5%	17.2%	6%	50%	1	-0.2%	-4.7%	7%	50%	1	1.2%	13.0%	5%	56%										
2	-0.4%	-7.2%	7%	42%	2	1.7%	19.4%	7%	39%	2	-0.1%	-4.5%	7%	45%	2	0.9%	10.0%	5%	56%										
3	-0.4%	-6.9%	7%	75%	3	2.3%	27.0%	6%	56%	3	0.1%	-2.7%	8%	50%	3	0.9%	9.9%	6%	50%										
4	-0.7%	-10.4%	7%	50%	4	2.1%	24.8%	6%	50%	4	0.0%	-4.4%	8%	50%	4	0.8%	7.9%	6%	51%										
5	-0.9%	-13.0%	8%	58%	5	2.2%	25.6%	6%	50%	5	0.1%	-2.9%	8%	57%	5	0.7%	6.1%	6%	45%										
6	-0.5%	-10.1%	8%	58%	6	2.6%	30.9%	6%	54%	6	0.3%	-6.8%	9%	55%	6	0.8%	7.3%	6%	47%										
7	-0.8%	-12.2%	8%	58%	7	2.5%	29.4%	6%	58%	7	0.1%	-3.9%	9%	47%	7	0.7%	8.3%	7%	46%										
8	-1.5%	-19.9%	9%	17%	8	2.2%	23.4%	9%	42%	8	-0.1%	-5.8%	9%	43%	8	0.8%	7.7%	6%	46%										
9	-0.7%	-12.7%	10%	33%	9	2.4%	27.2%	9%	44%	9	0.2%	-2.6%	9%	48%	9	0.8%	7.5%	7%	46%										
10	-1.7%	-21.7%	9%	25%	10	1.9%	19.1%	10%	33%	10	-0.3%	-8.5%	9%	40%	10	0.7%	5.5%	7%	43%										
Total Test					Total Test					Total Test					Total Test														
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg											
Ref	IC	IC	IC	Assets	Ref	IC	IC	IC	Assets	Ref	IC	IC	IC	Assets	Ref	IC	IC	IC	Assets										
Universe	-0.8%	5.1%	5.8%	452	Universe	2.2%	0.2%	0.8%	454	Universe	0.0%	0.9%	1.6%	480	Universe	0.8%	1.4%	1.9%	520										
Strategy Statistics														Strategy Statistics															
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10									
Avg	Ann	Std	% Outf.		Avg	Ann	Std	% Outf.		Avg	Ann	Std	% Outf.		Avg	Ann	Std	% Outf.		Avg	Ann	Std	% Outf.		Avg	Ann	Std	% Outf.	
Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.	
Long/Short	1.0%	11.0%	4.6%	75%	Long/Short	-0.4%	-6.7%	5.8%	64%	Long/Short	0.1%	0.0%	4.9%	57%	Long/Short	0.5%	4.5%	4.5%	60%	Long/Short	0.2%	2.7%	2.9%	56%	Long/Short	0.3%	3.4%	2.9%	56%
Active Ret	0.1%	1.1%	2.8%	67%	Active Ret	-0.5%	-8.1%	3.2%	50%	Active Ret	-0.2%	-2.7%	2.9%	56%	Active Ret	-0.2%	-2.7%	2.9%	56%	Active Ret	-0.2%	-2.7%	2.9%	56%	Active Ret	-0.2%	-2.7%	2.9%	56%
T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR	
Long/Short	0.7	0.7	91	81	Long/Short	-0.4	-0.3	92	-0.7	Long/Short	0.2	8.0	97	-0.3	Long/Short	1.5	0.3	105	0.1	Long/Short	0.2	8.0	97	-0.3	Long/Short	1.5	0.3	105	0.1

* Annual Risk-Free Rate of 5%

Portfolio Index Performance

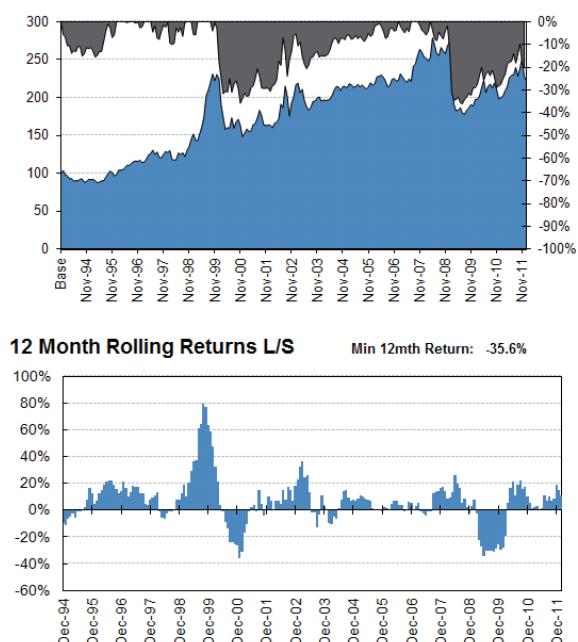


Portfolio Spread. Annual Returns

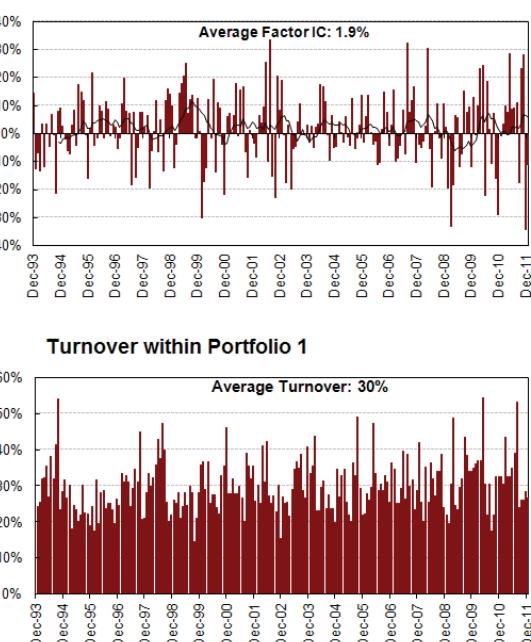


Cumulative (L/S) Returns

Max Drawdown: -36.0%

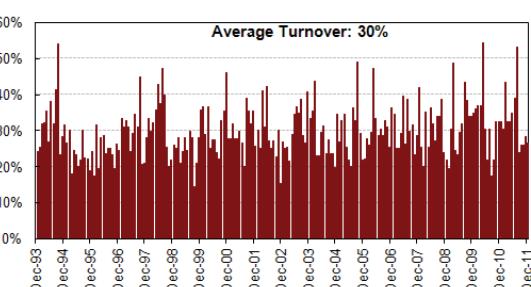


Information Co-Efficients (IC)



Turnover within Portfolio 1

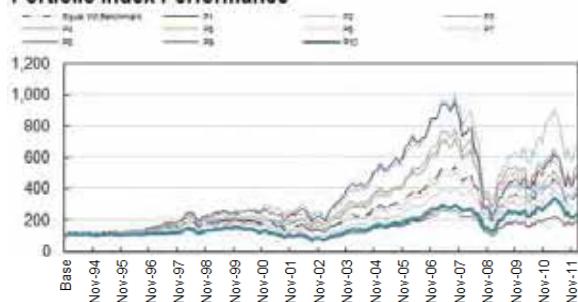
Average Turnover: 30%



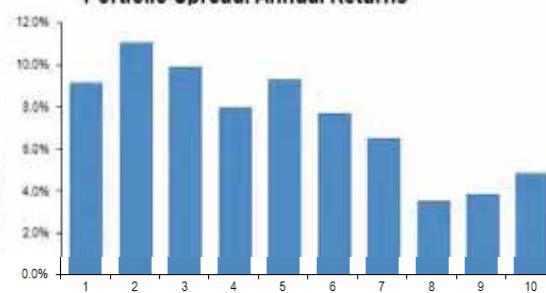
Composite Value Growth Momentum Model

Composite Value Growth Momentum Model								Rebalance every 1 month(s)											
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/28/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 12/31/1993 to 02/29/2012							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port	Avg Ref.	Ann Ret.	St Dev.	% Out Perf.	Port	Avg Ref.	Ann Ret.	St Dev.	% Out Perf.	Port	Avg Ref.	Ann Ret.	St Dev.	% Out Perf.	Port				
1	-1.0%	-15.2%	9%	58%	1	2.8%	30.5%	9%	59%	1	-0.4%	-10.4%	10%	47%	1	1.0%	9.1%	7%	57%
2	-1.6%	-20.8%	8%	42%	2	2.3%	26.6%	9%	67%	2	0.1%	-4.3%	9%	62%	2	1.1%	11.1%	6%	81%
3	-0.3%	-7.4%	9%	75%	3	2.2%	24.5%	9%	47%	3	0.1%	-3.6%	9%	48%	3	1.0%	9.9%	6%	55%
4	-1.2%	-18.2%	8%	33%	4	1.8%	18.7%	9%	35%	4	-0.4%	-8.4%	9%	38%	4	0.8%	8.0%	6%	51%
5	-0.7%	-10.4%	7%	42%	5	2.0%	22.0%	8%	44%	5	0.0%	-3.8%	8%	55%	5	0.9%	9.3%	6%	56%
6	-0.5%	-9.2%	7%	67%	6	2.0%	23.3%	9%	51%	6	0.1%	-2.4%	8%	65%	6	0.8%	7.7%	6%	53%
7	-0.8%	-12.5%	9%	42%	7	2.0%	22.4%	9%	38%	7	0.2%	-2.0%	8%	50%	7	0.7%	8.5%	6%	44%
8	-0.7%	-10.5%	8%	33%	8	2.1%	23.8%	9%	42%	8	0.0%	-4.0%	8%	43%	8	0.5%	3.5%	6%	37%
9	-0.2%	-4.4%	7%	67%	9	2.0%	22.8%	7%	44%	9	0.0%	-4.1%	8%	53%	9	0.5%	3.8%	6%	39%
10	-1.8%	-22.0%	8%	42%	10	2.1%	22.4%	9%	55%	10	0.1%	-2.7%	8%	48%	10	0.6%	4.8%	6%	40%
Total Test				Total Test				Total Test				Total Test							
Avg Ref.	Rank IC	Avg IC	Avg Assets	Avg Ref.	Rank IC	Avg IC	Avg Assets	Avg Ref.	Rank IC	Avg IC	Avg Assets	Avg Ref.	Rank IC	Avg IC	Avg Assets				
Universe	-0.9%	-1.2%	0.2%	447	Universe	2.1%	1.3%	1.5%	450	Universe	0.0%	-0.4%	-0.5%	490	Universe	0.8%	2.8%	2.3%	500
Strategy Statistics																			
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg Ret.	Ann Ret.	Std Devn	% Out Perf.	Avg Ret.	Ann Ret.	Std Devn	% Out Perf.	Avg Ret.	Ann Ret.	Std Devn	% Out Perf.	Avg Ret.	Ann Ret.	Std Devn	% Out Perf.				
Long/Short	0.8%	9.0%	3.8%	58%	Long/Short	0.6%	8.3%	2.9%	56%	Long/Short	-0.5%	-6.6%	3.8%	47%	Long/Short	0.4%	4.4%	3.0%	56%
Active Ret.	-0.1%	-1.5%	2.0%	58%	Active Ret.	0.5%	8.1%	1.7%	69%	Active Ret.	-0.4%	-4.5%	2.3%	47%	Active Ret.	0.2%	2.2%	1.9%	57%
T-Stat	Sharper*	Assets	IR	Long/Short	1.1	0.6	91	1.0	Long/Short	-1.0	-0.5	99	-0.6	Long/Short	2.0	0.4	102	0.3	

Portfolio Index Performance

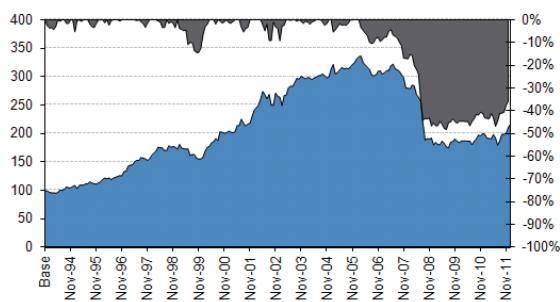


Portfolio Spread. Annual Returns

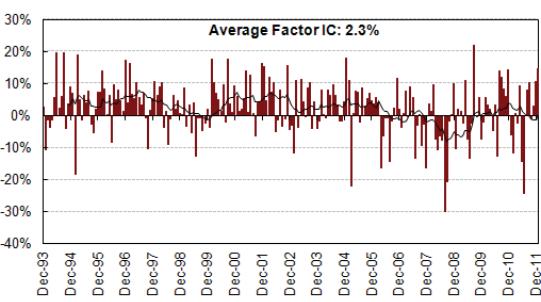


Cumulative (L/S) Returns

Max Drawdown: -47.9%

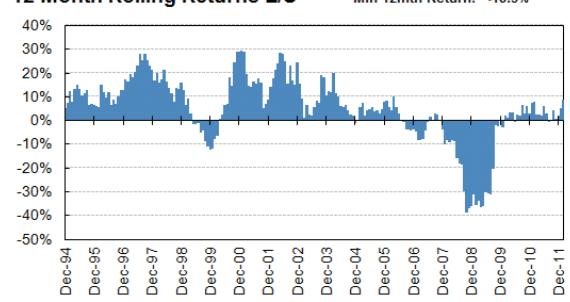


Information Co-Efficients (IC)

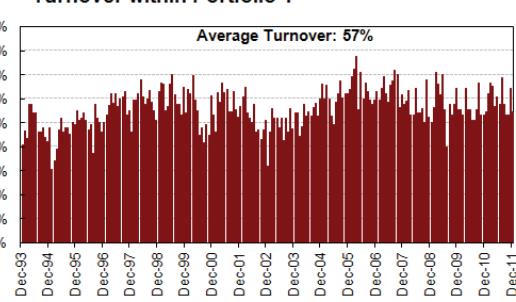


12 Month Rolling Returns L/S

Min 12mth Return: -18.5%



Turnover within Portfolio 1

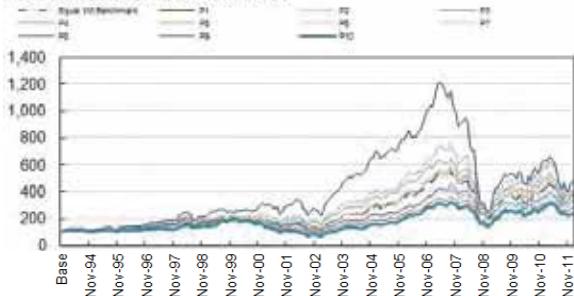


Composite Value

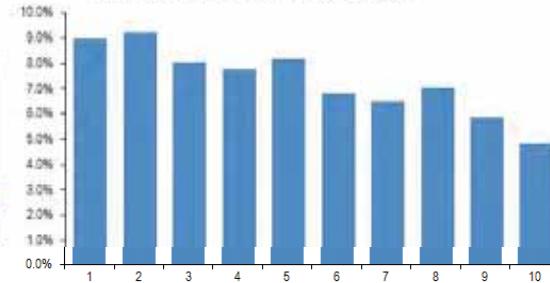
Composite Value										Rebalance every 1 month(s)									
1 Year: 02/28/2011 to 02/29/2012					3 Years(s): 02/28/2009 to 02/29/2012					5 Year(s): 02/28/2007 to 02/29/2012					Total Period: 12/31/1993 to 02/29/2012				
Portfolio Statistics					Portfolio Statistics					Portfolio Statistics					Portfolio Statistics				
Port	Avg Ret	Ann Ret	St Dev	% Out Per.	Port	Avg Ret	Ann Ret	St Dev	% Out Per.	Port	Avg Ret	Ann Ret	St Dev	% Out Per.	Port	Avg Ret	Ann Ret	St Dev	% Out Per.
1	-1.0%	-24.0%	10%	25%	1	2.4%	25.3%	10%	47%	1	-0.7%	-14.4%	11%	37%	1	1.0%	9.0%	8%	51%
2	-1.0%	-15.1%	9%	33%	2	-2.5%	27.8%	9%	42%	2	0.0%	-5.1%	10%	47%	2	1.0%	9.2%	7%	50%
3	-1.4%	-12.6%	9%	33%	3	2.2%	23.9%	9%	50%	3	-0.2%	-6.8%	9%	45%	3	0.0%	8.1%	6%	50%
4	-0.8%	-12.5%	8%	50%	4	2.1%	23.4%	8%	50%	4	0.0%	-4.3%	9%	57%	4	0.8%	7.8%	6%	52%
5	-0.9%	-12.9%	7%	58%	5	1.9%	20.8%	8%	47%	5	0.0%	-3.4%	8%	58%	5	0.0%	8.2%	6%	55%
6	-0.4%	-7.0%	7%	58%	6	2.2%	26.3%	7%	58%	6	0.1%	-2.1%	8%	57%	6	0.7%	6.0%	6%	50%
7	0.1%	-4.3%	7%	75%	7	2.2%	25.7%	7%	61%	7	0.0%	-3.4%	8%	55%	7	0.7%	6.5%	5%	49%
8	-0.2%	-5.2%	7%	75%	8	1.8%	20.8%	7%	53%	8	0.2%	-1.4%	7%	62%	8	0.7%	7.0%	5%	48%
9	-0.4%	-7.8%	7%	58%	9	2.0%	23.4%	8%	58%	9	0.1%	-2.0%	8%	57%	9	0.0%	5.9%	5%	44%
10	-1.4%	-18.1%	7%	42%	10	1.8%	18.8%	8%	47%	10	0.0%	-3.5%	8%	52%	10	0.0%	4.8%	6%	44%
Total Test					Total Test					Total Test					Total Test				
Avg Ret	Rank IC	Avg IC	Avg Assets		Avg Ret	Rank IC	Avg IC	Avg Assets		Avg Ret	Rank IC	Avg IC	Avg Assets		Avg Ret	Rank IC	Avg IC	Avg Assets	
Universe	-0.0%	-5.3%	-3.8%	447	Universe	2.1%	0.3%	0.3%	450	Universe	0.0%	-1.8%	-2.4%	400	Universe	0.0%	2.1%	1.3%	506
Strategy Statistics										Strategy Statistics									
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10				
Avg Ret	Ann Ret	Std	% Out Per.		Avg Ret	Ann Ret	Std	% Out Per.		Avg Ret	Ann Ret	Std	% Out Per.		Avg Ret	Ann Ret	Std	% Out Per.	
Long/Short	-0.5%	-6.8%	4.1%	25%	Long/Short	-0.6%	2.6%	4.3%	50%	Long/Short	-0.7%	-0.4%	4.9%	48%	Long/Short	0.4%	4.2%	4.2%	54%
Active Ret	-1.0%	-12.1%	2.7%	25%	Active Ret	0.3%	2.7%	3.0%	47%	Active Ret	-0.7%	-8.2%	3.3%	37%	Active Ret	0.2%	2.4%	2.7%	51%
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR	
Long/Short	-0.4	-0.5	90	-1.3	Long/Short	0.8	0.4	91	0.3	Long/Short	-1.1	-0.6	99	-0.7	Long/Short	1.5	0.3	102	-0.3

⁴ Information kindly provided by the author.

Portfolio Index Performance

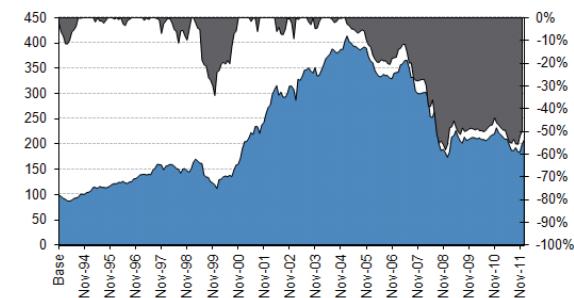


Portfolio Spread. Annual Returns

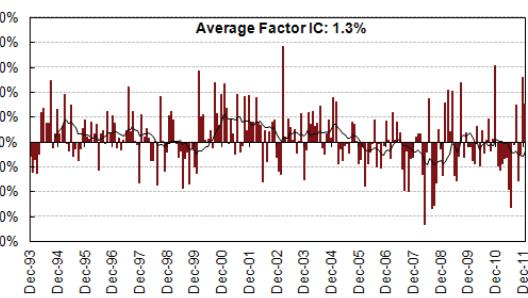


Cumulative (L/S) Returns

Max Drawdown: -57.9%

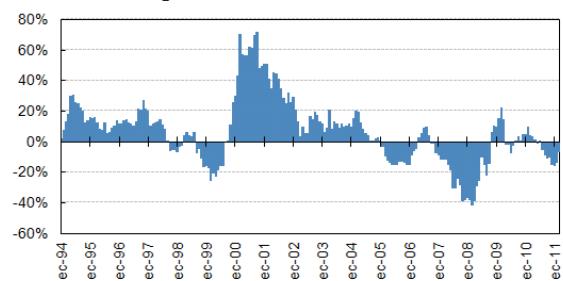


Information Co-Efficients (IC)

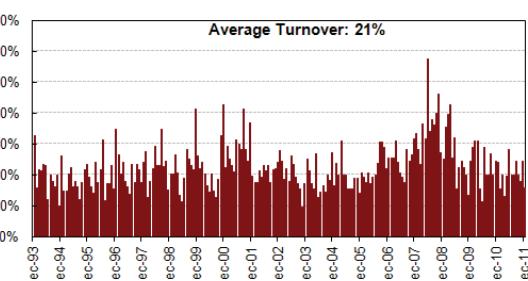


12 Month Rolling Returns L/S

Min 12mth Return: -30.8%



Turnover within Portfolio 1



Value To Risk

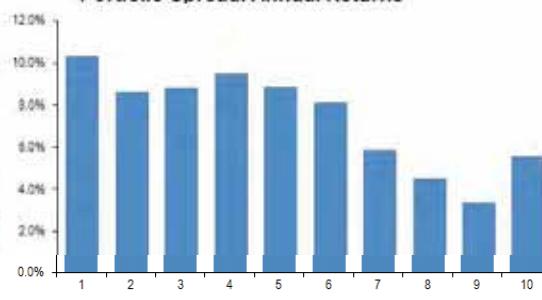
Value To Risk								Rebalance every 1 month(s)											
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/28/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 12/31/1993 to 02/29/2012							
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics							
Port.	Avg. Ret.	Ann. Ret.	St. Dev.	Port.	Avg. Ret.	Ann. Ret.	St. Dev.	Port.	Avg. Ret.	Ann. Ret.	St. Dev.	Port.	Avg. Ret.	Ann. Ret.	St. Dev.				
1	-1.2%	-17.2%	9%	25%	1	2.2%	24.5%	9%	42%	1	-0.5%	-12.0%	10%	40%	1	1.1%	10.3%	7%	56%
2	-0.6%	-10.5%	8%	83%	2	2.2%	24.9%	8%	58%	2	-0.1%	-5.7%	9%	48%	2	0.9%	8.7%	6%	50%
3	-0.5%	-6.6%	8%	75%	3	2.2%	25.8%	8%	64%	3	0.1%	-2.7%	8%	65%	3	0.9%	8.8%	6%	57%
4	-0.5%	-8.8%	8%	58%	4	2.4%	28.0%	8%	54%	4	0.4%	0.7%	8%	60%	4	0.9%	9.5%	6%	56%
5	-0.4%	-7.7%	8%	75%	5	2.4%	28.1%	7%	58%	5	0.3%	-0.3%	8%	58%	5	0.9%	8.8%	6%	56%
6	0.0%	-3.4%	8%	62%	6	2.3%	27.8%	8%	67%	6	0.2%	-1.8%	8%	63%	6	0.8%	8.1%	6%	52%
7	-0.8%	-11.3%	7%	33%	7	1.8%	19.6%	7%	31%	7	0.0%	-3.8%	8%	48%	7	0.8%	5.9%	6%	44%
8	-1.1%	-15.4%	7%	50%	8	1.8%	20.2%	8%	44%	8	-0.3%	-6.9%	8%	47%	8	0.5%	4.5%	6%	43%
9	-1.2%	-16.6%	7%	50%	9	1.5%	15.0%	8%	36%	9	-0.3%	-5.8%	8%	47%	9	0.5%	3.4%	6%	43%
10	2.3%	-26.8%	8%	25%	10	2.3%	23.7%	10%	47%	10	-0.1%	-0.1%	10%	40%	10	0.7%	5.6%	7%	46%
Total Test				Total Test				Total Test				Total Test							
Avg. Ref.	Rank	Avg. Ref.	Avg. Assets	Avg. Ref.	Rank	Avg. Ref.	Avg. Assets	Avg. Ref.	Rank	Avg. Ref.	Avg. Assets	Avg. Ref.	Rank	Avg. Ref.	Avg. Assets				
Universe	-0.9%	2.7%	5.5%	445	Universe	2.1%	2.3%	1.8%	447	Universe	0.0%	0.7%	0.2%	487	Universe	0.8%	1.0%	1.7%	500
Strategy Statistics																			
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10							
Avg. Ret.	Ann. Ret.	Std. Dev.	% Out.	Avg. Ret.	Ann. Ret.	Std. Dev.	% Out.	Avg. Ret.	Ann. Ret.	Std. Dev.	% Out.	Avg. Ret.	Ann. Ret.	Std. Dev.	% Out.				
Long/Short	1.1%	-13.6%	2.5%	75%	Long/Short	0.0%	-1.1%	3.4%	53%	Long/Short	-0.5%	-6.3%	3.4%	50%	Long/Short	0.3%	3.5%	3.5%	56%
Active Ret.	-0.3%	-3.8%	2.0%	25%	Active Ret.	0.1%	1.2%	2.3%	42%	Active Ret.	-0.5%	-8.4%	2.8%	46%	Active Ret.	0.3%	3.1%	2.1%	56%
T-Stat	1.5	1.8	90	-6.8	T-Stat	0.1	-0.1	90	0.2	T-Stat	-1.1	-0.5	90	-0.7	T-Stat	1.5	0.3	101	0.4

* Standard Risk-Free Rate of 6%

Portfolio Index Performance

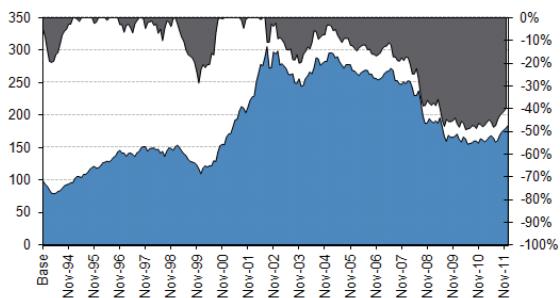


Portfolio Spread. Annual Returns

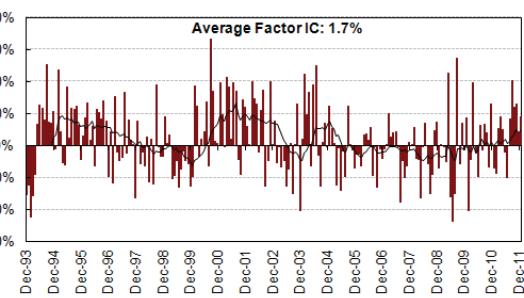


Cumulative (L/S) Returns

Max Drawdown: -49.0%

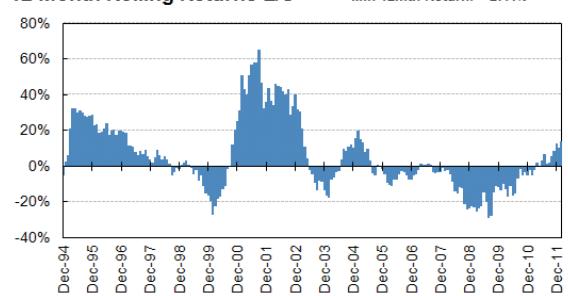


Information Co-Efficients (IC)

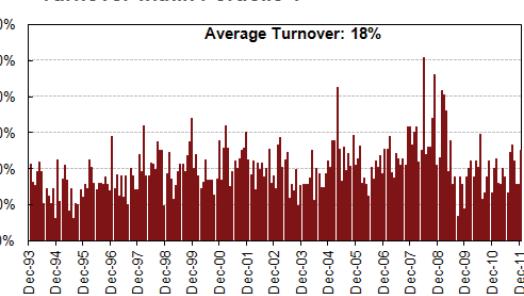


12 Month Rolling Returns L/S

Min 12mth Return: -27.4%



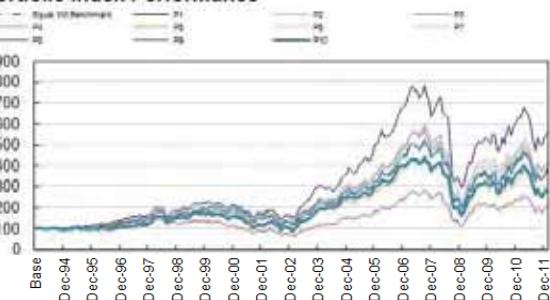
Turnover within Portfolio 1



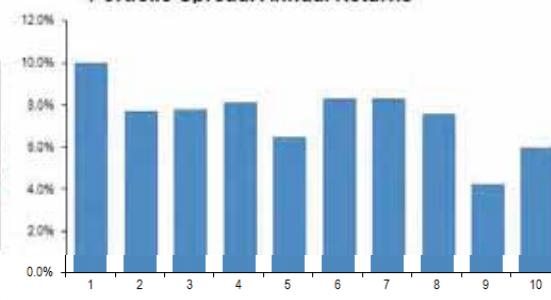
Composite Recommendation

Composite Recommendation								Rebalance every 1 month(s)																
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/28/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 01/31/1994 to 02/29/2012												
Portfolio Statistics								Portfolio Statistics																
Port	Avg Ref.	Ann Ret.	St Dev.	% Out Perf.	Port	Avg Ref.	Ann Ret.	St Dev.	% Out Perf.	Port	Avg Ref.	Ann Ret.	St Dev.	% Out Perf.	Port	Avg Ref.	Ann Ret.	St Dev.	% Out Perf.					
1	-0.7%	-11.1%	8%	42%	1	2.1%	24.0%	8%	39%	1	0.0%	-4.0%	9%	43%	1	1.0%	10.0%	6%	53%					
2	-0.5%	-9.2%	9%	67%	2	2.2%	24.3%	8%	54%	2	0.0%	-4.2%	9%	58%	2	0.8%	7.7%	6%	53%					
3	-0.6%	-10.1%	8%	58%	3	2.1%	23.1%	8%	47%	3	0.0%	-4.8%	8%	40%	3	0.8%	7.8%	6%	45%					
4	-0.9%	-12.5%	7%	58%	4	2.1%	24.4%	8%	51%	4	0.3%	-1.0%	8%	60%	4	0.8%	8.1%	6%	53%					
5	-0.5%	-9.6%	8%	67%	5	2.2%	25.0%	8%	50%	5	0.0%	-4.0%	9%	50%	5	0.7%	6.5%	6%	45%					
6	-0.8%	-12.4%	8%	50%	6	2.1%	24.6%	8%	50%	6	0.1%	-2.7%	8%	52%	6	0.9%	8.3%	6%	54%					
7	-0.8%	-11.8%	7%	42%	7	2.0%	22.1%	8%	44%	7	0.1%	-2.8%	8%	50%	7	0.9%	8.3%	6%	51%					
8	-1.1%	-15.0%	7%	42%	8	2.2%	25.1%	8%	58%	8	0.0%	-3.8%	8%	50%	8	0.8%	7.6%	6%	47%					
9	-0.9%	-12.9%	8%	58%	9	2.1%	23.7%	8%	44%	9	0.1%	-2.6%	8%	47%	9	0.5%	4.2%	6%	43%					
10	-1.9%	-23.7%	8%	25%	10	2.0%	20.9%	9%	44%	10	-0.2%	-0.5%	9%	43%	10	0.7%	5.9%	7%	47%					
Total Test				Total Test				Total Test				Total Test												
Avg	Rank	Avg	Avg	Avg	Avg	Rank	Avg	Avg	Avg	Avg	Rank	Avg	Avg	Avg	Avg									
Ref.	IC	IC	Assets	447	Ref.	IC	IC	Assets	449	Ref.	IC	IC	Assets	448	Ref.	IC	IC	Assets						
Universe	-0.9%	2.2%	4.2%	6.6	Universe	2.1%	0.3%	1.0%	449	Universe	0.1%	0.3%	1.0%	448	Universe	0.8%	1.2%	1.6%	419					
Strategy Statistics								Strategy Statistics								Strategy Statistics								
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				
Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	
Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	
Long/Short	1.2%	15.3%	2.0%	42%	Long/Short	0.1%	1.4%	2.0%	47%	Long/Short	0.2%	2.2%	2.1%	52%	Long/Short	0.3%	3.2%	2.4%	57%	Long/Short	0.2%	2.2%	1.5%	53%
Active Ret	0.2%	1.9%	0.9%	42%	Active Ret	0.0%	-0.1%	1.0%	39%	Active Ret	0.0%	-0.3%	1.3%	43%	Active Ret	0.2%	2.2%	1.5%	53%	T-Stat	Sharpe*	Assets	IR	
Long/Short	Z.1	2.3	90	6.6	Long/Short	0.4	0.2	91	0.0	Long/Short	0.7	8.3	90	-0.1	Long/Short	1.8	0.4	85	0.4	Long/Short	1.8	0.4	85	

Portfolio Index Performance

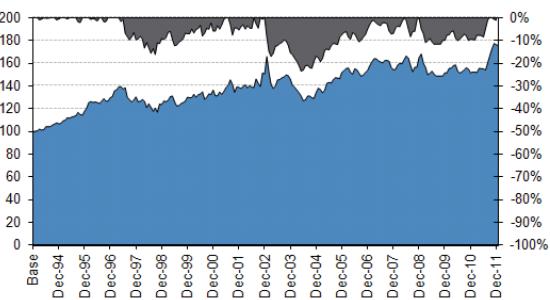


Portfolio Spread. Annual Returns

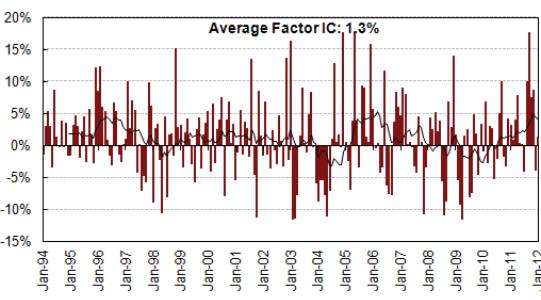


Cumulative (L/S) Returns

Max Drawdown: -23.4%

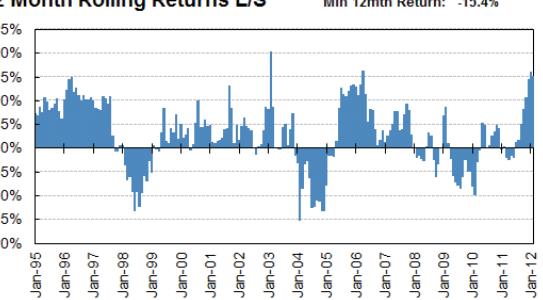


Information Co-Efficients (IC)

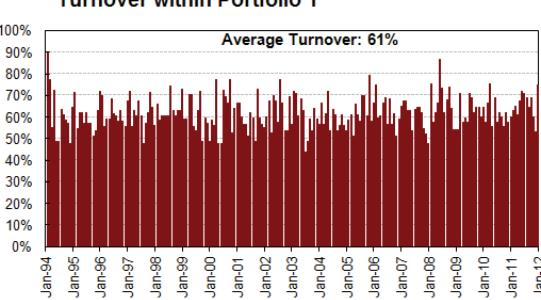


12 Month Rolling Returns L/S

Min 12mth Return: -15.4%



Turnover within Portfolio 1



Composite Quality

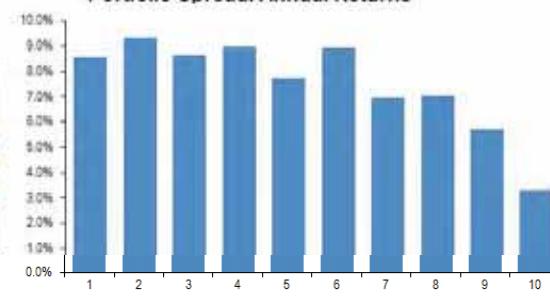
Composite Quality						Rebalance every 1 month(s)																		
1 Year: 02/28/2011 to 02/29/2012 Portfolio Statistics						3 Years(s): 02/28/2009 to 02/28/2012 Portfolio Statistics						5 Year(s): 02/28/2007 to 02/29/2012 Portfolio Statistics						Total Period: 12/31/1993 to 02/29/2012 Portfolio Statistics						
Port	Avg Ref.	Ann Ret.	St Dev.	% Out Perf.	Port	Avg Ref.	Ann Ret.	St Dev.	% Out Perf.	Port	Avg Ref.	Ann Ret.	St Dev.	% Out Perf.	Port	Avg Ref.	Ann Ret.	St Dev.	% Out Perf.					
1	0.2%	1.4%	8%	83%	1	2.1%	25.6%	6%	58%	1	0.2%	-0.3%	7%	62%	1	0.0%	8.5%	5%	52%					
2	-0.3%	-6.2%	8%	83%	2	2.3%	27.9%	7%	58%	2	0.2%	-1.2%	8%	58%	2	0.9%	0.3%	5%	53%					
3	-0.3%	-6.2%	7%	75%	3	2.1%	24.8%	7%	56%	3	0.0%	-3.9%	8%	55%	3	0.9%	0.6%	6%	57%					
4	-0.2%	-4.7%	7%	67%	4	2.3%	27.8%	7%	51%	4	0.3%	-0.7%	8%	60%	4	0.9%	9.0%	6%	54%					
5	-0.6%	-10.1%	8%	67%	5	2.3%	25.7%	8%	53%	5	-0.1%	-5.0%	9%	50%	5	0.6%	7.7%	6%	50%					
6	-0.4%	-6.2%	8%	75%	6	2.2%	24.4%	8%	55%	6	0.0%	-4.7%	9%	52%	6	0.0%	0.0%	6%	50%					
7	-0.8%	-11.9%	8%	58%	7	2.0%	21.8%	8%	47%	7	0.1%	-3.6%	8%	52%	7	0.7%	8.9%	6%	53%					
8	-1.8%	-22.4%	8%	17%	8	1.8%	19.5%	8%	44%	8	0.0%	-4.1%	8%	50%	8	0.0%	7.0%	6%	48%					
9	-1.3%	-18.9%	9%	33%	9	2.2%	23.5%	9%	47%	9	-0.1%	-5.6%	9%	47%	9	0.7%	5.7%	7%	47%					
10	-3.4%	-37.8%	10%	25%	10	1.9%	16.7%	11%	42%	10	-0.8%	-15.5%	11%	32%	10	0.6%	3.3%	8%	45%					
Total Test						Total Test						Total Test						Total Test						
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank			
Ref.	IC	IC	Assets		Ref.	IC	IC	Assets		Ref.	IC	IC	Assets		Ref.	IC	IC	Assets		Ref.	IC			
Universe	-0.9%	11.2%	13.4%	441	Universe	2.1%	4.0%	3.3%	443	Universe	0.0%	3.7%	3.6%	441	Universe	0.8%	2.2%	1.5%	501	Universe	0.0%	0.0%		
Strategy Statistics																				Strategy Statistics				
Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10						Portfolio 1 less Portfolio 10						
Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann			
Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret			
Long/Short	3.7%	52.6%	5.2%	83%	Long/Short	-0.2%	-0.3%	8.4%	56%	Long/Short	1.0%	10.4%	5.4%	65%	Long/Short	0.3%	2.0%	4.1%	57%	Long/Short	0.9%	0.1%		
Active Ret	1.2%	14.0%	2.1%	83%	Active Ret	0.0%	0.7%	2.6%	58%	Active Ret	0.2%	2.2%	2.1%	63%	Active Ret	0.0%	0.3%	1.7%	52%	Active Ret	T-Stat	Sharpe*	Assets	IR
T-Stat	2.5	2.9	82	2.0	T-Stat	0.2	0.0	90	-8.1	T-Stat	1.4	8.0	97	0.3	T-Stat	0.9	0.1	101	0.0	T-Stat	0.9	0.1		

* Standard Dev/Pearson Ratio of 85

Portfolio Index Performance

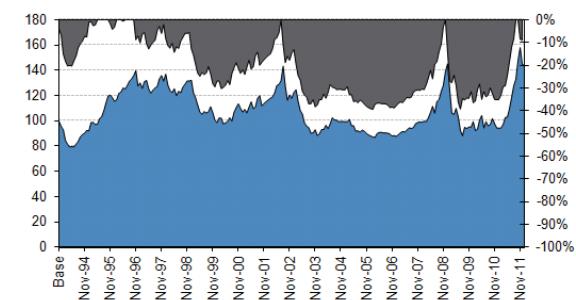


Portfolio Spread. Annual Returns

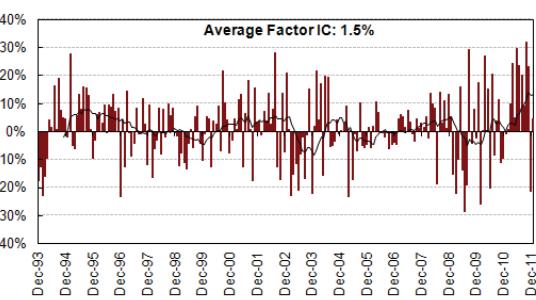


Cumulative (L/S) Returns

Max Drawdown: -39.3%

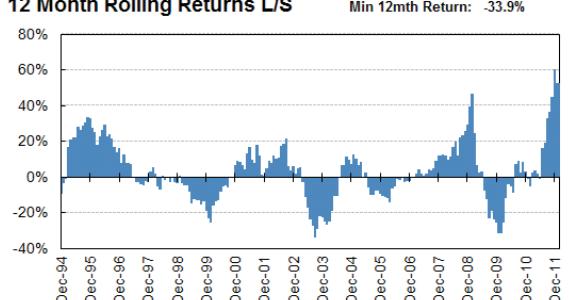


Information Co-Efficients (IC)

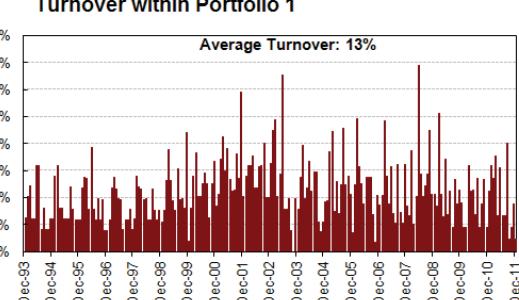


12 Month Rolling Returns L/S

Min 12mth Return: -33.9%



Turnover within Portfolio 1

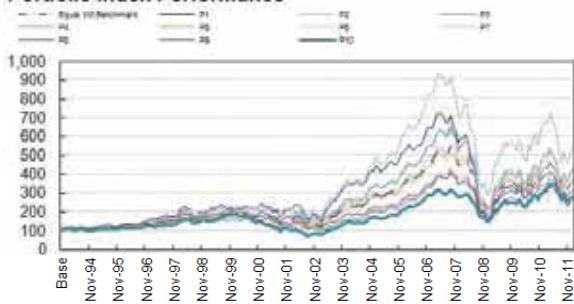


Composite Value and Growth

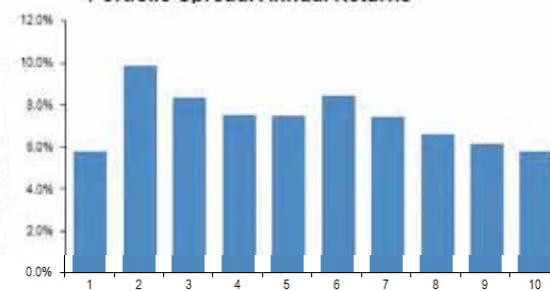
Composite Value and Growth							Rebalance every 1 month(s)																				
1 Year: 02/28/2011 to 02/29/2012					3 Years(s): 02/28/2009 to 02/28/2012					5 Year(s): 02/28/2007 to 02/29/2012					Total Period: 12/31/1993 to 02/29/2012												
Portfolio Statistics					Portfolio Statistics					Portfolio Statistics					Portfolio Statistics												
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.								
1	-2.5%	-20.0%	10%	33%	1	2.1%	21.9%	10%	56%	1	-0.6%	-15.4%	11%	42%	1	0.8%	5.8%	0%	50%								
2	-1.4%	-19.1%	9%	25%	2	2.2%	23.8%	9%	42%	2	-0.2%	-7.9%	10%	40%	2	1.0%	9.8%	7%	53%								
3	-1.0%	-15.1%	9%	42%	3	2.3%	25.7%	9%	50%	3	0.0%	-5.0%	9%	52%	3	0.9%	0.3%	6%	58%								
4	-1.1%	-15.0%	8%	33%	4	1.9%	20.5%	8%	42%	4	-0.2%	-1.4%	9%	45%	4	0.8%	7.5%	6%	52%								
5	-0.8%	-12.7%	8%	67%	5	2.0%	22.6%	8%	56%	5	0.1%	-3.7%	9%	62%	5	0.8%	7.5%	6%	53%								
6	-0.4%	-7.5%	7%	58%	6	2.1%	24.8%	8%	50%	6	0.1%	-2.4%	8%	59%	6	0.8%	0.4%	6%	48%								
7	-0.2%	-5.5%	7%	50%	7	2.4%	20.2%	7%	58%	7	0.4%	0.7%	8%	58%	7	0.7%	7.4%	5%	48%								
8	-0.4%	-7.6%	7%	58%	8	1.8%	20.9%	7%	44%	8	0.2%	-0.9%	7%	63%	8	0.7%	6.6%	5%	48%								
9	0.0%	-2.9%	7%	58%	9	1.9%	22.4%	7%	42%	9	0.0%	-3.1%	7%	47%	9	0.6%	0.2%	5%	41%								
10	-0.5%	-11.3%	7%	58%	10	2.1%	24.5%	8%	59%	10	0.2%	-0.7%	7%	52%	10	0.6%	5.8%	6%	43%								
Total Test					Total Test					Total Test					Total Test												
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg									
Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets		Ref	IC	IC	Assets									
Universe	-0.9%	-8.3%	-7.9%	447	Universe	2.1%	-1.6%	-1.5%	450	Universe	0.0%	-3.1%	-3.5%	451	Universe	0.8%	1.1%	0.5%	507								
Strategy Statistics														Strategy Statistics													
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10							
Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out				
Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.				
Long/Short	-1.7%	-19.4%	4.9%	25%	Long/Short	0.0%	-0.9%	4.4%	47%	Long/Short	-1.0%	-12.7%	4.9%	47%	Long/Short	0.1%	0.7%	3.9%	54%	Long/Short	0.0%	-0.5%	2.5%	50%			
Active Ret	-1.6%	-18.0%	3.1%	33%	Active Ret	0.0%	0.0%	2.9%	56%	Active Ret	-0.8%	-9.3%	3.0%	42%	Active Ret	0.0%	0.5%	2.5%	50%	Active Ret	0.0%	0.1%	102	-0.1			
T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR				
Long/Short	-1.2	-1.1	90	-1.7	Long/Short	0.0	-0.1	91	0.0	Long/Short	-1.6	-0.7	99	-0.9	Long/Short	0.5	0.1	102	-0.1	Long/Short	0.0	-0.1	102	-0.1			

* Standard Pairs Ratio of 0.5

Portfolio Index Performance

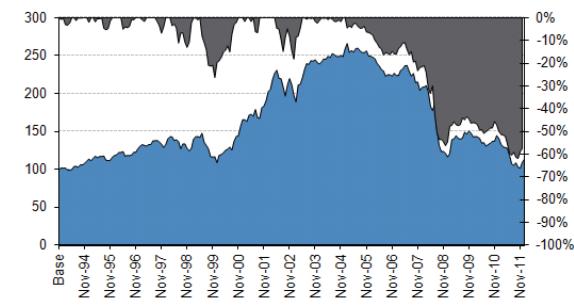


Portfolio Spread. Annual Returns

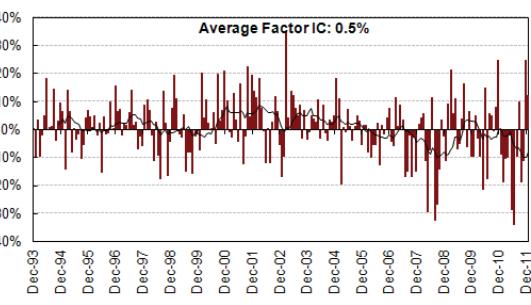


Cumulative (L/S) Returns

Max Drawdown: -61.7%

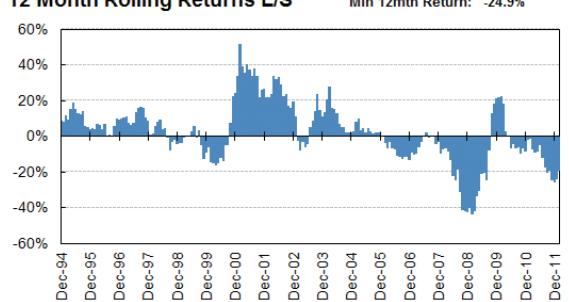


Information Co-Efficients (IC)

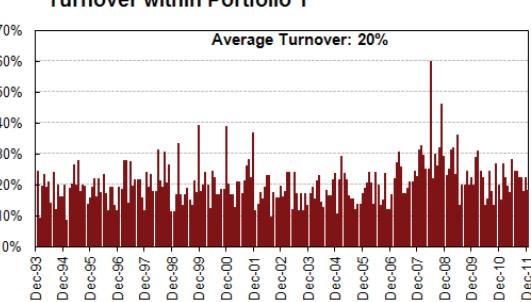


12 Month Rolling Returns L/S

Min 12mth Return: -24.9%



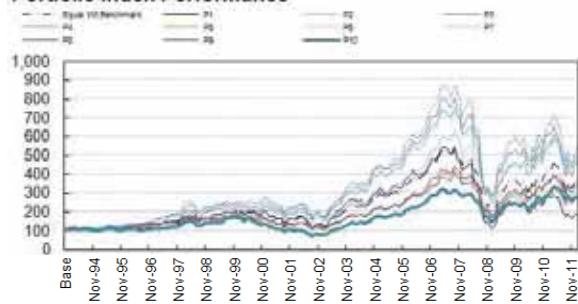
Turnover within Portfolio 1



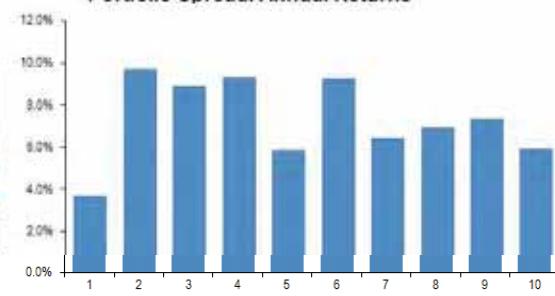
Value to Growth

Value To Growth								Rebalance every 1 month(s)																							
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/28/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 12/31/1993 to 02/29/2012																			
Portfolio Statistics								Portfolio Statistics																							
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.												
1	-2.5%	-31.2%	10%	17%	1	2.0%	20.0%	10%	44%	1	-0.0%	-16.6%	11%	37%	1	0.6%	3.7%	0%	44%												
2	-1.4%	-19.9%	9%	42%	2	2.3%	24.1%	10%	53%	2	-0.1%	-7.2%	10%	53%	2	1.0%	9.7%	7%	51%												
3	-1.0%	-24.1%	10%	33%	3	1.9%	19.4%	9%	38%	3	-0.2%	-7.8%	9%	40%	3	0.0%	8.9%	7%	50%												
4	-0.5%	-10.1%	8%	67%	4	2.4%	27.6%	8%	57%	4	-0.1%	-5.2%	9%	53%	4	0.9%	9.3%	6%	55%												
5	-0.6%	10.4%	8%	58%	5	2.0%	22.0%	8%	44%	5	0.0%	-4.4%	8%	50%	5	0.7%	5.9%	6%	45%												
6	-0.3%	-6.6%	8%	75%	6	2.3%	26.4%	8%	58%	6	0.2%	-1.1%	8%	60%	6	0.9%	9.3%	6%	58%												
7	-1.0%	13.2%	7%	50%	7	1.8%	19.9%	7%	47%	7	0.1%	-2.3%	7%	57%	7	0.7%	6.4%	5%	47%												
8	-0.1%	-4.4%	7%	75%	8	2.2%	26.5%	7%	58%	8	0.3%	0.0%	7%	62%	8	0.7%	6.9%	5%	40%												
9	0.1%	-1.2%	7%	75%	9	2.2%	25.2%	7%	56%	9	0.2%	-1.0%	7%	58%	9	0.7%	7.3%	5%	46%												
10	-0.1%	3.7%	8%	67%	10	2.1%	24.7%	7%	53%	10	0.2%	-0.4%	7%	55%	10	0.6%	5.9%	5%	46%												
Total Test				Total Test				Total Test				Total Test																			
Avg Ret	Rank	Avg IC	Avg Assets	Avg Ret	Rank	Avg IC	Avg Assets	Avg Ret	Rank	Avg IC	Avg Assets	Avg Ret	Rank	Avg IC	Avg Assets																
Universe	-0.9%	-10.3%	-10.0%	447	Universe	2.1%	-2.3%	-2.3%	449	Universe	0.0%	-1.5%	-3.0%	490	Universe	0.8%	0.7%	-0.1%	507												
Strategy Statistics																Strategy Statistics															
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10											
Avg Ret	Ann Ret	Std	% Out Perf.	Avg Ret	Ann Ret	Std	% Out Perf.	Avg Ret	Ann Ret	Std	% Out Perf.	Avg Ret	Ann Ret	Std	% Out Perf.	Avg Ret	Ann Ret	Std	% Out Perf.	Avg Ret	Ann Ret	Std	% Out Perf.								
Long/Short	-2.5%	-27.0%	5.1%	33%	Long/Short	-0.1%	-2.0%	4.4%	58%	Long/Short	-1.1%	-13.7%	5.0%	52%	Long/Short	0.0%	-1.1%	4.1%	52%	Long/Short	0.0%	-1.1%	4.1%	52%							
Active Ret	-1.7%	-19.5%	3.2%	17%	Active Ret	-0.1%	-1.5%	2.9%	44%	Active Ret	-0.8%	-10.3%	3.1%	37%	Active Ret	-0.2%	-2.3%	2.7%	44%	Active Ret	-0.2%	-2.3%	2.7%	44%							
T-Stat	Sharper* Assets	IR			T-Stat	Sharper* Assets	IR			T-Stat	Sharper* Assets	IR			T-Stat	Sharper* Assets	IR			T-Stat	Sharper* Assets	IR									
Long/Short	-1.7	-1.5	90	-1.8	Long/Short	-0.1	-0.1	91	-0.1	Long/Short	-0.1	-0.8	99	-0.9	Long/Short	-0.1	-0.1	102	-0.2	Long/Short	0.0	-0.1	102	-0.2							

Portfolio Index Performance

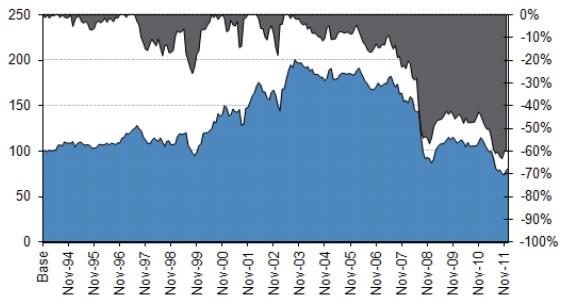


Portfolio Spread. Annual Returns

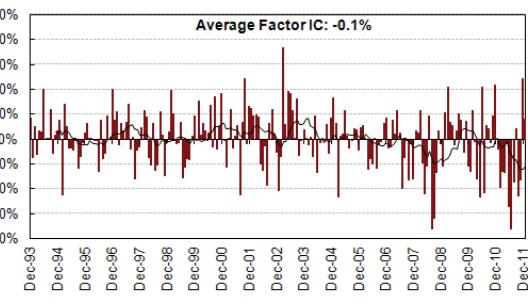


Cumulative (L/S) Returns

Max Drawdown: -63.1%

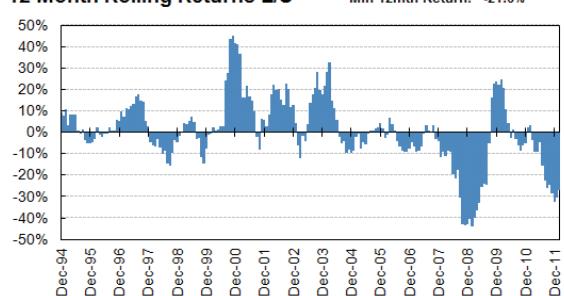


Information Co-Efficients (IC)

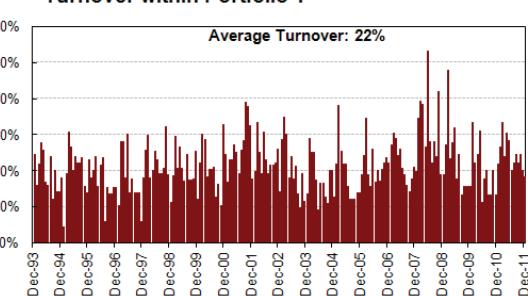


12 Month Rolling Returns L/S

Min 12mth Return: -21.6%



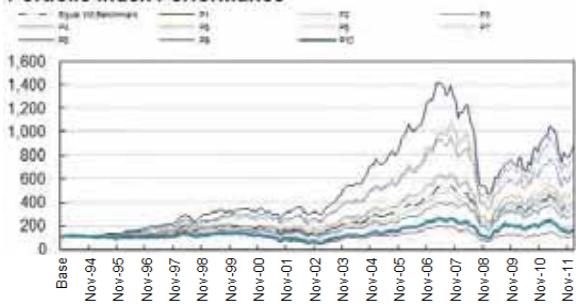
Turnover within Portfolio 1



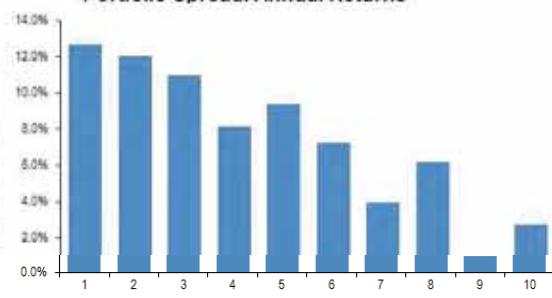
Q-Score Composite

Q-Score Composite								Rebalance every 1 month(s)													
1 Year: 02/28/2011 to 02/29/2012				3 Years(s): 02/28/2009 to 02/28/2012				5 Year(s): 02/28/2007 to 02/29/2012				Total Period: 12/31/1993 to 02/29/2012									
Portfolio Statistics				Portfolio Statistics				Portfolio Statistics				Portfolio Statistics									
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.		
1	-0.4%	-0.2%	8%	83%	1	2.0%	23.4%	7%	58%	1	-0.3%	-7.2%	8%	43%	1	1.2%	12.7%	6%	83%		
2	-0.5%	-0.5%	8%	58%	2	2.0%	22.7%	7%	58%	2	0.2%	-1.9%	8%	62%	2	1.1%	12.0%	6%	64%		
3	-0.5%	-0.0%	8%	50%	3	2.2%	25.4%	8%	50%	3	0.0%	-4.4%	8%	50%	3	1.0%	11.0%	6%	50%		
4	-0.8%	-11.9%	8%	58%	4	2.0%	22.4%	8%	53%	4	-0.1%	-5.4%	8%	50%	4	0.8%	8.1%	6%	54%		
5	0.1%	-1.7%	7%	92%	5	2.5%	30.5%	8%	67%	5	0.2%	-1.8%	8%	57%	5	0.9%	9.4%	6%	54%		
6	-1.0%	-14.2%	8%	58%	6	2.1%	24.3%	8%	44%	6	0.1%	-3.1%	8%	52%	6	0.8%	7.2%	6%	49%		
7	-0.7%	-10.9%	8%	58%	7	2.3%	25.4%	8%	54%	7	0.1%	-3.0%	8%	60%	7	0.5%	3.9%	6%	41%		
8	-1.4%	-18.0%	7%	33%	8	2.0%	21.6%	8%	44%	8	0.1%	-3.5%	8%	52%	8	0.7%	6.2%	6%	46%		
9	-1.0%	-14.3%	8%	50%	9	1.9%	20.2%	9%	42%	9	-0.3%	-8.2%	9%	43%	9	0.3%	0.9%	6%	38%		
10	-2.5%	-29.4%	8%	25%	10	2.0%	19.7%	10%	44%	10	-0.2%	-7.3%	10%	38%	10	0.5%	2.7%	7%	37%		
Total Test				Total Test				Total Test				Total Test									
Avg	Rank	Avg	Avg	Ref	IC	IC	Assets	Avg	Rank	Avg	Avg	Ref	IC	IC	Assets						
Univers	-0.9%	8.0%	8.4%	447				Univers	2.1%	2.5%	2.8%	450				Univers	0.0%	0.8%	4.2%	3.8%	507
Strategy Statistics																					
Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10				Portfolio 1 less Portfolio 10									
Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out	Avg	Ann	Std	% Out						
Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.	Ret	Ret	Devn	Perf.						
Long/Short	2.1%	27.4%	4.0%	75%	Long/Short	0.0%	-1.8%	5.5%	64%	Long/Short	-0.1%	-2.4%	4.7%	58%	Long/Short	0.7%	7.9%	3.4%	65%		
Active Ret	0.4%	6.3%	1.7%	83%	Active Ret	-0.1%	-1.3%	2.4%	56%	Active Ret	-0.2%	-3.1%	2.2%	43%	Active Ret	0.4%	4.7%	1.9%	63%		
T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR		T-Stat	Sharper*	Assets	IR			
Long/Short	1.8	2.0	90	0.9	Long/Short	0.0	-0.1	91	-0.2	Long/Short	-0.1	-0.1	99	-0.4	Long/Short	2.7	0.6	102	0.7		

Portfolio Index Performance

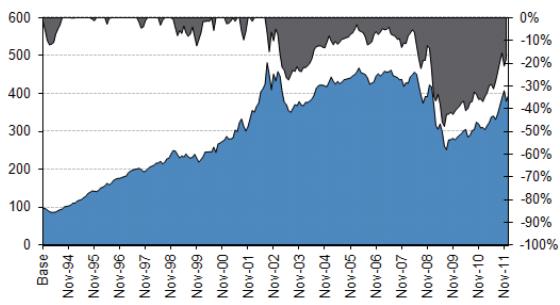


Portfolio Spread. Annual Returns

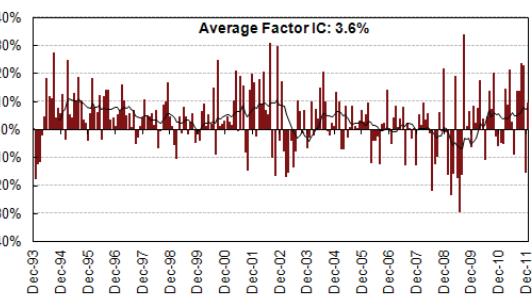


Cumulative (L/S) Returns

Max Drawdown: -47.5%

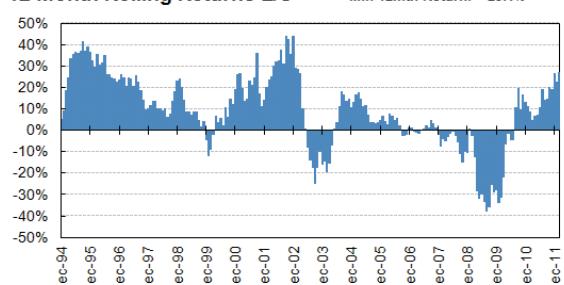


Information Co-Efficients (IC)

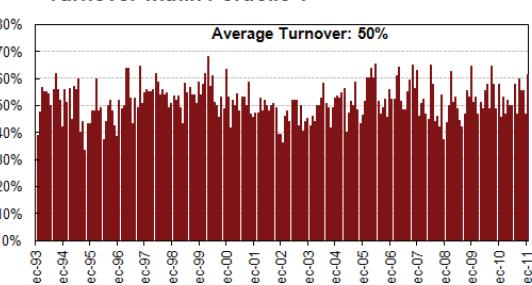


12 Month Rolling Returns L/S

Min 12mth Return: -25.1%



Turnover within Portfolio 1



Viquar Shaikh
(44-20) 7134-5908
viquar.x.shaikh@jpmorgan.com

Europe Equity Research
10 May 2012

J.P.Morgan **CAZENOVE**

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Asia-ex Japan Factor Reference Asian Quant Retrospective

Factor performance in Countries, Sectors & Regimes

In this report, we show **what** investment styles worked **where** (by country and by sector) and **when** (by market regime). In other words, we analyze “meta-market phenomenon” – the ebb and flow of underlying factors when slicing and dicing by country, sector, and regime. Additionally, we have published four companion volumes of factor chartbooks that cover regional Asia ex-Japan, country, sector, and GEM (see links bottom right). *Our factor reference series can help you:*

- ! **Improve stock screens:** fine-tune your selection criteria towards what may matter more in your country/sector or view of the current market regime
- ! **Target your investment style:** see where your style and ideas perform better (value in industrials, growth in Hong Kong, yield in defensive regimes, etc)
- ! **Identify what worked in your sector/country:** gain a better understanding of how factors impact and “move around” your stocks in the long term
- ! **Compose a better multi-factor composite:** use this guide as a starting point
- ! **Explain historical performance:** help identify why a portfolio might have performed the way it did in the past

Highlighted below is a sample of the content in this book which shows when factors did well or poorly during various market regimes (see p. 4-5 for details).

Risk-adjusted Return Matrix by Regime

Factor Name	Full Period	Asian Boom	Asian Financial Crisis	Tech Bubble	Tech Collapse	Post 9/11 Recovery	SARS, Macro Fears	Global Bull Market	Global Financial Crisis	Fiscal Stimuli (QE)	Euro Debt Crisis
Q-Score Composite	1.80	3.19	4.83	-0.69	2.46	0.31	5.57	4.17	-0.08	0.80	1.22
► Composite Value (with Growth)	1.13	0.66	1.90	0.98	0.84	7.80	2.04	2.05	-0.52	2.59	0.13
► Composite Earnings / Sentiment	1.84	2.46	0.22	2.66	2.21	-0.82	4.15	3.51	1.43	0.81	0.40
► Composite Price / Reversion	0.35	1.54	0.35	-0.73	0.91	-0.82	3.31	2.04	-0.01	-0.55	-0.04
► Composite Quality	0.11	1.91	0.20	-1.50	0.60	-2.03	1.07	0.16	2.96	0.60	1.30
Q-Score Composite (Value Biased)	2.40	2.30	4.06	1.29	2.01	5.01	5.78	3.99	-0.51	3.20	1.86
Composite P/B ROE	1.37	0.58	1.20	1.56	2.19	3.24	2.95	0.95	1.22	1.91	1.33
P/E 1-year forward	1.17	0.52	1.61	-0.13	1.16	5.75	6.39	1.51	-0.18	3.15	0.15
P/B 1-year trailing	0.61	-0.22	0.44	1.60	0.59	4.59	1.03	0.83	0.40	0.84	-0.39
Dividend Yield 1-year trailing	0.86	0.25	3.68	-0.67	2.54	-0.75	2.61	-0.33	4.56	1.03	3.24
Net Earnings Revisions FY1 FY2	1.20	1.86	0.08	1.07	0.70	-1.60	3.83	3.47	-0.58	0.88	1.29
Change in Consensus Rec. (1-mth)	1.59	1.91	0.28	2.35	1.97	-0.81	2.58	2.56	2.85	1.71	0.76
Forward Earnings Mom. (1-mth chg)	0.80	1.59	-0.54	-1.03	1.02	-2.14	3.67	3.01	1.31	0.38	0.75
Forecast Earnings Growth FY1-FY2	-0.17	0.92	0.04	2.85	-2.60	1.46	-1.42	0.23	-2.10	-1.44	-2.61
Price Momentum 12-month	-0.12	0.41	-0.70	-1.00	-0.03	-0.95	3.85	1.88	-0.21	-0.73	-0.27
Price Momentum 1-month	-0.55	-1.15	-1.56	0.32	-0.63	-0.28	0.42	0.19	-0.86	-0.09	-0.69
RSI 10-day (Continuation)	-0.85	-0.82	-1.61	-0.75	-0.45	-1.16	-1.16	-0.34	-2.14	-1.34	-0.03
Return On Equity (1-year trailing)	0.04	0.65	0.21	-1.48	0.75	-0.31	1.24	-0.18	0.00	1.56	1.89
Sales Growth (1-year trailing)	0.12	n/a	-0.04	0.74	-0.23	1.14	0.73	0.25	-1.11	0.67	-0.34
Beta (Barra)	-0.19	-0.75	0.30	1.21	-1.16	2.46	-1.95	0.33	-1.76	0.72	-0.77
Volatility (Barra)	-0.07	-1.32	0.18	2.32	-1.44	2.88	-1.85	0.80	-1.89	0.77	-0.57
Size (Barra)	-0.29	0.43	-0.38	-0.90	-0.02	-2.53	1.23	-0.08	1.27	-1.13	0.37

Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra.. For Sharpe Ratio calculation, the risk-free rate is assumed to be 0%

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Asia/GEM Quantitative Strategy

Christopher Ma AC

(852) 2800-8530

christopher.x.ma@jpmorgan.com

J.P. Morgan Securities (Asia Pacific) Limited

Robert Smith AC

(852) 2800 8569

robert.z.smith@jpmorgan.com

J.P. Morgan Securities (Asia Pacific) Limited

Europe Quantitative Strategy

Marco Dion

(44-20) 7134-5909

marco.x.dion@jpmorgan.com

J.P. Morgan Securities plc

Viquar Shaikh

(44-20) 7134-5908

viquar.x.shaikh@jpmorgan.com

J.P. Morgan Securities plc

Angelo Pessaris

(44-20) 7134-5907

angelo.pessaris@jpmorgan.com

J.P. Morgan Securities plc

US Quantitative Strategy

Dubravko Lakos-Bujas

(1-212) 622-3601

dubravko.lakos-bujas@jpmorgan.com

J.P. Morgan Securities LLC

Australia Quantitative Strategy

Berowne Hlavaty

(61-2) 9003-8602

berowne.d.hlavaty@jpmorgan.com

J.P. Morgan Securities Australia Limited

James Eustace

(61-2) 9003-8601

james.eustace@jpmorgan.com

J.P. Morgan Securities Australia Limited

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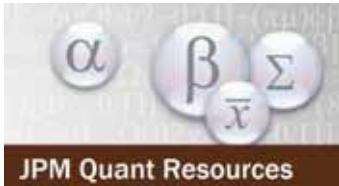
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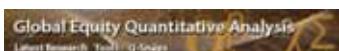
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For further discussion / custom analysis on these results, contact:
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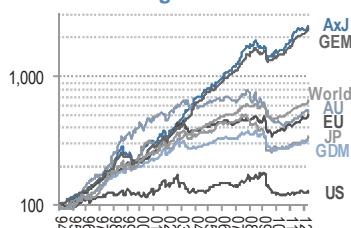
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Note that past performance cannot and should not be used to indicate future returns.

Executive Summary

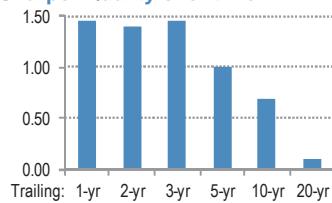
**Q-Score returns:
AxJ vs. other regions**



Sharpe: AxJ Factor Families



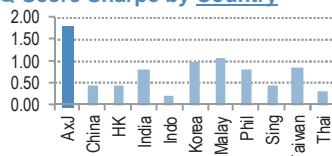
Sharpe: Quality over time



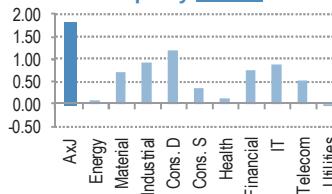
Sharpe: Large Cap vs. Small Cap



Q-Score Sharpe by Country



Q-Score Sharpe by Sector



Source: JPMorgan, MSCI, IBES, Reuters, Factset, Barra. Sharpe calculation uses Rf=0%.

Asia ex-Japan is fertile ground for quantitative strategies, and in this report we investigate factor performance applied to the MSCI Asia ex-Japan universe backtested over 18 years. We categorize a suite of 59 single factors with similar characteristics into broad families: Value, Earnings/Sentiment, Price/Technical, and Quality, and an additional 18 Composite factors that blend individual factors. We also analyze performance across various dimensions including Market Regimes and Large Cap vs. Small Cap. In four companion reports we provide full backtest results across Region, Country, Sector, and MSCI Global Emerging Markets.

Overall Factor Performance – Composites work best, though choose your factors carefully

In general, Composite factors that blend factors from all families performed the best. The best performing factor in our test bed of 77 factors is the *Composite Value Momentum Quality Price (Value Bias)* which blends factors from all families (same factors as our generic *Q-Score*) while overweighting Value. Of the factor families, Earnings/Sentiment performed the best (sell-side analysts do add value), followed closely by Value (cheap does create cheer), while Price/Technical factors clocked in just mediocre gains and Quality disappointingly loses to the index (although it does serve as a strong augmenting signal to mark inflection points).

Recent Factor Trends – Flight to Quality, Dividend Yield, Beta Volatility

Quality has shown an increasingly improving trend versus its historical performance, while on the flip side Value has shown declining performance. We think post the Global Financial Crisis, in order to avoid riskier names investors may be more willing to pay a premium for Quality, or in other words “expensive defensives.” The current market environment has also been characterized by a focus on Dividend Yield, which has historically performed very well in defensive regimes, and extreme Beta volatility, which we have seen wild fluctuations on week to week.

Large Cap vs. Small Cap – Size matters

Generally, we saw performance in Small Caps do better than in Large Caps for the same set of factors. For the Q-Score Composite, Value, Earnings/Sentiment, and Price/Technical, Small Caps beat Large Caps on an absolute and risk-adjusted basis. Results were not vastly superior except for Price/Technical factors, where Small Caps trounced Large Caps by ~2x. The notable difference was the strongly underperforming Small Cap Quality, which had a negative Sharpe ratio and clocked in an average monthly LS return of just 0.06% vs. 0.50% for Large Cap Quality.

Country and Sector – Risk diversification is the name of the game

We find that risk-adjusted factor performance varied widely across geographies, and that almost uniformly, factors worked better across the aggregate AxJ universe (country-neutralized) vs. individual countries or sectors. This bolsters the case for international and cross-sector portfolio diversification, which can reduce systematic risk such as economic, political, institutional, and behavioral risk in a single geography and correlations from related supply chains across sectors. Additionally, business cycles are often asynchronous across countries, lowering international correlation. That said, it's still important to understand which factors work for each country and sector, as they vary widely.

This analysis provides insight into factor rotation in different market conditions. Some key observations:

- ! **Beta** (risk on) and **Dividend Yield** (defensive) rotate into and out of favor across regime changes
- ! During the “Golden Age of Quant” from 2003-2007, the static **Q-Score** outperformed all other factors and systematic investors did not need to tweak their models often. However after this era, dynamic weighting and style rotation became more popular to attempt avoiding the large drawdowns seen in the Global Financial Crisis
- ! The static **Q-Score** model shows steady performance across regimes (mostly green/yellow in the top row of the matrix below), though adding a **Value Bias to the Q-Score** enhances stability. The simple **Composite P/B ROE** also shows very steady performance across regimes (note this is not P/B ÷ ROE, but rather an equal blend of P/B and ROE)
- ! The current regime we are in (Euro Debt Crisis) is strongly characterized by extreme **Beta** volatility
- ! **Price Momentum** has great difficulty navigating changes in market regimes, particularly evident during March 2009

What Factors Performed When: Factor Drivers in Varying Market Regimes

Inspired by “share price driver” charts for individual stocks, we aim to gain a historical perspective of factor performance in Asia ex-Japan by looking at 10 market regimes over the past 18 years. While this has the benefit of 20/20 hindsight in demarcating the regimes, we still think this is a useful exercise as it provides insight into style rotation depending on the market environment. Being able to predefine the major inflection points is the main reason why there are more extreme Sharpe ratios in Table 2 below, as compared to more moderate Country and Sector based Sharpe ratios in the following Table 3 and Table 4 which span the entire 18-year test period.

In Figure 1 on the next page, on the top panel we plot the MSCI Asia ex-Japan index contextualized with major market events. In the bottom panel we plot the factor performance of the Q-Score, composites representing the factor families, and some common factors, and re-based at the beginning of each regime. This more clearly highlights the rotation among factors, most notably for Beta and Dividend Yield which on regime changes swing from extreme to extreme.

Table 1: Market Regimes in Asia ex-Japan over the past 18 years

Regime	Period
Asian Boom	Jan 1994 - Jun 1997
Asian Financial Crisis	Jul 1997 - Sep 1998
Tech Bubble	Oct 1998 - Jan 2000
Tech Collapse	Feb 2000 - Sep 2001
Post 9/11 Recovery	Oct 2001 - Apr 2002
SARS, Macro Fears	May 2002 - Mar 2003
Global Bull Market	Apr 2003 - Oct 2007
Global Financial Crisis	Nov 2007 - Nov 2008
Fiscal Stimuli (QE)	Dec 2008 - Jun 2011
Euro Debt Crisis	Jul 2011 - May 2012*

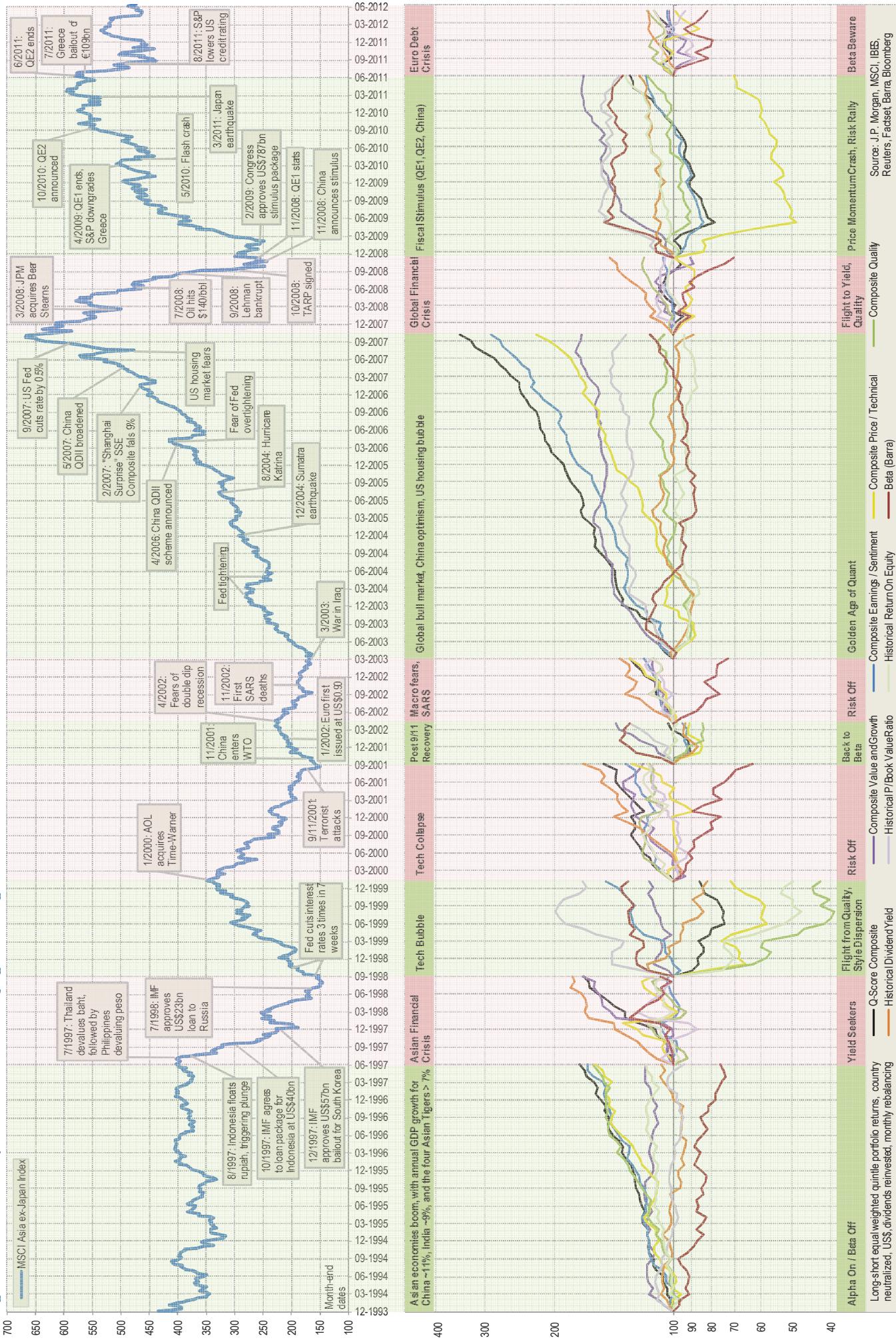
Source: J.P. Morgan. *May 2012 is the end of our backtesting period

Table 2: Risk-adjusted Return Matrix – by Regime

Factor Family	Factor Name	Full Period	Asian Boom	Asian Financial Crisis	Tech Bubble	Tech Collapse	Post 9/11 Recovery	SARS, Macro Fears	Global Bull Market	Global Financial Crisis	Fiscal Stimuli (QE)	Euro Debt Crisis
C	Q-Score Composite	1.80	3.19	4.83	-0.69	2.46	0.31	5.57	4.17	-0.08	0.80	1.22
C	► Composite Value (with Growth)	1.13	0.66	1.90	0.98	0.84	7.80	2.04	2.05	-0.52	2.59	0.13
C	► Composite Earnings / Sentiment	1.84	2.46	0.22	2.66	2.21	-0.82	4.15	3.51	1.43	0.81	0.40
C	► Composite Price / Reversion	0.35	1.54	0.35	-0.73	0.91	-0.82	3.31	2.04	-0.01	-0.55	-0.04
C	► Composite Quality	0.11	1.91	0.20	-1.50	0.60	-2.03	1.07	0.16	2.96	0.60	1.30
C	Q-Score Composite (Value Biased)	2.40	2.30	4.06	1.29	2.01	5.01	5.78	3.99	-0.51	3.20	1.86
C	Composite Price to Book ROE	1.37	0.58	1.20	1.56	2.19	3.24	2.95	0.95	1.22	1.91	1.33
V	P/E (1-year forward)	1.17	0.52	1.61	-0.13	1.16	5.75	6.39	1.51	-0.18	3.15	0.15
V	P/B (1-year trailing)	0.61	-0.22	0.44	1.60	0.59	4.59	1.03	0.83	0.40	0.84	-0.39
V	Dividend Yield (1-year trailing)	0.86	0.25	3.68	-0.67	2.54	-0.75	2.61	-0.33	4.56	1.03	3.24
ES	Net Earnings Revisions FY1 FY2 (rel. to total changes)	1.20	1.86	0.08	1.07	0.70	-1.60	3.83	3.47	-0.58	0.88	1.29
ES	Change in Consensus Recommendations (1-mth chg.)	1.59	1.91	0.28	2.35	1.97	-0.81	2.58	2.56	2.85	1.71	0.76
ES	Forward Earnings Momentum (1-month change)	0.80	1.59	-0.54	-1.03	1.02	-2.14	3.67	3.01	1.31	0.38	0.75
ES	Forecast Earnings Growth FY1 to FY2	-0.17	0.92	0.04	2.85	-2.60	1.46	-1.42	0.23	-2.10	-1.44	-2.61
PT	Price Momentum 12-month	-0.12	0.41	-0.70	-1.00	-0.03	-0.95	3.85	1.88	-0.21	-0.73	-0.27
PT	Price Momentum 1-month	-0.55	-1.15	-1.56	0.32	-0.63	-0.28	-0.42	0.19	-0.86	-0.09	-0.69
PT	RSI 10-day (Continuation)	-0.85	-0.82	-1.61	-0.75	-0.45	-1.16	-1.16	-0.34	-2.14	-1.34	-0.03
Q	Return On Equity (1-y year trailing)	0.04	0.65	0.21	-1.48	0.75	-0.31	1.24	-0.18	0.00	1.56	1.89
Q	Sales Growth (1-y year trailing)	0.12	n/a	-0.04	0.74	-0.23	1.14	0.73	0.25	-1.11	0.67	-0.34
R	Beta (Barra)	-0.19	-0.75	0.30	1.21	-1.16	2.46	-1.95	0.33	-1.76	0.72	-0.77
R	Volatility (Barra)	-0.07	-1.32	0.18	2.32	-1.44	2.88	-1.85	0.80	-1.89	0.77	-0.57
R	Size (Barra)	-0.29	0.43	-0.38	-0.90	-0.02	-2.53	1.23	-0.08	1.27	-1.13	0.37

Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio calculation, the risk-free rate is assumed to be 0%.

Figure 1: MSCI Asia ex-Japan: Factor Drivers in Varying Market Regimes



For backtest results by country,
please see our companion
[Country Chartbook](#)

What Factors Performed Where: Sharpe Ratio Matrices by Country and by Sector

Country Matrix

When comparing factor performance by country, we notice a few interesting points:

- ! Malaysia has the highest risk-adjusted long-short returns for our *Q-Score* and Korea has the highest absolute long-short returns for our *Q-Score* (although we note there can be some difficulty in shorting in these markets)
- ! The *Q-Score with a Value Bias* (and underweight on Price and Quality: 40% Value, 30% Earnings, 15% Price, 15% Quality) generally performed better than the regular *Q-Score* (30% Value, 30% Earnings, 20% Price, 20% Quality), outperforming in 6 out of 10 countries
- ! In 7 countries, Earnings/Sentiment was the best performing factor family, in the remaining 3 countries Value was the best performing factor family
- ! While Earnings/Sentiment as a family worked well, certain Earnings factors did not work so well such as *Forecast Earnings Growth*. The Earnings factors that did work well were those related to *Net Earnings Revisions to FY1 and FY2* and *Change in Consensus Recommendations*, although they have quite high turnover
- ! For a simple composite, *P/B ROE* performed consistently across geographies, and was even the best performing factor in Korea
- ! *1-mth Price Momentum* and *RSI 10-day (Continuation)* taken as contra-indicators (e.g. *1-mth Price Reversion*) worked fairly consistently across geographies
- ! *Historical Dividend Yield* worked best in the more developed markets of Hong Kong, Singapore, Korea, and China (with the exception of Malaysia where many systematic strategies worked well)

Table 3: Risk-adjusted Return Matrix – by [Country](#)

Factor Family	Factor Name	Asia ex-Japan	China	Hong Kong	India	Indonesia	Korea	Malaysia	Philippines	Singapore	Taiwan	Thailand
C	Q-Score Composite	1.80	0.45	0.46	0.80	0.21	0.98	1.05	0.80	0.43	0.87	0.30
C	► Composite Value (with Growth)	1.13	0.48	0.01	0.23	0.40	0.69	0.33	0.47	0.16	0.66	0.58
C	► Composite Earnings / Sentiment	1.84	0.18	0.47	0.83	1.00	0.60	0.95	0.50	0.48	0.61	0.83
C	► Composite Price / Reversion	0.35	0.13	0.19	0.29	-0.34	0.18	-0.22	-0.13	-0.29	0.18	0.00
C	► Composite Quality	0.11	-0.19	0.23	0.16	-0.44	-0.12	-0.22	0.00	-0.01	0.51	-0.14
C	Q-Score Composite (Value Biased)	2.40	0.76	0.35	0.78	0.47	1.00	1.25	0.74	0.43	1.19	0.79
C	Composite Price to Book ROE	1.37	0.67	0.18	0.34	0.49	1.10	0.79	0.43	0.59	0.41	0.17
V	P/E (1-year forward)	1.17	0.44	-0.03	0.08	0.24	0.73	0.54	0.40	0.40	0.73	-0.08
V	P/B (1-year trailing)	0.61	0.45	-0.10	-0.25	0.28	0.58	0.33	0.23	0.17	-0.08	0.17
V	Dividend Yield (1-year trailing)	0.86	0.45	0.41	-0.02	0.00	0.54	0.63	-0.19	0.40	0.26	-0.06
ES	Net Earnings Revisions FY1 FY2 (rel. to total changes)	1.20	0.48	0.41	0.56	0.44	0.63	0.91	-0.49	0.34	0.51	0.69
ES	Change in Consensus Recommendations (1-mth chg.)	1.59	0.12	0.32	0.61	0.50	0.24	1.33	0.58	0.56	0.50	0.49
ES	Forward Earnings Momentum (1-month change)	0.80	0.10	0.25	0.61	0.35	0.48	0.37	-0.10	0.31	0.32	0.37
ES	Forecast Earnings Growth FY1 to FY2	-0.17	0.03	-0.28	-0.18	-0.06	-0.24	-0.30	-0.29	-0.14	-0.25	-0.44
PT	Price Momentum 12-month	-0.12	-0.16	-0.11	0.05	-0.54	-0.15	0.00	0.00	-0.34	0.18	-0.27
PT	Price Momentum 1-month	-0.55	-0.40	-0.32	-0.05	-0.60	-0.78	-0.28	0.00	-0.14	-0.06	-0.07
PT	RSI 10-day (Continuation)	-0.85	-0.41	-0.84	-0.58	-0.59	-0.76	-0.62	-0.70	-0.64	-0.13	0.10
Q	Return On Equity (1-year trailing)	0.04	-0.31	0.26	0.07	0.00	-0.13	-0.09	0.00	-0.25	0.23	0.00
Q	Sales Growth (1-year trailing)	0.12	-0.44	0.53	-0.11	0.05	0.00	-0.07	-0.22	-0.28	-0.14	-0.24
R	Beta (Barra)	-0.19	-0.38	-0.24	-0.54	0.19	-0.16	-0.15	0.22	-0.14	-0.16	-0.21
R	Volatility (Barra)	-0.07	-0.10	-0.32	-0.37	0.54	-0.05	-0.16	-0.07	-0.13	-0.22	-0.06
R	Size (Barra)	-0.29	-0.07	-0.09	-0.07	-0.51	-0.30	-0.13	-0.48	-0.33	-0.04	0.00

Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio calculation, the risk-free rate is assumed to be 0%.

For backtest results by sector,
please see our companion
Sector Chartbook

Sector Matrix

When comparing factor performance by sector, we notice a few interesting points and key takeaways:

- ! Consumer Discretionary, Industrials, Information Technology, and Utilities had the best risk-adjusted long-short returns for our *Q-Score*, indicating that these sectors are relatively more “quant friendly”
- ! Sectors that are more homogeneous such as Utilities and Energy or sectors with fewer companies such as Health Care may do less well on a standalone basis due to a lack of diversification
- ! Our *Q-Score with a Value Bias* (and underweight Price/Technical and Quality) outperformed our regular *Q-Score* in 7 sectors
- ! Earnings/Sentiment was the best performing factor family for 6 sectors (particularly for Financials and Information Technology), and the Value factor family was the best performing for 4 sectors
- ! *1-mth Price Momentum* was a strong contra-indicator for Materials (or as a strong positive indicator as *1-mth Price Reversion*)
- ! The best overall sector specific Sharpe ratio was 1.18 for the *Q-Score* in Consumer Discretionary and 1.18 for *Composite Earnings/Sentiment* for Financials

Table 4: Risk-adjusted Return Matrix – by Sector

Factor Family	Factor Name	Asia ex-Japan	Energy	Materials	Industrials	Consumer Discretionary	Consumer Staples	Health Care	Financials	Information Technology	Telecom	Utilities
C	Q-Score Composite	1.80	0.09	0.73	0.92	1.18	0.35	0.14	0.77	0.87	0.55	-0.03
C	► Composite Value (with Growth)	1.13	0.21	0.64	0.87	0.74	0.00	0.34	0.61	-0.13	-0.02	0.38
C	► Composite Earnings / Sentiment	1.84	0.13	0.44	0.79	0.87	0.57	0.70	1.18	0.85	0.35	-0.08
C	► Composite Price / Reversion	0.35	-0.19	0.14	0.10	0.58	0.03	0.12	-0.21	0.11	-0.20	-0.36
C	► Composite Quality	0.11	-0.26	0.03	-0.16	0.19	-0.09	-0.42	-0.25	-0.12	0.14	-0.43
C	Q-Score Composite (Value Biased)	2.40	0.29	0.75	0.92	1.16	0.28	0.35	0.96	0.91	0.55	0.35
C	Composite Price to Book ROE	1.37	0.40	0.46	0.60	0.60	0.01	-0.31	0.62	-0.05	0.27	0.14
V	P/E (1-year forward)	1.17	0.02	0.63	0.72	0.86	-0.24	0.09	0.36	0.02	0.22	0.62
V	P/B (1-year trailing)	0.61	0.15	0.70	0.85	0.09	-0.04	-0.02	0.51	-0.12	-0.10	0.23
V	Dividend Yield (1-year trailing)	0.86	-0.03	-0.08	0.39	0.61	0.29	-0.26	0.38	-0.02	0.27	-0.05
ES	Net Earnings Revisions FY1 FY2 (rel. to total changes)	1.20	-0.33	0.30	1.15	0.87	0.14	-0.16	0.36	0.76	0.05	0.46
ES	Change in Consensus Recommendations (1-mth chg.)	1.59	0.43	0.07	0.37	0.70	0.48	0.16	1.03	0.90	0.32	0.15
ES	Forward Earnings Momentum (1-month change)	0.80	-0.26	0.63	0.44	0.50	-0.15	0.24	0.11	0.27	0.09	-0.18
ES	Forecast Earnings Growth FY1 to FY2	-0.17	-0.22	-0.07	0.30	-0.13	0.22	0.30	0.00	-0.22	-0.56	-0.23
PT	Price Momentum 12-month	-0.12	-0.27	-0.36	-0.31	0.19	-0.36	0.13	-0.48	0.35	-0.15	-0.35
PT	Price Momentum 1-month	-0.55	0.15	-0.96	-0.45	-0.53	-0.50	-0.39	-0.65	0.25	-0.46	-0.31
PT	RSI 10-day (Continuation)	-0.85	-0.12	-1.01	-0.74	-0.85	-0.60	0.00	-0.71	0.15	-0.16	-0.30
Q	Return On Equity (1-year trailing)	0.04	0.06	0.02	-0.36	0.01	-0.15	-0.45	0.01	-0.31	0.10	-0.31
Q	Sales Growth (1-year trailing)	0.12	0.32	0.06	-0.24	-0.23	0.44	-0.26	0.01	0.20	-0.37	0.08
R	Beta (Barra)	-0.19	-0.59	-0.28	-0.22	0.01	0.09	-0.03	0.19	-0.11	-0.09	0.14
R	Volatility (Barra)	-0.07	-0.63	-0.11	-0.01	0.05	-0.04	0.11	0.20	-0.17	-0.12	0.17
R	Size (Barra)	-0.29	0.00	-0.44	-0.14	0.03	-0.35	-0.45	-0.41	0.36	0.00	-0.31

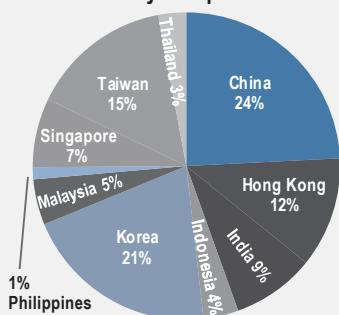
Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio calculation, the risk-free rate is assumed to be 0%.

MSCI Asia ex-Japan

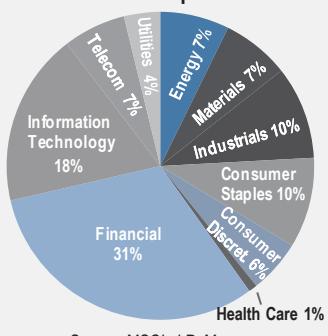
Index Summary

MSCI AC World Weight: 9.1%
Investable market cap: US\$2,473.8bn
Number of constituents: 617

Country Composition



Sector Composition



Source: MSCI, J.P. Morgan

Factor Performance

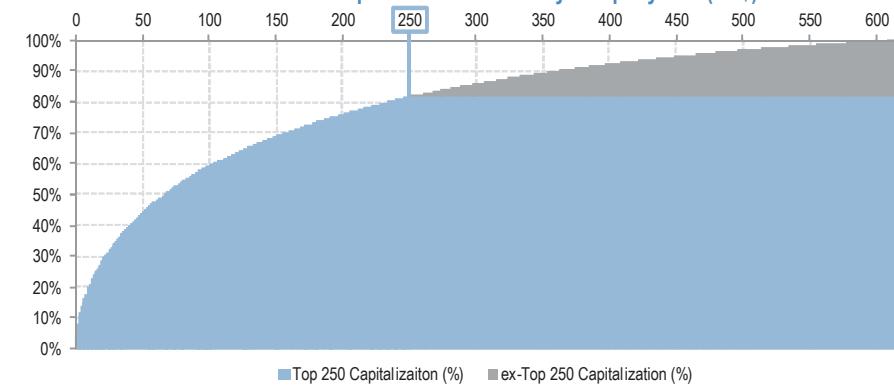
Top composite: Q-Score (Value Bias)
Top factor: 1 Mth Change in Consensus Recom.

Working best in AxJ are Composite factors, which comprise 11 of the top 20 performing factors. Of the factor families, Earnings/Sentiment performed the best and represented another 5 of the top 20.

Interestingly, the *Composite Value, Quality, E/S, P/T (Value Bias)* performed best out of our entire test suite, which is essentially the same as our Q-Score with a stronger tilt towards Value. We think the Value bias helps balance an otherwise more defensively tilted model.

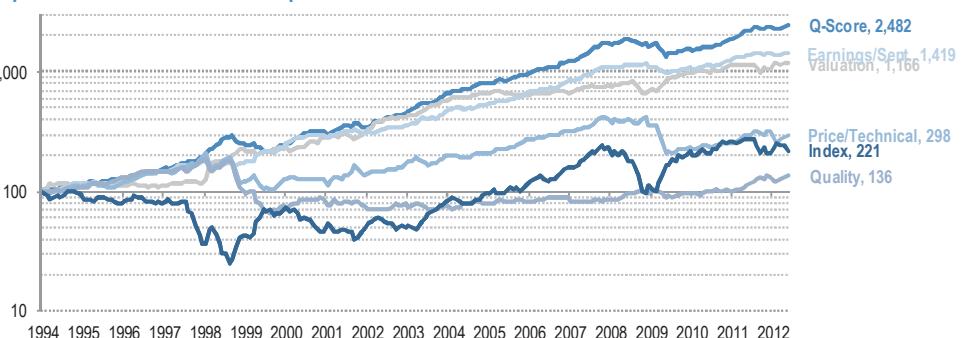
It's also worth pointing out that AxJ is underrepresented in MSCI due to a relatively greater number of smaller cap stocks and lower average float. Total market cap for AxJ is US\$15.5tn, 21.6% of global market cap vs. MSCI weight of 9.1%.

MSCI AxJ – Cumulative investable capitalization ordered by company size (US\$)



Source: MSCI, J.P. Morgan (as of April 30, 2012)

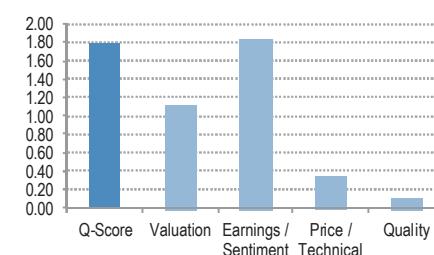
Composite Families – Cumulative performance over time



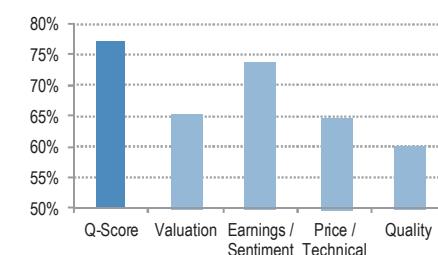
Source: J.P. Morgan, MSCI, IBES, Reuters, Factset. Index=MSCI Asia ex Japan (equal weighted, US\$, dividends reinvested)

Composite Family Performance Summary (full period results)

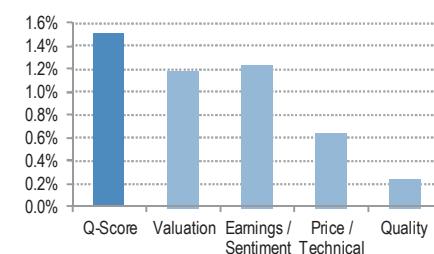
Sharpe Ratio



Hit Rate



Average Return LS (monthly)



Average IC



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio, the risk-free rate is assumed to be 0%.

MSCI Asia ex Japan – Composites and Key Factors Summary

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Q-Score Composite	477	5.4%	7.34	77.4%	41.5%	1.5%	3.1%	1.80
C	► Composite Value (with Growth)	477	2.6%	4.83	65.2%	18.0%	1.2%	3.6%	1.13
C	► Composite Earnings / Sentiment	500	4.2%	7.58	73.8%	64.1%	1.2%	2.4%	1.84
C	► Composite Price / Reversion	516	3.1%	1.84	64.7%	31.2%	0.6%	5.1%	0.35
C	► Composite Quality	448	2.0%	0.82	60.2%	13.7%	0.2%	4.2%	0.11
C	Q-Score Composite (Value Biased)	477	5.1%	9.60	81.9%	38.6%	1.7%	2.6%	2.40
C	Composite Price to Book ROE	532	2.9%	5.72	64.7%	14.2%	1.2%	3.1%	1.37
V	P/E (1-year forward)	476	3.1%	4.98	64.3%	15.0%	1.2%	3.5%	1.17
V	P/B (1-year trailing)	534	1.4%	2.84	52.0%	10.4%	0.9%	4.6%	0.61
V	Dividend Yield (1-year trailing)	555	2.4%	3.78	58.8%	10.6%	0.9%	3.5%	0.86
ES	Net Earnings Revisions FY1 FY2 (Relative to total changes)	496	3.0%	5.11	68.3%	66.8%	0.9%	2.5%	1.20
ES	Change in Consensus Recommendations (1-month change)	514	2.8%	6.64	73.2%	76.8%	0.9%	2.0%	1.59
ES	Forward Earnings Momentum (1-month change)	489	3.1%	3.52	66.1%	64.8%	0.6%	2.7%	0.80
ES	Forecast Earnings Growth FY1 to FY2	500	-1.1%	-0.57	44.3%	20.5%	-0.1%	2.3%	-0.17
PT	Price Momentum 12-month	527	2.2%	-0.03	64.3%	23.6%	0.0%	6.0%	-0.12
PT	Price Momentum 1-month	545	-1.4%	-2.08	44.8%	79.5%	-0.6%	4.6%	-0.55
PT	RSI 10-day (Continuation)	547	-1.9%	-3.57	36.7%	78.2%	-0.9%	3.6%	-0.85
Q	Return On Equity (1-year trailing)	532	1.5%	0.47	52.5%	8.7%	0.1%	3.5%	0.04
Q	Sales Growth (1-year trailing)	468	0.3%	0.69	54.9%	10.0%	0.2%	3.2%	0.12
R	Beta (Barra)	537	-1.9%	-0.48	45.2%	12.0%	-0.2%	4.7%	-0.19
R	Volatility (Barra)	537	-1.7%	0.10	44.3%	13.9%	0.0%	5.8%	-0.07
R	Size (Barra)	537	0.3%	-0.94	54.3%	7.5%	-0.3%	4.0%	-0.29

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

MSCI Asia ex Japan – Top factors by T-Stat (Top 20 / Bottom 5)

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Composite Value Momentum Quality Price Model (Value Biased)	477	5.1%	9.60	81.9%	38.6%	1.7%	2.6%	2.40
C	Composite Value Momentum Model	474	5.1%	9.30	76.9%	47.2%	1.6%	2.6%	2.32
C	Composite Value Growth Momentum Model	475	4.7%	9.16	76.9%	46.2%	1.6%	2.6%	2.28
C	Composite Value Momentum Quality Price Model	477	5.3%	9.09	79.2%	40.3%	1.6%	2.6%	2.26
C	Composite Momentum	500	4.2%	7.58	73.8%	64.1%	1.2%	2.4%	1.84
C	Q-Score Composite	477	5.4%	7.34	77.4%	41.5%	1.5%	3.1%	1.80
ES	1 Mth Change in Consensus Recom	514	2.8%	6.64	73.2%	76.8%	0.9%	2.0%	1.59
C	Composite Recom	516	3.0%	6.24	70.0%	49.2%	0.9%	2.1%	1.49
C	Composite Price to Book ROE	532	2.9%	5.72	64.7%	14.2%	1.2%	3.1%	1.37
ES	Net Revisions FY1 FY2 (Rel. To Total Changes)	496	3.0%	5.11	68.3%	66.8%	0.9%	2.5%	1.20
C	Composite Value	476	3.0%	5.09	64.3%	18.1%	1.3%	3.7%	1.20
ES	3 Mth Change in Consensus Recom	513	2.6%	5.06	72.5%	42.1%	0.8%	2.3%	1.20
V	1 year forward forecast PE	476	3.1%	4.98	64.3%	15.0%	1.2%	3.5%	1.17
ES	Forward Earnings Momentum (3Mth Change) / Co-Efficient Of Variation	452	3.2%	4.93	66.5%	37.3%	0.9%	2.8%	1.16
C	Composite Value and Growth	477	2.6%	4.83	65.2%	18.0%	1.2%	3.6%	1.13
ES	Net Revisions to FY2 [Up-Down]/[Up+Down]	501	3.0%	4.82	69.2%	69.2%	0.8%	2.6%	1.13
C	Value To Risk	448	3.6%	4.81	66.1%	17.6%	1.1%	3.4%	1.12
R	Value (Barra)	537	2.9%	4.80	64.3%	16.4%	1.1%	3.5%	1.12
V	1 year forward forecast PE Relative To Sector	483	2.5%	4.78	66.5%	15.9%	0.9%	2.8%	1.12
V	Historical P/Sales Ratio	434	1.9%	4.18	56.1%	8.7%	1.1%	3.9%	0.96
Q	Payout Ratio	534	-0.9%	-1.04	43.9%	12.8%	-0.2%	3.4%	-0.30
C	Composite Co-Efficient of Variation (Avg of Fy1 and FY2)	466	-2.2%	-1.14	38.9%	21.4%	-0.3%	4.1%	-0.33
PT	RSI 30-day (Continuation)	546	-0.3%	-1.92	49.3%	67.5%	-0.5%	4.2%	-0.51
PT	1 Mth Price Momentum	545	-1.4%	-2.08	44.8%	79.5%	-0.6%	4.6%	-0.55
PT	RSI 10-day (Continuation)	547	-1.9%	-3.57	36.7%	78.2%	-0.9%	3.6%	-0.85

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

For full backtest results, please see our [Regional Chartbook](#).

Christopher Ma
(852) 2800-8530
christopher.x.ma@jpmorgan.com

Asia Pacific Equity Research
12 November 2012

J.P.Morgan

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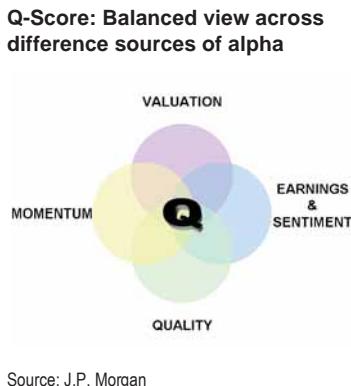
Summary of Factor Effectiveness

Methodology

We investigate factor effectiveness by categorizing factors into four major families of return drivers: Valuation, Earnings & Sentiment, Price & Technical (Momentum), and Quality. These factor families are the building blocks for our reference composite multi-factor model, the JPM Q-Score. Analyzing the performance of the Q-Score and its constituents across different dimensions provides a useful framework for dissecting return drivers across factor families, sectors, countries, and regimes.

The Q-Score consists of ten of the most popular quant factors in general use (see Table 5) from the four factor families, and we calculate performance based on the monthly difference of the top 20% ranking stocks and the bottom 20% ranking stocks (i.e. the monthly rebalanced L/S quintile returns). The model is updated weekly and is available [online](#). For more details of calculating the Q-Score please see our report, [The JPM Q-Score for Emerging Market Stock Selection](#) from February 24, 2012.

Table 5: Converting the Quant Return Drivers into the Q-Score



VALUATION [30%]	EARNINGS & SENTIMENT [30%]
COMPONENT FACTORS P/E vs. Market (12-mth fwd EPS) [34%] P/E vs. Country Sector (12-mth fwd EPS) [33%] EPS Growth (FY1 mean to FY2 mean) [33%]	COMPONENT FACTORS Earnings Momentum 3-mth (Risk Adj.) [34%] 1-mth Change in Consensus Recomms. [33%] Net Revisions to mean FY2 EPS [33%]
PRICE & TECHNICAL [20%]	QUALITY [20%]
COMPONENT FACTORS 12-mth Price Momentum [75%] 1-mth Price Reversion [25%]	COMPONENT FACTORS Historical ROE [50%] Earnings Certainty (Var. in Forecast EPS) [50%]

Source: J.P. Morgan Quant. See details in [Appendix II: Factor Definitions](#).

Back-testing the J.P. Morgan Q-Score

We have back-tested the (country relative) Q-Score over 18+ years of history in a variety of universes but in this report we focus on the MSCI Asia-ex Japan markets results. (Please contact us for information regarding other markets or universe slices).

This back-test involves instructing an “as of” universe that eliminates the opportunity for survivorship bias and then calculating the historical for all stocks. Starting from the beginning of the test period we then move through time constructing portfolios based on our test signal and then investigating subsequent performance. The longer the test period, the more confidence we can have in the results. For our testing we have used MSCI constituent data and the test span from 1993 to 2007. In our analysis our portfolio constituents are rebalanced monthly and we divide the universe into 5 equal groups. Please see details in [Appendix III: JPMQ Backtesting Process](#).

It is important to remember that this is **NOT** a portfolio simulation. We are not applying constraints to stock positions, sector positions or turnover, nor are we applying any optimization or risk management in this test. Instead we are purely concerned with signal information content. (*If you would like to know more about how we perform portfolio simulations we please contact us.*)

Q-SCORE COMPOSITE – The alpha of my eye

Total Period: 12/31/1993 to 5/31/2012				
Portfolio Statistics				
Port	Avg	Ann	St	% Out
1	1.4%	13.9%	8%	73%
2	1.0%	8.3%	8%	61%
3	0.7%	5.1%	8%	48%
4	0.3%	0.3%	8%	39%
5	-0.1%	-5.5%	9%	27%
Total Test				
Avg	Rank	Avg	Avg	
Ret	IC	IC	Assets	
Universe	0.7%	6.0%	5.4%	477

Strategy Statistics				
Portfolio 1 less Portfolio 5				
Avg	Ann	Std	% Out	
Ret	Ret	Devn	Perf.	
Long/Short	1.5%	19.1%	3.1%	77%
Active Ret	0.8%	9.2%	1.7%	73%
T-Stat	Sharpe*	Assets	IR	
Long/Short	7.34	1.80	191	1.59

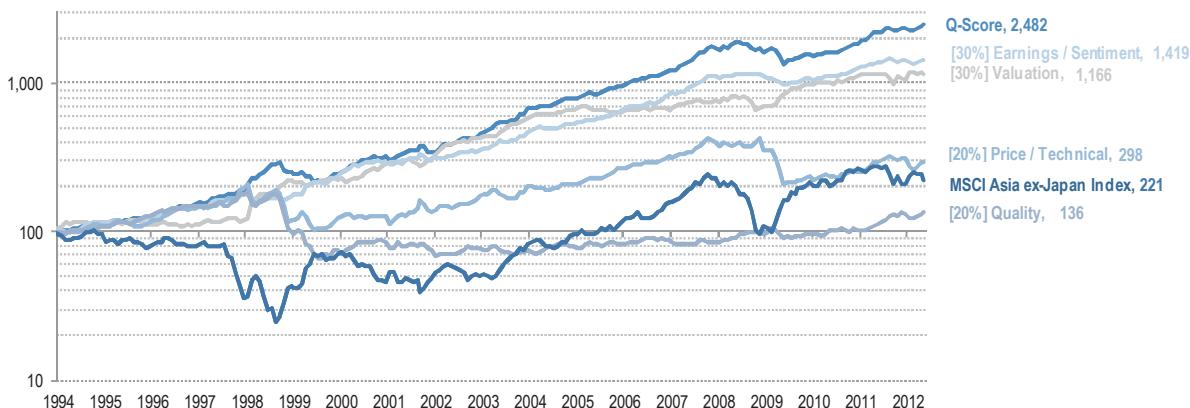
Source: MSCI, IBES, Reuters, Barra, Bloomberg, JPM

As a whole, our vanilla *Q-Score Composite* factor model has performed exceptionally well in Asia ex-Japan over the past 18+ years, delivering an annualized pre-cost return of 19.1% and Sharpe ratio of 1.80 over the period 1993-2012 (monthly rebalanced L/S quintile returns). Also noteworthy is the 77.3% positive months. In other words, the L/S return was positive in 77.3% of the 221 months analyzed. We would regard this as a very strong return profile.

The *Q-Score Composite* performed better than each of its constituent factor families, which confirms that the blending of multiple factors has a positive effect in enhancing the underlying signals and diversifying style risk.

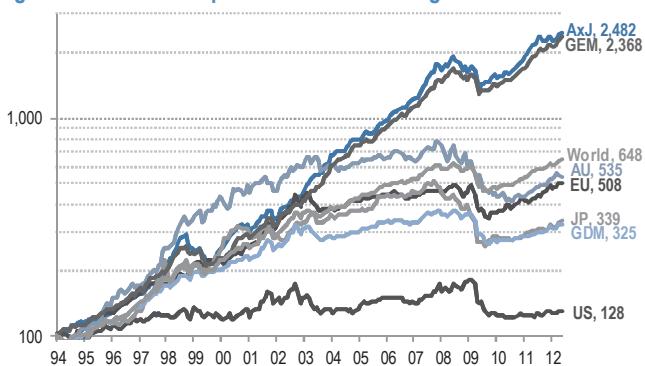
In the global context, when comparing AxJ *Q-Score* performance versus other regions we see that AxJ performs exceptionally well on paper. This suggests that there could be more “low hanging fruit” types of alpha opportunities in AxJ vs. other regions, although this must be balanced by considerations such as higher transaction costs, liquidity, and shortability. It’s also noteworthy that post the difficult period in early 2009, *Q-Score* performance in AxJ and GEM was able to rebound, but still struggled in other regions.

Figure 2: AxJ *Q-Score Composite* Inputs – Cumulative performance over time



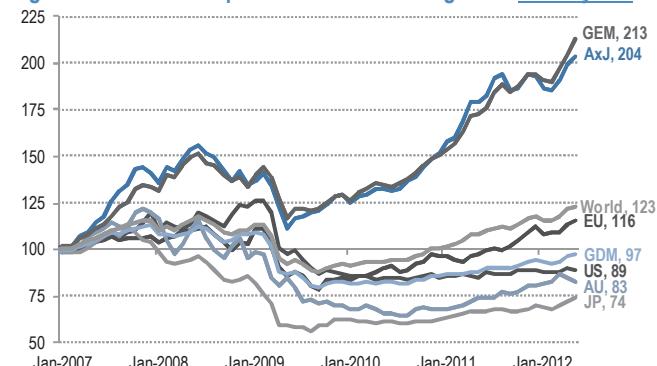
Source: J.P. Morgan, MSCI, IBES, Reuters, Factset. Index=MSCI AxJ (equal weighted, US\$, dividends reinvested).

Figure 3: Q-Score Composite: AxJ vs. other regions



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra, Bloomberg. Asia ex-Japan and GEM country neutralized; remainders are sector neutralized.

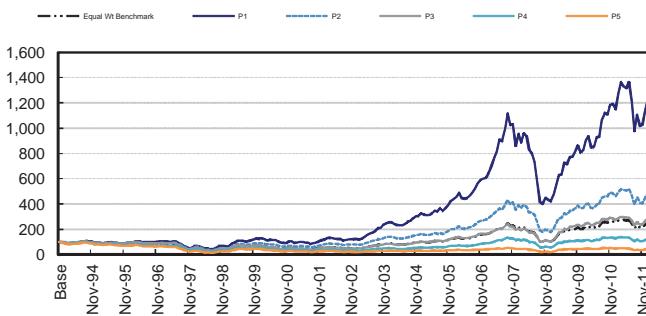
Figure 4: Q-Score Composite: AxJ vs. other regions – Past 5 years



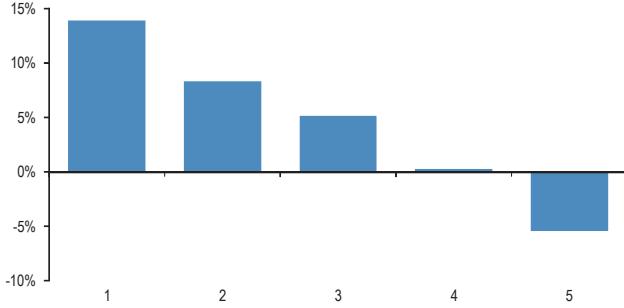
Q-Score Composite in ASIA EX JP										Rebalance every 1 month(s)									
5 Year(s): 5/31/1997 to 5/31/2002					5 Year(s): 5/31/2002 to 5/31/2007					5 Year(s): 5/31/2007 to 5/31/2012					Total Period: 12/31/1993 to 5/31/2012				
Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out
Ret	Ret	Ret	Dev	Perf.	Ret	Ret	Ret	Dev	Perf.	Ret	Ret	Ret	Dev	Perf.	Ret	Ret	Ret	Dev	Perf.
1	1.0%	5.3%	11%	70%	1	3.1%	42.5%	5%	83%	1	1.1%	7.5%	10%	65%	1	1.4%	13.9%	8%	73%
2	0.5%	-1.1%	11%	63%	2	2.4%	30.6%	5%	58%	2	0.9%	6.0%	9%	60%	2	1.0%	8.3%	8%	61%
3	-0.2%	-8.8%	11%	38%	3	2.1%	27.3%	4%	52%	3	0.9%	6.1%	9%	50%	3	0.7%	5.1%	8%	48%
4	-0.4%	-11.5%	11%	40%	4	1.8%	22.6%	5%	37%	4	0.5%	0.5%	9%	42%	4	0.3%	0.3%	8%	39%
5	-0.5%	-14.2%	13%	32%	5	1.0%	10.6%	5%	15%	5	0.0%	-4.7%	10%	32%	5	-0.1%	-5.5%	9%	27%
Total Test					Total Test					Total Test					Total Test				
Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg		Avg	Rank	Avg	Avg	
Ret	IC	IC	Assets		Ret	IC	IC	Assets		Ret	IC	IC	Assets		Ret	IC	IC	Assets	
Universe	0.1%	5.1%	3.6%	436	Universe	2.1%	7.6%	8.1%	461	Universe	0.7%	5.3%	5.2%	546	Universe	0.7%	6.0%	5.4%	477
Strategy Statistics																			
Portfolio 1 less Portfolio 5					Portfolio 1 less Portfolio 5					Portfolio 1 less Portfolio 5					Portfolio 1 less Portfolio 5				
Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out		Avg	Ann	Std	% Out	
Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.		Ret	Ret	Devn	Perf.	
Long/Short	1.5%	18.4%	4.0%	75%	Long/Short	2.2%	28.9%	2.0%	90%	Long/Short	1.0%	12.3%	3.6%	68%	Long/Short	1.5%	19.1%	3.1%	77%
Active Ret	0.9%	11.5%	1.8%	70%	Active Ret	1.0%	13.2%	1.2%	83%	Active Ret	0.4%	4.7%	2.1%	65%	Active Ret	0.8%	9.2%	1.7%	73%
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR	
Long/Short	2.91	1.33	175	1.84	Long/Short	8.48	4.23	185	3.20	Long/Short	2.23	0.99	219	0.64	Long/Short	7.34	1.80	191	1.59

* assumes Risk Free Rate of 0%

Portfolio Index Performance

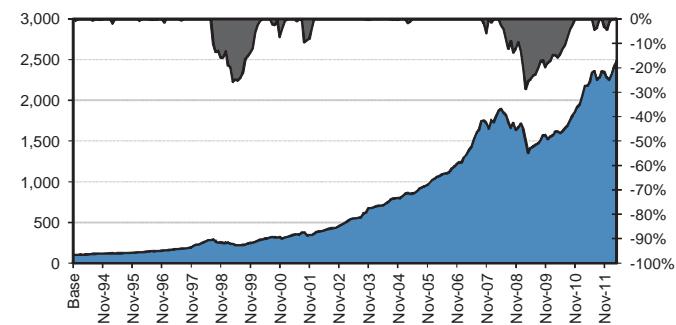


Portfolio Spread. Annual Returns

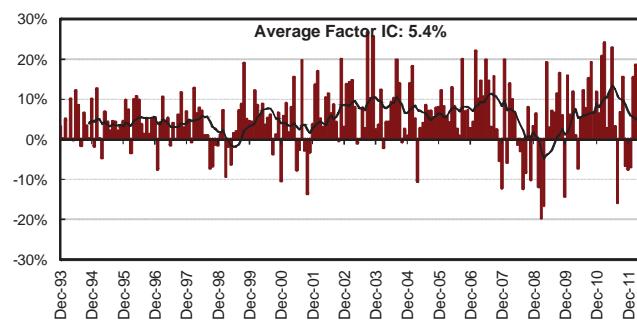


Cumulative (L/S) Returns

Max Drawdown: -28.6%

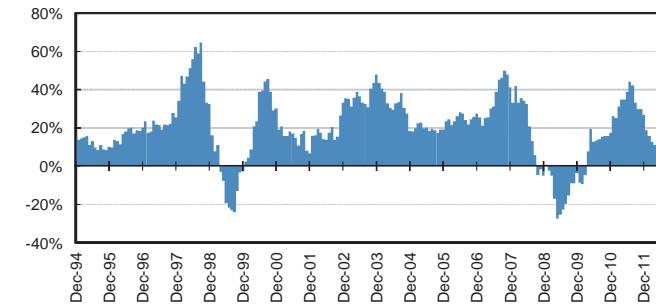


Information Co-Efficients (IC)

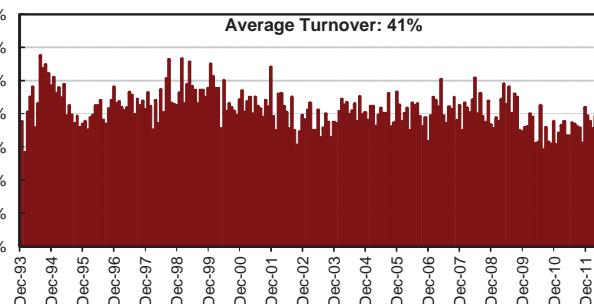


12 Month Rolling Returns L/S

Min 12mth Return: -23.9%



Turnover within Portfolio 1



Source: JPMorgan, MSCI, Factset, Barra, IBES, Reuters, Bloomberg

VALUATION COMPOSITE – Cheap to cheer

Total Period: 12/31/1993 to 5/31/2012					
Portfolio Statistics					
Port	Avg	Ann	St	% Out	
1	1.3%	11.0%	10%	57%	
2	0.8%	5.6%	8%	52%	
3	0.7%	5.2%	8%	50%	
4	0.4%	1.5%	7%	46%	
5	0.2%	-1.8%	8%	35%	
Total Test					
	Avg	Rank	Avg	Avg	
Universe	0.7%	2.8%	2.6%	477	

Strategy Statistics					
Portfolio 1 less Portfolio 5					
	Avg	Ann	Std	% Out	
	Ret	Ret	Devn	Perf.	
Long/Short	1.2%	14.3%	3.6%	65%	
Active Ret	0.7%	7.7%	2.7%	57%	
	T-Stat	Sharpe*	Assets	IR	
Long/Short	4.83	1.13	191	0.84	

* Assumes Risk Free Rate of 0%

Full backtest results:
[Regional Chartbook](#)

Many quant researchers have explored the “Value Anomaly.” Its classic form is widely recognized in that low P/E stocks outperform high P/E stocks over the long term. Similar analysis has shown consistent results using P/Sales, P/Dividend and P/Book ratios.

In Asia ex-Japan, our *Value Composite* factor shows strong performance, with a 14.3% CAGR and a Sharpe of 1.13. This factor also impressively weathered periods of high volatility, including 1998-1999 and 2008-2009, with a minimum -10.9% rolling 12-month return throughout the entire test period. The component Value factors of *1-year Forward P/E vs. Market* and *1-year Forward P/E vs. Country Sector* both offered index beating results.

However, although our studies have also shown that occasionally Earnings Growth can complement straight Value factors, *EPS Growth (FY1 mean to FY2 mean)* has shown disappointing performance in AxJ since 2000. We think there could be several reasons for this. One is that the bursting of the tech bubble may have caused a longer-term de-rating for growth stocks. Another is a general lack of coverage across Asia, hence higher volatility and lower reliability in EPS estimates. Finally, earnings transparency is relatively poor in Asia, making earnings surprises relatively higher than other regions.

Figure 5: Composite Valuation Inputs – Cumulative performance over time

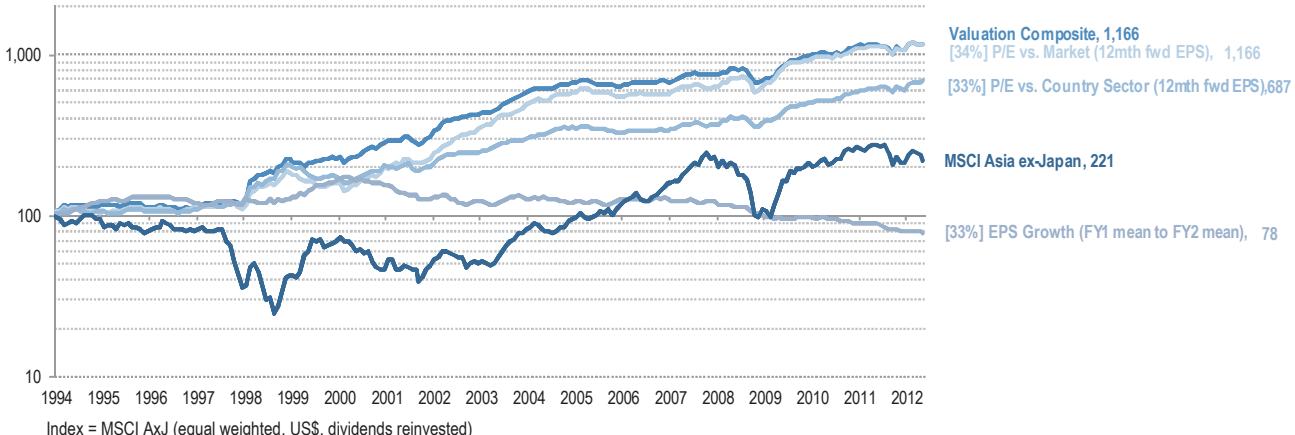
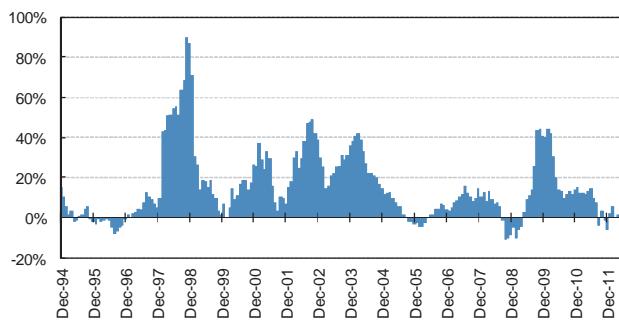
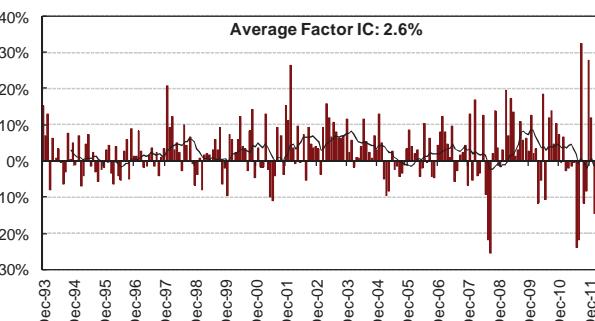


Figure 6: 12 Month Rolling Returns L/S (Min 12mth Return: -10.9%)



Source (all figures on page): J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra, Bloomberg

Figure 7: Information Co-Efficients (IC)



EARNINGS & SENTIMENT COMPOSITE – Analysts do add value

Total Period: 12/31/1993 to 5/31/2012					
Portfolio Statistics					
Port	Avg	Ann	St	% Out	
	Ret	Ret	Dev	Perf.	
1	1.3%	12.5%	8%	71%	
2	0.9%	7.5%	8%	59%	
3	0.5%	2.3%	8%	49%	
4	0.5%	1.5%	8%	43%	
5	0.1%	-3.1%	8%	30%	
Total Test					
	Avg	Rank	Avg	Avg	
	Ret	IC	IC	Assets	
Universe	0.7%	4.4%	4.2%	500	

Strategy Statistics					
Portfolio 1 less Portfolio 5					
	Avg	Ann	Std	% Out	
	Ret	Ret	Devn	Perf.	
Long/Short	1.2%	15.5%	2.4%	74%	
Active Ret	0.7%	8.0%	1.4%	71%	
	T-Stat	Sharpe*	Assets	IR	
Long/Short	7.58	1.84	201	1.60	

* Assumes Risk Free Rate of 0%

Full backtest results:
[Regional Chartbook](#)

We believe that the market is not efficient at incorporating new information and a window of opportunity exists to exploit recent analyst revisions in earnings and recommendations. Similarly analyst behavioral biases lead to subsequent changes suggesting an exploitable serial correlation in earnings upgrades/downgrades.

As a whole, the *Earnings & Sentiment Composite* factor model performed the best out of all factor families, with a 15.5% CAGR and a Sharpe of 1.84. It has also shown remarkable resiliency, with a standard deviation of monthly L/S returns of just 2.4% and max drawdown of just -15.8%.

The component factors in the Composite also all performed consistently well, strongly outpacing the benchmark index. It's worthy to point out that the standout factor here is the *1-Month Change in Consensus Recommendations*, which is a very simple factor which ignores analysts' actual EPS estimates and only looks at pure Buy/Sell signals. We believe this is a cleaner signal, as analyst upgrades/downgrades typically show stronger conviction than pure EPS revisions, which may be less predictive and more reactive to earnings releases and guidance updates. Thus, this factor performed much more consistently and thus had a Sharpe ratio of 1.59, higher than the Sharpe of 1.16 for *Earnings Momentum 3mth (Risk Adj.)* and the Sharpe of 1.13 for *Net Revisions to Mean FY2 EPS*.

Figure 8: Composite Earnings & Sentiment Inputs – Cumulative performance over time

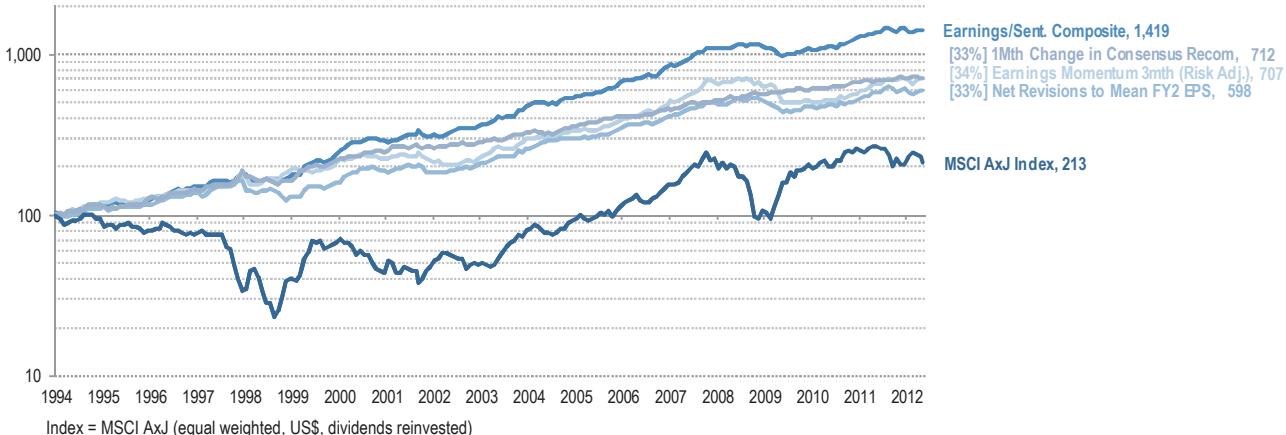
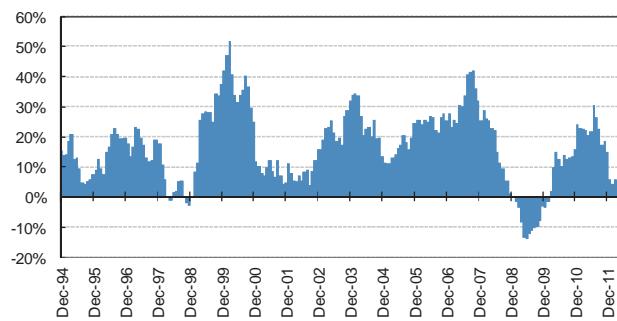
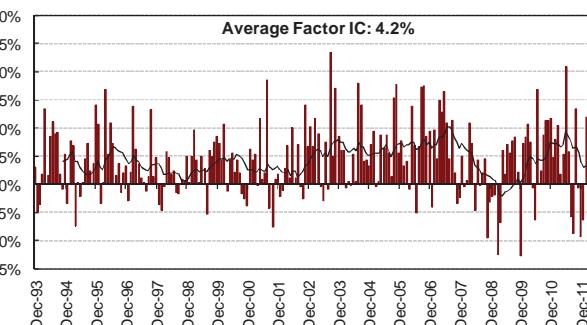


Figure 9: 12 Month Rolling Returns L/S (Min 12mth Return: -13.9%)



Source (all figures on page): J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra, Bloomberg

Figure 10: Information Co-Efficients (IC)



PRICE / REVERSION COMPOSITE – Best in measured doses

Total Period: 12/31/1993 to 5/31/2012				
Portfolio Statistics				
Port	Avg	Ann	St	% Out
1	0.8%	6.4%	7%	61%
2	0.8%	6.3%	8%	57%
3	0.9%	6.8%	8%	54%
4	0.9%	6.2%	9%	50%
5	0.2%	-3.4%	10%	33%
Total Test				
	Avg	Rank	Avg	Avg
Universe	0.7%	3.7%	3.1%	516

Strategy Statistics				
Portfolio 1 less Portfolio 5				
	Avg	Ann	Std	% Out
	Ret	Ret	Devn	Perf.
Long/Short	0.6%	6.1%	5.1%	65%
Active Ret	0.1%	0.8%	2.8%	61%
	T-Stat	Sharpe*	Assets	IR
Long/Short	1.84	0.35	207	0.08

* Assumes Risk Free Rate of 0%

Full backtest results:

[Regional Chartbook](#)

Momentum theory for stock prices suggests that companies that do well in one (long-term) investment period will continue to do well in the subsequent investment horizon. Over short time frames (<1 month) studies have also highlighted the tendency of stocks to overreact leading to short-term reversion. We have widely observed these phenomena in our own testing.

In AxJ, price/technical factors generally do not perform very well in isolation, though they may be more effectively used in composite factors. Individually, *1-month Price Reversion* worked relatively better than *12-month Price Momentum*, although on much higher turnover. It's clear that a strategy based on *12-month Price Momentum* was unable to weather the storms in 1998/1999 and in 2008/2009, with rolling 12-month losses over 40% during these periods. On the other hand, *1-month Price Reversion* was consistently exploitable in these turbulent times, although during periods of relative stability did not generate much excess returns. These results suggest that AxJ markets are fairly volatile, and shorter-term strategies may work better than longer-term ones. That is, trends in the market are likely shorter lived and near-term mean reversion generally works better than longer-term continuation.

Lastly, in the next section where we present Large Cap vs. Small Cap factor returns, we see that Price/Technical factors perform much better for Small Caps.

Figure 11: Composite Price / Reversion Inputs – Cumulative performance over time

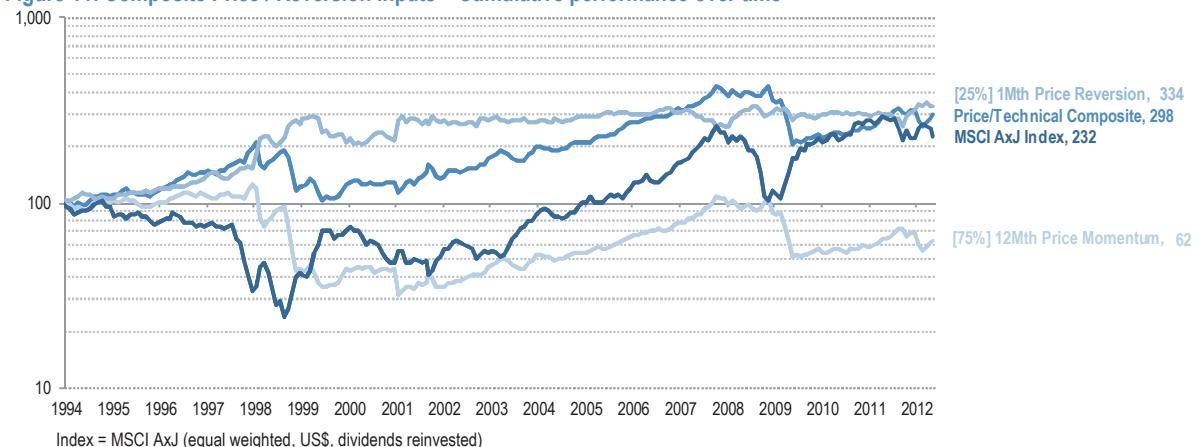


Figure 12: 12 Month Rolling Returns L/S (Min 12mth Return: -47.0%)

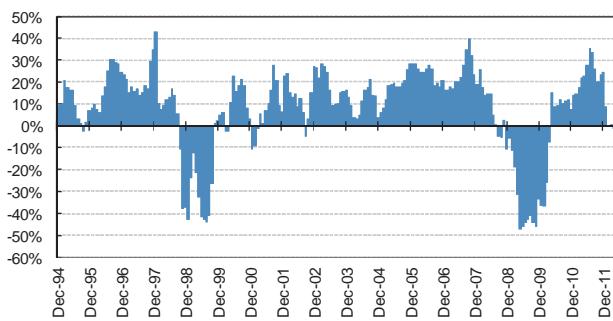
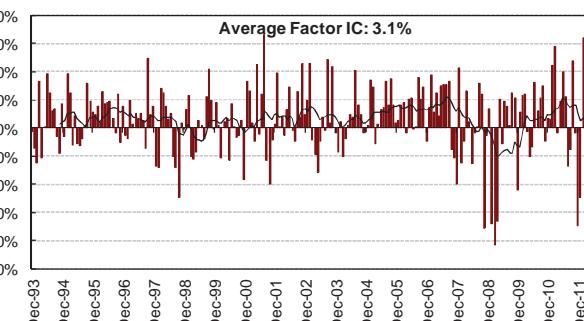


Figure 13: Information Co-Efficients (IC)



Source (all figures on page): J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra, Bloomberg

QUALITY COMPOSITE – Historically disappointing, though recently trending...

Total Period: 12/31/1993 to 5/31/2012				
Portfolio Statistics				
Port	Avg	Ann	St	% Out
	Ret	Ret	Dev	Perf.
1	0.7%	5.1%	7%	56%
2	0.7%	5.4%	8%	54%
3	0.6%	4.0%	8%	51%
4	0.9%	5.6%	9%	53%
5	0.4%	-0.6%	10%	39%
Total Test				
	Avg	Rank	Avg	Avg
	Ret	IC	IC	Assets
Universe	0.7%	3.6%	2.0%	448

Strategy Statistics				
Portfolio 1 less Portfolio 5				
	Avg	Ann	Std	% Out
	Ret	Ret	Devn	Perf.
Long/Short	0.2%	1.7%	4.2%	60%
Active Ret	0.0%	-0.2%	2.1%	56%
	T-Stat	Sharpe*	Assets	IR
Long/Short	0.82	0.11	180	-0.03

* Assumes Risk Free Rate of 0%

Full backtest results:

[Regional Chartbook](#)

While arguably with less readily observable alpha than some other factors (especially in more emerging markets), it is generally accepted that it is desirable to tilt portfolios towards highly profitable and good quality businesses. Similarly over the long term the market also appears to reward “earnings certainty” and penalize those stocks that carry a large degree of earnings risk.

However, Quality clocked in the worst performance among the factor families in AxJ over the full period. Looking at the rolling 12-month L/S returns, this strategy regularly oscillated between positive and negative L-S returns every 1-2 years. Most striking is the -63.6% return in 1998 during the Asian Financial Crisis.

Interestingly, the strategy held up well as the crisis unfolded, and only as stocks began to rally did the strategy start to prove disastrous. With a risk rally underway, Quality was left by the sidelines and never fully recovered until only very recently. As the Global Financial Crisis unfolded in 2007-2008, Quality again held up well; however this time after the market rally in 2009, Quality continued to stay in positive territory (although still underperforming the index). Since mid 2007, the L/S return of the Quality Composite is up over 60%.

Lastly, in the next section where we present Large Cap vs. Small Cap factor returns, we see a marked difference for Quality which performs much better for Large Caps.

Figure 14: Composite Quality Inputs – Cumulative performance over time

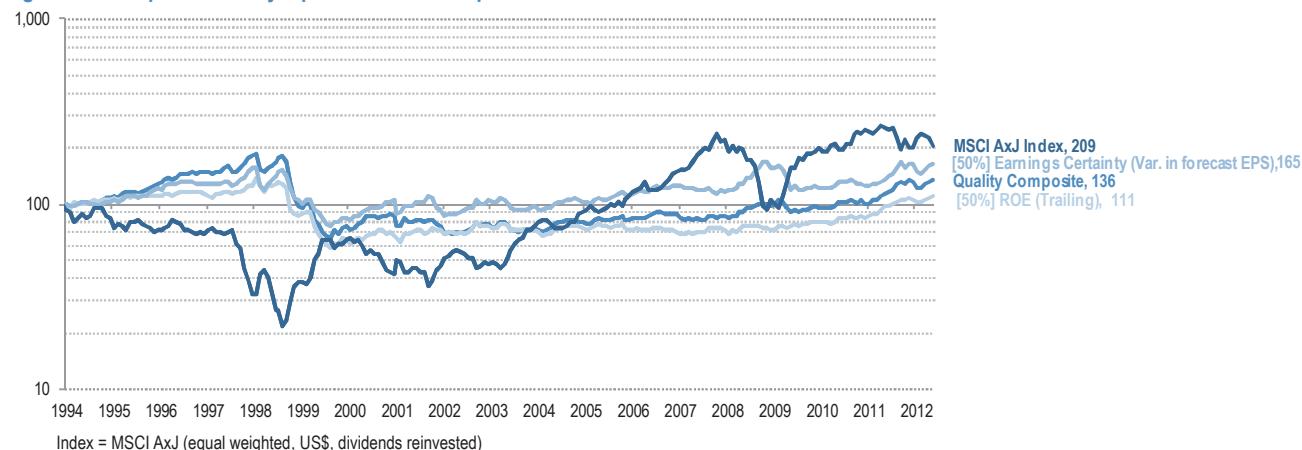
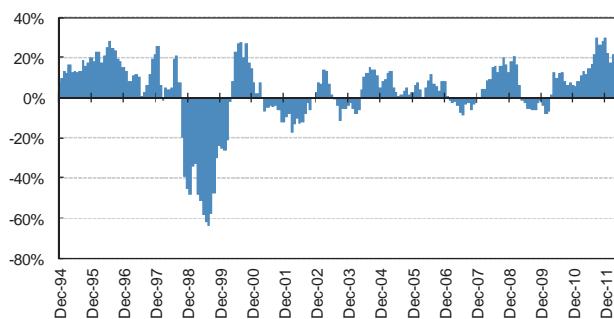
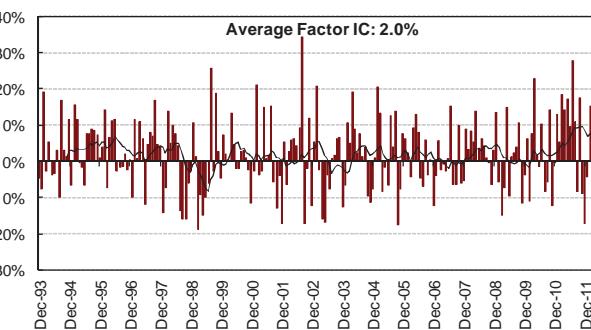


Figure 15: 12 Month Rolling Returns L/S (Min 12mth Return: -63.6%)



Source (all figures on page): J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra, Bloomberg

Figure 16: Information Co-Efficients (IC)



Recent Trends in Factor Performance – “Flight to Quality”

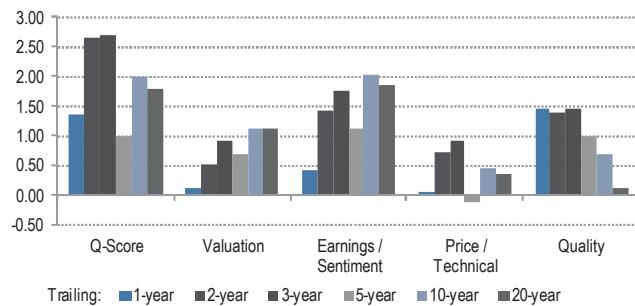
As we look at long term trends in factor performance, we see evidence that certain factors are relatively stable over time, while others rotate in and out of favor. The graphs below highlight factor performance over increasingly further look-back periods. This can give an indication of longer term factor decay, which could be indicative of either a factor rotation super-cycle or perhaps even a structural shift in AxJ market dynamics.

A “Flight to Quality” trend has resulted in Quality increasingly outperforming Value in recent years

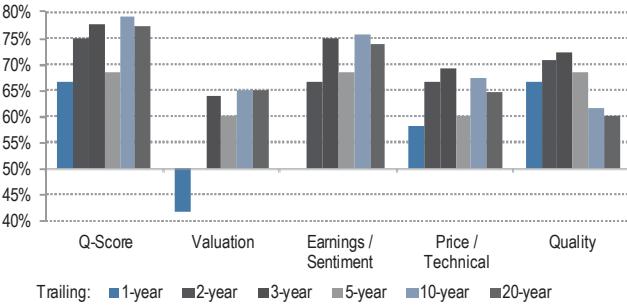
While Earnings/Sentiment and Price/Technical factors have remained relatively stable over time, the most interesting trend that the charts below highlight is recent performance in Quality and Value. **Quality has shown an increasingly improving trend versus its historical performance, while on the flip side Value has shown declining performance.** Some may argue that this could be a part of a longer term shift for investors trading up from cheaper, lower-quality stocks to more expensive, higher-quality stocks, while others may argue that this is symptomatic of the current market regime. The theme at play here is the “flight to quality” characterized by “expensive defensives” as investors become more willing to pay a premium for quality while avoiding riskier names.

Composite Family Performance Summary: Various Trailing Test Periods

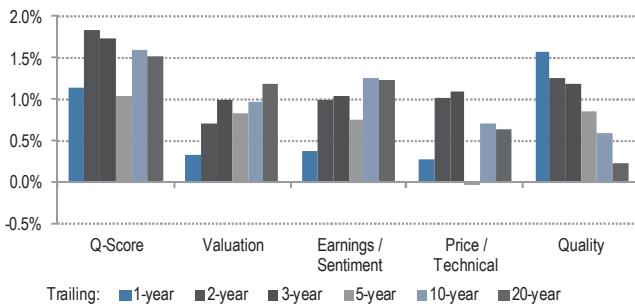
Sharpe Ratio



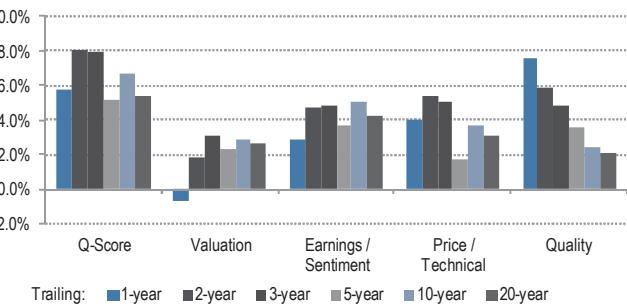
Hit Rate



Average Return LS (monthly)



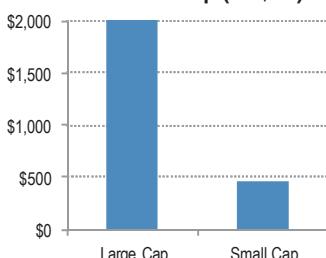
Average IC



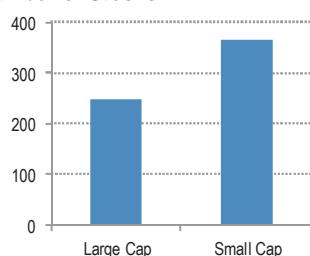
Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio, the risk-free rate is assumed to be 0%. Baseline date is May 30, 2012.

Market Cap-based Analysis of Factors

Investable Market Cap (US\$bn)



Number of Stocks



Source: MSCI, J.P. Morgan

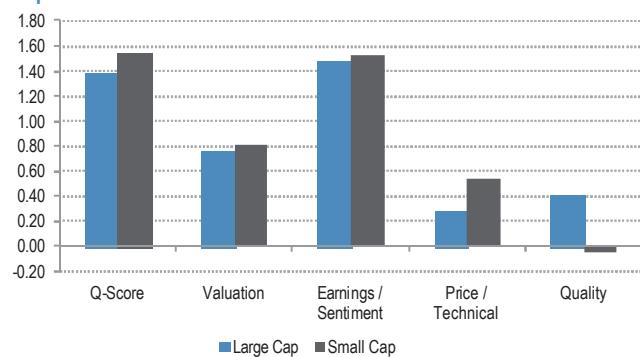
We analyzed MSCI Asia ex-Japan split by Large Cap (the top 250 constituents by investable market cap, with size >US\$2.6bn and average of US\$8.9bn) and Small Cap (remaining 366 constituents, average market cap US\$1.3bn). Overall factor performance as measured by the *Q-Score Composite* was slightly higher for the Small Cap segment, on both an absolute and risk-adjusted basis. However, factor performance for the combined large cap and small cap universe was generally better than either the large cap or small cap segment on a standalone basis.

There were a few notable differences on factor performance among Large Cap vs. Small Cap. In the Small Cap universe, Quality factors did not seem to work well (negative Sharpe ratio), while Quality worked relatively better for Large Caps. On the flip side, Price/Technical factors worked much better in the Small Cap space vs. Large Caps. One reason for this could be a lack of liquidity, which could hinder Small Caps and favor Price/Technical factors. On the other hand, Small Caps are generally more cyclical and/or single-product, which would favor more Price/Technical and upside growth strategies.

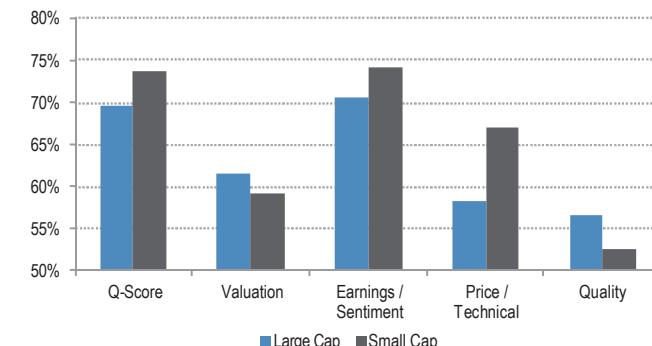
Earnings/Sentiment and Valuation were the best performing factor families for both Large Caps and Small Caps. On an absolute basis, they performed better for Small Caps vs. Large Caps, but on a risk-adjusted basis we did not see a significant difference.

Composite Family Performance Summary: Large Cap vs. Small Cap (full period results)

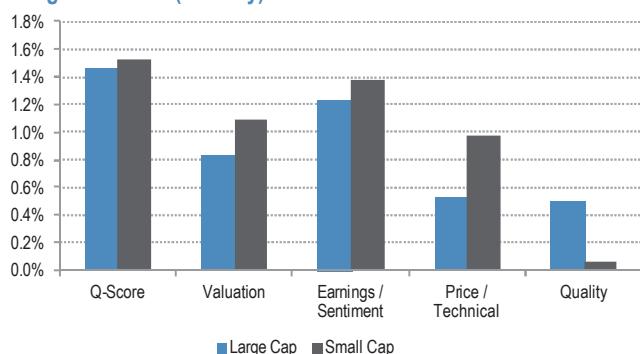
Sharpe Ratio



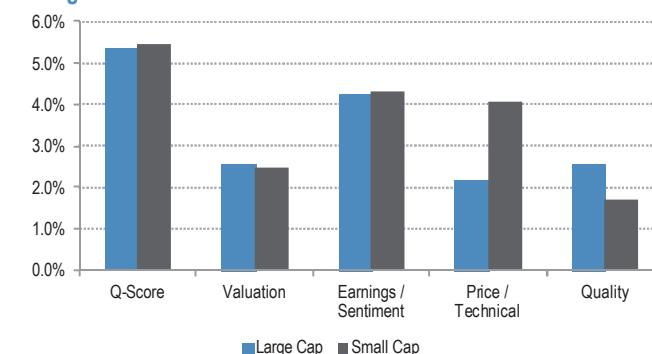
Hit Rate



Average Return LS (monthly)



Average IC



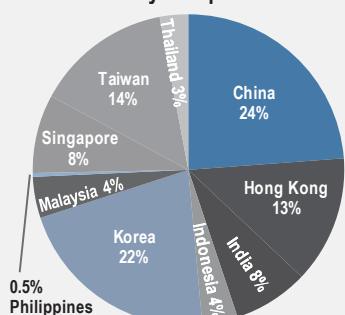
Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio, the risk-free rate is assumed to be 0%.

MSCI AxJ Large Cap (Top 250) – Bigger not always better

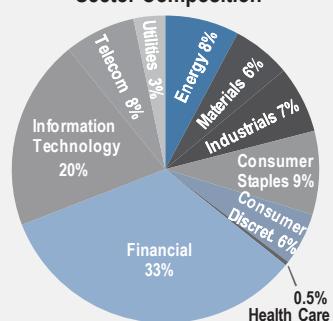
Index Summary

MSCI AxJ weight: 81.4%
Investable market cap: US\$2,022.2bn
Number of constituents: 250

Country Composition



Sector Composition



Source: MSCI, J.P. Morgan

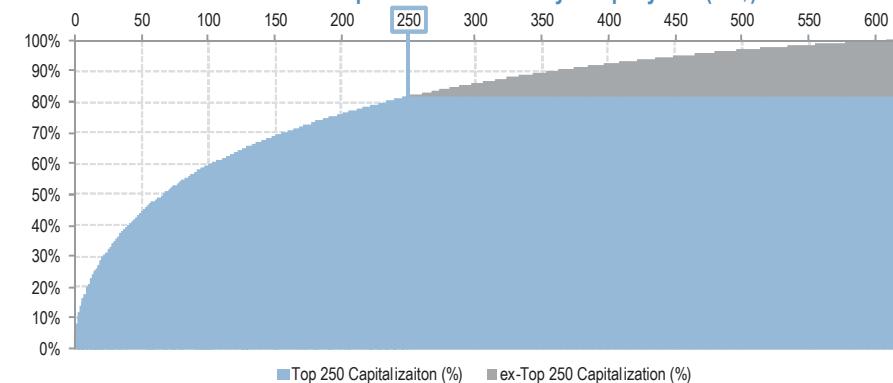
Factor Performance

Top composite: Composite (Value Bias)
Top factor: 1 Mth Change in Consensus Recom.

For Large Caps, the factor return profile was similar although clearly more muted than the overall MSCI AxJ universe. This is unsurprising given that the top 250 make up 81.4% of the index.

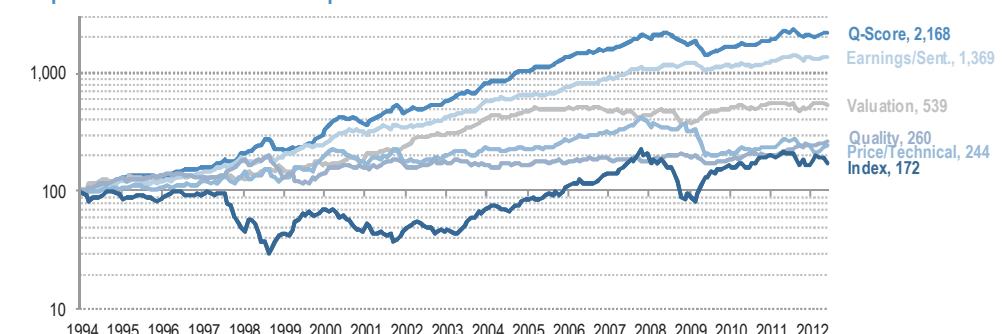
Composite factors dominated the performance rankings, unsurprisingly taking 12 of the top 20 positions.

MSCI AxJ – Cumulative investable capitalization ordered by company size (US\$)



Source: MSCI, J.P. Morgan (as of April 30, 2012)

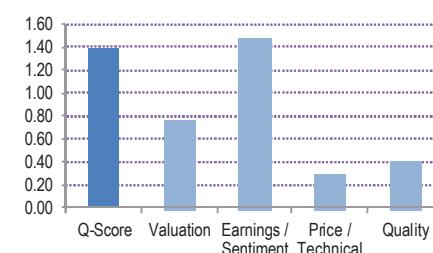
Composite Families – Cumulative performance over time



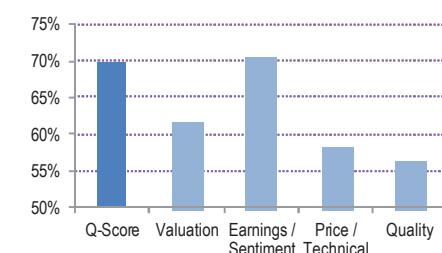
Source: J.P. Morgan, MSCI, IBES, Reuters, Factset. Index=MSCI AxJ Top 250 (equal weighted, US\$, dividends reinvested)

Composite Family Performance Summary (full period results)

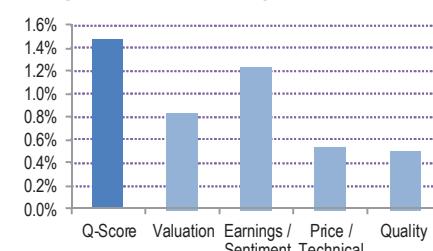
Sharpe Ratio



Hit Rate



Average Return LS (monthly)



Average IC



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio, the risk-free rate is assumed to be 0%.

MSCI AxJ Large Cap (Top 250) – Composites and Key Factors Summary

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Q-Score Composite	226	5.4%	5.77	69.7%	43.6%	1.5%	3.8%	1.38
C	► Composite Value (with Growth)	226	2.6%	3.39	61.5%	20.4%	0.8%	3.6%	0.76
C	► Composite Earnings / Sentiment	232	4.3%	6.16	70.6%	63.6%	1.2%	3.0%	1.48
C	► Composite Price / Reversion	235	2.2%	1.59	58.4%	32.3%	0.5%	5.0%	0.29
C	► Composite Quality	219	2.6%	2.00	56.6%	15.8%	0.5%	3.8%	0.41
C	Q-Score Composite (Value Biased)	226	5.2%	7.47	70.6%	41.7%	1.5%	3.1%	1.83
C	Composite Price to Book ROE	241	3.3%	4.29	61.1%	17.7%	0.9%	3.1%	0.99
V	P/E (1-year forward)	226	3.3%	4.14	61.1%	17.4%	1.2%	4.1%	0.95
V	P/B (1-year trailing)	241	0.8%	1.42	49.3%	13.1%	0.4%	3.8%	0.27
V	Dividend Yield (1-year trailing)	249	2.5%	2.32	57.0%	14.2%	0.6%	4.0%	0.48
ES	Net Earnings Revisions FY1 FY2 (Relative to total changes)	232	2.4%	2.77	57.5%	66.5%	0.6%	3.0%	0.61
ES	Change in Consensus Recommendations (1-month change)	236	3.4%	5.95	67.7%	78.0%	1.0%	2.4%	1.42
ES	Forward Earnings Momentum (1-month change)	228	1.9%	1.48	57.0%	64.0%	0.3%	3.1%	0.29
ES	Forecast Earnings Growth FY1 to FY2	232	-0.8%	0.82	49.8%	22.9%	0.2%	2.8%	0.14
PT	Price Momentum 12-month	239	1.6%	0.82	53.8%	26.2%	0.3%	5.2%	0.10
PT	Price Momentum 1-month	246	0.0%	0.47	51.6%	80.5%	0.1%	4.4%	0.03
PT	RSI 10-day (Continuation)	246	-1.9%	-2.19	43.0%	79.2%	-0.5%	3.5%	-0.56
Q	Return On Equity (1-year trailing)	240	2.1%	1.92	59.3%	11.8%	0.5%	3.9%	0.39
Q	Sales Growth (1-year trailing)	225	0.2%	0.30	55.5%	13.6%	0.1%	4.2%	0.01
R	Beta (Barra)	245	-1.9%	-0.42	45.2%	16.0%	-0.1%	4.8%	-0.18
R	Volatility (Barra)	245	-1.6%	-0.21	44.8%	17.6%	-0.1%	5.3%	-0.14
R	Size (Barra)	245	0.3%	1.27	54.8%	16.6%	0.2%	2.6%	0.25

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

MSCI AxJ Large Cap (Top 250) – Top factors by T-Stat (Top 20 / Bottom 5)

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Composite Value Momentum Quality Price Model (Value Biased)	226	5.2%	7.47	70.6%	41.7%	1.5%	3.1%	1.83
C	Composite Value Momentum Quality Price Model	226	5.4%	7.08	71.5%	42.2%	1.5%	3.2%	1.73
C	Composite Value Growth Momentum Model	225	4.7%	6.48	69.7%	49.7%	1.4%	3.3%	1.57
C	Composite Momentum	232	4.3%	6.16	70.6%	63.6%	1.2%	3.0%	1.48
ES	1 Mth Change in Consensus Recom	236	3.4%	5.95	67.7%	78.0%	1.0%	2.4%	1.42
C	Composite Value Momentum Model	225	5.3%	5.83	68.8%	50.3%	1.4%	3.5%	1.40
C	Q-Score Composite	226	5.4%	5.77	69.7%	43.6%	1.5%	3.8%	1.38
C	Composite Recom	236	3.2%	5.11	64.5%	52.4%	0.9%	2.5%	1.20
C	Composite Price to Book ROE	241	3.3%	4.29	61.1%	17.7%	0.9%	3.1%	0.99
C	Value To Risk	220	3.7%	4.20	65.6%	19.7%	1.0%	3.6%	0.97
V	1 year forward forecast PE	226	3.3%	4.14	61.1%	17.4%	1.2%	4.1%	0.95
ES	3 Mth Change in Consensus Recom	236	2.6%	4.08	64.7%	45.0%	0.7%	2.5%	0.95
V	Historical Earnings Yield	241	3.4%	3.77	65.2%	17.1%	0.9%	3.7%	0.86
ES	Forward Earnings Momentum (3Mth Change) / Co-Efficient Of Variation	220	2.7%	3.65	62.9%	37.8%	0.8%	3.3%	0.83
C	Composite Value	225	3.0%	3.55	62.4%	21.0%	1.0%	4.0%	0.80
V	1 year forward forecast PE Relative To Sector	227	2.4%	3.54	62.9%	18.7%	0.8%	3.2%	0.80
ES	Consensus Recom	237	2.5%	3.51	60.6%	19.4%	0.7%	2.9%	0.80
C	Value To Growth	225	2.0%	3.43	60.2%	21.4%	0.9%	3.9%	0.77
C	Composite Value and Growth	226	2.6%	3.39	61.5%	20.4%	0.8%	3.6%	0.76
R	Value (Barra)	245	2.7%	3.38	57.5%	19.7%	0.8%	3.6%	0.76
Q	Gearing	219	-1.1%	-0.85	46.4%	8.7%	-0.3%	4.1%	-0.28
Q	EBIT Margin Growth	226	-0.4%	-0.86	45.9%	15.9%	-0.2%	3.2%	-0.28
Q	Payout Ratio	241	-0.9%	-0.93	43.9%	15.1%	-0.2%	3.8%	-0.28
C	Composite Co-Efficient of Variation (Avg of Fy1 and FY2)	225	-2.5%	-2.10	43.4%	23.5%	-0.5%	3.8%	-0.54
PT	RSI 10-day (Continuation)	246	-1.9%	-2.19	43.0%	79.2%	-0.5%	3.5%	-0.56

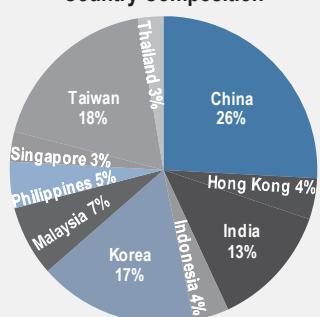
Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

MSCI AxJ Small Cap (ex-Top 250) – Don't neglect the little guy

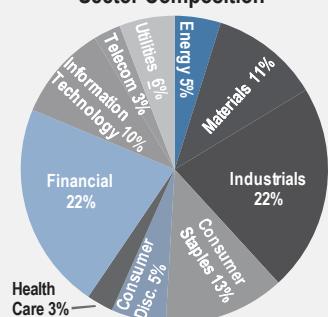
Index Summary

MSCI AxJ weight: 18.6%
Investable market cap: US\$462.1bn
Number of constituents: 366

Country Composition



Sector Composition



Source: MSCI, J.P. Morgan

Factor Performance

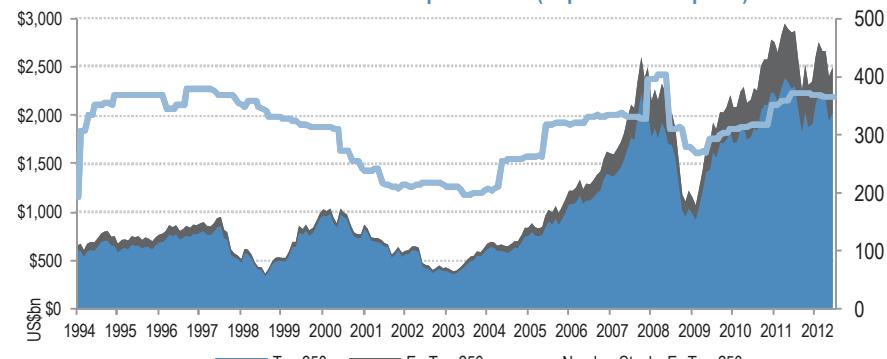
Top composite: Valuation & Earnings / Sentiment
Top factor: Net Revisions FY1 FY2 (relative to total changes)

The AxJ small cap space consists of more stocks (366) than the top 250, yet represents just 18.6% of MSCI AxJ with an average investable market cap of just US\$1.26bn. However, the contribution from small caps has been growing over the past 20 years.

From a sector standpoint, the profile of the small cap space differs significantly from large caps. We see relatively greater weighting in industrials, consumer staples, and materials in small caps vs. large caps with more representation from financials, information technology, and telecom.

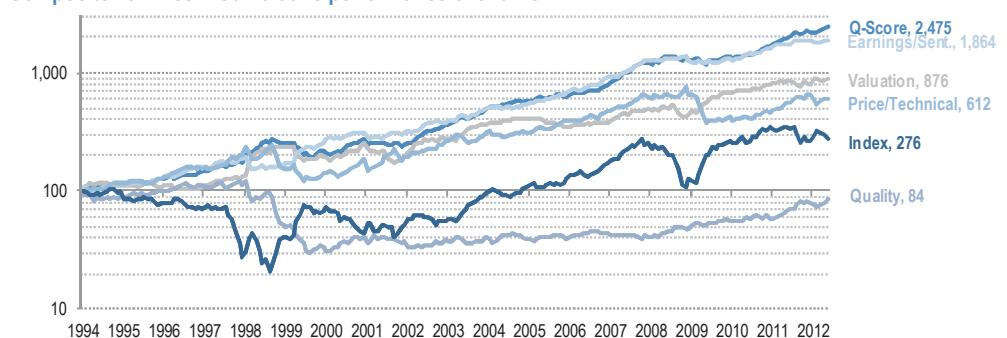
From a country standpoint, in the small cap space we see meaningfully more weighting in Taiwan, India, and Philippines, and Malaysia and less weighting in Hong Kong, Singapore, and Korea.

MSCI AxJ – Cumulative investable market cap over time (Top 250 + ex-Top 250)



Source: MSCI, J.P. Morgan

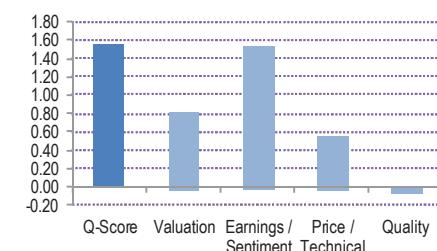
Composite Families – Cumulative performance over time



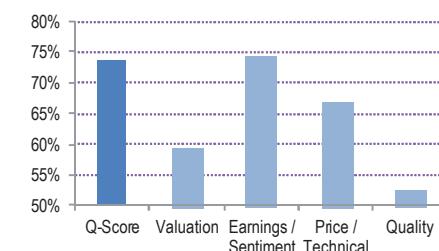
Source: J.P. Morgan, MSCI, IBES, Reuters, Factset. Index=MSCI AxJ ex-Top 250 (equal weighted, US\$, dividends reinvested)

Composite Family Performance Summary (full period results)

Sharpe Ratio



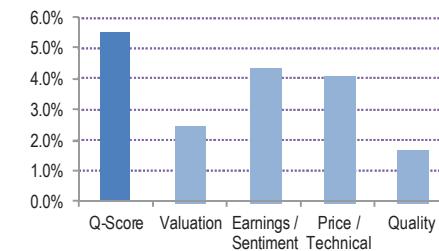
Hit Rate



Average Return LS (monthly)



Average IC



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio, the risk-free rate is assumed to be 0%.

MSCI AxJ Small Cap (ex-Top 250) – Composites and Key Factors Summary

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Q-Score Composite	251	5.5%	6.40	73.8%	43.6%	1.5%	3.5%	1.55
C	► Composite Value (with Growth)	251	2.5%	3.60	59.3%	21.9%	1.1%	4.5%	0.81
C	► Composite Earnings / Sentiment	268	4.3%	6.30	74.2%	67.1%	1.4%	3.3%	1.52
C	► Composite Price / Reversion	280	4.1%	2.66	67.0%	36.1%	1.0%	5.5%	0.55
C	► Composite Quality	230	1.7%	0.18	52.5%	18.9%	0.1%	5.2%	-0.05
C	Q-Score Composite (Value Biased)	251	5.0%	6.46	72.9%	40.1%	1.6%	3.7%	1.57
C	Composite Price to Book ROE	292	2.6%	4.32	60.6%	17.3%	1.2%	4.1%	1.00
V	P/E (1-year forward)	251	2.9%	3.91	64.7%	18.9%	1.2%	4.4%	0.89
V	P/B (1-year trailing)	293	1.9%	3.51	59.3%	14.3%	1.3%	5.7%	0.78
V	Dividend Yield (1-year trailing)	306	2.4%	3.02	57.0%	13.6%	0.9%	4.4%	0.66
ES	Net Earnings Revisions FY1 FY2 (Relative to total changes)	265	3.6%	5.76	71.0%	69.7%	1.3%	3.3%	1.38
ES	Change in Consensus Recommendations (1-month change)	278	2.4%	4.04	60.9%	77.4%	0.9%	3.2%	0.93
ES	Forward Earnings Momentum (1-month change)	261	3.9%	3.81	65.2%	68.4%	1.0%	3.8%	0.86
ES	Forecast Earnings Growth FY1 to FY2	268	-1.3%	-1.30	42.5%	24.3%	-0.3%	3.2%	-0.35
PT	Price Momentum 12-month	287	2.8%	0.40	68.8%	27.1%	0.2%	7.0%	-0.05
PT	Price Momentum 1-month	299	-2.3%	-2.92	44.8%	80.7%	-1.2%	6.1%	-0.74
PT	RSI 10-day (Continuation)	301	-1.8%	-3.82	39.4%	78.8%	-1.1%	4.3%	-0.91
Q	Return On Equity (1-year trailing)	291	1.0%	-0.25	50.7%	12.8%	-0.1%	4.5%	-0.14
Q	Sales Growth (1-year trailing)	243	0.2%	0.85	59.0%	13.7%	0.3%	4.3%	0.15
R	Beta (Barra)	293	-1.9%	-0.36	45.2%	17.0%	-0.1%	4.8%	-0.16
R	Volatility (Barra)	293	-1.8%	0.05	41.6%	18.6%	0.0%	6.1%	-0.09
R	Size (Barra)	293	0.4%	-1.52	50.7%	19.0%	-0.4%	4.1%	-0.42

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

MSCI AxJ Small Cap (ex-Top 250) – Top factors by T-Stat (Top 20 / Bottom 5)

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Composite Value Momentum Model	249	4.9%	7.02	73.3%	48.2%	1.7%	3.6%	1.72
C	Composite Value Growth Momentum Model	250	4.6%	6.98	73.3%	47.6%	1.6%	3.4%	1.71
C	Composite Value Momentum Quality Price Model (Value Biased)	251	5.0%	6.46	72.9%	40.1%	1.6%	3.7%	1.57
C	Composite Value Momentum Quality Price Model	251	5.3%	6.41	74.7%	42.4%	1.6%	3.7%	1.56
C	Q-Score Composite	251	5.5%	6.40	73.8%	43.6%	1.5%	3.5%	1.55
C	Composite Momentum	268	4.3%	6.30	74.2%	67.1%	1.4%	3.3%	1.52
ES	Net Revisions FY1 FY2 (Rel. To Total Changes)	265	3.6%	5.76	71.0%	69.7%	1.3%	3.3%	1.38
C	Composite Recom	280	2.9%	5.46	71.4%	50.1%	1.1%	3.1%	1.30
ES	3 Mth Change in Consensus Recom	278	2.6%	4.87	65.6%	43.7%	1.0%	3.2%	1.15
ES	Net Revisions to FY2 [Up-Down]/[Up+Down]	267	3.4%	4.47	67.0%	71.8%	1.1%	3.6%	1.04
C	Composite Forward Earnings Momentum (1Mth + 3 Mth)	256	3.7%	4.44	66.1%	42.4%	1.1%	3.7%	1.03
R	Value (Barra)	293	2.9%	4.39	62.9%	20.8%	1.1%	3.8%	1.02
C	Composite Price to Book ROE	292	2.6%	4.32	60.6%	17.3%	1.2%	4.1%	1.00
C	Value To Risk	227	3.6%	4.17	67.0%	21.3%	1.2%	4.1%	0.95
C	Composite Value	251	2.8%	4.04	60.6%	21.3%	1.2%	4.6%	0.92
ES	1 Mth Change in Consensus Recom	278	2.4%	4.04	60.9%	77.4%	0.9%	3.2%	0.93
ES	Net Revisions to FY1 [Up-Down]/[Up+Down]	272	2.8%	4.01	67.4%	70.9%	0.8%	3.0%	0.92
V	1 year forward forecast PE	251	2.9%	3.91	64.7%	18.9%	1.2%	4.4%	0.89
ES	Forward Earnings Momentum (3Mth Change) / Co-Efficient Of Variation	232	3.5%	3.90	67.0%	41.9%	1.0%	3.7%	0.89
ES	Forward Earnings Momentum (1Mth Change)	261	3.9%	3.81	65.2%	68.4%	1.0%	3.8%	0.86
PT	3 Mth Price Momentum	301	0.0%	-1.33	55.2%	48.4%	-0.6%	6.4%	-0.42
R	Size (Barra)	293	0.4%	-1.52	50.7%	19.0%	-0.4%	4.1%	-0.42
PT	RSI 30-day (Continuation)	301	-0.7%	-2.52	48.4%	68.8%	-0.9%	5.1%	-0.65
PT	1 Mth Price Momentum	299	-2.3%	-2.92	44.8%	80.7%	-1.2%	6.1%	-0.74
PT	RSI 10-day (Continuation)	301	-1.8%	-3.82	39.4%	78.8%	-1.1%	4.3%	-0.91

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

Country-based Analysis of Factors

**For backtest results by country,
please see our companion
Country Chartbook**

From a country standpoint, Asia ex-Japan offers a diverse set of alpha opportunities. While diversification has helped factors generally perform better in the broader regional AxJ universe over individual countries, we can nevertheless draw some useful conclusions on styles performance within countries.

In the matrix in Table 6 below, we present the Sharpe ratio of various strategies by country. The best performing factor family as measured by our representative composite was *Earnings/Sentiment* which led in 7 of the 10 countries, showing particularly strong outperformance in India, Indonesia, Malaysia, and Thailand. *Value* led in the remaining 3 countries of China, Korea, and Taiwan.

It's also worth noting that popular strategies of *Composite P/B ROE* worked very well in Korea and China, and *Dividend Yield* and *Historical Sales Growth* performed very well in Hong Kong. Factor diversification did especially well in Taiwan, where our blended models worked best. Malaysia as a whole is a standout market for alpha seekers on paper, although difficulty in shorting may dampen real-world performance.

Table 6: Risk-adjusted Return Matrix – by Country

Factor Family	Factor Name	Asia ex-Japan										
		China	Hong Kong	India	Indonesia	Korea	Malaysia	Philippines	Singapore	Taiwan	Thailand	
C	Q-Score Composite	1.80	0.45	0.46	0.80	0.21	0.98	1.05	0.80	0.43	0.87	0.30
C	► Composite Value (wth Growth)	1.13	0.48	0.01	0.23	0.40	0.69	0.33	0.47	0.16	0.66	0.58
C	► Composite Earnings / Sentiment	1.84	0.18	0.47	0.83	1.00	0.60	0.95	0.50	0.48	0.61	0.83
C	► Composite Price / Reversion	0.35	0.13	0.19	0.29	-0.34	0.18	-0.22	-0.13	-0.29	0.18	0.00
C	► Composite Quality	0.11	-0.19	0.23	0.16	-0.44	-0.12	-0.22	0.00	-0.01	0.51	-0.14
C	Q-Score Composite (Value Biased)	2.40	0.76	0.35	0.78	0.47	1.00	1.25	0.74	0.43	1.19	0.79
C	Composite Price to Book ROE	1.37	0.67	0.18	0.34	0.49	1.10	0.79	0.43	0.59	0.41	0.17
V	P/E (1-y ear forw ard)	1.17	0.44	-0.03	0.08	0.24	0.73	0.54	0.40	0.40	0.73	-0.08
V	P/B (1-y ear trailing)	0.61	0.45	-0.10	-0.25	0.28	0.58	0.33	0.23	0.17	-0.08	0.17
V	Dividend Yield (1-year trailing)	0.86	0.45	0.41	-0.02	0.00	0.54	0.63	-0.19	0.40	0.26	-0.06
ES	Net Earnings Revisions FY1 FY2 (rel. to total changes)	1.20	0.48	0.41	0.56	0.44	0.63	0.91	-0.49	0.34	0.51	0.69
ES	Change in Consensus Recommendations (1-mth chg.)	1.59	0.12	0.32	0.61	0.50	0.24	1.33	0.58	0.56	0.50	0.49
ES	Forward Earnings Momentum (1-month change)	0.80	0.10	0.25	0.61	0.35	0.48	0.37	-0.10	0.31	0.32	0.37
ES	Forecast Earnings Growth FY1 to FY2	-0.17	0.03	-0.28	-0.18	-0.06	-0.24	-0.30	-0.29	-0.14	-0.25	-0.44
PT	Price Momentum 12-month	-0.12	-0.16	-0.11	0.05	-0.54	-0.15	0.00	0.00	-0.34	0.18	-0.27
PT	Price Momentum 1-month	-0.55	-0.40	-0.32	-0.05	-0.60	-0.78	-0.28	0.00	-0.14	-0.06	-0.07
PT	RSI 10-day (Continuation)	-0.85	-0.41	-0.84	-0.58	-0.59	-0.76	-0.62	-0.70	-0.64	-0.13	0.10
Q	Return On Equity (1-y ear trailing)	0.04	-0.31	0.26	0.07	0.00	-0.13	-0.09	0.00	-0.25	0.23	0.00
Q	Sales Growth (1-y ear trailing)	0.12	-0.44	0.53	-0.11	0.05	0.00	-0.07	-0.22	-0.28	-0.14	-0.24
R	Beta (Barra)	-0.19	-0.38	-0.24	-0.54	0.19	-0.16	-0.15	0.22	-0.14	-0.16	-0.21
R	Volatility (Barra)	-0.07	-0.10	-0.32	-0.37	0.54	-0.05	-0.16	-0.07	-0.13	-0.22	-0.06
R	Size (Barra)	-0.29	-0.07	-0.09	-0.07	-0.51	-0.30	-0.13	-0.48	-0.33	-0.04	0.00

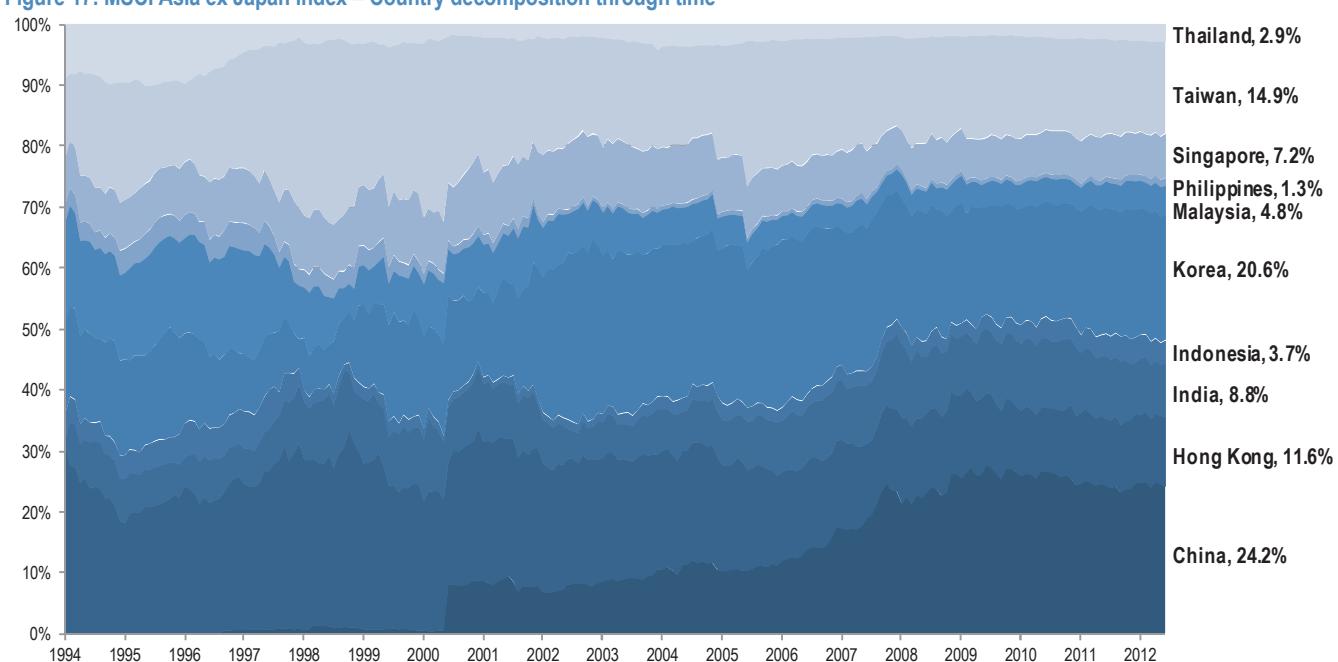
Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio calculation, the risk-free rate is assumed to be 0%.

While we neutralize factor exposure by country in our backtests, this does not eliminate all of these potential biases, hence we should be aware of them and the potential limitations they introduce to our methodology. It's important to keep in mind that each country presents different dynamics in terms of factor performance due to a number of reasons including:

- ! **Varying currency and interest rate risks**
- ! **Varying political risks:** Government stability varies from country to country, for instance high stability in Singapore vs. higher risk in Thailand
- ! **Varying sector exposures:** High sector exposures for certain countries, e.g. IT exposure for Taiwan (55%) and Korea (33%) and Financials exposure for Hong Kong (61%) and Singapore (48%).
- ! **Varying accounting practices:** Consolidation vs. Parent reporting considerations in some countries, reporting frequency requirements (e.g. monthly sales figures in Taiwan, semi-annual reporting in Hong Kong, etc.), IFRS adoption which could affect comparability across countries and with backtesting historical financials (e.g. China in 2007, Thailand in 2009, Korea in 2011, Malaysia in 2012, Taiwan in 2013, etc.), choice for multiple accounting standards (e.g. Indian companies have a choice whether to report in IFRS or Indian GAAP)
- ! **Varying legal/exchange requirements:** Each market exhibits different characteristics with regard to capital controls, liquidity, shortability, disclosure requirements, daily trading limits, etc. which could favor some styles over others
- ! **Varying local behavioral biases:** The investor base for countries in AxJ differs significantly, and we see large variations in market multiples across countries. Reasons for this could be due to capital controls, the proportion of foreign investors vs. domestic investors, the proportion of institutional (professional) investors vs. retail investors, the pervasiveness of information leakage, etc.

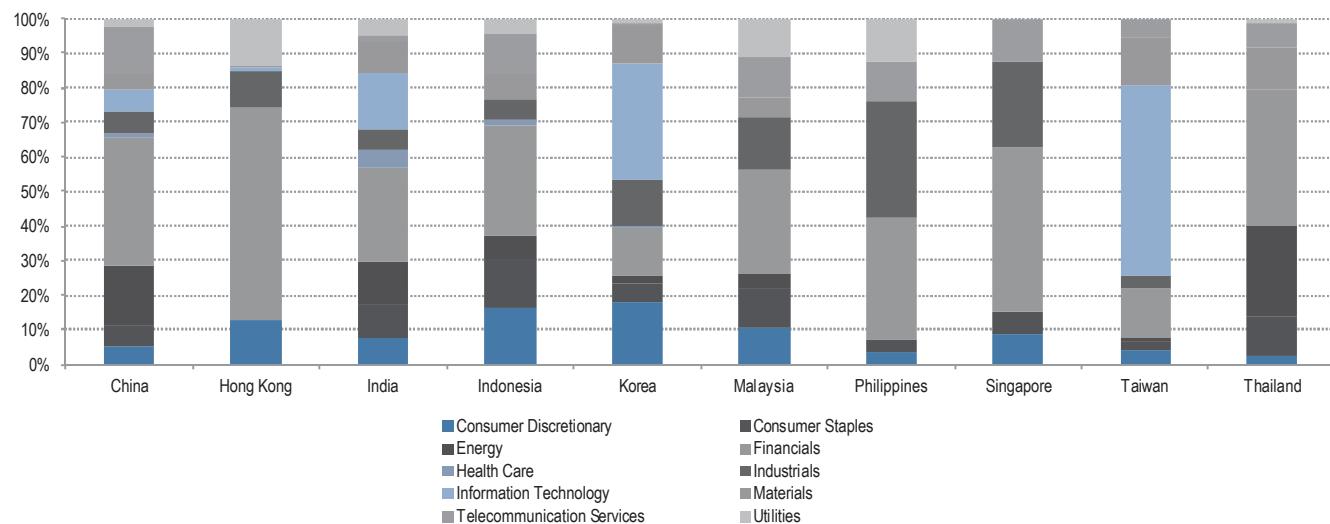
Also note that data prior to 1998 is less reliable given the fewer stocks in MSCI AxJ for certain countries, and more sparse analyst coverage. This was evident in some factors blowing out during the Asian Financial Crisis, which caused a number of companies to fold. Ever since the AFC, some countries have never returned to their pre-AFC MSCI AxJ weight.

Figure 17: MSCI Asia ex Japan Index – Country decomposition through time



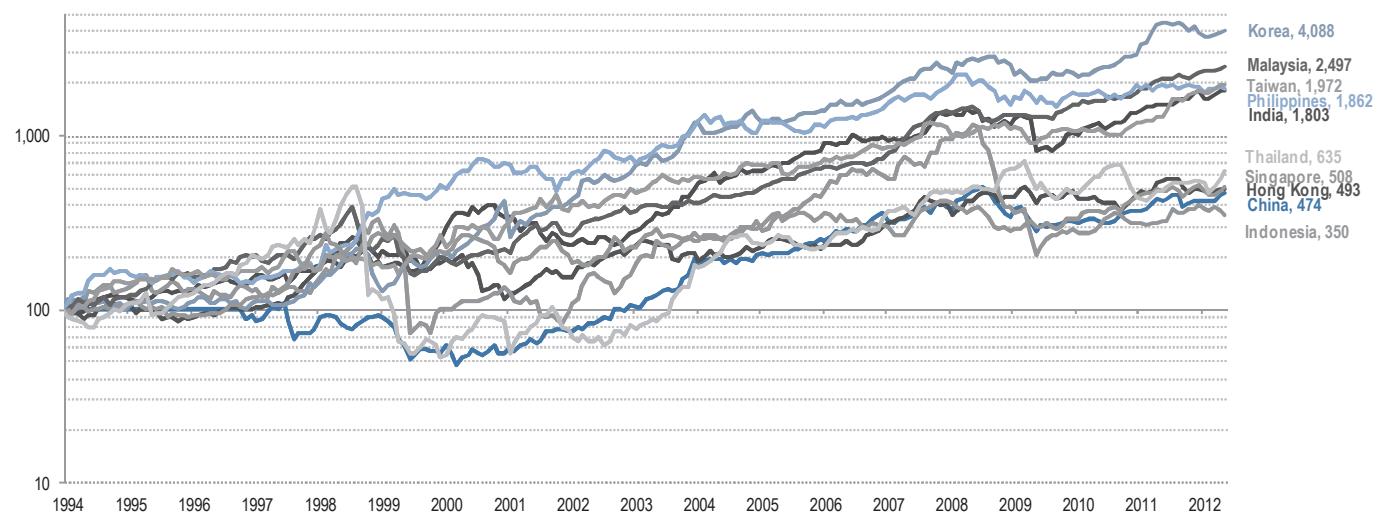
Source: MSCI, Bloomberg, J.P. Morgan

Figure 18: MSCI Asia ex Japan Index – Country decomposition by Sector



Source: MSCI, Bloomberg, J.P. Morgan

Figure 19: Q-Score Composite – Cumulative Performance over Time by Country



Source: MSCI, Bloomberg, Thompson Reuters, J.P. Morgan

Christopher Ma
(852) 2800-8530
christopher.x.ma@jpmorgan.com

Asia Pacific Equity Research
12 November 2012

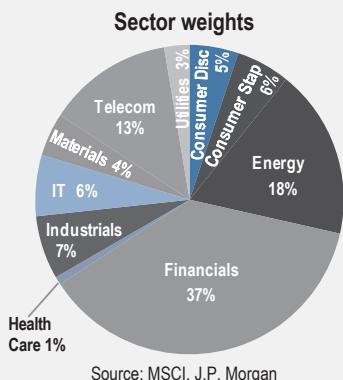
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MSCI China – Rotation Nation

Country Summary

MSCI AxJ weight: 24.2%
Investable market cap: US\$601.1bn
Number of constituents: 143



Factor Performance

Top composite: Value Growth
Earnings/Sentiment
Top factor: Cash Flow Yield
(Mean FY1 and FY2)

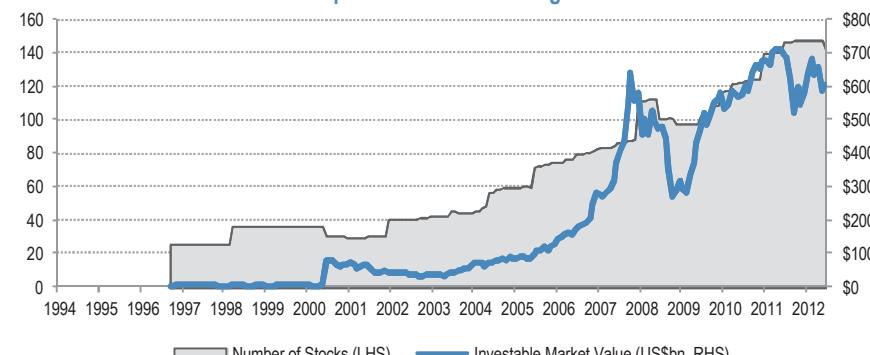
China began to be included in MSCI AxJ in 1996, and has since steadily grown to become the largest country weighting, comprising nearly a quarter of the index. Of the 143 constituents, 139 are H-shares and 4 are B-shares, and the average investible market cap is US\$4.2bn.

China saw several long winning streaks among the factor families: 2000-2004 for Value, 2003-2007 for Earnings/Sentiment, 2003-2008 for Price/Technical, and 2005-2012 for Quality. Factor rotation strategies could see opportunity here to perform well.

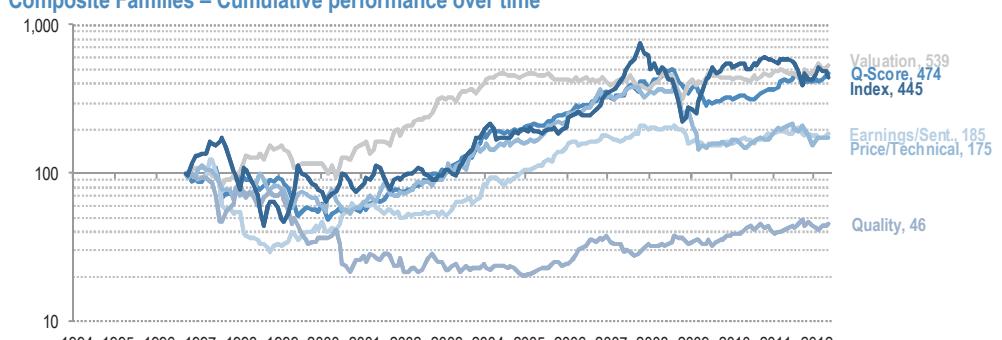
The best overall performing factor family for China is Value, a notable departure from most other countries in AxJ where Earnings/Sentiment generally work best. All of the top 4 single factors are cash related, with the 3 top factors being related to *Cash Flow Yield*, followed by *Historical P/Cash Earnings*.

However, much of the outperformance for Value was prior to 2004 (and the cash related factors as well from a closer look at the backtest results). One reason they may have rotated out of favor is that investors may have gradually become more comfortable with accounting earnings rather than cash flow analysis. After 2006, China adopted accounting standards more in line with IFRS.

MSCI China – Investable market cap and constituent changes over time

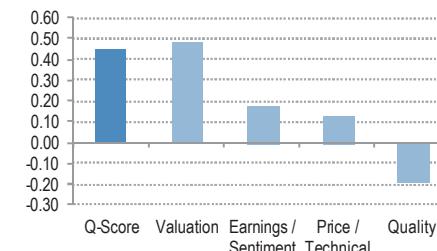


Composite Families – Cumulative performance over time

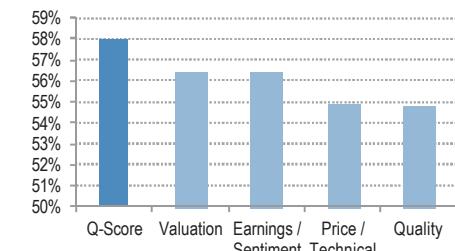


Composite Family Performance Summary (full period results)

Sharpe Ratio



Hit Rate



Average Return LS (monthly)



Average IC



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio, the risk-free rate is assumed to be 0%.

MSCI China – Composites and Key Factors Summary

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Q-Score Composite	67	5.4%	2.18	58.0%	42.7%	1.1%	6.6%	0.45
C	► Composite Value (with Growth)	67	3.6%	2.27	56.4%	20.8%	1.1%	6.8%	0.48
C	► Composite Earnings / Sentiment	67	3.8%	1.15	56.4%	65.0%	0.5%	6.5%	0.18
C	► Composite Price / Reversion	62	2.4%	1.06	54.8%	32.0%	0.6%	8.1%	0.13
C	► Composite Quality	65	1.7%	-0.22	54.8%	14.7%	-0.1%	7.5%	-0.19
C	Q-Score Composite (Value Biased)	67	5.7%	3.25	65.4%	41.4%	1.5%	6.3%	0.76
C	Composite Price to Book ROE	68	4.1%	2.97	54.8%	15.6%	1.7%	7.8%	0.67
V	P/E (1-year forward)	67	4.1%	2.20	60.6%	16.3%	1.3%	7.9%	0.44
V	P/B (1-year trailing)	68	2.8%	2.26	54.3%	12.1%	1.5%	8.9%	0.45
V	Dividend Yield (1-year trailing)	68	3.0%	2.16	54.8%	11.2%	1.1%	7.3%	0.45
ES	Net Earnings Revisions FY1 FY2 (Relative to total changes)	67	3.5%	2.22	59.0%	67.0%	0.9%	5.7%	0.48
ES	Change in Consensus Recommendations (1-month change)	67	3.0%	0.98	59.6%	75.8%	0.5%	6.4%	0.12
ES	Forward Earnings Momentum (1-month change)	66	2.7%	0.80	54.8%	64.0%	0.4%	6.1%	0.10
ES	Forecast Earnings Growth FY1 to FY2	67	-1.2%	0.64	46.3%	20.1%	0.4%	7.9%	0.03
PT	Price Momentum 12-month	63	1.5%	-0.02	52.2%	24.4%	0.0%	8.8%	-0.16
PT	Price Momentum 1-month	68	-1.4%	-0.66	52.1%	79.3%	-0.5%	10.4%	-0.40
PT	RSI 10-day (Continuation)	68	-1.9%	-1.11	47.3%	78.2%	-0.7%	8.9%	-0.41
Q	Return On Equity (1-year trailing)	68	0.6%	-0.62	54.8%	7.7%	-0.4%	8.7%	-0.31
Q	Sales Growth (1-year trailing)	68	-2.0%	-1.32	45.7%	8.3%	-0.7%	6.9%	-0.44
R	Beta (Barra)	64	-2.8%	-0.96	47.3%	13.4%	-0.7%	9.4%	-0.38
R	Volatility (Barra)	64	-1.0%	0.28	47.3%	17.2%	0.2%	10.6%	-0.10
R	Size (Barra)	64	-0.4%	0.25	54.3%	8.6%	0.1%	7.9%	-0.07

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

MSCI China – Top factors by T-Stat (Top 20 / Bottom 5)

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat ▾	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Composite Value Growth Momentum Model	67	5.5%	3.59	62.2%	50.3%	1.8%	6.7%	0.86
V	Cash Flow Yield Mean of FY1 and FY2	61	4.3%	3.32	60.1%	16.5%	1.9%	7.9%	0.78
V	Cash Flow Yield FY1	62	4.3%	3.30	61.2%	17.3%	1.7%	7.2%	0.77
C	Composite Value Momentum Quality Price Model (Value Biased)	67	5.7%	3.25	65.4%	41.4%	1.5%	6.3%	0.76
V	Cash Flow Yield FY2	61	4.3%	3.09	56.4%	16.0%	1.8%	8.2%	0.70
C	Composite Price to Book ROE	68	4.1%	2.97	54.8%	15.6%	1.7%	7.8%	0.67
C	Value To Risk	65	4.8%	2.94	62.2%	18.4%	1.4%	6.7%	0.67
C	Value To Growth	66	3.5%	2.88	56.4%	23.0%	1.8%	8.4%	0.64
V	Historical P/Cash Earnings Ratio	63	4.5%	2.76	56.4%	13.8%	1.6%	7.8%	0.61
R	Value (Barra)	64	5.0%	2.64	60.1%	17.5%	1.6%	8.4%	0.54
C	Composite Value Momentum Model	67	5.9%	2.56	64.4%	49.5%	1.4%	7.4%	0.54
C	Sentiment Composite	85	6.1%	2.29	62.5%	29.7%	1.3%	6.1%	0.66
C	Composite Value and Growth	67	3.6%	2.27	56.4%	20.8%	1.1%	6.8%	0.48
V	Historical P/Book Value Ratio	68	2.8%	2.26	54.3%	12.1%	1.5%	8.9%	0.45
V	EBITDA to Enterprise Value	67	2.9%	2.23	57.7%	15.3%	1.2%	7.3%	0.47
ES	Net Revisions FY1 FY2 (Rel. To Total Changes)	67	3.5%	2.22	59.0%	67.0%	0.9%	5.7%	0.48
V	1 year forward forecast PE	67	4.1%	2.20	60.6%	16.3%	1.3%	7.9%	0.44
C	Q-Score Composite	67	5.4%	2.18	58.0%	42.7%	1.1%	6.6%	0.45
V	Historical Dividend Yield	68	3.0%	2.16	54.8%	11.2%	1.1%	7.3%	0.45
C	Composite Value Momentum Quality Price Model	67	5.6%	2.15	63.3%	42.9%	1.1%	7.1%	0.43
R	Growth (Barra)	63	-1.0%	-1.04	46.5%	14.1%	-0.5%	6.1%	-0.36
PT	RSI 10-day (Continuation)	68	-1.9%	-1.11	47.3%	78.2%	-0.7%	8.9%	-0.41
ES	Internal Growth	68	0.8%	-1.12	48.9%	10.2%	-0.7%	8.9%	-0.43
ES	Historical Sales Growth	68	-2.0%	-1.32	45.7%	8.3%	-0.7%	6.9%	-0.44
Q	ALTMAN Z-score	69	-2.5%	-2.56	48.0%	4.7%	-1.1%	5.7%	-0.72

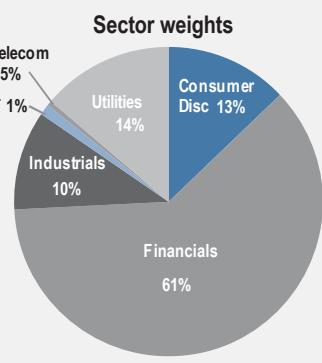
Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

For full backtest results of the Top 3 / Bottom 2 single factors and standard Composites, please see our [Country Chartbook](#).

MSCI Hong Kong – In the Mood for History

Country Summary

MSCI AxJ weight: 11.6%
Investable market cap: US\$287.7bn
Number of constituents: 42



Source: MSCI, J.P. Morgan

Factor Performance

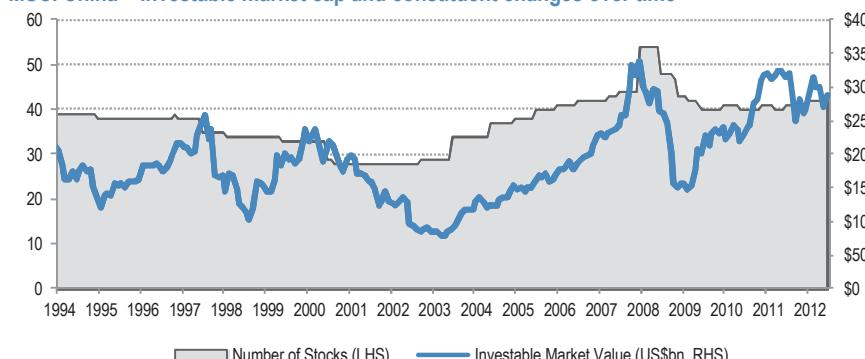
Top composite: Value Earnings/Sentiment
Quality Price/Technical
Top factor: Historical Sales Growth

Like the financial sector which makes up a majority of HK, Earnings/ Sentiment factors performed the best, strongly outperforming other factor families, particularly on a risk-adjusted basis. The best performing single factor was *Historical Sales Growth*, which may indicate outperformance of companies exposed to high-growth China. In the last few decades China's economy and GDP have witnessed unprecedented growth, accelerating after WTO admission in 2001. However, while our economists expect China to continue growing, it will likely slow down as the economy matures.

The Value family performed the worst, and never recovered from the selloff in 2008. However, a notable exception is *Historical Dividend Yield*, which unsurprisingly was the second best performing factor given Hong Kong's strong property bias. DY is a more defensive factor and performed well during highly turbulent times such as the Asian Financial Crisis, the Tech Bubble, and the Global Financial Crisis, but did not fare so well during strong bull markets such as during 2003-2007.

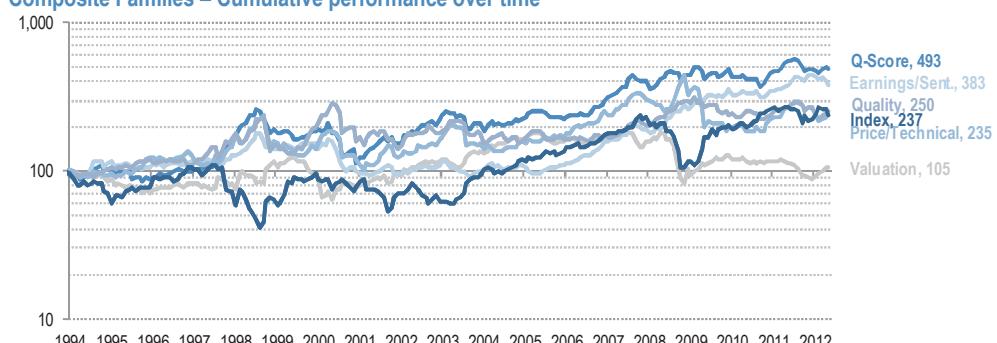
Interestingly, 5 of the top 20 performing factors in HK are based purely on historicals: *Historical Sales Growth*, *Historical Dividend Yield*, *Historical Earnings Yield*, *Historical Price/Cash Earnings*, and *Historical ROE*.

MSCI China – Investable market cap and constituent changes over time



Source: MSCI, J.P. Morgan

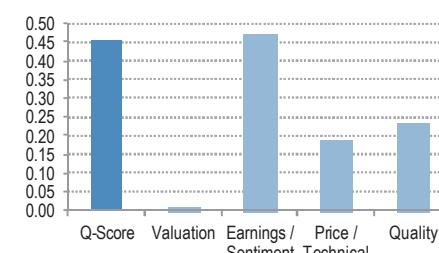
Composite Families – Cumulative performance over time



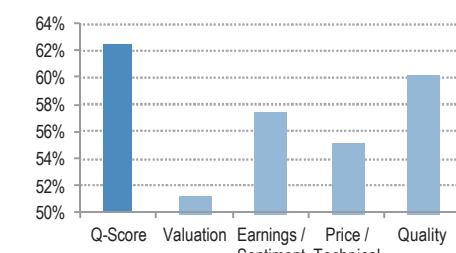
Source: J.P. Morgan, MSCI, IBES, Reuters, Factset. Index=MSCI Hong Kong (equal weighted, US\$, dividends reinvested)

Composite Family Performance Summary (full period results)

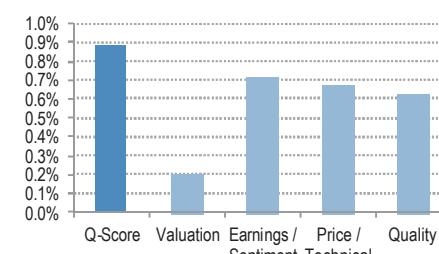
Sharpe Ratio



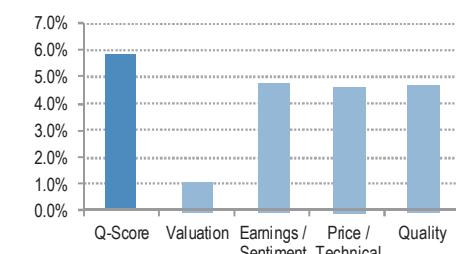
Hit Rate



Average Return LS (monthly)



Average IC



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio, the risk-free rate is assumed to be 0%.

MSCI Hong Kong – Composites and Key Factors Summary

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Q-Score Composite	36	5.8%	2.32	62.4%	40.3%	0.9%	5.7%	0.46
C	► Composite Value (with Growth)	36	1.0%	0.51	51.1%	15.1%	0.2%	6.1%	0.01
C	► Composite Earnings / Sentiment	36	4.7%	2.30	57.5%	63.1%	0.7%	4.6%	0.47
C	► Composite Price / Reversion	35	4.7%	1.36	55.2%	31.0%	0.7%	7.3%	0.19
C	► Composite Quality	35	4.7%	1.47	60.2%	11.2%	0.6%	6.3%	0.23
C	Q-Score Composite (Value Biased)	36	4.4%	1.83	56.6%	37.6%	0.6%	5.2%	0.35
C	Composite Price to Book ROE	37	3.2%	1.28	58.4%	13.8%	0.6%	7.3%	0.18
V	P/E (1-year forward)	36	1.6%	0.35	50.7%	13.2%	0.2%	6.7%	-0.03
V	P/B (1-year trailing)	37	0.6%	0.14	45.2%	8.4%	0.1%	7.9%	-0.10
V	Dividend Yield (1-year trailing)	37	4.1%	2.15	53.8%	11.8%	0.9%	6.2%	0.41
ES	Net Earnings Revisions FY1 FY2 (Relative to total changes)	36	4.0%	2.07	56.1%	64.0%	0.7%	4.9%	0.41
ES	Change in Consensus Recommendations (1-month change)	37	2.3%	1.69	53.6%	77.2%	0.5%	4.5%	0.32
ES	Forward Earnings Momentum (1-month change)	36	2.7%	1.45	53.4%	63.4%	0.5%	5.4%	0.25
ES	Forecast Earnings Growth FY1 to FY2	36	-0.2%	-0.86	49.8%	19.7%	-0.3%	5.1%	-0.28
PT	Price Momentum 12-month	36	3.3%	0.14	52.5%	24.9%	0.1%	7.7%	-0.11
PT	Price Momentum 1-month	37	-2.1%	-0.85	48.4%	78.2%	-0.4%	7.2%	-0.32
PT	RSI 10-day (Continuation)	37	-5.7%	-3.47	39.4%	79.1%	-1.4%	6.0%	-0.84
Q	Return On Equity (1-year trailing)	37	3.0%	1.56	55.2%	7.0%	0.7%	6.2%	0.26
Q	Sales Growth (1-year trailing)	35	1.2%	2.23	57.2%	9.9%	0.8%	4.7%	0.53
R	Beta (Barra)	37	-2.7%	-0.55	46.6%	10.6%	-0.3%	7.0%	-0.24
R	Volatility (Barra)	37	-4.6%	-0.80	45.7%	11.7%	-0.5%	8.4%	-0.32
R	Size (Barra)	37	0.3%	0.13	51.1%	6.0%	0.1%	6.8%	-0.09

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

MSCI Hong Kong – Top factors by T-Stat (Top 20 / Bottom 5)

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Composite Value Momentum Quality Price Model	36	5.3%	3.16	61.5%	39.2%	1.1%	5.3%	0.68
C	Q-Score Composite	36	5.8%	2.32	62.4%	40.3%	0.9%	5.7%	0.46
C	Composite Momentum	36	4.7%	2.30	57.5%	63.1%	0.7%	4.6%	0.47
Q	Historical Sales Growth	35	1.2%	2.23	57.2%	9.9%	0.8%	4.7%	0.53
V	Historical Dividend Yield	37	4.1%	2.15	53.8%	11.8%	0.9%	6.2%	0.41
ES	Net Revisions to FY2 [Up-Down]/[Up+Down]	36	3.9%	2.15	57.9%	68.1%	0.7%	5.1%	0.43
R	Growth (Barra)	36	5.0%	2.09	57.8%	14.0%	1.0%	6.7%	0.43
ES	Net Revisions FY1 FY2 (Rel. To Total Changes)	36	4.0%	2.07	56.1%	64.0%	0.7%	4.9%	0.41
ES	Forward Earnings Momentum (3Mth Change) / Co-Efficient Of Variation	35	3.4%	2.02	57.9%	35.8%	0.7%	5.4%	0.39
C	Composite Value Growth Momentum Model	36	3.4%	1.99	56.6%	44.0%	0.7%	5.3%	0.38
C	Composite Value Momentum Model	36	3.8%	1.92	53.4%	45.9%	0.7%	5.6%	0.36
C	Composite Value Momentum Quality Price Model (Value Biased)	36	4.4%	1.83	56.6%	37.6%	0.6%	5.2%	0.35
V	Historical Earnings Yield	37	3.0%	1.83	56.1%	14.1%	0.8%	6.4%	0.33
V	Cash Flow Yield FY1	35	2.3%	1.78	60.3%	15.8%	0.7%	5.6%	0.34
V	Historical P/Cash Earnings Ratio	33	2.7%	1.77	57.9%	13.3%	0.7%	5.8%	0.32
Q	Change In ROE Between Current and 12 Mths Prior	34	2.2%	1.73	56.5%	15.0%	0.7%	5.6%	0.33
ES	1 Mth Change in Consensus Recom	37	2.3%	1.69	53.6%	77.2%	0.5%	4.5%	0.32
ES	Number of Consensus Estimates (FY1)	36	2.4%	1.61	49.3%	15.1%	0.6%	6.0%	0.28
V	EBITDA to Enterprise Value	35	1.0%	1.57	56.6%	12.7%	0.7%	6.1%	0.31
Q	Historical Return On Equity	37	3.0%	1.56	55.2%	7.0%	0.7%	6.2%	0.26
ES	Forecast Earnings Growth FY1 to FY2	36	-0.2%	-0.86	49.8%	19.7%	-0.3%	5.1%	-0.28
C	Composite Co-Efficient of Variation (Avg of Fy1 and FY2)	36	-5.0%	-0.95	42.1%	16.9%	-0.4%	7.0%	-0.33
Q	Payout Ratio	37	-1.9%	-1.06	48.0%	9.9%	-0.4%	5.3%	-0.33
PT	RSI 30-day (Continuation)	37	-2.9%	-1.86	48.0%	67.4%	-0.9%	7.0%	-0.53
PT	RSI 10-day (Continuation)	37	-5.7%	-3.47	39.4%	79.1%	-1.4%	6.0%	-0.84

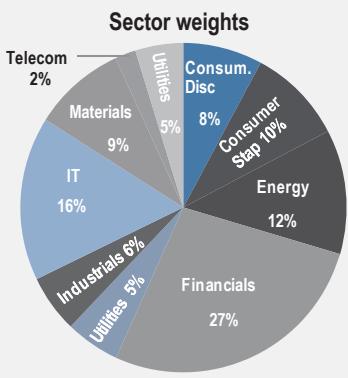
Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

For full backtest results of the Top 3 / Bottom 2 single factors and standard Composites, please see our [Country Chartbook](#).

MSCI India – Going for “brokes”

Country Summary

MSCI AxJ weight: 8.8%
Investable market cap: US\$217.7bn
Number of constituents: 73



Source: MSCI, J.P. Morgan

Factor Performance

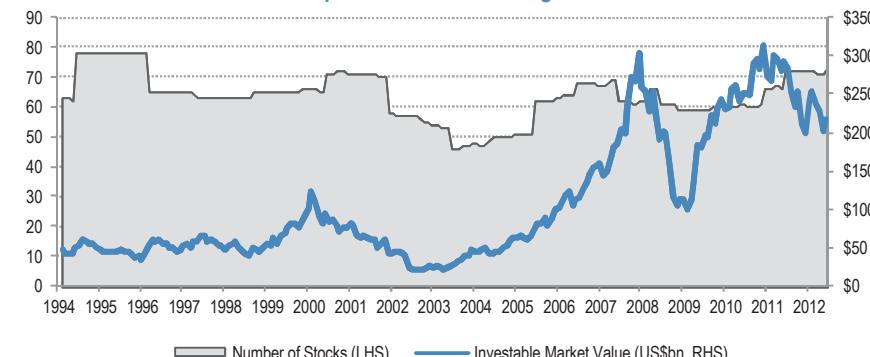
Top composite: Value Earnings/Sentiment Quality Price/Technical
Top factor: Net Revisions to FY1 (Up-Down) / (Up + Down)

India shows well balanced sector exposure, which helps with diversification and boosting factor performance.

Given its status as “the most broked market in the world” in terms of analyst coverage (an average of 24 analysts per stock), it’s no surprise that Earnings/ Sentiment factors work best in India, well outpacing other factor families. Earnings/ Sentiment has also held up well during sharp downturns in the market, for instance the Global Financial Crisis. However, post the rebound in early 2009 Earnings/ Sentiment has remained stale, while all of the other factor families, particularly Price/ Technical and Quality have rallied sharply. Price/Technical factors generally work quite well in India, and although P/T navigated the Asian Financial Crisis well, it had a terrible performance during the GFC. It’s also worthwhile to point out that many of the better performing styles had relatively high monthly turnovers, with the notable exception of *Gearing* with only 3.7%.

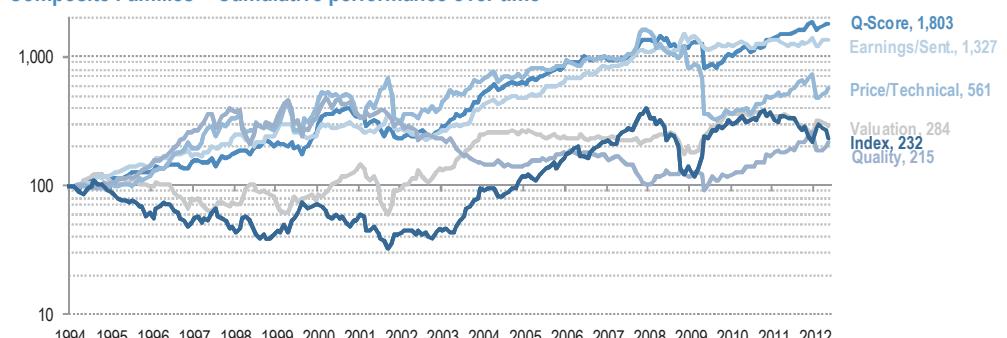
Interestingly, factor families generally exhibited cyclical in the sense that there were periods where a certain factor clearly was out of favor, notably Value from 1994-2000, Quality from 2000-2004, Value from 2004-2008, Price/Technical from 2008-2009, and Earnings/Sentiment from 2009-2012.

MSCI India – Investable market cap and constituent changes over time



Source: MSCI, J.P. Morgan

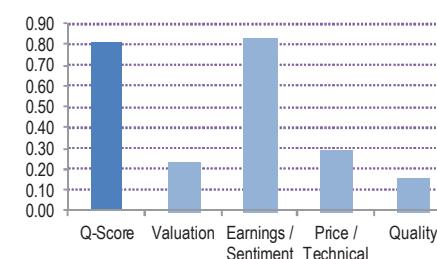
Composite Families – Cumulative performance over time



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset. Index=MSCI India (equal weighted, US\$, dividends reinvested)

Composite Family Performance Summary (full period results)

Sharpe Ratio



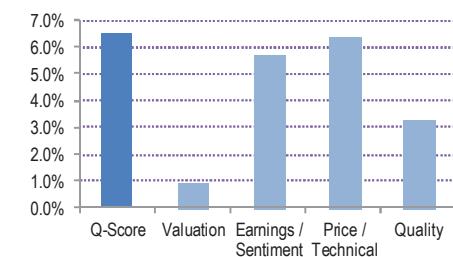
Hit Rate



Average Return LS (monthly)



Average IC



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio, the risk-free rate is assumed to be 0%.

MSCI India – Composites and Key Factors Summary

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Q-Score Composite	57	6.5%	3.67	66.2%	42.4%	1.5%	6.2%	0.80
C	► Composite Value (with Growth)	57	0.9%	1.49	52.1%	16.3%	0.7%	7.3%	0.23
C	► Composite Earnings / Sentiment	60	5.7%	3.69	64.4%	62.4%	1.3%	5.3%	0.83
C	► Composite Price / Reversion	59	6.4%	1.98	56.6%	28.7%	1.3%	9.9%	0.29
C	► Composite Quality	55	3.3%	1.26	55.4%	13.6%	0.7%	8.1%	0.16
C	Q-Score Composite (Value Biased)	57	5.0%	3.53	58.9%	38.7%	1.2%	5.2%	0.78
C	Composite Price to Book ROE	62	0.6%	1.81	51.6%	12.7%	0.8%	6.1%	0.34
V	P/E (1-year forward)	56	1.3%	0.93	52.1%	13.3%	0.5%	7.8%	0.08
V	P/B (1-year trailing)	63	-2.4%	-0.44	43.2%	8.0%	-0.3%	8.8%	-0.25
V	Dividend Yield (1-year trailing)	63	1.3%	0.46	51.1%	10.2%	0.2%	7.3%	-0.02
ES	Net Earnings Revisions FY1 FY2 (Relative to total changes)	58	4.6%	2.70	58.9%	68.4%	1.0%	5.6%	0.56
ES	Change in Consensus Recommendations (1-month change)	60	3.7%	2.84	59.4%	74.4%	0.9%	4.7%	0.61
ES	Forward Earnings Momentum (1-month change)	59	5.5%	2.91	63.9%	66.8%	1.1%	5.8%	0.61
ES	Forecast Earnings Growth FY1 to FY2	61	-0.8%	-0.31	48.9%	19.1%	-0.1%	6.6%	-0.18
PT	Price Momentum 12-month	60	5.1%	1.03	50.2%	22.9%	0.7%	10.1%	0.05
PT	Price Momentum 1-month	63	-1.9%	0.31	48.9%	78.6%	0.2%	7.3%	-0.05
PT	RSI 10-day (Continuation)	61	-3.2%	-2.13	42.0%	78.6%	-1.0%	6.7%	-0.58
Q	Return On Equity (1-year trailing)	62	2.1%	0.90	54.9%	7.5%	0.5%	7.9%	0.07
Q	Sales Growth (1-year trailing)	53	0.1%	0.08	48.0%	8.4%	0.0%	7.9%	-0.11
R	Beta (Barra)	62	-5.1%	-1.91	42.5%	12.0%	-1.0%	7.9%	-0.54
R	Volatility (Barra)	62	-5.0%	-1.04	43.8%	13.5%	-0.7%	9.4%	-0.37
R	Size (Barra)	62	2.4%	0.31	54.3%	7.3%	0.2%	7.8%	-0.07

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

MSCI India – Top factors by T-Stat (Top 20 / Bottom 5)

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat ▾	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Composite Value Momentum Quality Price Model	57	5.8%	3.70	62.6%	41.3%	1.3%	5.1%	0.83
C	Composite Momentum	60	5.7%	3.69	64.4%	62.4%	1.3%	5.3%	0.83
C	Q-Score Composite	57	6.5%	3.67	66.2%	42.4%	1.5%	6.2%	0.80
C	Composite Value Momentum Quality Price Model (Value Biased)	57	5.0%	3.53	58.9%	38.7%	1.2%	5.2%	0.78
C	Composite Value Growth Momentum Model	56	4.5%	3.31	63.9%	46.6%	1.3%	5.8%	0.72
ES	Net Revisions to FY1 [Up-Down]/[Up+Down]	61	4.4%	2.98	58.4%	68.7%	1.0%	5.2%	0.64
ES	Forward Earnings Momentum (1Mth Change)	59	5.5%	2.91	63.9%	66.8%	1.1%	5.8%	0.61
ES	1 Mth Change in Consensus Recom	60	3.7%	2.84	59.4%	74.4%	0.9%	4.7%	0.61
ES	Net Revisions to FY2 [Up-Down]/[Up+Down]	60	4.3%	2.83	63.0%	68.9%	1.0%	5.4%	0.60
ES	Net Revisions FY1 FY2 (Rel. To Total Changes)	58	4.6%	2.70	58.9%	68.4%	1.0%	5.6%	0.56
C	Composite Value Momentum Model	55	4.5%	2.60	60.3%	47.9%	1.0%	5.8%	0.53
Q	Gearing	53	3.6%	2.44	57.1%	3.7%	1.4%	7.8%	0.51
ES	Forward Earnings Momentum (3Mth Change) / Co-Efficient Of Variation	54	4.4%	2.43	62.1%	37.5%	1.0%	6.0%	0.48
V	EBITDA to Enterprise Value	54	1.5%	2.39	54.9%	12.4%	1.4%	8.1%	0.52
C	Sentiment Composite	57	6.4%	2.12	69.2%	28.5%	1.3%	7.0%	0.58
C	Composite Recom	60	3.8%	2.03	59.6%	48.7%	0.7%	5.0%	0.40
V	Sales to EV (using Market Value)	50	1.1%	2.01	55.5%	9.0%	1.1%	7.6%	0.39
R	Success (Barra)	62	6.7%	1.99	60.3%	20.3%	1.3%	10.0%	0.30
C	Composite Price with 1 Month Reversion	59	6.4%	1.98	56.6%	28.7%	1.3%	9.9%	0.29
ES	3 Mth Change in Consensus Recom	59	2.6%	1.89	63.3%	41.3%	0.7%	5.2%	0.36
R	Volatility (Barra)	62	-5.0%	-1.04	43.8%	13.5%	-0.7%	9.4%	-0.37
Q	PIOTROSKI F-score (Fundamental Scorecard)	64	-1.6%	-1.09	46.6%	27.9%	-0.4%	5.5%	-0.34
R	Liquidity	60	-2.6%	-1.17	43.6%	12.6%	-0.7%	8.1%	-0.42
R	Beta (Barra)	62	-5.1%	-1.91	42.5%	12.0%	-1.0%	7.9%	-0.54
PT	RSI 10-day (Continuation)	61	-3.2%	-2.13	42.0%	78.6%	-1.0%	6.7%	-0.58

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

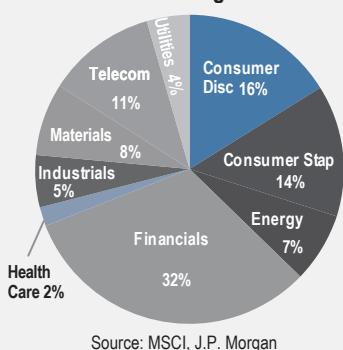
For full backtest results of the Top 3 / Bottom 2 single factors and standard Composites, please see our [Country Chartbook](#).

MSCI Indonesia – Wonderful analysts

Country Summary

MSCI AxJ weight: 3.7%
Investable market cap: US\$91.7bn
Number of constituents: 25

Sector weights



Source: MSCI, J.P. Morgan

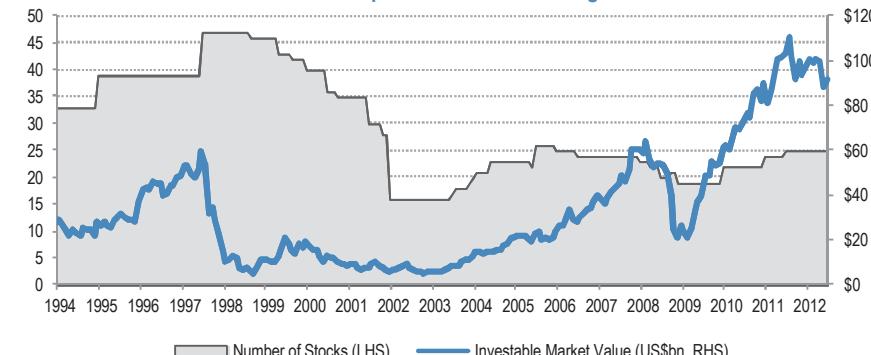
Factor Performance

Top composite: Earnings / Sentiment
Top factor: 1-year Forward Forecast PE Relative to History

Indonesia's fairly limited breadth in terms of MSCI constituent representation has produced extreme results, with Earnings/Sentiment clocking in an astounding 142x return over the test period, while Price/Technical and Quality nearly lost everything due extreme volatility in the Asian Financial Crisis. During this time, some stocks had monthly returns of ~400%, which if caught on the short side led to massive losses. During this time, Indonesia was arguably hit harder than any other country, when the Indonesia rupiah declined by over 80%. Price/Technical also collapsed during the Global Financial Crisis, although Quality actually navigated the GFC quite well and has had strong returns since 2008.

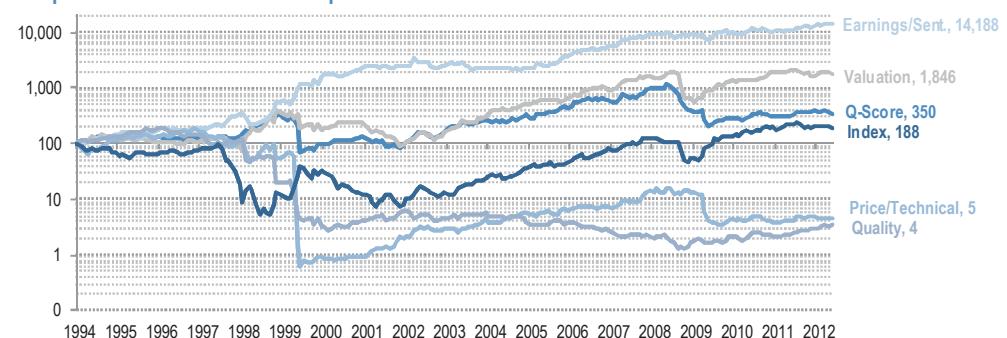
Analysts played an important role for the outperformance of the best factors, allowing for navigation for highly volatile inflection points. The best performing single factor was 1-year Forward Forecast PE Relative to History, which reflects analysts' updating of their earnings estimates as the AFC unfolded. Rounding out the top 3 are also analyst driven factors: Forward Earnings Momentum (3-month Change) / Co-efficient of Variation and 3-month Change in Consensus Recommendation.

MSCI Indonesia – Investable market cap and constituent changes over time



Source: MSCI, J.P. Morgan

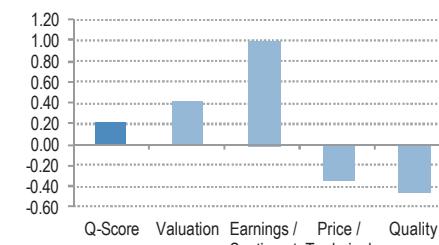
Composite Families – Cumulative performance over time



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset. Index=MSCI Indonesia (equal weighted, US\$, dividends reinvested)

Composite Family Performance Summary (full period results)

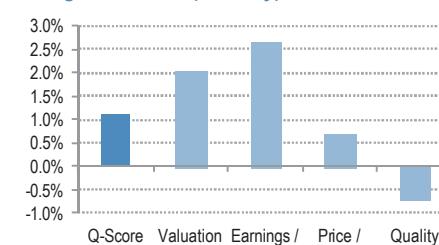
Sharpe Ratio



Hit Rate



Average Return LS (monthly)



Average IC



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio, the risk-free rate is assumed to be 0%.

MSCI Indonesia – Composites and Key Factors Summary

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Q-Score Composite	27	8.0%	1.72	58.4%	41.6%	1.1%	9.8%	0.21
C	► Composite Value (with Growth)	27	6.1%	2.48	59.7%	19.9%	2.0%	12.3%	0.40
C	► Composite Earnings / Sentiment	28	7.1%	4.41	64.7%	65.1%	2.6%	8.9%	1.00
C	► Composite Price / Reversion	26	4.3%	0.75	57.9%	35.3%	0.7%	13.2%	-0.34
C	► Composite Quality	27	0.9%	-0.94	54.3%	15.1%	-0.7%	10.9%	-0.44
C	Q-Score Composite (Value Biased)	27	8.1%	2.61	62.0%	39.5%	1.7%	9.6%	0.47
C	Composite Price to Book ROE	29	4.5%	2.63	57.5%	15.6%	1.8%	9.9%	0.49
V	P/E (1-year forward)	27	6.9%	1.86	59.3%	16.0%	1.5%	12.1%	0.24
V	P/B (1-year trailing)	29	1.8%	2.02	44.8%	12.4%	2.3%	16.9%	0.28
V	Dividend Yield (1-year trailing)	29	0.0%	0.27	49.8%	13.2%	0.2%	12.6%	0.00
ES	Net Earnings Revisions FY1 FY2 (Relative to total changes)	28	3.5%	2.37	55.2%	67.2%	1.2%	7.8%	0.44
ES	Change in Consensus Recommendations (1-month change)	29	5.1%	2.59	58.6%	76.5%	1.4%	8.0%	0.50
ES	Forward Earnings Momentum (1-month change)	28	3.8%	2.09	57.9%	63.0%	1.3%	9.1%	0.35
ES	Forecast Earnings Growth FY1 to FY2	28	0.3%	0.32	51.1%	21.3%	0.2%	7.8%	-0.06
PT	Price Momentum 12-month	27	3.8%	-0.41	57.0%	24.0%	-0.4%	14.7%	-0.54
PT	Price Momentum 1-month	28	-1.5%	-1.26	49.3%	78.6%	-1.3%	14.9%	-0.60
PT	RSI 10-day (Continuation)	29	-3.6%	-1.98	43.0%	76.0%	-1.3%	10.0%	-0.59
Q	Return On Equity (1-year trailing)	29	3.1%	-0.34	53.4%	10.2%	-0.3%	13.3%	0.00
Q	Sales Growth (1-year trailing)	20	0.9%	0.92	52.0%	10.7%	0.9%	12.4%	0.05
R	Beta (Barra)	27	3.1%	1.60	52.0%	13.3%	1.1%	9.9%	0.19
R	Volatility (Barra)	27	3.5%	2.80	53.8%	16.8%	1.9%	10.1%	0.54
R	Size (Barra)	27	1.6%	-1.34	54.3%	9.3%	-1.5%	17.2%	-0.51

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

MSCI Indonesia – Top factors by T-Stat (Top 20 / Bottom 5)

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat ▾	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Composite Momentum	28	7.1%	4.41	64.7%	65.1%	2.6%	8.9%	1.00
C	Composite Value Momentum Model	27	8.8%	4.20	65.6%	49.0%	2.8%	10.0%	0.94
C	Composite Value Growth Momentum Model	27	8.7%	3.95	63.8%	46.1%	2.5%	9.3%	0.87
V	1 year forward forecast PE Relative To History	24	4.3%	3.23	57.7%	25.2%	3.1%	13.3%	0.69
ES	Forward Earnings Momentum (3Mth Change) / Co-Efficient Of Variation	27	5.7%	3.13	62.9%	36.9%	1.8%	8.8%	0.63
ES	3 Mth Change in Consensus Recom	28	4.5%	2.83	61.0%	43.8%	1.6%	8.4%	0.56
R	Volatility (Barra)	27	3.5%	2.80	53.8%	16.8%	1.9%	10.1%	0.54
V	Cash Flow Yield FY1	26	4.7%	2.65	56.5%	18.2%	2.1%	11.5%	0.49
C	Composite Recom	28	5.2%	2.63	59.1%	51.9%	1.5%	8.3%	0.50
C	Composite Price to Book ROE	29	4.5%	2.63	57.5%	15.6%	1.8%	9.9%	0.49
C	Composite Value	27	6.5%	2.62	57.0%	21.0%	2.1%	12.0%	0.45
C	Composite Value Momentum Quality Price Model (Value Biased)	27	8.1%	2.61	62.0%	39.5%	1.7%	9.6%	0.47
ES	Net Revisions to FY2 [Up-Down]/[Up+Down]	28	2.9%	2.60	59.3%	68.2%	1.4%	7.9%	0.51
ES	1 Mth Change in Consensus Recom	29	5.1%	2.59	58.6%	76.5%	1.4%	8.0%	0.50
R	Value (Barra)	27	4.7%	2.48	56.1%	21.1%	2.0%	11.7%	0.43
C	Composite Value and Growth	27	6.1%	2.48	59.7%	19.9%	2.0%	12.3%	0.40
C	Value To Growth	27	5.2%	2.44	60.2%	21.5%	2.0%	12.0%	0.39
V	1 year forward forecast PE Relative To Sector	27	6.2%	2.42	61.5%	15.7%	1.9%	11.6%	0.40
ES	Net Revisions FY1 FY2 (Rel. To Total Changes)	28	3.5%	2.37	55.2%	67.2%	1.2%	7.8%	0.44
R	Historical BETA	29	3.7%	2.30	53.8%	35.3%	1.5%	10.0%	0.39
R	Size (Barra)	27	1.6%	-1.34	54.3%	9.3%	-1.5%	17.2%	-0.51
PT	RSI 30-day (Continuation)	29	1.1%	-1.35	52.9%	66.0%	-1.0%	10.7%	-0.50
ES	Number of Consensus Estimates (FY1)	28	-0.2%	-1.39	50.7%	16.4%	-1.1%	12.1%	-0.56
PT	RSI 10-day (Continuation)	29	-3.6%	-1.98	43.0%	76.0%	-1.3%	10.0%	-0.59
PT	Historical Returns Volatility Over Last Year in LOCAL Currency	27	-1.9%	-2.00	48.9%	18.5%	-1.7%	12.7%	-0.81

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

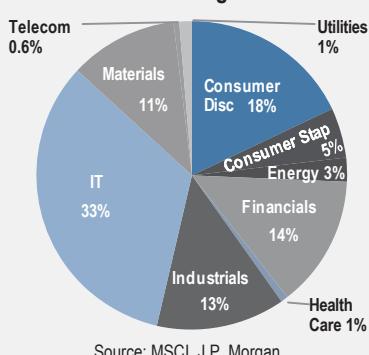
For full backtest results of the Top 3 / Bottom 2 single factors and standard Composites, please see our [Country Chartbook](#).

MSCI Korea – No “Value trap” here

Country Summary

MSCI AxJ weight: 20.6%
Investable market cap: US\$511.2bn
Number of constituents: 105

Sector weights



Source: MSCI, J.P. Morgan

Factor Performance

Top composite: Value Earnings/Sentiment
Top factor: Sales to EV
(using Market Value)

MSCI Korea is dominated by “chaebol” conglomerates, including Samsung Group at 35% (26% from Samsung Electronics alone), Hyundai Group at 9% and LG Corp at 7%. Given their large contribution to MSCI Korea (particularly Samsung Electronics), it's important to take into consideration any potential impact they may have on concentration, correlation, and ultimately factor performance.

Korea had the highest Q-Score returns of any country, although its risk-adjusted returns came in at #2 (though this needs to be balanced by higher difficulty in shorting). Value performed consistently and was the best performing factor family, as Value handily navigated through both major Financial Crises relatively well.

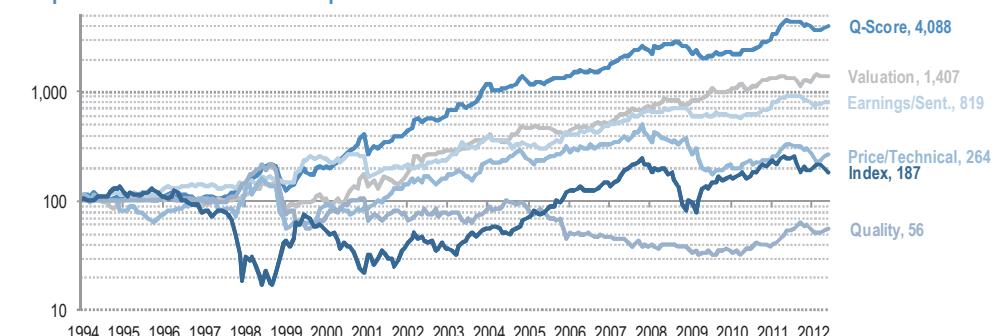
Earnings/Sentiment was able to perform strongly during the Asian Financial Crisis (was the best performing factor family), and while it did not fare as well during the Global Financial Crisis, it still did better than P/T and Quality. Price/Technical did well during periods of relative calm, but did not work well in periods of high volatility such as the AFC and GFC. Quality clocked in a lackluster performance for most of the test period, although recently it has performed well since 2010. Classic P/B ROE was also a standout performer with a Sharpe of 1.10 and a relatively low turnover of 16.4%.

MSCI Korea – Investable market cap and constituent changes over time



Source: MSCI, J.P. Morgan

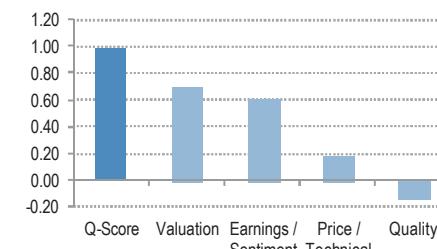
Composite Families – Cumulative performance over time



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset. Index=MSCI Korea (equal weighted, US\$, dividends reinvested)

Composite Family Performance Summary (full period results)

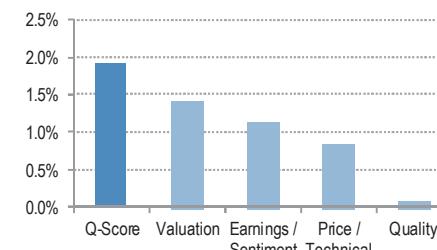
Sharpe Ratio



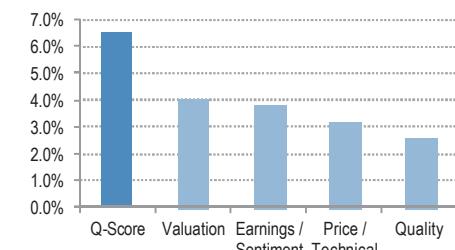
Hit Rate



Average Return LS (monthly)



Average IC



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio, the risk-free rate is assumed to be 0%.

MSCI Korea – Composites and Key Factors Summary

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Q-Score Composite	78	6.5%	4.32	68.3%	37.4%	1.9%	6.6%	0.98
C	► Composite Value (with Growth)	78	4.0%	3.26	61.1%	18.1%	1.4%	6.5%	0.69
C	► Composite Earnings / Sentiment	87	3.7%	2.89	57.9%	61.0%	1.1%	5.8%	0.60
C	► Composite Price / Reversion	88	3.2%	1.41	57.5%	33.4%	0.8%	8.9%	0.18
C	► Composite Quality	81	2.6%	0.14	55.5%	15.4%	0.1%	8.2%	-0.12
C	Q-Score Composite (Value Biased)	78	5.9%	4.42	64.7%	33.3%	1.8%	6.2%	1.00
C	Composite Price to Book ROE	90	4.6%	4.50	58.5%	16.4%	1.8%	5.8%	1.10
V	P/E (1-year forward)	78	3.9%	3.41	64.3%	15.2%	1.6%	6.8%	0.73
V	P/B (1-year trailing)	90	3.7%	2.75	56.5%	12.1%	1.5%	8.0%	0.58
V	Dividend Yield (1-year trailing)	93	3.0%	2.64	58.8%	9.7%	1.0%	5.8%	0.54
ES	Net Earnings Revisions FY1 FY2 (Relative to total changes)	86	2.9%	2.92	57.9%	65.8%	0.9%	4.7%	0.63
ES	Change in Consensus Recommendations (1-month change)	86	2.1%	1.45	56.4%	76.4%	0.6%	5.9%	0.24
ES	Forward Earnings Momentum (1-month change)	84	3.5%	2.43	61.1%	62.2%	0.9%	5.7%	0.48
ES	Forecast Earnings Growth FY1 to FY2	84	-1.0%	-0.66	49.3%	19.7%	-0.2%	5.2%	-0.24
PT	Price Momentum 12-month	88	1.0%	0.08	55.7%	24.6%	0.1%	9.2%	-0.15
PT	Price Momentum 1-month	92	-5.1%	-2.50	40.7%	80.9%	-1.7%	10.0%	-0.78
PT	RSI 10-day (Continuation)	90	-4.3%	-2.85	39.4%	79.0%	-1.6%	8.2%	-0.76
Q	Return On Equity (1-year trailing)	90	0.7%	0.01	54.0%	9.3%	0.0%	7.4%	-0.13
Q	Sales Growth (1-year trailing)	73	1.1%	0.75	55.5%	8.9%	0.7%	12.7%	0.00
R	Beta (Barra)	90	-2.0%	-0.11	49.8%	11.6%	-0.1%	8.2%	-0.16
R	Volatility (Barra)	90	-0.3%	0.41	45.2%	14.1%	0.3%	9.0%	-0.05
R	Size (Barra)	90	-0.8%	-0.72	47.5%	7.7%	-0.4%	8.0%	-0.30

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

MSCI Korea – Top factors by T-Stat (Top 20 / Bottom 5)

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat ▾	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Composite Value Momentum Model	78	6.5%	4.99	67.4%	41.4%	2.0%	6.0%	1.17
C	Composite Price to Book ROE	90	4.6%	4.50	58.5%	16.4%	1.8%	5.8%	1.10
C	Composite Value Growth Momentum Model	78	5.5%	4.48	64.7%	40.3%	1.7%	5.8%	1.03
C	Composite Value Momentum Quality Price Model (Value Biased)	78	5.9%	4.42	64.7%	33.3%	1.8%	6.2%	1.00
C	Q-Score Composite	78	6.5%	4.32	68.3%	37.4%	1.9%	6.6%	0.98
C	Composite Value Momentum Quality Price Model	78	5.9%	4.06	64.3%	36.0%	1.8%	6.5%	0.90
V	Sales to EV (using Market Value)	63	7.3%	3.63	64.0%	9.8%	2.1%	8.3%	0.80
C	Value To Growth	76	4.3%	3.61	62.0%	21.2%	1.5%	6.4%	0.78
V	1 year forward forecast PE	78	3.9%	3.41	64.3%	15.2%	1.6%	6.8%	0.73
ES	Net Revisions to FY2 [Up-Down]/[Up+Down]	87	3.3%	3.41	57.9%	67.1%	1.3%	5.5%	0.74
C	Composite Value and Growth	78	4.0%	3.26	61.1%	18.1%	1.4%	6.5%	0.69
C	Composite Value	78	4.8%	3.25	64.3%	18.5%	1.4%	6.2%	0.69
R	Value (Barra)	90	4.2%	3.02	57.9%	16.4%	1.3%	6.6%	0.62
V	1 year forward forecast PE Relative To Sector	84	3.2%	3.01	59.7%	17.6%	1.2%	6.0%	0.62
ES	Net Revisions FY1 FY2 (Rel. To Total Changes)	86	2.9%	2.92	57.9%	65.8%	0.9%	4.7%	0.63
C	Composite Momentum	87	3.7%	2.89	57.9%	61.0%	1.1%	5.8%	0.60
V	Historical P/Book Value Ratio	90	3.7%	2.75	56.5%	12.1%	1.5%	8.0%	0.58
V	Historical Dividend Yield	93	3.0%	2.64	58.8%	9.7%	1.0%	5.8%	0.54
C	Value To Risk	75	5.2%	2.49	66.1%	18.5%	1.4%	8.2%	0.40
ES	Forward Earnings Momentum (1Mth Change)	84	3.5%	2.43	61.1%	62.2%	0.9%	5.7%	0.48
PT	Historical Returns Volatility Over Last Year in LOCAL Currency	90	1.4%	-1.32	50.2%	16.2%	-0.8%	9.3%	-0.46
Q	Payout Ratio	90	-1.9%	-1.89	47.0%	10.8%	-0.7%	5.4%	-0.53
PT	1 Mth Price Momentum	92	-5.1%	-2.50	40.7%	80.9%	-1.7%	10.0%	-0.78
PT	RSI 30-day (Continuation)	90	-3.6%	-2.65	38.9%	70.6%	-1.5%	8.7%	-0.75
PT	RSI 10-day (Continuation)	90	-4.3%	-2.85	39.4%	79.0%	-1.6%	8.2%	-0.76

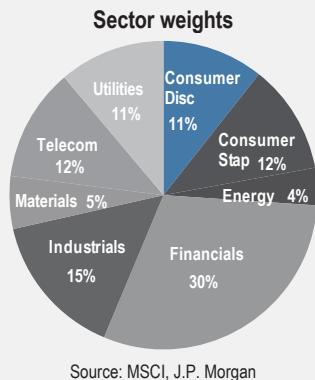
Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

For full backtest results of the Top 3 / Bottom 2 single factors and standard Composites, please see our [Country Chartbook](#).

MSCI Malaysia – Truly Alpha

Country Summary

MSCI AxJ weight: 4.8%
Investable market cap: US\$119.7bn
Number of constituents: 42



Source: MSCI, J.P. Morgan

Factor Performance

Top composite: Recommendations
Top factor: 1-mth Chg in Consensus
Recommendations

Despite a relatively weak return for the overall MSCI Malaysia index, Malaysia had the highest risk-adjusted *Q-Score* return out of any country. It also had the highest Sharpe ratio out of any country factor, beating out even composite factors: *1-mth Change in Consensus Recommendations*.

However, turnover for many of the best performing factors in Malaysia is quite high, for instance the top factor had a turnover of 75%.

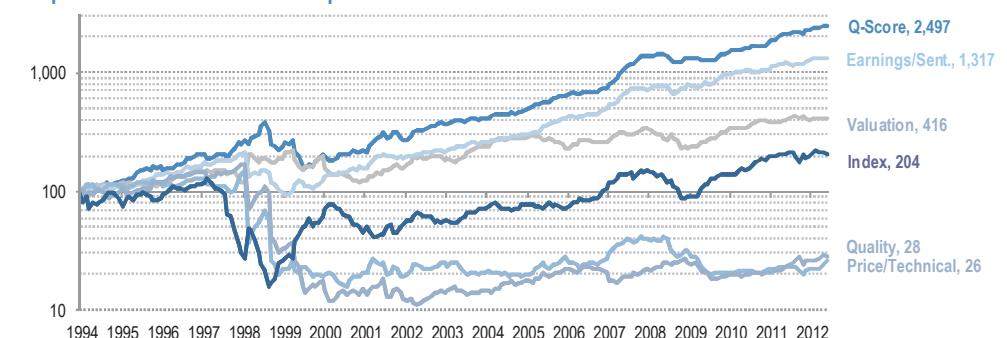
Also, note that during 1998-2006 short selling was banned in Malaysia and is still currently somewhat restricted.

MSCI Malaysia – Investable market cap and constituent changes over time



Source: MSCI, J.P. Morgan

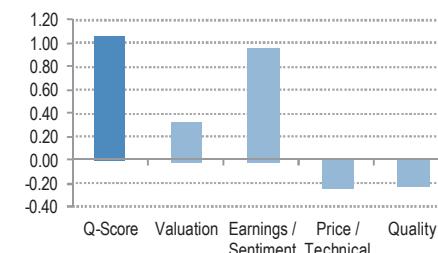
Composite Families – Cumulative performance over time



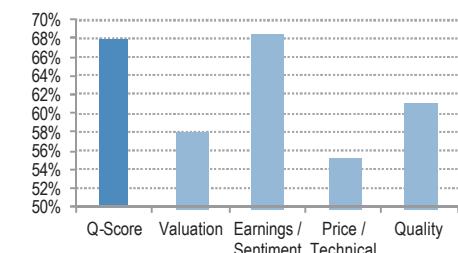
Source: J.P. Morgan, MSCI, IBES, Reuters, Factset. Index=MSCI Malaysia (equal weighted, US\$, dividends reinvested)

Composite Family Performance Summary (full period results)

Sharpe Ratio



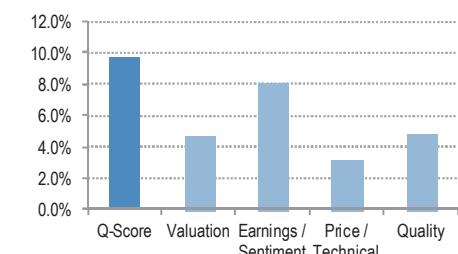
Hit Rate



Average Return LS (monthly)



Average IC



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio, the risk-free rate is assumed to be 0%.

MSCI Malaysia – Composites and Key Factors Summary

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Q-Score Composite	55	9.7%	4.57	67.9%	41.6%	1.6%	5.2%	1.05
C	► Composite Value (with Growth)	55	4.7%	1.82	57.9%	17.8%	0.9%	7.0%	0.33
C	► Composite Earnings / Sentiment	55	8.1%	4.20	68.3%	63.3%	1.3%	4.6%	0.95
C	► Composite Price / Reversion	60	3.0%	0.01	55.2%	31.4%	0.0%	9.1%	-0.22
C	► Composite Quality	52	4.8%	-0.10	61.1%	13.7%	-0.1%	8.8%	-0.22
C	Q-Score Composite (Value Biased)	55	9.8%	5.26	71.0%	39.1%	1.7%	4.9%	1.25
C	Composite Price to Book ROE	63	5.7%	3.56	64.3%	13.1%	1.6%	6.5%	0.79
V	P/E (1-year forward)	55	6.2%	2.63	67.0%	15.3%	1.2%	6.6%	0.54
V	P/B (1-year trailing)	63	2.2%	1.91	55.2%	9.8%	1.3%	10.0%	0.33
V	Dividend Yield (1-year trailing)	63	7.3%	3.07	62.0%	9.6%	1.4%	6.7%	0.63
ES	Net Earnings Revisions FY1 FY2 (Relative to total changes)	55	5.0%	4.00	59.7%	67.7%	1.0%	3.9%	0.91
ES	Change in Consensus Recommendations (1-month change)	56	6.6%	5.58	67.3%	75.0%	1.4%	3.7%	1.33
ES	Forward Earnings Momentum (1-month change)	55	3.5%	1.88	60.2%	64.7%	0.6%	4.4%	0.37
ES	Forecast Earnings Growth FY1 to FY2	56	-3.3%	-1.01	42.5%	18.9%	-0.3%	4.4%	-0.30
PT	Price Momentum 12-month	62	2.3%	-0.42	53.8%	23.9%	-0.3%	11.4%	0.00
PT	Price Momentum 1-month	62	-0.3%	-0.66	52.0%	78.9%	-0.3%	6.9%	-0.28
PT	RSI 10-day (Continuation)	62	-3.4%	-2.39	46.2%	77.7%	-0.9%	5.3%	-0.62
Q	Return On Equity (1-year trailing)	63	4.1%	0.23	54.8%	8.0%	0.1%	7.5%	-0.09
Q	Sales Growth (1-year trailing)	54	0.3%	0.15	49.1%	10.7%	0.1%	6.7%	-0.07
R	Beta (Barra)	63	-3.7%	-0.10	43.4%	11.7%	-0.1%	7.7%	-0.15
R	Volatility (Barra)	63	-4.4%	-0.03	43.4%	13.1%	0.0%	10.6%	-0.16
R	Size (Barra)	63	2.7%	0.13	58.8%	6.0%	0.1%	8.1%	-0.13

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

MSCI Malaysia – Top factors by T-Stat (Top 20 / Bottom 5)

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat ▾	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
ES	1 Mth Change in Consensus Recom	56	6.6%	5.58	67.3%	75.0%	1.4%	3.7%	1.33
C	Composite Recom	56	6.6%	5.50	67.3%	48.3%	1.3%	3.6%	1.31
C	Composite Value Growth Momentum Model	54	8.9%	5.45	64.3%	47.6%	1.7%	4.5%	1.30
C	Composite Value Momentum Quality Price Model (Value Biased)	55	9.8%	5.26	71.0%	39.1%	1.7%	4.9%	1.25
C	Composite Value Momentum Model	55	9.4%	5.06	70.6%	47.3%	1.6%	4.8%	1.20
C	Q-Score Composite	55	9.7%	4.57	67.9%	41.6%	1.6%	5.2%	1.05
C	Composite Momentum	55	8.1%	4.20	68.3%	63.3%	1.3%	4.6%	0.95
C	Composite Value Momentum Quality Price Model	55	10.2%	4.17	71.0%	39.3%	1.5%	5.3%	0.94
ES	3 Mth Change in Consensus Recom	56	5.6%	4.05	65.1%	41.0%	1.0%	3.8%	0.93
ES	Net Revisions FY1 FY2 (Rel. To Total Changes)	55	5.0%	4.00	59.7%	67.7%	1.0%	3.9%	0.91
R	Value (Barra)	63	8.2%	3.79	63.3%	15.5%	1.7%	6.8%	0.85
V	Historical P/Cash Earnings Ratio	53	6.5%	3.66	64.7%	12.6%	1.4%	5.6%	0.81
C	Composite Price to Book ROE	63	5.7%	3.56	64.3%	13.1%	1.6%	6.5%	0.79
V	Historical Earnings Yield	63	6.8%	3.46	66.5%	13.8%	1.4%	5.8%	0.75
C	Sentiment Composite	49	7.3%	3.31	62.5%	31.2%	1.1%	3.6%	1.04
C	Value To Risk	52	7.0%	3.13	65.6%	17.8%	1.2%	5.5%	0.66
ES	Net Revisions to FY1 [Up-Down]/[Up+Down]	56	4.4%	3.10	58.8%	67.2%	0.8%	3.9%	0.68
V	Historical Dividend Yield	63	7.3%	3.07	62.0%	9.6%	1.4%	6.7%	0.63
V	1 year forward forecast PE Relative To Sector	54	6.6%	3.01	65.6%	15.0%	1.2%	5.8%	0.65
C	Composite Value	55	5.5%	2.73	62.0%	17.8%	1.2%	6.3%	0.57
Q	Change In ROE Between Current and 12 Mths Prior	59	1.7%	-0.73	48.3%	16.1%	-0.3%	5.2%	-0.27
Q	ALTMAN Z-score	57	2.3%	-0.92	55.5%	3.7%	-0.5%	7.8%	-0.39
PT	6 Mth Price Momentum	62	1.6%	-1.00	49.3%	33.0%	-0.8%	11.3%	0.00
ES	Forecast Earnings Growth FY1 to FY2	56	-3.3%	-1.01	42.5%	18.9%	-0.3%	4.4%	-0.30
PT	RSI 10-day (Continuation)	62	-3.4%	-2.39	46.2%	77.7%	-0.9%	5.3%	-0.62

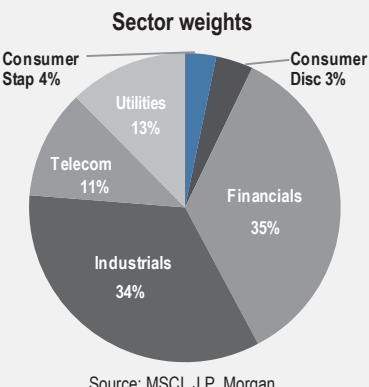
Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

For full backtest results of the Top 3 / Bottom 2 single factors and standard Composites, please see our [Country Chartbook](#).

MSCI Philippines – Islands of alpha

Country Summary

MSCI AxJ weight: 1.3%
Investable market cap: US\$31.7bn
Number of constituents: 19



Source: MSCI, J.P. Morgan

Factor Performance

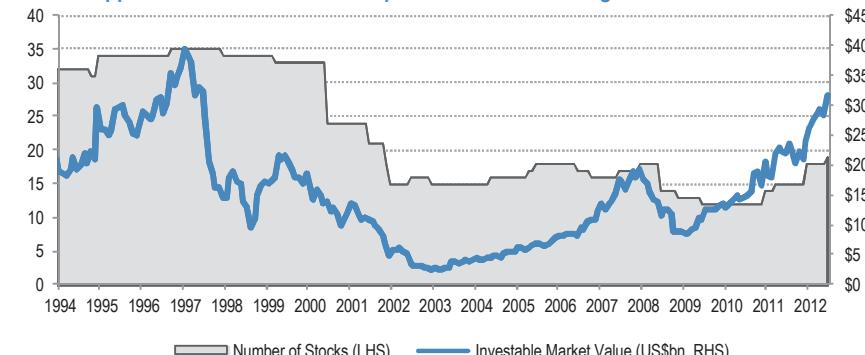
Top composite: Value Earnings/Sentiment
Price Quality
Top factor: 1-mth Chg in Consensus
Recommendations

The Philippines have a very diverse geography with 7,107 islands, however its relatively small total market cap gives it a low representation in MSCI with currently just 19 constituents. Thus, in our backtesting we have switched to tercile portfolios from quintiles.

Despite this relatively small number of stocks which could hamper diversification, it turns out that there are still substantial pockets of alpha in the Philippines. Using the Q-Score to tap diverse alpha sources, this strategy performs remarkably well (up 1,760% from 1994-2012). Similarly, the top 20 overall factors comprised of 13 composite factors.

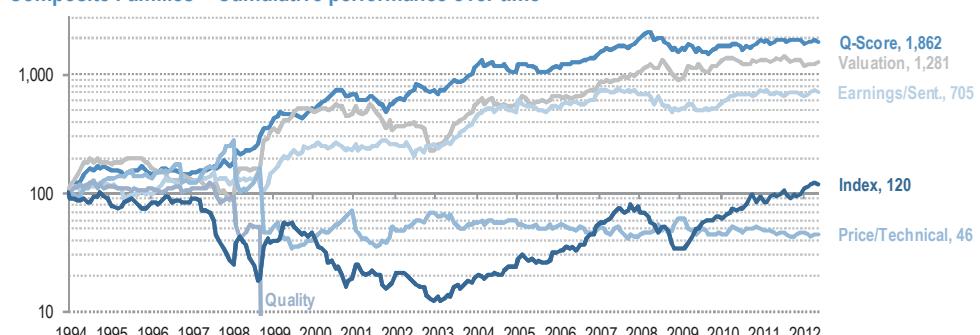
Quality as a strategy failed during the AFC, when in Oct 1998, it had on the short side a single stock had a 1-month USD return of 454% (C&P Homes).

MSCI Philippines – Investable market cap and constituent changes over time



Source: MSCI, J.P. Morgan

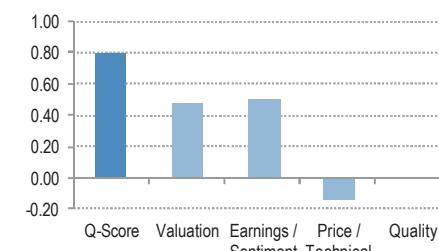
Composite Families – Cumulative performance over time



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset. Index=MSCI Philippines (equal weighted, US\$, dividends reinvested)

Composite Family Performance Summary (full period results)

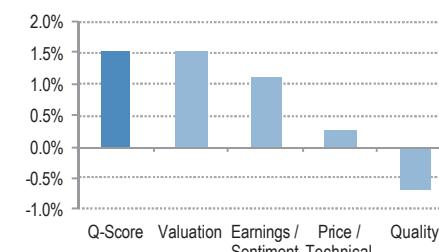
Sharpe Ratio



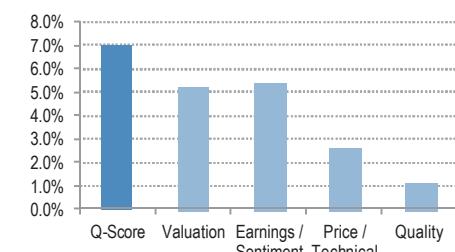
Hit Rate



Average Return LS (monthly)



Average IC



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio, the risk-free rate is assumed to be 0%.

MSCI Philippines – Composites and Key Factors Summary

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Q-Score Composite	18	7.0%	3.63	62.0%	37.2%	1.5%	6.2%	0.80
C	► Composite Value (with Growth)	18	5.2%	2.50	57.0%	14.3%	1.5%	9.0%	0.47
C	► Composite Earnings / Sentiment	19	5.4%	2.52	58.8%	55.5%	1.1%	6.5%	0.50
C	► Composite Price / Reversion	20	2.6%	0.43	54.8%	28.4%	0.3%	9.5%	-0.13
C	► Composite Quality	18	1.1%	-0.89	54.8%	11.8%	-0.6%	10.7%	0.00
C	Q-Score Composite (Value Biased)	18	6.9%	3.46	63.3%	32.5%	1.7%	7.5%	0.74
C	Composite Price to Book ROE	22	2.7%	2.31	53.4%	11.8%	1.5%	9.9%	0.43
V	P/E (1-year forward)	18	4.3%	2.26	55.7%	11.9%	1.5%	10.1%	0.40
V	P/B (1-year trailing)	22	2.6%	1.62	50.7%	8.3%	1.3%	11.5%	0.23
V	Dividend Yield (1-year trailing)	22	0.3%	-0.28	53.4%	11.4%	-0.1%	7.4%	-0.19
ES	Net Earnings Revisions FY1 FY2 (Relative to total changes)	19	0.4%	-0.96	52.5%	59.3%	-0.6%	8.9%	-0.49
ES	Change in Consensus Recommendations (1-month change)	20	3.7%	2.82	54.5%	66.3%	1.2%	6.4%	0.58
ES	Forward Earnings Momentum (1-month change)	19	4.9%	0.34	55.2%	58.0%	0.2%	8.1%	-0.10
ES	Forecast Earnings Growth FY1 to FY2	20	1.6%	-0.41	56.6%	18.7%	-0.2%	8.4%	-0.29
PT	Price Momentum 12-month	21	1.2%	-0.87	53.4%	20.1%	-0.8%	13.4%	0.00
PT	Price Momentum 1-month	21	-4.6%	-2.31	45.2%	69.2%	-1.8%	11.5%	0.00
PT	RSI 10-day (Continuation)	22	-4.0%	-2.29	43.4%	64.9%	-1.4%	9.0%	-0.70
Q	Return On Equity (1-year trailing)	22	1.2%	-0.65	55.2%	6.5%	-0.5%	10.4%	0.00
Q	Sales Growth (1-year trailing)	15	1.9%	-0.30	51.4%	8.6%	-0.2%	8.5%	-0.22
R	Beta (Barra)	21	2.0%	1.49	51.1%	9.7%	0.9%	8.6%	0.22
R	Volatility (Barra)	21	-2.8%	0.39	45.2%	11.6%	0.3%	11.1%	-0.07
R	Size (Barra)	21	1.7%	-0.72	53.4%	5.7%	-0.5%	10.4%	-0.48

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

MSCI Philippines – Top factors by T-Stat (Top 20 / Bottom 5)

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Composite Value Momentum Quality Price Model	18	6.8%	3.76	61.5%	34.7%	1.8%	6.9%	0.83
C	Q-Score Composite	18	7.0%	3.63	62.0%	37.2%	1.5%	6.2%	0.80
C	Composite Value Momentum Quality Price Model (Value Biased)	18	6.9%	3.46	63.3%	32.5%	1.7%	7.5%	0.74
C	Composite Value Momentum Model	18	6.9%	3.05	56.6%	41.3%	2.0%	9.6%	0.62
C	Composite Value Growth Momentum Model	18	6.6%	2.83	57.0%	38.6%	1.6%	8.5%	0.57
ES	1 Mth Change in Consensus Recom	20	3.7%	2.82	54.5%	66.3%	1.2%	6.4%	0.58
C	Composite Value	18	5.6%	2.69	56.1%	15.3%	1.9%	10.6%	0.52
C	Sentiment Composite	15	7.0%	2.52	54.2%	27.4%	1.5%	6.7%	0.74
C	Composite Momentum	19	5.4%	2.52	58.8%	55.5%	1.1%	6.5%	0.50
C	Composite Value and Growth	18	5.2%	2.50	57.0%	14.3%	1.5%	9.0%	0.47
C	Value To Growth	18	3.5%	2.31	56.1%	14.4%	1.4%	8.9%	0.42
C	Composite Price to Book ROE	22	2.7%	2.31	53.4%	11.8%	1.5%	9.9%	0.43
V	Historical P/Sales Ratio	16	5.2%	2.29	55.7%	7.2%	1.7%	11.1%	0.39
V	1 year forward forecast PE	18	4.3%	2.26	55.7%	11.9%	1.5%	10.1%	0.40
V	Historical P/Cash Earnings Ratio	16	5.2%	2.09	56.1%	10.7%	1.3%	9.5%	0.34
V	1 year forward forecast PE Relative To Sector	18	4.5%	1.91	54.8%	13.6%	1.2%	9.0%	0.33
C	Composite Recom	20	5.1%	1.88	55.9%	44.0%	0.9%	6.9%	0.33
C	Value To Risk	18	4.0%	1.88	55.2%	15.9%	1.2%	9.5%	0.30
V	1 year forward forecast PE Relative To History	17	5.8%	1.77	56.6%	17.9%	1.5%	11.8%	0.29
V	Cash Flow Yield FY1	17	3.2%	1.67	56.1%	10.8%	1.2%	10.4%	0.25
PT	3 Mth Price Momentum	22	-3.0%	-1.41	51.6%	39.9%	-1.2%	12.4%	0.00
ES	Net Revisions to FY1 [Up-Down]/[Up+Down]	19	0.9%	-1.43	47.1%	58.9%	-0.7%	6.9%	-0.44
PT	RSI 30-day (Continuation)	22	-2.5%	-1.99	46.6%	56.8%	-1.4%	10.3%	0.00
PT	RSI 10-day (Continuation)	22	-4.0%	-2.29	43.4%	64.9%	-1.4%	9.0%	-0.70
PT	1 Mth Price Momentum	21	-4.6%	-2.31	45.2%	69.2%	-1.8%	11.5%	0.00

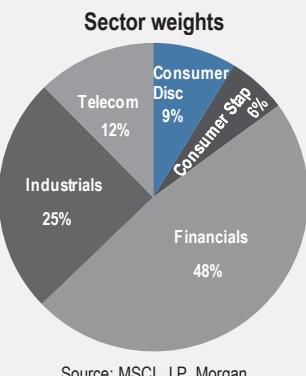
Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

For full backtest results of the Top 3 / Bottom 2 single factors and standard Composites, please see our [Country Chartbook](#).

MSCI Singapore – A merlion in sheep's clothing

Country Summary

MSCI AxJ weight: 7.2%
Investable market cap: US\$180.0bn
Number of constituents: 32



Source: MSCI, J.P. Morgan

Factor Performance

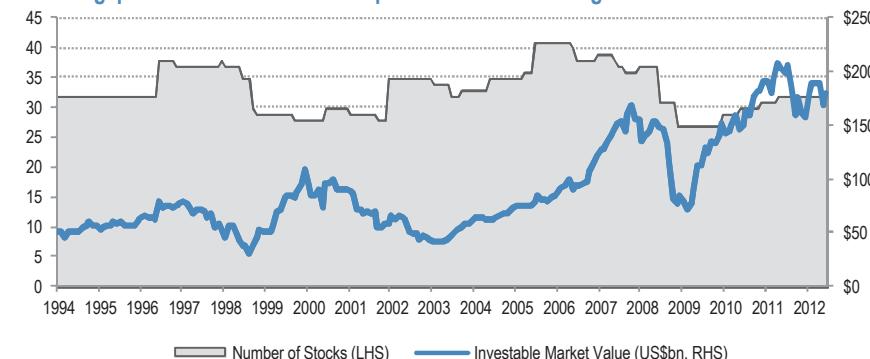
Top composite: Price to Book ROE
Top factor: 1-mth Chg in Consensus Recommendations

As a "developed" market, Singapore showed relatively modest performance for systematic style investing. Earnings/Sentiment shows consistently strong factor performance, while other factor families were less able to handle inflection points. Price/Technical in particular performed very poorly, and unlike other countries where the factor blew up in a single month, this factor showed a long gradual decline.

Looking at just the returns of the top performing factors however belies strong real world performance. The overall top performing factor was classic *P/B ROE*, with a Sharpe of 0.59 and a reasonable monthly turnover of just 14.6%. It is unsurprising that *P/B ROE* is a strong performer, given that this factor also works well for AxJ Financials, and Financials is the largest constituent of MSCI Singapore at 48%.

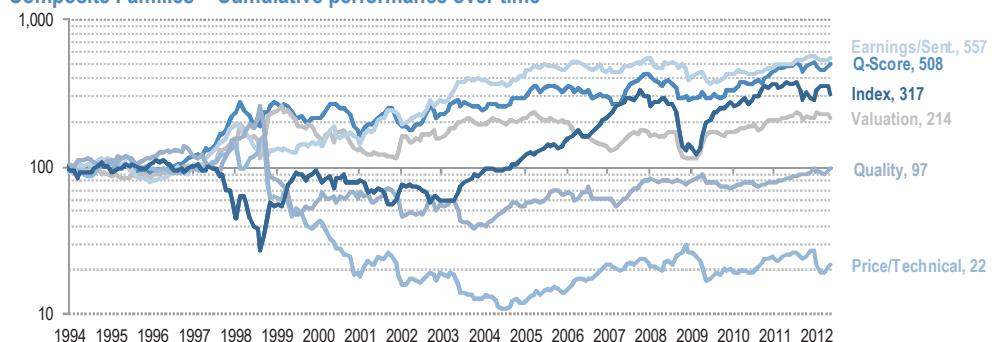
It's worth noting that *Historical Price/Sales* also has a Sharpe of 0.59 and a very low monthly turnover of just 4.6%.

MSCI Singapore – Investable market cap and constituent changes over time



Source: MSCI, J.P. Morgan

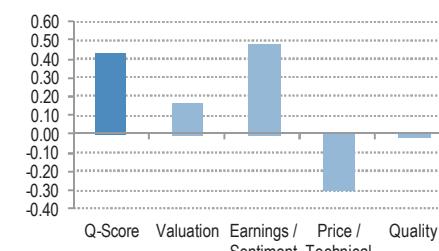
Composite Families – Cumulative performance over time



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset. Index=MSCI Singapore (equal weighted, US\$, dividends reinvested)

Composite Family Performance Summary (full period results)

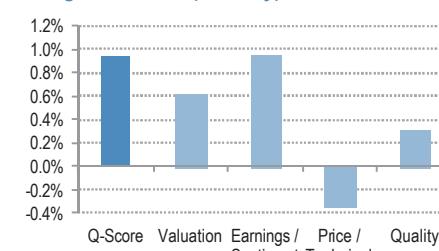
Sharpe Ratio



Hit Rate



Average Return LS (monthly)



Average IC



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio, the risk-free rate is assumed to be 0%.

MSCI Singapore – Composites and Key Factors Summary

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Q-Score Composite	31	5.1%	2.22	57.9%	42.7%	0.9%	6.2%	0.43
C	► Composite Value (with Growth)	31	1.6%	1.18	53.4%	16.3%	0.6%	7.8%	0.16
C	► Composite Earnings / Sentiment	32	5.3%	2.40	55.7%	62.8%	1.0%	5.9%	0.48
C	► Composite Price / Reversion	31	0.9%	-0.61	52.0%	31.2%	-0.3%	8.0%	-0.29
C	► Composite Quality	31	2.3%	0.61	57.9%	13.1%	0.3%	7.5%	-0.01
C	Q-Score Composite (Value Biased)	31	4.9%	2.23	56.1%	40.2%	1.0%	6.6%	0.43
C	Composite Price to Book ROE	33	3.9%	2.85	58.4%	14.6%	1.3%	6.9%	0.59
V	P/E (1-year forward)	31	3.0%	2.17	60.2%	13.8%	1.2%	8.0%	0.40
V	P/B (1-year trailing)	33	1.5%	1.21	48.0%	9.5%	0.6%	7.2%	0.17
V	Dividend Yield (1-year trailing)	33	3.8%	2.13	54.8%	11.0%	1.0%	6.7%	0.40
ES	Net Earnings Revisions FY1 FY2 (Relative to total changes)	32	2.9%	1.82	57.0%	65.9%	0.7%	5.3%	0.34
ES	Change in Consensus Recommendations (1-month change)	32	4.6%	2.70	58.2%	77.4%	1.0%	5.4%	0.56
ES	Forward Earnings Momentum (1-month change)	31	3.4%	1.76	55.7%	62.6%	0.7%	6.3%	0.31
ES	Forecast Earnings Growth FY1 to FY2	32	-2.5%	-0.14	47.1%	18.9%	-0.1%	6.4%	-0.14
PT	Price Momentum 12-month	32	0.9%	-0.55	51.1%	23.6%	-0.4%	9.8%	-0.34
PT	Price Momentum 1-month	32	-0.2%	-0.02	48.9%	77.4%	0.0%	7.0%	-0.14
PT	RSI 10-day (Continuation)	33	-4.8%	-2.49	44.8%	77.6%	-1.0%	5.7%	-0.64
Q	Return On Equity (1-year trailing)	33	1.5%	-0.54	50.2%	6.5%	-0.2%	6.8%	-0.25
Q	Sales Growth (1-year trailing)	30	0.5%	-0.68	45.1%	10.5%	-0.3%	6.5%	-0.28
R	Beta (Barra)	33	-2.8%	-0.05	45.2%	9.5%	0.0%	8.1%	-0.14
R	Volatility (Barra)	33	-2.8%	0.05	47.5%	11.1%	0.0%	8.6%	-0.13
R	Size (Barra)	33	-0.2%	-0.64	51.6%	5.4%	-0.3%	7.9%	-0.33

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

MSCI Singapore – Top factors by T-Stat (Top 20 / Bottom 5)

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Composite Price to Book ROE	33	3.9%	2.85	58.4%	14.6%	1.3%	6.9%	0.59
ES	1 Mth Change in Consensus Recom	32	4.6%	2.70	58.2%	77.4%	1.0%	5.4%	0.56
C	Composite Value Momentum Model	31	5.8%	2.53	61.5%	48.7%	1.1%	6.3%	0.51
C	Composite Value Growth Momentum Model	31	4.5%	2.47	57.9%	47.3%	1.0%	6.3%	0.49
C	Composite Value Momentum Quality Price Model	31	5.1%	2.45	59.3%	41.9%	1.0%	6.1%	0.49
ES	3 Mth Change in Consensus Recom	32	3.4%	2.40	55.0%	42.8%	0.9%	5.3%	0.49
C	Composite Momentum	32	5.3%	2.40	55.7%	62.8%	1.0%	5.9%	0.48
C	Composite Value Momentum Quality Price Model (Value Biased)	31	4.9%	2.23	56.1%	40.2%	1.0%	6.6%	0.43
C	Composite Recom	32	4.0%	2.22	55.5%	50.8%	0.8%	5.5%	0.44
C	Q-Score Composite	31	5.1%	2.22	57.9%	42.7%	0.9%	6.2%	0.43
V	Historical P/Sales Ratio	30	4.2%	2.21	55.1%	4.6%	1.1%	5.6%	0.59
V	Historical Earnings Yield	33	2.1%	2.18	58.4%	13.8%	0.9%	6.3%	0.42
V	1 year forward forecast PE	31	3.0%	2.17	60.2%	13.8%	1.2%	8.0%	0.40
V	Historical Dividend Yield	33	3.8%	2.13	54.8%	11.0%	1.0%	6.7%	0.40
V	Sales to EV (using Market Value)	26	1.5%	2.11	55.6%	7.9%	1.1%	7.4%	0.40
C	Composite Value	31	2.7%	2.03	58.4%	17.1%	1.1%	8.2%	0.36
R	Value (Barra)	33	2.7%	2.03	54.3%	15.3%	1.2%	8.8%	0.36
ES	Net Revisions to FY2 [Up-Down]/[Up+Down]	32	3.6%	1.84	57.5%	68.0%	0.6%	4.9%	0.35
ES	Net Revisions FY1 FY2 (Rel. To Total Changes)	32	2.9%	1.82	57.0%	65.9%	0.7%	5.3%	0.34
V	Free Cash Flow to Enterprise Value (Historical)	30	1.2%	1.80	61.5%	11.6%	0.7%	5.0%	0.39
ES	Number of Consensus Estimates (FY1)	32	-0.6%	-1.23	50.7%	13.6%	-0.5%	6.4%	-0.40
PT	RSI 30-day (Continuation)	33	-1.7%	-1.37	46.2%	65.7%	-0.6%	6.3%	-0.42
Q	EBIT Margin Growth	30	-2.3%	-1.44	45.3%	12.6%	-0.5%	5.0%	-0.45
R	Liquidity	32	-2.8%	-1.52	43.5%	10.1%	-0.6%	5.3%	-0.44
PT	RSI 10-day (Continuation)	33	-4.8%	-2.49	44.8%	77.6%	-1.0%	5.7%	-0.64

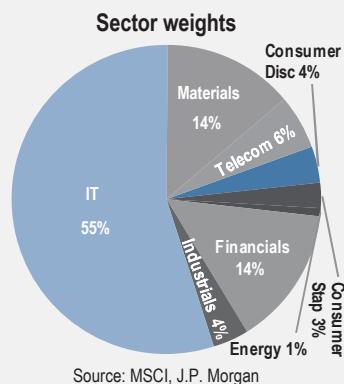
Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

For full backtest results of the Top 3 / Bottom 2 single factors and standard Composites, please see our [Country Chartbook](#).

MSCI Taiwan – Tech (not Technicals) driven

Country Summary

MSCI AxJ weight: 14.9%
Investable market cap: US\$370.4bn
Number of constituents: 114



Source: MSCI, J.P. Morgan

Factor Performance

Top composite: Value Earnings/Sentiment Quality Price (Value Bias)
Top factor: Net Revisions to FY2 (Up-Down) / (Up + Down)

Technology-dominated Taiwan showed strong factor performance with our generic *Q-Score* model returning 19.7x. This is in spite of relatively lackluster index performance (the only region declining from 1994-2012).

Interestingly, despite a domestic retail market that emphasizes technical trading (there are a number of local television channels focusing on technical analysis), our Price/Technical composite only fared modestly, although still outpacing the index.

During our test period, Taiwan showed several distinct phases of factor performance, oscillating between Value and both Earnings/ Sentiment and Quality. From 1994-2002, Value performed best by a wide margin, particularly with the bursting of the tech bubble. From 2002-2009 after the outbreak of SARS, Value plateaued and just kept pace with the index, while Earnings/ Sentiment and Quality strongly outperformed. After the Global Financial Crisis in 2009-2012, Value began to perform strongly once again, with Earnings/ Sentiment and Quality showing good gains from 2011 onwards as well.

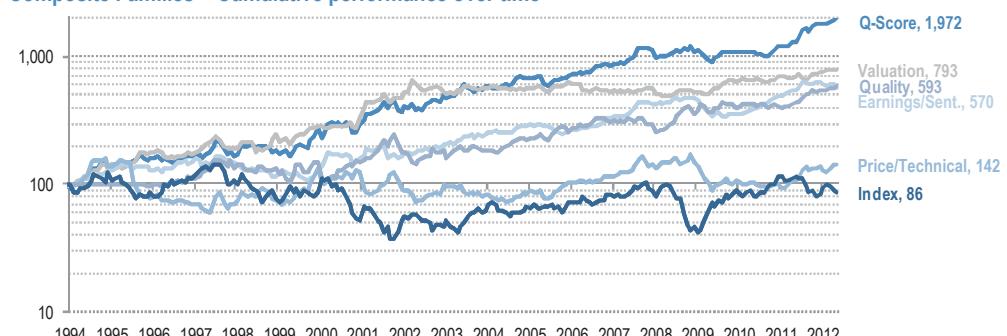
It's worth mentioning that Taiwan's market is highly transparent, for instance companies are required to report sales figures monthly, which could warrant further study on their impact on factor performance.

MSCI Taiwan – Investable market cap and constituent changes over time



Source: MSCI, J.P. Morgan

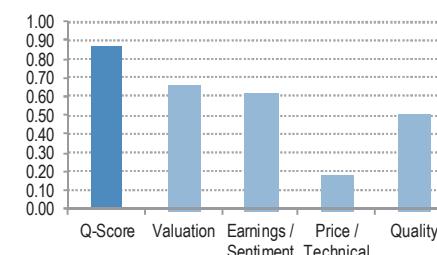
Composite Families – Cumulative performance over time



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset. Index=MSCI Taiwan (equal weighted, US\$, dividends reinvested)

Composite Family Performance Summary (full period results)

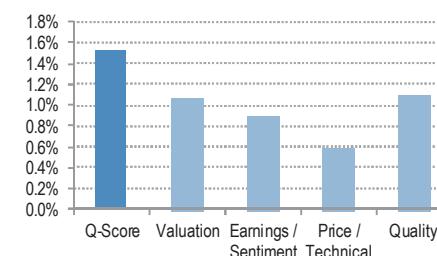
Sharpe Ratio



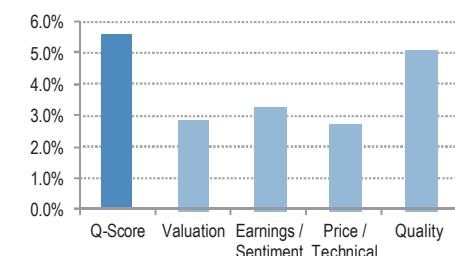
Hit Rate



Average Return LS (monthly)



Average IC



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio, the risk-free rate is assumed to be 0%.

MSCI Taiwan – Composites and Key Factors Summary

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Q-Score Composite	71	5.6%	3.88	61.5%	44.5%	1.5%	5.8%	0.87
C	► Composite Value (with Growth)	71	2.9%	3.07	58.8%	22.8%	1.1%	5.2%	0.66
C	► Composite Earnings / Sentiment	75	3.2%	2.85	57.0%	64.9%	0.9%	4.7%	0.61
C	► Composite Price / Reversion	86	2.7%	1.28	55.7%	30.0%	0.6%	6.9%	0.18
C	► Composite Quality	64	5.0%	2.45	58.9%	17.3%	1.1%	6.3%	0.51
C	Q-Score Composite (Value Biased)	71	5.9%	5.05	64.3%	43.1%	1.8%	5.3%	1.19
C	Composite Price to Book ROE	93	3.1%	2.04	57.4%	15.1%	0.8%	5.8%	0.41
V	P/E (1-year forward)	71	4.3%	3.36	59.3%	19.1%	1.3%	5.7%	0.73
V	P/B (1-year trailing)	93	-1.2%	0.20	43.1%	10.6%	0.1%	7.9%	-0.08
V	Dividend Yield (1-year trailing)	91	3.6%	1.50	55.7%	8.0%	0.5%	5.4%	0.26
ES	Net Earnings Revisions FY1 FY2 (Relative to total changes)	74	2.4%	2.41	56.6%	66.2%	0.7%	4.1%	0.51
ES	Change in Consensus Recommendations (1-month change)	84	1.6%	2.37	59.1%	72.8%	0.6%	3.9%	0.50
ES	Forward Earnings Momentum (1-month change)	73	1.4%	1.69	55.2%	65.7%	0.5%	4.7%	0.32
ES	Forecast Earnings Growth FY1 to FY2	74	-1.8%	-0.77	45.7%	21.7%	-0.2%	4.6%	-0.25
PT	Price Momentum 12-month	87	2.8%	1.34	57.9%	23.2%	0.7%	7.5%	0.18
PT	Price Momentum 1-month	90	1.3%	0.30	48.9%	77.8%	0.1%	7.0%	-0.06
PT	RSI 10-day (Continuation)	91	1.0%	-0.04	52.0%	78.2%	0.0%	6.3%	-0.13
Q	Return On Equity (1-year trailing)	93	4.4%	1.43	56.4%	7.6%	0.7%	7.0%	0.23
Q	Sales Growth (1-year trailing)	80	-0.4%	-0.12	49.1%	9.8%	-0.1%	6.6%	-0.14
R	Beta (Barra)	91	-0.8%	-0.22	45.2%	12.5%	-0.1%	6.4%	-0.16
R	Volatility (Barra)	91	-2.1%	-0.41	44.8%	13.6%	-0.2%	7.8%	-0.22
R	Size (Barra)	91	2.1%	0.37	55.7%	6.8%	0.2%	6.9%	-0.04

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

MSCI Taiwan – Top factors by T-Stat (Top 20 / Bottom 5)

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat ▾	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Composite Value Momentum Quality Price Model (Value Biased)	71	5.9%	5.05	64.3%	43.1%	1.8%	5.3%	1.19
C	Composite Value Momentum Quality Price Model	71	6.3%	4.78	64.3%	43.7%	1.7%	5.4%	1.12
C	Composite Value Growth Momentum Model	71	4.8%	4.22	62.9%	51.3%	1.4%	4.8%	0.97
C	Q-Score Composite	71	5.6%	3.88	61.5%	44.5%	1.5%	5.8%	0.87
C	Value To Risk	61	5.6%	3.77	63.8%	21.3%	1.5%	5.8%	0.84
C	Composite Value Momentum Model	71	4.9%	3.70	57.9%	50.7%	1.2%	4.9%	0.83
ES	Net Revisions to FY2 [Up-Down]/[Up+Down]	76	2.9%	3.44	59.3%	69.4%	1.0%	4.2%	0.77
V	1 year forward forecast PE	71	4.3%	3.36	59.3%	19.1%	1.3%	5.7%	0.73
PT	Seasonality	72	5.3%	3.36	64.0%	77.6%	1.3%	5.0%	0.89
C	Composite Value and Growth	71	2.9%	3.07	58.8%	22.8%	1.1%	5.2%	0.66
C	Composite Momentum	75	3.2%	2.85	57.0%	64.9%	0.9%	4.7%	0.61
C	Sentiment Composite	94	4.3%	2.75	62.5%	30.3%	1.0%	4.1%	0.84
V	1 year forward forecast PE Relative To Sector	71	3.3%	2.70	57.5%	19.2%	0.9%	4.9%	0.57
C	Composite Recom	84	2.0%	2.50	60.0%	46.8%	0.6%	3.6%	0.54
Q	PIOTROSKI F-score (Fundamental Scorecard)	91	4.1%	2.49	57.5%	14.0%	0.9%	5.2%	0.51
C	Composite Quality	64	5.0%	2.45	58.9%	17.3%	1.1%	6.3%	0.51
C	Composite Value	71	3.4%	2.45	58.4%	21.2%	0.9%	5.2%	0.50
ES	Net Revisions FY1 FY2 (Rel. To Total Changes)	74	2.4%	2.41	56.6%	66.2%	0.7%	4.1%	0.51
V	EBITDA to Enterprise Value	82	4.6%	2.41	59.3%	14.6%	1.3%	7.1%	0.53
ES	1 Mth Change in Consensus Recom	84	1.6%	2.37	59.1%	72.8%	0.6%	3.9%	0.50
Q	Gearing	78	-0.9%	-0.46	49.5%	3.6%	-0.2%	7.3%	-0.24
Q	Asset Turnover Growth (Historical)	76	-0.3%	-0.67	44.7%	11.1%	-0.3%	5.8%	-0.27
ES	Forecast Earnings Growth FY1 to FY2	74	-1.8%	-0.77	45.7%	21.7%	-0.2%	4.6%	-0.25
Q	Payout Ratio	93	-2.4%	-1.18	44.1%	9.6%	-0.4%	4.9%	-0.36
C	Composite Co-Efficient of Variation (Avg of Fy1 and FY2)	63	-4.8%	-2.23	39.4%	24.6%	-0.8%	5.6%	-0.58

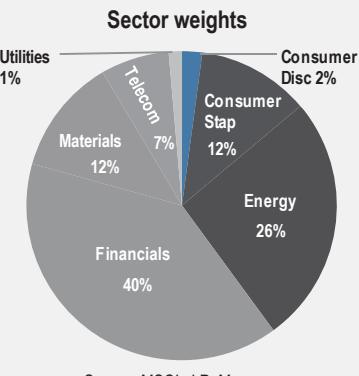
Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

For full backtest results of the Top 3 / Bottom 2 single factors and standard Composites, please see our [Country Chartbook](#).

MSCI Thailand – Amazing analysts

Country Summary

MSCI AxJ weight: 2.9%
Investable market cap: US\$73.0bn
Number of constituents: 21



Source: MSCI, J.P. Morgan

Factor Performance

Top composite: Value Growth Earnings/Sentiment
Top factor: Net Revisions FY1 FY2 (Relative to total changes)

Earnings / Sentiment the best performing factor family, and Analysts' Net Revisions (average of FY1 and FY2 EPS) was the best performing single factor.

Value also a strong performer, consistently navigating both the AFC and GFC, although sat out the bull market of 2004-2008

During the AFC in the month of October 1998, several stocks had 400%+ returns, in which the Price / Technical composite was caught on the wrong side of the trade.

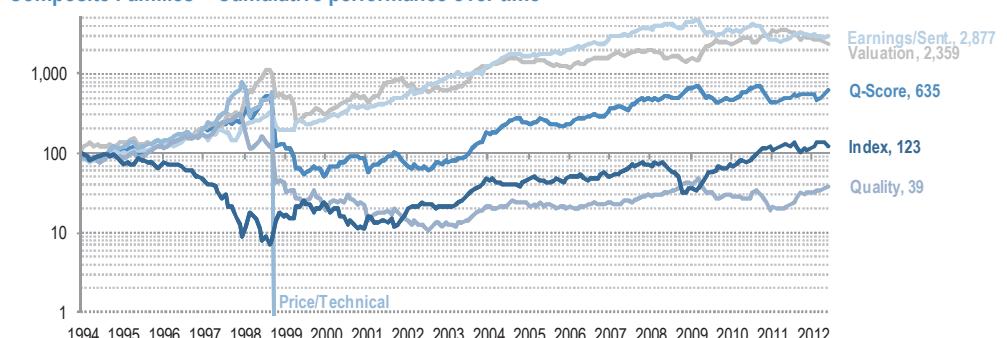
The Generic Q-Score was dragged down by Price/Technical and Quality factors, but the best performing overall factor is unsurprisingly Composite Value Growth Momentum.

MSCI Thailand – Investable market cap and constituent changes over time



Source: MSCI, J.P. Morgan

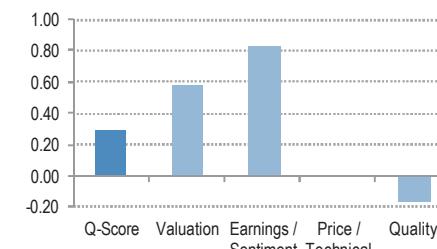
Composite Families – Cumulative performance over time



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset. Index=MSCI Thailand (equal weighted, US\$, dividends reinvested)

Composite Family Performance Summary (full period results)

Sharpe Ratio



Hit Rate



Average Return LS (monthly)



Average IC



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio, the risk-free rate is assumed to be 0%.

MSCI Thailand – Composites and Key Factors Summary

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Q-Score Composite	33	8.9%	2.15	58.8%	42.6%	1.5%	10.3%	0.30
C	► Composite Value (with Growth)	33	5.4%	3.03	59.7%	21.6%	1.9%	9.2%	0.58
C	► Composite Earnings / Sentiment	35	6.6%	3.79	65.2%	66.8%	1.8%	7.0%	0.83
C	► Composite Price / Reversion	39	5.0%	0.56	60.6%	33.4%	0.5%	13.6%	0.00
C	► Composite Quality	32	3.8%	0.26	55.7%	15.4%	0.2%	10.1%	-0.14
C	Q-Score Composite (Value Biased)	33	9.2%	3.77	62.4%	41.3%	2.3%	9.1%	0.79
C	Composite Price to Book ROE	42	3.9%	1.31	52.9%	16.9%	0.7%	8.3%	0.17
V	P/E (1-year forward)	33	5.2%	1.37	57.5%	15.8%	1.0%	11.4%	-0.08
V	P/B (1-year trailing)	42	1.3%	1.44	54.3%	12.1%	1.3%	12.9%	0.17
V	Dividend Yield (1-year trailing)	43	4.3%	0.52	55.2%	20.7%	0.3%	9.2%	-0.06
ES	Net Earnings Revisions FY1 FY2 (Relative to total changes)	35	5.0%	3.33	62.9%	65.7%	1.8%	8.2%	0.69
ES	Change in Consensus Recommendations (1-month change)	36	4.2%	2.49	58.6%	75.9%	1.0%	6.1%	0.49
ES	Forward Earnings Momentum (1-month change)	30	5.0%	2.15	58.8%	63.1%	1.2%	8.3%	0.37
ES	Forecast Earnings Growth FY1 to FY2	34	-1.4%	-1.42	46.2%	21.0%	-0.8%	8.0%	-0.44
PT	Price Momentum 12-month	40	4.4%	0.18	58.4%	24.8%	0.2%	13.2%	-0.27
PT	Price Momentum 1-month	41	0.5%	0.65	51.6%	77.7%	0.5%	12.1%	-0.07
PT	RSI 10-day (Continuation)	42	1.5%	1.11	53.8%	76.0%	0.7%	8.9%	0.10
Q	Return On Equity (1-year trailing)	42	3.4%	-0.40	56.6%	10.7%	-0.3%	11.5%	0.00
Q	Sales Growth (1-year trailing)	32	-0.3%	-0.40	50.3%	9.8%	-0.2%	7.7%	-0.24
R	Beta (Barra)	37	-5.7%	-0.15	41.6%	12.0%	-0.1%	11.9%	-0.21
R	Volatility (Barra)	37	-4.5%	0.50	43.0%	15.4%	0.4%	12.2%	-0.06
R	Size (Barra)	37	-0.6%	-1.22	50.7%	9.5%	-1.0%	11.7%	0.00

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

MSCI Thailand – Top factors by T-Stat (Top 20 / Bottom 5)

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat ▾	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Composite Value Growth Momentum Model	33	8.0%	3.98	63.8%	51.5%	2.1%	7.9%	0.86
C	Composite Momentum	35	6.6%	3.79	65.2%	66.8%	1.8%	7.0%	0.83
C	Composite Value Momentum Quality Price Model (Value Biased)	33	9.2%	3.77	62.4%	41.3%	2.3%	9.1%	0.79
C	Composite Value Momentum Model	33	7.8%	3.55	62.9%	51.8%	2.1%	8.9%	0.75
ES	Net Revisions FY1 FY2 (Rel. To Total Changes)	35	5.0%	3.33	62.9%	65.7%	1.8%	8.2%	0.69
ES	Forward Earnings Momentum (3Mth Change) / Co-Efficient Of Variation	25	6.4%	3.17	60.2%	37.2%	2.0%	9.4%	0.63
C	Composite Value and Growth	33	5.4%	3.03	59.7%	21.6%	1.9%	9.2%	0.58
C	Composite Value Momentum Quality Price Model	33	9.6%	2.86	62.0%	41.4%	1.8%	9.6%	0.52
V	Cash Flow Yield Mean of FY1 and FY2	30	4.3%	2.80	57.0%	17.6%	1.7%	9.0%	0.55
V	Cash Flow Yield FY2	30	3.9%	2.68	55.1%	18.2%	1.9%	10.3%	0.52
V	Cash Flow Yield FY1	30	4.2%	2.58	56.5%	17.8%	1.5%	8.5%	0.49
PT	Price Accel 6M	40	4.4%	2.52	63.8%	26.1%	1.4%	8.5%	0.48
ES	1 Mth Change in Consensus Recom	36	4.2%	2.49	58.6%	75.9%	1.0%	6.1%	0.49
R	Value (Barra)	37	4.1%	2.42	57.9%	18.1%	1.4%	8.7%	0.45
ES	Net Revisions to FY1 [Up-Down]/[Up+Down]	35	4.3%	2.23	54.8%	66.9%	1.0%	6.9%	0.42
C	Q-Score Composite	33	8.9%	2.15	58.8%	42.6%	1.5%	10.3%	0.30
ES	Forward Earnings Momentum (1Mth Change)	30	5.0%	2.15	58.8%	63.1%	1.2%	8.3%	0.37
PT	Price Accel 3M	40	3.2%	2.03	58.4%	34.4%	1.1%	8.1%	0.35
C	Composite Recom	36	5.1%	1.96	57.7%	50.9%	0.9%	6.7%	0.34
ES	Net Revisions to FY2 [Up-Down]/[Up+Down]	35	4.0%	1.90	57.9%	67.1%	1.0%	7.8%	0.32
Q	Interest Cover	23	1.8%	-0.75	54.7%	6.5%	-0.8%	13.1%	0.00
R	Liquidity	38	-2.8%	-1.10	47.0%	13.9%	-0.7%	9.0%	-0.40
Q	Change In ROE Between Current and 12 Mths Prior	36	-0.3%	-1.16	48.8%	18.9%	-0.9%	11.8%	0.00
R	Size (Barra)	37	-0.6%	-1.22	50.7%	9.5%	-1.0%	11.7%	0.00
ES	Forecast Earnings Growth FY1 to FY2	34	-1.4%	-1.42	46.2%	21.0%	-0.8%	8.0%	-0.44

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

For full backtest results of the Top 3 / Bottom 2 single factors and standard Composites, please see our [Country Chartbook](#).

Sector-based Analysis of Factors

**For backtest results by sector,
please see our companion
Sector Chartbook**

In this section, we analyze factor performance in Asia ex-Japan by GICS level one sector classifications. When comparing factor performance by sector, we notice a few interesting points and key takeaways:

- ! Consumer Discretionary, Industrials, Information Technology, and Industrials had the best risk-adjusted long-short returns for our *Q-Score*, indicating that these sectors are relatively more “quant friendly”
- ! Sectors that are more homogeneous such as Utilities and Energy or sectors with fewer companies such as Health Care may do less well on a standalone basis due to a lack of diversification
- ! Our *Q-Score with a Value Bias* (and underweight Price/Technical and Quality) outperformed our regular *Q-Score* in 7 sectors
- ! Earnings/Sentiment was the best performing factor family for 6 sectors (particularly for Financials and Information Technology), and the Value factor family was the best performing for 4 sectors
- ! *1-mth Price Momentum* was a strong contra-indicator for Materials (or as a strong positive indicator as *1-mth Price Reversion*)
- ! The best overall sector specific Sharpe ratio was 1.18 for the *Q-Score* in Consumer Discretionary and 1.18 for *Composite Earnings/Sentiment* for Financials

Table 7: Risk-adjusted Return Matrix – by Sector

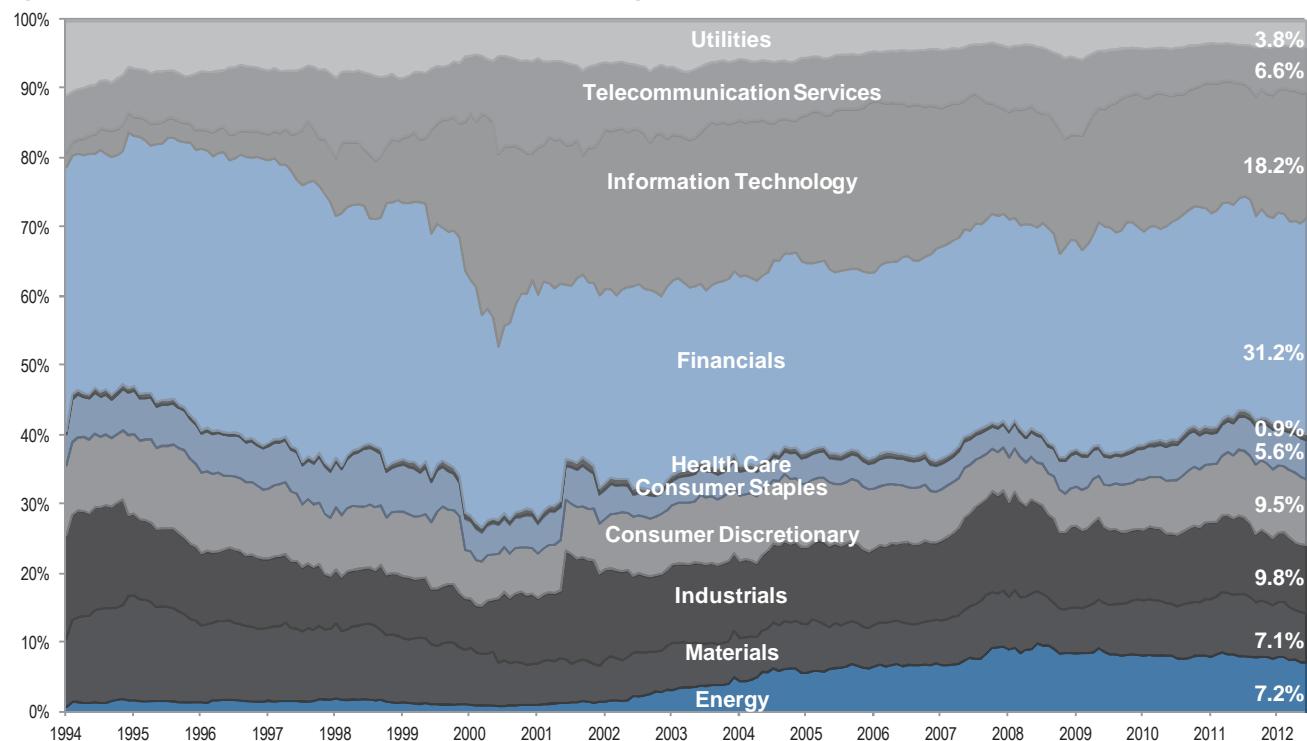
Factor Family	Factor Name	Asia ex-Japan	Energy	Materials	Industrials	Consumer Discretionary	Consumer Staples	Health Care	Financials	Information Technology	Telecom	Utilities
C	Q-Score Composite	1.80	0.09	0.73	0.92	1.18	0.35	0.14	0.77	0.87	0.55	-0.03
C	► Composite Value (with Growth)	1.13	0.21	0.64	0.87	0.74	0.00	0.34	0.61	-0.13	-0.02	0.38
C	► Composite Earnings / Sentiment	1.84	0.13	0.44	0.79	0.87	0.57	0.70	1.18	0.85	0.35	-0.08
C	► Composite Price / Reversion	0.35	-0.19	0.14	0.10	0.58	0.03	0.12	-0.21	0.11	-0.20	-0.36
C	► Composite Quality	0.11	-0.26	0.03	-0.16	0.19	-0.09	-0.42	-0.25	-0.12	0.14	-0.43
C	Q-Score Composite (Value Biased)	2.40	0.29	0.75	0.92	1.16	0.28	0.35	0.96	0.91	0.55	0.35
C	Composite Price to Book ROE	1.37	0.40	0.46	0.60	0.60	0.01	-0.31	0.62	-0.05	0.27	0.14
V	P/E (1-year forward)	1.17	0.02	0.63	0.72	0.86	-0.24	0.09	0.36	0.02	0.22	0.62
V	P/B (1-year trailing)	0.61	0.15	0.70	0.85	0.09	-0.04	-0.02	0.51	-0.12	-0.10	0.23
V	Dividend Yield (1-year trailing)	0.86	-0.03	-0.08	0.39	0.61	0.29	-0.26	0.38	-0.02	0.27	-0.05
ES	Net Earnings Revisions FY1 FY2 (rel. to total changes)	1.20	-0.33	0.30	1.15	0.87	0.14	-0.16	0.36	0.76	0.05	0.46
ES	Change in Consensus Recommendations (1-mth chg.)	1.59	0.43	0.07	0.37	0.70	0.48	0.16	1.03	0.90	0.32	0.15
ES	Forward Earnings Momentum (1-month change)	0.80	-0.26	0.63	0.44	0.50	-0.15	0.24	0.11	0.27	0.09	-0.18
ES	Forecast Earnings Growth FY1 to FY2	-0.17	-0.22	-0.07	0.30	-0.13	0.22	0.30	0.00	-0.22	-0.56	-0.23
PT	Price Momentum 12-month	-0.12	-0.27	-0.36	-0.31	0.19	-0.36	0.13	-0.48	0.35	-0.15	-0.35
PT	Price Momentum 1-month	-0.55	0.15	-0.96	-0.45	-0.53	-0.50	-0.39	-0.65	0.25	-0.46	-0.31
PT	RSI 10-day (Continuation)	-0.85	-0.12	-1.01	-0.74	-0.85	-0.60	0.00	-0.71	0.15	-0.16	-0.30
Q	Return On Equity (1-year trailing)	0.04	0.06	0.02	-0.36	0.01	-0.15	-0.45	0.01	-0.31	0.10	-0.31
Q	Sales Growth (1-year trailing)	0.12	0.32	0.06	-0.24	-0.23	0.44	-0.26	0.01	0.20	-0.37	0.08
R	Beta (Barra)	-0.19	-0.59	-0.28	-0.22	0.01	0.09	-0.03	0.19	-0.11	-0.09	0.14
R	Volatility (Barra)	-0.07	-0.63	-0.11	-0.01	0.05	-0.04	0.11	0.20	-0.17	-0.12	0.17
R	Size (Barra)	-0.29	0.00	-0.44	-0.14	0.03	-0.35	-0.45	-0.41	0.36	0.00	-0.31

Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio calculation, the risk-free rate is assumed to be 0%.

MSCI AxJ Index – Sector decomposition through time

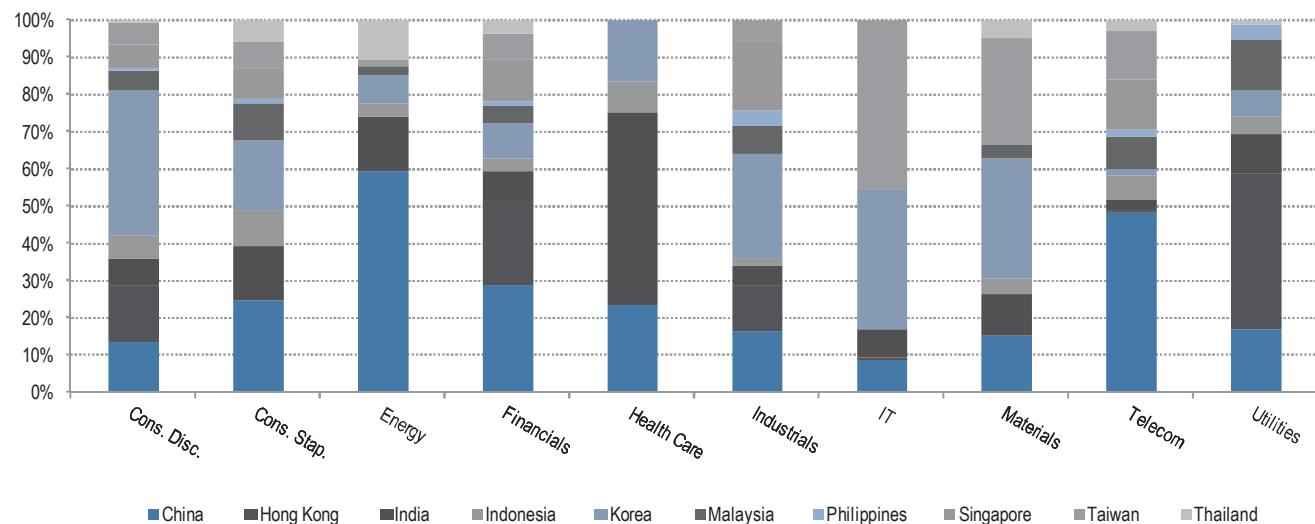
The composition of AxJ by sector has changed over the last 20 years as the economies shift from Primary and Secondary industries (production of raw materials and manufacturing) to more service-oriented Tertiary industries like Information Technology.

Figure 20: MSCI Asia ex Japan Index – Sector decomposition through time



Source: MSCI, Bloomberg, J.P. Morgan

Figure 21: MSCI Asia ex Japan Index – Sector decomposition by country



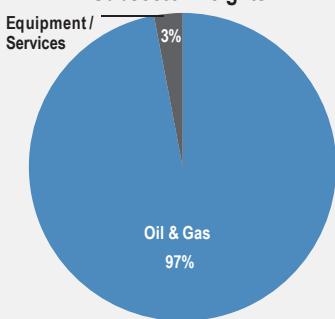
Source: MSCI, Bloomberg, J.P. Morgan

Energy

Sector Summary

MSCI AxJ weight: 7.2%
Investable market cap: US\$179.7bn
Number of constituents: 30

Subsector weights



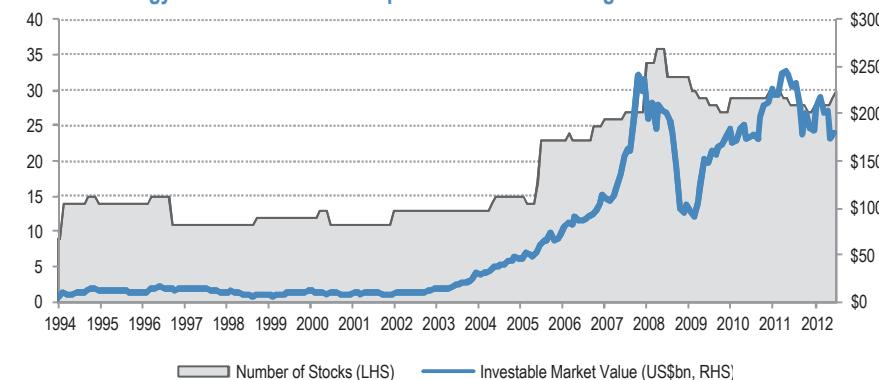
Source: MSCI, J.P. Morgan

Factor Performance

Top composite: P/B ROE
Top factor: 1 Mth Change in Consensus Recom.

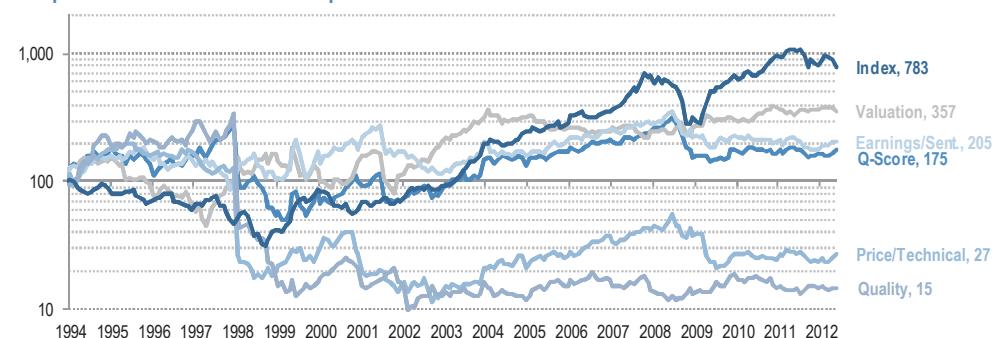
Energy shows weak factor performance across the board, with relatively low Sharpe ratios for all factors tested. This could result from the relatively small number of companies in MSCI AxJ Energy (as few as 9 in 1994), leading to higher stock specific risk and less style representation. Such risks materialized in Jan 1998, a highly volatile month (due to M&A) for the just 11 stocks constituting the sector at the time. Starting in July 2005, the sector grew to 23 constituents, which may somewhat lessen the concentration risk and better represent factor performance. Given the relatively small number of constituents in this sector, the benchmark index outperformed all composite factor families. As the energy sector is very much driven by commodities, further investigation into sector specific factors linked to commodity prices may provide better results.

MSCI AxJ Energy – Investable market cap and constituent changes over time



Source: MSCI, J.P. Morgan

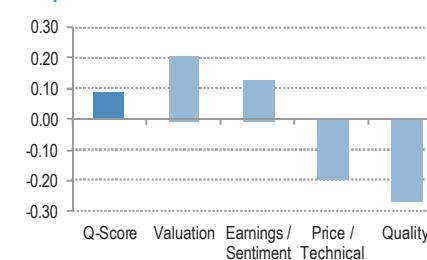
Composite Families – Cumulative performance over time



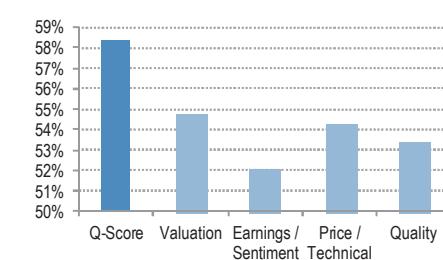
Source: J.P. Morgan, MSCI, IBES, Reuters, Factset. Index=MSCI AxJ Energy (equal weighted, US\$, dividends reinvested)

Composite Family Performance Summary (full period results)

Sharpe Ratio



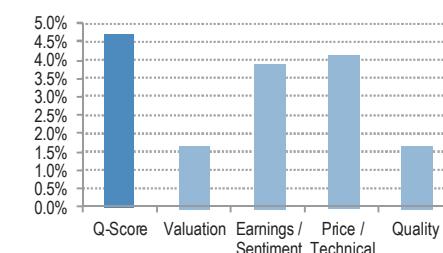
Hit Rate



Average Return LS (monthly)



Average IC



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio, the risk-free rate is assumed to be 0%.

MSCI AxJ Energy – Composites and Key Factors Summary

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Q-Score Composite	16	4.7%	1.21	58.4%	35.9%	0.8%	9.8%	0.09
C	► Composite Value (with Growth)	16	1.7%	1.58	54.8%	18.5%	1.1%	10.1%	0.21
C	► Composite Earnings / Sentiment	17	3.9%	1.20	52.0%	53.2%	0.7%	8.9%	0.13
C	► Composite Price / Reversion	17	4.1%	0.23	54.3%	26.6%	0.2%	10.3%	-0.19
C	► Composite Quality	15	1.7%	0.09	53.4%	15.3%	0.1%	10.8%	-0.26
C	Q-Score Composite (Value Biased)	16	4.1%	1.83	56.1%	35.2%	1.1%	8.5%	0.29
C	Composite Price to Book ROE	18	3.4%	2.25	52.9%	13.7%	1.4%	9.3%	0.40
V	P/E (1-year forward)	16	1.5%	0.80	52.0%	15.0%	0.5%	9.2%	0.02
V	P/B (1-year trailing)	18	2.0%	1.29	53.4%	10.6%	0.8%	9.6%	0.15
V	Dividend Yield (1-year trailing)	18	0.3%	0.43	51.1%	11.1%	0.2%	7.9%	-0.03
ES	Net Earnings Revisions FY1 FY2 (Relative to total changes)	17	-0.2%	-0.87	47.1%	54.3%	-0.5%	8.2%	-0.33
ES	Change in Consensus Recommendations (1-month change)	17	4.2%	2.39	60.0%	65.4%	1.5%	9.2%	0.43
ES	Forward Earnings Momentum (1-month change)	17	0.1%	-0.48	46.6%	53.5%	-0.3%	9.2%	-0.26
ES	Forecast Earnings Growth FY1 to FY2	17	-2.7%	-0.37	47.1%	20.6%	-0.2%	8.4%	-0.22
PT	Price Momentum 12-month	17	4.0%	-0.28	53.8%	21.7%	-0.2%	10.5%	-0.27
PT	Price Momentum 1-month	18	-0.6%	1.27	51.1%	65.4%	0.8%	9.0%	0.15
PT	RSI 10-day (Continuation)	18	-0.6%	0.02	51.1%	64.0%	0.0%	7.6%	-0.12
Q	Return On Equity (1-year trailing)	18	1.7%	0.96	54.3%	9.7%	0.6%	8.8%	0.06
Q	Sales Growth (1-year trailing)	18	3.3%	1.75	49.7%	10.3%	1.3%	10.0%	0.32
R	Beta (Barra)	17	-4.4%	-2.11	43.0%	7.8%	-1.1%	7.7%	-0.59
R	Volatility (Barra)	17	-4.7%	-2.30	42.1%	9.9%	-1.2%	7.8%	-0.63
R	Size (Barra)	17	1.8%	0.67	54.3%	3.5%	0.4%	8.0%	0.00

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

MSCI AxJ Energy – Top factors by T-Stat (Top 20 / Bottom 5)

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat ▾	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
ES	1 Mth Change in Consensus Recom	17	4.2%	2.39	60.0%	65.4%	1.5%	9.2%	0.43
C	Composite Price to Book ROE	18	3.4%	2.25	52.9%	13.7%	1.4%	9.3%	0.40
PT	RSI 30-day (Continuation)	18	3.1%	2.09	57.5%	51.4%	1.1%	7.5%	0.37
C	Composite Value Growth Momentum Model	16	3.7%	1.94	52.9%	40.9%	1.3%	9.6%	0.30
ES	Consensus Recom	17	4.9%	1.92	56.6%	14.0%	1.1%	8.7%	0.28
C	Composite Value Momentum Quality Price Model (Value Biased)	16	4.1%	1.83	56.1%	35.2%	1.1%	8.5%	0.29
C	Composite Value	16	3.6%	1.80	55.7%	16.7%	1.3%	10.6%	0.26
V	EBITDA to Enterprise Value	18	5.0%	1.77	54.9%	13.2%	1.3%	9.8%	0.31
Q	Historical Sales Growth	18	3.3%	1.75	49.7%	10.3%	1.3%	10.0%	0.32
ES	Internal Growth	18	3.9%	1.69	55.2%	11.6%	1.0%	8.9%	0.24
V	Historical Earnings Yield	18	1.8%	1.67	56.1%	14.4%	1.1%	10.1%	0.24
V	Historical P/Cash Earnings Ratio	17	3.1%	1.59	54.3%	13.0%	0.9%	8.9%	0.23
C	Composite Value and Growth	16	1.7%	1.58	54.8%	18.5%	1.1%	10.1%	0.21
C	Composite Value Momentum Model	16	4.3%	1.45	54.3%	40.0%	0.8%	8.6%	0.20
C	Composite Value Momentum Quality Price Model	16	4.2%	1.45	54.8%	37.7%	0.8%	8.4%	0.19
V	1 year forward forecast PE Relative To Sector	17	3.1%	1.38	55.7%	15.5%	0.8%	8.7%	0.17
V	Historical P/Book Value Ratio	18	2.0%	1.29	53.4%	10.6%	0.8%	9.6%	0.15
PT	1 Mth Price Momentum	18	-0.6%	1.27	51.1%	65.4%	0.8%	9.0%	0.15
C	Q-Score Composite	16	4.7%	1.21	58.4%	35.9%	0.8%	9.8%	0.09
C	Composite Momentum	17	3.9%	1.20	52.0%	53.2%	0.7%	8.9%	0.13
Q	Asset Turnover (Historical)	17	0.2%	-0.99	52.2%	3.3%	-0.7%	9.9%	-0.41
PT	Price Accel 3M	18	-2.1%	-1.14	46.2%	29.2%	-0.7%	9.2%	-0.41
R	Historical BETA	18	-5.3%	-2.03	41.2%	26.4%	-1.3%	9.5%	-0.58
R	Beta (Barra)	17	-4.4%	-2.11	43.0%	7.8%	-1.1%	7.7%	-0.59
R	Volatility (Barra)	17	-4.7%	-2.30	42.1%	9.9%	-1.2%	7.8%	-0.63

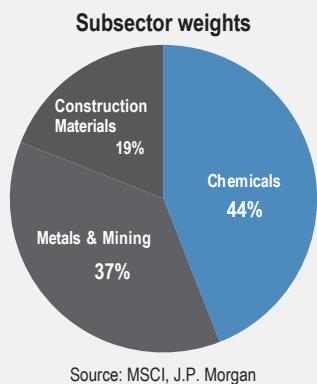
Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

For full backtest results of the Top 3 / Bottom 2 single factors and standard Composites, please see our [Sector Chartbook](#).

Materials

Sector Summary

MSCI AxJ weight: 7.1%
Investable market cap: US\$177.6bn
Number of constituents: 70



Factor Performance

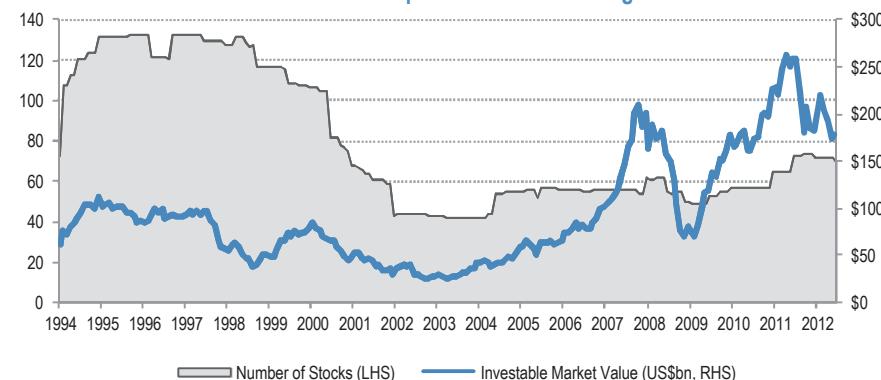
Top composite: Composite Value
Top factor: Net Revisions to FY2
(Up - Down) / (Up + Down)

Valuation factors were 6 of the top 20 performing factors for Materials (composites held 11 spots). The top scoring Composite Value factor equally weights P/E, P/Sales, and P/Cash Flow. We believe that Value strategies work well due to the cyclical nature of this sector. With Asia being a heavy manufacturing base, demand for industrial metals and chemicals is exposed to the ebb and flow of industrial demand. However this is balanced by the more consistent demand for construction materials to fuel Asia's appetite for fixed asset investment.

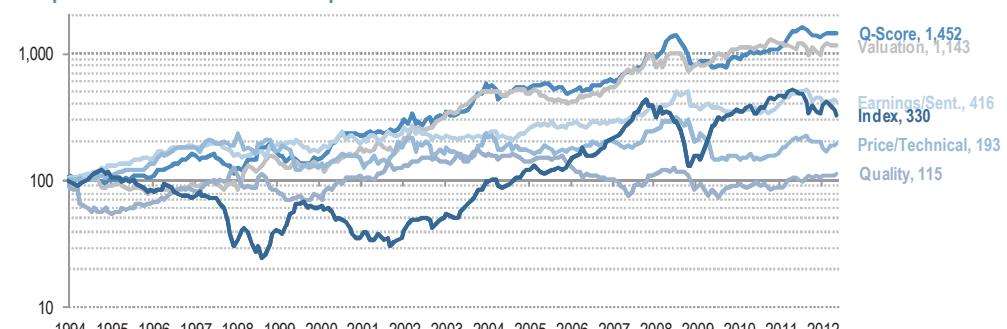
Short-term Price/ Technical factors also proved to be strong contra-indicators. 1-Mth Price Momentum taken as a contra-indicator (1-Mth Price Reversion) was one of the best performing factors. One implication for this commodity driven sector may be that if a stock starts to trade out of line with peers, it may be relatively quickly brought back in line.

As the materials sector is very much driven by commodities/macroeconomic trends, further investigation into factors linked to commodity prices/macro indicators may enhance results.

MSCI AxJ Materials – Investable market cap and constituent changes over time

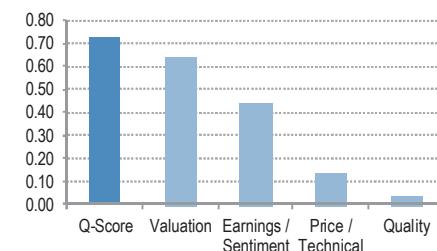


Composite Families – Cumulative performance over time

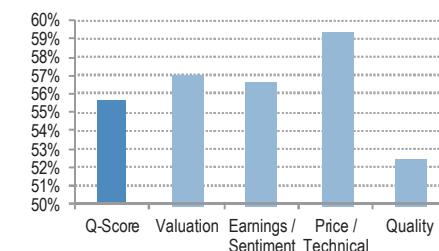


Composite Family Performance Summary (full period results)

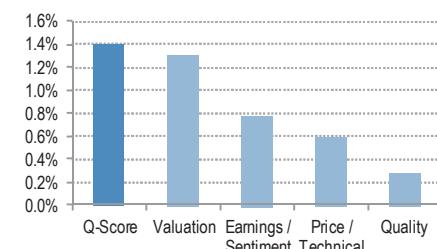
Sharpe Ratio



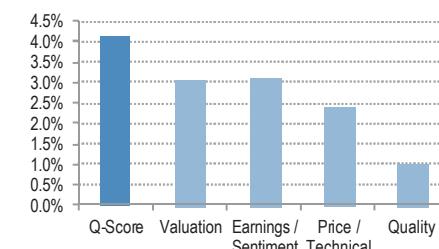
Hit Rate



Average Return LS (monthly)



Average IC



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio, the risk-free rate is assumed to be 0%.

MSCI AxJ Materials – Composites and Key Factors Summary

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Q-Score Composite	66	4.1%	3.37	55.7%	43.1%	1.4%	6.2%	0.73
C	► Composite Value (with Growth)	66	3.1%	3.06	57.0%	19.9%	1.3%	6.4%	0.64
C	► Composite Earnings / Sentiment	71	3.1%	2.23	56.6%	64.4%	0.8%	5.2%	0.44
C	► Composite Price / Reversion	74	2.4%	1.15	59.3%	33.5%	0.6%	7.5%	0.14
C	► Composite Quality	60	1.0%	0.63	52.5%	17.9%	0.3%	6.4%	0.03
C	Q-Score Composite (Value Biased)	66	4.2%	3.46	58.8%	39.6%	1.4%	5.9%	0.75
C	Composite Price to Book ROE	74	2.3%	2.35	53.4%	16.2%	0.9%	6.0%	0.46
V	P/E (1-year forward)	66	2.8%	3.02	56.6%	18.4%	1.3%	6.2%	0.63
V	P/B (1-year trailing)	74	2.5%	3.27	53.4%	13.3%	1.4%	6.2%	0.70
V	Dividend Yield (1-year trailing)	79	0.6%	0.11	51.1%	13.6%	0.0%	5.8%	-0.08
ES	Net Earnings Revisions FY1 FY2 (Relative to total changes)	70	3.0%	1.66	58.4%	68.7%	0.6%	5.5%	0.30
ES	Change in Consensus Recommendations (1-month change)	73	1.3%	0.72	47.7%	76.5%	0.3%	5.4%	0.07
ES	Forward Earnings Momentum (1-month change)	69	4.0%	2.99	59.3%	66.0%	1.1%	5.6%	0.63
ES	Forecast Earnings Growth FY1 to FY2	70	0.7%	0.14	53.4%	22.4%	0.1%	5.9%	-0.07
PT	Price Momentum 12-month	75	0.6%	-1.04	53.4%	25.5%	-0.5%	7.8%	-0.36
PT	Price Momentum 1-month	78	-4.7%	-4.05	38.5%	81.2%	-2.0%	7.2%	-0.96
PT	RSI 10-day (Continuation)	78	-4.4%	-4.34	39.4%	78.9%	-1.9%	6.5%	-1.01
Q	Return On Equity (1-year trailing)	74	0.0%	0.54	51.6%	10.7%	0.2%	6.2%	0.02
Q	Sales Growth (1-year trailing)	51	0.6%	0.70	49.7%	12.7%	0.4%	7.6%	0.06
R	Beta (Barra)	77	-1.5%	-0.90	44.3%	14.3%	-0.3%	4.6%	-0.28
R	Volatility (Barra)	77	-1.0%	-0.10	47.1%	15.9%	0.0%	5.3%	-0.11
R	Size (Barra)	77	-0.9%	-1.61	49.3%	10.1%	-0.5%	4.3%	-0.44

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

MSCI AxJ Materials – Top factors by T-Stat (Top 20 / Bottom 5)

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat ▾	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Composite Value	66	3.3%	4.69	61.5%	20.6%	2.0%	6.3%	1.09
R	Value (Barra)	77	3.0%	4.35	57.9%	20.0%	1.4%	4.7%	1.00
ES	Net Revisions to FY2 [Up-Down]/[Up+Down]	71	3.3%	3.91	59.7%	69.9%	1.4%	5.1%	0.88
C	Composite Value Momentum Model	65	4.5%	3.86	60.2%	47.0%	1.7%	6.4%	0.86
C	Composite Value Momentum Quality Price Model	66	4.1%	3.51	58.4%	42.1%	1.4%	5.7%	0.77
C	Composite Value Momentum Quality Price Model (Value Biased)	66	4.2%	3.46	58.8%	39.6%	1.4%	5.9%	0.75
C	Q-Score Composite	66	4.1%	3.37	55.7%	43.1%	1.4%	6.2%	0.73
C	Composite Value Growth Momentum Model	66	4.4%	3.34	58.8%	47.0%	1.3%	5.7%	0.72
V	Historical P/Cash Earnings Ratio	73	3.5%	3.30	55.2%	15.4%	1.4%	6.5%	0.70
V	Historical P/Book Value Ratio	74	2.5%	3.27	53.4%	13.3%	1.4%	6.2%	0.70
C	Value To Growth	65	3.3%	3.14	57.5%	23.2%	1.3%	6.4%	0.66
C	Composite Value and Growth	66	3.1%	3.06	57.0%	19.9%	1.3%	6.4%	0.64
V	1 year forward forecast PE	66	2.8%	3.02	56.6%	18.4%	1.3%	6.2%	0.63
V	1 year forward forecast PE Relative To History	57	3.8%	2.99	58.7%	24.7%	1.6%	7.7%	0.66
ES	Forward Earnings Momentum (1Mth Change)	69	4.0%	2.99	59.3%	66.0%	1.1%	5.6%	0.63
C	Value To Risk	60	2.9%	2.84	55.7%	21.3%	1.2%	6.0%	0.59
V	Historical P/Sales Ratio	74	1.7%	2.81	52.5%	11.1%	1.3%	6.6%	0.58
C	Composite Forward Earnings Momentum (1Mth + 3 Mth)	67	3.2%	2.74	58.8%	40.2%	1.1%	5.8%	0.56
C	Composite Price to Book ROE	74	2.3%	2.35	53.4%	16.2%	0.9%	6.0%	0.46
V	Cash Flow Yield Mean of FY1 and FY2	57	2.1%	2.32	55.1%	17.8%	1.2%	7.5%	0.45
PT	3 Mth Price Momentum	78	-1.0%	-1.68	48.4%	48.7%	-0.8%	7.5%	-0.49
R	Growth (Barra)	69	-1.9%	-2.16	46.5%	14.3%	-0.7%	4.6%	-0.60
PT	RSI 30-day (Continuation)	78	-2.3%	-2.71	43.9%	68.2%	-1.1%	6.1%	-0.69
PT	1 Mth Price Momentum	78	-4.7%	-4.05	38.5%	81.2%	-2.0%	7.2%	-0.96
PT	RSI 10-day (Continuation)	78	-4.4%	-4.34	39.4%	78.9%	-1.9%	6.5%	-1.01

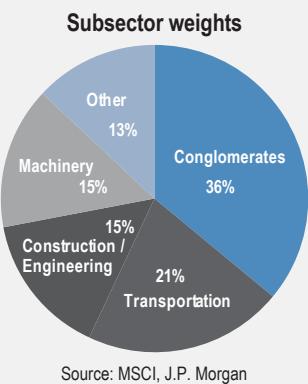
Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

For full backtest results of the Top 3 / Bottom 2 single factors and standard Composites, please see our [Sector Chartbook](#).

Industrials

Sector Summary

MSCI AxJ weight: 9.8%
Investable market cap: US\$243.0bn
Number of constituents: 114



Source: MSCI, J.P. Morgan

Factor Performance

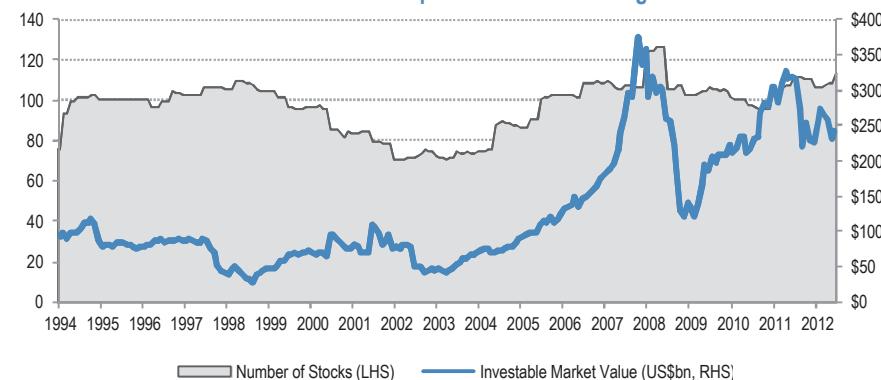
Top composite: Value Growth Momentum
Top factor: Net Revisions FY1 FY2
(Rel. to total changes)

Industrials show strong factor performance from the Valuation family of factors. This could be due to highly structured supply chains and the cyclical nature of this sector, a fertile environment for value driven rotation strategies among the subsectors.

However, the top performing factor is related to Earnings / Sentiment: the net number of analyst revisions (upward revisions less downward revisions), relative to the total number of revisions, and averaged for FY1 and FY2. As the average FY1 and FY2 performed better than FY1 or FY2 on a standalone basis, this might indicate that investors look more at a medium-term outlook for this sector.

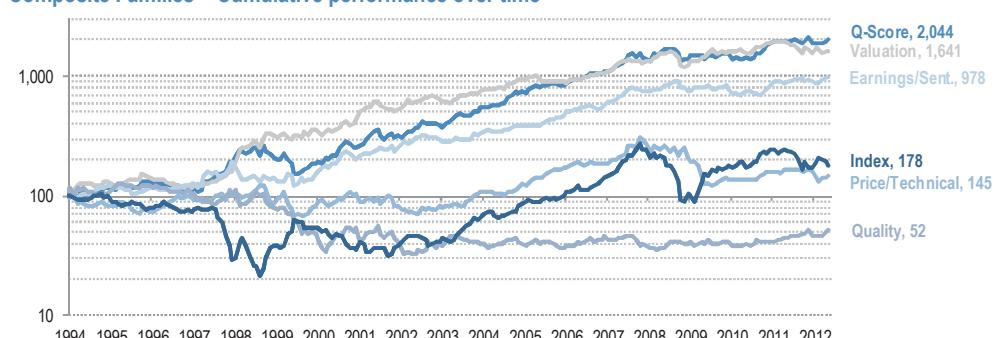
From a supply chain perspective with Industrials typically consumers of raw inputs of Materials and Energy, further investigation into correlations with upstream sectors may further enhance results.

MSCI AxJ Industrials – Investable market cap and constituent changes over time



Source: MSCI, J.P. Morgan

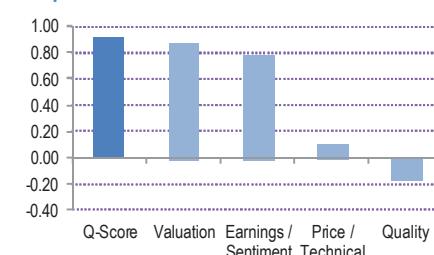
Composite Families – Cumulative performance over time



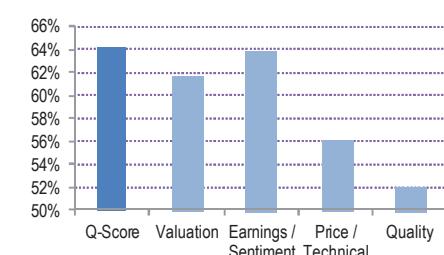
Source: J.P. Morgan, MSCI, IBES, Reuters, Factset. Index=MSCI AxJ Industrials (equal weighted, US\$, dividends reinvested)

Composite Family Performance Summary (full period results)

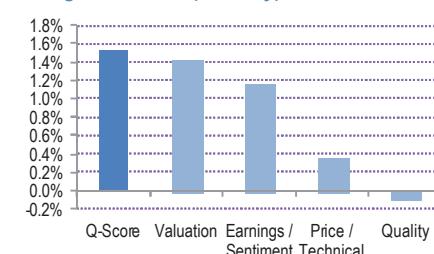
Sharpe Ratio



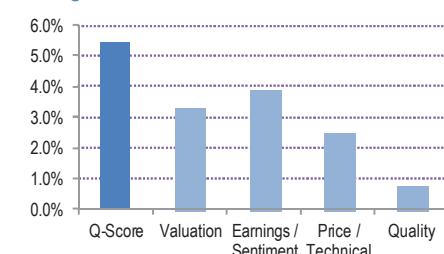
Hit Rate



Average Return LS (monthly)



Average IC



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio, the risk-free rate is assumed to be 0%.

MSCI AxJ Industrials – Composites and Key Factors Summary

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Q-Score Composite	84	5.4%	4.08	64.3%	39.3%	1.5%	5.6%	0.92
C	► Composite Value (with Growth)	84	3.3%	3.85	61.5%	19.9%	1.4%	5.5%	0.87
C	► Composite Earnings / Sentiment	88	3.9%	3.54	63.8%	64.4%	1.2%	4.8%	0.79
C	► Composite Price / Reversion	90	2.4%	0.88	56.1%	33.2%	0.4%	6.2%	0.10
C	► Composite Quality	79	0.8%	-0.21	52.0%	15.5%	-0.1%	6.3%	-0.16
C	Q-Score Composite (Value Biased)	84	5.0%	4.04	62.9%	36.8%	1.5%	5.6%	0.92
C	Composite Price to Book ROE	92	2.8%	2.86	56.1%	16.2%	1.1%	5.7%	0.60
V	P/E (1-year forward)	84	2.9%	3.30	58.4%	16.5%	1.2%	5.6%	0.72
V	P/B (1-year trailing)	92	3.0%	3.84	62.0%	12.6%	1.7%	6.7%	0.85
V	Dividend Yield (1-year trailing)	97	3.4%	2.01	58.8%	11.6%	0.7%	5.4%	0.39
ES	Net Earnings Revisions FY1 FY2 (Relative to total changes)	87	3.8%	4.92	64.3%	68.0%	1.5%	4.6%	1.15
ES	Change in Consensus Recommendations (1-month change)	90	2.4%	1.88	55.0%	76.7%	0.6%	4.5%	0.37
ES	Forward Earnings Momentum (1-month change)	87	2.4%	2.19	58.8%	66.3%	0.7%	4.7%	0.44
ES	Forecast Earnings Growth FY1 to FY2	90	0.2%	1.64	50.2%	21.3%	0.7%	6.0%	0.30
PT	Price Momentum 12-month	92	1.2%	-0.72	53.4%	24.6%	-0.4%	7.6%	-0.31
PT	Price Momentum 1-month	96	-2.1%	-1.51	44.8%	79.5%	-0.7%	6.7%	-0.45
PT	RSI 10-day (Continuation)	95	-3.0%	-3.01	43.0%	77.8%	-1.0%	5.0%	-0.74
Q	Return On Equity (1-year trailing)	92	-0.3%	-1.01	48.0%	10.0%	-0.5%	7.1%	-0.36
Q	Sales Growth (1-year trailing)	84	0.2%	0.12	48.6%	12.1%	0.1%	9.4%	-0.24
R	Beta (Barra)	94	-2.1%	-0.64	43.9%	13.6%	-0.2%	4.3%	-0.22
R	Volatility (Barra)	94	-1.3%	0.33	44.3%	14.9%	0.1%	5.3%	-0.01
R	Size (Barra)	94	0.2%	-0.20	55.2%	9.3%	-0.1%	5.0%	-0.14

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

MSCI AxJ Industrials – Top factors by T-Stat (Top 20 / Bottom 5)

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
ES	Net Revisions FY1 FY2 (Rel. To Total Changes)	87	3.8%	4.92	64.3%	68.0%	1.5%	4.6%	1.15
C	Composite Value Growth Momentum Model	83	4.9%	4.52	61.5%	44.5%	1.6%	5.4%	1.05
C	Composite Value Momentum Model	83	4.8%	4.26	63.3%	45.4%	1.5%	5.3%	0.98
C	Composite Value Momentum Quality Price Model	84	5.1%	4.11	63.3%	38.5%	1.5%	5.5%	0.94
C	Q-Score Composite	84	5.4%	4.08	64.3%	39.3%	1.5%	5.6%	0.92
C	Composite Value Momentum Quality Price Model (Value Biased)	84	5.0%	4.04	62.9%	36.8%	1.5%	5.6%	0.92
V	Historical P/Sales Ratio	87	2.7%	3.96	55.2%	9.1%	1.7%	6.5%	0.89
C	Composite Value and Growth	84	3.3%	3.85	61.5%	19.9%	1.4%	5.5%	0.87
V	Historical P/Book Value Ratio	92	3.0%	3.84	62.0%	12.6%	1.7%	6.7%	0.85
C	Composite Momentum	88	3.9%	3.54	63.8%	64.4%	1.2%	4.8%	0.79
R	Value (Barra)	94	2.7%	3.49	55.2%	17.6%	1.0%	4.3%	0.78
V	Cash Flow Yield FY1	77	3.4%	3.46	60.7%	15.5%	1.4%	6.0%	0.77
V	1 year forward forecast PE	84	2.9%	3.30	58.4%	16.5%	1.2%	5.6%	0.72
C	Value To Growth	83	2.9%	3.30	58.4%	22.0%	1.3%	6.0%	0.72
ES	Net Revisions to FY2 [Up-Down]/[Up+Down]	88	4.3%	3.07	63.8%	69.9%	1.1%	5.3%	0.66
C	Composite Recom	90	2.7%	2.95	60.5%	49.0%	0.8%	4.1%	0.64
V	Cash Flow Yield Mean of FY1 and FY2	76	3.0%	2.94	59.3%	14.8%	1.2%	6.2%	0.63
V	1 year forward forecast PE Relative To Sector	85	2.7%	2.93	59.3%	17.0%	1.1%	5.6%	0.62
C	Composite Price to Book ROE	92	2.8%	2.86	56.1%	16.2%	1.1%	5.7%	0.60
C	Composite Value	84	2.6%	2.81	58.4%	18.9%	1.1%	5.8%	0.58
Q	Historical Return On Equity	92	-0.3%	-1.01	48.0%	10.0%	-0.5%	7.1%	-0.36
Q	Payout Ratio	93	-1.6%	-1.45	44.3%	14.9%	-0.5%	4.9%	-0.41
PT	1 Mth Price Momentum	96	-2.1%	-1.51	44.8%	79.5%	-0.7%	6.7%	-0.45
ES	Internal Growth	93	-0.9%	-1.99	44.3%	12.3%	-0.8%	6.1%	-0.55
PT	RSI 10-day (Continuation)	95	-3.0%	-3.01	43.0%	77.8%	-1.0%	5.0%	-0.74

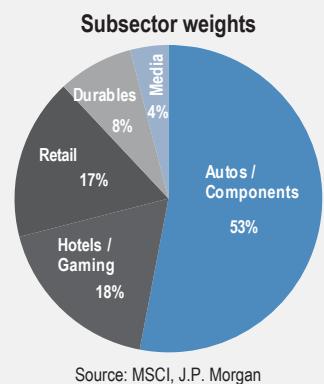
Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

For full backtest results of the Top 3 / Bottom 2 single factors and standard Composites, please see our [Sector Chartbook](#).

Consumer Discretionary

Sector Summary

MSCI AxJ weight: 9.5%
Investable market cap: US\$236.7bn
Number of constituents: 71



Source: MSCI, J.P. Morgan

Factor Performance

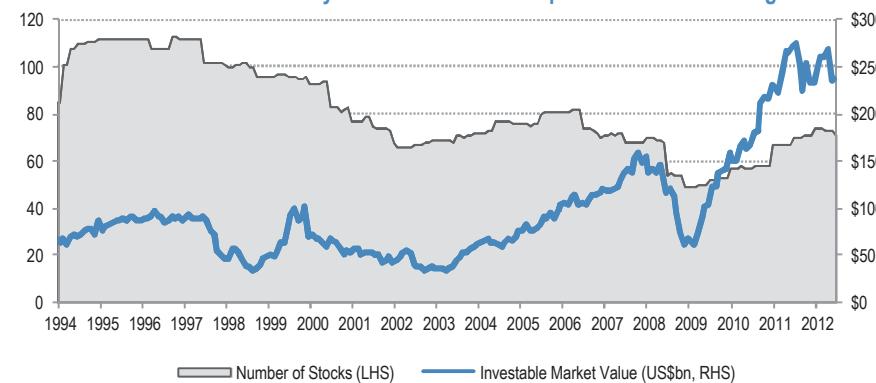
Top composite: Value Growth Momentum
Top factor: Net Revisions FY1
(Up-Down) / (Up+Down)

Factor models work very well for Consumer Discretionary, with 8 factors having a T-Stat of ≥ 4.0 . Composite factors also performed very well, taking 12 of the top 20 spots. Composite factors worked consistently well, even during periods of downturn such as Asian Financial Crisis, SARS, and Global Financial Crisis. During these times, Quality performed strongly as the market saw a flight to quality, after which Value factors strongly performed as markets began turn around. Further investigation into Value factor rotation models may further enhance results of model performance. It's also worthy to note that the simple Value factor 1-yr *Forward Forecast PE* clocked in a respectable Sharpe of 0.86 with a relatively low monthly turnover of 15.4%.

The top performing factor is *Net Revisions to FY1 EPS*, indicating that investors look most closely at a nearer-term outlook for this sector.

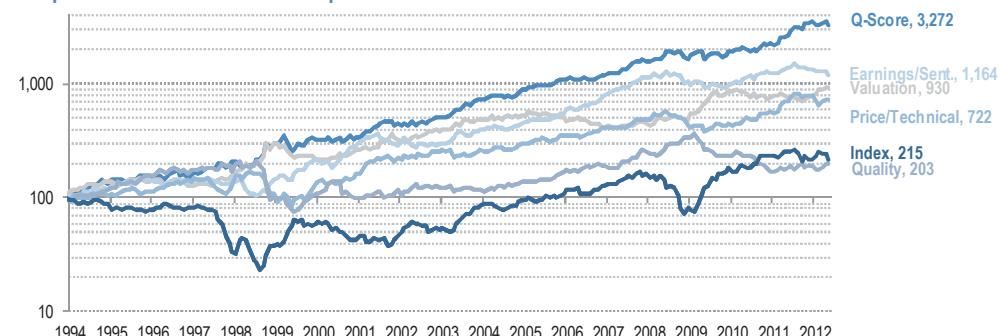
Unsurprisingly, the best overall factor was *Composite Value Growth Momentum*, which combines Earnings/Sentiment and Value.

MSCI AxJ Consumer Discretionary – Investable market cap and constituent changes over time



Source: MSCI, J.P. Morgan

Composite Families – Cumulative performance over time



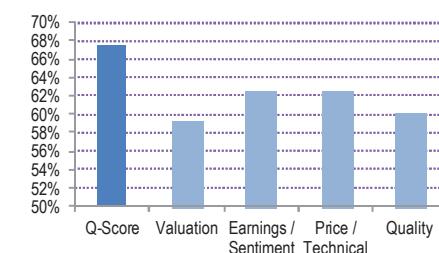
Source: J.P. Morgan, MSCI, IBES, Reuters, Factset. Index=MSCI AxJ Consumer Discret. (equal weighted, US\$, dividends reinvested)

Composite Family Performance Summary (full period results)

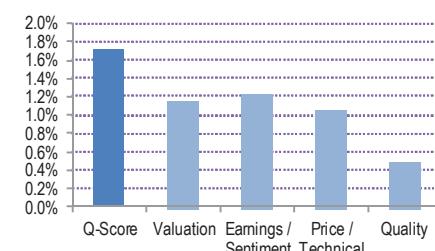
Sharpe Ratio



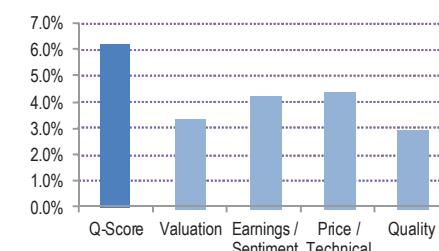
Hit Rate



Average Return LS (monthly)



Average IC



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio, the risk-free rate is assumed to be 0%.

MSCI AxJ Consumer Discretionary – Composites and Key Factors Summary

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Q-Score Composite	67	6.2%	5.00	67.4%	41.1%	1.7%	5.1%	1.18
C	► Composite Value (with Growth)	67	3.3%	3.36	59.3%	18.7%	1.1%	5.0%	0.74
C	► Composite Earnings / Sentiment	70	4.2%	3.85	62.4%	63.2%	1.2%	4.7%	0.87
C	► Composite Price / Reversion	75	4.4%	2.78	62.4%	32.8%	1.1%	5.6%	0.58
C	► Composite Quality	63	3.0%	1.27	60.2%	14.2%	0.5%	5.8%	0.19
C	Q-Score Composite (Value Biased)	67	5.7%	4.95	67.9%	37.9%	1.6%	4.8%	1.16
C	Composite Price to Book ROE	77	2.6%	2.83	53.4%	14.5%	1.0%	5.3%	0.60
V	P/E (1-year forward)	67	4.0%	3.83	59.7%	15.4%	1.4%	5.4%	0.86
V	P/B (1-year trailing)	78	0.3%	0.79	48.0%	10.0%	0.3%	5.7%	0.09
V	Dividend Yield (1-year trailing)	81	1.6%	2.87	55.2%	12.1%	1.0%	5.2%	0.61
ES	Net Earnings Revisions FY1 FY2 (Relative to total changes)	69	4.2%	3.88	60.2%	65.1%	1.4%	5.4%	0.87
ES	Change in Consensus Recommendations (1-month change)	74	2.4%	3.19	58.2%	76.1%	1.1%	5.0%	0.70
ES	Forward Earnings Momentum (1-month change)	69	4.8%	2.49	64.3%	64.6%	0.9%	5.6%	0.50
ES	Forecast Earnings Growth FY1 to FY2	70	-1.0%	-0.20	44.8%	22.8%	-0.1%	5.1%	-0.13
PT	Price Momentum 12-month	77	3.3%	1.41	59.7%	24.1%	0.7%	7.2%	0.19
PT	Price Momentum 1-month	79	-1.4%	-1.93	46.6%	79.2%	-0.8%	5.8%	-0.53
PT	RSI 10-day (Continuation)	80	-3.0%	-3.49	43.4%	77.9%	-1.4%	6.1%	-0.85
Q	Return On Equity (1-year trailing)	77	2.3%	0.49	52.5%	9.0%	0.2%	5.9%	0.01
Q	Sales Growth (1-year trailing)	61	0.3%	-0.48	51.4%	12.1%	-0.2%	6.3%	-0.23
R	Beta (Barra)	78	-0.7%	0.38	44.3%	12.7%	0.1%	4.9%	0.01
R	Volatility (Barra)	78	-0.3%	0.59	45.2%	15.0%	0.2%	5.1%	0.05
R	Size (Barra)	78	1.3%	0.50	53.4%	9.3%	0.2%	4.5%	0.03

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

MSCI AxJ Consumer Discretionary – Top factors by T-Stat (Top 20 / Bottom 5)

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Composite Value Growth Momentum Model	67	5.3%	5.02	70.6%	45.7%	1.7%	4.9%	1.18
C	Q-Score Composite	67	6.2%	5.00	67.4%	41.1%	1.7%	5.1%	1.18
C	Composite Value Momentum Quality Price Model (Value Biased)	67	5.7%	4.95	67.9%	37.9%	1.6%	4.8%	1.16
C	Composite Value Momentum Quality Price Model	67	5.9%	4.90	67.9%	39.9%	1.6%	4.9%	1.15
C	Composite Value Momentum Model	67	6.0%	4.87	68.3%	46.1%	1.7%	5.1%	1.14
C	Composite Recom	74	3.5%	4.06	63.6%	48.8%	1.1%	4.2%	0.93
ES	Net Revisions to FY1 [Up-Down]/[Up+Down]	71	3.9%	3.99	62.0%	66.3%	1.2%	4.4%	0.91
C	Value To Growth	66	3.2%	3.99	62.4%	20.4%	1.2%	4.5%	0.91
ES	Net Revisions FY1 FY2 (Rel. To Total Changes)	69	4.2%	3.88	60.2%	65.1%	1.4%	5.4%	0.87
ES	Forward Earnings Momentum (3Mth Change) / Co-Efficient Of Variation	63	4.5%	3.88	64.3%	38.1%	1.4%	5.3%	0.87
C	Composite Momentum	70	4.2%	3.85	62.4%	63.2%	1.2%	4.7%	0.87
V	1 year forward forecast PE	67	4.0%	3.83	59.7%	15.4%	1.4%	5.4%	0.86
C	Value To Risk	63	4.5%	3.63	62.9%	18.2%	1.3%	5.5%	0.80
V	Cash Flow Yield Mean of FY1 and FY2	60	3.4%	3.61	57.5%	16.8%	1.4%	5.6%	0.82
C	Composite Value	67	4.1%	3.55	62.0%	19.5%	1.3%	5.4%	0.78
V	Cash Flow Yield FY2	60	3.3%	3.48	57.0%	17.4%	1.4%	5.8%	0.78
C	Composite Forward Earnings Momentum (1Mth + 3 Mth)	67	5.3%	3.48	63.3%	38.8%	1.2%	5.2%	0.77
V	1 year forward forecast PE Relative To Sector	68	3.3%	3.38	60.2%	16.1%	1.2%	5.5%	0.74
C	Composite Value and Growth	67	3.3%	3.36	59.3%	18.7%	1.1%	5.0%	0.74
V	Cash Flow Yield FY1	61	3.3%	3.22	57.0%	16.6%	1.3%	5.8%	0.71
Q	Payout Ratio	77	0.1%	-0.64	46.6%	13.6%	-0.2%	5.4%	-0.24
C	Composite Co-Efficient of Variation (Avg of Fy1 and FY2)	65	-2.6%	-1.63	39.8%	21.7%	-0.6%	5.1%	-0.45
PT	1 Mth Price Momentum	79	-1.4%	-1.93	46.6%	79.2%	-0.8%	5.8%	-0.53
PT	RSI 30-day (Continuation)	80	-1.2%	-2.15	48.0%	67.0%	-0.9%	6.3%	-0.58
PT	RSI 10-day (Continuation)	80	-3.0%	-3.49	43.4%	77.9%	-1.4%	6.1%	-0.85

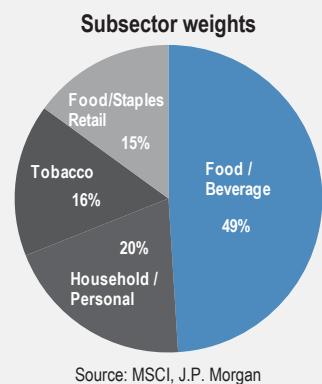
Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

For full backtest results of the Top 3 / Bottom 2 single factors and standard Composites, please see our [Sector Chartbook](#).

Consumer Staples

Sector Summary

MSCI AxJ weight: 5.6%
Investable market cap: US\$138.4bn
Number of constituents: 42

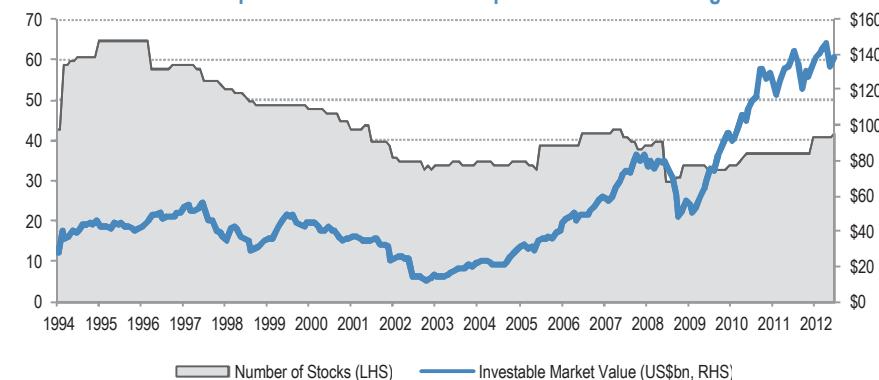


Factor Performance

Top composite: Earnings / Sentiment
Top factor: 3 Month Change in Consensus Recommend.

Consumer Staples only shows moderate performance among quant factors. The best performing factor family came from the Earnings/Sentiment category, which were the top 3 performing factors. Other factor families showed disappointing results, well underperforming the benchmark index. The top performing Composite Earnings / Sentiment factor is calculated by equally weighting A) Net earnings revisions FY2, B) 3 month risk-adjusted earnings momentum, and C) 1 month change in consensus recommendation recommendations. Further investigation may be warranted into factors related to industry data such as food prices.

MSCI AxJ Consumer Staples – Investable market cap and constituent changes over time

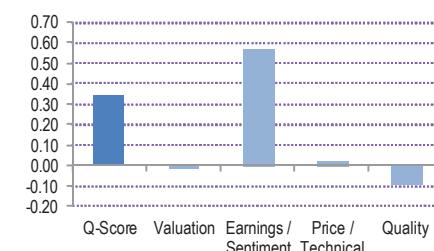


Composite Families – Cumulative performance over time



Composite Family Performance Summary (full period results)

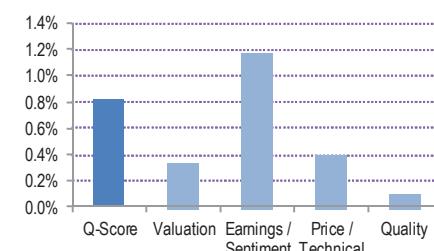
Sharpe Ratio



Hit Rate



Average Return LS (monthly)



Average IC



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio, the risk-free rate is assumed to be 0%.

MSCI AxJ Consumer Staples – Composites and Key Factors Summary

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Q-Score Composite	37	4.2%	1.92	58.8%	44.7%	0.8%	6.3%	0.35
C	► Composite Value (with Growth)	37	0.1%	0.59	54.8%	18.6%	0.3%	8.3%	0.00
C	► Composite Earnings / Sentiment	41	4.9%	2.78	62.9%	63.7%	1.2%	6.2%	0.57
C	► Composite Price / Reversion	41	2.9%	0.73	56.1%	31.0%	0.4%	8.0%	0.03
C	► Composite Quality	35	2.1%	0.21	56.1%	14.2%	0.1%	7.4%	-0.09
C	Q-Score Composite (Value Biased)	37	3.8%	1.63	58.4%	40.5%	0.7%	6.4%	0.28
C	Composite Price to Book ROE	42	2.1%	0.51	52.0%	13.1%	0.2%	6.2%	0.01
V	P/E (1-year forward)	37	-0.4%	-0.50	48.0%	15.4%	-0.2%	7.4%	-0.24
V	P/B (1-year trailing)	42	-0.7%	0.40	49.3%	10.5%	0.2%	7.6%	-0.04
V	Dividend Yield (1-year trailing)	44	2.3%	1.73	57.9%	13.0%	0.8%	6.9%	0.29
ES	Net Earnings Revisions FY1 FY2 (Relative to total changes)	40	2.7%	1.08	56.1%	68.1%	0.4%	6.0%	0.14
ES	Change in Consensus Recommendations (1-month change)	41	4.0%	2.45	60.9%	76.0%	1.0%	6.2%	0.48
ES	Forward Earnings Momentum (1-month change)	39	1.5%	-0.15	52.5%	64.8%	-0.1%	6.7%	-0.15
ES	Forecast Earnings Growth FY1 to FY2	40	0.8%	1.41	52.5%	25.3%	0.6%	6.6%	0.22
PT	Price Momentum 12-month	42	0.9%	-1.00	48.4%	25.7%	-0.6%	8.2%	-0.36
PT	Price Momentum 1-month	43	-4.2%	-1.74	42.1%	79.8%	-0.8%	7.1%	-0.50
PT	RSI 10-day (Continuation)	42	-4.8%	-2.27	37.1%	76.9%	-1.1%	7.4%	-0.60
Q	Return On Equity (1-year trailing)	42	2.3%	0.06	52.9%	9.1%	0.0%	8.0%	-0.15
Q	Sales Growth (1-year trailing)	32	1.9%	2.12	54.9%	13.0%	1.4%	8.6%	0.44
R	Beta (Barra)	41	0.0%	0.76	49.3%	11.5%	0.2%	4.9%	0.09
R	Volatility (Barra)	41	-1.4%	0.21	48.0%	13.7%	0.1%	5.2%	-0.04
R	Size (Barra)	41	0.5%	-0.94	48.9%	9.2%	-0.4%	6.4%	-0.35

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

MSCI AxJ Consumer Staples – Top factors by T-Stat (Top 20 / Bottom 5)

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Composite Momentum	41	4.9%	2.78	62.9%	63.7%	1.2%	6.2%	0.57
ES	3 Mth Change in Consensus Recom	41	3.3%	2.63	56.9%	43.4%	1.1%	6.1%	0.54
ES	Forward Earnings Momentum (3Mth Change) / Co-Efficient Of Variation	35	3.4%	2.61	60.2%	37.8%	1.0%	5.5%	0.54
C	Composite Recom	41	3.9%	2.52	57.3%	48.9%	1.0%	5.9%	0.51
ES	1 Mth Change in Consensus Recom	41	4.0%	2.45	60.9%	76.0%	1.0%	6.2%	0.48
C	Composite Value Momentum Model	37	3.9%	2.20	57.9%	49.5%	1.0%	6.8%	0.41
C	Sentiment Composite	26	6.2%	2.16	58.2%	31.1%	1.4%	8.2%	0.48
Q	Historical Sales Growth	32	1.9%	2.12	54.9%	13.0%	1.4%	8.6%	0.44
Q	PIOTROSKI F-score (Fundamental Scorecard)	44	1.8%	2.03	61.5%	19.3%	0.8%	6.1%	0.38
C	Composite Value Growth Momentum Model	37	3.5%	1.97	57.0%	47.9%	0.9%	6.9%	0.35
C	Q-Score Composite	37	4.2%	1.92	58.8%	44.7%	0.8%	6.3%	0.35
C	Composite Value Momentum Quality Price Model	37	4.3%	1.79	57.9%	43.0%	0.7%	6.1%	0.32
V	Historical Dividend Yield	44	2.3%	1.73	57.9%	13.0%	0.8%	6.9%	0.29
R	Growth (Barra)	36	1.4%	1.65	57.8%	11.8%	0.6%	4.6%	0.35
Q	Gearing	33	0.1%	1.64	52.6%	9.3%	0.9%	7.9%	0.29
C	Composite Value Momentum Quality Price Model (Value Biased)	37	3.8%	1.63	58.4%	40.5%	0.7%	6.4%	0.28
PT	Price Accel 6M	41	1.9%	1.57	55.2%	25.7%	0.6%	5.8%	0.27
PT	Price Accel 3M	42	2.1%	1.57	58.4%	32.8%	0.7%	6.3%	0.26
ES	Net Revisions to FY2 [Up-Down]/[Up+Down]	40	2.5%	1.57	55.2%	69.2%	0.6%	6.1%	0.27
C	Composite Price	39	3.0%	1.50	52.0%	24.3%	0.7%	6.7%	0.24
Q	Payout Ratio	42	-2.0%	-1.38	45.7%	11.9%	-0.6%	6.9%	-0.42
Q	EBIT Margin Growth	32	-1.0%	-1.49	44.7%	15.4%	-1.1%	9.3%	-0.58
PT	1 Mth Price Momentum	43	-4.2%	-1.74	42.1%	79.8%	-0.8%	7.1%	-0.50
PT	RSI 30-day (Continuation)	42	-2.6%	-2.00	39.8%	67.7%	-0.9%	6.7%	-0.55
PT	RSI 10-day (Continuation)	42	-4.8%	-2.27	37.1%	76.9%	-1.1%	7.4%	-0.60

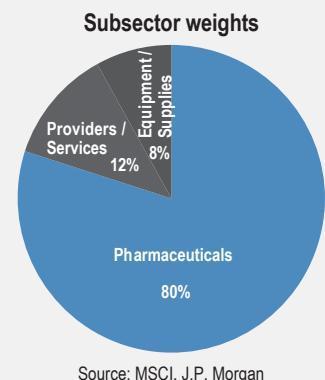
Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

For full backtest results of the Top 3 / Bottom 2 single factors and standard Composites, please see our [Sector Chartbook](#).

Health Care

Sector Summary

MSCI AxJ weight: 0.9%
Investable market cap: US\$22.4bn
Number of constituents: 13



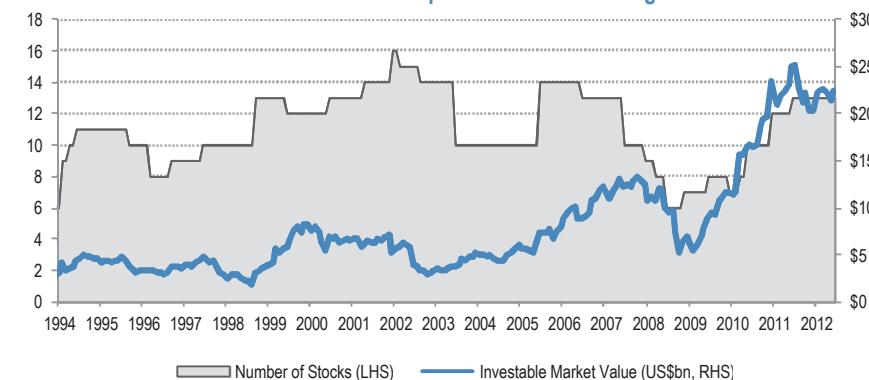
Source: MSCI, J.P. Morgan

Factor Performance

Top composite: Earnings / Sentiment
Top factor: Forward Earnings
Momentum (3Mth chg) / Coefficient of Variation

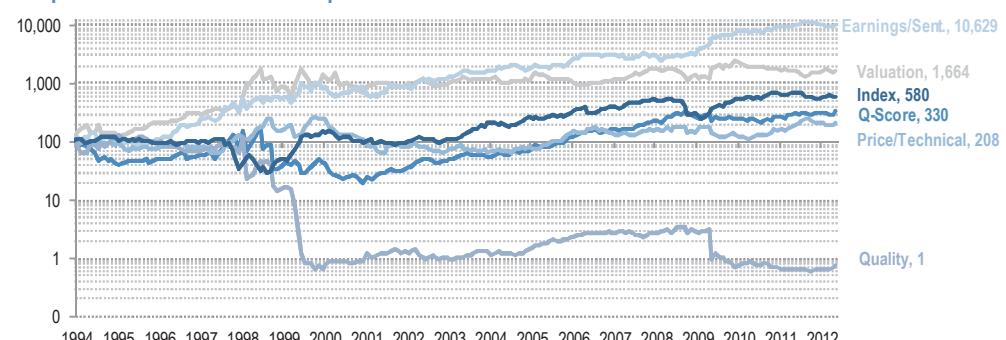
Health Care is the smallest sector in the MSCI AxJ by both weight and number of constituents. Thus, factor performance generally suffers from a lack of style representation and high stock specific risk. This manifested itself post the Asian Financial Crisis, when risk rallied and Quality strategies fell off a cliff. At the other end of the spectrum, Earnings/Sentiment factors performed exceptionally well on an absolute basis but especially on an absolute basis. The overall top performing factor was *Composite Earnings / Sentiment* (which is the same as Composite Momentum in our chart).

MSCI AxJ Health Care – Investable market cap and constituent changes over time



Source: MSCI, J.P. Morgan

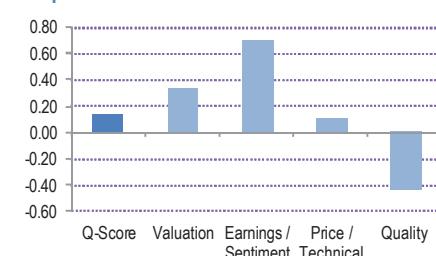
Composite Families – Cumulative performance over time



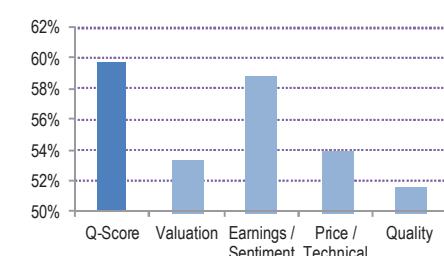
Source: J.P. Morgan, MSCI, IBES, Reuters, Factset. Index=MSCI AxJ Health Care (equal weighted, US\$, dividends reinvested)

Composite Family Performance Summary (full period results)

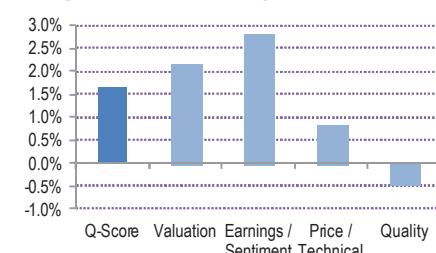
Sharpe Ratio



Hit Rate



Average Return LS (monthly)



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio, the risk-free rate is assumed to be 0%.

Average IC



MSCI AxJ Health Care – Composites and Key Factors Summary

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Q-Score Composite	10	8.7%	1.69	59.7%	35.9%	1.6%	14.2%	0.14
C	► Composite Value (with Growth)	10	3.5%	2.28	53.4%	19.0%	2.2%	14.1%	0.34
C	► Composite Earnings / Sentiment	11	6.9%	3.47	58.8%	51.2%	2.8%	11.9%	0.70
C	► Composite Price / Reversion	10	4.2%	1.24	53.8%	23.5%	0.8%	9.9%	0.12
C	► Composite Quality	10	1.2%	-0.41	51.6%	15.0%	-0.4%	16.1%	-0.42
C	Q-Score Composite (Value Biased)	10	8.1%	2.35	59.3%	36.9%	2.0%	12.5%	0.35
C	Composite Price to Book ROE	10	-0.2%	-0.31	50.7%	14.7%	-0.3%	13.9%	-0.31
V	P/E (1-year forward)	10	0.2%	1.44	51.1%	15.7%	1.5%	15.8%	0.09
V	P/B (1-year trailing)	11	1.3%	0.84	50.2%	10.2%	0.7%	12.9%	-0.02
V	Dividend Yield (1-year trailing)	11	-1.7%	-0.13	48.0%	9.3%	-0.1%	14.4%	-0.26
ES	Net Earnings Revisions FY1 FY2 (Relative to total changes)	11	5.8%	0.44	56.6%	55.8%	0.4%	13.0%	-0.16
ES	Change in Consensus Recommendations (1-month change)	11	4.9%	1.50	58.2%	62.2%	1.2%	12.2%	0.16
ES	Forward Earnings Momentum (1-month change)	10	6.9%	1.89	57.0%	53.9%	1.5%	11.6%	0.24
ES	Forecast Earnings Growth FY1 to FY2	11	2.0%	1.99	55.7%	20.5%	1.4%	10.7%	0.30
PT	Price Momentum 12-month	10	3.7%	1.45	52.9%	18.9%	1.1%	11.5%	0.13
PT	Price Momentum 1-month	11	-2.1%	-0.58	51.1%	65.6%	-0.5%	12.8%	-0.39
PT	RSI 10-day (Continuation)	11	-0.6%	-0.83	48.4%	64.3%	-0.8%	14.7%	0.00
Q	Return On Equity (1-year trailing)	10	-1.7%	-0.87	45.2%	10.2%	-0.8%	13.2%	-0.45
Q	Sales Growth (1-year trailing)	10	2.0%	0.41	55.9%	12.4%	0.4%	14.2%	-0.26
R	Beta (Barra)	11	-1.3%	0.48	56.1%	10.2%	0.3%	7.8%	-0.03
R	Volatility (Barra)	11	-1.2%	1.03	57.5%	8.7%	0.5%	7.5%	0.11
R	Size (Barra)	11	-0.2%	-1.17	50.7%	7.2%	-0.8%	10.2%	-0.45

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

MSCI AxJ Health Care – Top factors by T-Stat (Top 20 / Bottom 5)

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat ▼	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Composite Momentum	11	6.9%	3.47	58.8%	51.2%	2.8%	11.9%	0.70
ES	Forward Earnings Momentum (3Mth Change) / Co-Efficient Of Variation	10	9.3%	2.96	59.7%	30.1%	2.5%	12.5%	0.45
C	Composite Recom	11	5.3%	2.36	53.6%	40.2%	2.0%	12.7%	0.37
C	Composite Value	10	2.5%	2.36	57.5%	22.4%	1.8%	11.6%	0.38
C	Composite Value Momentum Quality Price Model (Value Biased)	10	8.1%	2.35	59.3%	36.9%	2.0%	12.5%	0.35
C	Composite Value Growth Momentum Model	10	7.9%	2.34	60.2%	45.8%	2.1%	13.3%	0.33
C	Composite Value and Growth	10	3.5%	2.28	53.4%	19.0%	2.2%	14.1%	0.34
ES	Forward Earnings Momentum (3Mth Change)	10	7.8%	2.04	56.1%	31.7%	2.0%	14.2%	0.25
ES	Forecast Earnings Growth FY1 to FY2	11	2.0%	1.99	55.7%	20.5%	1.4%	10.7%	0.30
C	Composite Forward Earnings Momentum (1Mth + 3 Mth)	10	7.9%	1.99	57.9%	33.3%	1.9%	14.0%	0.23
C	Composite Value Momentum Model	10	6.2%	1.97	61.1%	44.4%	1.5%	11.0%	0.26
ES	3 Mth Change in Consensus Recom	11	4.8%	1.89	55.0%	36.1%	1.6%	12.7%	0.26
ES	Forward Earnings Momentum (1Mth Change)	10	6.9%	1.89	57.0%	53.9%	1.5%	11.6%	0.24
C	Composite Value Momentum Quality Price Model	10	8.0%	1.87	58.4%	36.6%	1.7%	13.2%	0.23
ES	Net Revisions to FY1 [Up-Down]/[Up+Down]	11	6.8%	1.86	58.8%	56.7%	1.7%	13.3%	0.19
C	Q-Score Composite	10	8.7%	1.69	59.7%	35.9%	1.6%	14.2%	0.14
PT	Price Accel 3M	11	0.0%	1.52	54.8%	27.8%	1.1%	10.5%	0.18
ES	1 Mth Change in Consensus Recom	11	4.9%	1.50	58.2%	62.2%	1.2%	12.2%	0.16
PT	12 Mth Price Momentum	10	3.7%	1.45	52.9%	18.9%	1.1%	11.5%	0.13
V	1 year forward forecast PE	10	0.2%	1.44	51.1%	15.7%	1.5%	15.8%	0.09
Q	ALTMAN Z-score	10	-4.9%	-1.17	42.2%	10.3%	-0.9%	10.0%	-0.44
V	EBITDA to Enterprise Value	10	-7.4%	-1.20	44.5%	13.9%	-1.4%	15.3%	0.00
Q	Change In ROE Between Current and 12 Mths Prior	9	2.9%	-1.33	54.1%	17.2%	-1.3%	14.2%	-0.66
Q	EBIT Margin Growth	10	-2.8%	-1.62	47.1%	12.1%	-1.9%	15.7%	0.00
Q	Interest Cover	10	-2.0%	-2.02	42.4%	6.9%	-2.1%	13.4%	-0.97

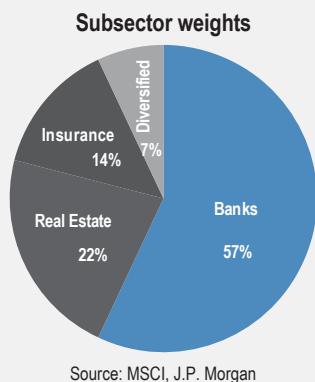
Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

For full backtest results of the Top 3 / Bottom 2 single factors and standard Composites, please see our [Sector Chartbook](#).

Financials

Sector Summary

MSCI AxJ weight: 31.2%
Investable market cap: US\$775.3bn
Number of constituents: 149



Factor Performance

Top composite: Earnings / Sentiment
Top factor: 1 Month Change in Consensus Recommend.

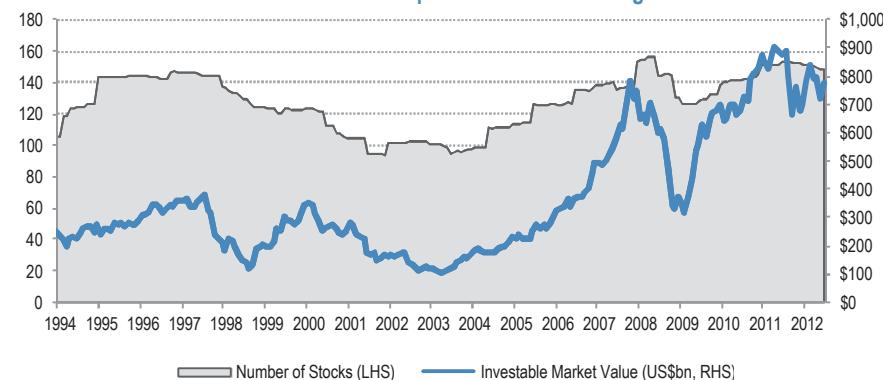
Financials is the largest sector in AxJ, and is the largest sector in each of the individual countries as well except for tech-dominated Taiwan and Korea.

The sector is strongly driven by Earnings/Sentiment, which performed consistently even during the Asian Financial Crisis and the Global Financial Crisis.

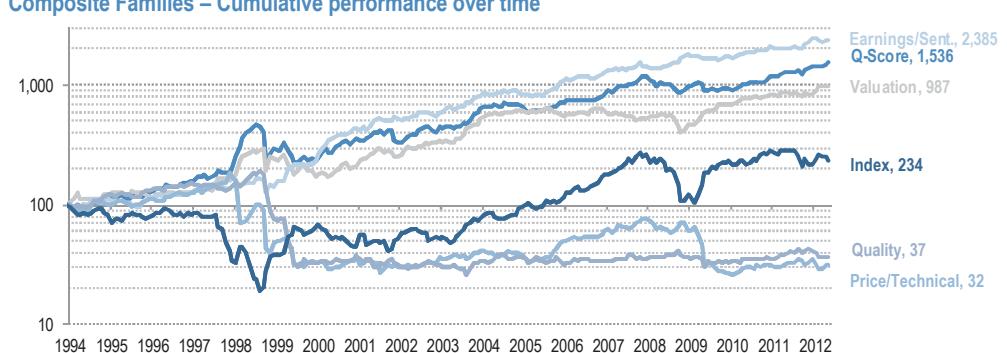
Value also performed well, and had lower turnover (*Composite Value* has a Sharpe of 0.85 and monthly turnover of 17.7%).

Generic Quality and Price/Technical strategies both perform very weakly in this sector, with negative Sharpe ratios and well underperforming the benchmark index.

MSCI AxJ Financials – Investable market cap and constituent changes over time

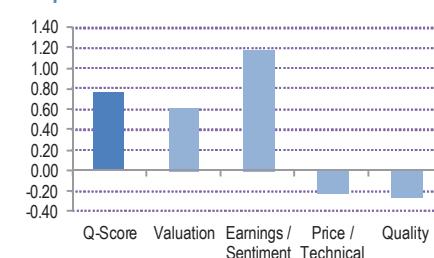


Composite Families – Cumulative performance over time



Composite Family Performance Summary (full period results)

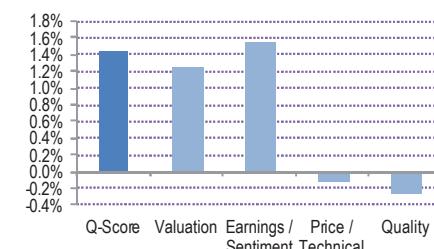
Sharpe Ratio



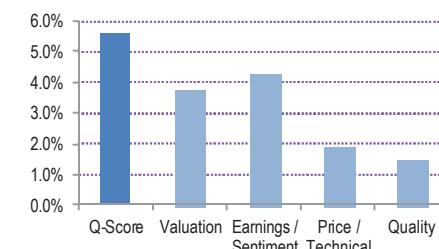
Hit Rate



Average Return LS (monthly)



Average IC



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio, the risk-free rate is assumed to be 0%.

MSCI AxJ Financials – Composites and Key Factors Summary

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Q-Score Composite	107	5.6%	3.55	64.7%	44.6%	1.4%	6.0%	0.77
C	► Composite Value (with Growth)	107	3.8%	2.94	57.5%	17.7%	1.2%	6.3%	0.61
C	► Composite Earnings / Sentiment	114	4.3%	5.00	63.8%	67.5%	1.5%	4.6%	1.18
C	► Composite Price / Reversion	119	1.9%	-0.16	58.8%	34.3%	-0.1%	8.2%	-0.21
C	► Composite Quality	104	1.5%	-0.60	55.2%	16.1%	-0.2%	6.0%	-0.25
C	Q-Score Composite (Value Biased)	107	5.1%	4.25	64.3%	39.8%	1.7%	5.9%	0.96
C	Composite Price to Book ROE	124	3.1%	2.93	56.6%	14.8%	1.2%	6.0%	0.62
V	P/E (1-year forward)	107	3.7%	2.06	58.8%	15.5%	0.9%	6.7%	0.36
V	P/B (1-year trailing)	124	2.1%	2.54	53.8%	11.4%	1.2%	7.3%	0.51
V	Dividend Yield (1-year trailing)	128	2.1%	2.01	53.4%	11.9%	0.8%	5.9%	0.38
ES	Net Earnings Revisions FY1 FY2 (Relative to total changes)	113	1.8%	1.83	56.1%	68.9%	0.5%	4.3%	0.36
ES	Change in Consensus Recommendations (1-month change)	116	3.0%	4.41	62.3%	78.1%	1.2%	3.9%	1.03
ES	Forward Earnings Momentum (1-month change)	109	2.4%	0.81	55.2%	67.2%	0.3%	4.7%	0.11
ES	Forecast Earnings Growth FY1 to FY2	113	-0.1%	0.33	50.7%	22.6%	0.1%	4.6%	0.00
PT	Price Momentum 12-month	122	0.3%	-1.52	50.2%	26.1%	-0.8%	7.7%	-0.48
PT	Price Momentum 1-month	125	-3.3%	-2.48	42.1%	81.0%	-1.1%	6.6%	-0.65
PT	RSI 10-day (Continuation)	125	-3.9%	-2.79	35.3%	78.1%	-1.2%	6.5%	-0.71
Q	Return On Equity (1-year trailing)	124	1.2%	0.50	49.8%	11.0%	0.2%	5.8%	0.01
Q	Sales Growth (1-year trailing)	108	1.7%	0.74	55.5%	11.1%	0.4%	7.8%	0.01
R	Beta (Barra)	124	-0.6%	1.08	50.2%	13.0%	0.3%	3.9%	0.19
R	Volatility (Barra)	124	-0.6%	1.21	48.9%	15.1%	0.4%	5.0%	0.20
R	Size (Barra)	124	-0.1%	-1.43	49.8%	8.4%	-0.5%	4.9%	-0.41

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

MSCI AxJ Financials – Top factors by T-Stat (Top 20 / Bottom 5)

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat ▾	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Composite Momentum	114	4.3%	5.00	63.8%	67.5%	1.5%	4.6%	1.18
C	Composite Value Growth Momentum Model	107	5.4%	4.59	64.3%	47.2%	1.9%	6.0%	1.06
C	Composite Value Momentum Model	107	5.2%	4.45	67.9%	48.2%	1.8%	6.0%	1.03
ES	1 Mth Change in Consensus Recom	116	3.0%	4.41	62.3%	78.1%	1.2%	3.9%	1.03
ES	Forward Earnings Momentum (3Mth Change) / Co-Efficient Of Variation	102	3.8%	4.32	62.9%	39.5%	1.4%	4.7%	0.99
C	Composite Value Momentum Quality Price Model (Value Biased)	107	5.1%	4.25	64.3%	39.8%	1.7%	5.9%	0.96
C	Composite Value Momentum Quality Price Model	107	5.0%	3.82	65.2%	42.3%	1.6%	6.2%	0.85
C	Composite Value	107	4.3%	3.81	62.9%	18.5%	1.5%	6.0%	0.85
V	1 year forward forecast PE Relative To History	99	4.5%	3.79	62.2%	23.4%	1.7%	6.4%	0.91
C	Q-Score Composite	107	5.6%	3.55	64.7%	44.6%	1.4%	6.0%	0.77
C	Composite Recom	116	2.8%	3.45	58.6%	51.1%	1.2%	5.0%	0.77
R	Value (Barra)	124	3.3%	3.34	63.3%	17.7%	1.0%	4.5%	0.74
ES	3 Mth Change in Consensus Recom	116	2.2%	3.20	62.8%	44.1%	1.1%	4.9%	0.71
Q	PIOTROSKI F-score (Fundamental Scorecard)	128	1.7%	2.97	56.1%	17.8%	0.9%	4.6%	0.64
C	Composite Value and Growth	107	3.8%	2.94	57.5%	17.7%	1.2%	6.3%	0.61
C	Composite Price to Book ROE	124	3.1%	2.93	56.6%	14.8%	1.2%	6.0%	0.62
C	Value To Growth	106	2.8%	2.59	51.6%	19.7%	0.9%	5.4%	0.54
V	Historical P/Book Value Ratio	124	2.1%	2.54	53.8%	11.4%	1.2%	7.3%	0.51
ES	Net Revisions to FY2 [Up-Down]/[Up+Down]	114	1.8%	2.41	59.3%	71.3%	0.8%	4.9%	0.49
V	Cash Flow Yield Mean of FY1 and FY2	85	2.7%	2.26	57.9%	19.0%	1.1%	6.8%	0.46
PT	6 Mth Price Momentum	125	-1.6%	-2.38	43.9%	36.3%	-1.2%	7.5%	-0.65
PT	RSI 30-day (Continuation)	126	-2.2%	-2.39	42.5%	67.9%	-0.9%	5.8%	-0.62
PT	1 Mth Price Momentum	125	-3.3%	-2.48	42.1%	81.0%	-1.1%	6.6%	-0.65
PT	RSI 10-day (Continuation)	125	-3.9%	-2.79	35.3%	78.1%	-1.2%	6.5%	-0.71
PT	3 Mth Price Momentum	126	-2.8%	-3.30	42.1%	48.4%	-1.6%	7.1%	-0.82

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

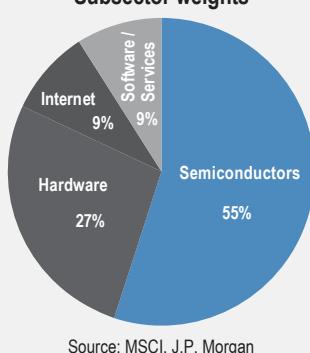
For full backtest results of the Top 3 / Bottom 2 single factors and standard Composites, please see our [Sector Chartbook](#).

Information Technology

Sector Summary

MSCI AxJ weight: 18.2%
Investable market cap: US\$451.4bn
Number of constituents: 72

Subsector weights



Factor Performance

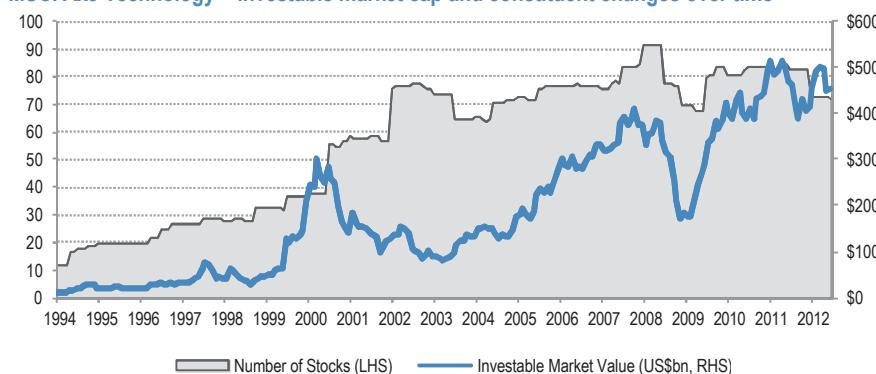
Top composite: Composite (Value bias)
Top factor: Net Revisions to FY2

The Information Technology sector exhibits very strong performance for Earnings/Sentiment factors, which represent 8 of the top 20 factors. Up until the bursting of the tech bubble in 2000-2001, Quality and Value were greatly underperforming, with Value in particular collapsing as the bubble deflated and many Internet companies became cheap but ultimately failed – bringing to mind the adage “beware catching a falling knife.”

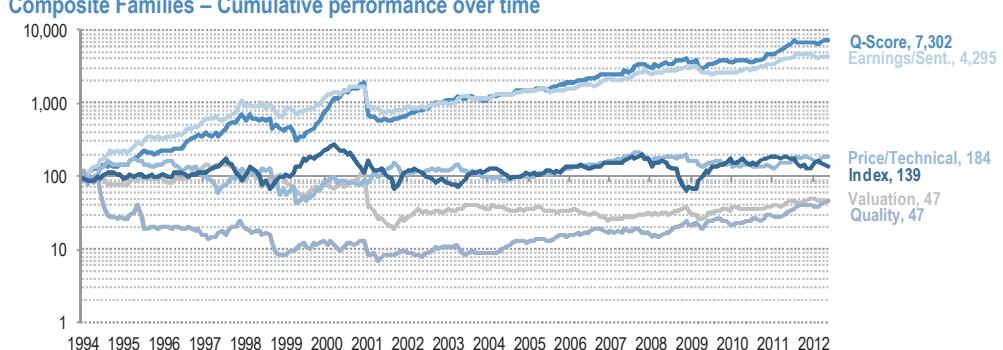
However, interestingly the top performing composite incorporates a Value bias while underweighting Price and Quality which serves to dampen risk while maintaining similar returns. Our generic Q-Score which more equally weights each factor family shows a very strong return profile, especially post the tech bubble which shows fairly smooth and consistent returns. However, the Asian Financial Crisis and of course the rise and fall of the tech bubble were periods of large drawdowns.

At the GICS Level 1 tier, IT encompasses a diverse range of constituents (combining semiconductors, hardware, Internet, etc.) that may warrant further investigation for factor performance at the subsector level.

MSCI AxJ Technology – Investable market cap and constituent changes over time

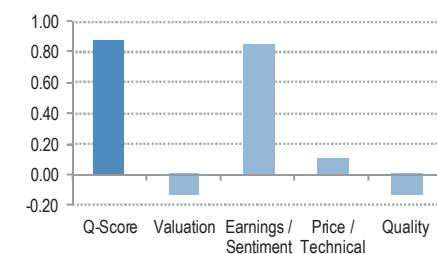


Composite Families – Cumulative performance over time

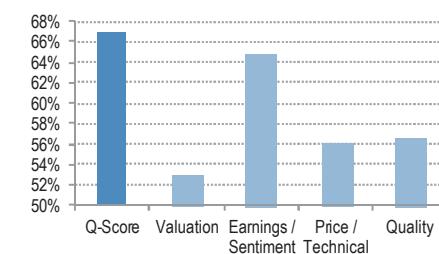


Composite Family Performance Summary (full period results)

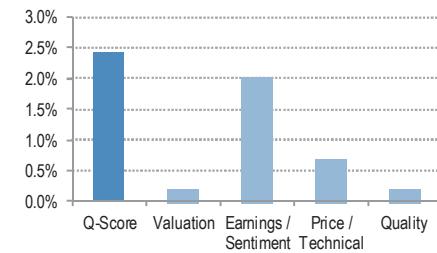
Sharpe Ratio



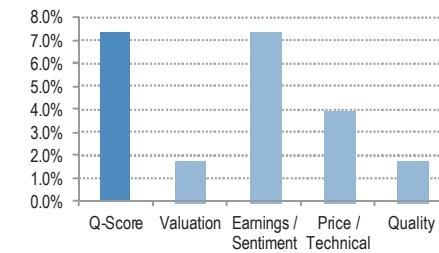
Hit Rate



Average Return LS (monthly)



Average IC



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio, the risk-free rate is assumed to be 0%.

MSCI AxJ Technology – Composites and Key Factors Summary

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Q-Score Composite	51	7.4%	4.16	67.0%	41.1%	2.4%	8.7%	0.87
C	► Composite Value (with Growth)	51	1.7%	0.28	52.9%	21.0%	0.2%	9.3%	-0.13
C	► Composite Earnings / Sentiment	53	7.4%	3.92	64.7%	62.6%	2.0%	7.7%	0.85
C	► Composite Price / Reversion	52	3.9%	1.16	56.1%	29.6%	0.7%	8.8%	0.11
C	► Composite Quality	48	1.7%	0.28	56.6%	16.8%	0.2%	9.8%	-0.12
C	Q-Score Composite (Value Biased)	51	6.9%	4.25	65.6%	39.7%	2.4%	8.3%	0.91
C	Composite Price to Book ROE	56	0.0%	0.49	46.2%	17.1%	0.3%	9.5%	-0.05
V	P/E (1-year forward)	51	2.0%	0.78	55.7%	17.3%	0.5%	9.2%	0.02
V	P/B (1-year trailing)	56	-1.8%	0.23	41.2%	12.3%	0.2%	11.5%	-0.12
V	Dividend Yield (1-year trailing)	57	1.6%	0.58	56.6%	14.9%	0.3%	8.8%	-0.02
ES	Net Earnings Revisions FY1 FY2 (Relative to total changes)	52	5.5%	3.60	58.8%	64.8%	1.9%	8.0%	0.76
ES	Change in Consensus Recommendations (1-month change)	56	4.7%	4.02	59.5%	76.2%	1.8%	6.7%	0.90
ES	Forward Earnings Momentum (1-month change)	52	3.7%	1.71	57.9%	63.4%	0.9%	7.6%	0.27
ES	Forecast Earnings Growth FY1 to FY2	52	-1.6%	-0.14	51.1%	24.0%	-0.1%	10.5%	-0.22
PT	Price Momentum 12-month	52	4.5%	2.14	61.5%	22.6%	1.4%	9.4%	0.35
PT	Price Momentum 1-month	57	2.2%	1.67	54.3%	76.9%	1.0%	8.5%	0.25
PT	RSI 10-day (Continuation)	58	1.4%	1.25	51.6%	77.6%	0.7%	8.3%	0.15
Q	Return On Equity (1-year trailing)	56	1.5%	-0.17	54.8%	9.1%	-0.1%	10.5%	-0.31
Q	Sales Growth (1-year trailing)	63	0.7%	1.30	53.8%	11.1%	0.8%	8.3%	0.20
R	Beta (Barra)	57	-0.4%	-0.03	46.6%	14.5%	0.0%	5.7%	-0.11
R	Volatility (Barra)	57	-1.2%	-0.28	48.4%	15.0%	-0.1%	5.9%	-0.17
R	Size (Barra)	57	3.7%	1.96	61.1%	7.9%	0.8%	6.1%	0.36

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

MSCI AxJ Technology – Top factors by T-Stat (Top 20 / Bottom 5)

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat ▾	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
ES	Net Revisions to FY2 [Up-Down]/[Up+Down]	53	5.5%	4.34	58.8%	67.7%	2.2%	7.4%	0.99
C	Composite Value Momentum Quality Price Model (Value Biased)	51	6.9%	4.25	65.6%	39.7%	2.4%	8.3%	0.91
C	Q-Score Composite	51	7.4%	4.16	67.0%	41.1%	2.4%	8.7%	0.87
ES	1 Mth Change in Consensus Recom	56	4.7%	4.02	59.5%	76.2%	1.8%	6.7%	0.90
C	Composite Value Momentum Quality Price Model	51	7.5%	3.97	68.8%	41.1%	2.2%	8.3%	0.83
C	Composite Momentum	53	7.4%	3.92	64.7%	62.6%	2.0%	7.7%	0.85
C	Composite Value Momentum Model	51	6.3%	3.74	65.2%	47.2%	2.0%	7.9%	0.81
ES	Net Revisions FY1 FY2 (Rel. To Total Changes)	52	5.5%	3.60	58.8%	64.8%	1.9%	8.0%	0.76
C	Composite Value Growth Momentum Model	51	6.5%	3.58	64.3%	46.4%	1.9%	7.9%	0.74
PT	Price Accel 6M	56	3.0%	3.45	57.0%	24.8%	1.9%	8.0%	0.73
Q	PIOTROSKI F-score (Fundamental Scorecard)	58	2.8%	2.91	57.9%	19.5%	1.5%	7.5%	0.59
C	Composite Price	50	4.7%	2.64	55.7%	24.0%	1.6%	9.2%	0.48
ES	Net Revisions to FY1 [Up-Down]/[Up+Down]	53	4.6%	2.61	57.0%	67.3%	1.3%	7.2%	0.51
ES	Number of Consensus Estimates (FY1)	53	3.5%	2.56	57.9%	14.2%	1.3%	7.4%	0.49
C	Composite Recom	56	4.9%	2.54	62.3%	47.8%	1.2%	7.2%	0.48
PT	12 Month Price Momentum adjusted for volatility (sharp style)	52	4.8%	2.27	60.2%	24.2%	1.4%	9.0%	0.40
ES	Forward Earnings Momentum (3Mth Change)	51	4.5%	2.25	58.8%	33.4%	1.2%	8.1%	0.40
ES	3 Mth Change in Consensus Recom	56	4.2%	2.25	59.2%	41.8%	1.1%	7.5%	0.40
ES	Forward Earnings Momentum (3Mth Change) / Co-Efficient Of Variation	48	5.5%	2.24	56.1%	37.7%	1.1%	7.1%	0.42
R	Success (Barra)	57	4.2%	2.18	57.9%	18.5%	0.9%	6.4%	0.41
V	Cash Flow Yield FY1	48	-1.7%	-1.20	43.9%	17.8%	-0.7%	9.1%	-0.41
V	Cash Flow Yield FY2	47	-2.8%	-1.39	41.6%	18.0%	-0.9%	9.2%	-0.45
Q	Gearing	58	-1.9%	-1.42	42.3%	7.1%	-1.0%	10.1%	-0.50
C	Composite Co-Efficient of Variation (Avg of Fy1 and FY2)	49	-4.3%	-1.56	44.3%	25.6%	-0.8%	7.8%	-0.47
V	Cash Flow Yield Mean of FY1 and FY2	47	-2.2%	-1.62	44.9%	17.1%	-1.0%	9.1%	-0.50

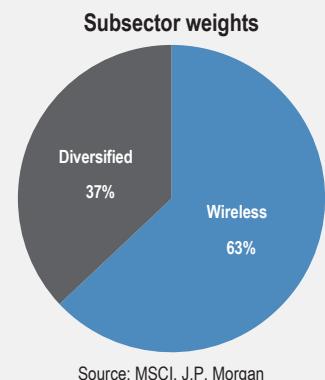
Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

For full backtest results of the Top 3 / Bottom 2 single factors and standard Composites, please see our [Sector Chartbook](#).

Telecom

Sector Summary

MSCI AxJ weight: 6.6%
Investable market cap: US\$164.8bn
Number of constituents: 26



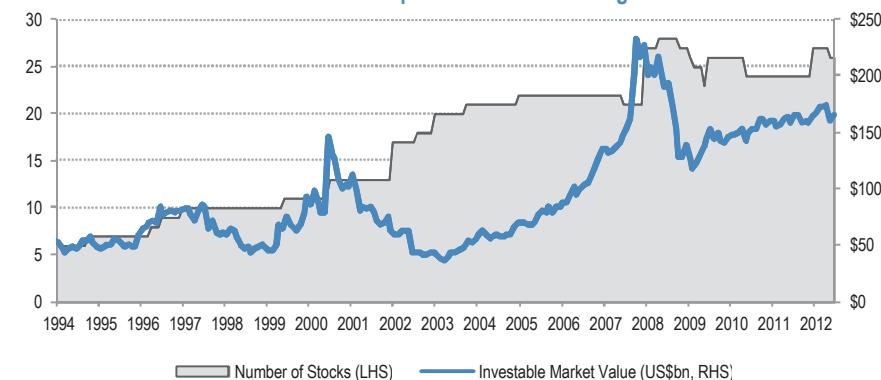
Factor Performance

Top composite: Q-Score
Top factor: 6 Month Change in Target Price

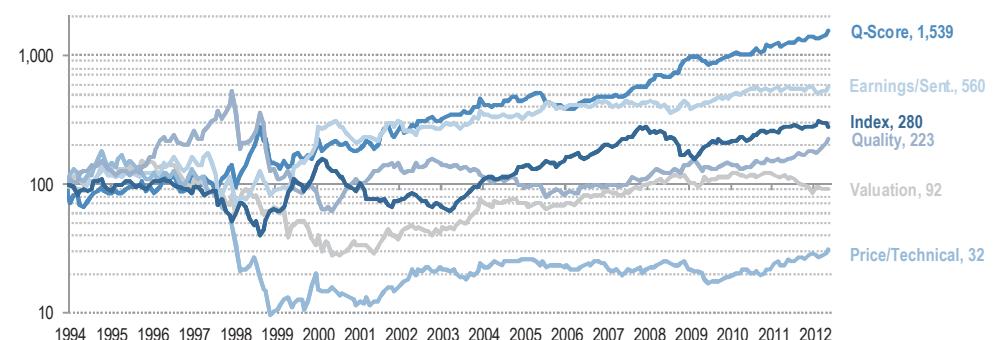
Telecom is an interesting sector from a quant perspective. Typically considered a defensive sector, we see that certain Value factors like Dividend Yield and Cash Flow Yield work well. However, it's also noteworthy how Earnings/Sentiment analysts are very important to follow in this sector, as 2 of the top factors are 6-Mth Change in Target Price and 1-Mth Change in Consensus Recommendations. Yet not all earnings factors are the same, and Forecast Earnings Growth FY1 to FY2 was one of the worst overall performing factors.

It's also important to look at bottom performing factors as contra-indicators. For instance 1-Mth Price Momentum (taken as 1-Mth Price Reversion) had one of the highest absolute Sharpe ratios in this sector. This could suggest that telecom stocks that start to trade out of line with peers may be relatively quickly brought back in line.

MSCI AxJ Telecom – Investable market cap and constituent changes over time

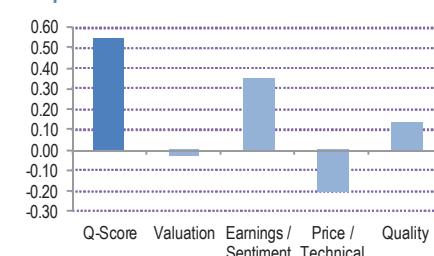


Composite Families – Cumulative performance over time

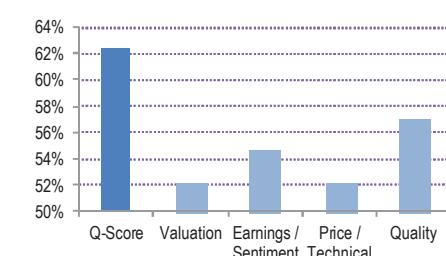


Composite Family Performance Summary (full period results)

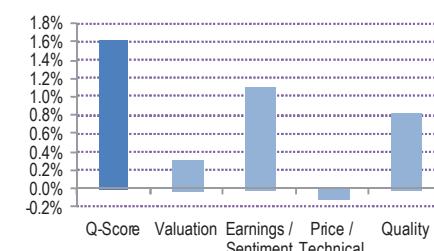
Sharpe Ratio



Hit Rate



Average Return LS (monthly)



Average IC



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio, the risk-free rate is assumed to be 0%.

MSCI AxJ Telecom – Composites and Key Factors Summary

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Q-Score Composite	17	6.2%	2.85	62.4%	32.5%	1.6%	8.4%	0.55
C	► Composite Value (with Growth)	17	0.3%	0.56	52.0%	16.2%	0.3%	8.2%	-0.02
C	► Composite Earnings / Sentiment	17	4.6%	2.04	54.8%	50.5%	1.1%	8.0%	0.35
C	► Composite Price / Reversion	16	2.0%	-0.16	52.0%	24.3%	-0.1%	9.0%	-0.20
C	► Composite Quality	16	5.9%	1.33	57.0%	8.7%	0.8%	9.1%	0.14
C	Q-Score Composite (Value Biased)	17	6.2%	2.83	60.2%	33.2%	1.6%	8.5%	0.55
C	Composite Price to Book ROE	17	6.8%	1.82	58.8%	13.2%	1.1%	8.6%	0.27
V	P/E (1-year forward)	17	5.7%	1.60	57.5%	12.4%	1.0%	9.0%	0.22
V	P/B (1-year trailing)	17	1.4%	0.17	51.1%	9.1%	0.1%	8.2%	-0.10
V	Dividend Yield (1-year trailing)	17	5.8%	1.77	57.9%	8.5%	1.0%	8.5%	0.27
ES	Net Earnings Revisions FY1 FY2 (Relative to total changes)	16	2.0%	0.83	54.8%	54.5%	0.5%	8.3%	0.05
ES	Change in Consensus Recommendations (1-month change)	17	4.5%	1.85	53.2%	63.5%	0.9%	7.2%	0.32
ES	Forward Earnings Momentum (1-month change)	16	3.8%	1.10	53.4%	51.9%	0.7%	9.2%	0.09
ES	Forecast Earnings Growth FY1 to FY2	17	-4.2%	-1.82	44.8%	17.7%	-1.1%	9.1%	-0.56
PT	Price Momentum 12-month	16	0.9%	0.03	51.6%	18.9%	0.0%	9.0%	-0.15
PT	Price Momentum 1-month	17	-4.2%	-1.41	42.5%	67.2%	-0.8%	8.8%	-0.46
PT	RSI 10-day (Continuation)	17	0.2%	-0.02	48.9%	63.5%	0.0%	8.3%	-0.16
Q	Return On Equity (1-year trailing)	17	5.7%	1.14	59.7%	7.0%	0.7%	8.7%	0.10
Q	Sales Growth (1-year trailing)	19	1.3%	-0.71	51.4%	10.4%	-0.6%	10.4%	-0.37
R	Beta (Barra)	16	0.0%	0.22	51.6%	5.6%	0.1%	7.7%	-0.09
R	Volatility (Barra)	16	-0.6%	0.07	51.1%	6.6%	0.0%	7.7%	-0.12
R	Size (Barra)	16	0.5%	-0.45	49.3%	2.2%	-0.4%	13.8%	0.00

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

MSCI AxJ Telecom – Top factors by T-Stat (Top 20 / Bottom 5)

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat ▾	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Q-Score Composite	17	6.2%	2.85	62.4%	32.5%	1.6%	8.4%	0.55
C	Composite Value Momentum Quality Price Model (Value Biased)	17	6.2%	2.83	60.2%	33.2%	1.6%	8.5%	0.55
C	Composite Value Momentum Quality Price Model	17	6.5%	2.74	58.8%	31.1%	1.6%	8.5%	0.53
C	Sentiment Composite	17	1.3%	2.42	56.8%	19.5%	2.3%	12.3%	0.54
ES	6M change in Target Price	17	0.2%	2.28	54.3%	14.5%	2.2%	12.4%	0.49
C	Composite Momentum	17	4.6%	2.04	54.8%	50.5%	1.1%	8.0%	0.35
C	Composite Value Momentum Model	17	6.4%	1.95	54.8%	41.7%	1.1%	8.6%	0.32
ES	1 Mth Change in Consensus Recom	17	4.5%	1.85	53.2%	63.5%	0.9%	7.2%	0.32
C	Composite Price to Book ROE	17	6.8%	1.82	58.8%	13.2%	1.1%	8.6%	0.27
V	Historical Dividend Yield	17	5.8%	1.77	57.9%	8.5%	1.0%	8.5%	0.27
V	Historical Earnings Yield	17	4.2%	1.68	54.8%	13.1%	0.9%	8.4%	0.25
C	Composite Value Growth Momentum Model	17	4.6%	1.66	57.5%	42.9%	1.0%	9.0%	0.23
V	1 year forward forecast PE	17	5.7%	1.60	57.5%	12.4%	1.0%	9.0%	0.22
V	Cash Flow Yield FY1	16	2.8%	1.56	50.9%	12.0%	0.9%	8.5%	0.24
V	Historical P/Cash Earnings Ratio	17	3.6%	1.49	50.7%	12.3%	0.9%	8.7%	0.21
C	Value To Risk	16	5.8%	1.49	57.0%	13.8%	0.9%	8.6%	0.19
ES	Consensus Recom	17	5.0%	1.33	55.2%	12.0%	0.8%	8.5%	0.16
C	Composite Quality	16	5.9%	1.33	57.0%	8.7%	0.8%	9.1%	0.14
C	Composite Recom	17	3.6%	1.31	55.0%	43.8%	0.7%	7.6%	0.18
Q	Interest Cover	19	4.1%	1.21	54.1%	6.5%	0.9%	9.3%	0.17
PT	Historical Returns Volatility Over Last Year in LOCAL Currency	16	0.5%	-1.19	54.3%	13.3%	-0.6%	7.7%	-0.40
PT	Seasonality	13	-0.6%	-1.29	49.7%	41.4%	-0.9%	9.1%	-0.51
PT	1 Mth Price Momentum	17	-4.2%	-1.41	42.5%	67.2%	-0.8%	8.8%	-0.46
ES	Forecast Earnings Growth FY1 to FY2	17	-4.2%	-1.82	44.8%	17.7%	-1.1%	9.1%	-0.56
R	Liquidity	16	1.5%	-1.82	50.5%	11.8%	-1.0%	8.2%	-0.54

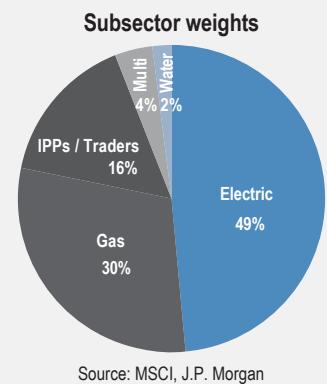
Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

For full backtest results of the Top 3 / Bottom 2 single factors and standard Composites, please see our [Sector Chartbook](#).

Utilities

Sector Summary

MSCI AxJ weight: 3.8%
Investable market cap: US\$94.9bn
Number of constituents: 29



Factor Performance

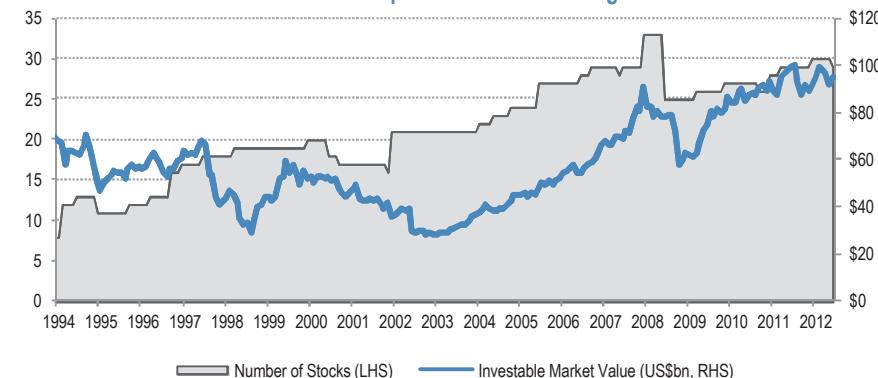
Top composite: Valuation & Earnings / Sentiment
Top factor: 1 Year Forward Forecast PE

As a relatively homogenous sector with relatively few constituents in MSCI, factors showed weak performance in utilities on a standalone basis. This was the key issue why returns for Price/Technical and Quality dramatically fell off a cliff during the Asian Financial Crisis. As there was extreme volatility during this time, these strategies were wiped out when they were caught on the short side of a very strong rally for a few stocks.

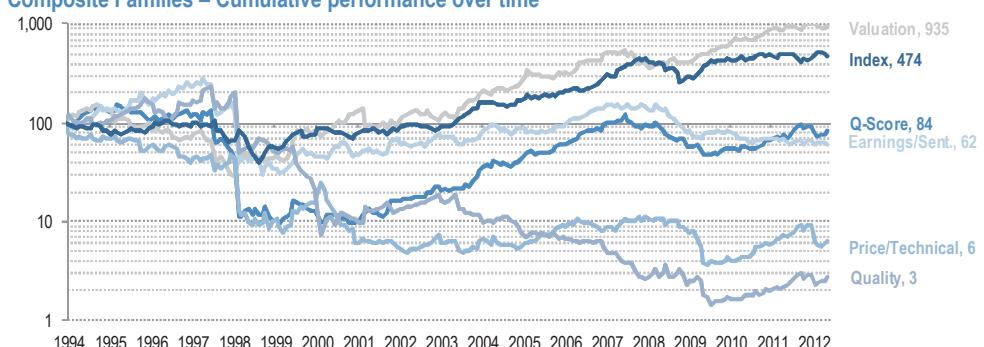
Value by far was the best performing strategy, while the other factor families all had negative Sharpe ratios. In fact, the best performing overall factor was the simple 1-yr Forward Forecast P/E.

Somewhat surprisingly, *Historical Dividend Yield* was not a strong performing factor in this sector, which suggests that the market regime may be more important.

MSCI AxJ Utilities – Investable market cap and constituent changes over time

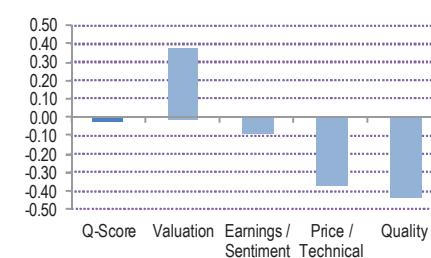


Composite Families – Cumulative performance over time

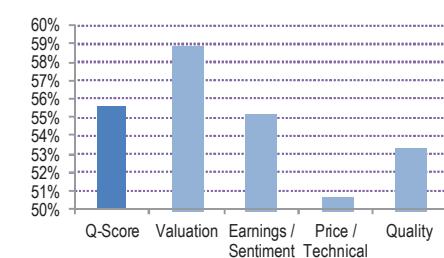


Composite Family Performance Summary (full period results)

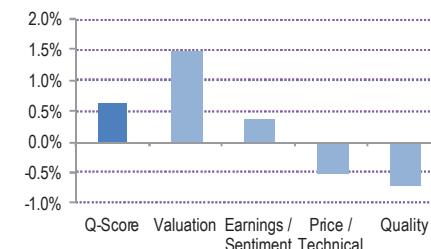
Sharpe Ratio



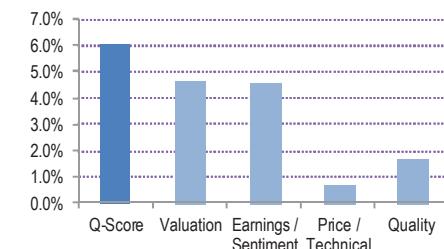
Hit Rate



Average Return LS (monthly)



Average IC



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio, the risk-free rate is assumed to be 0%.

MSCI AxJ Utilities – Composites and Key Factors Summary

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
C	Q-Score Composite	20	6.1%	0.89	55.7%	46.8%	0.6%	10.1%	-0.03
C	► Composite Value (with Growth)	20	4.6%	2.23	58.8%	20.8%	1.5%	9.9%	0.38
C	► Composite Earnings / Sentiment	20	4.5%	0.55	55.2%	67.7%	0.4%	9.6%	-0.08
C	► Composite Price / Reversion	20	0.7%	-0.62	50.7%	31.9%	-0.5%	11.2%	-0.36
C	► Composite Quality	19	1.6%	-0.86	53.4%	14.7%	-0.7%	12.0%	-0.43
C	Q-Score Composite (Value Biased)	20	6.3%	2.07	56.6%	44.8%	1.1%	7.9%	0.35
C	Composite Price to Book ROE	21	2.8%	1.30	55.7%	16.0%	0.8%	8.9%	0.14
V	P/E (1-year forward)	20	7.0%	3.12	58.4%	19.9%	1.9%	9.3%	0.62
V	P/B (1-year trailing)	21	1.8%	1.63	51.1%	12.3%	1.0%	9.5%	0.23
V	Dividend Yield (1-year trailing)	22	3.0%	0.55	53.8%	14.6%	0.4%	9.6%	-0.05
ES	Net Earnings Revisions FY1 FY2 (Relative to total changes)	20	5.1%	2.47	58.8%	68.9%	1.4%	8.5%	0.46
ES	Change in Consensus Recommendations (1-month change)	20	2.1%	1.24	53.6%	78.0%	0.7%	8.1%	0.15
ES	Forward Earnings Momentum (1-month change)	20	2.7%	0.16	51.1%	67.7%	0.1%	10.1%	-0.18
ES	Forecast Earnings Growth FY1 to FY2	20	-1.7%	-0.23	51.1%	23.4%	-0.1%	9.4%	-0.23
PT	Price Momentum 12-month	21	-0.3%	-0.72	52.5%	24.9%	-0.5%	11.0%	-0.35
PT	Price Momentum 1-month	21	-0.5%	-0.67	49.3%	77.6%	-0.4%	9.5%	-0.31
PT	RSI 10-day (Continuation)	21	-2.1%	-0.70	46.2%	78.1%	-0.4%	8.4%	-0.30
Q	Return On Equity (1-year trailing)	21	1.1%	-0.56	53.4%	11.0%	-0.4%	10.3%	-0.31
Q	Sales Growth (1-year trailing)	22	1.8%	0.99	56.1%	14.3%	0.7%	9.9%	0.08
R	Beta (Barra)	21	1.0%	1.02	57.9%	10.5%	0.4%	5.5%	0.14
R	Volatility (Barra)	21	-0.7%	1.13	50.2%	11.9%	0.4%	5.5%	0.17
R	Size (Barra)	21	-0.9%	-0.95	51.1%	3.7%	-0.3%	5.3%	-0.31

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

MSCI AxJ Utilities – Top factors by T-Stat (Top 20 / Bottom 5)

Factor Family	Factor Name	Avg Stocks	Avg IC	T-Stat ▾	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS	Sharpe
V	1 year forward forecast PE	20	7.0%	3.12	58.4%	19.9%	1.9%	9.3%	0.62
C	Composite Value Momentum Model	20	7.5%	2.85	60.6%	54.6%	1.6%	8.6%	0.55
C	Composite Value	20	6.3%	2.79	58.4%	23.6%	1.7%	9.2%	0.52
C	Value To Risk	19	6.6%	2.75	61.5%	23.4%	1.6%	8.6%	0.52
C	Composite Value Growth Momentum Model	20	6.1%	2.71	60.6%	51.9%	1.6%	8.5%	0.51
ES	Net Revisions FY1 FY2 (Rel. To Total Changes)	20	5.1%	2.47	58.8%	68.9%	1.4%	8.5%	0.46
V	EBITDA to Enterprise Value	22	4.7%	2.34	54.9%	17.4%	1.5%	8.9%	0.48
C	Composite Value and Growth	20	4.6%	2.23	58.8%	20.8%	1.5%	9.9%	0.38
C	Composite Value Momentum Quality Price Model (Value Biased)	20	6.3%	2.07	56.6%	44.8%	1.1%	7.9%	0.35
V	Cash Flow Yield FY1	19	1.6%	1.80	53.3%	16.7%	1.3%	10.3%	0.27
V	Cash Flow Yield Mean of FY1 and FY2	19	2.1%	1.74	50.9%	15.7%	1.3%	10.9%	0.25
C	Value To Growth	20	4.4%	1.72	55.2%	23.0%	1.1%	9.5%	0.24
R	Growth (Barra)	22	0.7%	1.69	53.5%	9.5%	0.7%	5.3%	0.35
ES	Net Revisions to FY1 [Up-Down]/[Up+Down]	20	3.2%	1.65	54.3%	70.0%	0.9%	7.9%	0.25
V	Historical P/Book Value Ratio	21	1.8%	1.63	51.1%	12.3%	1.0%	9.5%	0.23
V	Cash Flow Yield FY2	19	1.4%	1.58	50.5%	16.0%	1.2%	11.1%	0.20
R	Value (Barra)	21	3.6%	1.56	59.3%	10.3%	0.5%	4.9%	0.28
ES	Net Revisions to FY2 [Up-Down]/[Up+Down]	20	4.2%	1.54	59.3%	71.6%	0.9%	9.1%	0.12
C	Composite Value Momentum Quality Price Model	20	6.3%	1.45	60.2%	44.7%	0.9%	9.7%	0.11
V	Sales to EV (using Market Value)	21	3.4%	1.37	53.2%	11.7%	0.9%	8.7%	0.20
PT	12 Mth Price Momentum	21	-0.3%	-0.72	52.5%	24.9%	-0.5%	11.0%	-0.35
C	Composite Quality	19	1.6%	-0.86	53.4%	14.7%	-0.7%	12.0%	-0.43
R	Size (Barra)	21	-0.9%	-0.95	51.1%	3.7%	-0.3%	5.3%	-0.31
PT	Historical Returns Volatility Over Last Year in LOCAL Currency	21	-1.7%	-0.98	49.3%	14.6%	-0.8%	11.9%	-0.42
R	Liquidity	21	-3.5%	-1.50	46.3%	15.2%	-0.8%	7.6%	-0.47

Source: MSCI, IBES, Reuters, Factset, Barra, J.P. Morgan. Factor Family Key: C=Composite, ES=Earnings/Sentiment, V=Valuation, Q=Quality, PT=Price/Technical, R=Risk

For full backtest results of the Top 3 / Bottom 2 single factors and standard Composites, please see our [Sector Chartbook](#).

Appendix I: Summary of Backtest Results for MSCI AxJ

Description	Avg Stocks	Avg IC	T-Stat	Sharpe Ratio	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS
1 Mth Change in Consensus Recommendations	514	2.8%	6.64	1.59	73.2%	76.8%	0.92%	2.0%
1 Mth Price Momentum	545	-1.4%	-2.08	-0.55	44.8%	79.5%	-0.65%	4.64%
1 year forward forecast PE	476	3.1%	4.98	1.17	64.3%	15.0%	1.2%	3.5%
1 year forward forecast PE Relative To History	435	1.7%	3.21	0.77	55.6%	21.8%	0.87%	3.79%
1 year forward forecast PE Relative To Sector	483	2.5%	4.78	1.12	66.5%	15.9%	0.92%	2.85%
12 Month Price Momentum adjusted for volatility (Sharpe style)	504	2.7%	1.54	0.30	63.5%	24.9%	0.45%	4.23%
12 Mth Price Momentum	527	2.2%	-0.03	-0.12	64.3%	23.6%	0.0%	6.0%
3 Mth Change in Consensus Recommendations	513	2.6%	5.06	1.20	72.5%	42.1%	0.77%	2.26%
3 Mth Price Momentum	548	0.2%	-1.00	-0.33	52.9%	46.2%	-0.37%	5.44%
5 years Historical Earnings Growth	445	0.1%	0.44	0.06	50.2%	7.4%	0.07%	2.51%
6 Mth Price Momentum	543	1.2%	-0.61	-0.25	55.2%	33.2%	-0.24%	5.84%
6M change in Target Price	376	1.1%	0.19	-0.08	62.2%	25.1%	0.11%	7.16%
ALTMAN Z-score	494	0.5%	-0.73	-0.25	53.2%	4.7%	-0.2%	3.5%
Asset Turnover (Historical)	454	1.3%	1.02	0.20	51.6%	3.6%	0.29%	3.80%
Asset Turnover Growth (Historical)	444	0.8%	2.40	0.61	56.5%	10.6%	0.45%	2.42%
Beta (Barra)	537	-1.9%	-0.48	-0.19	45.2%	12.0%	-0.2%	4.7%
Cash Flow Yield FY1	428	2.1%	3.58	0.82	56.5%	15.2%	0.9%	3.7%
Cash Flow Yield FY2	420	1.5%	3.41	0.78	56.5%	15.5%	0.94%	4.01%
Cash Flow Yield Mean of FY1 and FY2	419	1.8%	3.28	0.75	57.5%	14.9%	0.83%	3.72%
Change In ROE Between Current and 12 Mths Prior	469	0.9%	0.52	0.07	53.1%	16.7%	0.1%	2.9%
Composite Co-Efficient of Variation (Avg of FY1 and FY2)	466	-2.2%	-1.14	-0.33	38.9%	21.4%	-0.3%	4.1%
Composite Forward Earnings Momentum (1Mth + 3 Mth)	482	3.1%	3.88	0.89	67.9%	38.7%	0.80%	3.08%
Composite Momentum	500	4.2%	7.58	1.84	73.8%	64.1%	1.24%	2.42%
Composite Price	490	2.6%	2.78	0.60	65.6%	23.9%	0.68%	3.63%
Composite Price to Book ROE	532	2.9%	5.72	1.37	64.7%	14.2%	1.2%	3.1%
Composite Price with 1 Month Reversion	516	3.1%	1.84	0.35	64.7%	31.2%	0.63%	5.11%
Composite Quality	448	2.0%	0.82	0.11	60.2%	13.7%	0.23%	4.23%
Composite Recommendations	516	3.0%	6.24	1.49	70.0%	49.2%	0.89%	2.11%
Composite Value	476	3.0%	5.09	1.20	64.3%	18.1%	1.27%	3.70%
Composite Value and Growth	477	2.6%	4.83	1.13	65.2%	18.0%	1.18%	3.63%
Composite Value Growth Momentum Model	475	4.7%	9.16	2.28	76.9%	46.2%	1.61%	2.62%
Composite Value Momentum Model	474	5.1%	9.30	2.32	76.9%	47.2%	1.62%	2.60%
Composite Value Momentum Quality Price Model	477	5.3%	9.09	2.26	79.2%	40.3%	1.58%	2.59%
Composite Value Momentum Quality Price Model (Value Biased)	477	5.1%	9.60	2.40	81.9%	38.6%	1.66%	2.57%
Consensus Recommendation	517	2.3%	1.76	0.35	65.6%	15.7%	0.4%	3.5%
EBIT Margin Growth	464	0.3%	0.26	0.00	54.1%	12.8%	0.07%	3.65%
EBITDA to Enterprise Value	479	1.6%	2.18	0.52	57.1%	13.7%	0.5%	3.1%
Forecast Earnings Growth FY1 to FY2	500	-1.1%	-0.57	-0.17	44.3%	20.5%	-0.09%	2.27%
Forward Earnings Momentum (1Mth Change)	489	3.1%	3.52	0.80	66.1%	64.8%	0.6%	2.7%
Forward Earnings Momentum (3Mth Change)	483	2.8%	3.39	0.76	67.9%	34.1%	0.7%	3.2%
Forward Earnings Momentum (3Mth Change) / Co-Efficient Of Variation	452	3.2%	4.93	1.16	66.5%	37.3%	0.93%	2.80%
Free Cash Flow to Enterprise Value (Historical)	479	1.2%	2.67	0.66	64.8%	11.8%	0.4%	2.2%
Gearing	459	0.0%	0.94	0.18	54.6%	5.3%	0.2%	3.3%
Growth (Barra)	513	0.3%	0.48	0.08	53.0%	13.0%	0.09%	2.52%
Historical BETA	531	-1.6%	0.51	0.02	48.0%	31.4%	0.2%	6.0%
Historical Dividend Yield	555	2.4%	3.78	0.86	58.8%	10.6%	0.90%	3.52%
Historical Earnings Yield	535	2.5%	3.58	0.81	64.3%	13.5%	0.8%	3.2%
Historical P/Book Value Ratio	534	1.4%	2.84	0.61	52.0%	10.4%	0.88%	4.63%
Historical P/Cash Earnings Ratio	450	2.1%	3.60	0.82	57.9%	12.8%	0.75%	3.10%
Historical P/Sales Ratio	434	1.9%	4.18	0.96	56.1%	8.7%	1.08%	3.85%
Historical Return On Equity	532	1.5%	0.47	0.04	52.5%	8.7%	0.1%	3.5%
Historical Returns Volatility Over Last Year in LOCAL Currency	528	1.7%	-0.32	-0.17	54.3%	15.0%	-0.1%	5.3%
Historical Sales Growth	468	0.3%	0.69	0.12	54.9%	10.0%	0.2%	3.2%
Interest Cover	436	0.3%	-0.40	-0.18	54.1%	7.7%	-0.13%	4.25%
Internal Growth	532	1.3%	-0.02	-0.07	55.2%	11.0%	0.0%	3.4%
Liquidity	502	-0.8%	0.03	-0.05	45.8%	12.5%	0.01%	3.60%
Net Revisions FY1 FY2 (Rel. To Total Changes)	496	3.0%	5.11	1.20	68.3%	66.8%	0.9%	2.5%
Net Revisions to FY1 [Up-Down]/[Up+Down]	505	2.2%	3.79	0.87	63.3%	67.8%	0.6%	2.5%
Net Revisions to FY2 [Up-Down]/[Up+Down]	501	3.0%	4.82	1.13	69.2%	69.2%	0.85%	2.61%
Number of Consensus Estimates (FY1)	502	0.8%	1.19	0.23	54.3%	12.7%	0.23%	2.85%
Payout Ratio	534	-0.9%	-1.04	-0.30	43.9%	12.8%	-0.24%	3.43%
Percent Off 52 Week High	549	2.3%	-0.16	-0.17	62.0%	31.4%	-0.1%	6.9%
PIOTROSKI F-score (Fundamental Scorecard)	556	1.4%	2.91	0.65	60.6%	16.5%	0.5%	2.6%
Price Acceleration 3M	533	0.8%	0.92	0.16	54.3%	33.4%	0.18%	2.94%
Price Acceleration 6M	530	1.6%	2.49	0.54	60.6%	24.8%	0.53%	3.16%
Q-Score Composite	477	5.4%	7.34	1.80	77.4%	41.5%	1.51%	3.06%
RSI 10-day (Continuation)	547	-1.9%	-3.57	-0.85	36.7%	78.2%	-0.87%	3.60%
RSI 30-day (Continuation)	546	-0.3%	-1.92	-0.51	49.3%	67.5%	-0.54%	4.18%
Sales to EV (using Market Value)	383	1.7%	2.52	0.53	57.9%	11.4%	0.75%	4.40%
Seasonality	357	1.5%	2.05	0.53	59.6%	78.0%	0.34%	2.11%
Sentiment Composite	376	2.1%	-0.09	-0.16	65.2%	31.8%	-0.05%	6.89%
Size (Barra)	537	0.3%	-0.94	-0.29	54.3%	7.5%	-0.25%	4.04%
Success (Barra)	537	2.9%	0.52	0.02	58.8%	22.0%	0.19%	5.44%
Value (Barra)	537	2.9%	4.80	1.12	64.3%	16.4%	1.13%	3.50%
Value To Growth	473	2.0%	4.17	0.96	63.3%	19.8%	1.0%	3.5%
Value To Risk	448	3.6%	4.81	1.12	66.1%	17.6%	1.09%	3.37%
Volatility (Barra)	537	-1.7%	0.10	-0.07	44.3%	13.9%	0.0%	5.8%

Source: JPMorgan, MSCI, Factset, Barra, IBES, Reuters, Bloomberg. For full backtest results: [Regional Chartbook](#)

Summary of Backtest Results for MSCI AxJ (sorted by T-Stat)

Description	Avg Stocks	Avg IC	T-Stat	Sharpe Ratio	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS
Composite Value Momentum Quality Price Model (Value Biased)	477	5.1%	9.60	2.40	81.9%	38.6%	1.66%	2.57%
Composite Value Momentum Model	474	5.1%	9.30	2.32	76.9%	47.2%	1.62%	2.60%
Composite Value Growth Momentum Model	475	4.7%	9.16	2.28	76.9%	46.2%	1.61%	2.62%
Composite Value Momentum Quality Price Model	477	5.3%	9.09	2.26	79.2%	40.3%	1.58%	2.59%
Composite Momentum	500	4.2%	7.58	1.84	73.8%	64.1%	1.24%	2.42%
Q-Score Composite	477	5.4%	7.34	1.80	77.4%	41.5%	1.51%	3.06%
1 Mth Change in Consensus Recommendations	514	2.8%	6.64	1.59	73.2%	76.8%	0.92%	2.0%
Composite Recommendations	516	3.0%	6.24	1.49	70.0%	49.2%	0.89%	2.11%
Composite Price to Book ROE	532	2.9%	5.72	1.37	64.7%	14.2%	1.2%	3.1%
Net Revisions FY1 FY2 (Rel. To Total Changes)	496	3.0%	5.11	1.20	68.3%	66.8%	0.9%	2.5%
Composite Value	476	3.0%	5.09	1.20	64.3%	18.1%	1.27%	3.70%
3 Mth Change in Consensus Recommendations	513	2.6%	5.06	1.20	72.5%	42.1%	0.77%	2.26%
1 year forward forecast PE	476	3.1%	4.98	1.17	64.3%	15.0%	1.2%	3.5%
Forward Earnings Momentum (3Mth Change) / Co-Efficient Of Variation	452	3.2%	4.93	1.16	66.5%	37.3%	0.93%	2.80%
Composite Value and Growth	477	2.6%	4.83	1.13	65.2%	18.0%	1.18%	3.63%
Net Revisions to FY2 [Up-Down]/[Up+Down]	501	3.0%	4.82	1.13	69.2%	69.2%	0.85%	2.61%
Value To Risk	448	3.6%	4.81	1.12	66.1%	17.6%	1.09%	3.37%
Value (Barra)	537	2.9%	4.80	1.12	64.3%	16.4%	1.13%	3.50%
1 year forward forecast PE Relative To Sector	483	2.5%	4.78	1.12	66.5%	15.9%	0.92%	2.85%
Historical P/Sales Ratio	434	1.9%	4.18	0.96	56.1%	8.7%	1.08%	3.85%
Value To Growth	473	2.0%	4.17	0.96	63.3%	19.8%	1.0%	3.5%
Composite Forward Earnings Momentum (1Mth + 3 Mth)	482	3.1%	3.88	0.89	67.9%	38.7%	0.80%	3.08%
Net Revisions to FY1 [Up-Down]/[Up+Down]	505	2.2%	3.79	0.87	63.3%	67.8%	0.6%	2.5%
Historical Dividend Yield	555	2.4%	3.78	0.86	58.8%	10.6%	0.90%	3.52%
Historical P/Cash Earnings Ratio	450	2.1%	3.60	0.82	57.9%	12.8%	0.75%	3.10%
Historical Earnings Yield	535	2.5%	3.58	0.81	64.3%	13.5%	0.8%	3.2%
Cash Flow Yield FY1	428	2.1%	3.58	0.82	56.5%	15.2%	0.9%	3.7%
Forward Earnings Momentum (1Mth Change)	489	3.1%	3.52	0.80	66.1%	64.8%	0.6%	2.7%
Cash Flow Yield FY2	420	1.5%	3.41	0.78	56.5%	15.5%	0.94%	4.01%
Forward Earnings Momentum (3Mth Change)	483	2.8%	3.39	0.76	67.9%	34.1%	0.7%	3.2%
Cash Flow Yield Mean of FY1 and FY2	419	1.8%	3.28	0.75	57.5%	14.9%	0.83%	3.72%
1 year forward forecast PE Relative To History	435	1.7%	3.21	0.77	55.6%	21.8%	0.87%	3.79%
PIOTROSKI F-score (Fundamental Scorecard)	556	1.4%	2.91	0.65	60.6%	16.5%	0.5%	2.6%
Historical P/Book Value Ratio	534	1.4%	2.84	0.61	52.0%	10.4%	0.88%	4.63%
Composite Price	490	2.6%	2.78	0.60	65.6%	23.9%	0.68%	3.63%
Free Cash Flow to Enterprise Value (Historical)	479	1.2%	2.67	0.66	64.8%	11.8%	0.4%	2.2%
Sales to EV (using Market Value)	383	1.7%	2.52	0.53	57.9%	11.4%	0.75%	4.40%
Price Acceleration 6M	530	1.6%	2.49	0.54	60.6%	24.8%	0.53%	3.16%
Asset Turnover Growth (Historical)	444	0.8%	2.40	0.61	56.5%	10.6%	0.45%	2.42%
EBITDA to Enterprise Value	479	1.6%	2.18	0.52	57.1%	13.7%	0.5%	3.1%
Seasonality	357	1.5%	2.05	0.53	59.6%	78.0%	0.34%	2.11%
Composite Price with 1 Month Reversion	516	3.1%	1.84	0.35	64.7%	31.2%	0.63%	5.11%
Consensus Recommendation	517	2.3%	1.76	0.35	65.6%	15.7%	0.4%	3.5%
12 Month Price Momentum adjusted for volatility (Sharpe style)	504	2.7%	1.54	0.30	63.5%	24.9%	0.45%	4.23%
Number of Consensus Estimates (FY1)	502	0.8%	1.19	0.23	54.3%	12.7%	0.23%	2.85%
Asset Turnover (Historical)	454	1.3%	1.02	0.20	51.6%	3.6%	0.29%	3.80%
Gearing	459	0.0%	0.94	0.18	54.6%	5.3%	0.2%	3.3%
Price Acceleration 3M	533	0.8%	0.92	0.16	54.3%	33.4%	0.18%	2.94%
Composite Quality	448	2.0%	0.82	0.11	60.2%	13.7%	0.23%	4.23%
Historical Sales Growth	468	0.3%	0.69	0.12	54.9%	10.0%	0.2%	3.2%
Change In ROE Between Current and 12 Mths Prior	469	0.9%	0.52	0.07	53.1%	16.7%	0.1%	2.9%
Success (Barra)	537	2.9%	0.52	0.02	58.8%	22.0%	0.19%	5.44%
Historical BETA	531	-1.6%	0.51	0.02	48.0%	31.4%	0.2%	6.0%
Growth (Barra)	513	0.3%	0.48	0.08	53.0%	13.0%	0.09%	2.52%
Historical Return On Equity	532	1.5%	0.47	0.04	52.5%	8.7%	0.1%	3.5%
5 years Historical Earnings Growth	445	0.1%	0.44	0.06	50.2%	7.4%	0.07%	2.51%
EBIT Margin Growth	464	0.3%	0.26	0.00	54.1%	12.8%	0.07%	3.65%
6M change in Target Price	376	1.1%	0.19	-0.08	62.2%	25.1%	0.11%	7.16%
Volatility (Barra)	537	-1.7%	0.10	-0.07	44.3%	13.9%	0.0%	5.8%
Liquidity	502	-0.8%	0.03	-0.05	45.8%	12.5%	0.01%	3.60%
Internal Growth	532	1.3%	-0.02	-0.07	55.2%	11.0%	0.0%	3.4%
12 Mth Price Momentum	527	2.2%	-0.03	-0.12	64.3%	23.6%	0.0%	6.0%
Sentiment Composite	376	2.1%	-0.09	-0.16	65.2%	31.8%	-0.05%	6.89%
Percent Off 52 Week High	549	2.3%	-0.16	-0.17	62.0%	31.4%	-0.1%	6.9%
Historical Returns Volatility Over Last Year in LOCAL Currency	528	1.7%	-0.32	-0.17	54.3%	15.0%	-0.1%	5.3%
Interest Cover	436	0.3%	-0.40	-0.18	54.1%	7.7%	-0.13%	4.25%
Beta (Barra)	537	-1.9%	-0.48	-0.19	45.2%	12.0%	-0.2%	4.7%
Forecast Earnings Growth FY1 to FY2	500	-1.1%	-0.57	-0.17	44.3%	20.5%	-0.09%	2.27%
6 Mth Price Momentum	543	1.2%	-0.61	-0.25	55.2%	33.2%	-0.24%	5.84%
ALTMAN Z-score	494	0.5%	-0.73	-0.25	53.2%	4.7%	-0.2%	3.5%
Size (Barra)	537	0.3%	-0.94	-0.29	54.3%	7.5%	-0.25%	4.04%
3 Mth Price Momentum	548	0.2%	-1.00	-0.33	52.9%	46.2%	-0.37%	5.44%
Payout Ratio	534	-0.9%	-1.04	-0.30	43.9%	12.8%	-0.24%	3.43%
Composite Co-Efficient of Variation (Avg of FY1 and FY2)	466	-2.2%	-1.14	-0.33	38.9%	21.4%	-0.3%	4.1%
RSI 30-day (Continuation)	546	-0.3%	-1.92	-0.51	49.3%	67.5%	-0.54%	4.18%
1 Mth Price Momentum	545	-1.4%	-2.08	-0.55	44.8%	79.5%	-0.65%	4.64%
RSI 10-day (Continuation)	547	-1.9%	-3.57	-0.85	36.7%	78.2%	-0.87%	3.60%

Source: JPMorgan, MSCI, Factset, Barra, IBES, Reuters, Bloomberg. For full backtest results: [Regional Chartbook](#)

Appendix II: Factor Definitions

Composite Factors

Composite Factors	Definition
Q-Score Composite	Blend of Composite Value and Growth (30%), Composite Momentum (30%), Composite Price with 1Mth Reversion (20%) and Composite Quality (20%)
► Composite Valuation (Value and Growth)	Blend of PE with Forecast Growth: 1-yr forward EY, 1-yr forward EY relative to sector, and FY1 to FY2 earnings growth (equal weight)
► Composite Earnings / Sentiment (also called Composite Momentum)	Composite of 3 Momentum based Factors: 3-mth Earnings Momentum, 1-mth Recommendation Change, and Net Revision to FY2
► Composite Price / Reversion (Price with 1 Month Reversion)	Composite of 12-mth Price Momentum (75%) and 1-mth Price Reversion (25%)
► Composite Quality	Blend of ROE and Earnings Certainty (equal weight)
Composite Value Momentum Quality Price Model (Value Bias) (also called Q-Score with Value Bias)	Same as Q-Score, but overweights Composite Value and Growth at 40% (Composite Momentum 30%, Composite Price 15%, Composite Quality 15%)
Composite Price to Book ROE	Equal combination of Historical B/P and Historical ROE
Composite Price	Composite of 12-mth Price Momentum and 6-mth Price Acceleration (equal weight)
Composite Recommendations	Composite of 1-mth change in recommendations (30%) & 3-mth change in recommendations (70%)
Composite Sentiment	Equal combination of 3 factors: Aggregate Level of Recommendations, 3-mth Change in Recommendations, and 6-mth Change in Target Price
Value To Growth	Equal combination of 1-yr Forward Earnings Yield (E/P) and Earnings Growth (FY1 to FY2)
Value To Risk	Equal combination of 1-yr Forward Earnings Yield (E/P) and Earnings Certainty
Composite Value	Blend of 3 PE based Factors: 1-yr forward EY (34%), 1-yr forward EY relative to sector (33%), 1-yr forward EY relative to 3-yr historical (33%)
Composite Value Momentum Quality Price Model	Blend of Composite Value and Growth (30%), Composite Momentum (30%), Composite Price (20%) and Composite Quality (20%)
Composite Value Momentum Model	Blend of Composite Momentum & Composite Value Factors (equal weight)
Composite Value Growth Momentum Model	Blend of Composite Momentum & Composite Value and Growth (equal weight)
Composite Forward Earnings Momentum (1-Mth + 3-Mth)	Mean of Forward Earnings Momentum, 1-mth change and 3-mth change
Composite Earnings Certainty: Coefficient of Variation	Earnings Certainty: Mean of FY1 and FY2 coefficient of variation for EPS. Stocks with lowest coefficient of variation are allocated to top portfolio.

Source: JPMorgan Quant

Valuation Factors

Valuation Factors	Definition
1-year forward forecast PE	Ranking by 1-yr forecast P/E (a pro rata of consensus analyst FY1 and FY2 forecasts). "Cheapest" stocks (lowest P/E) are allocated to the top portfolio.
1-year forward forecast PE Relative To History	Ranking by 1-yr forecast P/E relative to 3-yr historical average P/E. "Cheapest" stocks relative to history are allocated to the top portfolio.
1-year forward forecast PE Relative To Sector	Ranking by 1-yr forecast P/E relative to aggregate GICS level 1 sector P/E. "Cheapest" stocks relative to sector are allocated to the top portfolio.
Historical PE	Ranking by 1-yr historical P/E (inverse of Earnings Yield). "Cheapest" stocks (lowest P/E, highest EY) stocks are allocated to the top portfolio.
Historical P/Book Value Ratio	Ranking by 1-yr historical P/B (inverse of Book Value Yield). "Cheapest" stocks (lowest P/B) are allocated to the top portfolio.
Historical P/Cash Earnings Ratio	Ranking by 1-yr historical P/Cash Earnings (inverse of Cash Earnings Yield). "Cheapest" stocks relative to Cash Earnings are allocated to the top portfolio.
Historical P/Sales Ratio	Ranking by 1-yr historical Price to Sales (P / Sales). "Cheapest" stocks (lowest P/Sales, highest Sales Yield) are allocated to the top portfolio.
Historical Dividend Yield	Ranking by 1-yr historical Dividend Yield. Stocks with highest dividend yield are allocated to the top portfolio.
Cash Flow Yield FY1	Ranking by FY1 Cash Flow Yield (operational cash flow per share divided by the share price). Stocks that are most cash generative (highest cash flow yield) are allocated to the top portfolio.
Cash Flow Yield FY2	Ranking by FY2 Cash Flow Yield (operational cash flow per share divided by the share price). Stocks that are most cash generative (highest cash flow yield) are allocated to the top portfolio.
Cash Flow Yield Mean of FY1 and FY2	Ranking by average FY1 & FY2 Cash Flow Yield (operational cash flow per share divided by the share price). Stocks that are most cash generative (highest cash flow yield) are allocated to the top portfolio.
Free Cash Flow to Enterprise Value (Historical)	Ranking by 1-yr historical Free Cash Flow Yield (FCF / EV). Highest yielding stocks are allocated to the top portfolio.
EBITDA to Enterprise Value	Ranking by EBITDA / EV. "Cheapest" stocks (lowest EV / EBITDA) are allocated to the top portfolio.
Sales to EV (using Market Value)	Ranking by Sales / Enterprise Value (Market Value). Highest Sales/EV are allocated to the top portfolio.

Source: JPMorgan Quant

Earnings & Sentiment

Earnings / Sentiment Factors	Definition
Forward Earnings Momentum (1-Mth Change)	Ranking by 1-mth change in 1-yr forward earnings estimates. Stocks with highest upward revisions are allocated to the top portfolio.
Forward Earnings Momentum (3-Mth Change)	Ranking by 3-mth change in 1-yr forward earnings estimates. Stocks with highest upward revisions are allocated to the top portfolio.
Forward Earnings Momentum (3-Mth Change) / Coefficient Of Variation	Ranking by 3-mth change in 1-yr forward earnings estimates, risk adjusted. Stocks with highest upward revisions are allocated to the top portfolio.
Net Revisions to FY1 [Up-Down] / [Up+Down]	Ranking by net revisions to FY1, relative to total analysts (#Estimates to FY1 Up - #Estimates to FY1 Down) / (#Total Estimates FY1). Stocks with highest upward revisions are allocated to the top portfolio.
Net Revisions to FY2 [Up-Down] / [Up+Down]	Ranking by net revisions to FY2, relative to total analysts (#Estimates to FY2 Up - #Estimates to FY2 Down) / (#Total Estimates FY2). Stocks with highest upward revisions are allocated to the top portfolio.
Net Revisions FY1 FY2 (Rel. To Total Changes)	Blend of Net Revisions FY1 and FY2 (rel. total changes) (equal weight)
1-Mth Change in Consensus Recommendations	Ranking by 1-mth change in consensus analyst recommendations. Stocks with the highest upward recommendation change are allocated to the top portfolio.
3-Mth Change in Consensus Recommendations	Ranking by 3-mth change in consensus analyst recommendations. Stocks with the highest upward recommendation change are allocated to the top portfolio.
Consensus Recommendations	Ranking by consensus analyst recommendations on a 1-5 scale, where 1 is a Strong Buy and 5 is a Sell. Stocks with the highest recommendation are allocated to the top portfolio.
6-Mth change in Target Price	Ranking by 6-mth change in average analyst target price. Stocks with highest positive change in target price are allocated to the top portfolio.
Number of Consensus Estimates (FY1)	Ranking by the number of consensus FY1 EPS estimates. Stocks with the highest coverage are allocated to the top portfolio.
Forecast Earnings Growth FY1 to FY2	Ranking by Earnings Growth from FY1 to FY2. Stocks with highest earnings growth are allocated to the top portfolio.
5 years Historical Earnings Growth	Ranking by 5-yr historical EPS growth. Stocks with the highest growth are allocated to the top portfolio.
Historical Sales Growth	Ranking by 1-yr historical sales growth. Stocks with the highest growth are allocated to the top portfolio.
Internal Growth	Ranking by Internal Growth Rate (ROE, excluding dividends). Stocks with the highest growth are allocated to the top portfolio.

Source: JPMorgan Quant

Quality

Quality Factors	Definition
Historical Return on Equity	Ranking by 1-yr historical Return on Equity. Stocks with the highest ROE are allocated to the top portfolio.
Change In ROE Between Current and 12-Mths Prior	Ranking by 1-yr change in ROE. Stocks with the highest ROE improvement are allocated to the top portfolio.
Gearing	Ranking by Debt to Equity (Leverage, Gearing). Stocks with the highest leverage are allocated to the top portfolio.
Interest Coverage	Ranking by Interest Coverage (EBIT / Interest). Stocks with the greatest coverage (least likely to default on debt payments) are allocated to the top portfolio.
Asset Turnover (Historical)	Ranking by Asset Turnover (Sales / Assets). Stocks with the highest efficiency in utilizing its assets to generate sales are allocated to the top portfolio.
Asset Turnover Growth (Historical)	Ranking by 1-yr change in Asset Turnover. Stocks with the highest improvement in Asset Turnover are allocated to the top portfolio.
EBIT Margin Growth	Ranking by 1-yr change in EBIT margin. Stocks with highest margin expansion are allocated to the top portfolio.
Payout Ratio	Ranking by Dividend Payout Ratio (DPS / EPS). Stocks with the highest amount of earnings distributed as dividends are allocated to the top portfolio.
ALTMAN Z-score	Ranking by the Altman Z-Score, a model that combines 5 different financial ratios to determine the likelihood of bankruptcy. Stocks least likely to become bankrupt (highest scoring) are allocated to the top portfolio.
PIOTROSKI F-score (Fundamental Scorecard)	Ranking by Piotroski's F-score, a fundamental scorecard that measures financial strength. Stocks with the best score are allocated to the top portfolio.

Source: JPMorgan Quant

Price / Technical

Price / Technical Factors	Definition
1-Mth Price Momentum	Ranking by 1-mth total return (local currency). Highest momentum stocks are allocated to the top portfolio (note this is often employed 'in reverse' on account of the reversion that is observable in many markets and sectors, e.g. where last months winners become this months losers and vice-versa).
3-Mth Price Momentum	Ranking by 3-mth total return (local currency). Highest momentum stocks are allocated to the top portfolio.
6-Mth Price Momentum	Ranking by 6-mth total return (local currency). Highest momentum stocks are allocated to the top portfolio.
12-Mth Price Momentum	Ranking by 12-mth total return (local currency). Highest momentum stocks are allocated to the top portfolio.
12-Mth Price Momentum adjusted for volatility (Sharpe style)	Ranking by 12-mth total return (local currency), adjusted for volatility by normalizing by the standard deviation of those returns for the same period. Highest momentum stocks are allocated to the top portfolio.
Percent Off 52-Week High	Ranking by percentage difference from 52-week high. Stocks trading closest to their highs are allocated to the top portfolio.
Price Acceleration 3-Mth	Ranking by 3-mth Price Acceleration. To calculate the Price Acceleration we perform a regression on a 1-yr period of daily prices to calculate the gradient of the trend (adjusted for volatility). We do the same thing "as of" 3 months ago and examine the change in the gradient to measure Price Acceleration. Stocks that have accelerated the most are allocated to the top portfolio.
Price Acceleration 6-Mth	Ranking by 6-mth Price Acceleration. To calculate the Price Acceleration we perform a regression on a 1-yr period of daily prices to calculate the gradient of the trend (adjusted for volatility). We do the same thing "as of" 6 months ago and examine the change in the gradient to measure Price Acceleration. Stocks that have accelerated the most are allocated to the top portfolio.
RSI 10-day (Continuation)	Ranking by 10-day Relative Strength Indicator. A popular trader tool, the RSI is used to highlight stocks as overbought or oversold. Generally an RSI of 80 or higher indicates an overbought stock and an RSI below 20 indicates an oversold stock. We calculate the 10-day RSI over 2 weeks (10 trading days) with the formula $RSI = 100 - \{100/[1 + (\text{avg up days}/\text{avg down days})]\}$. Stocks with the lowest values are allocated to the top portfolio as they are expected to mean-revert.
RSI 30-day (Continuation)	Ranking by 30-day Relative Strength Indicator. A popular trader tool, the RSI is used to highlight stocks as overbought or oversold. Generally an RSI of 80 or higher indicates an overbought stock and an RSI below 20 indicates an oversold stock. We calculate the 30-day RSI over 6 weeks (30 trading days) with the formula $RSI = 100 - \{100/[1 + (\text{avg up days}/\text{avg down days})]\}$. Stocks with the lowest values are allocated to the top portfolio as they are expected to mean-revert.
Historical Returns Volatility Over Last Year in Local Currency	Ranking by volatility of monthly returns over past 1-yr (local currency). Lowest volatility stocks are allocated to the top portfolio.
Seasonality	Ranking by monthly hit rate (total instances of outperformance for a given month / total observations for that month). Stocks with highest hit rate are allocated to the top portfolio.

Source: JPMorgan Quant

Risk Factors

Risk Factors	Definition
Beta (Barra)	Ranking by Barra Predicted Beta vs. Local Country Index Factor. Predicted beta is a forecast of a stock's sensitivity to the market - the systematic risk coefficient (predictive of subsequent response to market return) that are derived, in whole or in part, from the fundamental operating characteristics of a company (also called fundamental beta). The predicted beta forecasts a portfolio's exposure to market risk using fundamental risk characteristics of assets and market data (e.g. size, yield, P/E, etc.). Unlike historical beta, predicted beta quickly adapts to changes in a firm and in the market.
Historical Beta	Ranking by historical Beta (relative to local index on a weekly basis for past 1-yr in USD terms). Highest beta stocks are allocated to the top portfolio.
Volatility (Barra)	Ranking by Barra Volatility Factor (Variability in Market). Categorizes assets through a weighted average of several measures of price volatility (beta times sigma, historical beta, cumulative range, historical volatility).
Value (Barra)	Ranking by Barra Value Factor. Captures the extent to which a company's ongoing business is priced inexpensively in the marketplace (forecast earnings to price, quarterly earnings to price, annual earnings to price, annual cashflow to price, quarterly book to price, annual book to price)
Growth (Barra)	Ranking by Barra Growth Factor. Measures the historical growth of a company (5-year asset growth, 5-year sales growth, 5-year earnings growth, percentage change in assets over a 1-year period, percentage change in revenues over a 1-year period).
Success (Barra)	Ranking by Barra Success Factor (Price Momentum). Identifies recently successful stocks using price behavior in the market as measured by relative strength. The relative strength of a stock is significant in explaining its volatility. (Relative strength, historical alpha)
Size (Barra)	Ranking by Barra Size Factor (based on market capitalization). Differentiates between large-cap and small-cap stocks. It is based on the market capitalization of a company and the value of its assets. Size has been a major determinant of performance over the years, and is an important source of risk as well (logarithm of capitalization, logarithm of assets).
Liquidity	Ranking by Liquidity (average daily value traded for 60 trading days). Most liquid stocks are allocated to the top portfolio.

Source: JPMorgan Quant, Barra

Appendix III: JPMQ Backtesting Process

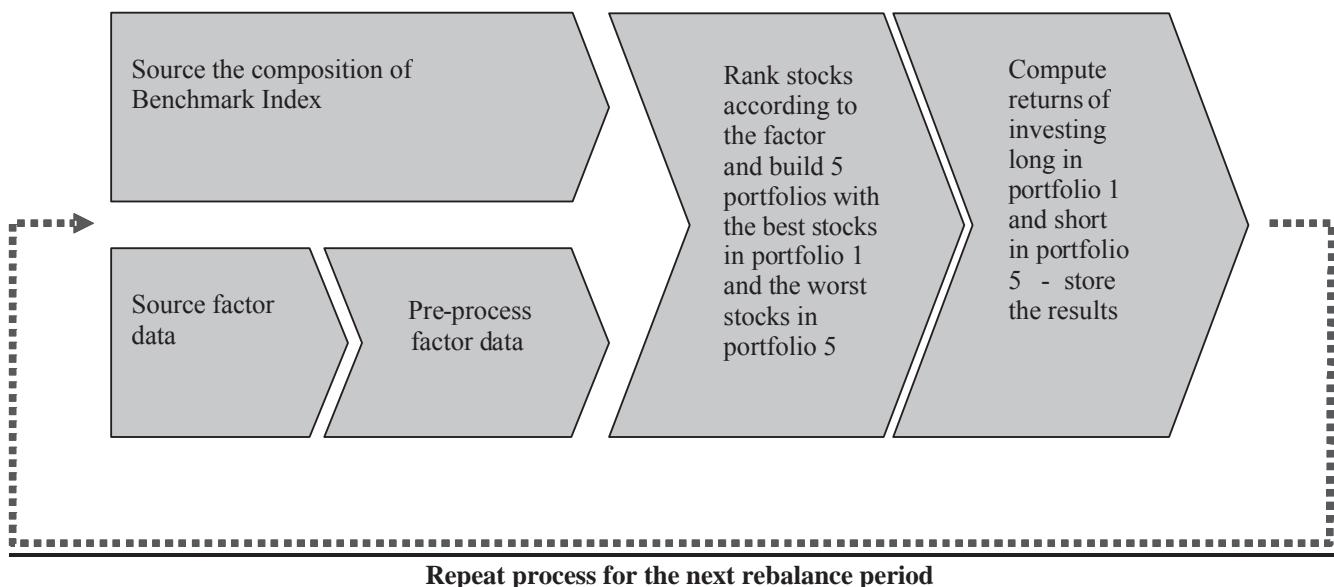
A backtest is the main tool used to determine the value of a strategy; it is also how most quantitative managers test new ideas. The backtest simulates the investment decisions a defined factor/strategy would have generated using historical data and computes a theoretical historic return profile. A backtest includes the following concepts:

- ! A backtest is run on an **investment universe**; typically a large index is used. It is extremely important to continuously update the universe through time with the stock entries and exits to avoid several biases. The most famous example of a bias is the “survivorship bias” that affects tests that are carried on the current composition of an index with past market data, ignoring all the stocks that have gone bust or were acquired by their competitors. As mentioned earlier, for purposes of this report, the MSCI Asia ex-Japan Index and various subsets of it were used to conduct the testing.
- ! The **rebalance period** or investment horizon is the interval between investment dates. It defines in the backtest the points in time the historical investment decisions will have been made and the composition of the portfolio updated. We test here a rebalance period of 1 month, which is commonly accepted by quantitative managers as a good compromise between reactivity to the market and turnover of the portfolio. Additionally, in some cases we use a lower rebalancing frequency (i.e. 3, 6, 12 month holding periods) for testing purposes, as certain factors may be “slower moving” and may exhibit a less pronounced alpha decay. This allows one to extract similar or at times even greater alpha while trading less frequently on that same information and as a result incurring less turnover and transaction cost.
- ! Lastly and very importantly the **quant factors** (i.e. quant strategies) are measurable pieces of information attached to stocks. These factors are used to rank the stock and make the investment decisions. The *P/E ratio* is a well known example of a factor.
 - o In this piece, factors were run through a **country neutralization/normalization process** and transformed into Z-scores. A Z-score is a stock’s standardized exposure to a fundamental factor (i.e. *P/E ratio*). To compute the factor Z-scores for a given universe of stocks, the *average* factor value of the universe was subtracted from each stock’s individual factor value and that difference was then scaled by the standard deviation of factor values for that universe. For example, for calculating the country neutralized Z-Score of the *P/E Ratio* factor for a Hong Kong stock, we took the difference between that stock’s *P/E ratio* value and the average *P/E ratio* value for all Hong Kong stocks and then scaled it by the standard deviation of P/E values for all Hong Kong stocks. This standardization provided a set of Z-scores or “country-neutral scores” with a mean of 0 and standard deviation of 1. To control for outliers and potential data errors, the Z-scores were then winsorized at +/- 3 standard deviations cross-sectionally.
 - o Factors are often classified in different families depending on the anomaly they try to exploit. For this report, they have been sorted into six broad categories: Value, Earnings/Sentiment, Price/Technical, Quality, Risk, and Composite. Composite factors are built by combining several “normalized”

factors together often with different “weights” or “factor premiums.” In this report, we have 77 of some of the most commonly used factors.

A work-flow diagram of the backtest process is illustrated in Figure 22 below. At the start of each rebalance period, the composition of the universe and the values of the factor are sourced. Then, in the case of a backtest based on quintiles, the top 20% of stocks according to the chosen factor are selected as the long investment and the bottom 20% of stocks are selected as the short investment. At the end of each period, the returns of these quintile portfolios are computed and stored; the process is then repeated with the next rebalance.

Figure 22: Work-flow diagram



It is important to recognize that in quantitative analysis, single factor backtests are not to simulate a “real world” portfolio or to outperform a benchmark. To do so, constraints such as target risk, turnover, active asset/country exposure, leverage, along with many others, are applied at a later stage in the portfolio construction phase. Instead, in backtesting and analyzing factor performance we are simply trying to identify if the signal under investigation contains any useful information.

Appendix IV: Who are JPM Quant?

- ! A team of 12 people based in Hong Kong, New York, Sydney, Mumbai and London. We cover developed as well as emerging markets and focus our attention on the development and enhancement of systematic strategies within equity markets.
- ! We are research analysts and sit within the broader J.P. Morgan Equity Research team alongside the fundamental sector analysts and equity strategy teams.
- ! Our skills are broad and extensive. Our prior experience covers numerous equity related disciplines including active and passive portfolio management; risk management; portfolio optimization; trading; financial engineering; large scale data processing and technology gained on both sell side and buy side over many years.
- ! What we *really* try to do is present new and interesting ideas (to us at least!) that we thoroughly investigate (and backtest), trying to see if they make sense from an investment/trading perspective.
- ! We therefore put more emphasis on the thinking process and the methodology than on the end results (for example we are not afraid to present ideas that don't work).
- ! We also spend a huge amount of time working on behalf of clients (bespoke research and consultancy). We have a database server that is separated from the rest of the research and sales department (J.P. Morgan's largest front office non-tick database). Data includes fundamental, pricing and forecast data across a universe of global equities and back over 18 years. That allows us to do confidential work for clients (backtesting of strategies, optimization of portfolios, risk analysis, portfolio decomposition etc.).
- ! Whilst we of course service "pure" Quant clients, we also service pure stock-pickers. In particular, we help screening the universe for fundamental ideas, flag interesting stocks from a Quant perspective, and help our clients understand where risks lie in their portfolio (and how to manage them!).
- ! All of our systems and infrastructure are built and maintained within the team thus maximizing our flexibility to react to client requests.

Figure 23: How we spend our time (approx)



Source: J.P. Morgan

The Quant Web portal

The **J.P. Morgan Equity Quant web portal** at <http://www.morganmarkets.com/Quants> consolidates all of our latest research as well as including...

..All of our “core research” - The thought pieces with a long shelf life most likely to appeal to Quant professionals...

Core Research

J.P. Morgan Quantitative Strategy: Summary of our Core Research pieces (12 pgs)	03-Oct-12	
Enhanced Price Momentum: Viewing Price Momentum through the Lens of Market Breadth and Depth (43 pgs)	28-Sep-12	
Summer 2012 Marketing Feedback: Performance and changes in the Quant landscape (17 pgs)	25-Sep-12	
Market Timing Model: Methodology, Thinking Process and Strategy to time the market (72 pgs)	12-Jun-12	
Quant Forensics: Volume 4: Exploring "Price Agnostic Earnings Momentum" (14 pgs)	30-May-12	
Quant Forensics: Volume 3 : What to do around Index Reviews? (28 pgs)	18-May-12	
Risk & Portfolio Analytics -Part 1: The Black-Litterman Model: A Practical Approach to a Complex and Advanced Framework. (48 pgs)	19-Apr-12	
Do Dynamic Peer Groups Make Sense?: Improving Risk Adjusted Returns by making "Smarter" Comparisons between stocks in Asia Pacific Ex Japan (64 pgs)	09-Mar-12	

...Factor Reference Books detailing the performance of more than 50 Alpha drivers in Markets around the world...

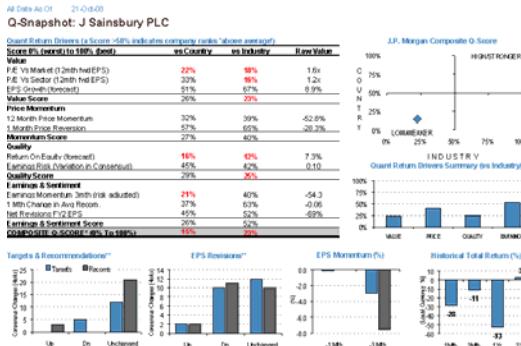
Quant Factor Reference Books

Factor Reference Book - Europe: Summarising 20 Years of Backtests (SHORT VERSION) (34 pgs)	10-May-12	
Analyst: Marco Dion, Viquar Shaikh, Angelo Pessaria, Steve Malin		
Factor Reference Book - Europe: Summarising 20 Years of Backtests (136 pgs)	10-May-12	
Analyst: Marco Dion, Viquar Shaikh, Angelo Pessaria, Steve Malin		
US Factor Reference Book: What Drives Equity Returns? (233 pgs)	27-Jan-11	
Analyst: Dubravko Lakos-Bujas, Steve Malin, Robert Smith, Marco Dion		
Taiwan Factor Reference Book: Quality - Made in Taiwan (111 pgs)	27-Aug-09	
Analyst: Robert Smith, Steve Malin, Marco Dion, Matthew Burgess		
Malaysia Factor Reference Book: Malaysia... Truly Alpha (109 pgs)	20-Jul-09	
Analyst: Steve Malin, Robert Smith, Thomas Reif, Berowne Hlavaty		
Emerging Markets Factor reference book: Looking for return drivers in bear markets (85 pgs)	28-Oct-08	
Analyst: Steve Malin, Marc Menem, Robert Smith, Marco Dion		
Australian Factor Reference Book: Return-Driver's Fast Lap Around Oz (51 pgs)	09-Oct-08	
Analyst: Thomas Reif, Tim Moroney, Berowne Hlavaty		

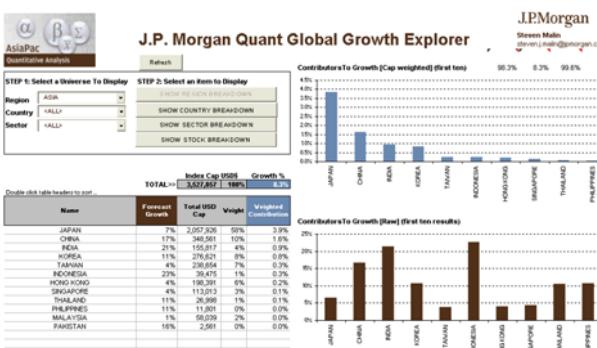
...Intraday Factor monitoring tools spanning 7 popular Global Quant universes...



...Q-Snapshot “tear-sheets” providing the latest Quant view on thousands of stocks (updated daily)...



...Various screening and ideas generation tools ready to be opened in Excel...



...And providing samples of our customization services...

STEP 1: Select a Universe to Display		STEP 2: Select an Item to Display		STEP 3: Identify stocks that are currently trading above their 12 week high		STEP 4: Identify stocks that are cheap relative to their current earnings forecast	
Region:	ASIA PACIFIC	Country:	ALL COUNTRIES	Ticker:	FRAUDULENT	Name:	FRUITFUL
Country:	ALL COUNTRIES	Sector:	ALL SECTORS	Count:	1	Value (Adj. Price/P/E Ratio):	1.00
Sector:	ALL SECTORS			X NUMBER OF STOCKS:	1	Recent Earnings Sentiment:	Weak
				WEEK HIGH:	1.00		
				MAX:	1.00		
				MIN:	1.00		

Core Research

Alongside our regular product distribution and bespoke request work we also try to spend as much time as possible to research new ideas. It is important to stress that here the emphasis is on the idea. This service is specifically targeted at quantitative asset managers (or those with a quant bias) but can (we hope!) often represent interesting reading for fundamental managers too. In the table below we provide a summary of some of our work.

Enhanced Price Momentum - Viewing Price Momentum through the Lens of Market Breadth and Depth	
<ul style="list-style-type: none"> ! In this global report, we attempt to understand shortcomings of Price Momentum and present potentially viable enhancements that show considerable improvement in results and that could serve as “food for thought” for future research. ! Moreover, we use market dynamics to systematically 	<ul style="list-style-type: none"> condition Price Momentum and let it run only during market environments which are considered favorable for trending strategies. Elsewhere, we allow for a contrarian views to be expressed. ! Such an approach showed considerable improvement in results across US sectors and regions globally.
Market Timing Model – Methodology, Thinking Process and Strategy to time the market	
<ul style="list-style-type: none"> ! In this piece, we develop a Market Timing Model by combining very intuitive and simplistic signals. ! Our Model is contrarian and based on the “opinion” of various market participants (derivatives traders, currency traders, etc) 	<ul style="list-style-type: none"> ! The Model presents robust and consistent results over time and since publication.
The Black-Litterman Model: A Practical Approach to a Complex and Advanced Framework	
<ul style="list-style-type: none"> ! In this first edition of our Risk & Portfolio Analytics series, we investigate the Black-Litterman portfolio optimization framework. 	<ul style="list-style-type: none"> ! To do so we have chosen to avoid complicated mathematical and theoretical derivations that often contribute to blurring the big picture.
Quant Forensics: Exploring “Price Agnostic Earnings Momentum”	
<ul style="list-style-type: none"> ! In this short (“Quant Forensic”) piece, we have attempted to understand the relationship between Earnings Momentum and Price Momentum and found that many upgrades/downgrades are mere reactions from consensus following significant price moves. 	<ul style="list-style-type: none"> ! We therefore introduce a methodology aiming at detecting the genuine upgrades/downgrades from the “price driven” ones. ! Our methodology allows us to improve the Alpha and the risk profile of typical Earnings Momentum Factors
Quant Forensics: Exploring “What to do around Index reviews?”	
<ul style="list-style-type: none"> ! We review the behavior and performance drift of stocks around their inclusion/exclusion in the MSCI family of indices. ! We confirm the intuition and the positive/negative drift from the announcement date to the effective date of included/excluded stocks. 	<ul style="list-style-type: none"> ! We also investigate the behavior of those stocks after the Effective date and find a strong mean-reversion behavior leading to an efficient trading strategy.
“Factor on Factor” Selection Model – How to Use Factors to Dynamically Select Factors	
<ul style="list-style-type: none"> ! In this presentation, we show that Factors which are good Alpha sources at a stock level are also good Alpha sources at a Factor level. 	<ul style="list-style-type: none"> ! We therefore create a Dynamic Factor Rotation based on this approach and show how a multi-Factor Model approach can be used to select and rotate between Factors.

Do Dynamic Peer Groups Make Sense?	
! In this report we investigate a novel way of constructing portfolios in Asia Ex Japan based on ‘rating’ all stocks against bespoke (correlation based) ‘peer groups’.	! We present results that demonstrate that an approach to normalization based on (correlation driven) peer groups does indeed have clear merit over traditional techniques – especially in an Asia Pacific context.
News Analytics – can it add value?	
! In this paper we used Thomson Reuters news analytics database to test various ideas to figure out if news items can be used for longer term investment by quant managers to generate alpha or manage risk	! While a lot of our initial testing failed due to the fast decay of news items, we did find that various methodologies which provided an efficient use of the data and turned news-flow signals into alpha sources.
Dissecting Stock Market Myths on Seasonality	
! In this research piece, we investigate the so-called Market Seasonality Theory that challenges the Efficient Market Hypothesis (EMH). According to this theory, some real factors and forces operate in the market, causing recurring patterns that can sometimes be used as a reliable and strong source of Alpha.	! We focus on some of the most popular ideas and try to analyze them from two different perspectives. First we start by exploring those from pure historical observations, showing whether any “trend” can be found in the time series. We then provide some more robust statistical tests we have run in order to validate or invalidate the original findings.
Credit Rating Signal Ideas Analyzing the Impact of Credit Ratings on Stock Performance	
! Historically, credit ratings have been relatively less explored by the quant community. Therefore, we thought it would be of interest to analyze different methods of systematically exploiting that information. ! • Our belief is that a change in company’s credit rating may act as some form of ‘sentiment’; as a result, it may alter the market’s perception of that company’s credit risk profile, ultimately impacting the underlying stock price.	! What we found to be most interesting is the mean-reverting behavior of a stock price following a rating change. By adopting a reversion-based strategy, we were able to generate an IR north of 0.8. ! Also, adopting a directional strategy following a ‘watch’ change yielded a 1.1% long/short return per month with a hit rate of 55%. Investing \$100 in the long only portfolio of the strategy 16 years ago would have grown into \$1800 by 2010.
Style timing using Macro Indicators - Testing a dynamic factor approach in Asia Ex Japan	
! We concluded from our analysis into factor performance in different macro environment states (see below) that there is certainly evidence to suggest that different factors are more (or less) relevant at certain times.	! In this report we attempt to go one further and actually exploit the information in such a rulebook by forming our own systematic and quantitative view on the macro environment. ! Whilst only Asia results are included the approach certainly appears to have promise.
Measuring the macro Impact on factor performance	
! Recently there has been a large increase in appetite for research into topics such as style switching, and dynamic factor rotation modeling with macro economic variables often cited as potential ‘triggers’. In this report we explain how we have enhanced our standard backtesting infrastructure to provide us with a flexible framework conducting this kind of analysis.	! We believe many of the outcomes observed make good ‘common sense’ and using the results of this analysis we suggest that intuitively factors can loosely be divided into two key categories. Those factors that do well in risk <i>embracing</i> environments and those that do well in risk <i>averse</i> environments.

Return on Equity: Is it useful for stock picking?

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| <ul style="list-style-type: none"> ! In this analysis we run a series of simple tests across a range of universes including European, US, Japan and Asia/Emerging markets to confirm to ourselves that ROE is indeed able to contribute to quantitative alpha. We start by taking a look at ROE in isolation before moving on to combine ROE with its ‘close cousin’ Price/Book as well as with a P/E metric. ! Our analysis suggests that whilst it is ineffective in isolation, the level of ROE can indeed play a valuable role in separating winners from losers. | <ul style="list-style-type: none"> ! In particular we find that a simple combination of P/Book and ROE makes a far sharper valuation metric than P/Book alone and we find that this simple composite consistently outranks both forward and trailing earnings based valuation metrics in terms of its ability to consistently find alpha across a range of global universes when measured on a range of metrics. ! Testing within specific sectors reveals that the signal is particularly useful when applied to members of the Materials, Consumer, Industrials and Financials sectors around the world. |
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A Factor for All Seasons: Stock Level Periodic Seasonality in Japan and Beyond

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| <ul style="list-style-type: none"> ! In this report, we provide a quantitative analysis of individual stocks' seasonal cycle and also theorize on what accounts for the seasonality with reference to four specific issues. In addition, we attempt to verify the existence of seasonal cycles using the J.P. Morgan backtest engine with monthly active returns over previous years being used as the source of the alpha for each stock. | <ul style="list-style-type: none"> ! The back test confirms seasonal effects in Japan as well as in various other countries and regions. In short, seasonality—the tendency of a given stock to rise in a given month—is a factor common to numerous countries. We also confirmed a strong seasonality trend in the global IT sector, marking a powerful anomaly phenomenon seen worldwide. |
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Company Guidance - Can it add value to a Quant process?

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| <ul style="list-style-type: none"> ! In this research piece, we investigate an underexploited Alpha signal: “Guidance” events. It is a signal that makes intuitive sense, though we have found little academic literature on the topic. We start by explaining how we built our proxy for “Guidance” events and explain the pros and cons of our methodology. We then demonstrate how this signal represents a different but objective and underexploited source of Alpha. | <ul style="list-style-type: none"> ! We conclude by saying that while we do not think this signal can be used as a stand-alone signal, we strongly believe it can add significant amount of value to traditional Quant Factors and to Multi- Factor Models. ! We illustrate this by producing improved returns and risk profiles for standard Earnings Momentum and Price Momentum Factors as well as superior backtest results for our generic Multi-Factor Quant Model. |
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Are loss makers bad value? : Negative Earners outperform expensive stocks

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| <ul style="list-style-type: none"> ! If we assume (as seems reasonable) that higher earnings are better than lower earnings for a given price, then it stands to reason that ‘some earnings’ are better than ‘no earnings’. From here it doesn’t seem like too much of a stretch to take that further and say that ‘some earnings’ are better than ‘negative earnings’. While that seems intuitive it is in fact not the case. | <ul style="list-style-type: none"> ! Our analysis shows that loss makers outperform expensive stocks on average over the long term. In other words, negative earners (when backtested within a valuation universe grouped by deciles) do better than expensive stocks/poor value. ! This has some important implications for the way we have historically treated these stocks within our ranking models. |
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How to Improve Earnings Momentum Strategies

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| <ul style="list-style-type: none"> ! In this document, we review Earnings Momentum (and present 10 things Quant Managers should know about Earnings Momentum) | <ul style="list-style-type: none"> ! We also (mainly!) present 3 strategies developed to improve Earnings Momentum based signals. Tested specifically in Europe we believe these approaches ‘make sense’ in all universes. |
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Revisiting the Country & Sector effects in emerging markets

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| <ul style="list-style-type: none"> ! In this report we check in on the perennial debate and highlight a number of recent changes to the landscape. We highlight the increase in sector dominance and suggest that whilst much may be due to the recent environment this is unlikely to be the whole story. | <ul style="list-style-type: none"> ! We suggest some of important implications and considerations for emerging market portfolio managers investing against this backdrop. |
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A global investigation into the usefulness of analyst target price data	
! We recently acquired a global data history of analyst target prices. In this report, we investigate the usefulness of this data from an alpha generation perspective.	! We investigate a number of different approaches to using the data including investigating a series of factors based on changes in forecasts as well as looking at the data set versus share prices to create a series of target price based valuation indicators.
Sector Selection Strategies in Asia Pacific	
! Given the increase in importance of sector effect we investigate the potential to add alpha through sector tilts in Asia Pacific at different levels (regional and country/sector level).	! As we target different 'levels' (such as region sector, country sector, country industry etc) we find some surprising nuances and highlight important implications for both portfolio construction and alpha generation.
Sector Specific Valuation Tools - Using the right tools for the job	
! In this report we investigate which popular value strategies are most successful when used for stock selection within the different broad Asia Pacific sectors and find some interesting results.	! Using this information we build a sector specific value signal that delivers significantly more alpha than our standard approach.
True Market Surprise: A Global Event Study	
! Historically J.P. Morgan Quant has conducted a large amount of work around the markets reaction to earnings announcements. By tracking the markets initial reaction to earnings announcements shrewd managers can potentially boost returns by applying the signal in a number of different ways.	! In this report we examine the extent to which our previous results are replicated on a global basis and conclude that evidence exists that the TMS phenomenon is not confined to Australia! Our analysis suggests that it is observable in many global markets.
How does reducing Country bias impact Risk and Return in Emerging Markets?	
! Typically in Asia & Emerging Markets we favour a "country neutral & sector free" approach when constructing alpha signals and we generally allow our sector tilts to be a residual of our stock selection. The rationale here is that "county affect" is still generally more dominant than the "sector effect".	! In this report we use the generic JPM Q-Score model as a starting point we investigate returns and correlations over the last 8 years. We find that both country neutrality and sector neutrality bring significant advantages in terms of risk profile, reducing the volatility and fairing better in terms of draw-downs.
Rules of Thumb: Dividends	
! We have investigated active returns around changes to S&P/ASX 200 company dividend policy between 1995 and 2008 and developed four Rules of Thumb: ! Rule 1. Overweight stocks that grow dividends (especially those with positive earnings momentum).	! Rule 2. Underweight stocks that have flat dividends (especially those with positive earnings momentum) ! Rule 3. No information after a fall in dividends (follow earnings momentum instead) ! Rule 4. Underweight stocks that drop a dividend payment
Who Said Zed's dead? Revisiting and Reviving the Altman Z score	
! We investigate the usefulness of Altman's famous Z-Score as an alpha generator. It was designed to help detect bankruptcy candidates; we found in our global testing (with a little tweaking) that the Altman Z-Score has the ability to also distinguish between subsequent winners & losers – especially within sectors.	! In our testing the Altman Z-Score demonstrates <i>clear standout performances across the Information Technology and Health Care sectors in All World, Nth America, Asia Ex, and Japan universes</i> . Furthermore, it does this on the back of <i>extremely low turnover</i> – a real plus for a quant strategy!

Sorting the Super Stars of Stock Selection from the B-Movie Extras

- ! With the many and varied stock screening styles and criteria used in stock selection, we were curious as to what actually worked and what didn't. So what makes a good stock screen?
- ! We examine some screening strategies in the spirit of investing legends such as Lynch and Graham, not only examining the strategies as a whole, but also digging deeper to test each screen criterion separately and identify those that add or destroy value
- ! In this report we investigate some of the super stars of the screening criteria in four regions (AsiaPac ex Japan, Europe, US and Japan) and distinguish them from the more ordinary or downright poor B-grade performers.
- ! We also introduce our new JPMQ screen testing infrastructure. We can use this to compare the performance of any stock screen and find out how it would have gone if used over the past 10 years.

Chasing Dividends: Stock Performance around Dividend Day - A Global Analysis

- ! Starting with our hypothesis that there is a market inefficiency surrounding stocks on their dividend date we have conducted a full investigation to determine if this effect is broadly observable.
- ! Our results suggest that this effect is not confined to a region with every region analyzed recording a statistically significant outperformance
- ! Further analysis suggests that this effect can be exploited quantitatively either stand-alone or combined with an existing quant strategy to produce a superior return.

Sector Selection Model for Europe - Analysis and Presentation of our Results

- ! In this report piece, we investigate sector allocation and develop a **Sector Allocation Model** for Europe.
- ! We present the various backtests we ran for the different models we created (based on Quant Factors, macroeconomic regressions).
- ! Our final 'suggested model', relying mainly on a Composite Price Momentum Model for decision making, generates around 10% annualized return for the 15 years backtested as a Long/Short strategy.

Value / Growth: Introducing our Style Switching Strategy

- ! In this report we investigate Value and Growth and introduce a Style Switching Strategy.
- ! The Style Switching Strategy relies on Valuation Dispersion to give signals on Value or Growth bias.
- ! Our intuitive idea, further improved by incorporating our "Dynamic Factor Rotation Strategy" (October 2008) approach, generates up to 19% annualized returns with limited draw-downs, low volatility and positive returns in close to 70% of the months studied

Can Stop-Losses really stop losses? A global investigation

- ! In this report we investigate the effects of applying stop-loss strategies on portfolio returns in Australia and around the world.
- ! We conclude that in general, a significant negative price shock should not be used to signal a subsequent underperformer in markets around the world.

Dynamic Factor Rotation Strategy Using Momentum and Price Overreaction to Generate Alpha

- ! In this report we analyze Factor performance seasonality and show how a portfolio return can be substantially improved by a dynamic management of Factor weights and introduce the newly created JPM Dynamic Factor Rotation Strategy.
- ! Our dynamic strategy generated annualized return significantly higher than its static peer over the past 14 years, with higher Sharpe ratio, ICs and t-stat while keeping volatility low.

A Country Selection Model for Emerging Markets

- ! In this report we develop a bottom-up country selection model for Emerging markets by starting. Using a library of 50+ stock selection strategies we aggregate (using MSCI investable cap) to country level and test effectiveness for country selection across 26 emerging markets
- ! We identify that there is a strong case for using this approach for country selection with several single factor strategies generating statistically significant level of alpha and we use the results of this testing to build a composite model which performs very well under a backtesting analysis.

Can a Quantitative Approach Predict Takeover Targets? Positioning and Protecting Portfolios	
! We review 25 years of academic research, listing and analyzing Factors and Models used in the past to predict Takeover candidates.	! We introduce the 'JPM Takeover Screening Tool', built to help Equity Managers filter their universe to detect potential targets..
Quant Concepts: The Search for Alpha	
! A compendium of Alpha research and a best of Quant concepts. In this report five papers are presented covering a broad range of quant topics as well as the accompanying academic literature reviews.	! 52 Week High and Momentum Investing ! Information Uncertainty, Behavioral Bias ! Fundamental Scorecard ! Recommendations Analyzed

Regular Publications

We produce several publications on a regular (or semi-regular) basis. Details are provided below.

The APxJ Weekly Factor Snapshot

Every Monday, we publish a review of factor action in the previous week, with commentary, factor returns (including our Q-Score), information coefficients and broken down day-by-day and country-by-country.

Quant Concepts

Typically we publish our more in depth quality quant pieces under the *Quant Concepts* banner. Generally with a starting point in academia we target this publication at quant professionals.

The Quant Angle

Entering its fourth year of publication, our (roughly!) monthly Asia Quant "thematic mouthpiece" *The Quant Angle* is published from Hong Kong and provides quant based analysis, ideas generation and analysis across Asia Pac and EM.

Fund Manager Monthly

Summarizing the Quant and non Quant market activity, the *Fund Manager Monthly* is published at the start of each month. As well as including a variety of performance items we also use this publication to provide updates for the 'latest readings' on models developed in our more in depth analysis papers.

The Factor Companion / 'Pac In Style

Published each quarter, these reports provide a reference of factor performance in market segments. This publication also typically includes an analysis of the most recent events on the factor landscape.

The Factor Reference Series

Our *Factor Reference Series* of publications are designed to provide a starting point for those approaching a new region or country quantitatively for the first time. Typically each reference includes a summary of the performance of fifty or so of the most popular and commonly used Alpha drivers and a full backtest output for each factor in isolation. A performance/backtest analysis of typical quantitative multi-factor composites (Value, Momentum, Quality etc) is also included.

The Global Factor Summary

Published each month this report is designed to provide a quick summary of factor performance around the world. 8 regions are included and performance over the month and year are summarized for key alpha sources as well as 42 popular alpha and risk factors.

Collated Academic Abstracts

Published each quarter this report is designed to help with the job of keeping track of the latest financial research output from academia. We collate the abstracts of academic papers published in 9 popular journals for your reference.

Equity Quant Conference

We held our first equity Quant conference in London in 2008 and followed up with conferences in 2009, 2010, 2011, and 2012. It is now regular October fixture. Please contact us for more information.

Our Quantitative Infrastructure

Our quantitative infrastructure is a custom built research platform maintained within the team. We do not use any internal I.T. development resources and we do not use any proprietary J.P. Morgan data. Instead we prefer to use similar third party data sources to those used amongst our clients and manage system development ourselves. Data feeds from a variety of sources such as MSCI Barra, Thomson I/B/E/S, Reuters, Factset and others are consolidated in a central database server. Our custom backtesting engine, portfolio optimization and portfolio analytics applications interact with this database (and each other) to provide us with an integrated and highly flexible environment.

Whilst each data source has varied coverage and history our backtesting typically starts in 1993 for popular factors and the MSCI All world universe. If you would like more information on our publications, our technology or any of our research please contact one of the team.

Team biographies

London

Marco Dion is a senior Quant analyst and head of the Global and the European Quant Strategy team. Marco joined J.P. Morgan in May 2007. Marco previously worked at Madoff Securities, where he was a senior trader responsible for managing the company's proprietary long/short equity book according to a fundamental, as well as a systematic framework. Prior to that, Marco worked in a similar role at Mako Global, trading derivatives in Europe and Asia. Marco holds a BSc. in Finance from HEC Brussels. Marco and team have been top ranked by investors on numerous surveys since 2008 and were ranked #1 European Quant team on the 2008 & 2010 Institutional investor polls and #2 in 2009 and 2011.

Viquar Shaikh joined J.P. Morgan Research team in Oct 2005 and relocated to work on the European desk in 2010. Prior to relocating he spent 5 years in charge of the Quant Support team in Mumbai. This team works on the upkeep of the in-house Quantitative database as well as developing and running bespoke client requests & excel screens. Prior to join JP Morgan, he worked at Tata Share Registry. Viquar has a Master's degree in Science from the Mumbai University and an advanced diploma in Software Engineering.

Angelo Pessaris joined J.P. Morgan European Quant Strategy team in June 2010. Prior to joining J.P. Morgan, he worked as at MSCI Barra focusing on extreme risk analysis for Value at Risk and Expected Shortfall. After completing a post graduate research degree in Quantitative Finance from La Sorbonne University, Angelo worked as a Quant analyst for a Hedge Fund in Paris (SGAM-AI) and for Natixis Asset Management, where he mainly developed filtering methods and factor models dedicated to hedge fund replication, due diligence analysis and dynamic allocation. Angelo also holds a Master's Degree in Finance (majoring in Corporate Finance) and one in Theoretical Physics, both from Ecole Normale de Paris and Pierre & Marie Curie University Paris.

Hong Kong

Dr. Robert Smith joined the J.P. Morgan Equity Quantitative Strategy team in July 2007 and focuses on the Asia Pacific markets. In Asia the team have been top ranked by investors on numerous surveys since 2007; and are currently (2011) ranked the #1 Asia Pacific Quant team in both the Institutional Investor and Extel polls. Prior to joining J.P. Morgan he completed his PhD in Computer Science (QUT), with research areas including trading automation and machine learning. Robert also has an Actuarial degree from Macquarie University and worked for five years as an Actuarial analyst with Towers Perrin; then for two years as a Structured Finance analyst with the Commonwealth Bank of Australia. He also holds a Masters in IT, majoring in Software Engineering, and a Post Graduate Diploma in Applied Finance and Investing.

Christopher Ma joined the J.P. Morgan Equity Quantitative Strategy team in June 2012. Previously, Chris spent 4 years with J.P. Morgan in Equity Research covering Asia Technology Hardware and Solar companies and as a member of the top 3 ranked Institutional Investor technology team in 2010, 2011, and 2012. Prior to joining J.P. Morgan, he spent four years in management consulting at various firms, primarily with A.T. Kearney for engagements across North America and Europe. He also spent two years as a software engineer at Goldman Sachs in New York. Chris earned an MBA in Finance and Economics from Columbia Business School and holds a BS and MEng in Computer Science from Cornell University, where his Masters project examined neural networks for forecasting equity prices.

New York

Dubravko Lakos-Bujas joined the J.P. Morgan Quantitative Strategy Team in June 2010 focusing on the U.S. markets. Prior to joining J.P. Morgan, he worked for 6 years at Deutsche Asset Management within the Quantitative Strategies Group. There he worked in various investment roles, predominantly as a Quantitative research analyst, on both their Quantitative Equity and Global Tactical Asset Allocation strategies, and was a member of the GTAA Global Oversight Committee. Dubravko holds a Bachelor's degree in Economics and Finance from Wittenberg University; he is an active member of the university's Investment Committee.

Sydney

Berowne Hlavaty joined J.P. Morgan Australian Equity Research in 2005. Before joining J.P. Morgan he spent 7 years with MSCI/Barra. Berowne provided risk analysis, training and technical support to clients using Barra's Equity, Fixed Income and Performance Attribution products. He also designed custom solutions for clients using these products. Berowne holds a Bachelor of Materials Engineering and a Masters of Information Science from the University of New South Wales.

James Eustace joined the JP Morgan Global Quantitative Strategy team in June 2011. Prior to this he worked as a Quantitative Analyst for the Quantitative Strategies Group at Old Mutual Asset Managers since 2007 where he focused on designing Quantitative investment strategies for long/short and active global equity products. James is currently completing a PhD in Finance at Birkbeck College where his focus will be on using non-linear econometric modelling equity style returns. His supervisor is Professor Stephen Satchell. James also has an MSc in Economics from St Andrews University.

Mumbai

Latha Nair joined the J.P. Morgan Quant Strategy team in 2005 and is in charge of the Quant Support team in Mumbai. Before joining JP Morgan, Latha was working as Software Engineer with Sansui Software Pvt. Ltd. and prior to that as senior programmer with Visual Access Systems Pvt. Ltd. Latha holds a BSc in Physics from Bombay University. She also holds a professional diploma in Network centered computing from NIIT, Mumbai.

Arfi Khan joined the J.P. Morgan Quant Strategy team in 2007. Before joining J.P. Morgan he spent 3 years working in the IT Sector working with blue chip companies like I-Flex Solutions and Tech Mahindra Ltd. He is Engineering Graduate and completed a B.E in Computers from Dayaneshwar Vidyapeeth Mumbai in 2004.

Vivek Shah joined J.P. Morgan Quant Strategy team in April 2010. Prior to joining J.P. Morgan, he interned at CrossBorder Capital and Financial Technologies (India) as Data Analyst and Research Analyst respectively. Vivek holds a Master's degree in Financial Engineering from Kent State University and has a B.E. in Information Technology from Mumbai University.

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	Overweight (buy)	Neutral (hold)	Underweight (sell)
J.P. Morgan Global Equity Research Coverage	44%	44%	12%
IB clients*	52%	46%	34%
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IB clients*	69%	61%	53%

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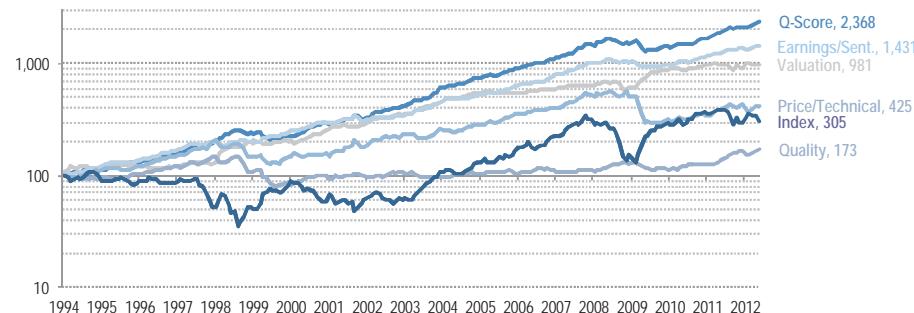
GEM Factor Reference Regional Backtest Results

Chartbook Volume 4

This companion guide to the [Asia ex-Japan Factor Reference Book](#) provides the full backtest results for the same 77 factors we tested in the MSCI Asia ex-Japan universe (59 single factors and 18 composite factors) and applied to the MSCI Global Emerging Markets universe.

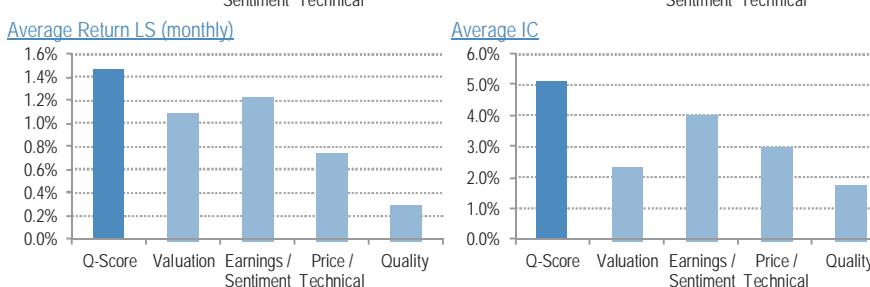
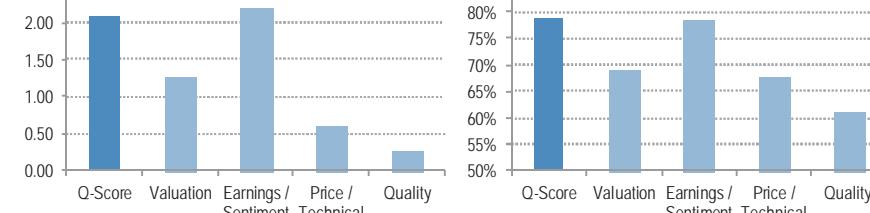
Relative factor performance in GEM is very similar to that of Asia ex-Japan (see [Volume 1: Asia ex-Japan Regional Chartbook](#)) with GEM having a slight edge in risk-adjusted returns due to its greater diversification. Both universes share many of the same constituents with all AxJ countries except for Hong Kong and Singapore included in GEM (overlapping countries are China, India, Indonesia, South Korea, Malaysia, Philippines, Taiwan, and Thailand).

Composite Factor Families – Cumulative performance over time



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset. Index=MSCI GEM (equal weighted, US\$, dividends reinvested)

Composite Family Performance Summary (full period results)



Source: J.P. Morgan, MSCI, IBES, Reuters, Factset, Barra. For Sharpe Ratio, the risk-free rate is assumed to be 0%.

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Asia/GEM Quantitative Strategy

Christopher Ma AC

(852) 2800-8530

christopher.x.ma@jpmorgan.com

J.P. Morgan Securities (Asia Pacific) Limited

Robert Smith AC

(852) 2800 8569

robert.z.smith@jpmorgan.com

J.P. Morgan Securities (Asia Pacific) Limited

Europe Quantitative Strategy

Marco Dion

(44-20) 7134-5909

marco.x.dion@jpmorgan.com

J.P. Morgan Securities plc

Viquar Shaikh

(44-20) 7134-5908

viquar.x.shaikh@jpmorgan.com

J.P. Morgan Securities plc

Angelo Pessaris

(44-20) 7134-5907

angelo.pessaris@jpmorgan.com

J.P. Morgan Securities plc

US Quantitative Strategy

Dubravko Lakos-Bujas

(1-212) 622-3601

dubravko.lakos-bujas@jpmorgan.com

J.P. Morgan Securities LLC

Australia Quantitative Strategy

Berowne Hlavaty

(61-2) 9003-8602

berowne.d.hlavaty@jpmorgan.com

J.P. Morgan Securities Australia Limited

James Eustace

(61-2) 9003-8601

james.eustace@jpmorgan.com

J.P. Morgan Securities Australia Limited

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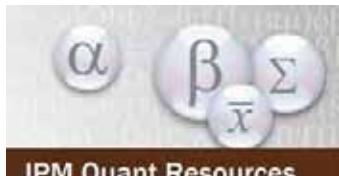
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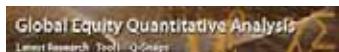
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For further discussion / custom analysis on these results, contact:
christopher.x.ma@jpmorgan.com

Or contact the Quant desk at:
Quant_Strategy@jpmorgan.com

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Summary of Results (alphabetical)

Description	Avg Stocks	Avg IC	T-Stat	Sharpe Ratio	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS
1 Mth Change in Consensus Recommendations	697	2.4%	6.76	1.62	70.5%	78.0%	0.82%	1.79%
1 Mth Price Momentum	798	-1.3%	-2.54	-0.63	41.6%	79.4%	-0.61%	3.55%
1 year forward forecast PE	635	2.8%	5.21	1.23	65.6%	16.3%	1.06%	3.04%
1 year forward forecast PE Relative To History	568	1.5%	3.03	0.72	56.6%	22.9%	0.7%	3.2%
1 year forward forecast PE Relative To Sector	638	2.2%	5.17	1.22	67.9%	17.6%	0.82%	2.37%
12 Month Price Momentum adjusted for volatility (Sharpe style)	733	2.4%	2.04	0.44	61.6%	24.7%	0.48%	3.42%
12 Mth Price Momentum	766	2.1%	1.05	0.16	64.3%	23.2%	0.3%	4.6%
3 Mth Change in Consensus Recommendations	701	2.2%	5.72	1.36	68.8%	43.1%	0.72%	1.87%
3 Mth Price Momentum	800	0.1%	-0.94	-0.29	53.8%	46.3%	-0.3%	4.2%
5 years Historical Earnings Growth	609	-0.2%	-0.09	-0.06	49.3%	7.8%	-0.01%	1.95%
6 Mth Price Momentum	791	1.3%	0.06	-0.07	58.4%	33.0%	0.02%	4.44%
6M change in Target Price	500	2.0%	0.93	0.15	62.2%	26.0%	0.42%	5.84%
ALTMAN Z-score	715	0.3%	-0.12	-0.07	52.6%	4.7%	-0.02%	2.49%
Asset Turnover (Historical)	661	0.4%	0.38	0.05	50.0%	3.7%	0.07%	2.51%
Asset Turnover Growth (Historical)	641	0.6%	1.37	0.33	52.9%	11.2%	0.21%	2.02%
Beta (Barra)	783	-1.2%	-0.41	-0.16	43.0%	12.1%	-0.11%	3.89%
Cash Flow Yield FY1	555	2.0%	4.63	1.10	60.3%	16.0%	0.9%	2.9%
Cash Flow Yield FY2	535	1.6%	3.95	0.92	59.8%	16.5%	0.85%	3.14%
Cash Flow Yield Mean of FY1 and FY2	533	1.9%	4.39	1.04	62.6%	16.1%	0.9%	3.0%
Change In ROE Between Current and 12 Mths Prior	683	0.9%	1.73	0.38	57.9%	17.0%	0.24%	2.02%
Composite Co-Efficient of Variation (Avg of Fy1 and FY2)	616	-1.7%	-1.09	-0.30	40.3%	23.8%	-0.23%	3.14%
Composite Forward Earnings Momentum (1Mth + 3 Mth)	642	3.1%	4.76	1.11	70.1%	40.6%	0.85%	2.67%
Composite Momentum	678	4.0%	8.98	2.20	78.3%	66.1%	1.23%	2.04%
Composite Price	698	2.2%	3.07	0.68	62.4%	24.1%	0.63%	3.06%
Composite Price to Book ROE	778	2.5%	6.90	1.66	66.1%	14.2%	1.1%	2.3%
Composite Price with 1 Month Reversion	752	3.0%	2.71	0.58	67.9%	30.7%	0.74%	4.07%
Composite Quality	595	1.7%	1.42	0.28	61.1%	15.4%	0.30%	3.11%
Composite Recommendations	705	2.5%	7.40	1.78	73.2%	50.2%	0.86%	1.72%
Composite Value	635	2.7%	5.69	1.36	66.1%	19.4%	1.2%	3.0%
Composite Value and Growth	636	2.3%	5.32	1.26	68.8%	19.9%	1.08%	3.03%
Composite Value Growth Momentum Model	633	4.4%	10.59	2.64	76.9%	48.3%	1.5%	2.1%
Composite Value Momentum Model	632	4.7%	10.25	2.56	80.1%	48.7%	1.53%	2.22%
Composite Value Momentum Quality Price Model	636	4.9%	10.31	2.57	78.3%	42.3%	1.5%	2.2%
Composite Value Momentum Quality Price Model (Value Biased)	636	4.7%	10.24	2.55	80.5%	40.5%	1.49%	2.17%
Consensus Recommendations	709	1.7%	2.32	0.51	65.6%	17.1%	0.40%	2.54%
EBIT Margin Growth	678	0.3%	0.30	0.04	51.8%	12.6%	0.05%	2.15%
EBITDA to Enterprise Value	698	1.2%	2.59	0.65	56.0%	13.3%	0.37%	1.93%
Forecast Earnings Growth FY1 to FY2	677	-1.0%	-0.56	-0.16	43.9%	22.7%	-0.07%	1.97%
Forward Earnings Momentum (1Mth Change)	659	3.1%	5.10	1.20	67.4%	66.4%	0.78%	2.27%
Forward Earnings Momentum (3Mth Change)	644	2.8%	4.75	1.11	67.4%	36.0%	0.81%	2.54%
Forward Earnings Momentum (3Mth Change) / Co-Efficient Of Variation	590	3.2%	5.58	1.32	68.8%	39.7%	0.89%	2.38%
Free Cash Flow to Enterprise Value (Historical)	656	1.3%	3.13	0.79	64.3%	11.6%	0.5%	2.0%
Gearing	671	0.1%	1.12	0.24	52.6%	5.3%	0.2%	2.5%
Growth (Barra)	753	-0.1%	-0.07	-0.05	52.4%	12.2%	-0.01%	1.81%
Historical BETA	773	-1.0%	0.55	0.05	49.8%	33.2%	0.2%	4.7%
Historical Dividend Yield	804	2.0%	4.25	0.98	63.8%	10.4%	0.8%	2.7%
Historical Earnings Yield	781	2.1%	4.27	0.99	66.1%	13.8%	0.7%	2.5%
Historical P/Book Value Ratio	780	1.3%	3.17	0.71	53.4%	10.9%	0.7%	3.4%
Historical P/Cash Earnings Ratio	643	1.9%	4.50	1.05	60.6%	13.3%	0.8%	2.7%
Historical P/Sales Ratio	660	1.5%	3.79	0.87	56.6%	8.9%	0.73%	2.85%
Historical Return On Equity	777	1.3%	1.34	0.27	57.5%	8.9%	0.23%	2.56%
Historical Returns Volatility Over Last Year in LOCAL Currency	770	1.2%	-0.11	-0.10	50.7%	15.6%	0.0%	4.0%
Historical Sales Growth	685	0.0%	0.18	0.01	50.3%	10.6%	0.0%	2.4%
Interest Cover	589	0.5%	0.22	0.00	57.1%	8.1%	0.1%	3.2%
Internal Growth	775	1.1%	0.52	0.08	55.7%	11.6%	0.1%	2.4%
Liquidity	715	-0.3%	0.25	0.01	54.2%	12.6%	0.1%	2.9%
Net Revisions FY1 FY2 (Rel. To Total Changes)	670	3.1%	6.45	1.54	75.1%	67.9%	0.98%	2.27%
Net Revisions to FY1 [Up-Down]/[Up+Down]	688	2.2%	5.21	1.23	65.6%	68.7%	0.74%	2.11%
Net Revisions to FY2 [Up-Down]/[Up+Down]	673	2.9%	6.17	1.47	68.3%	70.3%	0.9%	2.2%
Number of Consensus Estimates (FY1)	688	0.2%	0.50	0.07	54.8%	14.1%	0.08%	2.47%
Payout Ratio	777	-0.7%	-1.50	-0.39	43.9%	13.3%	-0.28%	2.78%
Percent Off 52 Week High	795	1.3%	-0.33	-0.17	58.4%	32.6%	-0.11%	5.10%
PIOTROSKI F-score (Fundamental Scorecard)	810	1.1%	3.17	0.72	56.6%	16.2%	0.50%	2.35%
Price Acceleration 3M	763	0.4%	0.67	0.12	54.3%	33.7%	0.10%	2.30%
Price Acceleration 6M	755	1.2%	2.49	0.55	61.1%	25.1%	0.4%	2.5%
Q-Score Composite	636	5.1%	8.46	2.09	78.7%	43.1%	1.5%	2.6%
RSI 10-day (Continuation)	788	-1.9%	-4.28	-1.00	37.1%	77.7%	-0.81%	2.82%
RSI 30-day (Continuation)	787	-0.4%	-2.12	-0.54	46.6%	67.1%	-0.46%	3.24%
Sales to EV (using Market Value)	553	1.4%	0.95	0.14	58.4%	11.0%	0.30%	4.65%
Seasonality	456	1.8%	3.07	0.82	64.0%	77.7%	0.49%	2.02%
Sentiment Composite	501	1.8%	0.72	0.09	66.5%	33.5%	0.3%	5.3%
Size (Barra)	783	0.3%	-0.61	-0.19	52.0%	7.7%	-0.1%	3.0%
Success (Barra)	783	2.3%	0.97	0.15	61.5%	22.0%	0.3%	4.2%
Value (Barra)	783	2.7%	5.65	1.34	67.9%	17.0%	1.05%	2.77%
Value To Growth	631	1.8%	4.27	0.99	62.9%	21.7%	0.90%	3.15%
Value To Risk	585	3.1%	4.98	1.17	66.1%	19.2%	0.97%	2.88%
Volatility (Barra)	783	-1.1%	0.00	-0.07	46.6%	14.5%	0.00%	4.41%

Source: JPMorgan, MSCI, Factset, Barra, IBES, Reuters, Bloomberg

Summary of Results (sorted by T-Stat)

Description	Avg Stocks	Avg IC	T-Stat	Sharpe Ratio	Hit Rate	Turn Over	Avg Ret LS	Std Dev Ret LS
Composite Value Growth Momentum Model	633	4.4%	10.59	2.64	76.9%	48.3%	1.5%	2.1%
Composite Value Momentum Quality Price Model	636	4.9%	10.31	2.57	78.3%	42.3%	1.5%	2.2%
Composite Value Momentum Model	632	4.7%	10.25	2.56	80.1%	48.7%	1.53%	2.22%
Composite Value Momentum Quality Price Model (Value Biased)	636	4.7%	10.24	2.55	80.5%	40.5%	1.49%	2.17%
Composite Momentum	678	4.0%	8.98	2.20	78.3%	66.1%	1.23%	2.04%
Q-Score Composite	636	5.1%	8.46	2.09	78.7%	43.1%	1.5%	2.6%
Composite Recommendations	705	2.5%	7.40	1.78	73.2%	50.2%	0.86%	1.72%
Composite Price to Book ROE	778	2.5%	6.90	1.66	66.1%	14.2%	1.1%	2.3%
1 Mth Change in Consensus Recommendations	697	2.4%	6.76	1.62	70.5%	78.0%	0.82%	1.79%
Net Revisions FY1 FY2 (Rel. To Total Changes)	670	3.1%	6.45	1.54	75.1%	67.9%	0.98%	2.27%
Net Revisions to FY2 [Up-Down]/[Up+Down]	673	2.9%	6.17	1.47	68.3%	70.3%	0.9%	2.2%
3 Mth Change in Consensus Recommendations	701	2.2%	5.72	1.36	68.8%	43.1%	0.72%	1.87%
Composite Value	635	2.7%	5.69	1.36	66.1%	19.4%	1.2%	3.0%
Value (Barra)	783	2.7%	5.65	1.34	67.9%	17.0%	1.05%	2.77%
Forward Earnings Momentum (3Mth Change) / Co-Efficient Of Variation	590	3.2%	5.58	1.32	68.8%	39.7%	0.89%	2.38%
Composite Value and Growth	636	2.3%	5.32	1.26	68.8%	19.9%	1.08%	3.03%
Net Revisions to FY1 [Up-Down]/[Up+Down]	688	2.2%	5.21	1.23	65.6%	68.7%	0.74%	2.11%
1 year forward forecast PE	635	2.8%	5.21	1.23	65.6%	16.3%	1.06%	3.04%
1 year forward forecast PE Relative To Sector	638	2.2%	5.17	1.22	67.9%	17.6%	0.82%	2.37%
Forward Earnings Momentum (1Mth Change)	659	3.1%	5.10	1.20	67.4%	66.4%	0.78%	2.27%
Value To Risk	585	3.1%	4.98	1.17	66.1%	19.2%	0.97%	2.88%
Composite Forward Earnings Momentum (1Mth + 3 Mth)	642	3.1%	4.76	1.11	70.1%	40.6%	0.85%	2.67%
Forward Earnings Momentum (3Mth Change)	644	2.8%	4.75	1.11	67.4%	36.0%	0.81%	2.54%
Cash Flow Yield FY1	555	2.0%	4.63	1.10	60.3%	16.0%	0.9%	2.9%
Historical P/Cash Earnings Ratio	643	1.9%	4.50	1.05	60.6%	13.3%	0.8%	2.7%
Cash Flow Yield Mean of FY1 and FY2	533	1.9%	4.39	1.04	62.6%	16.1%	0.9%	3.0%
Historical Earnings Yield	781	2.1%	4.27	0.99	66.1%	13.8%	0.7%	2.5%
Value To Growth	631	1.8%	4.27	0.99	62.9%	21.7%	0.90%	3.15%
Historical Dividend Yield	804	2.0%	4.25	0.98	63.8%	10.4%	0.8%	2.7%
Cash Flow Yield FY2	535	1.6%	3.95	0.92	59.8%	16.5%	0.85%	3.14%
Historical P/Sales Ratio	660	1.5%	3.79	0.87	56.6%	8.9%	0.73%	2.85%
PIOTROSKI F-score (Fundamental Scorecard)	810	1.1%	3.17	0.72	56.6%	16.2%	0.50%	2.35%
Historical P/Book Value Ratio	780	1.3%	3.17	0.71	53.4%	10.9%	0.7%	3.4%
Free Cash Flow to Enterprise Value (Historical)	656	1.3%	3.13	0.79	64.3%	11.6%	0.5%	2.0%
Composite Price	698	2.2%	3.07	0.68	62.4%	24.1%	0.63%	3.06%
Seasonality	456	1.8%	3.07	0.82	64.0%	77.7%	0.49%	2.02%
1 year forward forecast PE Relative To History	568	1.5%	3.03	0.72	56.6%	22.9%	0.7%	3.2%
Composite Price with 1 Month Reversion	752	3.0%	2.71	0.58	67.9%	30.7%	0.74%	4.07%
EBITDA to Enterprise Value	698	1.2%	2.59	0.65	56.0%	13.3%	0.37%	1.93%
Price Acceleration 6M	755	1.2%	2.49	0.55	61.1%	25.1%	0.4%	2.5%
Consensus Recommendation	709	1.7%	2.32	0.51	65.6%	17.1%	0.40%	2.54%
12 Month Price Momentum adjusted for volatility (Sharpe style)	733	2.4%	2.04	0.44	61.6%	24.7%	0.48%	3.42%
Change In ROE Between Current and 12 Mths Prior	683	0.9%	1.73	0.38	57.9%	17.0%	0.24%	2.02%
Composite Quality	595	1.7%	1.42	0.28	61.1%	15.4%	0.30%	3.11%
Asset Turnover Growth (Historical)	641	0.6%	1.37	0.33	52.9%	11.2%	0.21%	2.02%
Historical Return On Equity	777	1.3%	1.34	0.27	57.5%	8.9%	0.23%	2.56%
Gearing	671	0.1%	1.12	0.24	52.6%	5.3%	0.2%	2.5%
12 Mth Price Momentum	766	2.1%	1.05	0.16	64.3%	23.2%	0.3%	4.6%
Success (Barra)	783	2.3%	0.97	0.15	61.5%	22.0%	0.3%	4.2%
Sales to EV (using Market Value)	553	1.4%	0.95	0.14	58.4%	11.0%	0.30%	4.65%
6M change in Target Price	500	2.0%	0.93	0.15	62.2%	26.0%	0.42%	5.84%
Sentiment Composite	501	1.8%	0.72	0.09	66.5%	33.5%	0.3%	5.3%
Price Acceleration 3M	763	0.4%	0.67	0.12	54.3%	33.7%	0.10%	2.30%
Historical BETA	773	-1.0%	0.55	0.05	49.8%	33.2%	0.2%	4.7%
Internal Growth	775	1.1%	0.52	0.08	55.7%	11.6%	0.1%	2.4%
Number of Consensus Estimates (FY1)	688	0.2%	0.50	0.07	54.8%	14.1%	0.08%	2.47%
Asset Turnover (Historical)	661	0.4%	0.38	0.05	50.0%	3.7%	0.07%	2.51%
EBIT Margin Growth	678	0.3%	0.30	0.04	51.8%	12.6%	0.05%	2.15%
Liquidity	715	-0.3%	0.25	0.01	54.2%	12.6%	0.1%	2.9%
Interest Cover	589	0.5%	0.22	0.00	57.1%	8.1%	0.1%	3.2%
Historical Sales Growth	685	0.0%	0.18	0.01	50.3%	10.6%	0.0%	2.4%
6 Mth Price Momentum	791	1.3%	0.06	-0.07	58.4%	33.0%	0.02%	4.44%
Volatility (Barra)	783	-1.1%	0.00	-0.07	46.6%	14.5%	0.00%	4.41%
Growth (Barra)	753	-0.1%	-0.07	-0.05	52.4%	12.2%	-0.01%	1.81%
5 years Historical Earnings Growth	609	-0.2%	-0.09	-0.06	49.3%	7.8%	-0.01%	1.95%
Historical Returns Volatility Over Last Year in LOCAL Currency	770	1.2%	-0.11	-0.10	50.7%	15.6%	0.0%	4.0%
ALTMAN Z-score	715	0.3%	-0.12	-0.07	52.6%	4.7%	-0.02%	2.49%
Percent Off 52 Week High	795	1.3%	-0.33	-0.17	58.4%	32.6%	-0.11%	5.10%
Beta (Barra)	783	-1.2%	-0.41	-0.16	43.0%	12.1%	-0.11%	3.89%
Forecast Earnings Growth FY1 to FY2	677	-1.0%	-0.56	-0.16	43.9%	22.7%	-0.07%	1.97%
Size (Barra)	783	0.3%	-0.61	-0.19	52.0%	7.7%	-0.1%	3.0%
3 Mth Price Momentum	800	0.1%	-0.94	-0.29	53.8%	46.3%	-0.3%	4.2%
Composite Co-Efficient of Variation (Avg of Fy1 and FY2)	616	-1.7%	-1.09	-0.30	40.3%	23.8%	-0.23%	3.14%
Payout Ratio	777	-0.7%	-1.50	-0.39	43.9%	13.3%	-0.28%	2.78%
RSI 30-day (Continuation)	787	-0.4%	-2.12	-0.54	46.6%	67.1%	-0.46%	3.24%
1 Mth Price Momentum	798	-1.3%	-2.54	-0.63	41.6%	79.4%	-0.61%	3.55%
RSI 10-day (Continuation)	788	-1.9%	-4.28	-1.00	37.1%	77.7%	-0.81%	2.82%

Australian Factor Reference Book

Return-Driver's Fast Lap Around Oz

- In this report we review the performance of the Australian equity market since 1992. The lenses through which we view the market are characteristics known as 'Factors'.
- Over the last five years the Australian market has been by and large a momentum market, underpinned by a strong Resources sector. Value metrics have suffered in an environment where the market has not focussed so much on what it is paying for each dollar of earnings, but more on exposure to growth opportunities. If anything, peak-cycle multiples were being paid for by the persistent peak-cycle earnings.
- The leading and bottom factors over the five years ending 30 September 2008 are presented in Figure 1.
- Over the longer term Australia is a well-behaved market from a quantitative perspective. Partly because they work, quantitatively managed funds form a large part of the active funds management industry. Their need for detailed data, coupled with an environment of strong regulation, governance and a market that is well-broked, mean the quantity and quality of data is high.

Figure 1: Five years Ending September 2008: Best and Worst Performing Factors,

Leading Single Factors	Bottom Single Factors
Price Momentum (avg 1, 3, 6, 12M)	Value Rel to Sector
Earnings Momentum	Value Rel to History
Rick Adjusted Earn. Mom	One-Year Forward P/E
52 Week High Ratio	PEG
True Market Surprise	JPO Earn Risk

Source: Aspect, Iress, J.P. Morgan

Australia

Australia Quantitative Research

Thomas Reif^{AC}

(61-2) 9220 1473
thomas.w.reif@jpmorgan.com

Berowne Hlavaty

(61-2) 9220 1591
berowne.d.hlavaty@jpmorgan.com

Tim Moroney

(61-2) 9220-1919
tim.j.moroney@jpmorgan.com

J.P. Morgan Securities Australia Limited

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Overview of the Australian Marketplace

Funds managed using quantitative techniques have been prevalent in the Australian equity market for over ten years. The strong commission paying power of Quant funds, coupled with their need for data in a market that is heavily brokered and well regulated mean that the quality and quantity of information is high. By ‘well regulated’, we suggest that Governance is on par with US and European markets, and generally ahead of our Asian neighbours at the moment, though the gap is closing.

The Australian equity market has historically been well-behaved from a quantitative perspective, over the longer term. ‘Bubbles’ have tended to be confined to the personal housing market, fuelled by Australia’s obsession with home ownership. The Asian financial crisis of 1997/98 passed without much fanfare. The ‘tech bubble’ of 1997-2001, while a common feature of backtests (Value factors underperformed), was less exaggerated in Australia than in the US. However, Australia was not immune to Black Monday of 1987, and is not immune the Global Financial Crisis in 2008 at time of print.

Market Features

The heaviest weighting is to the Financials sector (30% weight by market cap on 30/09/2008 versus 35% in 30/09/2003). At time of print the market is somewhere in the middle of the ‘Global Financial Crisis’. To date, and to their credit, Australian banks have held up well. Some financial consolidation is in play at present.

By far the most dominant sector of the market over the last five years has been Resources, in particular Mining (20% weight by market cap on 30/09/2008, versus 15% on 30/09/2003). A Resources boom drove the market for the five years ending 31/10/2007, the most recent market peak. Incidentally, this peak was circa 33% higher than where we ended today, not quite a year later. Over those five years, and to oversimplify somewhat, Resources were underpinned by whatever we could dig out of the ground and ship/sell to Chinese steel-makers in the run-up to their Olympics. The Resources run has reversed as commodity prices have come off this year.

Stronger growth for longer has placed strain on the labour market. While wages have remained broadly in-check, with pockets of steep increases concurrent with a boom in that sector (Mining & Energy for instance). The real economy is straining under its own success. The lack of skilled supply is a constraint for some industries, and unemployment is low by historical standards. However inflation, while at the high of the Reserve Bank’s target range, is under control. The consumer is leveraged, and some poor quality debtors remain in the system. Refinancing in a rising housing market has typically been used to fund consumption items (cars and plasma TVs) and renovations. It’s been a good 5-10 years. Currently, while resilient, the outlook is more Bearish. However, the Bearish outlook for Australia is almost optimistic when viewed against other developed economies. The string attached is the currency.

Also, Australian market has a globally high level of dividends: 4.5% net, with an additional 1.5% of imputation credits, which pass-through the tax paid by companies and can be used to offset the tax liabilities of the recipient.

Factor Performance

Hopefully the preceding overview is a useful background for understanding the dynamics of the Australian market place over the longer term.

Momentum, in both Price and Earnings, have empirically been the strongest factors. In the five years ending 31/10/2008, while the market was fixated on Mining, Momentum had the strongest predictive ability.

Quality metrics such as ROE and a JPM factor based on Piotroski's 2000 F-Score also held their own.

Value metrics have suffered in an environment where the market seemed to focus on exposure to growth more than dollars paid per dollar of earnings.

The following Style Environment provides three year period Information Coefficients of Factors across the ASX 200, Industrials and Resources. Also, the right hand charts represent a time series of monthly information coefficients, with a twelve month rolling average shown to demonstrate longer term factor effectiveness.

Factor Composites

Price Momentum Family

- 60% 52 Week High
- 30% True Market Surprise
- 10% Price Mom (avg 1, 3, 6, 12 mth performance)

Earnings Momentum Family

- 40% Earnings Potential
- 20% One Year Forward Earnings (70% 1 mth, 30% three mth)
- 40% One year fwd earnings / Co-efficient variation 1 yr fwd Earnings

Value Family

- 50% Forward PE relative to Sector
- 12.5% Value to Growth
- 12.5% Forward PE relative to History
- 25% one year forward PE

Shareholder Value Family

- 60% Fundamental Scorecard
- 30% ROE
- 10% ROE Growth

Style Environment

Composite Price Momentum

Average Composite ICs for 3 yr blocks, each ending 31 August.

IC is the correlation between the beginning of month factor value and that month's return. A positive IC indicates the factor had predictive power:

The IC graphs on the right hand charts refer to the ASX 200.

Information Coefficient History (avg of Monthly ICs)

31/08/yyyy :	ASX 200		ASX 200
31/08/yyyy+3	ASX200	Industrials	Resources
2005-2008	6.8%	5.2%	14.4%
2002-2005	3.4%	2.7%	8.1%
1999-2002	19.3%	19.5%	17.4%

Composite Price Mom - (Information Coefficient)

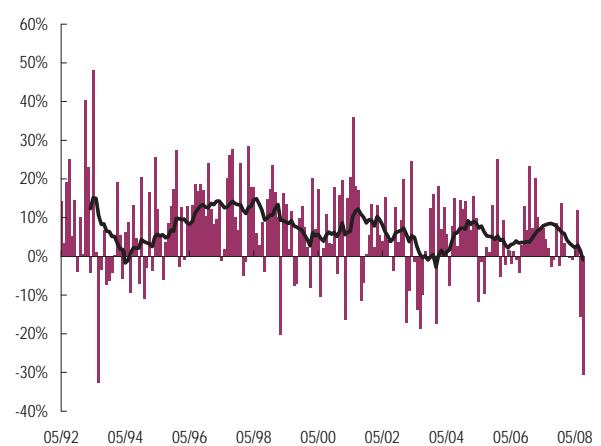


Composite Earnings Momentum

Information Coefficient History (avg of Monthly ICs)

31/08/yyyy :	ASX 200		ASX 200
31/08/yyyy+3	ASX200	Industrials	Resources
2005-2008	3.7%	4.2%	6.3%
2002-2005	3.6%	4.2%	2.5%
1999-2002	7.1%	7.0%	11.7%

Composite Earnings Mom - (Information Coefficient)

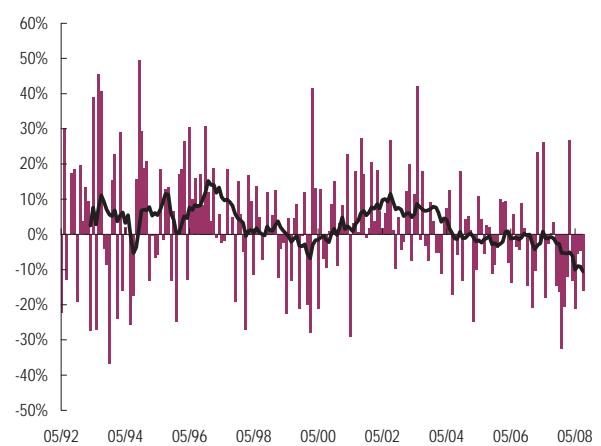


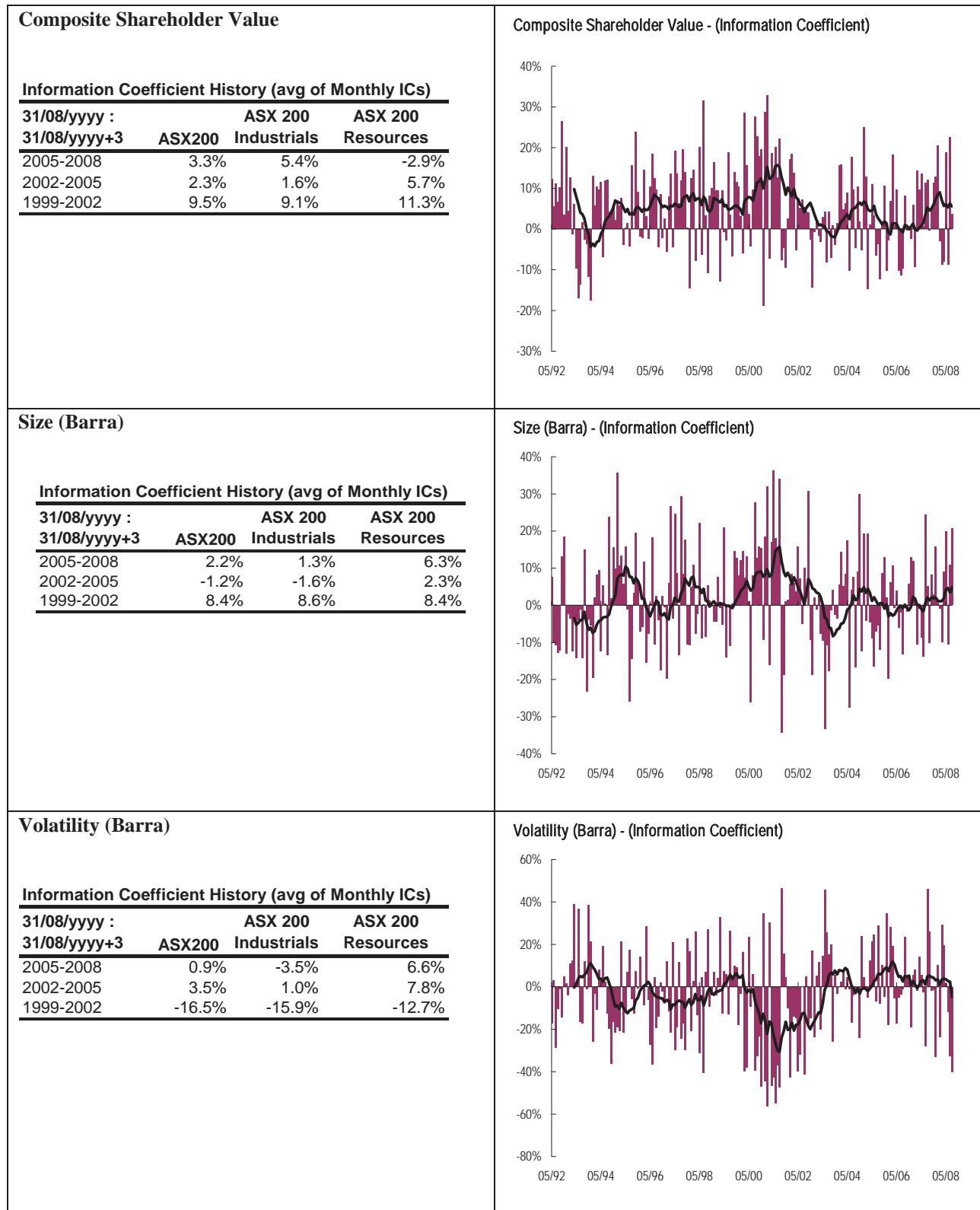
Composite Value

Information Coefficient History (avg of Monthly ICs)

31/08/yyyy :	ASX 200		ASX 200
31/08/yyyy+3	ASX200	Industrials	Resources
2005-2008	-4.2%	-4.4%	-5.7%
2002-2005	1.7%	-0.2%	4.7%
1999-2002	4.5%	4.3%	2.8%

Composite Value - (Information Coefficient)





Source: I/B/E/S, Barra, IRESS, ASPECT, J.P. Morgan.

Sample Factor Guide

Factor explanation and its significance in the current environment.

One-Year Forward P/E

Factor Explanation

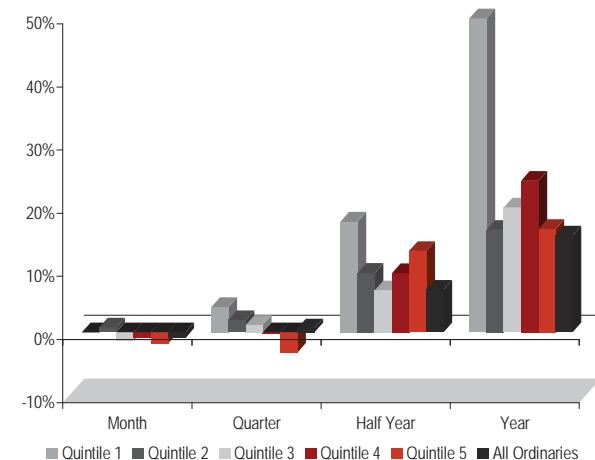
One-year forward P/Es are calculated using IBES consensus forecasts. A one-year forward EPS estimate is calculated by weighting each of the fiscal years by the company's respective financial year-end (see example below). If a company has no forward earnings (i.e. a loss maker) it is excluded from the sample and hence *is not* included in any Quintile.

Example of a June Year End Company's Forward EPS in November

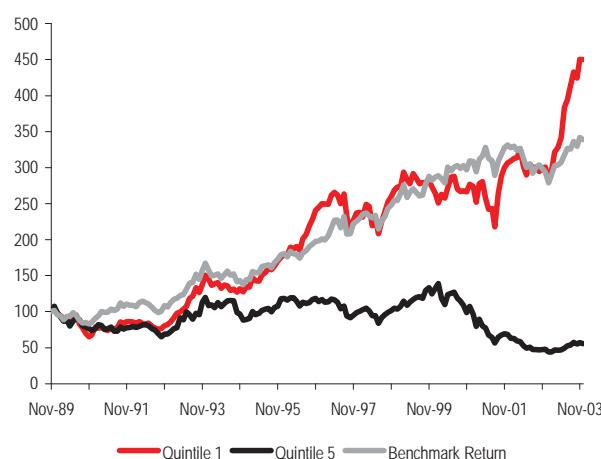
$$\text{EPS}_{1\text{yr}} = \text{EPS}_{\text{fyr1}} \times \left(\frac{7}{12}\right) + \text{EPS}_{\text{fyr2}} \times \left(\frac{5}{12}\right)$$

Historical Factor Performance over specified time frames for each Quintile. A good signal would show Q1>Q2>Q3>Q4>Q5.

Historical Returns of Quintiles



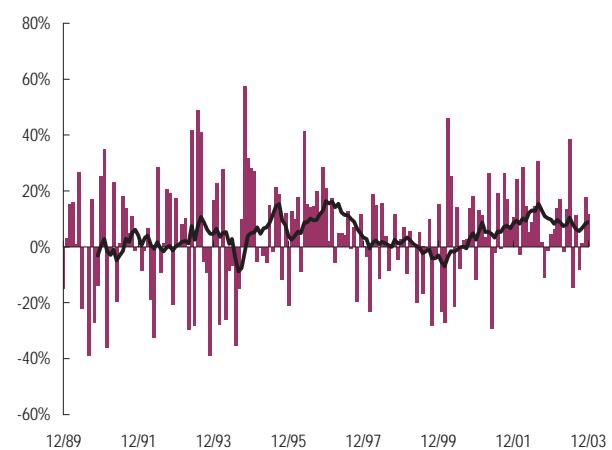
Quintile Performance of One-Year Forward PE



Source: IBES, J.P. Morgan.

Rebased Performance of Quintile 1 verse Quintile 5 & the Benchmark.
A good signal would show a widening spread between Q1 and Q5.

One-Year Forward P/E - (Information Coefficient)



Information Coefficient:
Correlation of factor Z-Scores to 1mth fwd returns.
IC of 1.0 indicates a perfect linear relationship between predicted and actual returns; IC of 0.0 indicates no linear relationship. Bold line reflects 12mth moving average.

For the backtest the market is subdivided into 5 portfolios. Each portfolio contains an equal number of stocks.

The Top Quintile (Quintile 1) contains the stocks with the highest "scores" for the factor being tested while the bottom Quintile (Quintile 5) contains the stocks with the lowest "scores". The portfolios are rebalanced each month over the time frame.

This indicates the percentage of stocks **WITHIN** each quintile that underperformed/overperformed the equal weighted benchmark over the time frame. It indicates the breadth of the signal enabling you to determine if the quintile return is being driven by just one or two stocks or by the whole portfolio (also known as the Hit Rate).

This is the average monthly **RETURN** from this quintile over the entire test period shown alongside the standard deviation of the returns.

The higher the standard deviation the more **VOLATILE** the monthly returns.

Time period being considered.

One-Year Forward P/E														
Last Year Quintile Statistics						Last Three Years Quintile Statistics				Last Five Years Quintile Statistics				
Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.
1	3.5%	4.7%	92%	8%	1	1.5%	6.3%	69%	31%	1	1.0%	5.4%	55%	45%
2	1.3%	2.3%	58%	42%	2	1.2%	2.8%	72%	28%	2	1.2%	2.6%	62%	38%
3	1.5%	2.5%	58%	42%	3	0.7%	3.0%	64%	36%	3	0.6%	2.9%	53%	47%
4	1.8%	3.0%	67%	33%	4	0.2%	3.6%	50%	50%	4	0.2%	3.5%	47%	53%
5	1.4%	4.4%	50%	50%	5	-1.6%	7.0%	36%	64%	5	-0.8%	6.9%	43%	57%
Significance Statistics						Significance Statistics				Significance Statistics				
Significant Positive T-Stats (%)						Significant Positive T-Stats (%)				Significant Positive T-Stats (%)				
45%						40%				36%				
Significant Negative T-Stats (%)						Significant Negative T-Stats (%)				14%				
9%						6%				Average T-Stat				
Average T-Stat						1.26				1.24				
Long Short Strategy Statistics														
Quintile 1 less Quintile 5						Quintile 1 less Quintile 5				Quintile 1 less Quintile 5				
Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.
Long/Short (1-5)	2.2%	2.9%	83.3%	16.7%	Long/Short (1-5)	3.1%	3.8%	83.3%	16.7%	Long/Short (1-5)	1.8%	5.3%	71.7%	28.3%
T-Stat	2.54				T-Stat	4.95				T-Stat	2.66			

The Long/Short strategy compares Quintile 1 performance with Quintile 5 performance.

The % of underperf indicates the percentage of monthly periods where the long/short strategy underperforms the benchmark.

Similarly the % outperf indicates the percentage of monthly periods where the long/short strategy outperforms the benchmark.

The Significance Statistics give an indication of the spread between the top portfolio (Q1) and the bottom portfolio (Q5).

A T-Stat measures whether there is a statistically significant difference between the return of 2 portfolios (In this case the top portfolio and the bottom portfolio.)

It is calculated each month. The "better" the strategy the higher the percentage of positive T-Stats and the lower the percentage of negative T-Stats there should be.

This T-Stat gives a measure of the "quality" of the strategy over the test period by taking account of the monthly outperformance and the volatility of the outperformance. If the Q1 portfolio consistently outperforms the Q5 portfolio over the period then it will have a strong T-Stat. As a rule of thumb any strategy that produces a Long/Short T-Stat greater than 2 is considered to be significant.

Backtesting Database

Data Collection

Our Factor Database is a monthly database that covers over 300 stocks including most delisted stocks in the top 200 for the last 15yrs. Should you require further information please contact the J.P. Morgan Quant Team or your Sales Representative for a full document outlining the “J.P. Morgan Quant Databases & Applications.”

Within the database we can both combine and normalise. A summary of the features is given below:

- 1) **Normalised factors:** Factors can effectively be normalised nine different ways. For example, Factors scores can be made Industry Neutral. This methodology was proven to improve the performance of standard Value factors. It should also be noted that all normalised factors are truncated to +3 or -3.
- 2) **Truncate data:** Data can be truncated before the normalisation process takes place. This is an important procedure to have, as truncation will avoid large numbers (possibly incorrect data) from skewing the market average. Some practitioners however prefer to use median, which is why the option is made available within the normalisation process.
- 3) **Combination of factors.** Our process allows the combination of any number of factors. This will also allows us to combine a positive factor with a negative factor (eg Earnings Revision with Earnings Risk) as both factors can be sorted accordingly. Each factor is also independently weighted, the only constraint applied is that the sum of weights must equal 1.

JPMQ Backtest

Each factor is put through a standard linear regression methodology where key statistical tests are performed and the relevant output generated for each factor. The key capabilities are outlined below;

- 1) Enables any factor to be tested, over any time frame, any rebalance period and against any universe. Both single factor and multifactor models can be examined.
- 2) The Z Scores (and hence ranks) can be calculated relative to any sector or market specified.
- 3) Constraints can be applied to backtests.
- 4) A Monthly Backtest (back to 1987) takes less than 1 minute.
- 5) Output includes regression analysis, Quintile Analysis, Long/Short portfolio analysis, turnover analysis and sub-period analysis.
- 6) Once a Backtest is performed Statistical Charts and Tables are generated.

1

PART

Value Family Screens

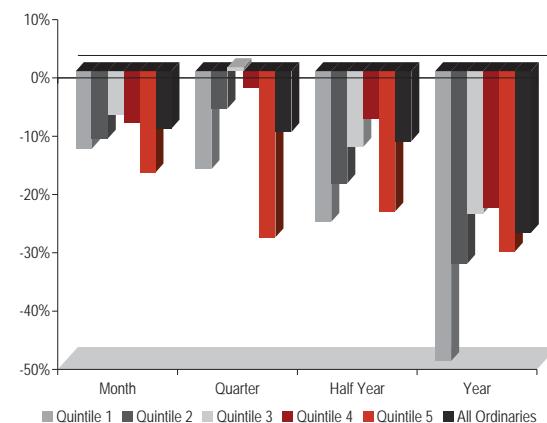
- Historical P/Es
- Historical Dividend Yield
- Historical Price to Cash Flow
- Historical Price to NTA
- One-Year Forward P/E
- Forward P/E Relative to Sector
- Forward P/E Relative to History
- Value to Growth
- Value to Risk

Historical P/E

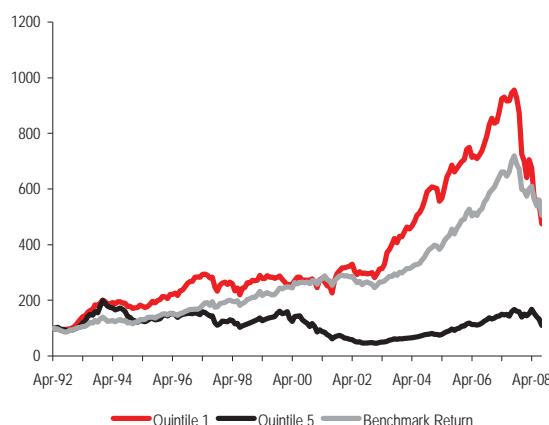
Factor Explanation

Historical P/Es are calculated using the most recently reported EPS figure. The EPS used changes on the preliminary result date. For example, a June year-end company rolls over into another year in (approximately) September. If a company has no historical earnings (i.e. a loss maker) it is excluded from the sample and is not included in any Quintile.

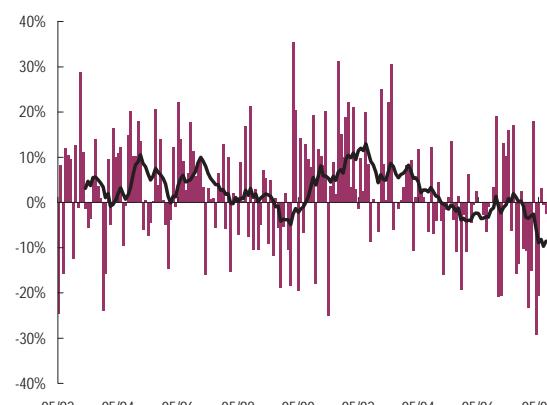
Historical Returns of Quintiles



Quintile Performance of Historical PE



Historical P/E - (Information Coefficient)



Historical P/E

Last Year Quintile Statistics					Last Three Years Quintile Statistics					Last Five Years Quintile Statistics				
Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.
1	-5.3%	7.6%	25%	75%	1	-0.8%	5.7%	42%	58%	1	0.4%	5.1%	52%	48%
2	-3.1%	6.4%	42%	58%	2	0.3%	4.9%	56%	44%	2	1.0%	4.1%	53%	47%
3	-2.2%	5.2%	67%	33%	3	0.3%	3.9%	53%	47%	3	1.0%	3.5%	53%	47%
4	-2.0%	5.9%	58%	42%	4	0.3%	4.2%	56%	44%	4	1.1%	3.7%	55%	45%
5	-2.7%	8.4%	50%	50%	5	0.5%	6.3%	50%	50%	5	1.2%	5.3%	52%	48%
Significance Statistics					Significance Statistics					Significance Statistics				
Significant Positive T-Stats (%)					Significant Positive T-Stats (%)					Significant Positive T-Stats (%)				
Significant Negative T-Stats (%)					Significant Negative T-Stats (%)					Significant Negative T-Stats (%)				
Average T-Stat					Average T-Stat					Average T-Stat				
Long Short Strategy Statistics														
Quintile 1 less Quintile 5					Quintile 1 less Quintile 5					Quintile 1 less Quintile 5				
Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.
Long/Short (1-5)	-2.6%	6.5%	41.7%	58.3%	Long/Short (1-5)	-1.4%	4.6%	38.9%	61.1%	Long/Short (1-5)	-0.8%	3.8%	46.7%	53.3%
T-Stat	-1.37				T-Stat	-1.82				T-Stat	-1.59			

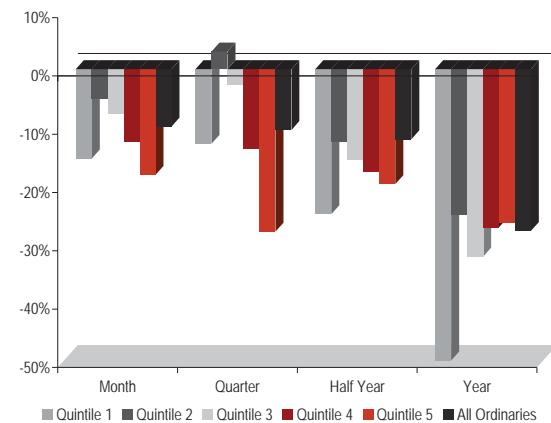
Source: IBES, Barra, J.P. Morgan.

Historical Dividend Yield

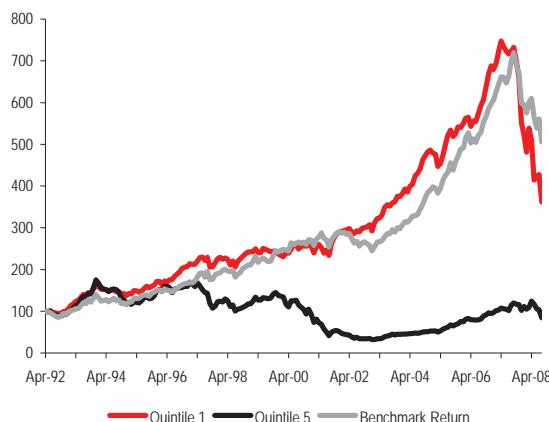
Factor Explanation

Historical dividend yields are calculated using the most recently reported DPS figure. The DPS will change only once the preliminary final is released to the market. For example, a June year-end company will roll over into another year in (approximately) September. If a company pays no dividend, it is given a dividend yield of zero and hence *will* be included in the Quintiles.

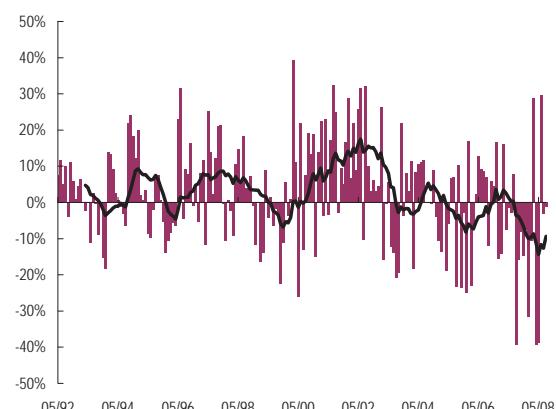
Historical Returns of Quintiles



Quintile Performance of Historical Dividend Yield



Historical Dividend Yield - (Information Coefficient)



Historical Dividend Yield

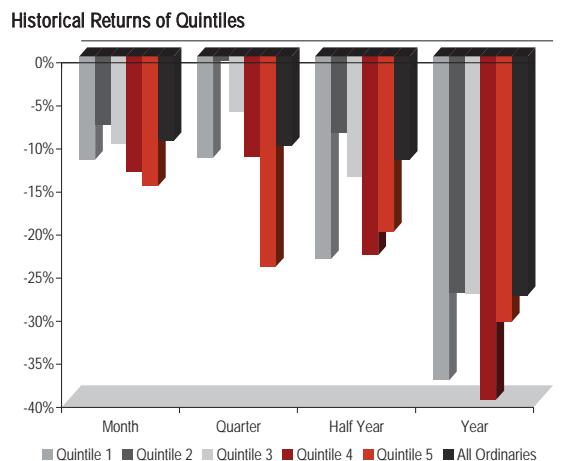
Last Year Quintile Statistics					Last Three Years Quintile Statistics					Last Five Years Quintile Statistics				
Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.
1	-5.2%	8.7%	17%	83%	1	-0.9%	6.1%	42%	58%	1	0.2%	5.2%	43%	57%
2	-2.2%	5.1%	58%	42%	2	0.5%	4.0%	56%	44%	2	1.2%	3.6%	55%	45%
3	-3.0%	5.5%	50%	50%	3	0.0%	4.3%	39%	61%	3	1.0%	3.9%	50%	50%
4	-2.4%	6.5%	42%	58%	4	0.3%	4.9%	44%	56%	4	1.1%	4.3%	52%	48%
5	-2.1%	9.2%	50%	50%	5	0.8%	6.6%	61%	39%	5	1.3%	5.6%	57%	43%
Significance Statistics					Significance Statistics					Significance Statistics				
Significant Positive T-Stats (%)					Significant Positive T-Stats (%)					Significant Positive T-Stats (%)				
18%					17%					12%				
Significant Negative T-Stats (%)					Significant Negative T-Stats (%)					25%				
36%					31%					Average T-Stat				
-1.30					-0.76					-0.40				
Long Short Strategy Statistics														
Quintile 1 less Quintile 5					Quintile 1 less Quintile 5					Quintile 1 less Quintile 5				
Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.
Long/Short (1-5)	-3.1%	9.1%	33.3%	66.7%	Long/Short (1-5)	-1.7%	6.1%	41.7%	58.3%	Long/Short (1-5)	-1.1%	5.1%	45.0%	55.0%
T-Stat	-1.19				T-Stat	-1.68				T-Stat	-1.74			

Source: IBES, Barra, J.P. Morgan.

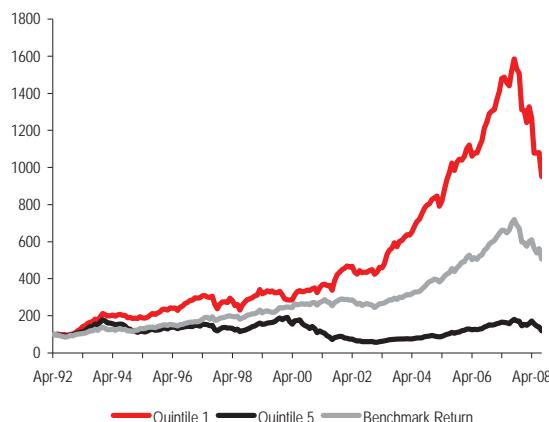
Historical Price to Cash Flow

Factor Explanation

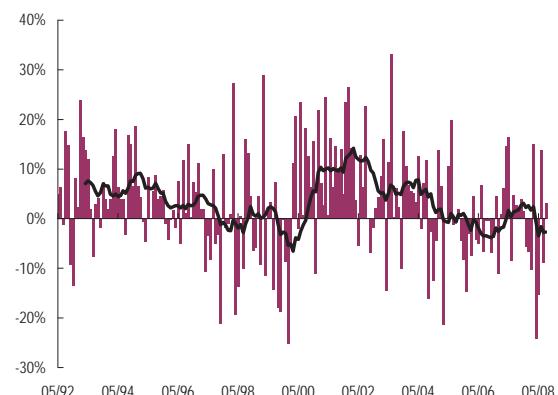
Historical price to cash flow ratios are calculated using the most recently reported cash flow per share (CFPS) figure. The CFPS will change only once the preliminary final is released to the market.



Quintile Performance of Historical Price to Cash Flow



Historical Price to Cash Flow - (Information Coefficient)



Historical Price to Cash Flow

Last Year						Last Three Years						Last Five Years					
Quintile Statistics						Quintile Statistics						Quintile Statistics					
Quintile	Avg Ret	St Dev	% Out	% Under	Perf.	Quintile	Avg Ret	St Dev	% Out	% Under	Perf.	Quintile	Avg Ret	St Dev	% Out	% Under	Perf.
1	-3.6%	6.8%	50%	50%		1	-0.1%	5.1%	47%	53%		1	1.0%	4.6%	58%	42%	
2	-2.4%	6.6%	58%	42%		2	0.4%	4.7%	50%	50%		2	1.1%	4.2%	52%	48%	
3	-2.5%	5.1%	42%	58%		3	0.1%	3.9%	39%	61%		3	0.9%	3.5%	40%	60%	
4	-4.0%	5.9%	42%	58%		4	-0.1%	5.0%	47%	53%		4	0.8%	4.4%	50%	50%	
5	-2.7%	8.0%	50%	50%		5	0.4%	5.6%	56%	44%		5	1.0%	4.8%	52%	48%	
Significance Statistics						Significance Statistics						Significance Statistics					
Significant Positive T-Stats (%)						Significant Positive T-Stats (%)						Significant Positive T-Stats (%)					
Significant Negative T-Stats (%)						Significant Negative T-Stats (%)						Significant Negative T-Stats (%)					
Average T-Stat						Average T-Stat						Average T-Stat					
Long Short Strategy Statistics																	
Quintile 1 less Quintile 5						Quintile 1 less Quintile 5						Quintile 1 less Quintile 5					
Strategy	Avg Ret	St Dev	% Out	% Under	Perf.	Strategy	Avg Ret	St Dev	% Out	% Under	Perf.	Strategy	Avg Ret	St Dev	% Out	% Under	Perf.
Long/Short (1-5)	-0.9%	5.5%	50.0%	50.0%		Long/Short (1-5)	-0.4%	3.4%	47.2%	52.8%		Long/Short (1-5)	0.0%	2.9%	51.7%	48.3%	
T-Stat	-0.58					T-Stat	-0.76					T-Stat	0.02				

Source: IBES, Barra, J.P. Morgan.

Historical Price to Book Value

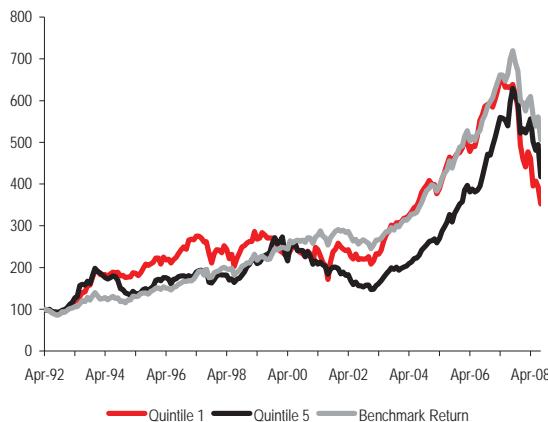
Factor Explanation

Historical P/NTAs are calculated using the most recently reported NTA figure. The NTA will change only once the preliminary final is released to the market. The calculation of a company's NTA is:

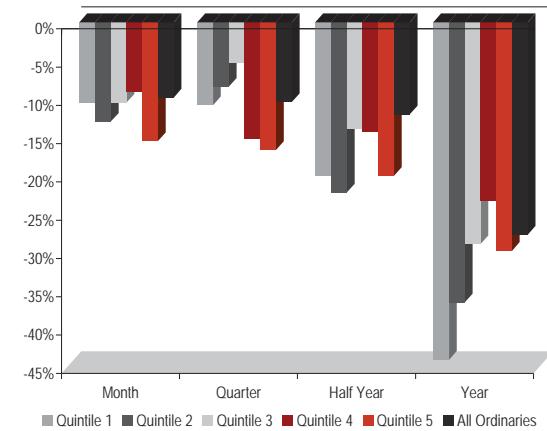
$$\text{NTA} = \text{Total shareholders' equity} - \text{intangibles}$$



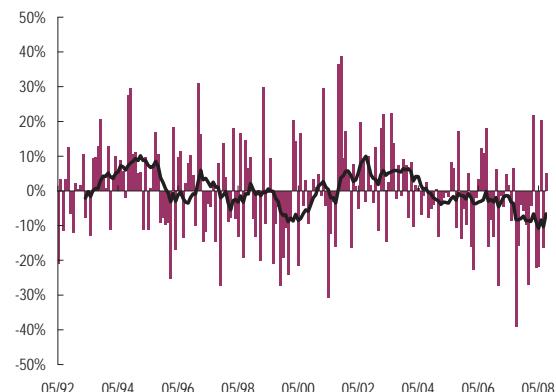
Quintile Performance of Historical Price to Book Value



Historical Returns of Quintiles



Historical Price to Book Value - (Information Coefficient)



Historical Price to Book Value

Last Year						Last Three Years						Last Five Years					
Quintile Statistics						Quintile Statistics						Quintile Statistics					
Quintile	Avg Ret	St Dev	% Out	% Under	Perf.	Quintile	Avg Ret	St Dev	% Out	% Under	Perf.	Quintile	Avg Ret	St Dev	% Out	% Under	Perf.
1	-4.5%	6.9%	25%	75%		1	-0.6%	5.2%	36%	64%		1	0.5%	4.6%	47%	53%	
2	-3.5%	6.8%	42%	58%		2	-0.2%	5.0%	42%	58%		2	0.8%	4.4%	48%	52%	
3	-2.7%	5.0%	42%	58%		3	0.1%	3.9%	36%	64%		3	0.8%	3.4%	42%	58%	
4	-1.9%	7.7%	58%	42%		4	0.6%	5.3%	56%	44%		4	1.3%	4.7%	62%	38%	
5	-2.7%	6.8%	58%	42%		5	0.8%	5.6%	64%	36%		5	1.4%	4.6%	60%	40%	
Significance Statistics						Significance Statistics						Significance Statistics					
Significant Positive T-Stats (%)						Significant Positive T-Stats (%)						Significant Positive T-Stats (%)					
Significant Negative T-Stats (%)						Significant Negative T-Stats (%)						Significant Negative T-Stats (%)					
Average T-Stat						Average T-Stat						Average T-Stat					
Long Short Strategy Statistics																	
Quintile 1 less Quintile 5						Quintile 1 less Quintile 5						Quintile 1 less Quintile 5					
Strategy	Avg Ret	St Dev	% Out	% Under	Perf.	Strategy	Avg Ret	St Dev	% Out	% Under	Perf.	Strategy	Avg Ret	St Dev	% Out	% Under	Perf.
Long/Short (1-5)	-1.8%	5.1%	25.0%	75.0%		Long/Short (1-5)	-1.5%	4.1%	36.1%	63.9%		Long/Short (1-5)	-1.0%	3.3%	38.3%	61.7%	
T-Stat	-1.23					T-Stat	-2.15					T-Stat	-2.24				

Source: IBES, Barra, J.P. Morgan.

One-Year Forward P/E

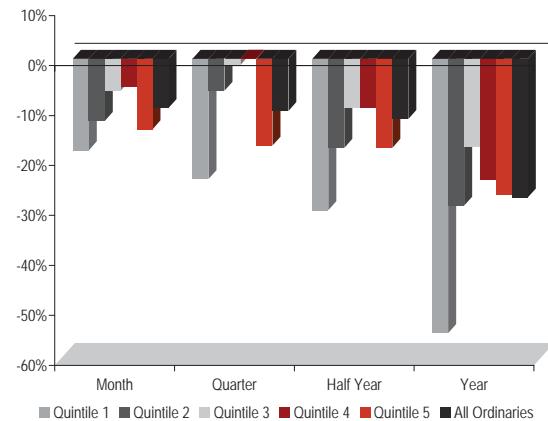
Factor Explanation

One-year forward P/Es are calculated using IBES consensus forecasts. A one-year forward EPS estimate is calculated by weighting each of the fiscal years by the company's respective financial year-end (see example below). If a company has no forward earnings (i.e. a loss maker) it is excluded from the sample and hence is *not* included in any Quintile.

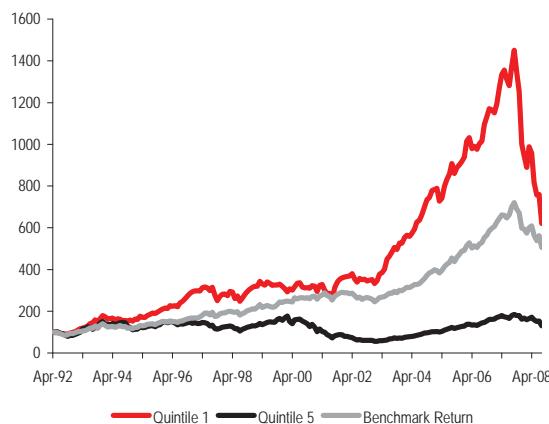
Example of a June Year End Company's Forward EPS in November

$$\text{EPS}_{\text{1yr}} = \text{EPS}_{\text{fyr1}} \times \left(\frac{7}{12}\right) + \text{EPS}_{\text{fyr2}} \times \left(\frac{5}{12}\right)$$

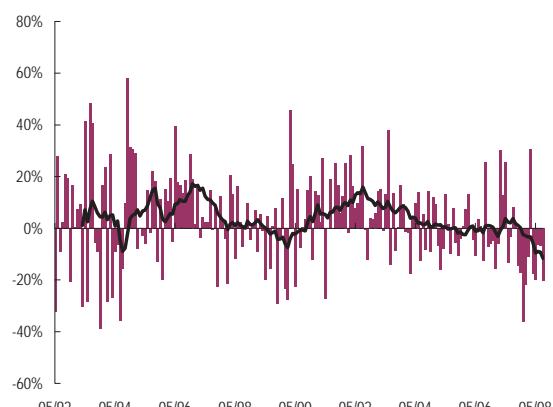
Historical Returns of Quintiles



Quintile Performance of One-Year Forward PE



One-Year Forward P/E - (Information Coefficient)



One-Year Forward P/E

Last Year Quintile Statistics					Last Three Years Quintile Statistics					Last Five Years Quintile Statistics				
Quintile	Avg Ret	St Dev	% Out	% Under	Quintile	Avg Ret	St Dev	% Out	% Under	Quintile	Avg Ret	St Dev	% Out	% Under
1	-6.0%	9.1%	17%	83%	1	-0.8%	7.0%	33%	67%	1	0.6%	6.0%	48%	52%
2	-2.6%	6.7%	50%	50%	2	0.3%	4.8%	50%	50%	2	1.0%	4.0%	48%	52%
3	-1.5%	5.0%	58%	42%	3	0.5%	3.8%	50%	50%	3	1.0%	3.4%	48%	52%
4	-2.1%	5.5%	50%	50%	4	0.4%	4.0%	47%	53%	4	1.1%	3.6%	48%	52%
5	-2.4%	6.0%	58%	42%	5	0.3%	4.8%	50%	50%	5	1.2%	4.2%	57%	43%
Significance Statistics					Significance Statistics					Significance Statistics				
Significant Positive T-Stats (%)					Significant Positive T-Stats (%)					Significant Positive T-Stats (%)				
Significant Negative T-Stats (%)					Significant Negative T-Stats (%)					Significant Negative T-Stats (%)				
Average T-Stat					Average T-Stat					Average T-Stat				
Long Short Strategy Statistics														
Quintile 1 less Quintile 5					Quintile 1 less Quintile 5					Quintile 1 less Quintile 5				
Strategy	Avg Ret	St Dev	% Out	% Under	Strategy	Avg Ret	St Dev	% Out	% Under	Strategy	Avg Ret	St Dev	% Out	% Under
Long/Short (1-5)	-3.6%	5.1%	16.7%	83.3%	Long/Short (1-5)	-1.1%	3.9%	30.6%	69.4%	Long/Short (1-5)	-0.6%	3.3%	40.0%	60.0%
T-Stat	-2.44				T-Stat	-1.69				T-Stat	-1.36			

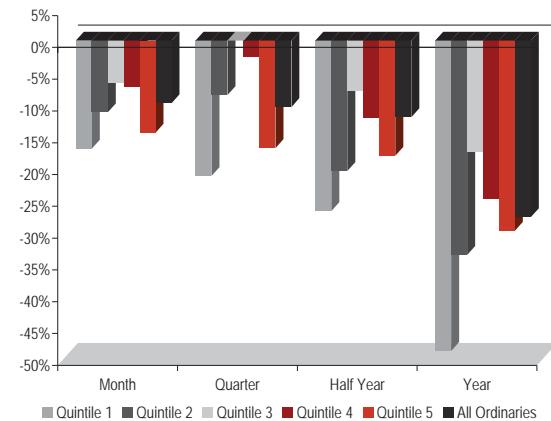
Source: IBES, Barra, J.P. Morgan.

Forward P/E Relative to Sector

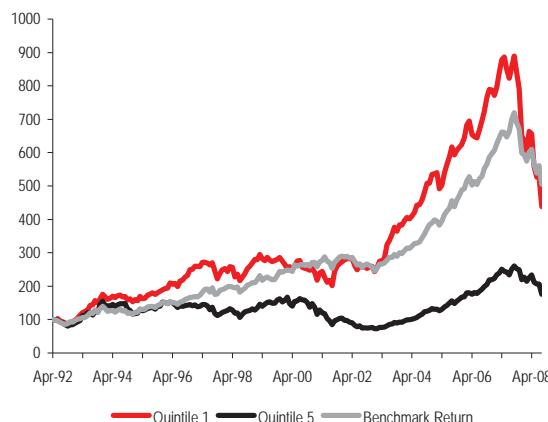
Factor Explanation

This ranks stocks according to their forecast value relative to their peers within a sector. The factor score is calculated by comparing their relative one-year forward PE versus their GIC sector average (weighted). It attempts to find stocks that are of good value when compared to their sector peers.

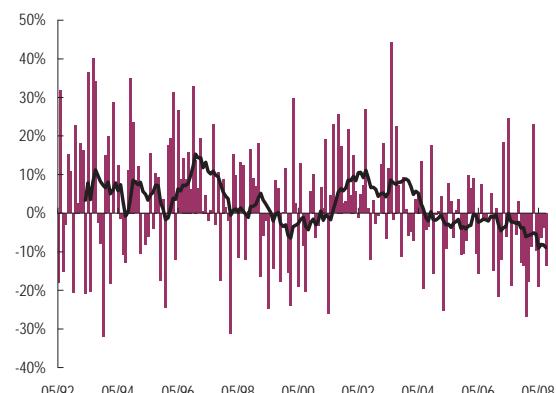
Historical Returns of Quintiles



Quintile Performance of Forward PE Relative to Sector



Forward P/E Relative to Sector - (Information Coefficient)



Forward P/E Relative to Sector

Last Year Quintile Statistics						Last Three Years Quintile Statistics						Last Five Years Quintile Statistics					
Quintile	Avg Ret	St Dev	% Out	% Under	Perf.	Quintile	Avg Ret	St Dev	% Out	% Under	Perf.	Quintile	Avg Ret	St Dev	% Out	% Under	Perf.
1	-5.1%	8.5%	17%	83%		1	-0.7%	6.3%	31%	69%		1	0.5%	5.6%	43%	57%	
2	-3.2%	6.1%	42%	58%		2	0.0%	4.6%	47%	53%		2	0.7%	4.0%	43%	57%	
3	-1.4%	5.4%	58%	42%		3	0.6%	4.0%	50%	50%		3	1.3%	3.5%	53%	47%	
4	-2.2%	5.1%	58%	42%		4	0.4%	4.1%	50%	50%		4	1.0%	3.5%	48%	52%	
5	-2.7%	6.5%	58%	42%		5	0.5%	5.1%	67%	33%		5	1.3%	4.4%	63%	37%	
Significance Statistics						Significance Statistics						Significance Statistics					
Significant Positive T-Stats (%)						Significant Positive T-Stats (%)						Significant Positive T-Stats (%)					
Significant Negative T-Stats (%)						Significant Negative T-Stats (%)						Significant Negative T-Stats (%)					
Average T-Stat						Average T-Stat						Average T-Stat					
Long Short Strategy Statistics																	
Quintile 1 less Quintile 5						Quintile 1 less Quintile 5						Quintile 1 less Quintile 5					
Strategy	Avg Ret	St Dev	% Out	% Under	Perf.	Strategy	Avg Ret	St Dev	% Out	% Under	Perf.	Strategy	Avg Ret	St Dev	% Out	% Under	Perf.
Long/Short (1-5)	-2.4%	3.4%	25.0%	75.0%		Long/Short (1-5)	-1.2%	2.9%	33.3%	66.7%		Long/Short (1-5)	-0.8%	2.6%	41.7%	58.3%	
T-Stat	-2.37					T-Stat	-2.52					T-Stat	-2.28				

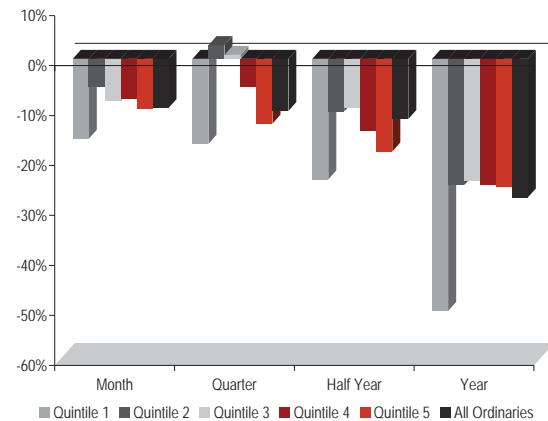
Source: IBES, Barra, J.P. Morgan.

Forward P/E Relative to History

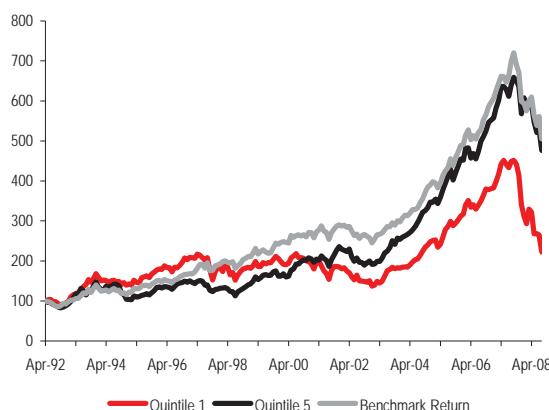
Factor Explanation

This estimates a stock's discount to their relative PE history over the previous three years. For example, if a company's current relative PE is 90 and its historical average (over the previous three years) is 95 it would be given a Val_Rel_Hist score of 94.74% (ie 90/95).

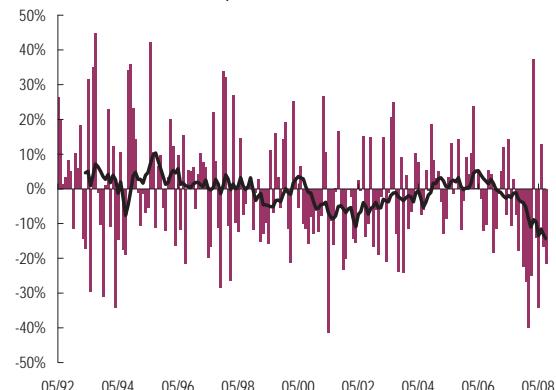
Historical Returns of Quintiles



Quintile Performance of Forward PE Relative to History



Forward P/E Relative to History - (Information Coefficient)



Forward P/E Relative to History

Last Year Quintile Statistics						Last Three Years Quintile Statistics						Last Five Years Quintile Statistics					
Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.		Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.		Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	
1	-5.3%	8.7%	25%	75%		1	-0.6%	6.4%	36%	64%		1	0.5%	5.5%	45%	55%	
2	-2.3%	5.5%	67%	33%		2	0.4%	4.1%	56%	44%		2	1.0%	3.6%	55%	45%	
3	-2.2%	5.5%	58%	42%		3	0.5%	4.1%	53%	47%		3	1.3%	3.6%	55%	45%	
4	-2.3%	5.4%	58%	42%		4	0.2%	4.1%	56%	44%		4	0.9%	3.8%	53%	47%	
5	-2.3%	5.3%	42%	58%		5	0.4%	4.5%	50%	50%		5	1.3%	4.0%	52%	48%	
Significance Statistics						Significance Statistics						Significance Statistics					
Significant Positive T-Stats (%)						Significant Positive T-Stats (%)						Significant Positive T-Stats (%)					
Significant Negative T-Stats (%)						Significant Negative T-Stats (%)						Significant Negative T-Stats (%)					
Average T-Stat						Average T-Stat						Average T-Stat					
Long Short Strategy Statistics																	
Quintile 1 less Quintile 5						Quintile 1 less Quintile 5						Quintile 1 less Quintile 5					
Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.		Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.		Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	
Long/Short (1-5)	-3.0%	6.9%	16.7%	83.3%		Long/Short (1-5)	-1.0%	4.4%	36.1%	63.9%		Long/Short (1-5)	-0.8%	3.7%	41.7%	58.3%	
T-Stat	-1.51					T-Stat	-1.36					T-Stat	-1.61				

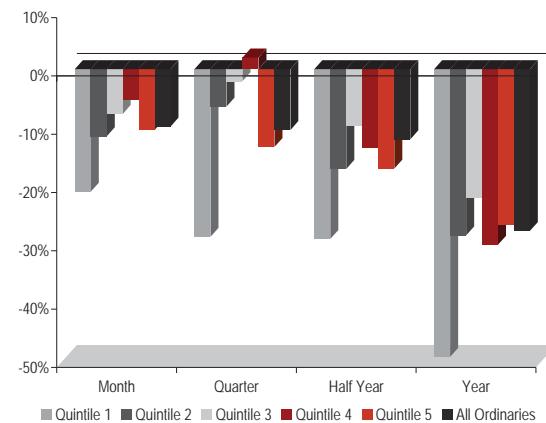
Source: IBES, Barra, J.P. Morgan.

Value to Growth

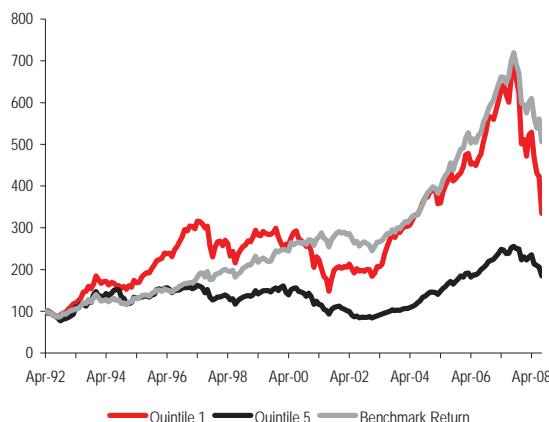
Factor Explanation

To take account of a company's future growth prospects within a value strategy, the stock's forecast growth rate is considered. The J.P. Morgan 'value to growth' factor equally weights a company's standardised one-year forward P/E and one-year forward EPS growth rate. Currently, IBES forecasts are used to estimate the consensus one-year forward EPS growth rate.

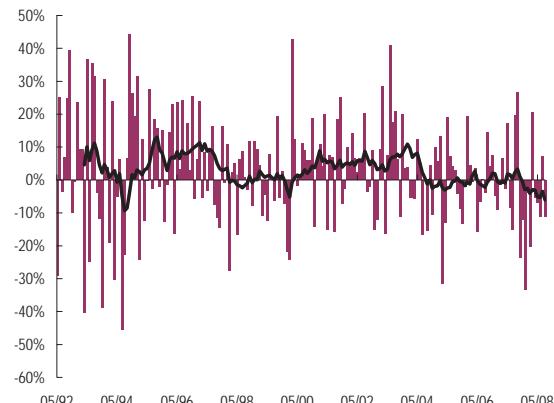
Historical Returns of Quintiles



Quintile Performance of Value to Growth



Value to Growth - (Information Coefficient)



Value to Growth

Last Year Quintile Statistics					Last Three Years Quintile Statistics					Last Five Years Quintile Statistics				
Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.
1	-5.0%	9.9%	25%	75%	1	-0.5%	7.1%	44%	56%	1	0.5%	6.0%	50%	50%
2	-2.5%	6.6%	58%	42%	2	0.3%	4.8%	56%	44%	2	1.1%	4.2%	58%	42%
3	-1.9%	5.7%	58%	42%	3	0.5%	4.2%	58%	42%	3	1.2%	3.7%	58%	42%
4	-2.8%	5.2%	42%	58%	4	0.0%	4.0%	36%	64%	4	0.9%	3.6%	45%	55%
5	-2.4%	5.2%	50%	50%	5	0.3%	4.2%	50%	50%	5	1.1%	3.7%	53%	47%
Significance Statistics					Significance Statistics					Significance Statistics				
Significant Positive T-Stats (%)					Significant Positive T-Stats (%)					Significant Positive T-Stats (%)				
Significant Negative T-Stats (%)					Significant Negative T-Stats (%)					Significant Negative T-Stats (%)				
Average T-Stat					Average T-Stat					Average T-Stat				
Long Short Strategy Statistics														
Quintile 1 less Quintile 5					Quintile 1 less Quintile 5					Quintile 1 less Quintile 5				
Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.
Long/Short (1-5)	-2.6%	5.6%	16.7%	83.3%	Long/Short (1-5)	-0.8%	3.9%	38.9%	61.1%	Long/Short (1-5)	-0.6%	3.4%	46.7%	53.3%
T-Stat	-1.60				T-Stat	-1.16				T-Stat	-1.32			

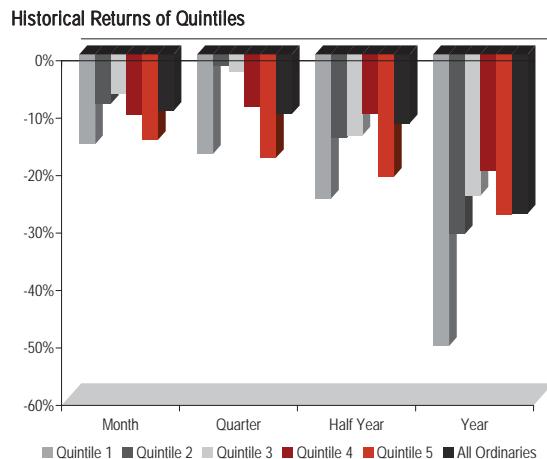
Source: IBES, Barra, J.P. Morgan.

Value to Risk

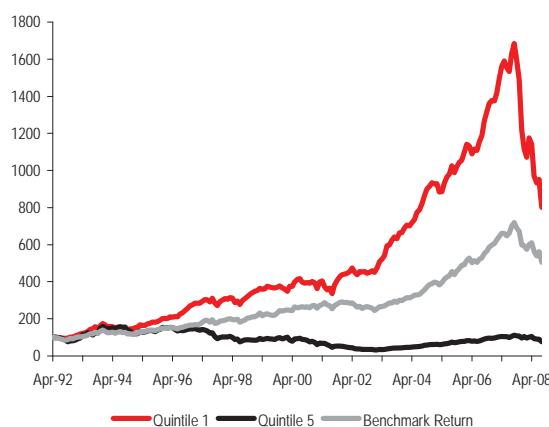
Factor Explanation

The J.P. Morgan 'value to risk' measurement penalises stocks with high earnings risk. The J.P. Morgan 'value to risk' factor equally weights a company's standardised one-year forward P/E and a company's inverted one-year forward coefficient of variation (CV) (see below). Currently IBES forecasts are used to estimate consensus one-year forward CV.

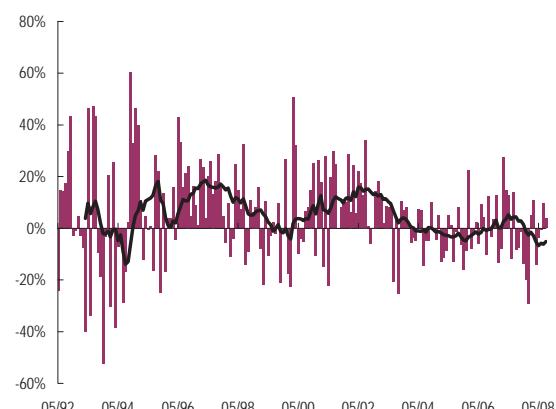
$$CV = \frac{\text{Std. Dev. of Analyst EPS Forecast}}{\text{Mean EPS Forecast}}$$



Quintile Performance of Value to Risk



Value to Risk - (Information Coefficient)



Value to Risk

Last Year Quintile Statistics						Last Three Years Quintile Statistics						Last Five Years Quintile Statistics					
Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.		Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.		Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	
1	-5.4%	8.2%	25%	75%		1	-0.5%	6.3%	44%	56%		1	0.6%	5.3%	48%	52%	
2	-2.9%	5.4%	50%	50%		2	0.1%	4.2%	47%	53%		2	0.9%	3.9%	48%	52%	
3	-2.2%	5.4%	58%	42%		3	0.2%	4.2%	53%	47%		3	1.0%	3.7%	57%	43%	
4	-1.7%	5.9%	58%	42%		4	0.7%	4.4%	61%	39%		4	1.3%	3.8%	62%	38%	
5	-2.5%	7.1%	58%	42%		5	0.2%	5.3%	47%	53%		5	1.2%	4.5%	55%	45%	
Significance Statistics						Significance Statistics						Significance Statistics					
Significant Positive T-Stats (%)						Significant Positive T-Stats (%)						Significant Positive T-Stats (%)					
Significant Negative T-Stats (%)						Significant Negative T-Stats (%)						Significant Negative T-Stats (%)					
Average T-Stat						Average T-Stat						Average T-Stat					
Long Short Strategy Statistics																	
Quintile 1 less Quintile 5						Quintile 1 less Quintile 5						Quintile 1 less Quintile 5					
Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.		Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.		Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	
Long/Short (1-5)	-3.0%	5.9%	25.0%	75.0%		Long/Short (1-5)	-0.7%	4.1%	44.4%	55.6%		Long/Short (1-5)	-0.6%	3.3%	46.7%	53.3%	
T-Stat	-1.74					T-Stat	-1.01					T-Stat	-1.39				

Source: IBES, Barra, J.P. Morgan.

PART 2

Momentum Family Screens

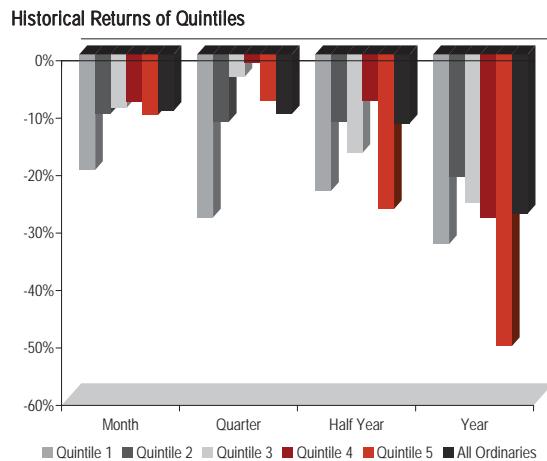
- Price Momentum
- 52 Week High Ratio
- True Market Surprise
- Earnings Momentum
- Risk-Adjusted Earnings Momentum

Price Momentum

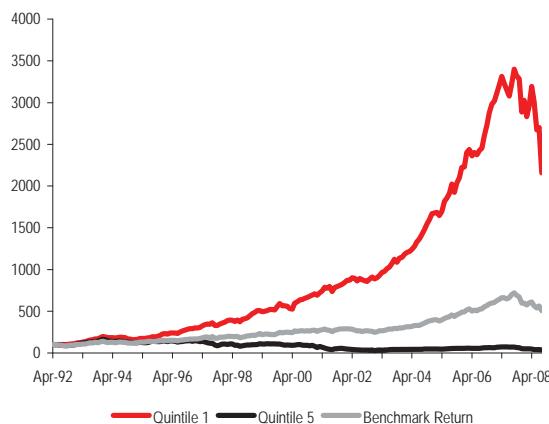
Factor Explanation

To calculate price momentum, the average of the one, three, six and 12-month returns is used. As the one-month return is captured in all four return measurements, it actually receives higher weighting than the three-month, six-month and 12-month returns.

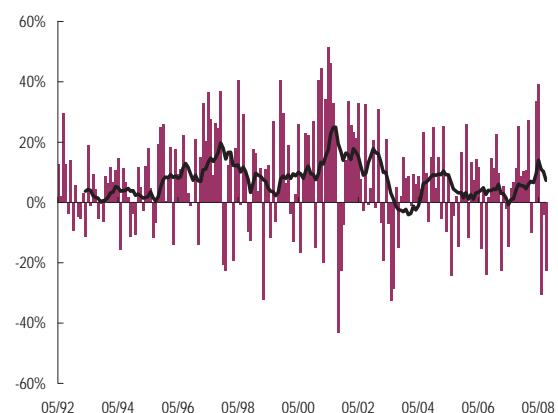
$$\text{Price Momentum} = \frac{R_1 + R_3 + R_6 + R_{12}}{4}$$



Quintile Performance of Price Momentum



Price Momentum - (Information Coefficient)



Price Momentum

Last Year Quintile Statistics					Last Three Years Quintile Statistics					Last Five Years Quintile Statistics				
Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.
1	-2.9%	8.5%	50%	50%	1	0.4%	6.0%	50%	50%	1	1.3%	5.0%	60%	40%
2	-1.8%	6.3%	50%	50%	2	0.8%	4.6%	56%	44%	2	1.3%	4.0%	57%	43%
3	-2.3%	5.8%	58%	42%	3	0.5%	4.4%	53%	47%	3	1.2%	3.8%	53%	47%
4	-2.6%	6.0%	42%	58%	4	0.2%	4.4%	50%	50%	4	1.1%	4.0%	52%	48%
5	-5.5%	7.1%	17%	83%	5	-1.0%	5.7%	28%	72%	5	-0.1%	5.1%	30%	70%
Significance Statistics					Significance Statistics					Significance Statistics				
Significant Positive T-Stats (%)					Significant Positive T-Stats (%)					Significant Positive T-Stats (%)				
27%					29%					27%				
Significant Negative T-Stats (%)					Significant Negative T-Stats (%)					Significant Negative T-Stats (%)				
18%					17%					14%				
Average T-Stat					Average T-Stat					Average T-Stat				
0.84					0.74					0.73				
Long Short Strategy Statistics														
Quintile 1 less Quintile 5					Quintile 1 less Quintile 5					Quintile 1 less Quintile 5				
Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.
Long/Short (1-5)	2.6%	8.4%	58.3%	41.7%	Long/Short (1-5)	1.4%	5.4%	61.1%	38.9%	Long/Short (1-5)	1.4%	4.4%	66.7%	33.3%
T-Stat	1.05				T-Stat	1.56				T-Stat	2.44			

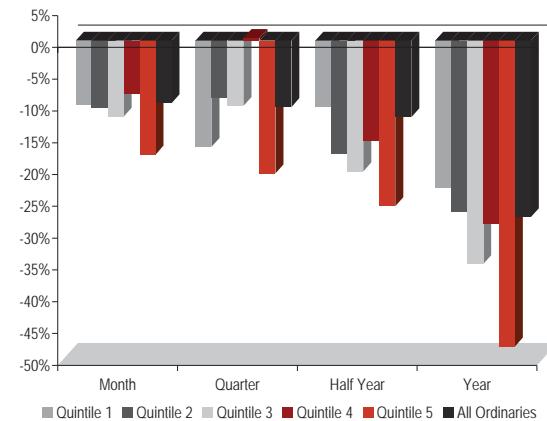
Source: IBES, Barra, J.P. Morgan.

52 Week High Ratio

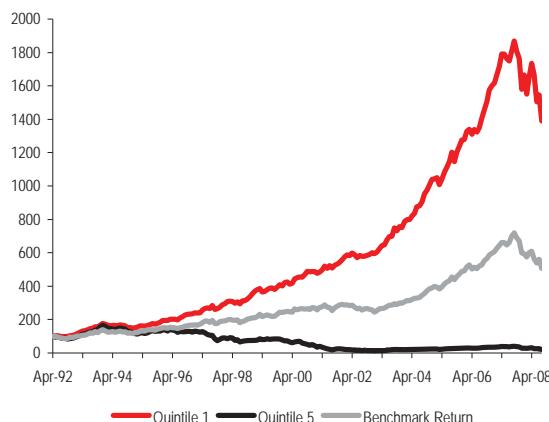
Factor Explanation

The 52-Week High ratio is a momentum metric. It measures the ratio of the current index level of a stock's performance to the high recorded over the last 52 weeks. Stocks that are near their Highs continue to outperform (anchor and adjust bias), whereas stocks that have moved furthest from their Highs are argued to continue to underperform (reaction to bad news). First published J.P. Morgan Quant Concepts Nov 2006

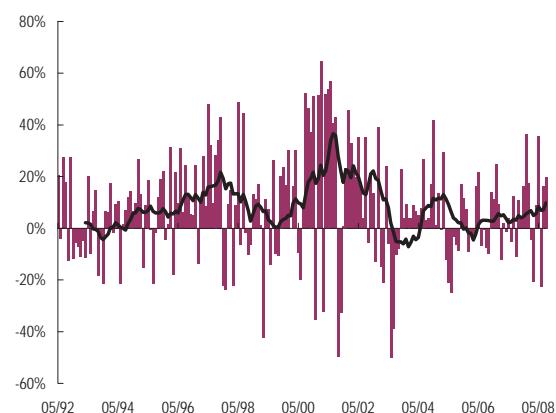
Historical Returns of Quintiles



Quintile Performance of 52 Week High Ratio



52 Week High Ratio - (Information Coefficient)



52 Week High Ratio

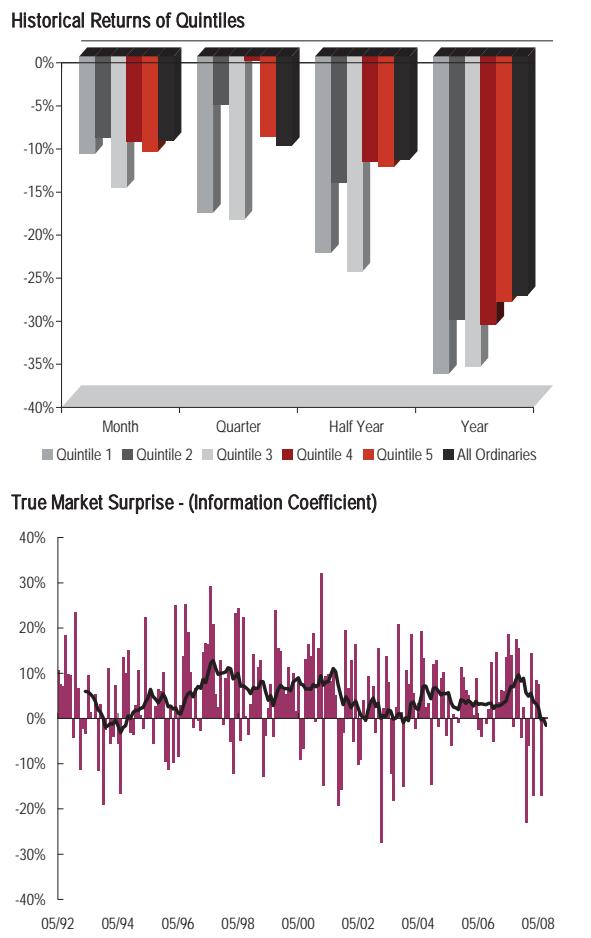
Last Year Quintile Statistics					Last Three Years Quintile Statistics					Last Five Years Quintile Statistics				
Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.
1	-2.0%	6.4%	67%	33%	1	0.5%	4.5%	53%	47%	1	1.2%	3.9%	50%	50%
2	-2.5%	5.0%	42%	58%	2	0.4%	4.1%	50%	50%	2	1.1%	3.6%	53%	47%
3	-3.3%	6.3%	42%	58%	3	0.3%	5.0%	50%	50%	3	1.2%	4.3%	55%	45%
4	-2.6%	6.0%	50%	50%	4	0.0%	4.5%	47%	53%	4	1.0%	4.0%	57%	43%
5	-4.9%	9.1%	33%	67%	5	-0.6%	6.5%	44%	56%	5	0.3%	5.8%	47%	53%
Significance Statistics					Significance Statistics					Significance Statistics				
Significant Positive T-Stats (%)					Significant Positive T-Stats (%)					Significant Positive T-Stats (%)				
55%					34%					31%				
Significant Negative T-Stats (%)					Significant Negative T-Stats (%)					10%				
18%					9%					Average T-Stat				
Average T-Stat					0.83					0.82				
Long Short Strategy Statistics														
Quintile 1 less Quintile 5					Quintile 1 less Quintile 5					Quintile 1 less Quintile 5				
Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.
Long/Short (1-5)	2.9%	6.3%	75.0%	25.0%	Long/Short (1-5)	1.1%	4.1%	55.6%	44.4%	Long/Short (1-5)	1.0%	3.5%	58.3%	41.7%
T-Stat	1.62				T-Stat	1.63				T-Stat	2.10			

Source: IBES, Barra, J.P. Morgan.

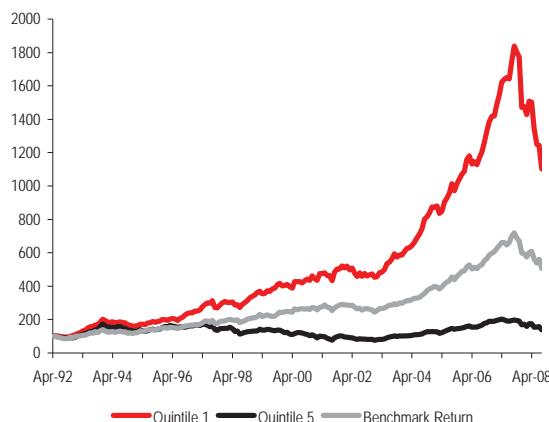
True Market Surprise

Factor Explanation

The three day excess return surrounding the announcement of either the mid year or full year result for a company. The three-day window includes the day preceding the result announcement, the day of the result announcement and the day immediately following the result announcement.



Quintile Performance of True Market Surprise



True Market Surprise - (Information Coefficient)



True Market Surprise

Last Year Quintile Statistics					Last Three Years Quintile Statistics					Last Five Years Quintile Statistics				
Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.
1	-3.5%	6.8%	50%	50%	1	0.4%	5.3%	61%	39%	1	1.2%	4.6%	62%	38%
2	-2.8%	5.7%	58%	42%	2	0.3%	4.5%	64%	36%	2	1.2%	4.0%	58%	42%
3	-3.5%	6.0%	58%	42%	3	0.1%	4.8%	56%	44%	3	1.0%	4.1%	60%	40%
4	-2.9%	6.4%	33%	67%	4	-0.2%	4.6%	39%	61%	4	0.6%	4.0%	43%	57%
5	-2.5%	6.7%	42%	58%	5	0.0%	4.8%	31%	69%	5	0.7%	4.3%	40%	60%
Significance Statistics					Significance Statistics					Significance Statistics				
Significant Positive T-Stats (%)					Significant Positive T-Stats (%)					Significant Positive T-Stats (%)				
Significant Negative T-Stats (%)					Significant Negative T-Stats (%)					Significant Negative T-Stats (%)				
Average T-Stat					Average T-Stat					Average T-Stat				
Long Short Strategy Statistics														
Quintile 1 less Quintile 5					Quintile 1 less Quintile 5					Quintile 1 less Quintile 5				
Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.
Long/Short (1-5)	-1.0%	3.6%	41.7%	58.3%	Long/Short (1-5)	0.4%	2.7%	58.3%	41.7%	Long/Short (1-5)	0.6%	2.3%	65.0%	35.0%
T-Stat	-0.94				T-Stat	0.94				T-Stat	1.83			

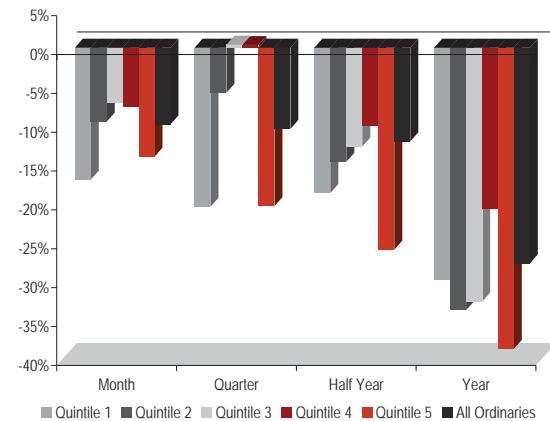
Source: IBES, Barra, J.P. Morgan.

Earnings Momentum

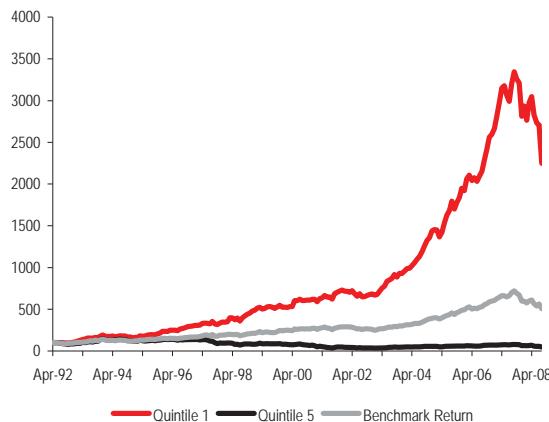
Factor Explanation

Consensus earnings revisions are calculated using IBES forecasts. A one-year forward earnings revision number is calculated by weighting the earnings revisions for the next two fiscal years according to the year end of the company (similar to the calculation of one-year forward EPS). The three-month and one-month one-year forward earnings revisions are then weighted (30% and 70% respectively) to calculate an overall earnings revision number.

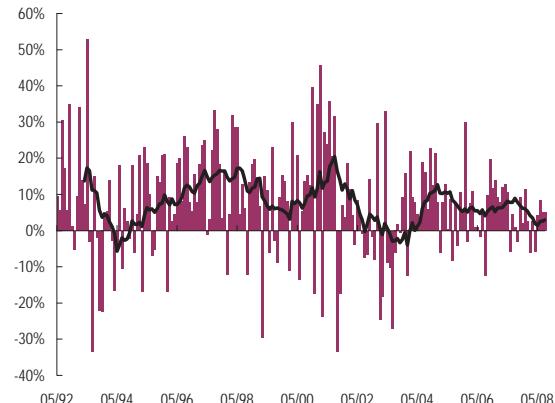
Historical Returns of Quintiles



Quintile Performance of Earnings Momentum



Earnings Momentum - (Information Coefficient)



Earnings Momentum

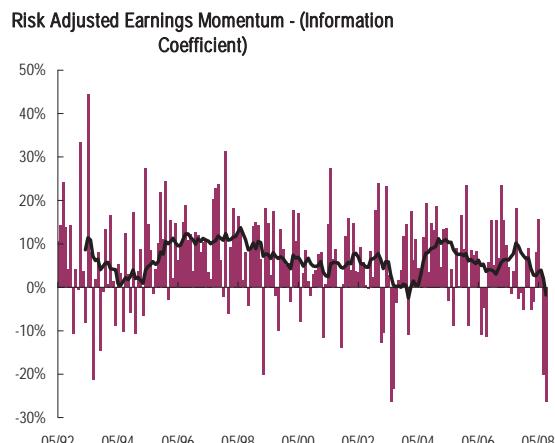
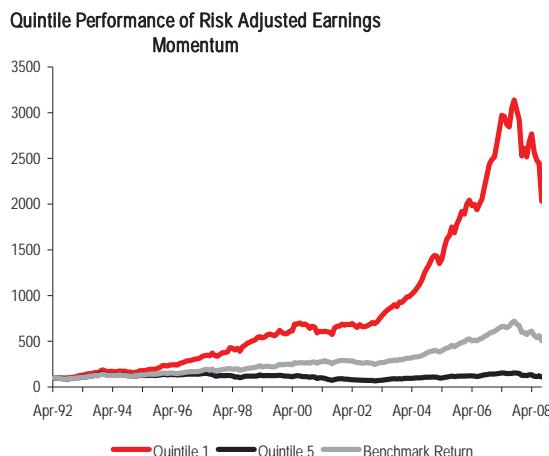
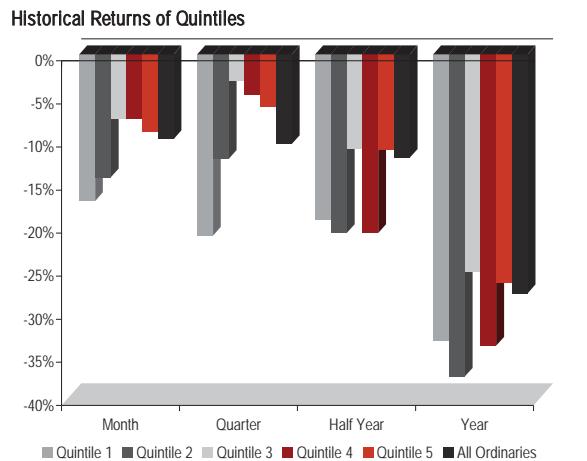
Last Year Quintile Statistics					Last Three Years Quintile Statistics					Last Five Years Quintile Statistics				
Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.
1	-2.7%	7.2%	67%	33%	1	0.8%	5.6%	64%	36%	1	1.7%	4.9%	72%	28%
2	-3.2%	5.7%	25%	75%	2	-0.1%	4.4%	42%	58%	2	0.9%	3.9%	48%	52%
3	-3.0%	6.5%	50%	50%	3	0.3%	4.8%	53%	47%	3	1.2%	4.0%	53%	47%
4	-1.8%	5.1%	58%	42%	4	0.1%	3.7%	44%	56%	4	0.9%	3.4%	52%	48%
5	-3.7%	7.5%	42%	58%	5	-0.6%	5.4%	31%	69%	5	0.2%	4.7%	32%	68%
Significance Statistics					Significance Statistics					Significance Statistics				
Significant Positive T-Stats (%)					Significant Positive T-Stats (%)					Significant Positive T-Stats (%)				
Significant Negative T-Stats (%)					Significant Negative T-Stats (%)					Significant Negative T-Stats (%)				
Average T-Stat					Average T-Stat					Average T-Stat				
Long Short Strategy Statistics														
Quintile 1 less Quintile 5					Quintile 1 less Quintile 5					Quintile 1 less Quintile 5				
Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.
Long/Short (1-5)	1.1%	2.5%	66.7%	33.3%	Long/Short (1-5)	1.4%	2.3%	69.4%	30.6%	Long/Short (1-5)	1.5%	2.0%	76.7%	23.3%
T-Stat	1.46				T-Stat	3.64				T-Stat	5.80			

Source: IBES, Barra, J.P. Morgan.

Risk Adjusted Earnings Momentum

Factor Explanation

To adjust for any risk associated with a stock's earnings revisions the earnings revision number is normalised by the coefficient of variation. This will penalise stocks that have extremely high earnings risk, which may inflate their momentum. This is arguably a cleaner measurement of earnings revisions.



Risk Adjusted Earnings Momentum

Last Year Quintile Statistics					Last Three Years Quintile Statistics					Last Five Years Quintile Statistics				
Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.
1	-3.1%	7.0%	58%	42%	1	0.6%	5.5%	61%	39%	1	1.5%	4.8%	67%	33%
2	-3.6%	6.5%	25%	75%	2	0.0%	4.9%	36%	61%	2	1.0%	4.2%	47%	52%
3	-2.2%	6.2%	58%	42%	3	0.5%	4.4%	53%	47%	3	1.3%	3.8%	55%	45%
4	-3.3%	4.4%	42%	58%	4	-0.5%	3.8%	33%	67%	4	0.6%	3.7%	42%	58%
5	-2.2%	7.8%	75%	25%	5	-0.1%	5.2%	53%	47%	5	0.5%	4.6%	43%	57%
Significance Statistics					Significance Statistics					Significance Statistics				
Significant Positive T-Stats (%)					Significant Positive T-Stats (%)					Significant Positive T-Stats (%)				
Significant Negative T-Stats (%)					Significant Negative T-Stats (%)					Significant Negative T-Stats (%)				
Average T-Stat					Average T-Stat					Average T-Stat				
Long Short Strategy Statistics														
Quintile 1 less Quintile 5					Quintile 1 less Quintile 5					Quintile 1 less Quintile 5				
Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.
Long/Short (1-5)	-0.8%	4.1%	41.7%	58.3%	Long/Short (1-5)	0.7%	3.1%	63.9%	36.1%	Long/Short (1-5)	1.1%	2.7%	75.0%	25.0%
T-Stat	-0.71				T-Stat	1.25				T-Stat	3.11			

Source: IBES, Barra, J.P. Morgan.

PART 3

Shareholder Value Family Screens

- JPMQ Altman Z-Score
- Accruals
- Fundamental Scorecard
- Asset EBIT Margin Trend
- Asset Turnover Trend
- Asset Turnover
- Consistent ROE Growth Rate
- ROE Growth
- One-Year Average ROE

JPMQ Altman Z-Score

Factor Explanation

Is an indicator that was designed to proxy the probability that a company may suffer financial problems in the near future. Companies with a score less than 1.2 were said to have a high probability of experiencing imminent financial distress. The exact formula used is given below:

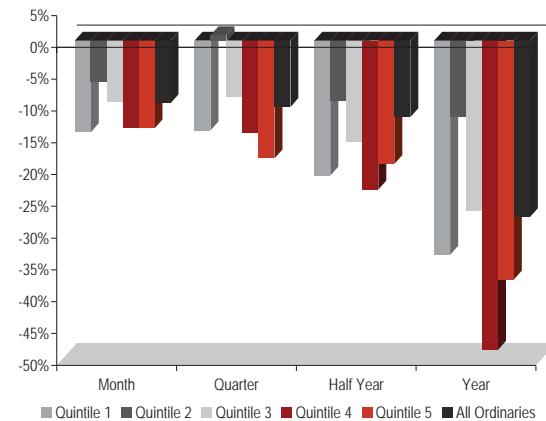
$$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5$$

$$X_1 = WC/TA, \quad X_2 = RE/TA$$

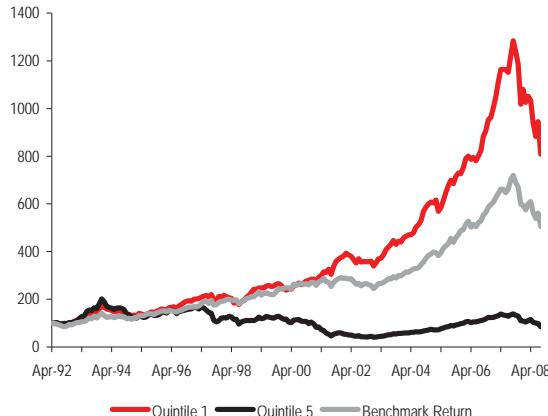
$$X_3 = EBIT/TA, \quad X_4 = MCap/Total Debt$$

$$X_5 = Rev/TA.$$

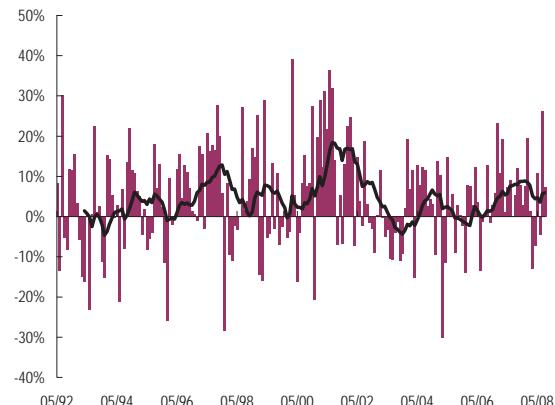
Historical Returns of Quintiles



Quintile Performance of JPMQ Altman Z-Score



JPMQ Altman Z-Score - (Information Coefficient)



JPMQ Altman Z-Score

Last Year Quintile Statistics						Last Three Years Quintile Statistics						Last Five Years Quintile Statistics					
Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev
1	-3.1%	7.3%	33%	67%	1	0.5%	5.4%	53%	47%	1	1.2%	4.6%	52%	48%	2	1.4%	4.0%
2	-0.9%	5.3%	67%	33%	2	0.8%	4.2%	50%	50%	2	1.4%	4.0%	52%	48%	3	1.1%	3.8%
3	-2.4%	5.1%	67%	33%	3	0.1%	4.0%	50%	50%	3	1.1%	3.8%	55%	45%	4	0.3%	4.7%
4	-5.1%	7.5%	17%	83%	4	-0.8%	5.6%	28%	72%	4	0.3%	4.7%	37%	63%	5	0.9%	4.4%
5	-3.6%	6.6%	25%	75%	5	-0.1%	5.1%	47%	53%	5	0.9%	4.4%	53%	47%			
Significance Statistics						Significance Statistics						Significance Statistics					
Significant Positive T-Stats (%)						Significant Positive T-Stats (%)						Significant Positive T-Stats (%)					
Significant Negative T-Stats (%)						Significant Negative T-Stats (%)						Significant Negative T-Stats (%)					
Average T-Stat						Average T-Stat						Average T-Stat					
Long Short Strategy Statistics																	
Quintile 1 less Quintile 5						Quintile 1 less Quintile 5						Quintile 1 less Quintile 5					
Strategy						Strategy						Strategy					
Avg Ret						Avg Ret						Avg Ret					
St Dev						St Dev						St Dev					
% Out Perf.						% Out Perf.						% Out Perf.					
% Under Perf.						% Under Perf.						% Under Perf.					
Long/Short (1-5)						Long/Short (1-5)						Long/Short (1-5)					
T-Stat						T-Stat						T-Stat					
T-Stat						T-Stat						T-Stat					

Source: IBES, Barra, J.P. Morgan.

Accruals

Factor Explanation

OA = Total Assets - Cash

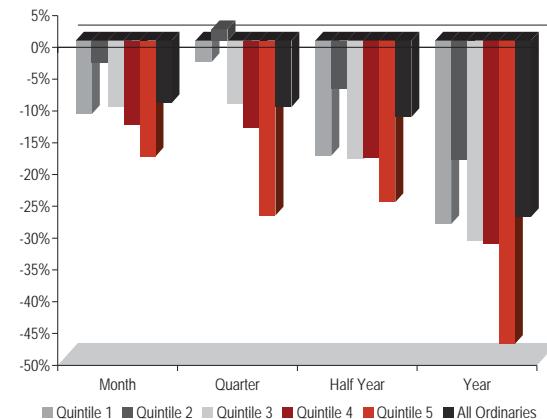
OL = Total Liabilities - Long Term Debt - Short Term Debt

Average Total Assets = (Total Assets + Total Assetst-1)/2

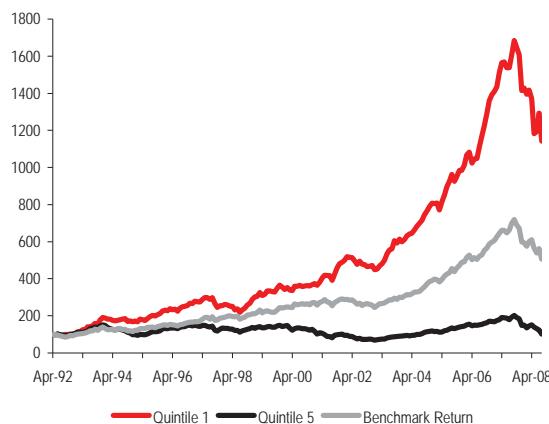
Then

Accruals Ratio = (Change in OA - Change in OL) / Average Total Assets

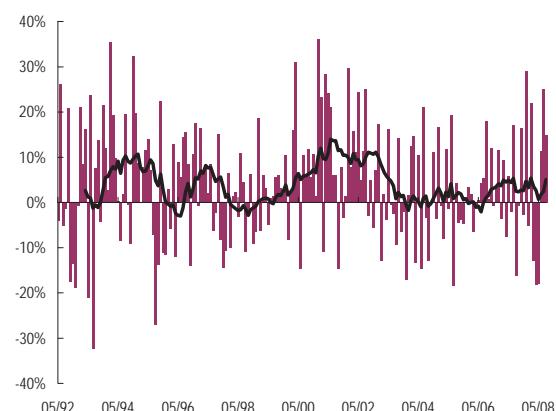
Historical Returns of Quintiles



Quintile Performance of Accruals



Accruals - (Information Coefficient)



Accruals

Last Year Quintile Statistics					Last Three Years Quintile Statistics					Last Five Years Quintile Statistics				
Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.
1	-2.6%	6.8%	58%	42%	1	0.6%	5.1%	64%	36%	1	1.3%	4.3%	58%	42%
2	-1.6%	4.4%	67%	33%	2	0.3%	3.6%	42%	58%	2	1.1%	3.4%	47%	53%
3	-2.9%	6.0%	42%	58%	3	0.4%	4.6%	50%	50%	3	1.0%	4.2%	52%	48%
4	-3.0%	6.2%	42%	58%	4	0.1%	4.6%	44%	56%	4	0.9%	4.1%	45%	55%
5	-4.9%	8.4%	33%	67%	5	-0.6%	6.2%	44%	56%	5	0.4%	5.2%	45%	55%
Significance Statistics					Significance Statistics					Significance Statistics				
Significant Positive T-Stats (%)					Significant Positive T-Stats (%)					Significant Positive T-Stats (%)				
Significant Negative T-Stats (%)					Significant Negative T-Stats (%)					Significant Negative T-Stats (%)				
Average T-Stat					Average T-Stat					Average T-Stat				
Long Short Strategy Statistics														
Quintile 1 less Quintile 5					Quintile 1 less Quintile 5					Quintile 1 less Quintile 5				
Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.
Long/Short (1-5)	2.3%	6.5%	66.7%	33.3%	Long/Short (1-5)	1.2%	4.1%	63.9%	36.1%	Long/Short (1-5)	0.9%	3.5%	55.0%	45.0%
T-Stat	1.25				T-Stat	1.74				T-Stat	1.91			

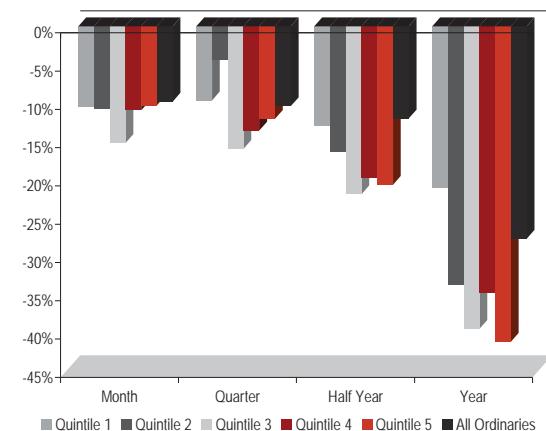
Source: IBES, Barra, J.P. Morgan.

Fundamental Scorecard

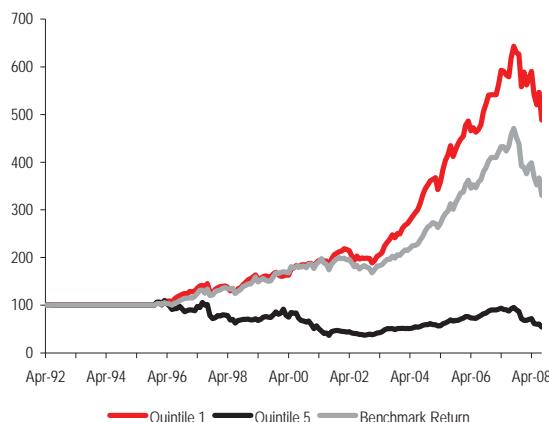
Factor Explanation

The Fundamental Scorecard is a combination of mostly sector relative ratios derived from Income Statement and Balance Sheet. The combination of ratios provides a view on current profitability, trends in earnings and stability of earnings. First published J.P. Morgan Quant Concepts Mar 2006.

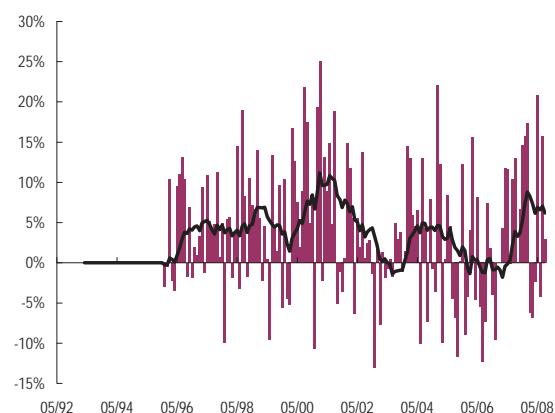
Historical Returns of Quintiles



Quintile Performance of Fundamental Scorecard



Fundamental Scorecard - (Information Coefficient)



Fundamental Scorecard

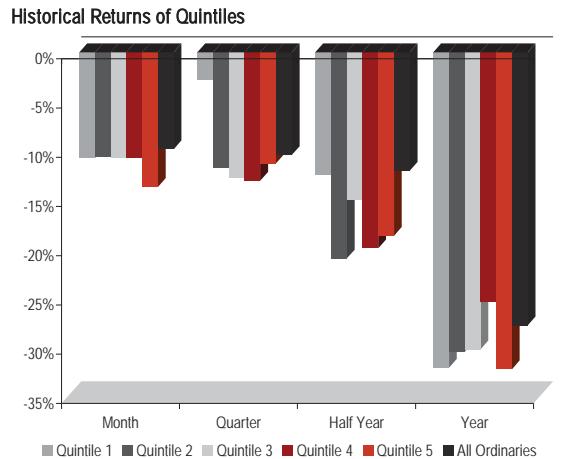
Last Year Quintile Statistics					Last Three Years Quintile Statistics					Last Five Years Quintile Statistics				
Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.
1	-1.8%	5.9%	58%	42%	1	0.4%	4.4%	50%	44%	1	1.3%	4.0%	60%	37%
2	-3.2%	5.9%	33%	67%	2	0.1%	4.7%	39%	56%	2	0.8%	4.0%	40%	57%
3	-3.9%	6.6%	33%	67%	3	-0.1%	5.1%	50%	44%	3	0.8%	4.5%	53%	43%
4	-3.3%	6.6%	42%	58%	4	-0.3%	4.8%	42%	53%	4	0.8%	4.3%	52%	45%
5	-4.1%	7.0%	33%	67%	5	-0.5%	5.2%	39%	56%	5	0.2%	4.6%	42%	55%
Significance Statistics					Significance Statistics					Significance Statistics				
Significant Positive T-Stats (%)					Significant Positive T-Stats (%)					Significant Positive T-Stats (%)				
Significant Negative T-Stats (%)					Significant Negative T-Stats (%)					Significant Negative T-Stats (%)				
Average T-Stat					Average T-Stat					Average T-Stat				
Long Short Strategy Statistics														
Quintile 1 less Quintile 5					Quintile 1 less Quintile 5					Quintile 1 less Quintile 5				
Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.
Long/Short (1-5)	2.3%	4.2%	50.0%	50.0%	Long/Short (1-5)	1.0%	3.0%	47.2%	47.2%	Long/Short (1-5)	1.1%	2.6%	58.3%	38.3%
T-Stat	1.91				T-Stat	1.96				T-Stat	3.19			

Source: IBES, Barra, J.P. Morgan.

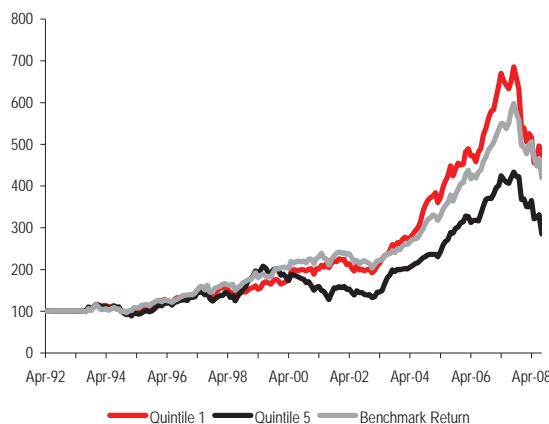
Asset EBIT Margin Trend

Factor Explanation

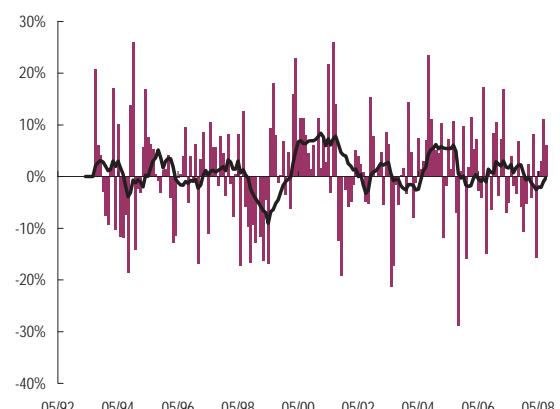
A measure of EBIT Margin to Assets. An average of the last 5 years Asset EBIT margins is divided by their standard deviation to get a trend figure. The aim of this factor is to identify those stocks exhibiting a consistent long term positive trend. A stock with a positive trend illustrates a competitive advantage and hence a more sustainable ROE.



Quintile Performance of Asset EBIT Margin Trend



Asset EBIT Margin Trend - (Information Coefficient)



Asset EBIT Margin Trend

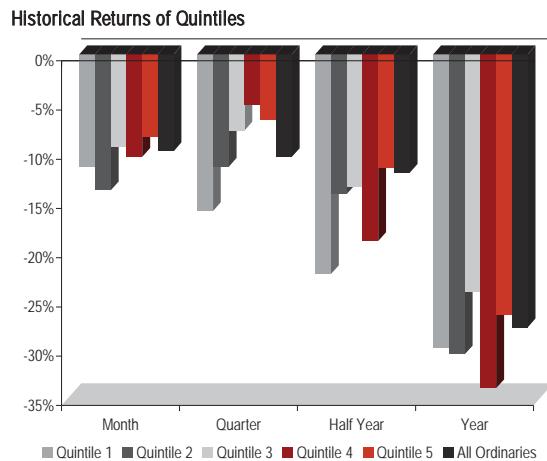
Last Year						Last Three Years						Last Five Years					
Quintile Statistics						Quintile Statistics						Quintile Statistics					
Quintile	Avg Ret	St Dev	% Out	% Under	Perf.	Quintile	Avg Ret	St Dev	% Out	% Under	Perf.	Quintile	Avg Ret	St Dev	% Out	% Under	Perf.
1	-2.9%	7.1%	42%	58%		1	0.1%	5.3%	53%	47%		1	1.1%	4.7%	57%	43%	
2	-2.8%	5.9%	42%	58%		2	0.2%	4.7%	50%	50%		2	1.0%	4.2%	47%	53%	
3	-2.8%	5.8%	25%	75%		3	0.2%	4.7%	33%	67%		3	1.0%	4.2%	47%	53%	
4	-2.3%	5.7%	67%	33%		4	0.4%	4.4%	56%	44%		4	1.0%	3.8%	47%	53%	
5	-3.0%	6.5%	50%	50%		5	0.1%	4.8%	47%	53%		5	0.8%	4.1%	45%	55%	
Significance Statistics						Significance Statistics						Significance Statistics					
Significant Positive T-Stats (%)						Significant Positive T-Stats (%)						Significant Positive T-Stats (%)					
Significant Negative T-Stats (%)						Significant Negative T-Stats (%)						Significant Negative T-Stats (%)					
Average T-Stat						Average T-Stat						Average T-Stat					
Long Short Strategy Statistics																	
Quintile 1 less Quintile 5						Quintile 1 less Quintile 5						Quintile 1 less Quintile 5					
Strategy	Avg Ret	St Dev	% Out	% Under	Perf.	Strategy	Avg Ret	St Dev	% Out	% Under	Perf.	Strategy	Avg Ret	St Dev	% Out	% Under	Perf.
Long/Short (1-5)	0.1%	3.3%	50.0%	50.0%		Long/Short (1-5)	0.0%	2.9%	47.2%	52.8%		Long/Short (1-5)	0.3%	2.5%	56.7%	43.3%	
T-Stat	0.05					T-Stat	0.04					T-Stat	0.95				

Source: IBES, Barra, J.P. Morgan.

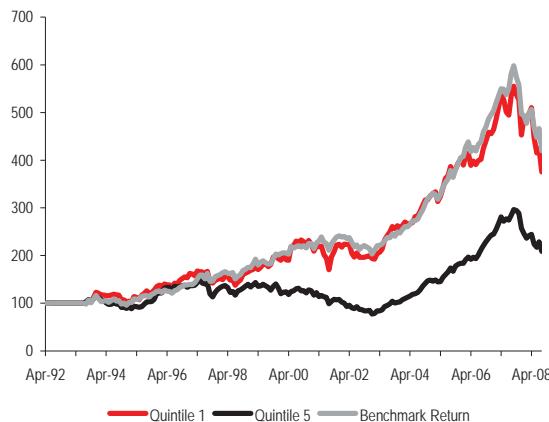
Asset Turnover Trend

Factor Explanation

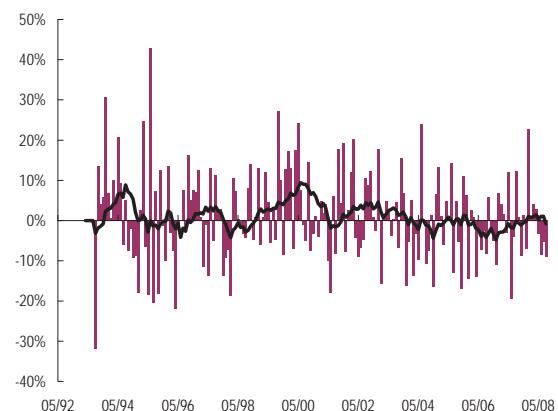
The trend in Asset Turnover, being net sales divided by total assets. Similar to the EBIT margin trend this factor is an average of the previous 5 yearly figures divided by their standard deviation. It also attempts to identify those companies with a strong consistent positive trend in asset turnover i.e. gaining market share.



Quintile Performance of Asset Turnover Trend



Asset Turnover Trend - (Information Coefficient)



Asset Turnover Trend

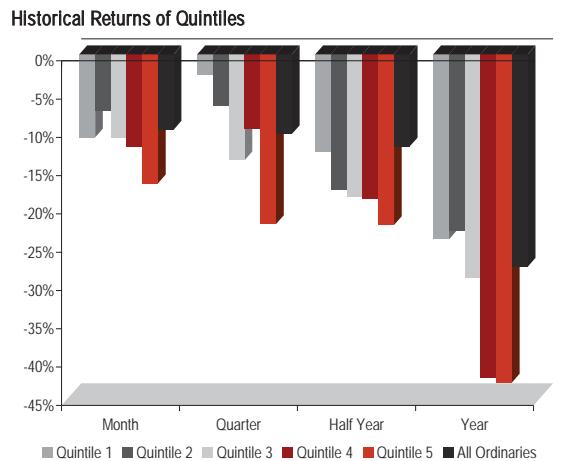
Last Year Quintile Statistics					Last Three Years Quintile Statistics					Last Five Years Quintile Statistics				
Quintile	Avg Ret	St Dev	% Out	% Under	Quintile	Avg Ret	St Dev	% Out	% Under	Quintile	Avg Ret	St Dev	% Out	% Under
1	-2.7%	7.1%	50%	50%	1	0.1%	5.4%	44%	56%	1	0.8%	4.6%	45%	55%
2	-2.8%	6.9%	58%	42%	2	0.2%	4.8%	53%	47%	2	0.9%	4.2%	53%	47%
3	-2.2%	5.1%	67%	33%	3	0.4%	4.1%	58%	42%	3	0.9%	3.7%	52%	48%
4	-3.2%	6.3%	42%	58%	4	-0.1%	4.7%	42%	58%	4	0.9%	4.3%	45%	55%
5	-2.4%	5.1%	50%	50%	5	0.6%	4.3%	56%	44%	5	1.3%	3.8%	60%	40%
Significance Statistics					Significance Statistics					Significance Statistics				
Significant Positive T-Stats (%)					Significant Positive T-Stats (%)					Significant Positive T-Stats (%)				
Significant Negative T-Stats (%)					Significant Negative T-Stats (%)					Significant Negative T-Stats (%)				
Average T-Stat					Average T-Stat					Average T-Stat				
Long Short Strategy Statistics														
Quintile 1 less Quintile 5					Quintile 1 less Quintile 5					Quintile 1 less Quintile 5				
Strategy	Avg Ret	St Dev	% Out	% Under	Strategy	Avg Ret	St Dev	% Out	% Under	Strategy	Avg Ret	St Dev	% Out	% Under
Long/Short (1-5)	-0.3%	4.5%	33.3%	66.7%	Long/Short (1-5)	-0.5%	3.2%	47.2%	52.8%	Long/Short (1-5)	-0.5%	2.9%	41.7%	58.3%
T-Stat	-0.19				T-Stat	-1.00				T-Stat	-1.48			

Source: IBES, Barra, J.P. Morgan.

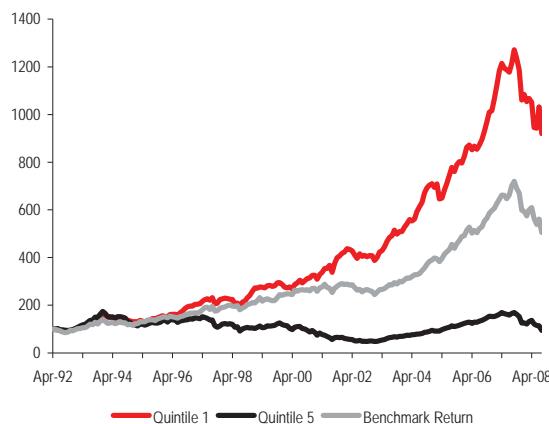
Asset Turnover

Factor Explanation

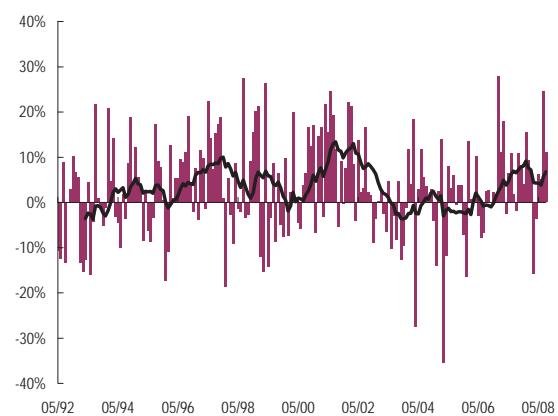
Net sales divided by total assets. This is a measure of how well assets are being used to produce revenue. Asset Turnover is often used to measure a company's earnings prospects. A company with high Asset Turnover is heavily leveraged to any improvement in margins.



Quintile Performance of Asset Turnover



Asset Turnover - (Information Coefficient)



Asset Turnover

Last Year						Last Three Years						Last Five Years					
Quintile Statistics						Quintile Statistics						Quintile Statistics					
Quintile	Avg Ret	St Dev	% Out	% Under	Perf.	Quintile	Avg Ret	St Dev	% Out	% Under	Perf.	Quintile	Avg Ret	St Dev	% Out	% Under	Perf.
1	-2.1%	6.3%	58%	42%		1	0.6%	4.5%	50%	50%		1	1.1%	4.1%	50%	50%	
2	-2.0%	5.7%	67%	33%		2	0.8%	4.7%	56%	44%		2	1.3%	4.4%	55%	45%	
3	-2.7%	6.1%	50%	50%		3	0.0%	4.6%	47%	53%		3	0.9%	4.1%	47%	53%	
4	-4.3%	6.4%	25%	75%		4	-0.4%	5.0%	42%	58%		4	0.7%	4.3%	50%	50%	
5	-4.2%	8.1%	25%	75%		5	-0.4%	5.8%	44%	56%		5	0.7%	4.9%	52%	48%	
Significance Statistics						Significance Statistics						Significance Statistics					
Significant Positive T-Stats (%)						Significant Positive T-Stats (%)						Significant Positive T-Stats (%)					
Significant Negative T-Stats (%)						Significant Negative T-Stats (%)						Significant Negative T-Stats (%)					
Average T-Stat						Average T-Stat						Average T-Stat					
Long Short Strategy Statistics																	
Quintile 1 less Quintile 5						Quintile 1 less Quintile 5						Quintile 1 less Quintile 5					
Strategy	Avg Ret	St Dev	% Out	% Under	Perf.	Strategy	Avg Ret	St Dev	% Out	% Under	Perf.	Strategy	Avg Ret	St Dev	% Out	% Under	Perf.
Long/Short (1-5)	2.1%	5.0%	83.3%	16.7%		Long/Short (1-5)	0.9%	3.3%	66.7%	33.3%		Long/Short (1-5)	0.4%	3.3%	63.3%	36.7%	
T-Stat	1.49					T-Stat	1.67					T-Stat	0.94				

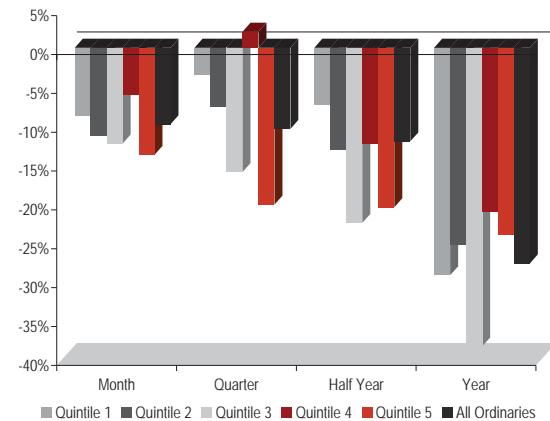
Source: IBES, Barra, J.P. Morgan.

Consistent ROE Growth Rate

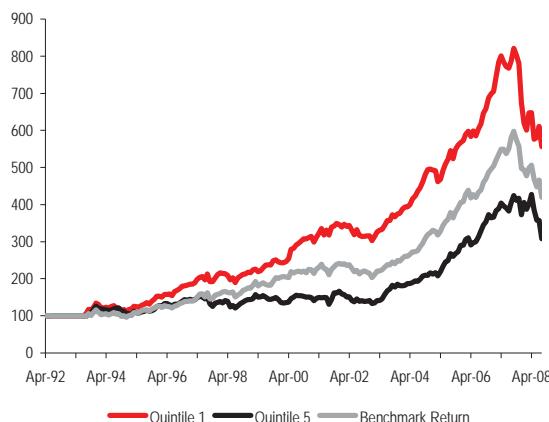
Factor Explanation

This measure attempts to identify those stocks with a strong and consistent growth in ROE. It is calculated by taking a simple average of the last 5 yearly ROE figures and then dividing this by their standard deviation.

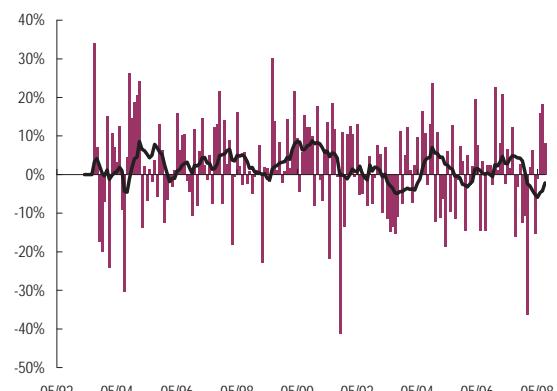
Historical Returns of Quintiles



Quintile Performance of Consistent ROE Growth Rate



Consistent ROE Growth Rate - (Information Coefficient)



Consistent ROE Growth Rate

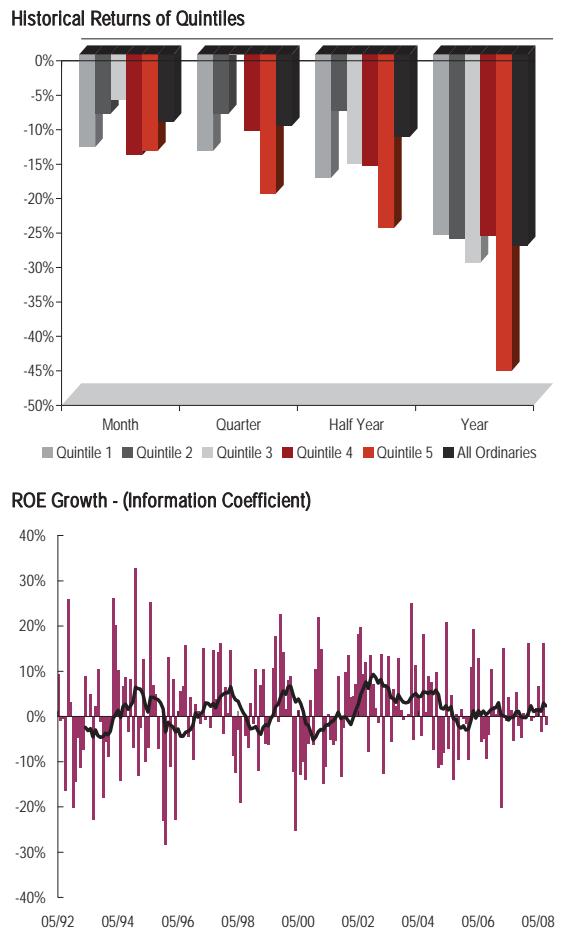
Last Year Quintile Statistics					Last Three Years Quintile Statistics					Last Five Years Quintile Statistics				
Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.
1	-2.6%	6.7%	67%	33%	1	0.2%	4.8%	47%	53%	1	0.8%	4.0%	48%	52%
2	-2.3%	5.8%	50%	50%	2	0.3%	4.1%	53%	47%	2	1.0%	3.7%	47%	53%
3	-3.8%	6.3%	17%	83%	3	0.1%	5.3%	36%	64%	3	0.9%	4.7%	45%	55%
4	-1.8%	5.0%	67%	33%	4	0.1%	3.8%	44%	56%	4	1.0%	3.6%	55%	45%
5	-2.0%	7.3%	50%	50%	5	0.5%	5.2%	53%	47%	5	1.1%	4.5%	50%	50%
Significance Statistics					Significance Statistics					Significance Statistics				
Significant Positive T-Stats (%) 18%					Significant Positive T-Stats (%) 14%					Significant Positive T-Stats (%) 12%				
Significant Negative T-Stats (%) 18%					Significant Negative T-Stats (%) 17%					Significant Negative T-Stats (%) 12%				
Average T-Stat -0.28					Average T-Stat 0.11					Average T-Stat 0.17				
Long Short Strategy Statistics														
Quintile 1 less Quintile 5					Quintile 1 less Quintile 5					Quintile 1 less Quintile 5				
Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.
Long/Short (1-5)	-0.6%	6.7%	50.0%	50.0%	Long/Short (1-5)	-0.4%	4.2%	50.0%	50.0%	Long/Short (1-5)	-0.2%	3.5%	48.3%	51.7%
T-Stat	-0.32				T-Stat	-0.51				T-Stat	-0.54			

Source: IBES, Barra, J.P. Morgan.

ROE Growth

Factor Explanation

The change in Return on Equity compares the last reported Return on Equity with the previous years Return on Equity. Therefore, if a company has grown its ROE from 10% to 12% its growth in Return on Equity would be 2%. Absolute (rather than percentage change) was used to avoid skewing the results towards low ROE companies (i.e. low starting point).



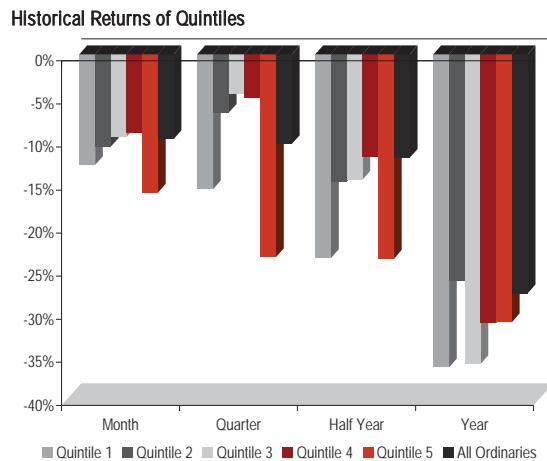
ROE Growth																	
Last Year						Last Three Years											
Quintile Statistics						Quintile Statistics											
Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.		Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.							
1	-2.3%	6.9%	50%	50%		1	0.7%	5.2%	5.6%	4.4%							
2	-2.4%	6.4%	50%	50%		2	0.0%	4.5%	4.2%	5.8%							
3	-2.8%	5.5%	50%	50%		3	0.2%	4.2%	5.6%	4.4%							
4	-2.3%	6.3%	75%	25%		4	0.2%	4.6%	5.6%	4.4%							
5	-4.7%	7.1%	25%	75%		5	-0.3%	5.7%	4.2%	5.8%							
Significance Statistics																	
Significant Positive T-Stats (%)			18%			Significant Positive T-Stats (%)			14%								
Significant Negative T-Stats (%)			0%			Significant Negative T-Stats (%)			3%								
Average T-Stat			0.38			Average T-Stat			0.21								
Long Short Strategy Statistics																	
Quintile 1 less Quintile 5						Quintile 1 less Quintile 5											
Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.		Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.							
Long/Short (1-5)	2.5%	2.7%	91.7%	8.3%		Long/Short (1-5)	1.0%	2.5%	66.7%	33.3%							
T-Stat	3.19					T-Stat	2.54										
T-Stat						T-Stat											

Source: IBES, Barra, J.P. Morgan.

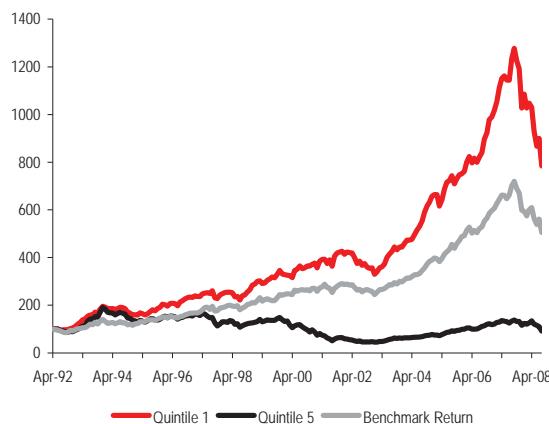
One-Year Average ROE

Factor Explanation

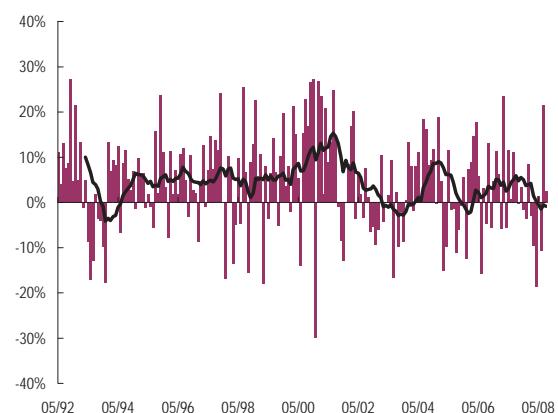
Historical ROE is calculated using the most recent net profit (excluding abnormals) and shareholders' equity figures. To eliminate any forward-looking bias, the ROE figure is only updated once the preliminary final has been released to the market. For example, a June year-end company will roll over into another year in (approximately) September.



Quintile Performance of One-Year Avg ROE



One-Year Avg ROE - (Information Coefficient)



One-Year Avg ROE

Last Year Quintile Statistics						Last Three Years Quintile Statistics						Last Five Years Quintile Statistics					
Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev
1	-3.5%	6.5%	25%	75%	1	0.3%	5.2%	53%	47%	1	1.1%	4.5%	57%	43%	2	1.3%	4.2%
2	-2.3%	6.0%	50%	50%	2	0.5%	4.6%	53%	47%	2	1.3%	4.2%	53%	47%	3	0.9%	4.1%
3	-3.5%	5.9%	42%	58%	3	0.0%	4.6%	44%	56%	3	0.9%	4.1%	47%	53%	4	0.7%	4.0%
4	-2.9%	6.3%	58%	42%	4	-0.2%	4.5%	47%	53%	4	0.7%	4.0%	47%	53%	5	0.8%	4.7%
5	-2.8%	7.6%	67%	33%	5	0.1%	5.4%	56%	44%	5	0.8%	4.7%	52%	48%			
Significance Statistics						Significance Statistics						Significance Statistics					
Significant Positive T-Stats (%)						Significant Positive T-Stats (%)						Significant Positive T-Stats (%)					
Significant Negative T-Stats (%)						Significant Negative T-Stats (%)						Significant Negative T-Stats (%)					
Average T-Stat						Average T-Stat						Average T-Stat					
Long Short Strategy Statistics																	
Quintile 1 less Quintile 5						Quintile 1 less Quintile 5						Quintile 1 less Quintile 5					
Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev
Long/Short (1-5)	-0.7%	4.5%	41.7%	58.3%	Long/Short (1-5)	0.2%	3.3%	52.8%	47.2%	Long/Short (1-5)	0.3%	2.9%	55.0%	45.0%	T-Stat	0.77	
T-Stat	-0.54				T-Stat	0.34				T-Stat	0.77						

Source: IBES, Barra, J.P. Morgan.

PART 4

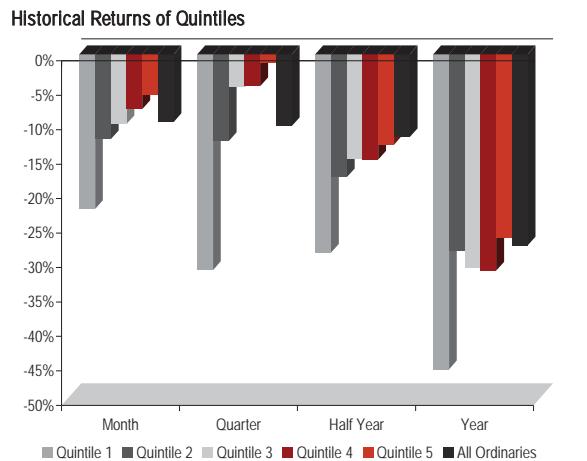
Risk Family Screens

- Volatility (Barra)
- Value (Barra)
- Trading Activities (Barra)
- Size (Barra)
- Momentum (Barra)
- Leverage (Barra)
- Growth (Barra)
- Foreign Exposure (Barra)
- Beta (Barra)
- Stock-Specific Risk (Barra)

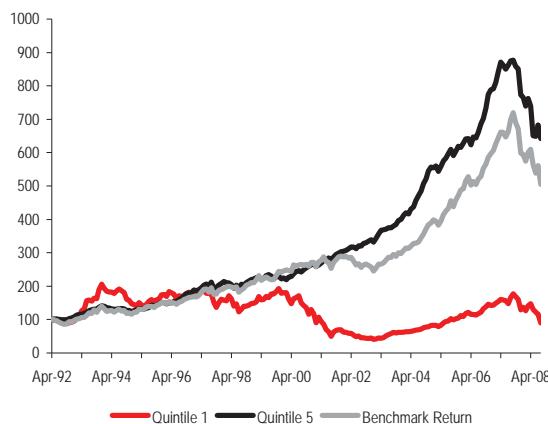
Volatility (Barra)

Factor Explanation

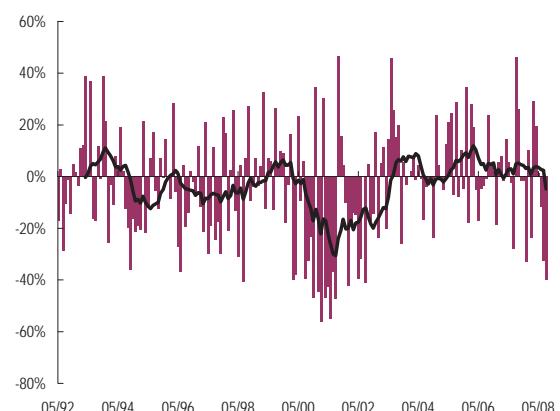
Short term and long term volatility of a stock. Volatility captured by historical Beta, cumulative range, price high/low and relative price volatility.



Quintile Performance of Volatility (Barra)



Volatility (Barra) - (Information Coefficient)



Volatility (Barra)

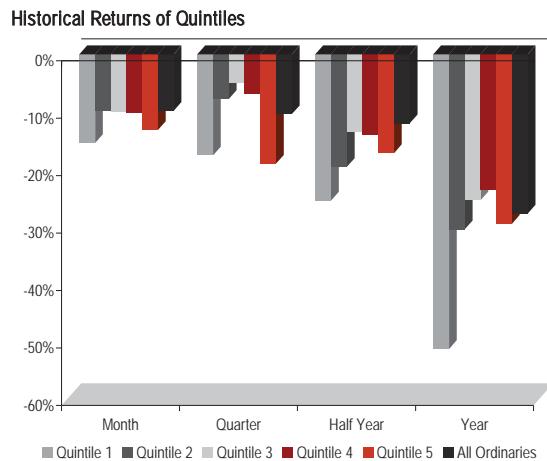
Last Year						Last Three Years						Last Five Years					
Quintile Statistics						Quintile Statistics						Quintile Statistics					
Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.		Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.		Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	
1	-4.4%	10.5%	33%	67%		1	-0.1%	7.6%	53%	47%		1	0.9%	6.3%	53%	47%	
2	-2.6%	5.9%	50%	50%		2	0.5%	4.7%	56%	44%		2	1.2%	4.4%	58%	42%	
3	-2.9%	5.7%	42%	58%		3	0.1%	4.5%	44%	56%		3	0.9%	4.0%	47%	53%	
4	-3.0%	5.3%	33%	67%		4	-0.1%	4.1%	36%	64%		4	0.7%	3.7%	40%	60%	
5	-2.4%	4.8%	50%	50%		5	0.2%	3.8%	47%	53%		5	1.0%	3.2%	48%	52%	
Significance Statistics						Significance Statistics						Significance Statistics					
Significant Positive T-Stats (%)						Significant Positive T-Stats (%)						Significant Positive T-Stats (%)					
Significant Negative T-Stats (%)						Significant Negative T-Stats (%)						Significant Negative T-Stats (%)					
Average T-Stat						Average T-Stat						Average T-Stat					
Long Short Strategy Statistics																	
Quintile 1 less Quintile 5						Quintile 1 less Quintile 5						Quintile 1 less Quintile 5					
Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.		Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.		Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	
Long/Short (1-5)	-2.0%	8.3%	41.7%	58.3%		Long/Short (1-5)	-0.3%	5.8%	50.0%	50.0%		Long/Short (1-5)	0.0%	4.8%	51.7%	48.3%	
T-Stat	-0.83					T-Stat	-0.31					T-Stat	-0.02				

Source: IBES, Barra, J.P. Morgan.

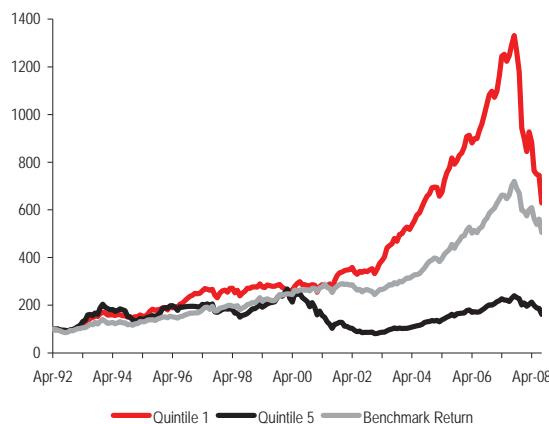
Value (Barra)

Factor Explanation

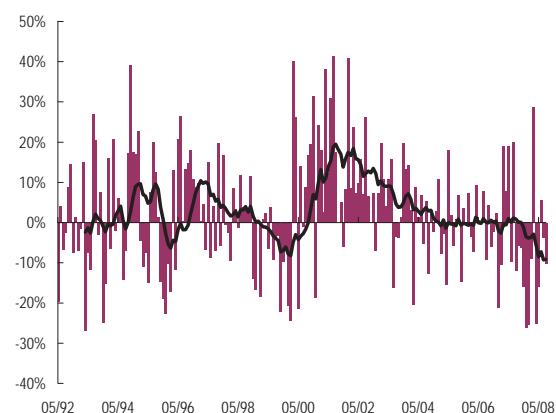
Measures the extent to which a stock is priced inexpensively in the market. Degree of value measured by current P/E, Price to Book, forecast P/E and Average Yield over the past 5 years.



Quintile Performance of Value (Barra)



Value (Barra) - (Information Coefficient)



Value (Barra)

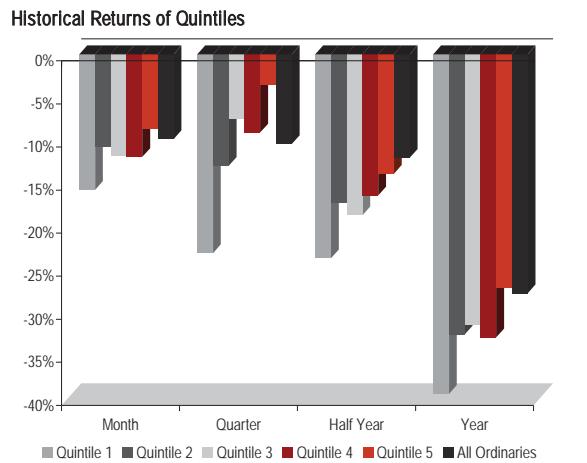
Last Year Quintile Statistics						Last Three Years Quintile Statistics						Last Five Years Quintile Statistics					
Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev
1	-5.5%	8.1%	25%	75%	1	-0.5%	6.2%	42%	58%	1	0.7%	5.3%	52%	48%	2	0.8%	4.0%
2	-2.8%	6.1%	50%	50%	2	0.1%	4.6%	44%	56%	2	0.8%	4.0%	47%	53%	3	0.9%	3.6%
3	-2.3%	5.5%	58%	42%	3	0.2%	4.1%	53%	47%	3	0.9%	3.6%	55%	45%	4	1.4%	4.1%
4	-2.1%	5.8%	50%	50%	4	0.7%	4.5%	50%	50%	4	1.4%	4.1%	52%	48%	5	0.9%	4.3%
5	-2.7%	6.4%	58%	42%	5	0.1%	4.9%	50%	50%	5	0.9%	4.3%	47%	53%			
Significance Statistics						Significance Statistics						Significance Statistics					
Significant Positive T-Stats (%)						Significant Positive T-Stats (%)						Significant Positive T-Stats (%)					
Significant Negative T-Stats (%)						Significant Negative T-Stats (%)						Significant Negative T-Stats (%)					
Average T-Stat						Average T-Stat						Average T-Stat					
Long Short Strategy Statistics																	
Quintile 1 less Quintile 5						Quintile 1 less Quintile 5						Quintile 1 less Quintile 5					
Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev
Long/Short (1-5)	-2.8%	4.9%	33.3%	66.7%	Long/Short (1-5)	-0.6%	3.8%	52.8%	47.2%	Long/Short (1-5)	-0.2%	3.3%	56.7%	43.3%	T-Stat	-2.00	-1.01
T-Stat	-2.00				T-Stat	-1.01				T-Stat	-0.50						

Source: IBES, Barra, J.P. Morgan.

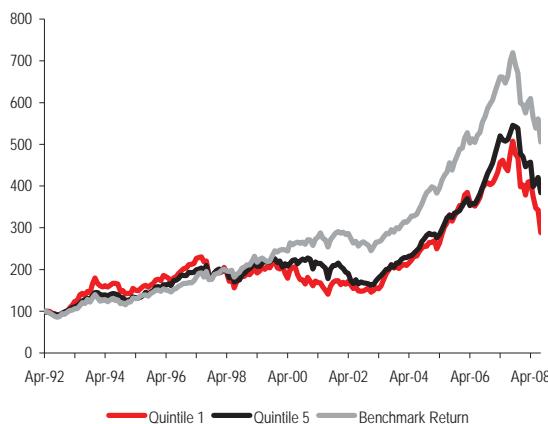
Trading Activities (Barra)

Factor Explanation

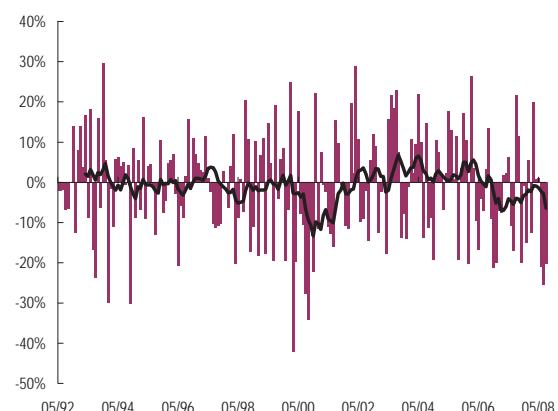
Measures the relative turnover of a firm's shares as a fraction of total market cap. Turnover includes both a quarterly and annual figure.



Quintile Performance of Trading Activities (Barra)



Trading Activities (Barra) - (Information Coefficient)



Trading Activities (Barra)

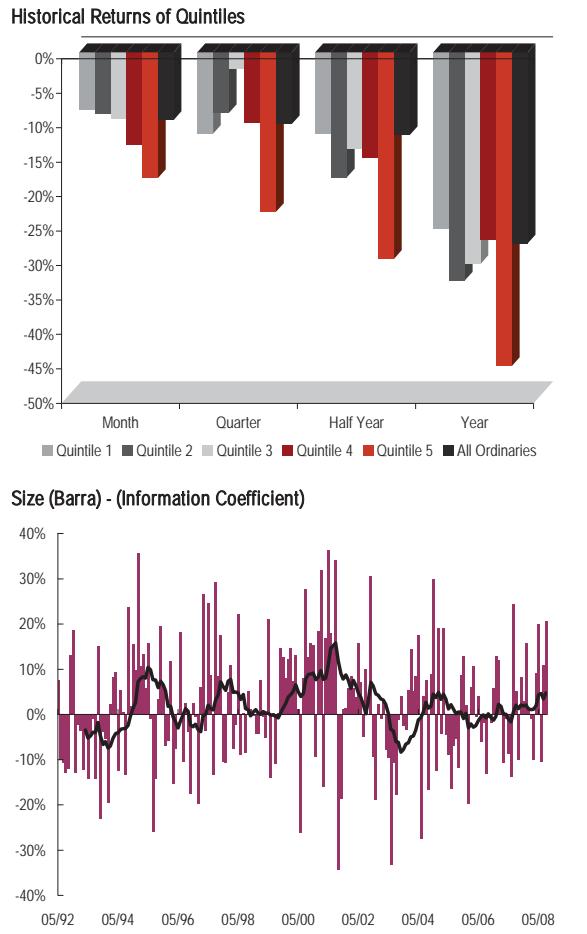
Last Year Quintile Statistics					Last Three Years Quintile Statistics					Last Five Years Quintile Statistics				
Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.
1	-3.8%	7.5%	33%	67%	1	-0.2%	5.8%	39%	61%	1	0.8%	5.1%	43%	57%
2	-3.0%	6.5%	17%	83%	2	-0.2%	4.8%	28%	72%	2	0.7%	4.2%	38%	62%
3	-2.9%	5.9%	33%	67%	3	0.1%	4.6%	39%	61%	3	1.0%	4.1%	48%	52%
4	-3.1%	6.1%	42%	58%	4	0.4%	4.6%	50%	50%	4	1.1%	4.0%	50%	50%
5	-2.5%	5.7%	42%	58%	5	0.5%	4.3%	50%	50%	5	1.2%	3.7%	50%	50%
Significance Statistics					Significance Statistics					Significance Statistics				
Significant Positive T-Stats (%)					Significant Positive T-Stats (%)					Significant Positive T-Stats (%)				
Significant Negative T-Stats (%)					Significant Negative T-Stats (%)					Significant Negative T-Stats (%)				
Average T-Stat					Average T-Stat					Average T-Stat				
Long Short Strategy Statistics														
Quintile 1 less Quintile 5					Quintile 1 less Quintile 5					Quintile 1 less Quintile 5				
Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.
Long/Short (1-5)	-1.4%	4.9%	33.3%	66.7%	Long/Short (1-5)	-0.7%	3.6%	33.3%	66.7%	Long/Short (1-5)	-0.4%	3.2%	41.7%	58.3%
T-Stat	-0.97				T-Stat	-1.22				T-Stat	-0.97			

Source: IBES, Barra, J.P. Morgan.

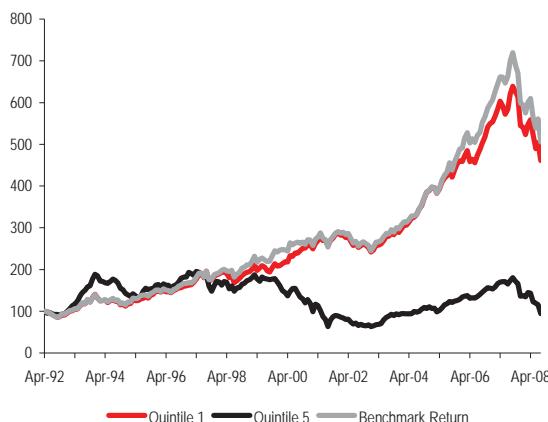
Size (Barra)

Factor Explanation

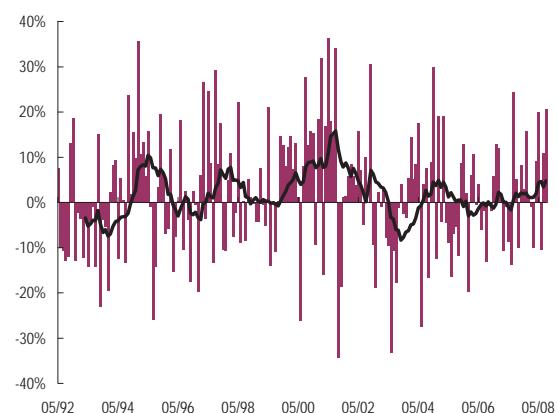
To estimate a size factor in Australia, the log of the market cap is used. Quintile 1 is therefore made up of the largest stocks. Empirical evidence around the world suggests that smaller-capitalisation stocks outperform larger-capitalisation stocks in the long run.



Quintile Performance of Size (Barra)



Size (Barra) - (Information Coefficient)



Size (Barra)

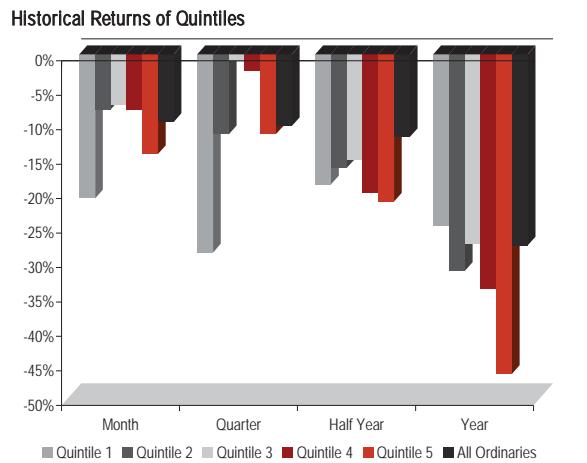
Last Year Quintile Statistics					Last Three Years Quintile Statistics					Last Five Years Quintile Statistics				
Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.
1	-2.3%	5.0%	67%	33%	1	0.2%	4.1%	47%	53%	1	0.9%	3.6%	48%	52%
2	-3.2%	4.8%	50%	50%	2	0.3%	4.4%	56%	44%	2	1.3%	4.0%	62%	38%
3	-2.8%	7.0%	33%	67%	3	0.2%	5.2%	47%	53%	3	1.1%	4.6%	50%	50%
4	-2.4%	6.2%	42%	58%	4	0.5%	4.6%	50%	50%	4	1.2%	4.0%	53%	47%
5	-4.6%	8.3%	42%	58%	5	-0.6%	5.9%	42%	58%	5	0.2%	5.2%	42%	58%
Significance Statistics					Significance Statistics					Significance Statistics				
Significant Positive T-Stats (%)					Significant Positive T-Stats (%)					Significant Positive T-Stats (%)				
Significant Negative T-Stats (%)					Significant Negative T-Stats (%)					Significant Negative T-Stats (%)				
Average T-Stat					Average T-Stat					Average T-Stat				
Long Short Strategy Statistics														
Quintile 1 less Quintile 5					Quintile 1 less Quintile 5					Quintile 1 less Quintile 5				
Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.
Long/Short (1-5)	2.3%	4.5%	58.3%	41.7%	Long/Short (1-5)	0.8%	3.3%	52.8%	47.2%	Long/Short (1-5)	0.7%	3.1%	51.7%	48.3%
T-Stat	1.74				T-Stat	1.40				T-Stat	1.62			

Source: IBES, Barra, J.P. Morgan.

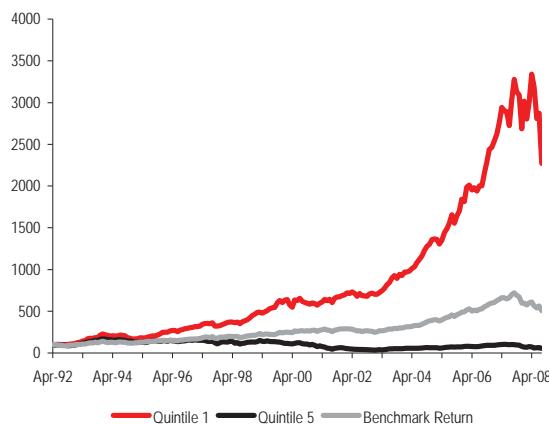
Momentum (Barra)

Factor Explanation

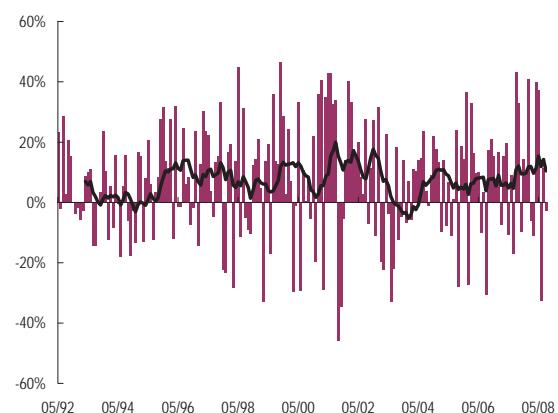
Identifies recently successful stocks measured by price behaviour in the market. Descriptors identified are Historical Alpha and Relative strength.



Quintile Performance of Momentum (Barra)



Momentum (Barra) - (Information Coefficient)



Momentum (Barra)

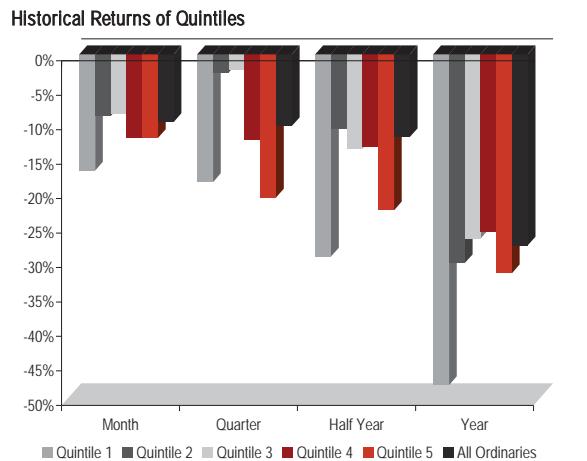
Last Year						Last Three Years						Last Five Years					
Quintile Statistics						Quintile Statistics						Quintile Statistics					
Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev
1	-1.8%	10.5%	50%	50%	1	1.1%	7.3%	53%	47%	1	1.7%	6.0%	57%	43%	2	1.0%	3.9%
2	-3.0%	4.9%	42%	58%	2	0.0%	4.1%	42%	58%	2	1.0%	3.9%	47%	53%	3	1.0%	3.7%
3	-2.5%	5.4%	58%	42%	3	0.2%	4.0%	42%	58%	3	1.0%	3.7%	43%	57%	4	0.7%	3.8%
4	-3.2%	5.9%	50%	50%	4	-0.1%	4.5%	44%	56%	4	0.7%	3.8%	43%	57%	5	0.3%	5.2%
5	-4.7%	8.1%	33%	67%	5	-0.6%	6.0%	36%	64%	5	0.3%	5.2%	37%	63%			
Significance Statistics						Significance Statistics						Significance Statistics					
Significant Positive T-Stats (%)						Significant Positive T-Stats (%)						Significant Positive T-Stats (%)					
Significant Negative T-Stats (%)						Significant Negative T-Stats (%)						Significant Negative T-Stats (%)					
Average T-Stat						Average T-Stat						Average T-Stat					
Long Short Strategy Statistics																	
Quintile 1 less Quintile 5						Quintile 1 less Quintile 5						Quintile 1 less Quintile 5					
Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev
Long/Short (1-5)	2.9%	10.1%	58.3%	41.7%	Long/Short (1-5)	1.8%	6.8%	66.7%	33.3%	Long/Short (1-5)	1.4%	5.5%	66.7%	33.3%	T-Stat		
T-Stat	1.00				T-Stat	1.57				T-Stat	2.06						

Source: IBES, Barra, J.P. Morgan.

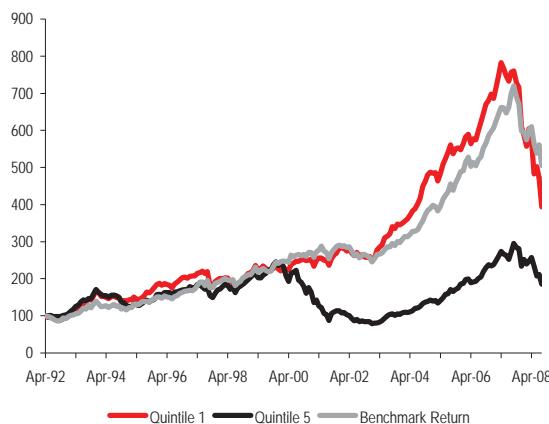
Leverage (Barra)

Factor Explanation

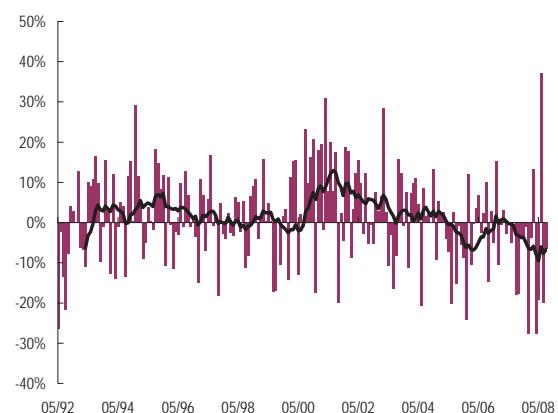
Measures the financial structure of the firm using Book leverage, Market leverage, Debt to Assets and Current Ratio.



Quintile Performance of Leverage (Barra)



Leverage (Barra) - (Information Coefficient)



Leverage (Barra)

Last Year Quintile Statistics						Last Three Years Quintile Statistics						Last Five Years Quintile Statistics					
Quintile	Avg Ret	St Dev	% Out	% Under	Perf.	Quintile	Avg Ret	St Dev	% Out	% Under	Perf.	Quintile	Avg Ret	St Dev	% Out	% Under	Perf.
1	-5.0%	7.7%	25%	75%		1	-0.8%	5.8%	39%	61%		1	0.5%	5.0%	50%	50%	
2	-2.8%	6.1%	42%	58%		2	0.2%	4.5%	50%	50%		2	0.9%	3.8%	52%	48%	
3	-2.4%	5.2%	58%	42%		3	0.2%	4.1%	47%	53%		3	1.0%	3.9%	50%	50%	
4	-2.3%	6.1%	50%	50%		4	0.7%	4.6%	53%	47%		4	1.3%	4.0%	53%	47%	
5	-2.8%	8.4%	42%	58%		5	0.4%	6.0%	53%	47%		5	1.1%	5.1%	50%	50%	
Significance Statistics						Significance Statistics						Significance Statistics					
Significant Positive T-Stats (%)						Significant Positive T-Stats (%)						Significant Positive T-Stats (%)					
Significant Negative T-Stats (%)						Significant Negative T-Stats (%)						Significant Negative T-Stats (%)					
Average T-Stat						Average T-Stat						Average T-Stat					
Long Short Strategy Statistics																	
Quintile 1 less Quintile 5						Quintile 1 less Quintile 5						Quintile 1 less Quintile 5					
Strategy	Avg Ret	St Dev	% Out	% Under	Perf.	Strategy	Avg Ret	St Dev	% Out	% Under	Perf.	Strategy	Avg Ret	St Dev	% Out	% Under	Perf.
Long/Short (1-5)	-2.2%	7.7%	25.0%	75.0%		Long/Short (1-5)	-1.2%	4.8%	33.3%	66.7%		Long/Short (1-5)	-0.6%	4.0%	46.7%	53.3%	
T-Stat	-1.00					T-Stat	-1.53					T-Stat	-1.24				

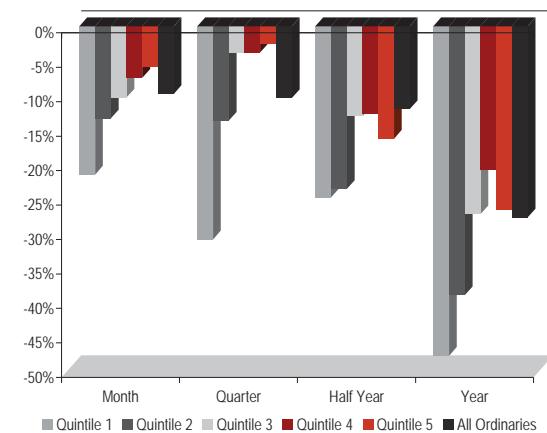
Source: IBES, Barra, J.P. Morgan.

Growth (Barra)

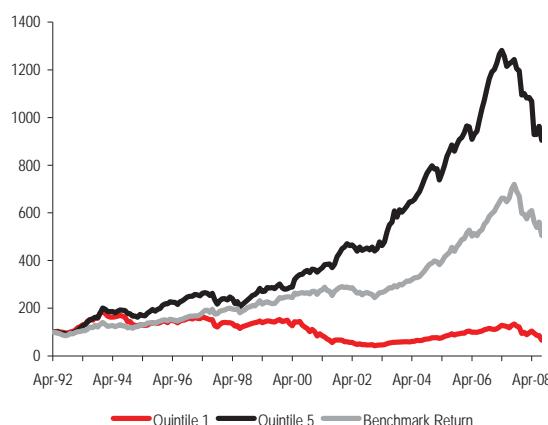
Factor Explanation

Measures growth of the firm over the past year and the past 5 years. Includes measurements of Asset growth, Earnings growth, Revenue and Payout ratio.

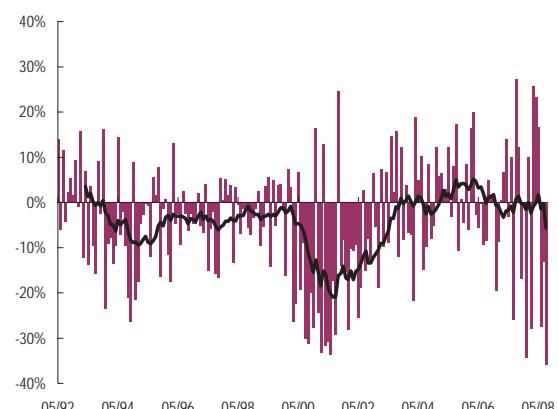
Historical Returns of Quintiles



Quintile Performance of Growth (Barra)



Growth (Barra) - (Information Coefficient)



Growth (Barra)

Last Year Quintile Statistics					Last Three Years Quintile Statistics					Last Five Years Quintile Statistics				
Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.
1	-4.8%	10.3%	42%	58%	1	-0.7%	7.2%	39%	61%	1	0.5%	6.0%	43%	57%
2	-3.8%	6.3%	33%	67%	2	0.0%	5.0%	44%	56%	2	0.9%	4.4%	43%	57%
3	-2.5%	5.8%	50%	50%	3	0.6%	4.4%	50%	50%	3	1.4%	3.9%	57%	43%
4	-1.8%	5.2%	67%	33%	4	0.6%	4.0%	53%	47%	4	1.2%	3.6%	53%	47%
5	-2.4%	4.7%	58%	42%	5	0.1%	3.9%	47%	53%	5	0.9%	3.7%	47%	53%
Significance Statistics					Significance Statistics					Significance Statistics				
Significant Positive T-Stats (%)					Significant Positive T-Stats (%)					Significant Positive T-Stats (%)				
27%					23%					22%				
Significant Negative T-Stats (%)					Significant Negative T-Stats (%)					Significant Negative T-Stats (%)				
55%					23%					17%				
Average T-Stat					Average T-Stat					Average T-Stat				
-1.11					-0.22					-0.06				
Long Short Strategy Statistics														
Quintile 1 less Quintile 5					Quintile 1 less Quintile 5					Quintile 1 less Quintile 5				
Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.
Long/Short (1-5)	-2.3%	8.5%	41.7%	58.3%	Long/Short (1-5)	-0.8%	5.5%	44.4%	55.6%	Long/Short (1-5)	-0.4%	4.6%	50.0%	50.0%
T-Stat	-0.94				T-Stat	-0.86				T-Stat	-0.69			

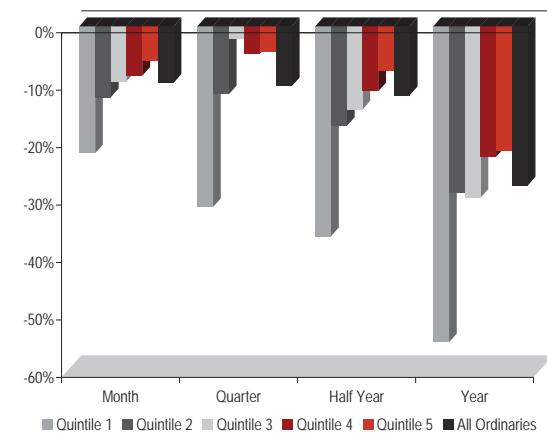
Source: IBES, Barra, J.P. Morgan.

Foreign Exposure (Barra)

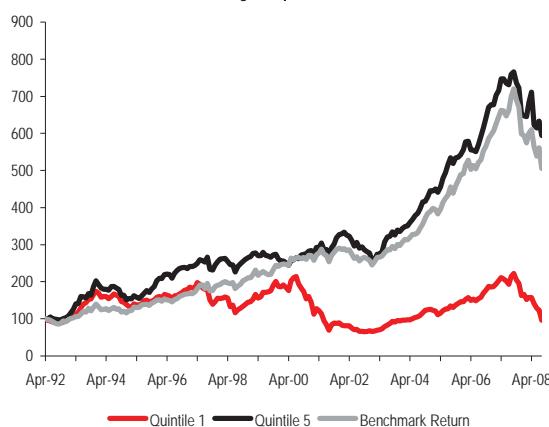
Factor Explanation

Measures the sensitivity of the firm's residual return to a currency basket and regional market movements. Uses currency sensitivity and regional market sensitivity.

Historical Returns of Quintiles



Quintile Performance of Foreign Exposure (Barra)



Foreign Exposure (Barra) - (Information Coefficient)



Foreign Exposure (Barra)

Last Year						Last Three Years						Last Five Years					
Quintile Statistics						Quintile Statistics						Quintile Statistics					
Quintile	Avg Ret	St Dev	% Out	% Under	Perf.	Quintile	Avg Ret	St Dev	% Out	% Under	Perf.	Quintile	Avg Ret	St Dev	% Out	% Under	Perf.
1	-6.1%	8.0%	17%	83%		1	-0.7%	6.7%	47%	53%		1	0.3%	5.8%	48%	52%	
2	-2.6%	6.7%	50%	50%		2	0.3%	5.0%	58%	42%		2	1.3%	4.5%	60%	40%	
3	-2.7%	6.1%	58%	42%		3	0.2%	4.5%	47%	53%		3	0.9%	4.0%	42%	58%	
4	-2.0%	5.6%	75%	25%		4	0.4%	4.0%	58%	42%		4	1.0%	3.5%	57%	43%	
5	-1.9%	5.5%	67%	33%		5	0.4%	4.0%	56%	44%		5	1.1%	3.5%	55%	45%	
Significance Statistics						Significance Statistics						Significance Statistics					
Significant Positive T-Stats (%)						Significant Positive T-Stats (%)						Significant Positive T-Stats (%)					
Significant Negative T-Stats (%)						Significant Negative T-Stats (%)						Significant Negative T-Stats (%)					
Average T-Stat						Average T-Stat						Average T-Stat					
Long Short Strategy Statistics																	
Quintile 1 less Quintile 5						Quintile 1 less Quintile 5						Quintile 1 less Quintile 5					
Strategy	Avg Ret	St Dev	% Out	% Under	Perf.	Strategy	Avg Ret	St Dev	% Out	% Under	Perf.	Strategy	Avg Ret	St Dev	% Out	% Under	Perf.
Long/Short (1-5)	-4.2%	5.4%	25.0%	75.0%		Long/Short (1-5)	-1.1%	4.3%	47.2%	52.8%		Long/Short (1-5)	-0.7%	3.7%	50.0%	50.0%	
T-Stat	-2.73					T-Stat	-1.52					T-Stat	-1.58				

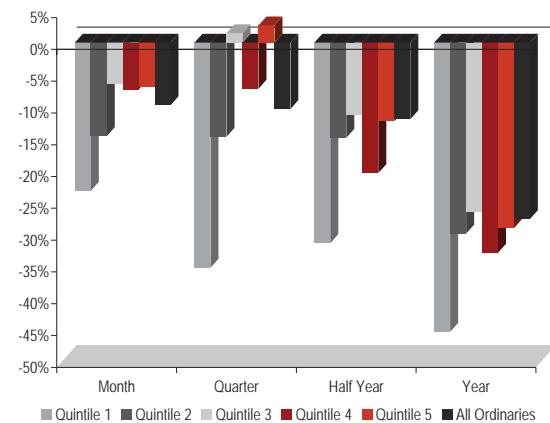
Source: IBES, Barra, J.P. Morgan.

Beta (Barra)

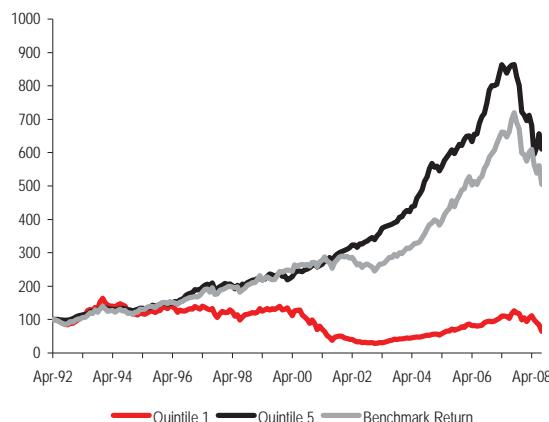
Factor Explanation

The systematic risk coefficient that expresses the expected response of asset or portfolio excess return to excess return on a market portfolio. For example, a beta of 1.5 implies that 1.5 times the excess return on the market can be expected. The beta coefficient can also be viewed as the regression coefficient of the security excess return upon the market excess return.

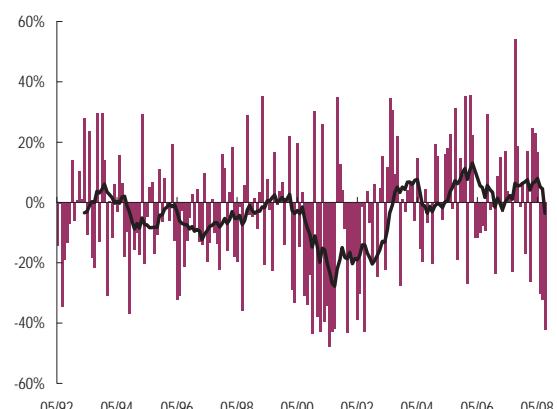
Historical Returns of Quintiles



Quintile Performance of Beta (Barra)



Beta (Barra) - (Information Coefficient)



Beta (Barra)

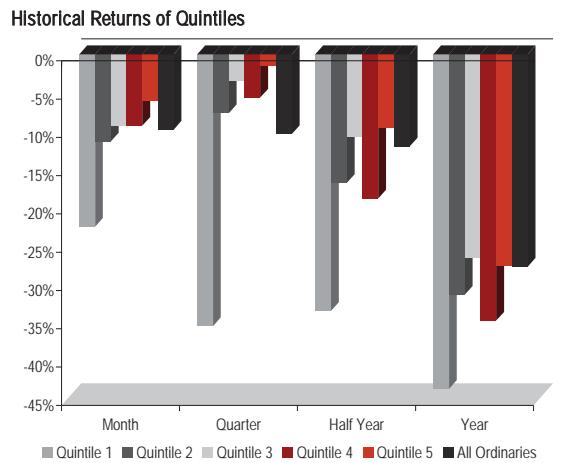
Last Year Quintile Statistics					Last Three Years Quintile Statistics					Last Five Years Quintile Statistics				
Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Quintile	Avg Ret	St Dev	% Out Perf.	% Under Perf.
1	-4.4%	10.4%	42%	58%	1	0.0%	7.8%	53%	47%	1	1.1%	6.5%	53%	47%
2	-2.7%	6.4%	50%	50%	2	0.4%	4.9%	50%	50%	2	1.1%	4.3%	55%	45%
3	-2.4%	6.2%	58%	42%	3	0.2%	4.4%	47%	53%	3	1.0%	4.0%	47%	53%
4	-3.1%	5.5%	50%	50%	4	-0.1%	4.4%	44%	56%	4	0.7%	4.0%	45%	55%
5	-2.7%	5.6%	42%	58%	5	0.1%	4.1%	47%	53%	5	0.8%	3.5%	47%	53%
Significance Statistics					Significance Statistics					Significance Statistics				
Significant Positive T-Stats (%)					Significant Positive T-Stats (%)					Significant Positive T-Stats (%)				
3.6%					37%					34%				
Significant Negative T-Stats (%)					Significant Negative T-Stats (%)					22%				
4.5%					23%					Average T-Stat				
Average T-Stat					0.32					0.26				
Long Short Strategy Statistics														
Quintile 1 less Quintile 5					Quintile 1 less Quintile 5					Quintile 1 less Quintile 5				
Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.	Strategy	Avg Ret	St Dev	% Out Perf.	% Under Perf.
Long/Short (1-5)	-1.7%	9.4%	50.0%	50.0%	Long/Short (1-5)	-0.1%	6.8%	52.8%	47.2%	Long/Short (1-5)	0.2%	5.6%	55.0%	45.0%
T-Stat	-0.63				T-Stat	-0.08				T-Stat	0.34			

Source: IBES, Barra, J.P. Morgan.

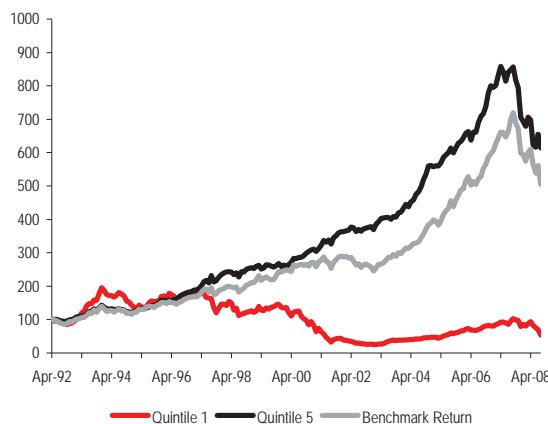
Stock Specific Risk (Barra)

Factor Explanation

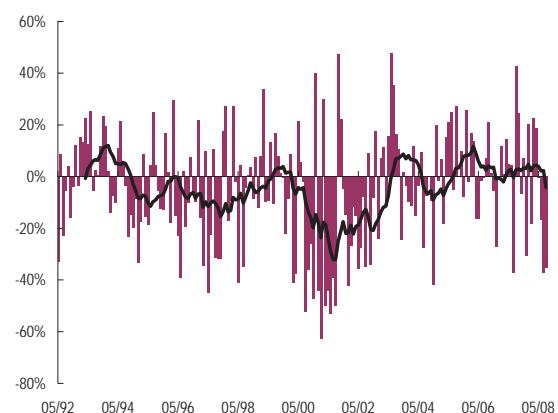
Risk specific to a company and uncorrelated (or negligibly correlated) with the specific risks of other companies. This risk is due to the unique circumstances of a specific security, as opposed to the overall market.



Quintile Performance of Stock Specific Risk (Barra)



Stock Specific Risk (Barra) - (Information Coefficient)



Stock Specific Risk (Barra)

Last Year						Last Three Years						Last Five Years					
Quintile Statistics						Quintile Statistics						Quintile Statistics					
Quintile	Avg Ret	St Dev	% Out	% Under	Perf.	Quintile	Avg Ret	St Dev	% Out	% Under	Perf.	Quintile	Avg Ret	St Dev	% Out	% Under	Perf.
1	-4.1%	10.8%	42%	58%		1	0.0%	7.6%	61%	39%		1	0.8%	6.4%	58%	42%	
2	-2.9%	6.2%	42%	58%		2	0.2%	4.8%	47%	53%		2	1.2%	4.4%	48%	52%	
3	-2.4%	5.5%	58%	42%		3	0.3%	4.4%	56%	44%		3	1.1%	3.9%	57%	43%	
4	-3.4%	5.1%	50%	50%		4	-0.1%	4.2%	53%	47%		4	0.8%	3.9%	53%	47%	
5	-2.5%	5.2%	33%	67%		5	0.1%	4.0%	47%	53%		5	0.8%	3.3%	45%	55%	
Significance Statistics						Significance Statistics						Significance Statistics					
Significant Positive T-Stats (%)						Significant Positive T-Stats (%)						Significant Positive T-Stats (%)					
Significant Negative T-Stats (%)						Significant Negative T-Stats (%)						Significant Negative T-Stats (%)					
Average T-Stat						Average T-Stat						Average T-Stat					
Long Short Strategy Statistics																	
Quintile 1 less Quintile 5						Quintile 1 less Quintile 5						Quintile 1 less Quintile 5					
Strategy	Avg Ret	St Dev	% Out	% Under	Perf.	Strategy	Avg Ret	St Dev	% Out	% Under	Perf.	Strategy	Avg Ret	St Dev	% Out	% Under	Perf.
Long/Short (1-5)	-1.6%	8.8%	50.0%	50.0%		Long/Short (1-5)	-0.1%	6.1%	52.8%	47.2%		Long/Short (1-5)	0.1%	5.2%	50.0%	50.0%	
T-Stat	-0.62					T-Stat	-0.08					T-Stat	0.11				

Source: IBES, Barra, J.P. Morgan.

About The Factor Companion

The **Factor Companion** examines the performance of a large number of factors in the Australian market. The aim of the first Section is to identify the key factors and styles currently significant in the Australian market and which stocks have the highest/lowest exposures to those factors. In summary, this document aims to enable readers to choose which factor they want to follow (which may change over time) and then choose which stocks have the highest/lowest exposure to a particular factor.

The Factor Companion is organized into four sections which **outline the different Factor ‘Families’ and strategies within each**. The historical performance and significance of each strategy over various time horizons is documented within these sections. The current recommendations (i.e. the Top/Bottom 25 stocks) for each factor are also outlined at the end of each section.

In total, four different families and 32 strategies are examined.

Part One outlines the Value Family. In total, nine factors are examined.

- Historical P/E
- Historical Dividend Yield
- Historical Price to Cash flow
- Historical Price to Book Value
- One-Year Forward P/E
- Forward P/E Relative to Sector
- Forward P/E Relative to History
- Value to Growth
- Value to Risk

Part Two outlines the Momentum Family. In total, five factors are examined.

- Price Momentum
- Net Money Flows
- True Market Surprise
- Earnings Momentum
- Risk-Adjusted Earnings Momentum

Part Three outlines the Shareholder Value Family. In total, eight factors are examined.

- One-Year Average Return on Equity (ROE)
- ROE Growth
- Consistent ROE Growth Rate
- Asset Turnover
- Asset Turnover Trend
- Asset EBIT Margin Trend
- JPMQ Health Score
- JPMQ Altman Z-Score

Part Four outlines the Risk Family. In total, ten factors are examined.

- Stock-Specific Risk
- Beta
- Foreign Exposure
- Growth
- Leverage
- Momentum
- Size
- Trading Activities
- Value
- Volatility

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IB clients*	53%	51%	43%
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IB clients*	76%	70%	59%

*Percentage of investment banking clients in each rating category.

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Thomas Reif
(61-2) 9220 1473
thomas.w.reif@jpmorgan.com

Asia Pacific Equity Research
09 October 2008

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