

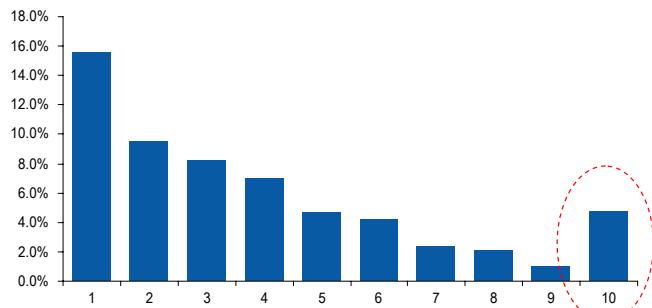
These reports related to Equity Value Factors, originally published as of the date stamp on each of them, are now presented as a single report within the Investment Strategies series of publications under number 94.

## Are loss makers bad value?

### Negative earners outperform expensive stocks

- The Price to Earnings ratio is probably one of the most popular fundamental analysis ratios that investors look at.
- Obviously this intense focus comes about because by and large, earnings are a basis for value. The ratio between price and earnings is a simple and convenient valuation metric that allows companies to be easily compared. Indeed our analysis (and that of many others) has demonstrated many times that strategies based on investing in good value over bad value using earnings as a basis consistently delivers positive returns.
- If we therefore 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.
- 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.

The average annual performance of EY (Actual) in MSCI World using deciles (best value in D1) – note the monotonic failure in D10 due to the outperformance of loss makers



Source: Reuters, MSCI, J.P. Morgan

- Our results suggest that **shorting loss makers as a group (simply because they are making a loss) is a bad idea**. We are not saying these are in any way good stocks, but letting them take up precious ‘slots’ in your short basket, over and above expensive stocks, is detrimental to the performance of the short side. The back-testing shows that expensive PE stocks are better short candidates from a valuation based perspective.

See page 52 for analyst certification and important disclosures, including non-US analyst disclosures.

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## Are loss makers indeed bad value?

**Investors have an intense focus on earnings.**

**While higher earnings are supposedly better than lower earnings...**

**...it turns out that loss makers outperform expensive stocks (on relatively low earnings).**

More often than perhaps any other metric, earnings ratios are used to evaluate a company's worth. These ratios get twisted into so many forms in order to get a 'better feel' for a company. From PEs to PEGs and PEGYs, mid cycle, high cycle, actual and forecast, and more – there are numerous combinations to choose from. But in all, the Price to Earnings ratio is probably one of the most popular fundamental analysis ratios that investors look at.

Obviously this intense focus comes about because by and large, **earnings are a basis for value**. Given the current price is a reflection of future earnings then the higher earnings a company is expected to deliver the higher the price should be (versus a company expected to deliver lower earnings). The ratio between price and earnings is a simple and convenient valuation metric that allows companies to be easily compared. Indeed our analysis (and that of many others) has demonstrated many times that strategies based on investing in good value over bad value using earnings as a basis consistently deliver positive returns in numerous (all?) test markets.

If we therefore 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 much of a stretch to take that further and say that *some* earnings are better than *negative* earnings. While that seems intuitive (and certainly is the train of thought that we have been implicitly following in the past), it is in fact not the case.

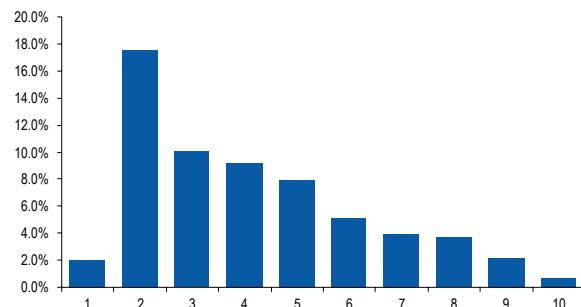
Our analysis shows that **loss makers outperform expensive stocks on average over the long term**. In other words, negative earners (when backtested within a valuation universe grouped by deciles) do better than poor value/expensive stocks – in fact, about as well as the middle of the pack. **This has some important implications for the way we have historically treated these stocks within our models.** We explain in more detail in the following section.

### PE and the negative earnings discontinuity

Firstly let us highlight the obvious problem when you simply order stocks by their PE; stocks with negative earnings find their way to the end of the rankings *below* low PE stocks and so are grouped with 'cheap' peers in the portfolios.

We are not suggesting that negative earners are the best (or even good stocks). Indeed as the chart over the page shows, favouring the negative earners in this manner puts a huge dent in the performance of decile 1 (and it is clear that decile 2, which is composed of entirely cheap stocks, strongly outperforms it).

**Figure 1: The average annual performance of PE (Actual) in MSCI World using deciles – D1 contains cheap stocks along with negative earners**



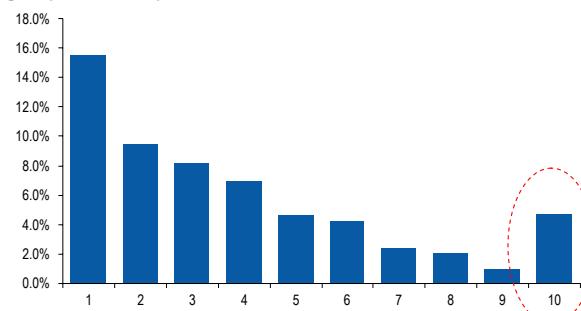
Source: Reuters, MSCI, J.P. Morgan

**We must use Earnings Yield when ranking stocks.**

This problem is avoided if we instead rank stocks using the *inverse* of PE i.e. earnings yield (earnings/price) in descending order with high yields (cheap PEs) at the top. **Historically we have used this technique in all our modeling.** It is an easy fix to the issue above and sees decile 1 loaded up with ‘good value’ as desired.

When we reform the deciles using this new ordering of earnings yield we get the backtesting results shown in the chart below.

**Figure 2: The average annual performance of EY (Actual) in MSCI World using deciles – D1 now contains just cheap stocks, but note the monotonic failure in D10 due to loss makers now being grouped with expensive stocks**

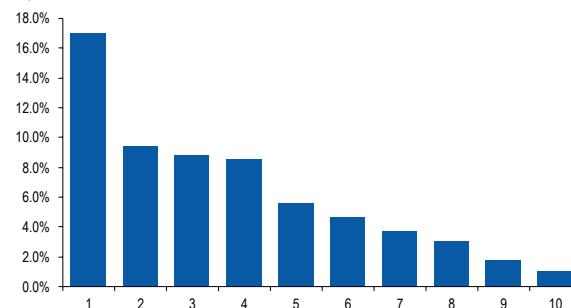


Source: Reuters, MSCI, J.P. Morgan

This time we can see that decile 1 is indeed our outperforming basket of stocks. **However, note that decile 10 is in fact outperforming portfolios 5 through 9.** We find that decile 10 now contains the negative earnings stocks, while portfolios 5 through 9 only contain the expensive half of the valuation universe. Clearly **stocks with negative earnings outperform stocks with just poor or low earnings.**

This is not something we had noticed before and to our surprise, we can very easily improve our short side by removing negative earners entirely from the universe – we show the results in the chart over the page.

**Figure 3: The performance of EY (Actual) in MSCI World using deciles EXCLUDING negative earners – removing the loss makers gives us a monotonic spread again as D10 now just contains expensive stocks**



Source: Reuters, MSCI, J.P. Morgan

**Average long-short returns of all manner of PEs were improved when excluding negative earners.**

The average long-short returns of these backtests when we exclude negative earning stocks shows us that in all regions around the world (apart from the US), no matter what flavour of PE we use, **we can improve the long-shorts and usually the ICs as well**. See the summary of the backtests in the tables below.

**Table 1: Backtesting results of Earnings Yield (actual) in regions around the world, with and without negative earnings**

Description	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS
Hist. EY in NORTH AMERICA	554	1.5%	1.54	56%	14%	0.85%
Hist. EY in NORTH AMERICA excluding negative earners	507	1.5%	0.87	51%	17%	0.44%
Hist. EY in MSCI WORLD	2,378	1.3%	2.13	64%	13%	0.78%
Hist. EY in MSCI WORLD excluding negative earners	2,046	3.4%	3.54	62%	17%	1.35%
Hist. EY in MSCI GEM	784	1.9%	1.11	65%	15%	0.72%
Hist. EY in MSCI GEM excluding negative earners	692	3.3%	3.28	60%	18%	1.43%
Hist. EY in MSCI GDM	1,594	1.2%	2.20	60%	13%	0.71%
Hist. EY in MSCI GDM excluding negative earners	1,354	2.1%	2.23	59%	17%	0.86%
Hist. EY in JP	329	0.1%	0.29	57%	15%	0.12%
Hist. EY in JP excluding negative earners	283	2.8%	1.82	63%	17%	0.81%
Hist. EY in EUROPE	562	2.2%	2.55	56%	15%	1.00%
Hist. EY in EUROPE excluding negative earners	425	2.8%	2.40	62%	17%	0.99%
Hist. EY in ASIAPAC EX JP	603	2.1%	1.11	66%	15%	0.77%
Hist. EY in ASIAPAC EX JP excluding negative earners	534	3.7%	3.62	62%	18%	1.72%
Hist. EY in ASIA EX JP TOP 250	248	4.5%	2.40	65%	17%	1.51%
Hist. EY in ASIA EX JP TOP 250 excluding negative earners	229	4.4%	2.47	69%	20%	1.41%

Source: Reuters, MSCI, J.P. Morgan

The same improvement seen in MSCI All World was also exhibited in backtests **in Asia Pac ex Japan, Japan, and MSCI GEM**. Whilst the effect was **less pronounced in Europe, North America, and large cap MSCI Asia, L/S returns were still improved**. (The only region where it was not helpful to take out negative earners was in North America, where Value is a poor performer in general.)

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Table 2: Backtesting results of Earnings Yield (forecast) in regions around the world, with and without negative earnings

Description	Avg Stocks	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS
Forecast EY in MSCI WORLD	2,101	3.1%	4.12	65%	15%	1.56%
Forecast EY in MSCI WORLD excluding negative earners	2,047	3.5%	4.30	68%	17%	1.90%
Forecast EY in MSCI GEM	623	3.1%	3.83	66%	18%	1.84%
Forecast EY in MSCI GEM excluding negative earners	604	3.4%	5.48	68%	20%	2.44%
Forecast EY in MSCI GDM	1,477	2.3%	1.68	57%	15%	0.76%
Forecast EY in MSCI GDM excluding negative earners	1,443	2.6%	2.19	58%	17%	1.01%
Forecast EY in EUROPE	521	2.2%	1.41	60%	16%	0.79%
Forecast EY in EUROPE excluding negative earners	513	2.4%	1.60	62%	17%	0.88%
Forecast EY in NORTH AMERICA	508	1.8%	0.70	51%	15%	0.48%
Forecast EY in NORTH AMERICA excluding negative earners	492	1.6%	0.90	50%	18%	0.55%
Forecast EY in ASIAPAC EX JP	530	3.0%	3.48	67%	17%	1.87%
Forecast EY in ASIAPAC EX JP excluding negative earners	513	3.4%	4.63	63%	19%	2.48%
Forecast EY in ASIA EX JP TOP 250	227	4.5%	3.18	66%	19%	1.98%
Forecast EY in ASIA EX JP TOP 250 excluding negative earners	222	4.6%	3.96	66%	20%	2.27%
Forecast EY in JP	305	2.6%	1.91	58%	17%	0.89%
Forecast EY in JP excluding negative earners	297	3.9%	2.37	63%	20%	1.15%

Source: Reuters, MSCI, J.P. Morgan

Just like for the *actual* earnings PEs, excluding negatives from *forecast* PEs helps improve the long-shorts in all cases with the **best improvement seen in MSCI GEM and Asia Pac ex Japan**. MSCI North America had only a marginal improvement on poor t-stats. The full backtests for these regions are in Appendix III.

## Do not short loss makers as a group

**Shorting loss makers as a group has on average led to under-performance relative to simply shorting expensive stocks.**

The bottom line is on average it doesn't pay to go **short (or go underweight) loss makers over and above expensive stocks on the basis of earnings alone**. They are not the worst performers in the valuation space; a portfolio of expensive PE stocks underperforms cheap stocks by even more than a portfolio of loss makers underperforms cheap stocks.

## How widely should you apply this rule?

As we've already shown, **removing negative earners from the universe works well to improve long-short returns** within various different flavours of PE. What we're effectively doing is removing stocks with negative earnings from our short portfolio where they would otherwise lie as being 'expensive'.

We found this strategy worked when applied to all manner of earnings based valuation metrics. In Appendix I we summarise the factors we tested, but in all they were: PEs based on actual reported numbers, forecast PEs, Graham-Dodd styled PEs and Composite Valuation metrics.

We found that **excluding loss-makers to improve your long-shorts worked for all manner of earnings factor variants** – actual, forecast, averaged, and even the composites.

## Why negative earners are not the worst

**Negative earners are already disappointing the market...**

**... so it would seem that the surprise risk is skewed towards the upside.**

So why do loss makers outperform low (but positive) earning stocks? If we look at some of the suggestions as to why Value investing ‘works’ in the first place then perhaps we should not be surprised by this result. There are many and varied arguments as to why cheap stocks outperform expensive stocks. One argument is from the behavioural finance camp, where it is said that ‘growth’ (glamour/expensive) stocks on average fail to meet expectations and value (cheap) stocks have a propensity to positively surprise investors. So what then of the expectations on negative earners? It seems **they do not have the capacity to disappoint by much**; if a stock is already making a loss, then it has more than likely already disappointed the market. Contrast this with **expensive stocks on high PEs which have more potential to disappoint if the ‘growth story’ never eventuates**.

In fact **with negative earners, it would seem that the surprise risk is skewed towards the upside** in the form of buyouts, business model restructuring and in economic turnaround stories and we suspect this is driving our results.

Similarly some academics argue that cheap outperforms expensive because cheap stocks are inherently riskier and there is a reward associated with the additional risk. Whilst we are not huge fans of this risk argument in general, if we consider loss makers **would it be fair to say a stock making a loss is risky?** We would certainly be **inclined to believe it belongs at the cheap/risky end of the rankings as opposed to the expensive (theoretically) lower risk end of the spectrum.**

We have just come through a time in history when there have been a very large number of reported and forecasted loss makers. So **now more than ever we have the issue of what to do with loss making stocks** and perhaps this is why we had not noticed this earlier. Indeed this **in part explains the significant dispersion in the returns to the PE and PB factors this year** with the bottom rankers of the former (based on our traditional approach) in many cases being the top rankers on the latter (and typically rallying very strongly since the recovery began).

Our results suggest that **shorting loss makers (just because they are making a loss) is a bad idea**. We are not saying these are in any way good stocks, but letting them take up precious ‘slots’ in your short basket over an above expensive stocks is detrimental to the performance of the short side. The back-testing shows that **expensive PE stocks are better short candidates** from a valuation based perspective.

We would **advise that loss making stocks either be excluded altogether from the valuation universe**, or that investors use another valuation metric in conjunction with earnings to better position the stock in the valuation space. For example perhaps a ‘cascade’ from PE through to P/Book for loss makers presents a better measure of value across the whole universe (Though the danger here is that these stocks jump to the very top of the rankings).

Of course our analysis looks at loss makers as a whole. More than likely *some* loss makers do underperform (and may even go bankrupt) in which case they deserve to be targeted as shorts. We reserve the challenge of distinguishing this group from the turnarounds for future work.

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## Appendix I: Earnings factors we tested

These factors were tested throughout regions and within regional sectors globally.

### Price to Actual Earnings (last reported)

The vanilla PE ratio is price to *actual* reported earnings from the company accounts. These can be using the last reported annual number, or it can be the trailing 12 months using quarterly or semi-annual reports as they become available.

In our tests **we use trailing 12 month numbers**, reflecting the new quarterly or semi-annual numbers as they become available.

$$\text{PE (actual)} = \text{Current Price} / \text{Trailing 12 month EPS}$$

### Price to Forward Earnings (forecasted)

Price to *forecast* earnings numbers **uses the consensus earnings numbers for the next 12 months as sourced from IBES**.

$$\text{PE (forecast)} = \text{Current Price} / 12 \text{ month forward consensus EPS estimate}$$

### Price to Graham-Dodd Earnings (average 10 year earnings)

This is a more complicated version of the historical actual PE, in that the reported earnings per share for the last 10 years are averaged.

$$\text{PE (Graham-Dodd)} = \text{Current Price} / 10 \text{ yr Average of reported EPS}$$

Of course this **requires 10 years of prior history** before the factor can be calculated. In order to increase our coverage we ‘grow’ the average. What we mean is that we go back as far as earnings data is available and calculate the average, so that if the company has only been around for 2 years then its only has a 2 year average at that time. This is increased up to 10 years. (We’ve also tested a 5 year version of this factor but it performed no better.)

### Forecast Earnings Composite (with relative measures)

Finally, an even better comparison factor is our standard Value composite factor. It’s an average of *PE Forecast*, *PE Forecast relative to history (3 years)*, and *PE Forecast relative to sector* (we refer to this as our ‘Composite Value’).

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## Appendix II: Backtesting these Factors

### Data Source

We have back-tested the factor from 31 March 1998 to 30 June 2009 using Actual and Forecast earnings sourced from Reuters Global Fundamentals data and Thomson IBES estimates.

### Investigation Universes

We tested these following regions:

- MSCI All World
- MSCI GEM and GDM
- MSCI North America
- MSCI Europe
- MSCI Asia Pac (ex Japan)
- MSCI Asia Top 250 (ex Japan ex AU/NZ)
- MSCI Japan

### How we test these factors

Deciles were backtested in various universes (by region and sectors) where there was enough constituent stocks for the region/sector. If the constituents were too few, then the universe was broken only into quintiles to form larger portfolios (this happened only at the sector level tests for some regions).

These portfolios were then tracked through past 10 years rebalanced monthly. The equal weighted returns of the portfolios are calculated to then find the long-short returns of the extreme portfolios. The tests were not country or sector neutralized.

Please refer to the Appendix IV for a full description of our backtesting methodology and the format of the results.

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## Appendix III: Full Back-Test Results

These results are for MSCI regions around the world – firstly looking at PEs based on actual reported earnings, and then forecasted earnings. Please contact us if you'd like detailed results on any of the other earnings metrics.

All tables and charts have been sourced from MSCI, Thomson, Reuters and J.P. Morgan.

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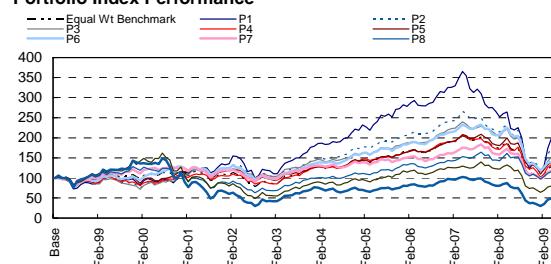
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## Actual Earnings Yield

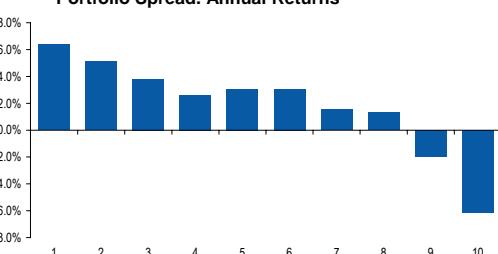
### Historical EY in NORTH AMERICA

Hist. EY in NORTH AMERICA in NORTH AMERICA							Rebalance every 1 month(s)													
3 Year(s): 31/05/2000 to 31/05/2003				3 Year(s): 31/05/2003 to 31/05/2006				3 Year(s): 31/05/2006 to 31/05/2009				Total Period: 31/03/1998 to 31/05/2009								
Port	Avg Ret	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%	12.8%	8%	58%	1	2.1%	27.2%	3%	67%	1	-0.5%	-10.8%	10%	47%	1	0.8%	6.4%	7%	54%	
2	0.9%	9.6%	5%	67%	2	1.6%	20.9%	2%	56%	2	-0.2%	-6.0%	8%	47%	2	0.6%	5.1%	6%	53%	
3	1.0%	10.9%	5%	67%	3	1.2%	15.6%	2%	44%	3	-0.4%	-6.8%	6%	47%	3	0.4%	3.8%	5%	49%	
4	0.4%	3.1%	5%	58%	4	1.4%	18.0%	2%	61%	4	-0.4%	-6.9%	6%	44%	4	0.3%	2.6%	5%	50%	
5	0.4%	2.8%	5%	58%	5	1.2%	15.1%	2%	47%	5	-0.3%	-5.4%	6%	64%	5	0.4%	3.1%	5%	54%	
6	0.1%	0.1%	5%	58%	6	1.5%	18.6%	3%	39%	6	-0.6%	-9.1%	5%	53%	6	0.4%	3.1%	5%	49%	
7	-0.2%	-3.6%	5%	47%	7	0.8%	10.0%	3%	25%	7	-0.5%	-7.0%	5%	58%	7	0.2%	1.5%	5%	48%	
8	-0.8%	-12.1%	7%	44%	8	1.3%	16.3%	3%	39%	8	-0.1%	-3.4%	5%	58%	8	0.3%	1.3%	5%	52%	
9	-1.6%	-21.6%	10%	36%	9	1.5%	18.7%	4%	50%	9	-0.7%	-10.7%	6%	44%	9	0.1%	-2.0%	7%	46%	
10	-1.5%	-25.6%	14%	33%	10	1.1%	13.2%	5%	47%	10	-0.9%	-15.2%	10%	36%	10	-0.1%	-6.2%	10%	41%	
<b>Total Test</b>				<b>Total Test</b>				<b>Total Test</b>				<b>Total Test</b>				<b>Total Test</b>				
Avg Ret	0.0%	8.7%	3.9%	434	Avg Ret	1.4%	3.6%	3.5%	601	Avg Ret	-0.5%	0.9%	0.3%	719	Avg Ret	0.3%	2.7%	1.5%	554	
IC					IC					IC					IC					
<b>Long Short Strategy Statistics</b>																				
<b>Portfolio 1 less Portfolio 10</b>																				
Avg Ret	2.8%	32.5%	9%	67%	Avg Ret	0.9%	11.1%	3%	64%	Avg Ret	0.4%	4.3%	4%	47%	Avg Ret	0.9%	8.07%	6.4%	56%	
Ret					Ret					Ret					Ret					
Devn					Devn					Devn					Devn					
Perf.					Perf.					Perf.					Perf.					
Long/Short					Long/Short					Long/Short					Long/Short					
T-Stat	1.78				T-Stat	1.70				T-Stat	0.69				T-Stat	1.54				
Assets	88				Assets	121				Assets	145				Assets	112				

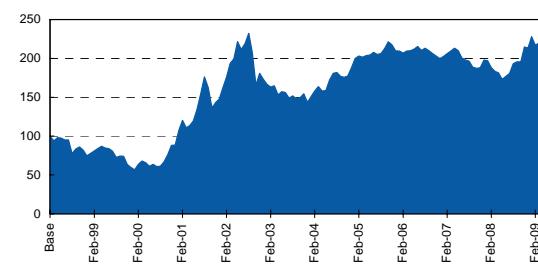
### Portfolio Index Performance



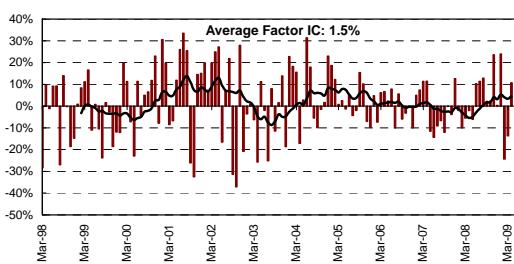
### Portfolio Spread. Annual Returns



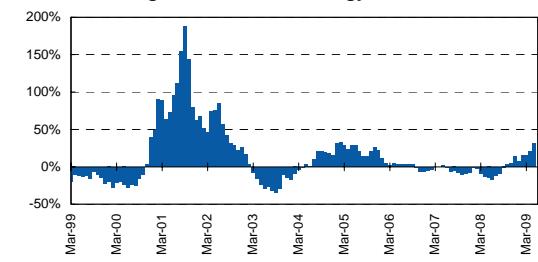
### Cumulative Returns



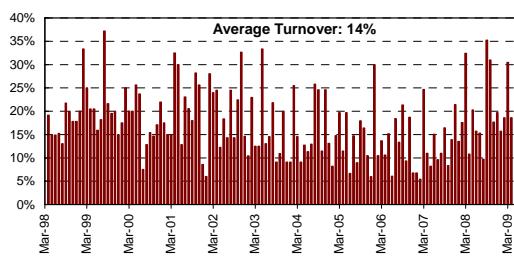
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



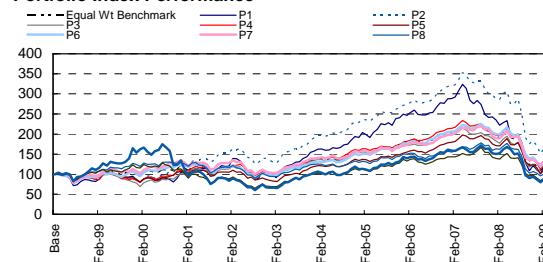
### Turnover within Portfolio 1



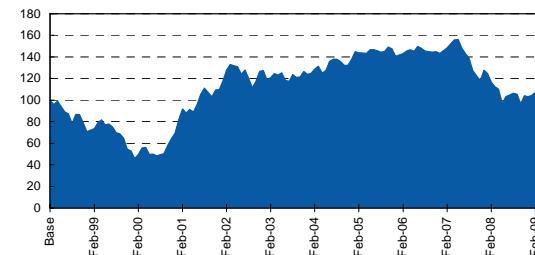
## Historical EY in NORTH AMERICA excluding negatives

Hist. EY in NORTH AMERICA excluding negative earners in NORTH AMERICA								Rebalance every 1 month(s)											
3 Year(s): 31/05/2000 to 31/05/2003 Portfolio Statistics				3 Year(s): 31/05/2003 to 31/05/2006 Portfolio Statistics				3 Year(s): 31/05/2006 to 31/05/2009 Portfolio Statistics				Total Period: 31/03/1998 to 31/05/2009 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%	9.7%	8%	58%	1	2.1%	28.2%	3%	47%	1	0.7%	5.2%	8%	54%	1	0.7%	5.2%	8%	54%
2	1.4%	16.5%	5%	72%	2	1.7%	21.6%	2%	58%	2	0.1%	-5.5%	8%	50%	2	0.8%	7.9%	6%	57%
3	0.9%	9.5%	5%	67%	3	1.2%	15.1%	2%	44%	3	-0.5%	-8.0%	6%	39%	3	0.4%	2.6%	5%	48%
4	0.8%	7.8%	5%	58%	4	1.3%	16.2%	2%	44%	4	-0.4%	-6.5%	6%	58%	4	0.4%	3.7%	5%	51%
5	0.3%	2.1%	5%	47%	5	1.4%	17.4%	3%	53%	5	-0.4%	-6.3%	6%	67%	5	0.3%	2.3%	5%	50%
6	0.1%	0.1%	5%	61%	6	1.4%	17.3%	2%	33%	6	-0.4%	-6.1%	5%	42%	6	0.4%	3.6%	4%	46%
7	0.1%	-0.7%	5%	53%	7	1.2%	14.9%	3%	39%	7	-0.4%	-6.2%	5%	50%	7	0.4%	3.4%	5%	49%
8	-0.4%	-5.8%	5%	39%	8	0.9%	11.2%	3%	28%	8	-0.4%	-7.0%	6%	50%	8	0.2%	1.3%	5%	44%
9	-0.8%	-11.2%	6%	39%	9	1.3%	16.6%	4%	44%	9	-0.6%	-8.5%	6%	44%	9	0.1%	0.0%	5%	46%
10	-1.3%	-18.9%	9%	44%	10	1.6%	20.0%	4%	56%	10	-0.6%	-9.5%	7%	56%	10	0.3%	0.1%	7%	53%
Total Test				Total Test				Total Test				Total Test				Total Test			
Avg Ret	0.2%	7.8%	5.9%	373	Avg Ret	1.4%	2.8%	3.3%	559	Avg Ret	-0.4%	-0.2%	-0.3%	671	Avg Ret	0.4%	1.6%	1.5%	507
Universe					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				Long Short Strategy Statistics Portfolio 1 less Portfolio 10			
Avg Ret	2.4%	30.0%	7%	64%	Avg Ret	0.5%	6.0%	3%	56%	Avg Ret	0.1%	-0.7%	6%	44%	Avg Ret	0.4%	3.28%	5.8%	51%
Devn					Devn					Devn					Devn				
Perf.					Perf.					Perf.					Perf.				
Long/Short					Long/Short					Long/Short					Long/Short				
T-Stat	2.19				T-Stat	1.14				T-Stat	0.10				T-Stat	0.87			
Assets	75				Assets	113				Assets	135				Assets	102			

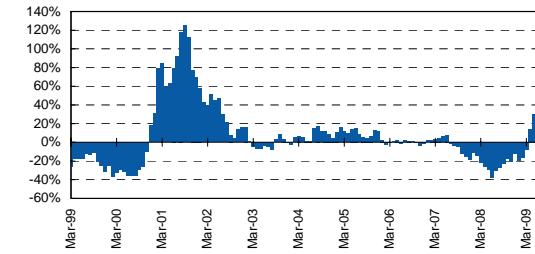
### Portfolio Index Performance



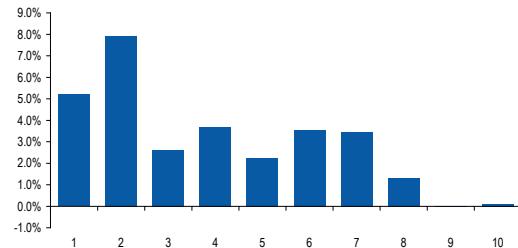
### Cumulative Returns



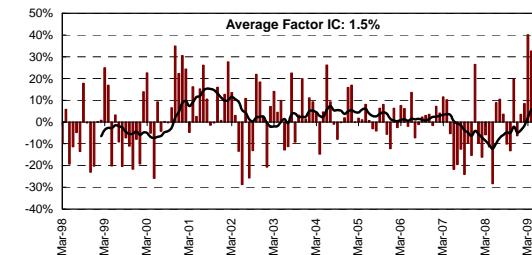
### 12 Month Rolling Returns Of L/S Strategy



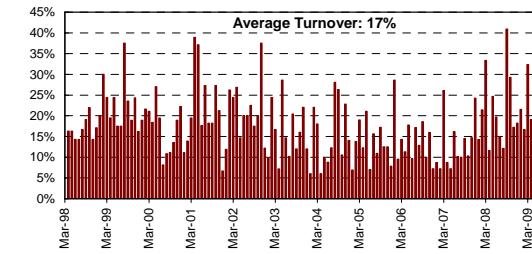
### Portfolio Spread. Annual Returns



### Information Co-Efficients (IC)



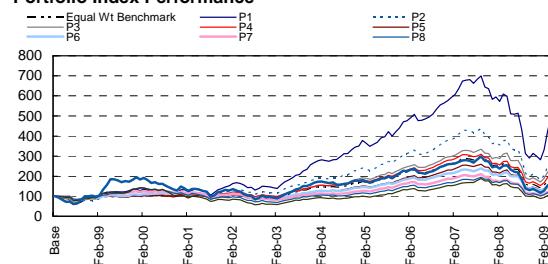
### Turnover within Portfolio 1



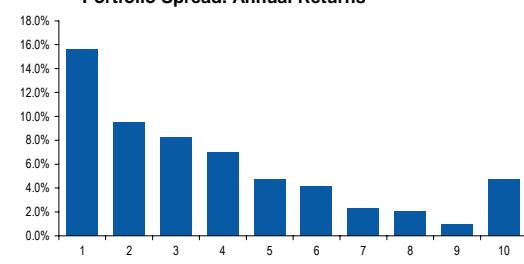
## Historical EY in MSCI WORLD

Hist. EY in MSCI WORLD in MSCI WORLD							Rebalance every 1 month(s)													
3 Year(s): 31/05/2000 to 31/05/2003				3 Year(s): 31/05/2003 to 31/05/2006				3 Year(s): 31/05/2006 to 31/05/2009				Total Period: 31/03/1998 to 31/05/2009								
Port	Avg Ret	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%	11.9%	7%	67%	1	3.0%	40.7%	4%	75%	1	0.6%	1.8%	10%	61%	1	1.5%	15.6%	7%	64%	
2	1.0%	10.6%	5%	81%	2	2.3%	31.3%	3%	56%	2	0.0%	-3.8%	8%	53%	2	0.9%	9.5%	6%	58%	
3	0.4%	2.8%	5%	72%	3	2.2%	29.6%	3%	61%	3	0.2%	-0.5%	7%	58%	3	0.8%	8.2%	5%	56%	
4	0.2%	1.5%	4%	67%	4	2.0%	27.0%	3%	50%	4	0.0%	-2.4%	6%	58%	4	0.7%	7.0%	5%	54%	
5	-0.1%	-2.7%	4%	58%	5	2.0%	26.9%	3%	53%	5	-0.2%	-4.4%	6%	50%	5	0.5%	4.7%	5%	50%	
6	-0.3%	-4.9%	4%	44%	6	1.8%	23.8%	3%	28%	6	-0.2%	-4.6%	6%	50%	6	0.4%	4.2%	4%	40%	
7	-0.8%	-10.0%	4%	44%	7	1.7%	21.6%	3%	31%	7	-0.4%	-6.8%	6%	36%	7	0.3%	2.3%	4%	41%	
8	-1.3%	-16.1%	5%	25%	8	1.7%	22.3%	3%	42%	8	-0.2%	-4.6%	6%	50%	8	0.3%	2.1%	5%	43%	
9	-1.6%	-19.8%	7%	22%	9	1.9%	23.9%	3%	44%	9	-0.2%	-4.5%	6%	56%	9	0.2%	1.0%	6%	43%	
10	-0.8%	-13.2%	8%	36%	10	2.1%	26.3%	4%	42%	10	-0.4%	-8.6%	8%	36%	10	0.7%	4.7%	8%	40%	
Total Test				Total Test				Total Test				Total Test				Total Test				
Avg Ret	Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Ret	Rank IC	Avg IC	Avg Assets	
Universe	-0.2%	8.2%	2.9%	2122	Universe	2.1%	4.5%	2.4%	2391	Universe	-0.1%	2.7%	1.5%	2639	Universe	0.6%	4.0%	1.3%	2378	

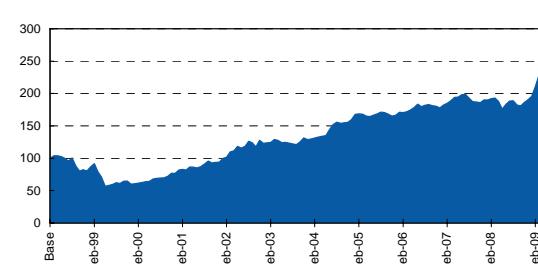
### Portfolio Index Performance



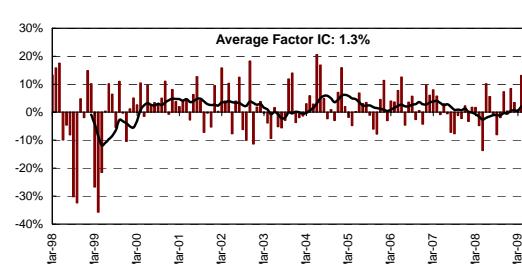
### Portfolio Spread. Annual Returns



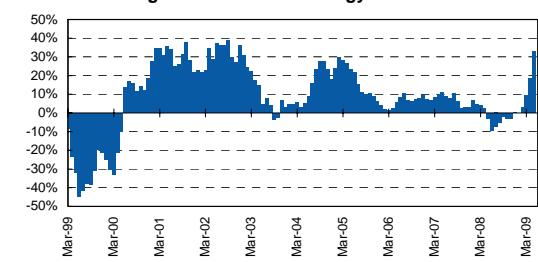
### Cumulative Returns



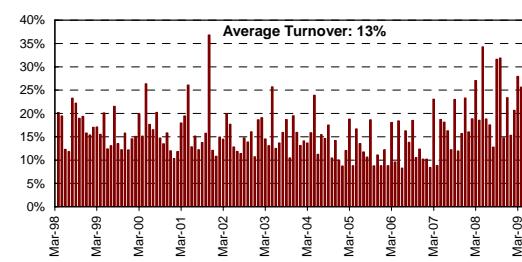
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



### Turnover within Portfolio 1



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25 November 2009

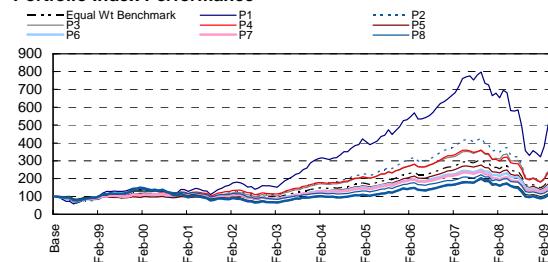
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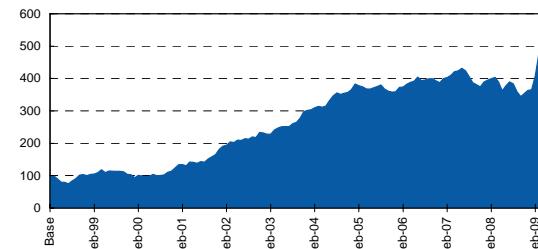
## Historical EY in MSCI WORLD excluding negative earners

Hist. EY in MSCI WORLD excluding negative earners in MSCI WORLD										Rebalance every 1 month(s)										
3 Year(s): 31/05/2000 to 31/05/2003					3 Year(s): 31/05/2003 to 31/05/2006					3 Year(s): 31/05/2006 to 31/05/2009					Total Period: 31/03/1998 to 31/05/2009					
Port	Avg Ret	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%	13.1%	7%	64%	1	3.0%	41.6%	4%	72%	1	0.7%	2.7%	10%	64%	1	1.6%	17.0%	8%	66%	
2	0.9%	9.2%	5%	67%	2	2.4%	32.5%	3%	64%	2	0.1%	-2.8%	8%	50%	2	0.9%	9.4%	6%	57%	
3	0.6%	6.2%	5%	81%	3	2.2%	30.1%	3%	56%	3	0.1%	-1.3%	7%	50%	3	0.9%	8.8%	5%	59%	
4	0.4%	3.1%	5%	75%	4	2.1%	27.8%	3%	53%	4	0.0%	-2.0%	7%	56%	4	0.8%	8.6%	5%	58%	
5	0.1%	-0.4%	4%	69%	5	2.1%	28.0%	3%	56%	5	-0.1%	-3.1%	6%	58%	5	0.6%	5.6%	5%	54%	
6	-0.2%	-3.2%	4%	42%	6	1.9%	24.2%	3%	36%	6	-0.2%	-3.9%	6%	50%	6	0.5%	4.6%	5%	41%	
7	-0.4%	-5.2%	4%	47%	7	1.9%	24.9%	3%	53%	7	-0.4%	-6.3%	5%	28%	7	0.4%	3.7%	4%	40%	
8	-0.8%	-10.2%	4%	28%	8	1.7%	21.7%	3%	25%	8	-0.3%	-5.4%	6%	50%	8	0.4%	3.1%	4%	39%	
9	-1.4%	-16.9%	5%	17%	9	1.8%	22.7%	3%	39%	9	-0.2%	-4.3%	6%	50%	9	0.3%	1.7%	5%	41%	
10	-1.4%	-17.7%	6%	25%	10	1.7%	21.9%	4%	31%	10	-0.3%	-6.1%	7%	42%	10	0.3%	1.1%	6%	37%	
Total Test					Total Test					Total Test					Total Test					
Avg Ret	Ret IC	Avg IC	Avg Assets		Avg Ret	Ret IC	Avg IC	Avg Assets		Avg Ret	Ret IC	Avg IC	Avg Assets		Avg Ret	Ret IC	Avg IC	Avg Assets		
Universe	-0.1%	7.5%	5.4%	1708	Universe	2.1%	4.8%	5.1%	2074	Universe	0.0%	2.3%	2.0%	2441	Universe	0.7%	3.4%	3.4%	2046	
Long Short Strategy Statistics Portfolio 1 less Portfolio 10										Long Short Strategy Statistics Portfolio 1 less Portfolio 10										
Long/Short	2.7%	36.5%	4%	67%	Long/Short	1.3%	16.2%	2%	72%	Long/Short	1.0%	11.0%	5%	64%	Long/Short	1.3%	16.11%	4.4%	62%	
Avg	T-Stat	Assets			Avg	T-Stat	Assets			Avg	T-Stat	Assets			Avg	T-Stat	Assets			
Long/Short	4.30	342			Long/Short	3.38	416			Long/Short	1.22	489			Long/Short	3.54	410			

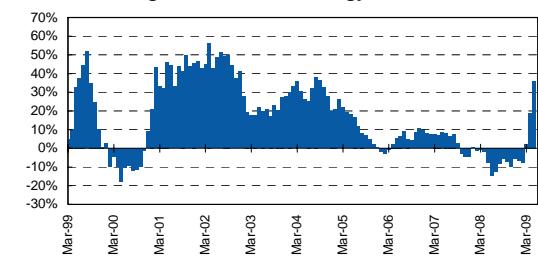
### Portfolio Index Performance



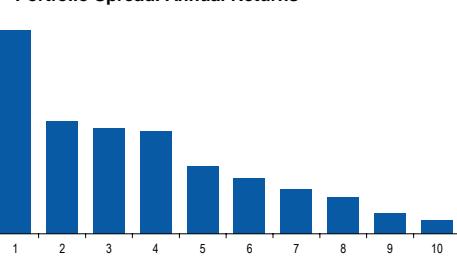
### Cumulative Returns



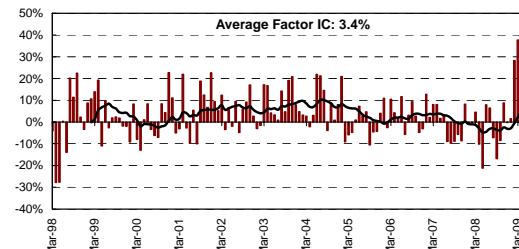
### 12 Month Rolling Returns Of L/S Strategy



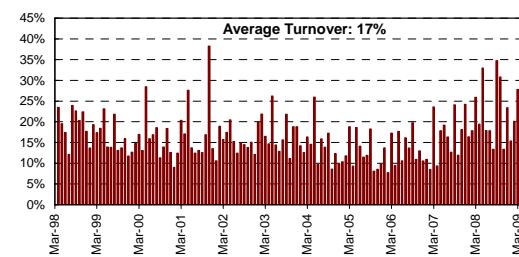
### Portfolio Spread. Annual Returns



### Information Co-Efficients (IC)



### Turnover within Portfolio 1

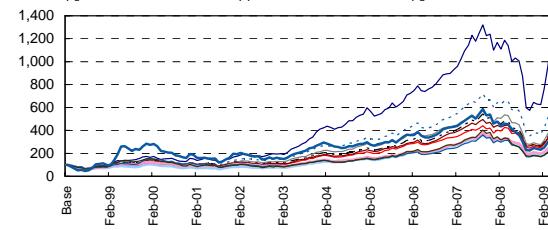


## Historical EY in MSCI GEM

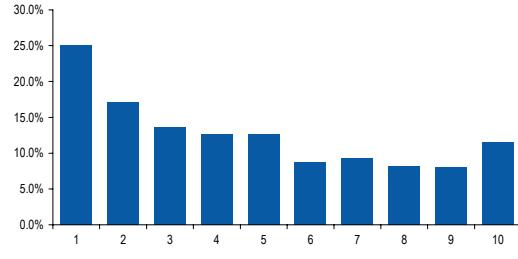
Hist. EY in MSCI GEM in MSCI GEM										Rebalance every 1 month(s)									
3 Year(s): 31/05/2000 to 31/05/2003					3 Year(s): 31/05/2003 to 31/05/2006					3 Year(s): 31/05/2006 to 31/05/2009					Total Period: 31/03/1998 to 31/05/2009				
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	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%	17.0%	7%	67%	1	3.4%	46.8%	5%	64%	1	1.9%	17.6%	10%	58%	1	2.2%	25.0%	8%	63%
2	1.4%	16.0%	6%	75%	2	2.6%	35.5%	4%	50%	2	1.2%	11.1%	8%	58%	2	1.6%	17.1%	7%	58%
3	1.3%	14.1%	6%	75%	3	2.5%	33.4%	4%	56%	3	0.7%	5.1%	8%	44%	3	1.3%	13.6%	6%	53%
4	0.7%	7.1%	6%	61%	4	2.5%	33.1%	4%	47%	4	1.1%	10.8%	7%	50%	4	1.2%	12.6%	6%	51%
5	0.1%	-0.2%	5%	53%	5	2.6%	34.5%	4%	56%	5	1.0%	9.2%	7%	50%	5	1.2%	12.7%	6%	54%
6	-0.1%	-2.6%	5%	39%	6	2.5%	33.9%	4%	47%	6	0.9%	8.3%	7%	53%	6	0.9%	8.8%	6%	47%
7	-0.3%	-5.4%	5%	28%	7	2.3%	29.2%	4%	42%	7	1.0%	9.6%	7%	44%	7	0.9%	9.3%	6%	40%
8	-0.9%	-11.7%	6%	19%	8	2.0%	25.6%	4%	31%	8	0.9%	7.6%	8%	53%	8	0.9%	8.1%	7%	38%
9	-0.6%	-10.0%	7%	28%	9	2.4%	31.8%	4%	53%	9	0.6%	3.2%	8%	39%	9	0.9%	8.0%	7%	40%
10	-0.1%	-6.0%	9%	47%	10	2.0%	24.5%	5%	28%	10	0.2%	-1.7%	9%	31%	10	1.5%	11.5%	11%	40%
Total Test					Total Test					Total Test					Total Test				
Avg Ret	0.3%	7.9%	3.2%	721	Avg Ret	2.5%	4.2%	3.0%	729	Avg Ret	1.0%	3.4%	2.6%	820	Avg Ret	1.3%	4.4%	1.9%	784
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	1.7%	20.1%	5%	67%	Avg Ret	1.4%	17.6%	3%	78%	Avg Ret	1.7%	21.0%	4%	61%	Avg Ret	0.7%	4.88%	7.6%	65%
Devn					Devn					Devn					Devn				
Perf.					Perf.					Perf.					Perf.				
Long/Short	1.91				T-Stat	2.91				Long/Short	2.42				Long/Short	1.11			
Avg Assets										Avg Assets									
Long/Short										Long/Short									
Assets										Assets									

### Portfolio Index Performance

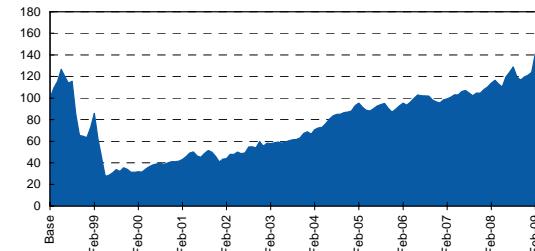
--- Equal Wt Benchmark  
 P3  
 P6  
 P1  
 P4  
 P7  
 P2  
 P5  
 P8



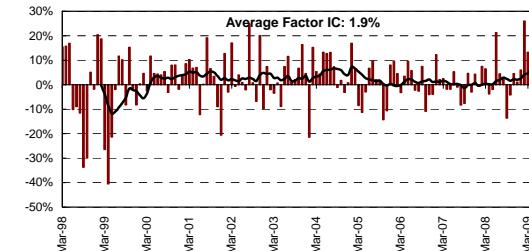
### Portfolio Spread. Annual Returns



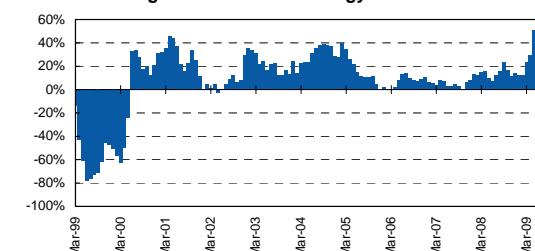
### Cumulative Returns



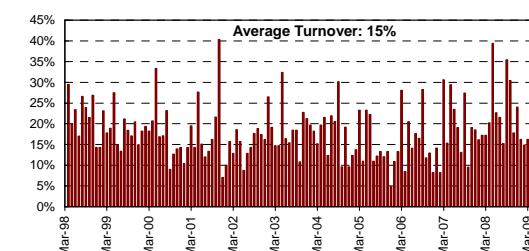
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



### Turnover within Portfolio 1



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**Asia Pacific Equity Research**  
25 November 2009

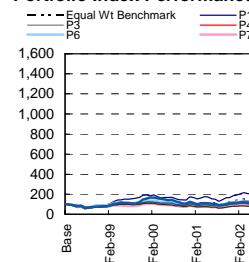
**J.P.Morgan**

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(852) 2800 8568  
steven.j.malin@jpmorgan.com

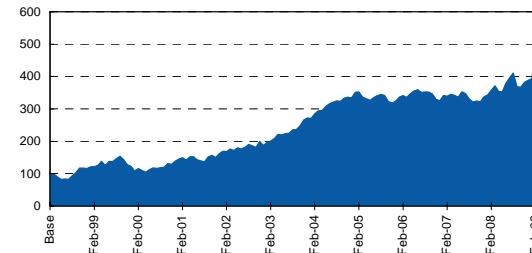
## Historical EY in MSCI GEM excluding negative earners

Hist. EY in MSCI GEM excluding negative earners in MSCI GEM										Rebalance every 1 month(s)									
3 Year(s): 31/05/2000 to 31/05/2003					3 Year(s): 31/05/2003 to 31/05/2006					3 Year(s): 31/05/2006 to 31/05/2009					Total Period: 31/03/1998 to 31/05/2009				
Port	Avg Ret	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%	17.5%	8%	67%	1	3.3%	46.3%	5%	64%	1	1.9%	17.6%	11%	56%	1	2.3%	26.1%	9%	62%
2	1.6%	17.9%	6%	78%	2	3.0%	40.5%	4%	58%	2	1.2%	10.4%	8%	53%	2	1.7%	18.3%	7%	61%
3	1.1%	11.7%	6%	69%	3	2.3%	30.7%	4%	39%	3	0.9%	6.8%	8%	39%	3	1.3%	13.4%	7%	48%
4	1.3%	13.9%	6%	75%	4	2.5%	32.7%	4%	47%	4	1.2%	12.4%	7%	56%	4	1.4%	15.3%	6%	54%
5	0.6%	5.3%	5%	47%	5	2.4%	32.4%	4%	42%	5	0.8%	7.1%	7%	47%	5	1.1%	11.2%	6%	46%
6	0.0%	-1.5%	6%	31%	6	2.8%	38.0%	4%	53%	6	1.1%	10.4%	7%	50%	6	1.3%	13.5%	6%	46%
7	-0.1%	-2.4%	5%	39%	7	2.3%	30.2%	4%	36%	7	0.7%	5.3%	7%	42%	7	0.8%	7.7%	6%	40%
8	-0.3%	-5.3%	5%	28%	8	2.2%	28.0%	4%	39%	8	0.9%	8.3%	7%	53%	8	0.9%	8.7%	6%	40%
9	-0.7%	-9.8%	5%	28%	9	2.3%	30.1%	4%	44%	9	0.8%	6.6%	8%	47%	9	0.7%	6.2%	6%	42%
10	-0.6%	-9.4%	7%	31%	10	2.0%	25.9%	4%	36%	10	0.4%	0.8%	8%	44%	10	0.9%	7.9%	7%	40%
Total Test					Total Test					Total Test					Total Test				
Avg Ret	0.4%	7.1%	5.0%	600	Avg Ret	2.5%	3.7%	3.8%	676	Avg Ret	1.0%	2.7%	2.7%	784	Avg Ret	1.2%	3.6%	3.3%	692
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				
Avg Ret	2.2%	28.4%	5%	64%	Avg Ret	1.3%	16.2%	3%	69%	Avg Ret	1.5%	18.0%	5%	56%	Avg Ret	1.4%	16.85%	5.1%	60%
Ret					Ret					Ret					Ret				
Devn					Devn					Devn					Devn				
Perf.					Perf.					Perf.					Perf.				
Long/Short					Long/Short					Long/Short					Long/Short				
T-Stat	2.78				T-Stat	2.88				T-Stat	1.80				T-Stat	3.28			
Assets	121				Assets	136				Assets	157				Assets	139			

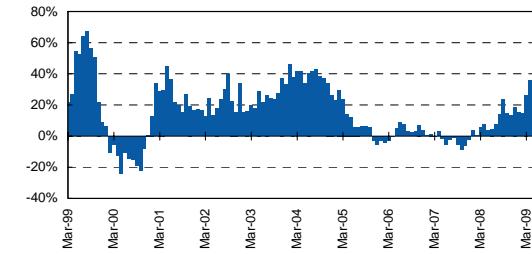
### Portfolio Index Performance



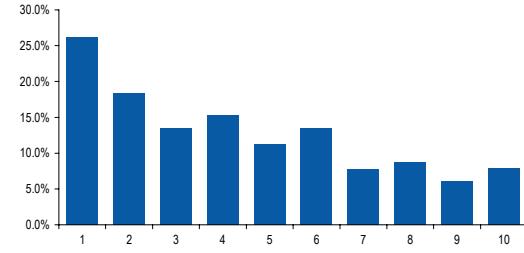
### Cumulative Returns



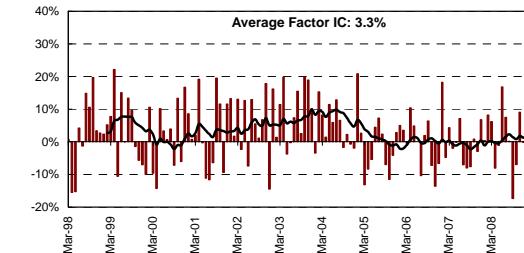
### 12 Month Rolling Returns Of L/S Strategy



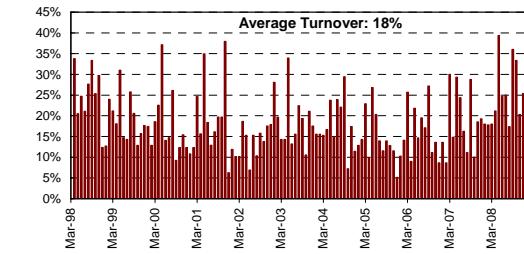
### Portfolio Spread. Annual Returns



### Information Co-Efficients (IC)



### Turnover within Portfolio 1



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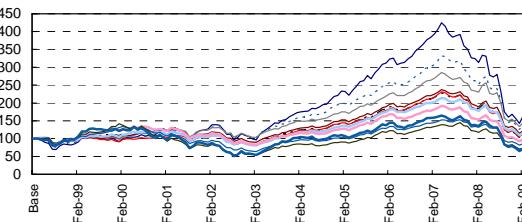
Steve Malin  
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## Historical EY in MSCI GDM

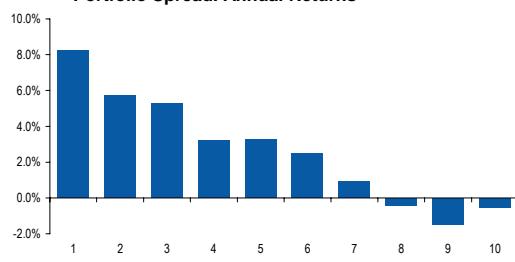
Hist. EY in MSCI GDM in MSCI GDM							Rebalance every 1 month(s)									
3 Year(s): 31/05/2000 to 31/05/2003				3 Year(s): 31/05/2003 to 31/05/2006				3 Year(s): 31/05/2006 to 31/05/2009				Total Period: 31/03/1998 to 31/05/2009				
Port	Avg Ret	Ann Ret	St Dev	Port	Avg Ret	Ann Ret	St Dev	Port	Avg Ret	Ann Ret	St Dev	Port	Avg Ret	Ann Ret	St Dev	
1	0.7%	4.9%	7%	67%	1	2.7%	36.6%	3%	75%	1	0.9%	8.3%	7%	60%		
2	0.6%	5.4%	5%	72%	2	2.1%	27.4%	2%	58%	2	0.6%	5.7%	6%	56%		
3	0.3%	2.8%	5%	72%	3	1.8%	23.4%	2%	36%	3	0.5%	5.3%	5%	53%		
4	-0.1%	-1.8%	4%	61%	4	1.8%	23.7%	2%	50%	4	-0.4%	-7.2%	6%	52%		
5	-0.1%	-2.8%	4%	64%	5	1.8%	23.6%	2%	42%	5	-0.6%	-8.9%	6%	49%		
6	-0.6%	-8.3%	4%	50%	6	1.9%	25.1%	2%	44%	6	-0.7%	-9.1%	5%	47%		
7	-0.8%	-10.7%	4%	33%	7	1.6%	20.1%	3%	28%	7	-0.8%	-11.1%	5%	36%		
8	-1.4%	-17.3%	5%	28%	8	1.6%	19.9%	3%	28%	8	-0.6%	-8.9%	5%	39%		
9	-1.7%	-21.0%	7%	31%	9	1.7%	22.1%	3%	39%	9	-0.7%	-9.4%	6%	44%		
10	-1.4%	-18.9%	9%	33%	10	2.1%	26.6%	4%	61%	10	-0.7%	-11.0%	8%	47%		
Total Test				Total Test				Total Test				Total Test				
Avg Ret	Ret Rank	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	-0.5%	8.4%	3.6%	1401	1.9%	4.4%	1.3%	1662	1.9%	4.4%	1.3%	1819	0.4%	3.7%	1.2%	1594
<b>Long Short Strategy Statistics</b>																
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%	25.5%	5%	72%	0.6%	7.2%	2%	69%	0.4%	4.8%	3%	53%	0.7%	7.94%	3.7%	60%
T-Stat	2.51				1.56				0.89				2.20			
Long/Short	Assets				333				364				320			

### Portfolio Index Performance

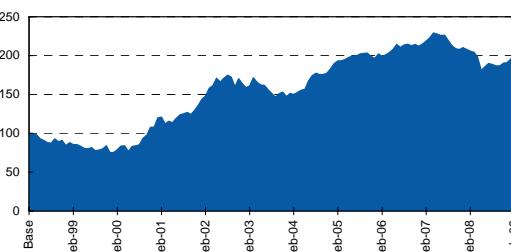
--- Equal Wt Benchmark  
P3 P6  
P4 P7  
P5 P8



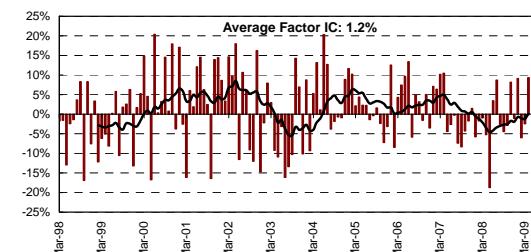
### Portfolio Spread. Annual Returns



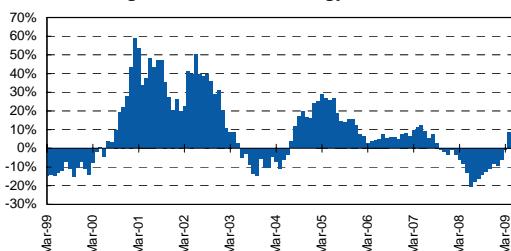
### Cumulative Returns



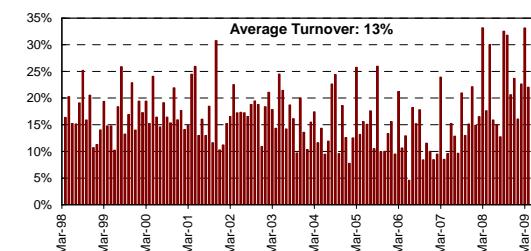
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



### Turnover within Portfolio 1



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**Asia Pacific Equity Research**  
25 November 2009

**J.P.Morgan**

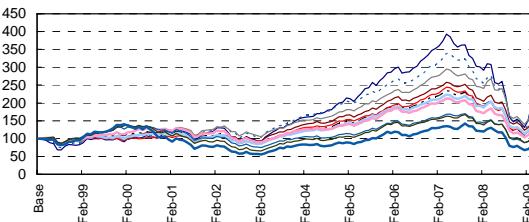
Steve Malin  
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## Historical EY in MSCI GDM excluding negative earners

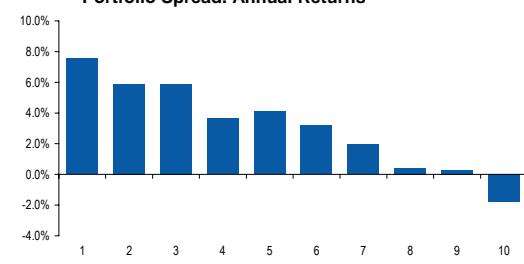
Hist. EY in MSCI GDM excluding negative earners in MSCI GDM								Rebalance every 1 month(s)											
3 Year(s): 31/05/2000 to 31/05/2003				3 Year(s): 31/05/2003 to 31/05/2006				3 Year(s): 31/05/2006 to 31/05/2009				Total Period: 31/03/1998 to 31/05/2009							
Port	Avg Ret	Ann Ret	St Dev	% Out 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%	2.3%	7%	64%	1	2.7%	36.8%	3%	78%	1	0.9%	7.6%	7%	60%	1	0.9%	7.6%	7%	60%
2	0.7%	6.2%	6%	75%	2	2.1%	28.2%	2%	67%	2	0.6%	5.9%	6%	58%	2	0.6%	5.9%	6%	58%
3	0.4%	3.6%	5%	67%	3	1.8%	24.2%	2%	44%	3	-0.3%	-6.1%	7%	61%	3	0.6%	5.9%	5%	54%
4	0.0%	-1.1%	4%	67%	4	1.9%	24.5%	2%	47%	4	-0.5%	-7.6%	6%	61%	4	0.4%	3.7%	5%	53%
5	0.1%	-0.4%	4%	64%	5	1.9%	24.4%	2%	53%	5	-0.6%	-8.9%	6%	53%	5	0.4%	4.1%	4%	54%
6	-0.3%	-4.5%	4%	58%	6	1.8%	24.2%	2%	53%	6	-0.5%	-8.0%	5%	42%	6	0.4%	3.2%	4%	49%
7	-0.5%	-7.4%	4%	39%	7	1.7%	21.6%	3%	39%	7	-0.8%	-10.7%	5%	36%	7	0.3%	2.0%	4%	43%
8	-1.2%	-14.6%	4%	19%	8	1.5%	19.4%	3%	25%	8	-0.7%	-9.4%	5%	44%	8	0.1%	0.4%	4%	37%
9	-1.5%	-17.7%	5%	28%	9	1.7%	22.2%	3%	50%	9	-0.6%	-8.7%	5%	53%	9	0.1%	0.3%	5%	48%
10	-1.7%	-20.9%	6%	36%	10	1.6%	20.3%	4%	42%	10	-0.6%	-9.4%	6%	44%	10	0.0%	-1.8%	5%	45%
Total Test				Total Test				Total Test				Total Test				Total Test			
Avg Ret	Ret IC	Ann IC	Avg Assets	Avg Ret	Rank IC	Ann IC	Avg Assets	Avg Ret	Rank IC	Ann IC	Avg Assets	Avg Ret	Rank IC	Ann IC	Avg Assets	Avg Ret	Rank IC	Ann IC	Avg Assets
Universe	-0.4%	7.9%	4.7%	1109	Universe	1.9%	4.9%	4.8%	1397	Universe	-0.5%	1.1%	0.7%	1658	Universe	0.4%	3.3%	2.1%	1354

### Portfolio Index Performance

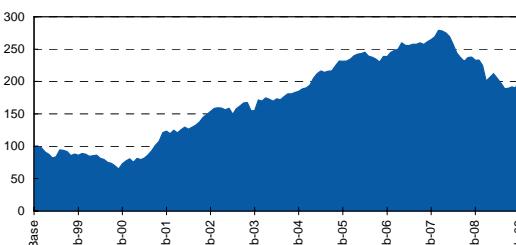
--- Equal Wt Benchmark  
P3 P6  
P1 P4  
P2 P5  
P7 P8



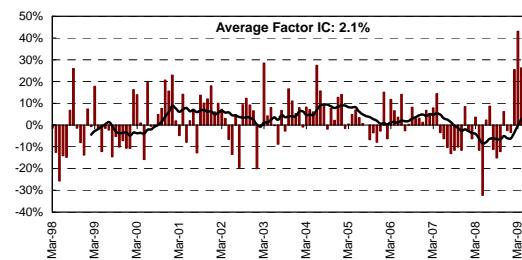
### Portfolio Spread. Annual Returns



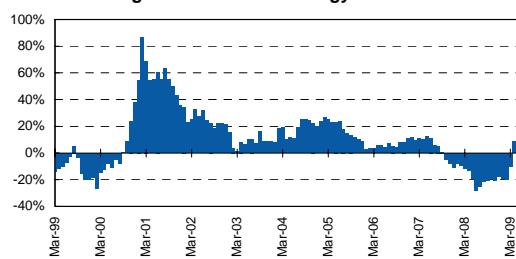
### Cumulative Returns



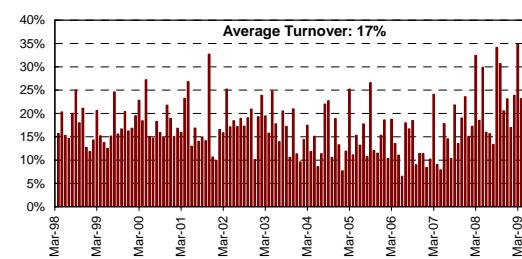
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



### Turnover within Portfolio 1

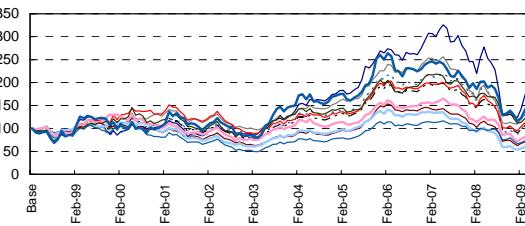


## Historical EY in JP

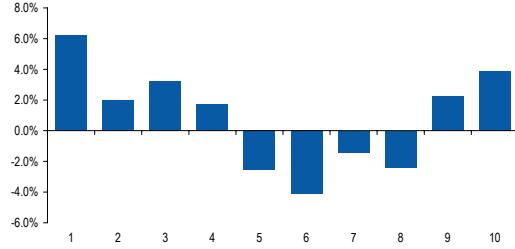
Hist. EY in JP in JP																				
3 Year(s): 31/05/2000 to 31/05/2003					3 Year(s): 31/05/2003 to 31/05/2006					3 Year(s): 31/05/2006 to 31/05/2009					Rebalance every 1 month(s)					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	
1	0.2%	-0.1%	6%	67%	1	2.9%	38.8%	4%	69%	1	-0.3%	-9.0%	9%	53%	1	0.8%	6.2%	7%	60%	
2	-0.1%	-2.6%	5%	67%	2	2.3%	29.5%	4%	53%	2	-0.9%	-14.5%	8%	53%	2	0.4%	2.0%	6%	55%	
3	-0.3%	-5.0%	5%	58%	3	2.3%	30.5%	4%	53%	3	-1.0%	-13.8%	7%	44%	3	0.4%	3.2%	6%	51%	
4	-0.8%	-10.6%	5%	53%	4	2.0%	25.4%	4%	39%	4	-1.0%	-13.6%	6%	50%	4	0.3%	1.7%	5%	51%	
5	-1.1%	-13.7%	5%	42%	5	2.2%	28.5%	4%	53%	5	-1.6%	-19.0%	6%	31%	5	-0.1%	-2.6%	5%	45%	
6	-1.3%	-16.2%	5%	44%	6	2.0%	26.0%	4%	44%	6	-1.8%	-21.4%	6%	36%	6	-0.2%	-4.1%	5%	43%	
7	-0.9%	-12.1%	5%	36%	7	1.8%	22.2%	5%	28%	7	-1.3%	-16.5%	6%	47%	7	0.0%	-1.4%	5%	40%	
8	-1.7%	-19.8%	6%	31%	8	2.0%	26.0%	4%	44%	8	-0.8%	-10.3%	5%	56%	8	-0.1%	-2.4%	5%	42%	
9	-0.8%	-11.7%	7%	44%	9	2.2%	27.5%	6%	39%	9	-0.8%	-10.5%	5%	64%	9	0.4%	2.3%	6%	51%	
10	0.0%	-4.0%	8%	44%	10	2.9%	36.9%	7%	53%	10	-0.8%	-12.2%	7%	50%	10	0.6%	3.9%	8%	48%	
Total Test					Total Test					Total Test					Total Test					
Avg Ret	Ret IC	Avg IC	Avg Assets		Avg Ret	Ret IC	Avg IC	Avg Assets		Avg Ret	Ret IC	Avg IC	Avg Assets		Avg Ret	Ret IC	Avg IC	Avg Assets		
Universe	-0.7%	4.5%	-0.6%	297	Universe	2.3%	3.2%	-1.2%	340	Universe	-1.0%	0.2%	1.4%	370	Universe	0.3%	2.7%	0.1%	329	
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	Ann Ret	St Dev	% Out Perf.	Long/Short	Avg Ret	Ann Ret	St Dev	% Out Perf.	Long/Short	Avg Ret	Ann Ret	St Dev	% Out Perf.	Long/Short	Avg Ret	Ann Ret	St Dev	% Out Perf.	
Long/Short	0.2%	1.1%	5%	56%	Long/Short	0.0%	-1.6%	5%	58%	Long/Short	0.5%	5.1%	4%	56%	Long/Short	0.1%	0.07%	4.7%	57%	
T-Stat				Avg Assets	T-Stat				Avg Assets	T-Stat				Avg Assets	T-Stat			Avg Assets		
Long/Short	0.25			60	Long/Short	-0.04			69	Long/Short	0.69			75	Long/Short	0.29			67	

### Portfolio Index Performance

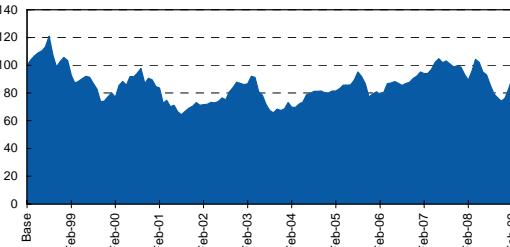
--- Equal Wt Benchmark  
P3 P1  
P6 P4 P7  
P2 P5 P8



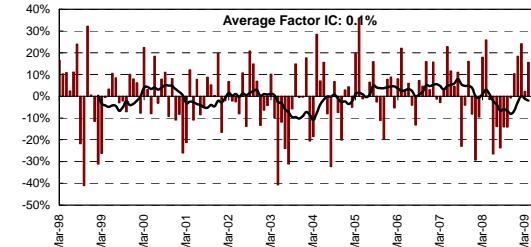
### Portfolio Spread. Annual Returns



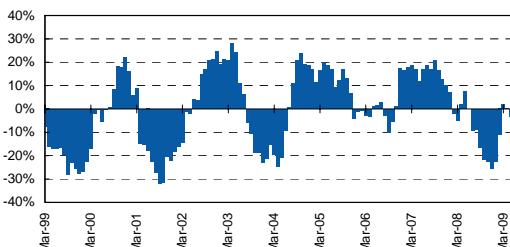
### Cumulative Returns



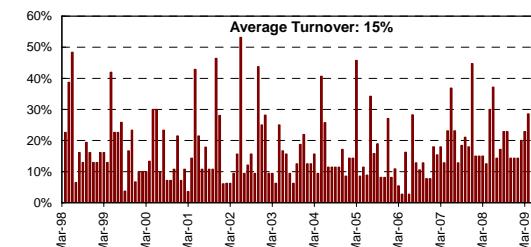
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



### Turnover within Portfolio 1



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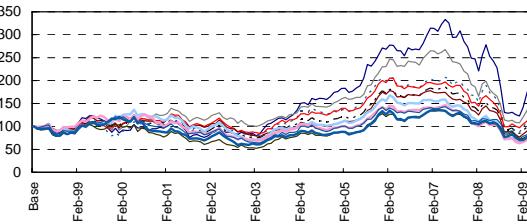
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## Historical EY in JP excluding negative earners

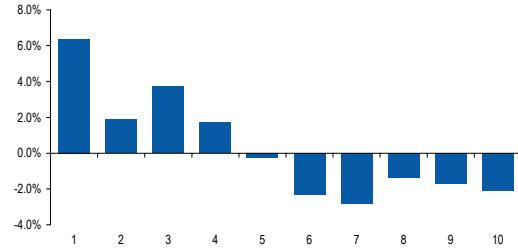
Hist. EY in JP excluding negative earners in JP							Rebalance every 1 month(s)																								
3 Year(s): 31/05/2000 to 31/05/2003				3 Year(s): 31/05/2003 to 31/05/2006				3 Year(s): 31/05/2006 to 31/05/2009				Total Period: 31/03/1998 to 31/05/2009																			
Port	Avg Ret	Ann Ret	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%	1.2%	7%	69%	1	3.0%	40.8%	4%	56%	1	-0.3%	-9.1%	10%	56%	1	0.8%	6.4%	7%	60%												
2	-0.2%	-3.5%	5%	58%	2	2.3%	29.3%	4%	56%	2	-0.8%	-13.4%	8%	56%	2	0.4%	1.9%	6%	54%												
3	0.0%	-1.6%	5%	61%	3	2.2%	29.5%	4%	64%	3	-0.9%	-13.3%	7%	44%	3	0.5%	3.7%	6%	56%												
4	-0.6%	-8.3%	5%	61%	4	2.3%	29.6%	4%	50%	4	-1.0%	-13.7%	6%	47%	4	0.3%	1.7%	5%	54%												
5	-0.7%	-9.5%	4%	50%	5	2.0%	26.0%	4%	56%	5	-1.3%	-16.1%	6%	44%	5	0.1%	-0.2%	5%	51%												
6	-1.3%	-15.5%	5%	42%	6	2.0%	25.8%	4%	36%	6	-1.7%	-20.2%	6%	39%	6	0.0%	-2.3%	5%	43%												
7	-1.2%	-14.9%	5%	47%	7	1.8%	22.6%	4%	33%	7	-1.5%	-18.1%	5%	47%	7	-0.1%	-2.8%	5%	44%												
8	-1.3%	-15.2%	5%	28%	8	1.9%	24.2%	5%	44%	8	-1.0%	-12.9%	5%	50%	8	0.0%	-1.4%	5%	42%												
9	-1.3%	-16.7%	6%	33%	9	2.1%	26.8%	5%	44%	9	-0.8%	-10.5%	5%	64%	9	0.0%	-1.7%	5%	47%												
10	-1.3%	-16.1%	6%	50%	10	1.7%	21.1%	5%	28%	10	-0.9%	-11.9%	6%	56%	10	0.0%	-2.1%	6%	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				233	Universe				304	Universe				353	Universe				283												
<b>Long Short Strategy Statistics</b>																															
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%	19.8%	4%	Long/Short		1.3%	15.5%	3%	Long/Short		0.6%	4.9%	6%	Long/Short		0.8%	8.43%	5.2%												
T-Stat		Avg Assets		47	T-Stat		Avg Assets		62	T-Stat		Avg Assets		71	T-Stat		Avg Assets		57												

### Portfolio Index Performance

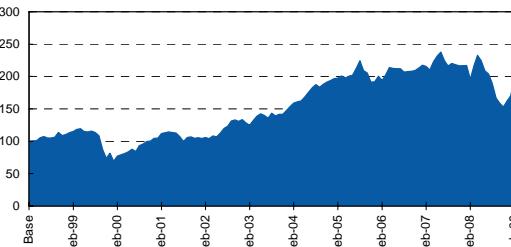
--- Equal Wt Benchmark  
P3 P4 P5 P6 P7 P8



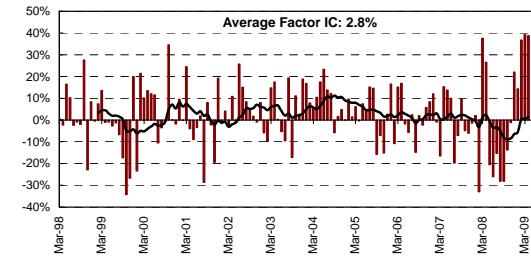
### Portfolio Spread. Annual Returns



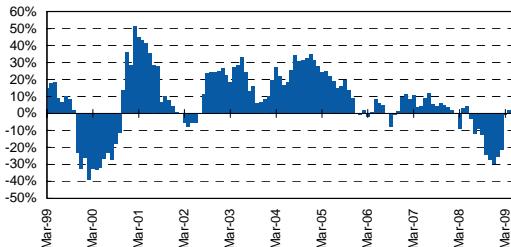
### Cumulative Returns



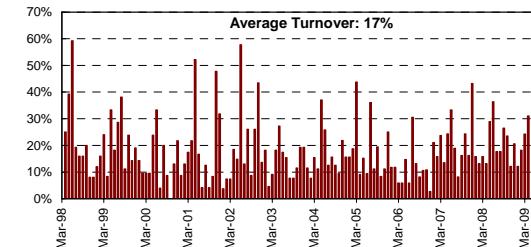
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



### Turnover within Portfolio 1



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25 November 2009

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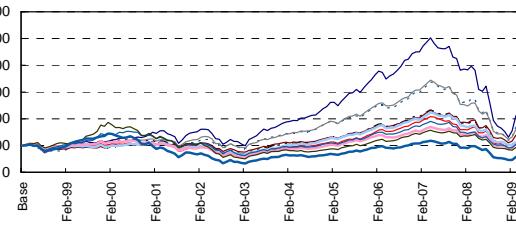
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## Historical EY in EUROPE

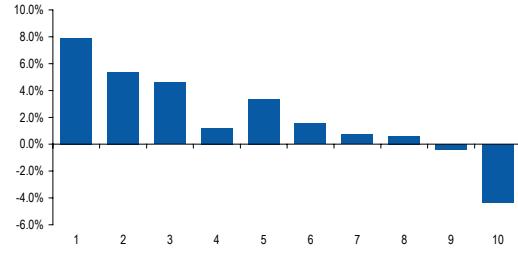
Hist. EY in EUROPE in EUROPE										Rebalance every 1 month(s)										
3 Year(s): 31/05/2000 to 31/05/2003					3 Year(s): 31/05/2003 to 31/05/2006					3 Year(s): 31/05/2006 to 31/05/2009					Total Period: 31/03/1998 to 31/05/2009					
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	
1	0.4%	0.5%	8%	67%	1	2.9%	39.2%	4%	47%	1	-0.6%	-12.5%	11%	47%	1	0.9%	7.9%	8%	57%	
2	0.4%	1.9%	7%	78%	2	2.3%	30.4%	3%	53%	2	-0.5%	-9.3%	8%	53%	2	0.6%	5.4%	6%	58%	
3	0.1%	-1.2%	6%	75%	3	2.4%	31.8%	3%	58%	3	-0.9%	-12.7%	7%	47%	3	0.5%	4.6%	6%	54%	
4	-0.8%	-10.8%	6%	56%	4	2.0%	26.8%	3%	44%	4	-0.6%	-9.3%	7%	53%	4	0.2%	1.2%	5%	48%	
5	-0.3%	-5.4%	5%	64%	5	2.0%	25.9%	3%	44%	5	-0.2%	-5.0%	7%	64%	5	0.4%	3.4%	5%	51%	
6	-0.7%	-9.2%	5%	53%	6	2.3%	30.3%	3%	53%	6	-0.7%	-10.4%	6%	53%	6	0.3%	1.6%	5%	49%	
7	-1.3%	-16.3%	6%	44%	7	1.9%	24.7%	3%	33%	7	-0.3%	-6.1%	6%	64%	7	0.2%	0.7%	5%	47%	
8	-1.7%	-20.9%	7%	33%	8	1.9%	24.4%	3%	33%	8	-0.6%	-9.0%	5%	47%	8	0.2%	0.6%	5%	43%	
9	-2.4%	-28.1%	8%	33%	9	1.8%	22.7%	4%	39%	9	-0.4%	-6.2%	5%	61%	9	0.2%	-0.4%	6%	49%	
10	-2.6%	-31.6%	10%	31%	10	2.2%	29.1%	5%	56%	10	-0.8%	-12.6%	8%	47%	10	-0.1%	-4.3%	8%	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	-0.9%	10.4%	7.0%	537	Universe	2.2%	4.8%	2.6%	560	Universe	-0.6%	0.2%	-0.2%	561	Universe	0.4%	3.9%	2.2%	562	
Long Short Strategy Statistics Portfolio 1 less Portfolio 10										Long Short Strategy Statistics Portfolio 1 less Portfolio 10										
Long/Short	3.0%	39.7%	5%	75%	Long/Short	0.6%	7.1%	3%	58%	Long/Short	0.3%	1.8%	5%	47%	Long/Short	1.0%	11.41%	4.6%	56%	Avg
T-Stat	3.41				T-Stat	1.28				T-Stat	0.31				T-Stat	2.55				Assets
Long Short Strategy Statistics Portfolio 1 less Portfolio 10										Long Short Strategy Statistics Portfolio 1 less Portfolio 10										Avg Assets
Long/Short	3.0%	39.7%	5%	75%	Long/Short	0.6%	7.1%	3%	58%	Long/Short	0.3%	1.8%	5%	47%	Long/Short	1.0%	11.41%	4.6%	56%	

### Portfolio Index Performance

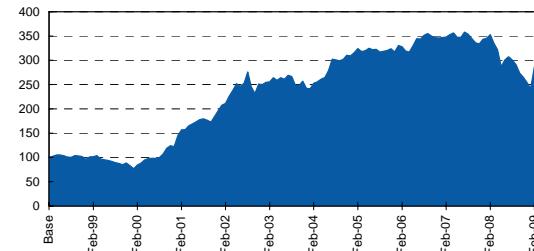
--- Equal Wt Benchmark  
P3 P6  
P4 P7  
P5 P8



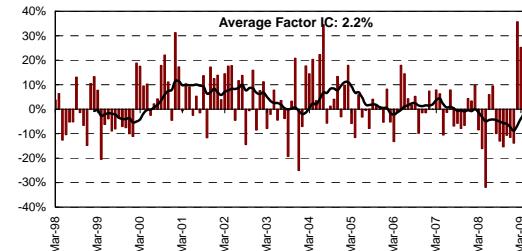
### Portfolio Spread. Annual Returns



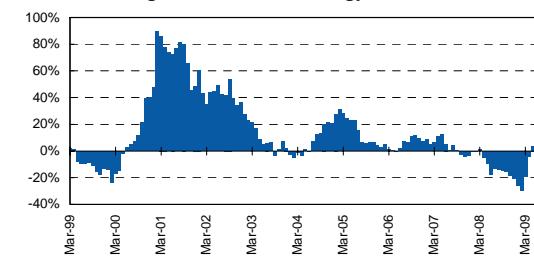
### Cumulative Returns



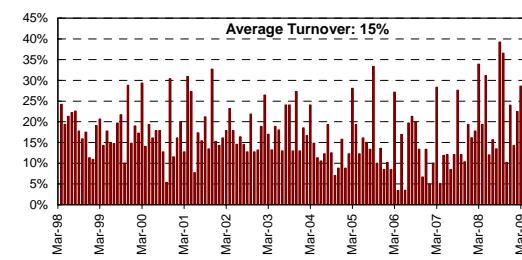
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



### Turnover within Portfolio 1



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**Asia Pacific Equity Research**  
25 November 2009

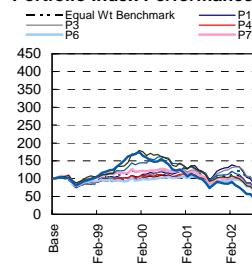
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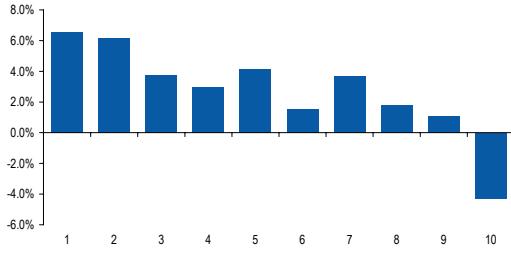
## Historical EY in EUROPE excluding negative earners

Hist. EY in EUROPE excluding negative earners in EUROPE										Rebalance every 1 month(s)									
3 Year(s): 31/05/2000 to 31/05/2003					3 Year(s): 31/05/2003 to 31/05/2006					3 Year(s): 31/05/2006 to 31/05/2009					Total Period: 31/03/1998 to 31/05/2009				
Port	Avg Ret	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	0.0%	-4.1%	8%	61%	1	2.9%	39.6%	4%	59%	1	-0.4%	-10.3%	11%	53%	1	0.8%	6.6%	8%	59%
2	0.0%	-2.7%	6%	69%	2	2.6%	36.1%	3%	67%	2	-0.4%	-8.8%	9%	58%	2	0.7%	6.2%	6%	60%
3	0.0%	-3.3%	7%	75%	3	2.4%	31.7%	3%	50%	3	-0.9%	-13.5%	7%	33%	3	0.5%	3.8%	6%	50%
4	-0.5%	-7.7%	6%	72%	4	2.2%	29.3%	3%	50%	4	-0.6%	-9.1%	7%	50%	4	0.4%	3.0%	6%	52%
5	-0.7%	-10.1%	6%	50%	5	2.5%	33.1%	3%	67%	5	-0.2%	-4.8%	6%	64%	5	0.5%	4.1%	5%	54%
6	-0.7%	-9.4%	5%	56%	6	2.4%	32.1%	3%	53%	6	-0.8%	-11.2%	6%	53%	6	0.3%	1.5%	5%	49%
7	-1.0%	-12.7%	6%	53%	7	2.1%	27.8%	3%	47%	7	-0.1%	-4.1%	6%	69%	7	0.4%	3.7%	5%	55%
8	-1.6%	-19.9%	7%	33%	8	2.0%	26.2%	3%	39%	8	-0.6%	-8.9%	5%	53%	8	0.3%	1.8%	5%	48%
9	-2.1%	-24.4%	7%	25%	9	1.9%	24.4%	4%	36%	9	-0.5%	-7.5%	5%	53%	9	0.3%	1.1%	6%	43%
10	-2.7%	-31.0%	8%	31%	10	1.5%	19.0%	4%	33%	10	-0.7%	-9.9%	6%	44%	10	-0.2%	-4.3%	6%	43%
Total Test					Total Test					Total Test					Total Test				
Avg Ret	Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Ret	Rank IC	Avg IC	Avg Assets
Universe	-0.9%	8.9%	6.3%	380	Universe	2.3%	6.5%	6.6%	383	Universe	-0.5%	0.1%	-0.3%	471	Universe	0.4%	3.7%	2.8%	425
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	Ret	Devn	Std	% Out Perf.	Avg Ret	Ret	Devn	Std	% Out Perf.	Avg Ret	Ret	Devn	Std	% Out Perf.	Avg Ret	Ret	Devn	Std	% Out Perf.
Long/Short	2.7%	36.5%	4%	75%	Long/Short	1.3%	17.1%	2%	75%	Long/Short	0.3%	1.5%	6%	53%	Long/Short	1.0%	11.10%	4.8%	62%
T-Stat	3.93		77		T-Stat	3.76		78		T-Stat	0.29		95		T-Stat	2.40		86	

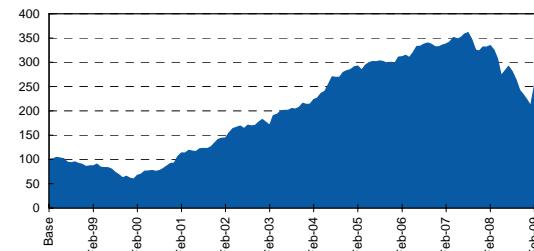
### Portfolio Index Performance



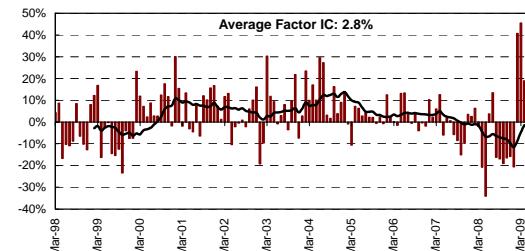
### Portfolio Spread. Annual Returns



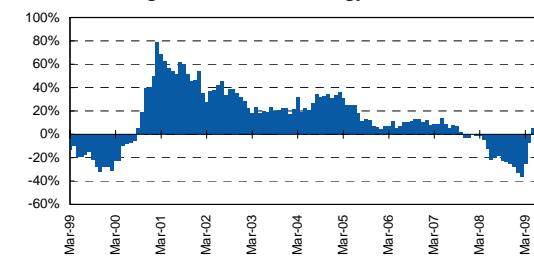
### Cumulative Returns



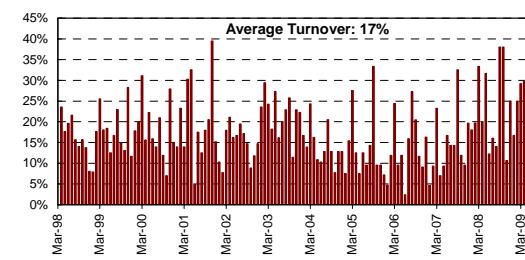
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



### Turnover within Portfolio 1

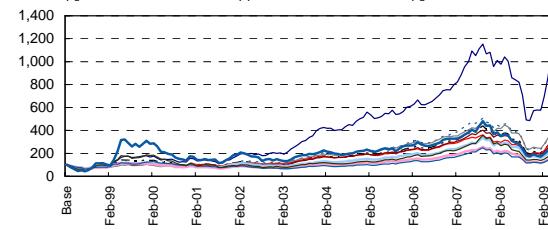


## Historical EY in ASIAPAC EX JP

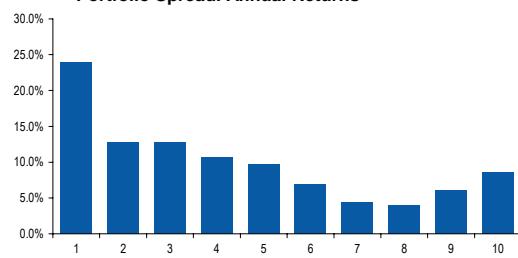
Hist. EY in ASIAPAC EX JP in ASIAPAC EX JP																			
3 Year(s): 31/05/2000 to 31/05/2003					3 Year(s): 31/05/2003 to 31/05/2006					3 Year(s): 31/05/2006 to 31/05/2009					Total Period: 31/03/1998 to 31/05/2009				
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.8%	18.7%	9%	58%	1	2.8%	37.9%	5%	67%	1	2.1%	20.5%	11%	64%	1	2.2%	23.9%	9%	62%
2	1.1%	11.3%	7%	75%	2	2.3%	29.8%	4%	58%	2	1.1%	9.4%	9%	53%	2	1.3%	12.8%	7%	58%
3	1.4%	15.3%	6%	75%	3	2.3%	30.5%	4%	56%	3	1.1%	10.1%	8%	50%	3	1.2%	12.8%	7%	55%
4	0.4%	3.2%	5%	56%	4	1.9%	24.6%	4%	31%	4	1.2%	11.2%	7%	53%	4	1.0%	10.7%	6%	48%
5	0.5%	4.9%	5%	61%	5	2.2%	29.0%	4%	56%	5	0.8%	6.5%	8%	42%	5	1.0%	9.7%	6%	50%
6	-0.1%	-3.2%	5%	36%	6	1.9%	25.2%	3%	39%	6	0.6%	4.2%	7%	56%	6	0.7%	6.9%	6%	44%
7	-0.5%	-7.7%	5%	33%	7	2.0%	25.3%	4%	53%	7	0.6%	3.9%	7%	47%	7	0.5%	4.5%	6%	43%
8	-1.4%	-16.6%	4%	36%	8	1.9%	23.9%	4%	42%	8	0.9%	6.9%	8%	56%	8	0.5%	4.0%	6%	44%
9	-1.3%	-17.6%	8%	25%	9	2.1%	27.0%	4%	53%	9	0.7%	3.6%	8%	47%	9	0.9%	6.0%	9%	45%
10	-0.5%	-11.5%	10%	36%	10	1.9%	23.3%	5%	39%	10	0.1%	-3.4%	9%	22%	10	1.4%	8.5%	13%	36%
Total Test					Total Test					Total Test					Total Test				
Avg Ret	0.1%	9.5%	4.7%	538	Avg Ret	2.1%	2.5%	2.0%	595	Avg Ret	0.9%	4.4%	3.3%	660	Avg Ret	1.1%	4.5%	2.1%	603
Universe					Universe					Universe					Universe				

### Portfolio Index Performance

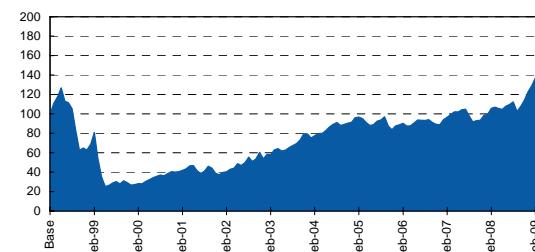
--- Equal Wt Benchmark  
 P3  
 P6  
 P1  
 P4  
 P2  
 P5  
 P7  
 P8



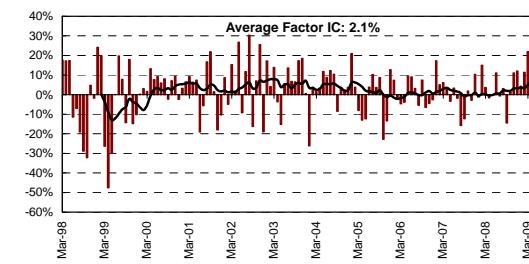
### Portfolio Spread. Annual Returns



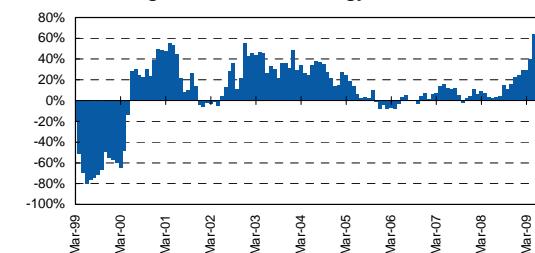
### Cumulative Returns



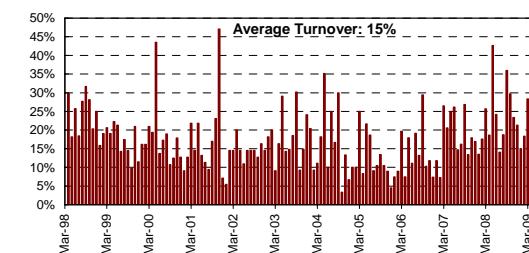
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



### Turnover within Portfolio 1



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25 November 2009

**J.P.Morgan**

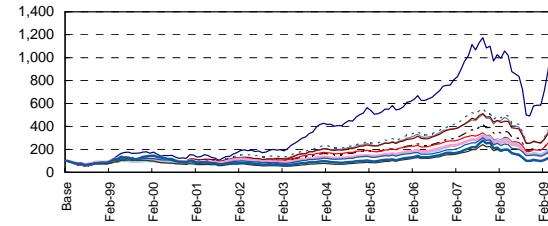
Steve Malin  
(852) 2800 8568  
steven.j.malin@jpmorgan.com

## Historical EY in ASIAPAC EX JP excluding negatives

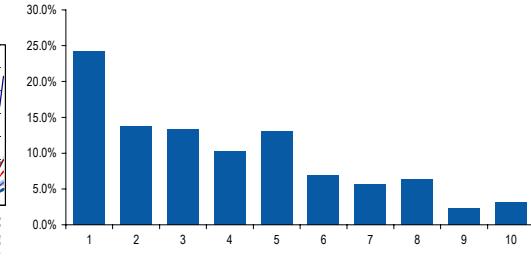
Hist. EY in ASIAPAC EX JP excluding negative earners in ASIAPAC EX JP								Rebalance every 1 month(s)											
3 Year(s): 31/05/2000 to 31/05/2003				3 Year(s): 31/05/2003 to 31/05/2006				3 Year(s): 31/05/2006 to 31/05/2009				Total Period: 31/03/1998 to 31/05/2009							
Port	Avg Ret	Ann Ret	St 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%	18.6%	9%	56%	1	2.9%	38.7%	5%	58%	1	2.2%	21.4%	9%	57%	1	2.3%	24.2%	9%	57%
2	1.3%	13.7%	7%	50%	2	2.2%	29.1%	4%	50%	2	1.1%	8.7%	9%	50%	2	1.4%	13.8%	8%	56%
3	1.2%	13.1%	7%	55%	3	2.4%	31.3%	4%	56%	3	1.1%	9.3%	8%	50%	3	1.3%	13.3%	7%	56%
4	0.9%	9.8%	6%	72%	4	1.8%	23.0%	4%	36%	4	1.1%	10.4%	8%	56%	4	1.0%	10.2%	6%	53%
5	0.5%	4.7%	5%	53%	5	2.4%	32.3%	4%	56%	5	1.1%	10.2%	8%	50%	5	1.2%	13.1%	7%	54%
6	0.1%	0.1%	5%	56%	6	2.0%	25.8%	3%	39%	6	0.8%	6.2%	8%	47%	6	0.7%	7.0%	6%	48%
7	-0.1%	-2.7%	5%	42%	7	1.8%	23.5%	4%	36%	7	0.3%	0.4%	7%	36%	7	0.6%	5.7%	6%	39%
8	-0.5%	-7.7%	5%	31%	8	1.8%	23.0%	4%	58%	8	0.9%	8.0%	8%	53%	8	0.7%	6.3%	6%	49%
9	-1.1%	-13.1%	5%	28%	9	2.3%	29.9%	4%	61%	9	0.6%	2.5%	8%	39%	9	0.4%	2.4%	6%	43%
10	-1.6%	-20.0%	6%	25%	10	2.0%	26.1%	4%	39%	10	0.6%	2.6%	9%	50%	10	0.5%	3.2%	7%	41%
Total Test				Total Test				Total Test				Total Test				Total Test			
Avg Ret	0.3%	9.0%	6.9%	460	Avg Ret	2.2%	1.7%	2.7%	554	Avg Ret	1.0%	3.5%	2.7%	629	Avg Ret	1.0%	3.6%	3.7%	534
Universe					Universe					Universe					Universe				
<b>Long Short Strategy Statistics</b>																			
Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10					Portfolio 1 less Portfolio 10				
Avg Ret	3.5%	47.8%	6%	72%	Avg Ret	0.8%	9.7%	3%	61%	Avg Ret	1.6%	18.7%	5%	61%	Avg Ret	1.7%	20.59%	5.5%	62%
Ret					Ret					Ret					Ret				
Devn					Devn					Devn					Devn				
Perf.					Perf.					Perf.					Perf.				
Long/Short					Long/Short					Long/Short					Long/Short				
T-Stat	3.67				T-Stat	1.53				T-Stat	1.82				T-Stat	3.62			
Assets	93				Assets	112				Assets	127				Assets	108			

### Portfolio Index Performance

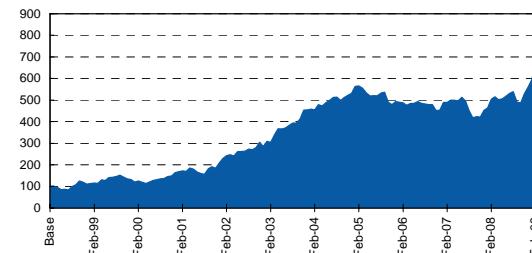
--- Equal Wt Benchmark  
P3 P6  
P4 P7  
P5 P8



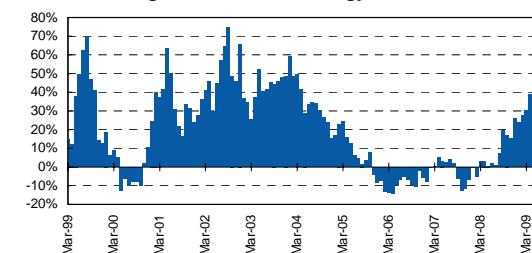
### Portfolio Spread. Annual Returns



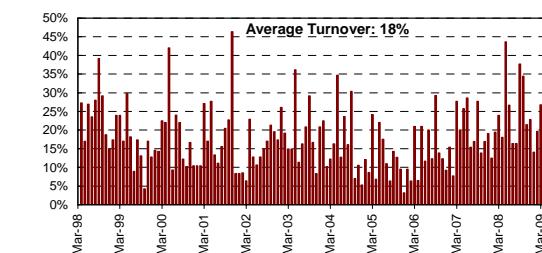
### Cumulative Returns



### 12 Month Rolling Returns Of L/S Strategy



### Turnover within Portfolio 1



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25 November 2009

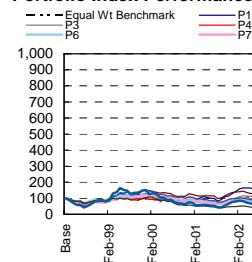
**J.P.Morgan**

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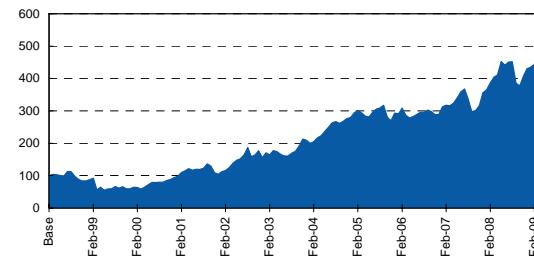
## Historical EY in ASIA EX JP TOP 250

Hist. EY in ASIA EX JP TOP 250 in ASIA EX JP TOP 250										Rebalance every 1 month(s)									
3 Year(s): 31/05/2000 to 31/05/2003					3 Year(s): 31/05/2003 to 31/05/2006					3 Year(s): 31/05/2006 to 31/05/2009					Total Period: 31/03/1998 to 31/05/2009				
Port	Avg Ret	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%	18.8%	10%	64%	1	3.1%	42.4%	5%	53%	1	1.6%	13.4%	10%	64%	1	1.9%	19.2%	9%	59%
2	1.4%	14.4%	7%	72%	2	2.7%	35.6%	5%	67%	2	1.5%	14.5%	8%	61%	2	1.4%	14.1%	7%	60%
3	1.0%	10.4%	6%	75%	3	2.3%	30.3%	4%	58%	3	1.3%	12.1%	8%	61%	3	1.2%	12.1%	7%	61%
4	0.1%	-1.3%	6%	56%	4	2.0%	26.3%	4%	33%	4	0.9%	7.7%	8%	47%	4	0.8%	6.8%	7%	44%
5	0.1%	-1.1%	6%	53%	5	2.7%	35.9%	5%	61%	5	0.8%	5.9%	8%	56%	5	1.2%	12.7%	7%	60%
6	-0.4%	-6.4%	6%	44%	6	2.1%	27.1%	4%	50%	6	0.0%	-4.4%	8%	33%	6	0.5%	3.6%	6%	43%
7	-0.8%	-11.0%	6%	33%	7	2.0%	25.1%	5%	42%	7	0.4%	1.3%	8%	47%	7	0.5%	4.0%	6%	44%
8	-0.9%	-12.4%	6%	36%	8	2.0%	25.6%	5%	44%	8	1.7%	15.6%	9%	64%	8	1.0%	8.7%	7%	49%
9	-2.2%	-25.3%	7%	25%	9	2.1%	26.2%	4%	47%	9	0.5%	0.7%	9%	50%	9	0.1%	-2.4%	7%	40%
10	-1.2%	-19.8%	12%	36%	10	1.7%	19.5%	6%	44%	10	-0.2%	-8.2%	10%	22%	10	0.4%	-2.9%	11%	37%
Total Test					Total Test					Total Test					Total Test				
Avg Ret	Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Ret	Rank IC	Avg IC	Avg Assets
Universe	-0.1%	10.6%	6.0%	247	Universe	2.3%	4.4%	4.9%	250	Universe	0.8%	4.9%	5.5%	249	Universe	0.9%	5.4%	4.5%	248
Long Short Strategy Statistics Portfolio 1 less Portfolio 10										Long Short Strategy Statistics Portfolio 1 less Portfolio 10									
Long/Short	3.0%	39.0%	7%	69%	Long/Short	1.4%	17.1%	5%	64%	Long/Short	1.9%	22.5%	5%	75%	Long/Short	1.5%	15.73%	7.3%	65%
T-Stat					T-Stat					T-Stat					T-Stat				
Long/Short	2.52				Long/Short	1.76				Long/Short	2.02				Long/Short	2.40			
Long Short Strategy Statistics Portfolio 1 less Portfolio 10										Long Short Strategy Statistics Portfolio 1 less Portfolio 10									
Long/Short	3.0%	39.0%	7%	69%	Long/Short	1.4%	17.1%	5%	64%	Long/Short	1.9%	22.5%	5%	75%	Long/Short	1.5%	15.73%	7.3%	65%
Avg					Avg					Avg					Avg				
Assets					Assets					Assets					Assets				

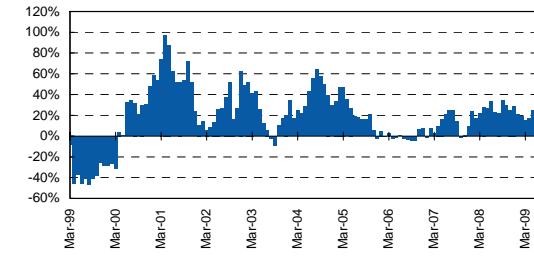
### Portfolio Index Performance



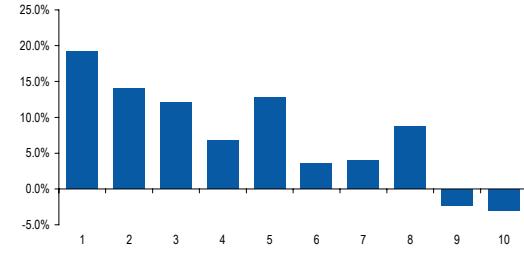
### Cumulative Returns



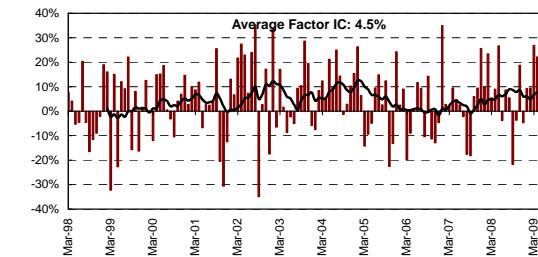
### 12 Month Rolling Returns Of L/S Strategy



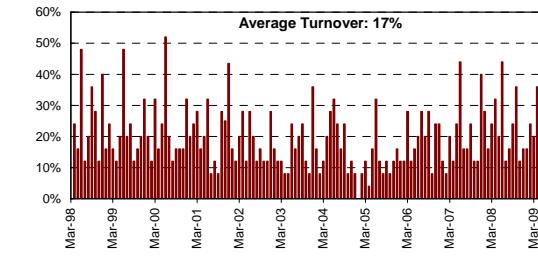
### Portfolio Spread. Annual Returns



### Information Co-Efficients (IC)



### Turnover within Portfolio 1



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**Asia Pacific Equity Research**  
25 November 2009

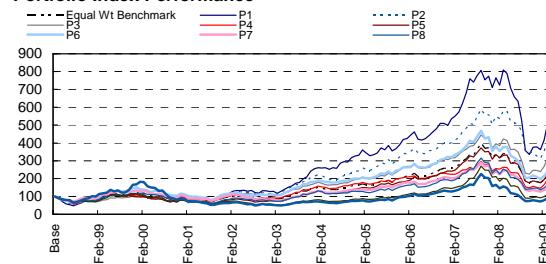
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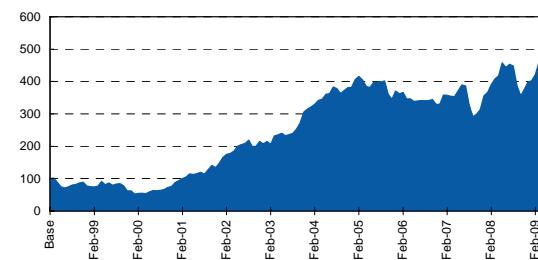
## Historical EY in ASIA EX JP TOP 250 excluding negatives

Hist. EY in ASIA EX JP TOP 250 excluding negative earners in ASIA EX JP TOP 250							Rebalance every 1 month(s)													
3 Year(s): 31/05/2000 to 31/05/2003				3 Year(s): 31/05/2003 to 31/05/2006				3 Year(s): 31/05/2006 to 31/05/2009				Total Period: 31/03/1998 to 31/05/2009								
Port	Avg Ret	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%	17.4%	10%	67%	1	3.2%	44.0%	5%	56%	1	1.7%	14.3%	10%	64%	1	1.8%	17.9%	9%	60%	
2	1.4%	14.8%	7%	75%	2	2.7%	36.1%	5%	64%	2	1.5%	14.4%	8%	58%	2	1.5%	15.8%	8%	63%	
3	1.2%	12.4%	6%	72%	3	2.2%	29.2%	4%	56%	3	1.4%	12.7%	8%	56%	3	1.2%	12.5%	7%	57%	
4	0.5%	3.8%	6%	69%	4	2.0%	25.3%	4%	42%	4	0.7%	4.5%	8%	39%	4	0.9%	7.7%	7%	49%	
5	-0.2%	-4.2%	6%	47%	5	2.7%	36.1%	5%	61%	5	1.0%	8.0%	8%	56%	5	0.9%	8.5%	7%	52%	
6	0.1%	-1.1%	6%	44%	6	2.3%	30.1%	4%	56%	6	0.2%	-0.9%	8%	33%	6	0.9%	8.8%	7%	48%	
7	-0.7%	-9.8%	6%	47%	7	2.1%	26.4%	4%	39%	7	0.2%	-1.7%	8%	33%	7	0.6%	4.3%	7%	43%	
8	-0.7%	-9.9%	6%	36%	8	1.9%	23.5%	5%	47%	8	1.2%	9.7%	9%	53%	8	0.8%	6.4%	7%	49%	
9	-1.4%	-17.1%	6%	28%	9	2.2%	27.7%	4%	44%	9	0.8%	3.8%	10%	42%	9	0.4%	2.0%	7%	40%	
10	-2.6%	-29.6%	8%	17%	10	2.1%	25.7%	5%	42%	10	0.5%	0.3%	10%	36%	10	0.4%	0.5%	8%	34%	
Total Test				Total Test				Total Test				Total Test				Total Test				
Avg Ret	Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Ret	Rank IC	Avg IC	Avg Assets	Avg Ret	Ret	Rank IC	Avg IC	Avg Assets	
Universe	-0.1%	11.1%	9.9%	225	Universe	2.3%	3.2%	4.0%	235	Universe	0.9%	3.8%	3.7%	242	Universe	0.9%	4.3%	4.4%	229	

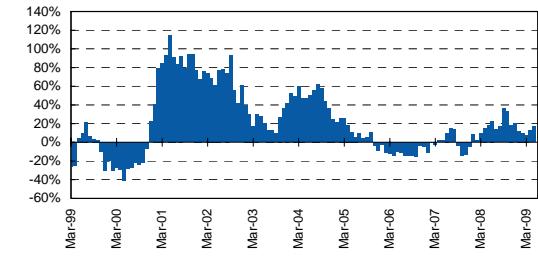
### Portfolio Index Performance



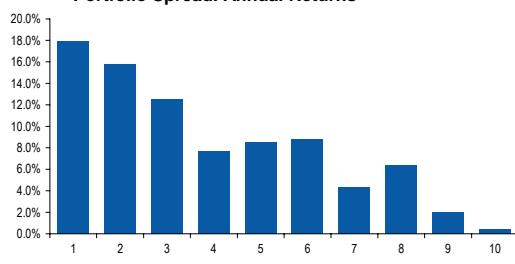
### Cumulative Returns



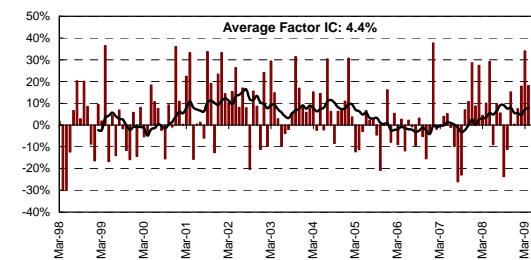
### 12 Month Rolling Returns Of L/S Strategy



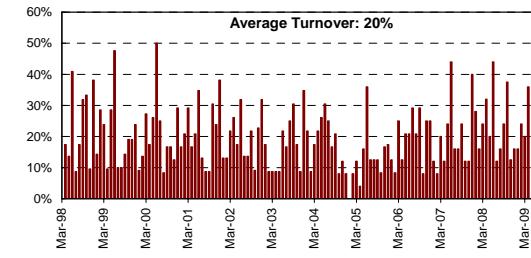
### Portfolio Spread. Annual Returns



### Information Co-Efficients (IC)



### Turnover within Portfolio 1

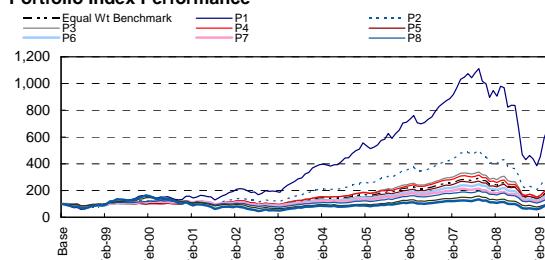


## Forecast Earnings Yield

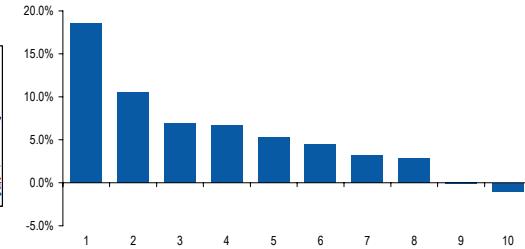
### Forecast EY in MSCI WORLD

Forecast EY in MSCI WORLD in MSCI WORLD										Rebalance every 1 month(s)									
3 Year(s): 31/05/2000 to 31/05/2003					3 Year(s): 31/05/2003 to 31/05/2006					3 Year(s): 31/05/2006 to 31/05/2009					Total Period: 31/03/1998 to 31/05/2009				
Port	Avg Ret	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%	18.8%	8%	75%	1	3.2%	43.7%	4%	69%	1	0.4%	-2.0%	10%	50%	1	1.8%	18.5%	8%	63%
2	0.9%	8.7%	6%	67%	2	2.6%	35.7%	4%	67%	2	0.0%	-4.3%	8%	56%	2	1.1%	10.5%	6%	60%
3	0.4%	3.0%	5%	72%	3	2.2%	29.5%	3%	64%	3	-0.1%	-4.4%	7%	58%	3	0.7%	6.9%	6%	58%
4	0.4%	3.0%	5%	72%	4	2.1%	27.7%	3%	47%	4	-0.1%	-3.8%	7%	58%	4	0.7%	6.7%	5%	54%
5	-0.1%	-2.6%	4%	53%	5	2.0%	26.4%	3%	44%	5	-0.1%	-3.6%	6%	58%	5	0.5%	5.3%	5%	49%
6	-0.4%	-5.5%	4%	53%	6	1.8%	23.2%	3%	33%	6	-0.1%	-3.8%	6%	47%	6	0.5%	4.5%	5%	46%
7	-0.6%	-8.1%	4%	39%	7	1.8%	23.3%	3%	39%	7	-0.3%	-5.6%	5%	44%	7	0.4%	3.2%	4%	40%
8	-0.9%	-11.6%	4%	33%	8	1.7%	22.4%	3%	42%	8	-0.2%	-3.9%	5%	36%	8	0.3%	2.8%	4%	40%
9	-1.7%	-20.3%	5%	22%	9	1.5%	19.1%	3%	31%	9	-0.4%	-6.6%	6%	31%	9	0.1%	-0.1%	5%	32%
10	-1.6%	-23.0%	9%	36%	10	1.5%	18.8%	4%	33%	10	-0.1%	-4.6%	7%	36%	10	0.2%	-1.0%	7%	39%
Total Test					Total Test					Total Test					Total Test				
Avg Ret	2.0%	Rank IC	Avg IC	Avg Assets	Avg Ret	2.0%	Rank IC	Avg IC	Avg Assets	Avg Ret	2.0%	Rank IC	Avg IC	Avg Assets	Avg Ret	2.0%	Rank IC	Avg IC	Avg Assets
Universe	-0.2%	9.0%	4.4%	1828	Universe	2.0%	6.3%	5.5%	2164	Universe	-0.1%	1.9%	1.7%	2461	Universe	0.6%	4.2%	3.1%	2101
Long Short Strategy Statistics Portfolio 1 less Portfolio 10										Long Short Strategy Statistics Portfolio 1 less Portfolio 10									
Avg Ret	3.5%	48.7%	5%	78%	Avg Ret	1.6%	21.0%	3%	67%	Avg Ret	0.5%	5.1%	4%	53%	Avg Ret	1.6%	19.09%	4.4%	65%
T-Stat	4.30		Assets	366	T-Stat	3.42		Assets	434	T-Stat	0.79		Assets	493	T-Stat	4.12		Assets	421

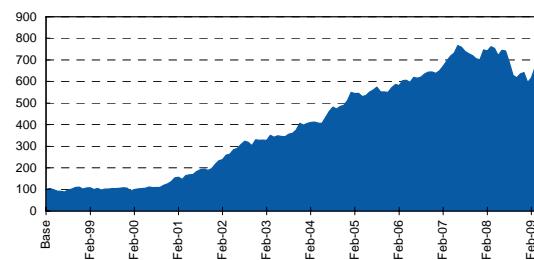
### Portfolio Index Performance



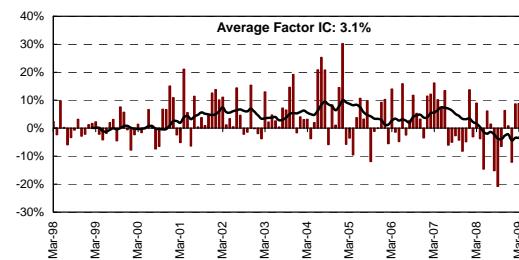
### Portfolio Spread. Annual Returns



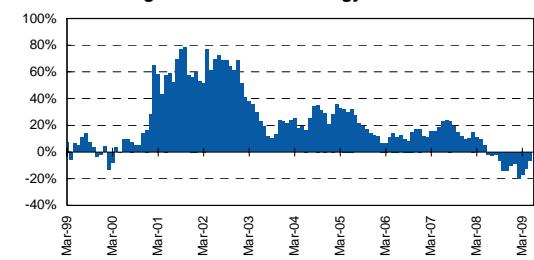
### Cumulative Returns



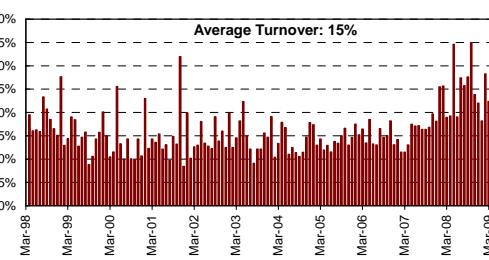
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



### Turnover within Portfolio 1

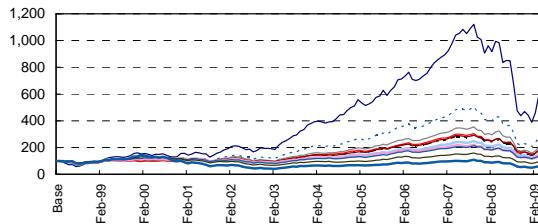


## Forecast EY in MSCI WORLD excluding negatives

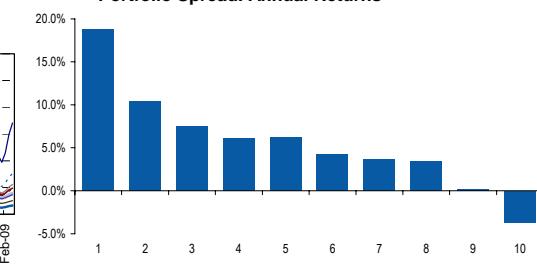
Forecast EY in MSCI WORLD excluding negative earners in MSCI WORLD								Rebalance every 1 month(s)											
3 Year(s): 31/05/2000 to 31/05/2003 Portfolio Statistics				3 Year(s): 31/05/2003 to 31/05/2006 Portfolio Statistics				3 Year(s): 31/05/2006 to 31/05/2009 Portfolio Statistics				Total Period: 31/03/1998 to 31/05/2009 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	1.8%	19.2%	8%	72%	1	3.2%	44.1%	4%	67%	1	0.4%	-1.3%	10%	50%	1	1.8%	18.8%	8%	63%
2	0.9%	9.2%	6%	64%	2	2.6%	35.5%	4%	64%	2	-0.1%	-4.7%	8%	58%	2	1.0%	10.5%	7%	58%
3	0.4%	3.0%	6%	69%	3	2.2%	29.5%	3%	64%	3	-0.1%	-3.8%	7%	64%	3	0.8%	7.5%	6%	59%
4	0.4%	3.3%	5%	69%	4	2.1%	27.5%	3%	53%	4	-0.1%	-4.5%	7%	42%	4	0.6%	6.2%	5%	50%
5	0.0%	-0.5%	4%	56%	5	2.0%	26.5%	3%	42%	5	0.0%	-2.9%	6%	61%	5	0.6%	6.2%	5%	51%
6	-0.4%	-6.0%	4%	50%	6	1.9%	24.8%	3%	42%	6	-0.2%	-4.5%	6%	50%	6	0.5%	4.3%	5%	46%
7	-0.5%	-6.8%	4%	36%	7	1.7%	22.3%	3%	36%	7	-0.3%	-4.9%	5%	42%	7	0.4%	3.6%	4%	40%
8	-0.8%	-10.3%	4%	36%	8	1.8%	23.1%	3%	42%	8	-0.2%	-3.9%	5%	44%	8	0.4%	3.5%	4%	44%
9	-1.4%	-16.9%	5%	25%	9	1.5%	18.6%	3%	28%	9	-0.4%	-5.9%	5%	33%	9	0.1%	0.2%	5%	34%
10	-2.3%	-27.1%	7%	28%	10	1.5%	18.7%	4%	33%	10	-0.4%	-6.7%	7%	47%	10	-0.1%	-3.7%	6%	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	-0.2%	8.7%	5.4%	1759	Universe	2.1%	6.3%	5.8%	2134	Universe	-0.1%	2.0%	2.0%	2414	Universe	0.6%	4.1%	3.5%	2047
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.				
Long/Short	4.1%	59.8%	5%	86%	Long/Short	1.7%	21.4%	3%	69%	Long/Short	0.8%	8.6%	5%	53%	Long/Short	1.9%	23.52%	5.1%	68%
T-Stat				Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets			
Long/Short	5.12			353	Long/Short	3.46			428	Long/Short	1.00			484	Long/Short	4.30			410

### Portfolio Index Performance

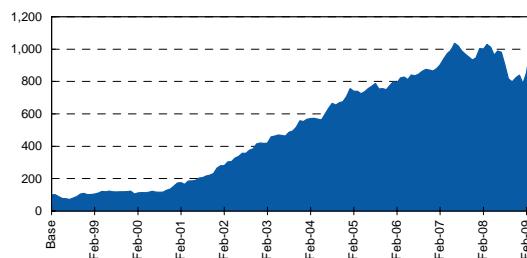
— Equal Wt Benchmark  
— P1  
— P2  
— P3  
— P4  
— P5  
— P6  
— P7



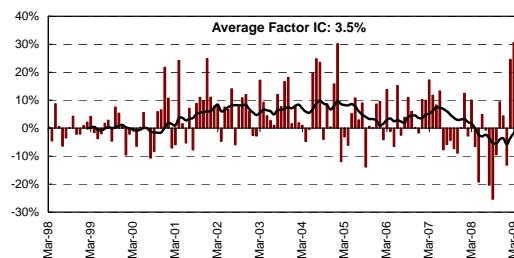
### Portfolio Spread. Annual Returns



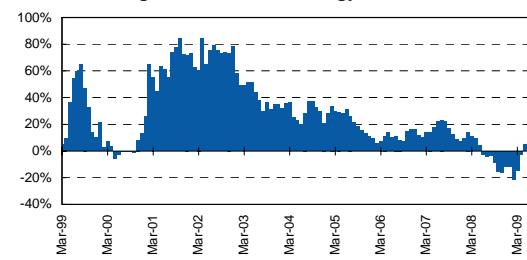
### Cumulative Returns



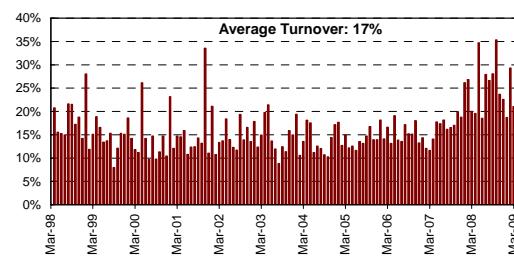
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



### Turnover within Portfolio 1

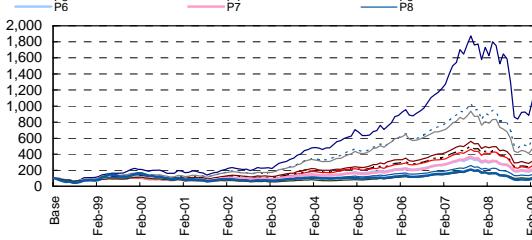


## Forecast EY in MSCI GEM

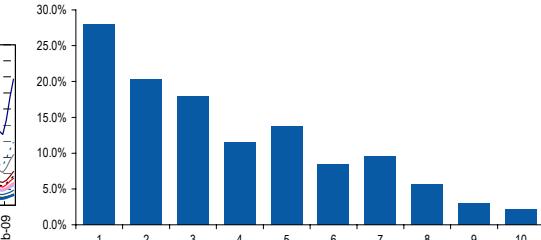
Forecast EY in MSCI GEM in MSCI GEM								Rebalance every 1 month(s)											
3 Year(s): 31/05/2000 to 31/05/2003 Portfolio Statistics				3 Year(s): 31/05/2003 to 31/05/2006 Portfolio Statistics				3 Year(s): 31/05/2006 to 31/05/2009 Portfolio Statistics				Total Period: 31/03/1998 to 31/05/2009 Portfolio 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%	15.2%	8%	56%	1	3.3%	45.8%	5%	69%	1	2.2%	20.9%	11%	61%	1	2.5%	28.0%	9%	62%
2	2.0%	22.9%	7%	72%	2	3.2%	44.0%	5%	78%	2	1.1%	9.5%	9%	53%	2	1.8%	20.3%	8%	63%
3	1.3%	14.8%	6%	75%	3	3.0%	41.7%	5%	64%	3	0.5%	2.3%	8%	31%	3	1.6%	17.9%	7%	59%
4	1.0%	10.1%	7%	64%	4	2.6%	35.0%	5%	53%	4	0.9%	7.7%	8%	50%	4	1.2%	11.5%	7%	51%
5	0.7%	6.9%	6%	56%	5	2.5%	32.3%	4%	53%	5	1.1%	9.7%	8%	44%	5	1.3%	13.8%	6%	50%
6	0.2%	0.1%	6%	44%	6	2.3%	29.5%	4%	39%	6	0.7%	5.3%	7%	33%	6	0.9%	8.5%	6%	40%
7	0.1%	-0.8%	6%	50%	7	2.0%	26.2%	4%	42%	7	1.1%	11.1%	7%	44%	7	1.0%	9.5%	7%	45%
8	-1.1%	-14.3%	6%	28%	8	1.8%	22.6%	4%	28%	8	0.8%	7.2%	7%	44%	8	0.7%	5.7%	6%	37%
9	-1.4%	-16.6%	5%	19%	9	2.0%	25.1%	4%	33%	9	0.9%	7.4%	7%	42%	9	0.4%	3.0%	6%	33%
10	-1.1%	-16.6%	9%	33%	10	1.4%	16.2%	4%	22%	10	0.5%	1.8%	9%	42%	10	0.6%	2.2%	10%	34%
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	0.3%	9.4%	3.1%	553	Universe	2.4%	6.7%	4.7%	590	Universe	1.0%	3.1%	3.3%	713	Universe	1.2%	5.4%	3.1%	623
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	2.6%	35.2%	5%	72%	Long/Short	1.9%	25.4%	3%	72%	Long/Short	1.7%	20.7%	5%	61%	Long/Short	1.8%	22.16%	5.6%	66%
T-Stat	3.50				T-Stat	3.87				T-Stat	2.23				T-Stat	3.83			
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	2.6%	35.2%	5%	72%	Long/Short	1.9%	25.4%	3%	72%	Long/Short	1.7%	20.7%	5%	61%	Long/Short	1.8%	22.16%	5.6%	66%
T-Stat	3.50				T-Stat	3.87				T-Stat	2.23				T-Stat	3.83			

### Portfolio Index Performance

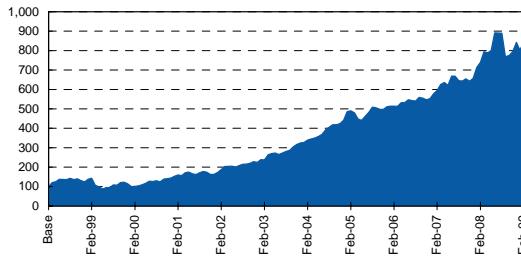
— Equal Wt Benchmark  
 — P1  
 — P2  
 — P3  
 — P4  
 — P5  
 — P6  
 — P7  
 — P8



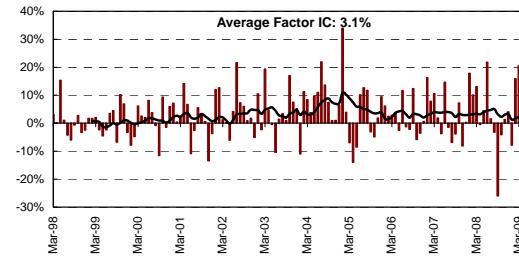
### Portfolio Spread. Annual Returns



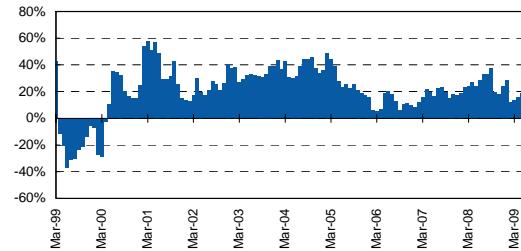
### Cumulative Returns



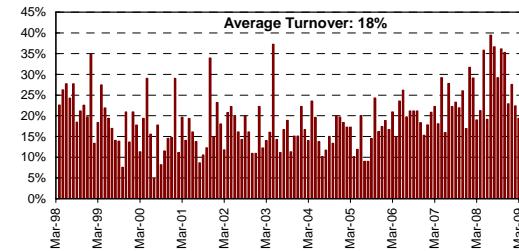
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy

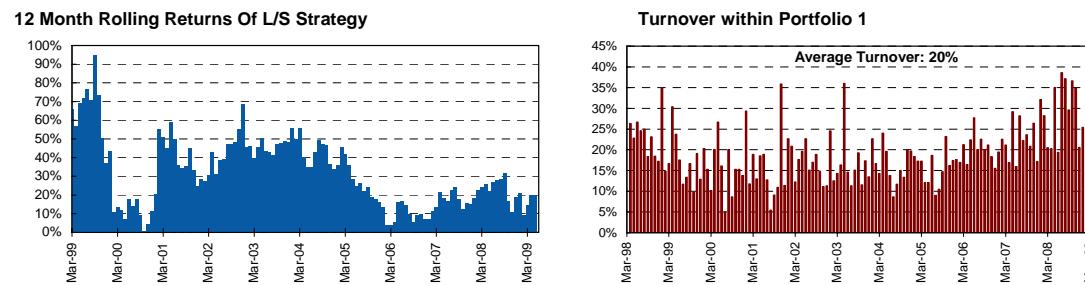
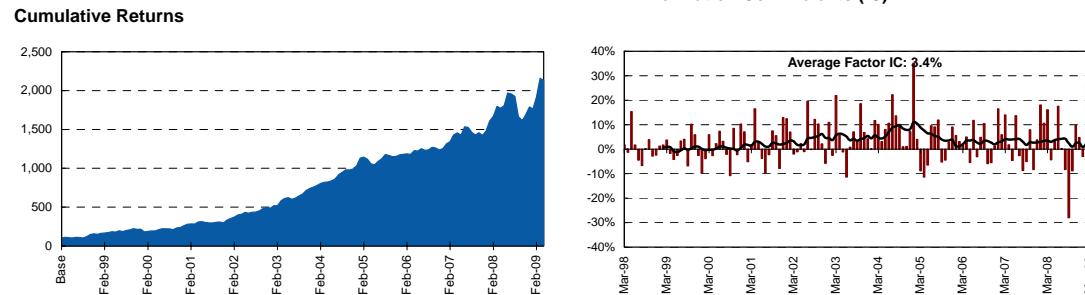
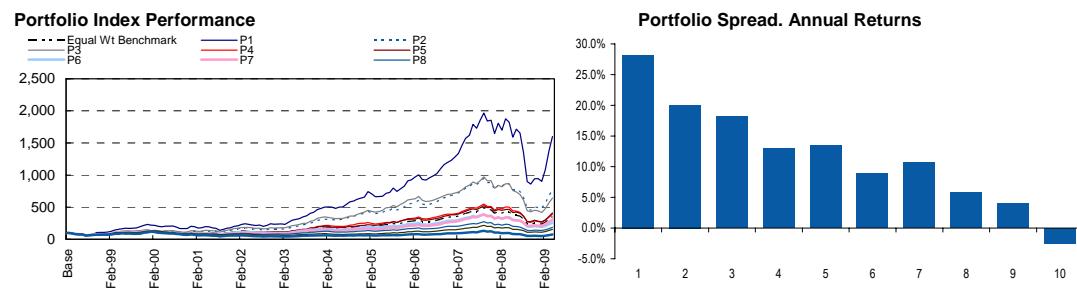


### Turnover within Portfolio 1



## Forecast EY in MSCI GEM excluding negative earners

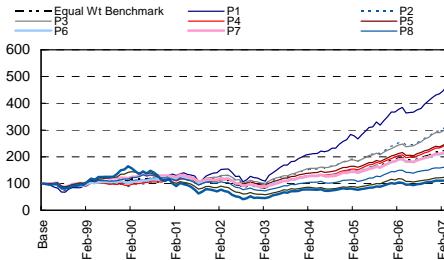
Forecast EY in MSCI GEM excluding negative earners in MSCI GEM								Rebalance every 1 month(s)															
3 Year(s): 31/05/2000 to 31/05/2003 Portfolio Statistics				3 Year(s): 31/05/2003 to 31/05/2006 Portfolio Statistics				3 Year(s): 31/05/2006 to 31/05/2009 Portfolio Statistics				Total Period: 31/03/1998 to 31/05/2009 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%	15.2%	8%	56%	1	3.3%	46.4%	5%	69%	1	2.1%	19.7%	11%	61%	1	2.5%	28.2%	9%	63%				
2	1.8%	20.2%	7%	72%	2	3.1%	42.7%	5%	69%	2	1.3%	11.9%	9%	56%	2	1.8%	20.0%	8%	61%				
3	1.7%	19.2%	6%	83%	3	3.1%	42.1%	5%	67%	3	0.5%	1.9%	8%	31%	3	1.7%	18.1%	7%	57%				
4	1.0%	9.6%	7%	64%	4	2.7%	35.3%	5%	56%	4	0.9%	7.0%	8%	47%	4	1.3%	13.0%	7%	51%				
5	0.8%	7.5%	6%	64%	5	2.5%	32.7%	4%	56%	5	1.2%	10.9%	8%	56%	5	1.3%	13.5%	7%	54%				
6	0.4%	2.2%	6%	58%	6	2.2%	28.4%	4%	39%	6	0.5%	3.4%	7%	36%	6	0.9%	8.9%	6%	46%				
7	0.2%	-0.4%	6%	44%	7	2.1%	27.3%	4%	44%	7	1.4%	14.0%	7%	53%	7	1.1%	10.7%	7%	47%				
8	-0.5%	-7.6%	6%	39%	8	1.9%	23.8%	4%	36%	8	0.6%	4.9%	7%	42%	8	0.7%	5.8%	6%	39%				
9	-1.6%	-19.2%	5%	19%	9	1.9%	23.3%	4%	31%	9	1.0%	9.7%	7%	44%	9	0.5%	4.0%	6%	37%				
10	-1.8%	-21.9%	7%	17%	10	1.3%	16.1%	4%	28%	10	0.4%	1.2%	8%	36%	10	0.1%	-2.5%	7%	29%				
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	0.3%	9.1%	3.7%	530	Universe	2.4%	6.8%	5.2%	585	Universe	1.0%	3.0%	3.4%	703	Universe	1.2%	5.3%	3.4%	604				
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	3.3%	46.5%	5%	72%	Long/Short	2.0%	26.2%	3%	78%	Long/Short	1.7%	20.1%	5%	56%	Long/Short	2.4%	31.50%	5.1%	68%	T-Stat	4.26	107	118
T-Stat				Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	4.08	141	5.48
Long Short Strategy Statistics																							



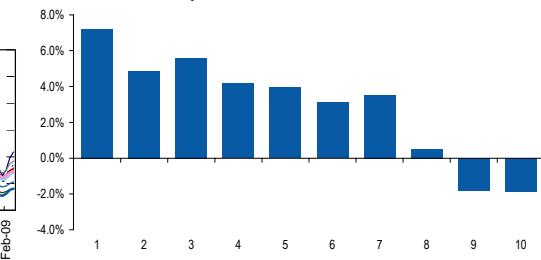
## Forecast EY in MSCI GDM

Forecast EY in MSCI GDM in MSCI GDM								Rebalance every 1 month(s)											
3 Year(s): 31/05/2000 to 31/05/2003 Portfolio Statistics				3 Year(s): 31/05/2003 to 31/05/2006 Portfolio Statistics				3 Year(s): 31/05/2006 to 31/05/2009 Portfolio Statistics				Total Period: 31/03/1998 to 31/05/2009 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	0.9%	7.5%	7%	69%	1	2.7%	37.4%	3%	75%	1	-0.9%	-15.7%	10%	47%	1	0.9%	7.2%	7%	59%
2	0.5%	3.9%	6%	69%	2	2.2%	29.4%	2%	64%	2	-0.7%	-11.4%	8%	56%	2	0.6%	4.9%	6%	57%
3	0.3%	2.7%	5%	78%	3	2.0%	26.8%	2%	56%	3	-0.5%	-8.2%	7%	56%	3	0.6%	5.6%	5%	59%
4	0.0%	-0.9%	4%	61%	4	2.0%	26.5%	2%	47%	4	-0.4%	-7.2%	6%	56%	4	0.5%	4.2%	5%	51%
5	0.0%	-1.4%	4%	61%	5	1.8%	24.1%	2%	50%	5	-0.6%	-9.1%	6%	61%	5	0.4%	3.9%	4%	54%
6	-0.2%	-3.1%	4%	67%	6	1.7%	22.5%	3%	42%	6	-0.5%	-8.1%	5%	47%	6	0.4%	3.1%	4%	50%
7	-0.7%	-9.5%	4%	39%	7	1.8%	23.9%	3%	47%	7	-0.5%	-6.8%	5%	56%	7	0.4%	3.5%	4%	49%
8	-1.1%	-13.9%	5%	28%	8	1.6%	20.9%	3%	42%	8	-0.7%	-9.3%	5%	42%	8	0.1%	0.5%	4%	41%
9	-1.8%	-22.3%	6%	22%	9	1.5%	18.4%	3%	36%	9	-0.7%	-9.1%	5%	36%	9	0.0%	-1.8%	5%	38%
10	-2.0%	-25.5%	10%	36%	10	1.6%	19.7%	4%	36%	10	-0.2%	-5.5%	7%	56%	10	0.1%	-1.9%	7%	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	-0.4%	9.4%	7.1%	1276	1.9%	6.4%	4.9%	1575	Universe	-0.6%	-0.2%	-1.3%	1747	Universe	0.4%	3.8%	2.3%	1477	
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.				
Long/Short	2.8%	36.7%	6%	58%	Long/Short	1.2%	14.5%	2%	75%	Long/Short	-0.7%	-8.6%	4%	47%	Long/Short	0.8%	7.78%	5.2%	57%
T-Stat	2.66	256			T-Stat	3.09	316			T-Stat	-1.11				T-Stat	1.68	296		

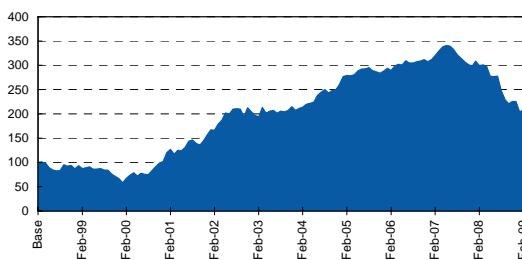
### Portfolio Index Performance



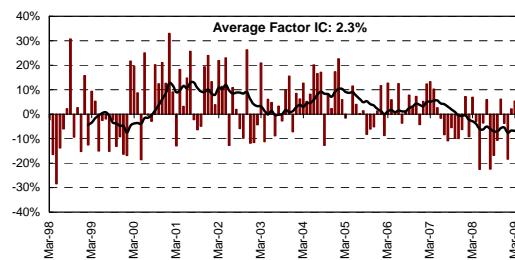
### Portfolio Spread. Annual Returns



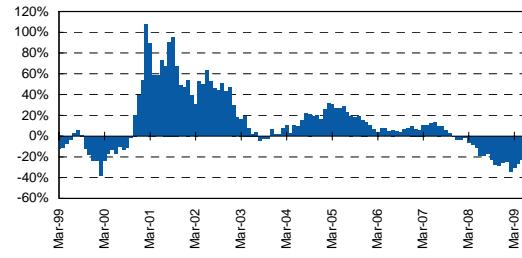
### Cumulative Returns



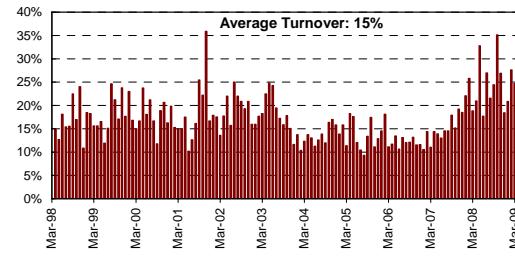
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



### Turnover within Portfolio 1

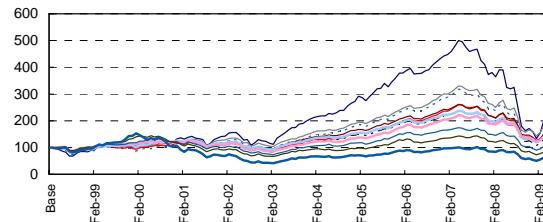


## Forecast EY in MSCI GDM excluding negative earners

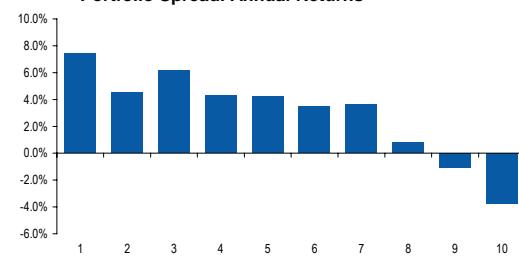
Forecast EY in MSCI GDM excluding negative earners in MSCI GDM								Rebalance every 1 month(s)											
3 Year(s): 31/05/2000 to 31/05/2003 Portfolio Statistics				3 Year(s): 31/05/2003 to 31/05/2006 Portfolio Statistics				3 Year(s): 31/05/2006 to 31/05/2009 Portfolio Statistics				Total Period: 31/03/1998 to 31/05/2009 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	0.9%	8.3%	7%	69%	1	2.7%	37.5%	3%	78%	1	-0.9%	-15.9%	10%	44%	1	0.9%	7.5%	7%	59%
2	0.5%	3.7%	6%	69%	2	2.2%	29.3%	2%	58%	2	-0.7%	-11.5%	8%	53%	2	0.5%	4.5%	6%	54%
3	0.4%	3.4%	5%	78%	3	2.1%	27.3%	2%	64%	3	-0.4%	-7.6%	7%	58%	3	0.6%	6.1%	5%	61%
4	0.0%	-1.1%	5%	61%	4	2.0%	26.0%	2%	44%	4	-0.4%	-7.0%	6%	64%	4	0.5%	4.3%	5%	54%
5	0.0%	-1.6%	4%	67%	5	1.9%	24.8%	2%	44%	5	-0.6%	-8.7%	6%	53%	5	0.4%	4.2%	4%	53%
6	-0.1%	-2.2%	4%	69%	6	1.8%	22.8%	2%	42%	6	-0.6%	-8.8%	6%	50%	6	0.4%	3.5%	4%	53%
7	-0.6%	-7.8%	4%	53%	7	1.8%	23.5%	3%	47%	7	-0.3%	-5.5%	5%	67%	7	0.4%	3.6%	4%	54%
8	-1.2%	-14.3%	4%	33%	8	1.7%	22.5%	3%	58%	8	-0.7%	-9.7%	5%	39%	8	0.2%	0.8%	4%	47%
9	-1.6%	-18.6%	5%	25%	9	1.4%	17.5%	3%	36%	9	-0.7%	-9.7%	5%	42%	9	0.0%	-1.1%	5%	40%
10	-2.3%	-27.5%	8%	33%	10	1.6%	19.4%	4%	39%	10	-0.5%	-7.7%	6%	56%	10	-0.1%	-3.7%	6%	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	-0.4%	9.2%	7.8%	1229	Universe	1.9%	6.4%	5.2%	1549	Universe	-0.6%	0.0%	-1.1%	1711	Universe	0.4%	3.7%	2.6%	1443
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.				
Long/Short	3.3%	44.7%	6%	64%	Long/Short	1.2%	14.9%	2%	75%	Long/Short	3.17	311	47%	47%	Long/Short	0.4%	-6.3%	5%	58%
T-Stat				Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets			
Long/Short	3.37			247	Long/Short	3.17		311	343	Long/Short	0.50		343	2.19	Long/Short	1.40	11.02%	5.3%	58%

### Portfolio Index Performance

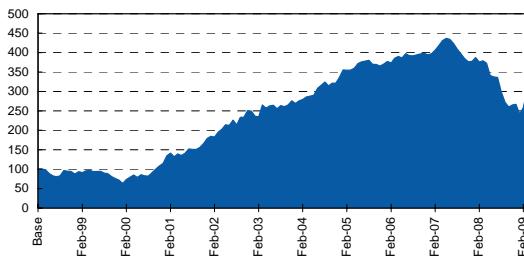
— Equal Wt Benchmark  
— P1  
— P2  
— P3  
— P4  
— P5  
— P6  
— P7  
— P8



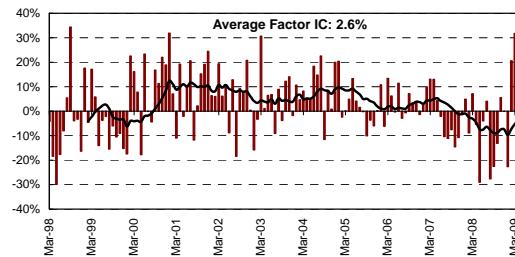
### Portfolio Spread. Annual Returns



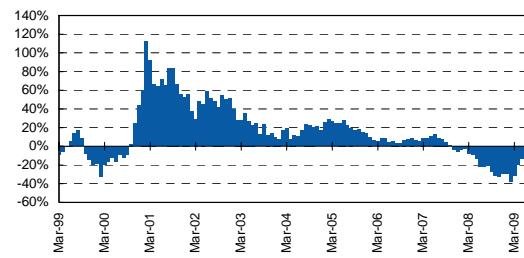
### Cumulative Returns



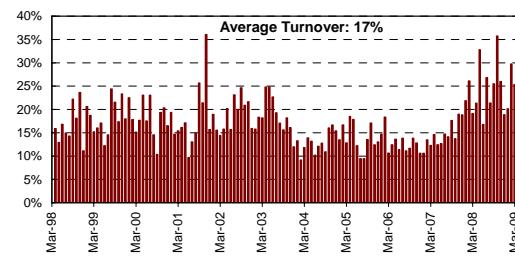
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



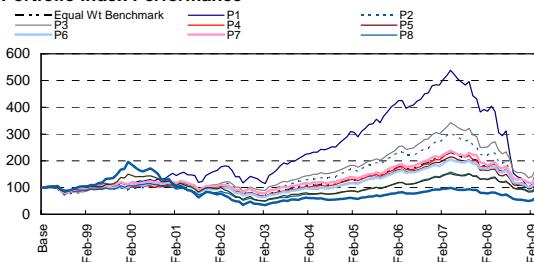
### Turnover within Portfolio 1



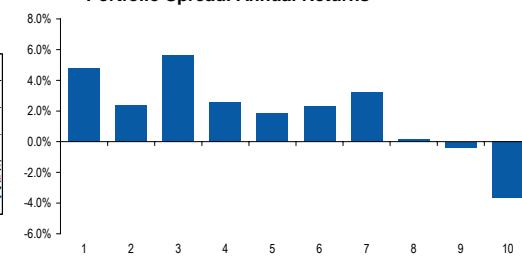
## Forecast EY in EUROPE

Forecast EY in EUROPE in EUROPE					Rebalance every 1 month(s)														
3 Year(s): 31/05/2000 to 31/05/2003 Portfolio Statistics					3 Year(s): 31/05/2003 to 31/05/2006 Portfolio Statistics					3 Year(s): 31/05/2006 to 31/05/2009 Portfolio Statistics					Total Period: 31/03/1998 to 31/05/2009 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%	7.1%	9%	72%	1	2.7%	37.3%	4%	64%	1	-1.6%	-24.8%	12%	39%	1	0.7%	4.8%	8%	56%
2	0.0%	-3.1%	8%	67%	2	2.5%	33.7%	3%	69%	2	-1.1%	-16.2%	9%	39%	2	0.4%	2.4%	7%	55%
3	0.2%	-0.2%	7%	69%	3	2.4%	31.7%	3%	64%	3	-0.5%	-8.8%	7%	53%	3	0.6%	5.6%	6%	57%
4	-0.6%	-9.0%	6%	58%	4	2.2%	28.5%	3%	61%	4	-0.4%	-7.5%	7%	58%	4	0.4%	2.6%	6%	55%
5	-0.8%	-10.8%	6%	64%	5	2.2%	28.8%	3%	56%	5	-0.5%	-8.4%	6%	53%	5	0.3%	1.8%	5%	54%
6	-1.0%	-12.7%	5%	50%	6	2.2%	28.6%	3%	42%	6	-0.3%	-5.9%	6%	56%	6	0.3%	2.3%	5%	46%
7	-0.5%	-7.6%	6%	58%	7	1.9%	24.8%	3%	39%	7	-0.4%	-7.0%	6%	50%	7	0.4%	3.2%	5%	51%
8	-1.6%	-19.9%	6%	33%	8	1.9%	25.0%	3%	33%	8	-0.1%	-2.9%	6%	67%	8	0.1%	0.2%	5%	46%
9	-2.1%	-24.9%	7%	31%	9	1.8%	23.3%	4%	47%	9	-0.3%	-5.2%	5%	58%	9	0.1%	-0.4%	6%	47%
10	-3.1%	-36.0%	11%	28%	10	1.8%	21.9%	4%	44%	10	-0.3%	-5.6%	6%	42%	10	0.0%	-3.7%	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	-0.9%	11.0%	9.1%	483	Universe	2.2%	6.2%	4.9%	541	Universe	-0.6%	-2.9%	-4.0%	546	Universe	0.3%	3.5%	2.2%	521
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				
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	4.0%	56.5%	7%	72%	Long/Short	1.0%	12.1%	3%	69%	Long/Short	-1.3%	-17.2%	7%	56%	Long/Short	0.8%	7.18%	6.5%	60%
T-Stat				97	T-Stat				109	T-Stat				110	T-Stat				105

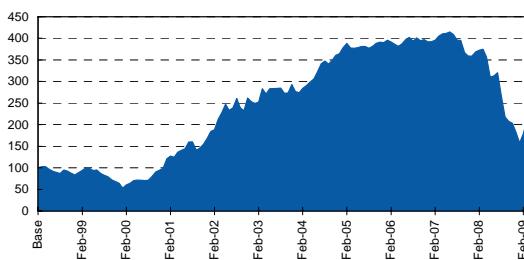
### Portfolio Index Performance



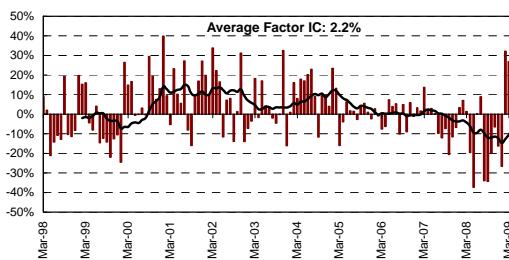
### Portfolio Spread. Annual Returns



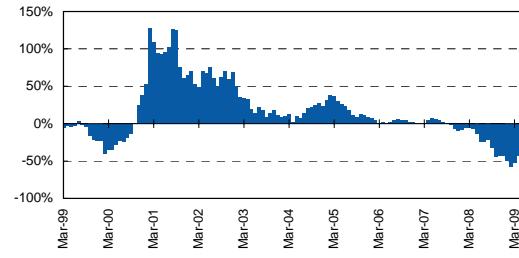
### Cumulative Returns



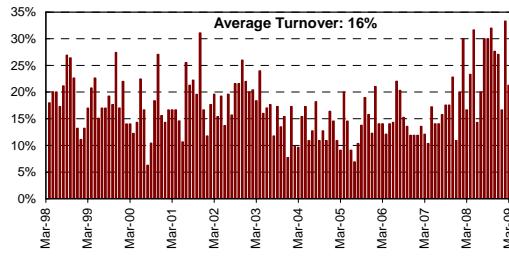
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



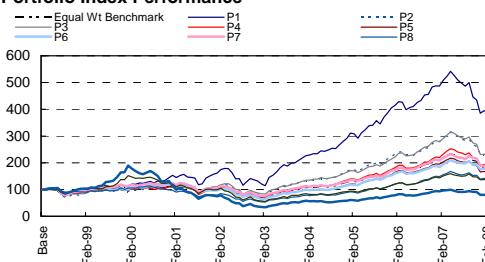
### Turnover within Portfolio 1



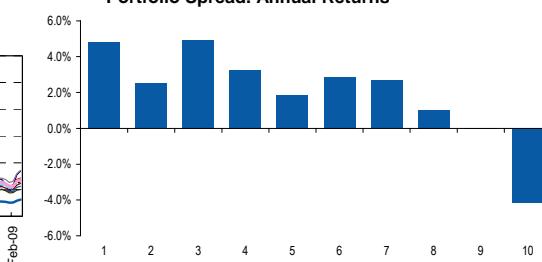
## Forecast EY in EUROPE excluding negative earners

Forecast EY in EUROPE excluding negative earners in EUROPE								Rebalance every 1 month(s)											
3 Year(s): 31/05/2000 to 31/05/2003 Portfolio Statistics				3 Year(s): 31/05/2003 to 31/05/2006 Portfolio Statistics				3 Year(s): 31/05/2006 to 31/05/2009 Portfolio Statistics				Total Period: 31/03/1998 to 31/05/2009 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	0.9%	7.1%	9%	72%	1	2.8%	37.6%	4%	64%	1	-1.6%	-24.9%	12%	39%	1	0.8%	4.8%	8%	56%
2	0.1%	-2.2%	7%	64%	2	2.5%	33.8%	3%	69%	2	-1.1%	-16.8%	9%	39%	2	0.4%	2.5%	7%	55%
3	0.0%	-2.4%	7%	67%	3	2.3%	31.5%	3%	64%	3	-0.5%	-8.7%	7%	50%	3	0.6%	4.9%	6%	55%
4	-0.4%	-7.1%	6%	58%	4	2.2%	28.9%	3%	64%	4	-0.4%	-7.4%	7%	56%	4	0.4%	3.3%	6%	56%
5	-0.7%	-10.4%	6%	58%	5	2.2%	28.8%	3%	56%	5	-0.6%	-8.8%	6%	53%	5	0.3%	1.9%	5%	52%
6	-0.9%	-12.1%	5%	50%	6	2.2%	28.9%	3%	44%	6	-0.2%	-4.7%	6%	61%	6	0.4%	2.9%	5%	49%
7	-0.6%	-9.2%	6%	53%	7	2.0%	26.0%	3%	50%	7	-0.5%	-8.1%	6%	58%	7	0.3%	2.7%	5%	55%
8	-1.4%	-17.5%	6%	33%	8	1.9%	23.9%	3%	39%	8	0.0%	-1.5%	6%	67%	8	0.2%	1.0%	5%	46%
9	-1.8%	-23.2%	7%	25%	9	1.8%	22.3%	4%	36%	9	-0.4%	-5.5%	5%	64%	9	0.1%	0.0%	5%	45%
10	-3.3%	-36.7%	9%	31%	10	1.9%	24.0%	4%	39%	10	-0.5%	-7.3%	5%	42%	10	-0.1%	-4.2%	7%	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	-0.8%	10.8%	9.5%	469	2.2%	5.9%	4.9%	532	Universe	-0.6%	-2.8%	-3.7%	542	Universe	0.3%	3.4%	2.4%	513	
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.				
Long/Short	4.3%	61.9%	6%	78%	0.9%	10.6%	2%	69%	Long/Short	-1.1%	-15.9%	8%	56%	Long/Short	0.9%	8.51%	6.4%	62%	
T-Stat				Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets			
Long/Short	4.24			95	2.21			107	Long/Short	-0.88			109	Long/Short	1.60			104	

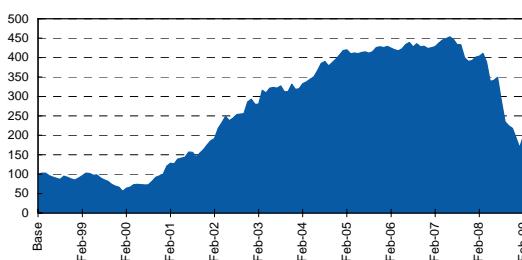
### Portfolio Index Performance



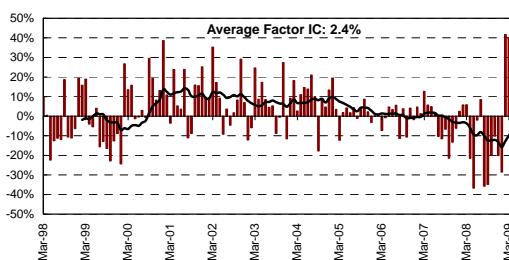
### Portfolio Spread. Annual Returns



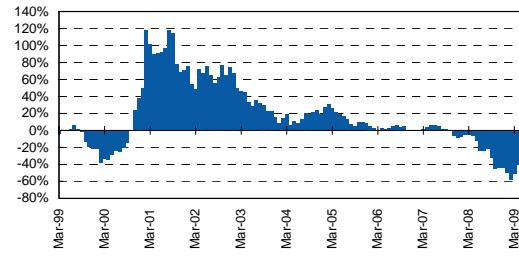
### Cumulative Returns



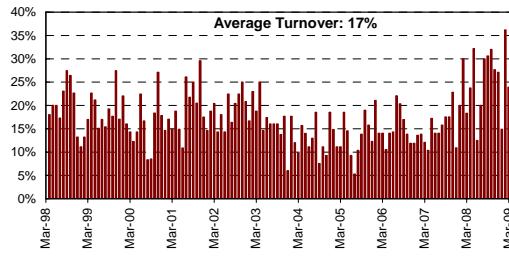
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



### Turnover within Portfolio 1

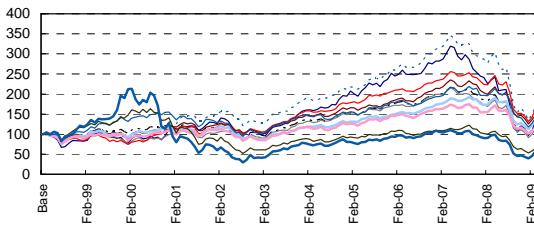


## Forecast EY in NORTH AMERICA

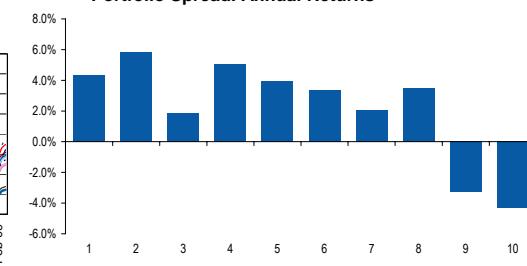
Forecast EY in NORTH AMERICA in NORTH AMERICA								Rebalance every 1 month(s)											
3 Year(s): 31/05/2000 to 31/05/2003 Portfolio Statistics				3 Year(s): 31/05/2003 to 31/05/2006 Portfolio Statistics				3 Year(s): 31/05/2006 to 31/05/2009 Portfolio Statistics				Total Period: 31/03/1998 to 31/05/2009 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%	6.8%	8%	61%	1	2.2%	28.6%	3%	69%	1	-0.7%	-13.6%	10%	50%	1	0.7%	4.3%	8%	55%
2	1.3%	14.8%	6%	64%	2	1.6%	21.1%	2%	61%	2	-0.7%	-10.8%	7%	42%	2	0.6%	5.9%	6%	52%
3	0.5%	4.6%	5%	56%	3	1.4%	17.1%	2%	56%	3	-0.6%	-10.1%	7%	53%	3	0.3%	1.9%	5%	51%
4	1.2%	13.0%	5%	56%	4	1.5%	19.5%	2%	53%	4	-0.3%	-5.8%	6%	72%	4	0.5%	5.1%	5%	52%
5	0.5%	4.5%	5%	61%	5	1.2%	14.8%	3%	39%	5	-0.3%	-5.7%	5%	56%	5	0.4%	3.9%	5%	51%
6	-0.1%	-3.0%	5%	50%	6	1.2%	15.5%	2%	44%	6	0.0%	-1.7%	5%	69%	6	0.4%	3.4%	5%	51%
7	0.1%	-0.2%	5%	56%	7	1.2%	14.9%	3%	50%	7	-0.3%	-4.9%	5%	53%	7	0.3%	2.0%	5%	49%
8	-0.4%	-5.9%	6%	42%	8	1.2%	14.1%	3%	44%	8	-0.4%	-6.4%	5%	53%	8	0.4%	3.5%	5%	50%
9	-1.6%	-22.0%	9%	33%	9	1.0%	12.0%	4%	44%	9	-0.9%	-12.2%	6%	33%	9	-0.1%	-3.3%	7%	44%
10	-1.5%	-31.0%	15%	39%	10	1.4%	16.9%	5%	50%	10	-0.7%	-12.5%	9%	42%	10	0.2%	-4.3%	10%	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	0.0%	8.8%	7.2%	391	Universe	1.4%	4.4%	3.6%	552	Universe	-0.5%	0.1%	0.0%	680	Universe	0.4%	2.3%	1.8%	508
<b>Long Short Strategy Statistics</b>																			
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	2.7%	27.7%	12%	58%	Long/Short	0.8%	9.0%	3%	58%	Long/Short	1.50	111	111	50%	Long/Short	0.0%	-0.9%	4%	51%
T-Stat				79	T-Stat				Avg Assets	T-Stat				Avg Assets	T-Stat			Avg Assets	102

### Portfolio Index Performance

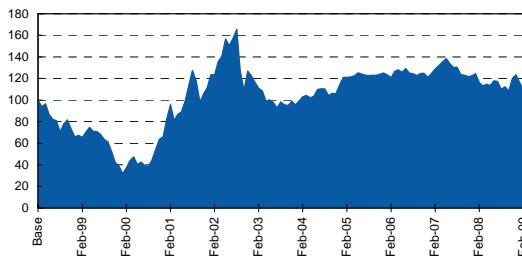
— Equal Wt Benchmark  
 — P1  
 — P2  
 — P3  
 — P4  
 — P5  
 — P6  
 — P7



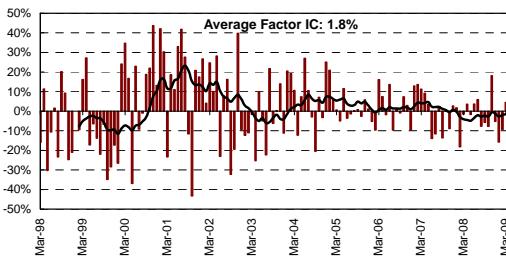
### Portfolio Spread. Annual Returns



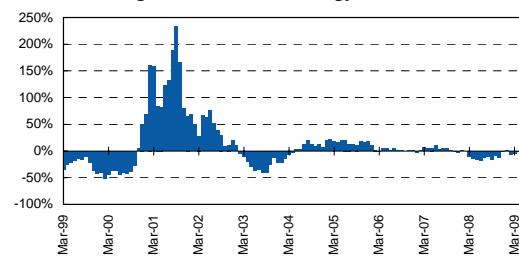
### Cumulative Returns



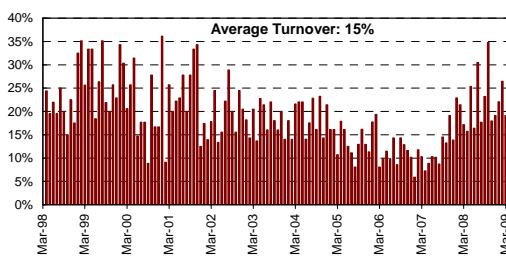
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



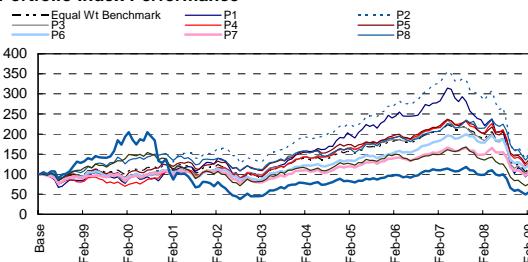
### Turnover within Portfolio 1



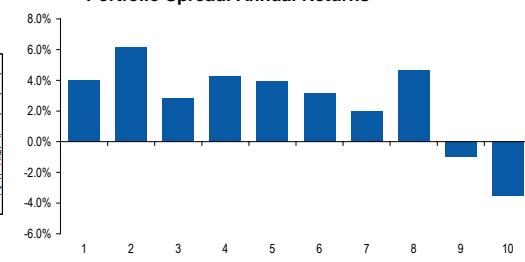
## Forecast EY in NTH AMERICA excluding negative earners

Forecast EY in NORTH AMERICA excluding negative earners in NORTH AMERICA								Rebalance every 1 month(s)									
3 Year(s): 31/05/2000 to 31/05/2003 Portfolio Statistics				3 Year(s): 31/05/2003 to 31/05/2006 Portfolio Statistics				3 Year(s): 31/05/2006 to 31/05/2009 Portfolio Statistics				Total Period: 31/03/1998 to 31/05/2009 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	0.8%	6.4%	8%	1	2.2%	28.9%	3%	1	-0.7%	-14.1%	10%	1	0.6%	4.0%	8%		
2	1.3%	15.1%	6%	2	1.6%	21.2%	2%	2	-0.7%	-10.8%	8%	2	0.7%	6.2%	6%		
3	0.6%	5.4%	5%	3	1.3%	16.6%	2%	3	-0.5%	-9.1%	7%	3	0.4%	2.9%	6%		
4	1.0%	11.4%	5%	4	1.5%	19.8%	2%	4	-0.3%	-5.6%	6%	4	0.5%	4.2%	5%		
5	0.5%	5.2%	5%	5	1.2%	15.0%	2%	5	-0.5%	-7.1%	5%	5	0.4%	4.0%	5%		
6	0.1%	0.0%	5%	6	1.2%	14.8%	2%	6	-0.1%	-2.7%	5%	6	0.4%	3.2%	5%		
7	-0.1%	-2.6%	5%	7	1.3%	16.2%	3%	7	-0.1%	-3.5%	6%	7	0.3%	2.0%	5%		
8	-0.1%	-2.5%	5%	8	1.1%	13.7%	3%	8	-0.2%	-4.1%	5%	8	0.5%	4.7%	5%		
9	-0.9%	-12.9%	7%	9	1.1%	13.5%	4%	9	-1.1%	-13.9%	6%	9	0.1%	-1.0%	6%		
10	-2.2%	-30.1%	12%	10	1.3%	15.9%	4%	10	-0.6%	-10.2%	8%	10	0.1%	-3.5%	9%		
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	0.1%	8.0%	7.4%	369	1.4%	4.3%	3.7%	541	Universe	-0.5%	-0.3%	-1.2%	660	Universe	0.4%	1.8%	1.6%
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					
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	3.0%	35.5%	10%	Long/Short	0.9%	10.3%	3%	Long/Short	-0.1%	-3.1%	5%	Long/Short	0.6%	3.67%	7.1%		
T-Stat				T-Stat				T-Stat				T-Stat					
Long/Short	1.86			Long/Short	1.68			Long/Short	-0.18			Long/Short	0.90				
Avg Avg Avg Avg				Avg Avg Avg Avg				Avg Avg Avg Avg				Avg Avg Avg Avg					
75				109				133				99					

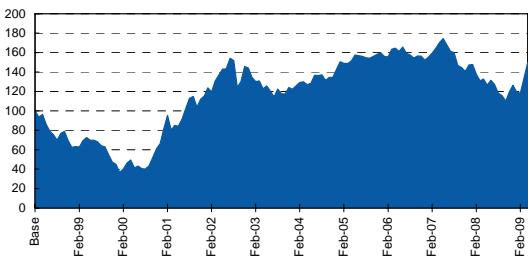
### Portfolio Index Performance



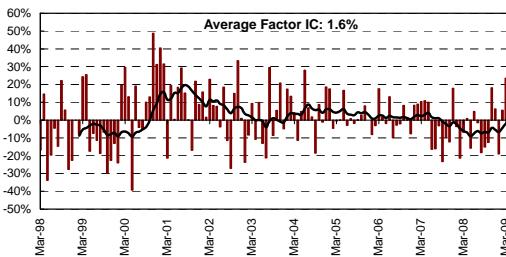
### Portfolio Spread. Annual Returns



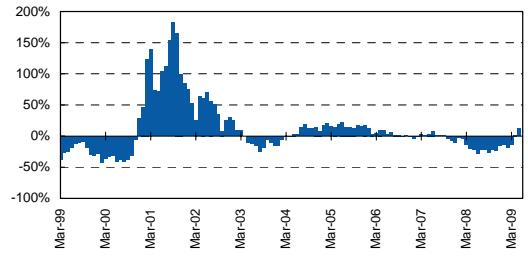
### Cumulative Returns



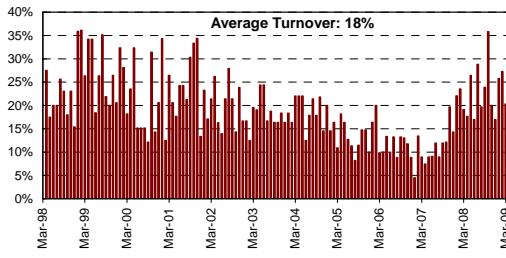
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



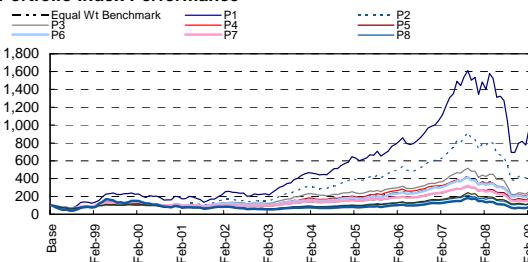
### Turnover within Portfolio 1



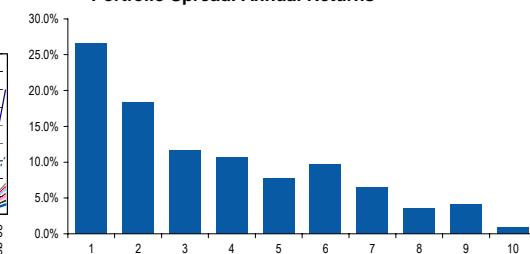
## Forecast EY in ASIAPAC EX JP

Forecast EY in ASIAPAC EX JP in ASIAPAC EX JP								Rebalance every 1 month(s)											
3 Year(s): 31/05/2000 to 31/05/2003 Portfolio Statistics				3 Year(s): 31/05/2003 to 31/05/2006 Portfolio Statistics				3 Year(s): 31/05/2006 to 31/05/2009 Portfolio Statistics				Total Period: 31/03/1998 to 31/05/2009 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	1.5%	13.1%	10%	53%	1	3.1%	42.7%	5%	75%	1	2.2%	20.4%	11%	58%	1	2.5%	26.6%	10%	62%
2	2.0%	23.7%	7%	75%	2	2.9%	39.4%	5%	69%	2	1.2%	9.6%	9%	56%	2	1.8%	18.3%	8%	64%
3	1.3%	13.4%	7%	67%	3	2.1%	27.4%	5%	47%	3	0.8%	5.4%	9%	47%	3	1.3%	11.7%	8%	51%
4	0.6%	5.3%	7%	64%	4	2.4%	31.9%	4%	58%	4	0.8%	5.7%	8%	36%	4	1.1%	10.6%	7%	51%
5	0.2%	0.8%	6%	56%	5	1.8%	23.3%	3%	42%	5	0.8%	6.9%	7%	42%	5	0.8%	7.7%	6%	46%
6	0.4%	2.8%	5%	53%	6	2.0%	26.1%	4%	44%	6	0.8%	6.9%	7%	47%	6	1.0%	9.7%	6%	50%
7	-0.3%	-4.5%	4%	53%	7	1.7%	21.8%	3%	28%	7	0.4%	2.6%	7%	42%	7	0.7%	6.4%	6%	43%
8	-1.2%	-14.6%	5%	38%	8	1.8%	23.4%	4%	39%	8	0.8%	6.4%	7%	44%	8	0.5%	3.6%	6%	44%
9	-1.2%	-14.1%	4%	28%	9	2.0%	25.9%	4%	39%	9	0.9%	7.0%	8%	44%	9	0.5%	4.1%	6%	39%
10	-1.8%	-22.4%	8%	25%	10	1.6%	20.1%	4%	36%	10	0.7%	3.7%	9%	39%	10	0.6%	0.9%	10%	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	0.2%	9.3%	4.3%	460	Universe	2.2%	3.8%	4.3%	539	Universe	0.9%	3.4%	2.9%	619	Universe	1.1%	4.5%	3.0%	530
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.				
Long/Short	3.3%	44.0%	6%	69%	Long/Short	1.5%	18.8%	3%	72%	Long/Short	1.5%	17.6%	5%	61%	Long/Short	1.9%	21.96%	6.2%	67%
T-Stat				Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets			
Long/Short	3.22			93	Long/Short	3.11			109	Long/Short	1.79			124	Long/Short	3.48			107

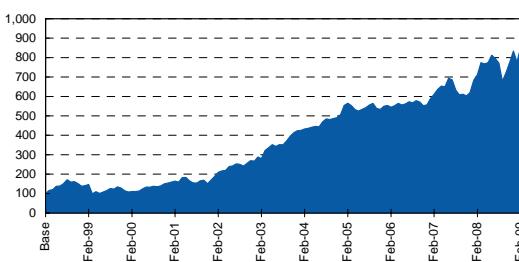
### Portfolio Index Performance



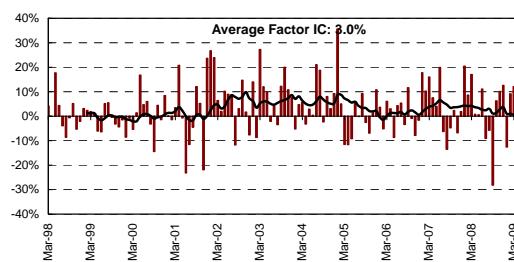
### Portfolio Spread. Annual Returns



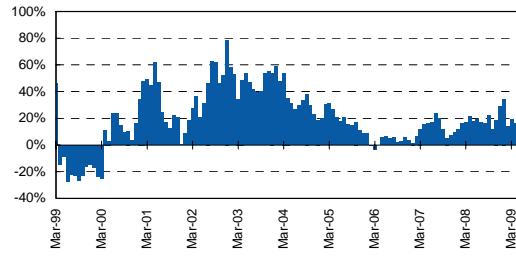
### Cumulative Returns



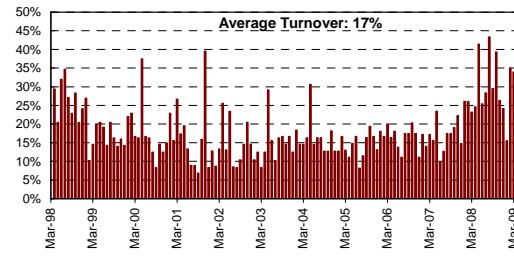
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



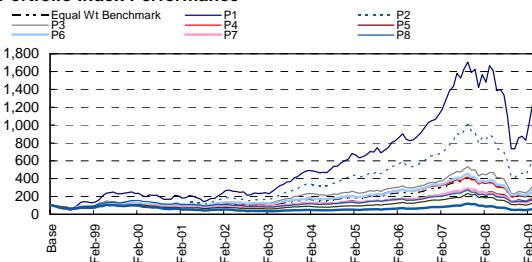
### Turnover within Portfolio 1



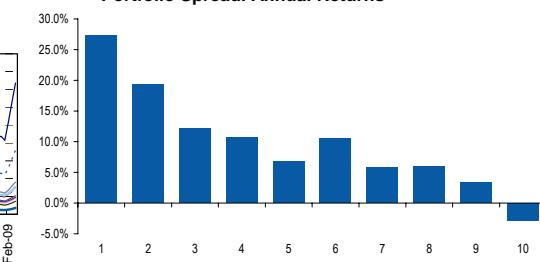
## Forecast EY in ASIAPAC EX JP excluding negative earners

Forecast EY in ASIAPAC EX JP excluding negative earners in ASIAPAC EX JP								Rebalance every 1 month(s)											
3 Year(s): 31/05/2000 to 31/05/2003 Portfolio Statistics				3 Year(s): 31/05/2003 to 31/05/2006 Portfolio Statistics				3 Year(s): 31/05/2006 to 31/05/2009 Portfolio Statistics				Total Period: 31/03/1998 to 31/05/2009 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	1.6%	13.8%	10%	50%	1	3.1%	42.6%	5%	78%	1	2.2%	20.5%	11%	58%	1	2.5%	27.2%	10%	63%
2	2.0%	23.5%	7%	75%	2	3.0%	40.6%	5%	69%	2	1.2%	9.1%	9%	56%	2	1.8%	19.3%	8%	64%
3	1.2%	12.3%	7%	67%	3	2.1%	27.3%	5%	50%	3	0.9%	6.3%	9%	44%	3	1.3%	12.1%	8%	51%
4	0.8%	7.3%	7%	64%	4	2.4%	31.6%	4%	53%	4	0.8%	6.0%	8%	39%	4	1.1%	10.7%	7%	52%
5	0.3%	0.9%	6%	61%	5	1.8%	22.6%	3%	33%	5	0.8%	7.0%	7%	44%	5	0.8%	6.8%	7%	46%
6	0.5%	4.8%	6%	53%	6	2.1%	26.9%	4%	44%	6	0.7%	5.4%	7%	38%	6	1.0%	10.5%	6%	45%
7	-0.2%	-3.2%	5%	53%	7	1.8%	22.4%	3%	39%	7	0.6%	4.4%	7%	39%	7	0.6%	5.8%	6%	44%
8	-1.3%	-15.2%	5%	36%	8	1.8%	22.4%	3%	42%	8	0.8%	6.6%	7%	42%	8	0.7%	5.9%	6%	46%
9	-1.1%	-13.8%	4%	33%	9	1.9%	25.0%	4%	42%	9	0.7%	5.3%	8%	39%	9	0.4%	3.3%	6%	43%
10	-2.1%	-24.1%	6%	19%	10	1.7%	20.8%	4%	44%	10	0.8%	4.6%	9%	44%	10	0.0%	-2.8%	7%	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	0.2%	9.2%	4.7%	444	Universe	2.2%	3.8%	4.7%	534	Universe	0.9%	3.4%	3.5%	607	Universe	1.0%	4.4%	3.4%	513
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	3.6%	50.3%	6%	64%	Long/Short	1.4%	18.1%	3%	72%	Long/Short	1.4%	16.5%	5%	58%	Long/Short	2.5%	31.40%	6.2%	63%
T-Stat				Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets			
Long/Short	3.41			90	Long/Short	3.04			107	Long/Short	1.56			122	Long/Short	4.63			103

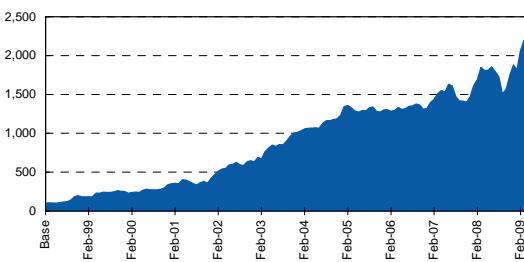
### Portfolio Index Performance



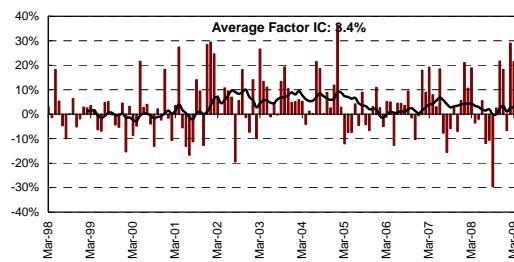
### Portfolio Spread. Annual Returns



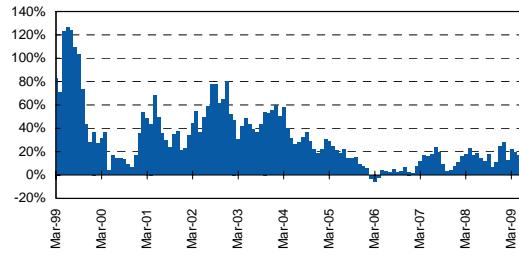
### Cumulative Returns



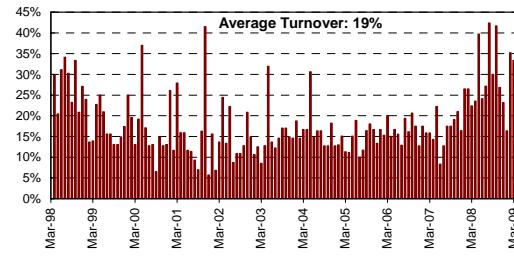
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



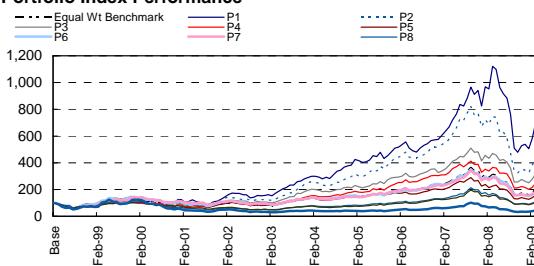
### Turnover within Portfolio 1



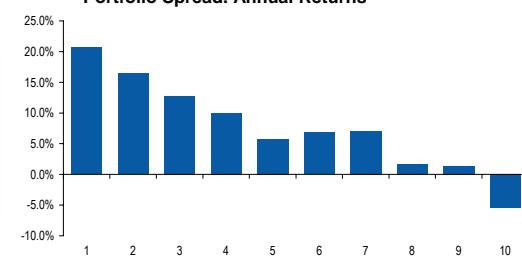
## Forecast EY in ASIA EX JP TOP 250

Forecast EY in ASIA EX JP TOP 250 in ASIA EX JP TOP 250								Rebalance every 1 month(s)											
3 Year(s): 31/05/2000 to 31/05/2003 Portfolio Statistics				3 Year(s): 31/05/2003 to 31/05/2006 Portfolio Statistics				3 Year(s): 31/05/2006 to 31/05/2009 Portfolio Statistics				Total Period: 31/03/1998 to 31/05/2009 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	2.0%	20.0%	10%	64%	1	2.9%	39.0%	5%	58%	1	1.9%	16.9%	10%	64%	1	2.0%	20.7%	9%	60%
2	1.5%	15.4%	8%	75%	2	3.3%	45.3%	5%	69%	2	1.1%	7.6%	10%	50%	2	1.6%	16.5%	9%	63%
3	0.9%	7.2%	8%	69%	3	2.8%	36.9%	5%	72%	3	1.1%	8.6%	9%	61%	3	1.3%	12.7%	8%	65%
4	0.5%	3.5%	7%	64%	4	2.8%	37.2%	5%	56%	4	0.7%	4.4%	8%	44%	4	1.1%	10.0%	7%	53%
5	-0.6%	-9.7%	7%	50%	5	1.8%	22.7%	4%	42%	5	0.7%	3.7%	8%	56%	5	0.7%	5.8%	7%	52%
6	-0.6%	-8.9%	6%	47%	6	2.1%	26.5%	4%	44%	6	0.6%	3.6%	8%	44%	6	0.8%	6.8%	7%	47%
7	-0.7%	-9.4%	6%	42%	7	2.1%	27.3%	4%	47%	7	0.6%	3.3%	8%	42%	7	0.8%	7.1%	7%	48%
8	-1.4%	-17.2%	6%	47%	8	1.9%	24.9%	4%	47%	8	0.7%	5.2%	8%	47%	8	0.4%	1.7%	6%	48%
9	-1.6%	-18.6%	5%	36%	9	2.0%	24.9%	5%	39%	9	0.8%	6.3%	8%	47%	9	0.3%	1.4%	7%	43%
10	-2.5%	-29.8%	9%	25%	10	1.3%	14.6%	5%	39%	10	0.8%	3.3%	10%	42%	10	0.0%	-5.5%	10%	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	-0.2%	11.7%	8.0%	220	2.3%	6.2%	5.7%	232	0.9%	3.0%	2.4%	238	0.9%	6.0%	4.5%	227			
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.				
Long/Short	4.5%	65.8%	6%	78%	1.6%	20.5%	4%	64%	1.1%	11.4%	6%	61%	2.0%	22.51%	7.2%	66%			
T-Stat				Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets			
Long/Short	4.16			45	2.64			47	1.02			48	3.18			46			

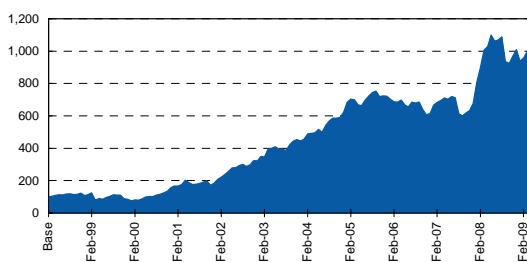
### Portfolio Index Performance



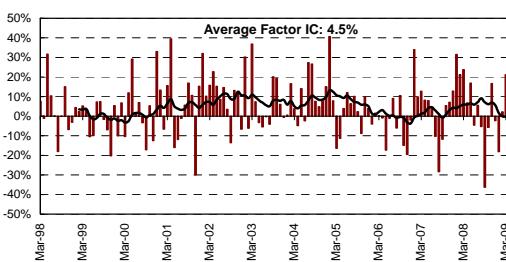
### Portfolio Spread. Annual Returns



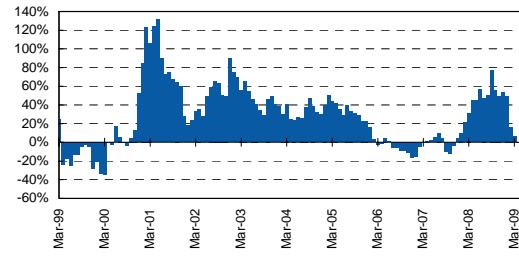
### Cumulative Returns



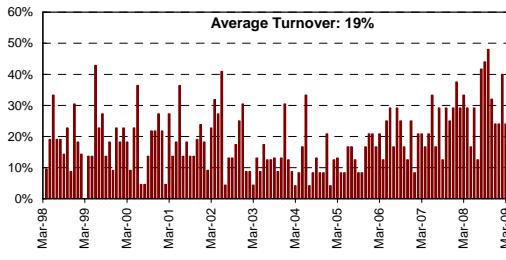
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



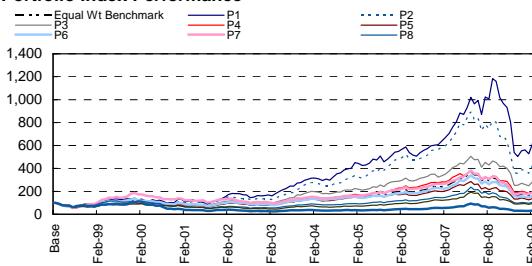
### Turnover within Portfolio 1



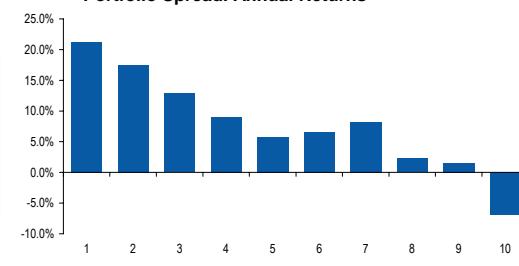
## Forecast EY in ASIA EX JP TOP 250 exc. negative earners

Forecast EY in ASIA EX JP TOP 250 excluding negative earners in ASIA EX JP TOP 250								Rebalance every 1 month(s)											
3 Year(s): 31/05/2000 to 31/05/2003				3 Year(s): 31/05/2003 to 31/05/2006				3 Year(s): 31/05/2006 to 31/05/2009				Total Period: 31/03/1998 to 31/05/2009							
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	2.1%	21.1%	10%	64%	1	2.9%	39.4%	5%	58%	1	1.9%	16.7%	10%	64%	1	2.0%	21.2%	9%	60%
2	1.5%	16.2%	8%	72%	2	3.3%	45.5%	5%	64%	2	1.2%	7.9%	10%	56%	2	1.7%	17.4%	9%	63%
3	0.9%	7.9%	8%	72%	3	2.8%	37.1%	5%	75%	3	1.1%	9.2%	9%	61%	3	1.3%	12.8%	8%	66%
4	0.4%	1.6%	7%	56%	4	2.7%	36.5%	5%	50%	4	0.7%	4.3%	8%	47%	4	1.0%	9.0%	7%	49%
5	-0.4%	-7.2%	7%	53%	5	1.8%	22.7%	4%	44%	5	0.7%	4.0%	8%	53%	5	0.7%	5.7%	7%	52%
6	-0.4%	-7.1%	6%	47%	6	2.1%	26.5%	4%	42%	6	0.7%	4.0%	8%	39%	6	0.8%	6.6%	7%	45%
7	-1.0%	-13.1%	6%	39%	7	2.2%	28.5%	5%	50%	7	0.6%	3.4%	8%	42%	7	0.9%	8.2%	7%	48%
8	-1.3%	-16.1%	6%	39%	8	1.9%	24.1%	4%	47%	8	0.6%	3.4%	8%	44%	8	0.4%	2.3%	7%	46%
9	-1.3%	-16.2%	5%	39%	9	2.0%	24.7%	5%	33%	9	1.0%	8.5%	8%	50%	9	0.3%	1.5%	7%	40%
10	-2.7%	-30.5%	8%	22%	10	1.4%	16.3%	5%	33%	10	0.6%	0.7%	10%	47%	10	-0.3%	-6.9%	8%	35%
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%	11.6%	8.5%	216	Universe	2.3%	5.9%	5.5%	230	Universe	0.9%	3.1%	2.8%	236	Universe	0.9%	5.7%	4.6%	222
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	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	4.8%	71.5%	7%	78%	Long/Short	1.5%	19.3%	4%	61%	Long/Short	1.3%	13.7%	7%	58%	Long/Short	2.3%	27.62%	6.6%	66%
T-Stat				Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets			
Long/Short	4.38			44	Long/Short	2.53			47	Long/Short	1.15			48	Long/Short	3.96			45

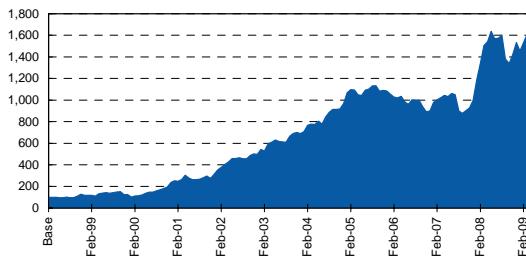
### Portfolio Index Performance



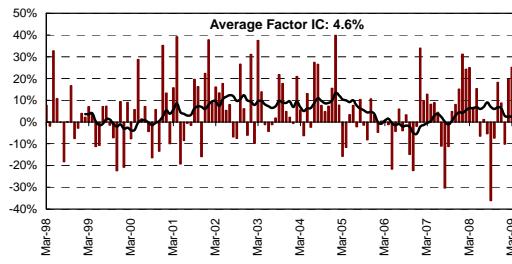
### Portfolio Spread. Annual Returns



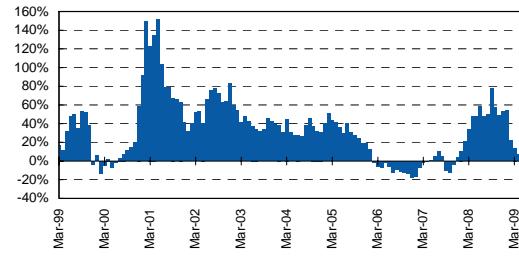
### Cumulative Returns



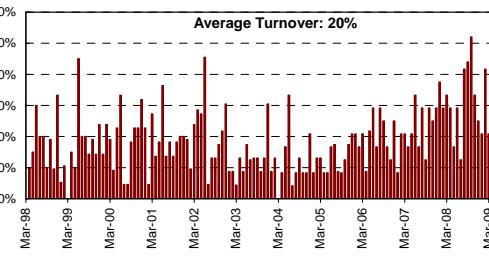
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



### Turnover within Portfolio 1

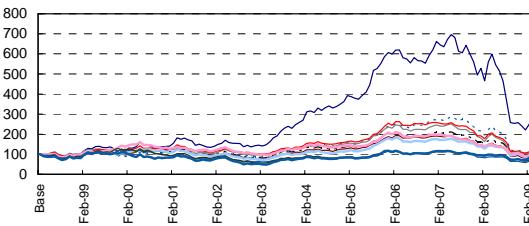


## Forecast EY in JP

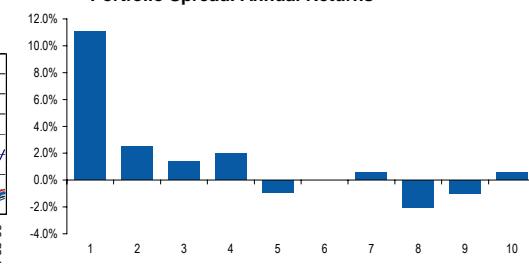
Forecast EY in JP in JP								Rebalance every 1 month(s)															
3 Year(s): 31/05/2000 to 31/05/2003				3 Year(s): 31/05/2003 to 31/05/2006				3 Year(s): 31/05/2006 to 31/05/2009				Total Period: 31/03/1998 to 31/05/2009											
Port	Avg Ret	Ann Ret	St Dev	Port	Avg Ret	Ann Ret	St Dev	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev							
1	0.7%	5.4%	7%	69%	1	3.7%	53.2%	5%	69%	1	-1.1%	-17.9%	10%	44%	1	1.2%	11.0%	8%	63%				
2	0.0%	-2.1%	5%	67%	2	2.7%	36.1%	4%	58%	2	-1.3%	-17.6%	8%	47%	2	0.4%	2.5%	6%	55%				
3	-0.1%	-2.3%	5%	64%	3	2.3%	29.3%	5%	56%	3	-1.6%	-19.6%	7%	47%	3	0.3%	1.4%	6%	54%				
4	-0.5%	-7.0%	5%	53%	4	2.5%	32.5%	4%	61%	4	-1.6%	-20.0%	6%	31%	4	0.3%	2.0%	6%	50%				
5	-0.7%	-9.4%	5%	50%	5	2.2%	29.0%	4%	56%	5	-1.7%	-20.6%	6%	33%	5	0.1%	-1.0%	6%	47%				
6	-1.0%	-12.7%	5%	39%	6	2.2%	28.0%	5%	44%	6	-1.2%	-15.2%	6%	47%	6	0.1%	0.0%	5%	46%				
7	-1.1%	-13.0%	4%	50%	7	2.0%	24.6%	5%	36%	7	-1.5%	-17.5%	5%	50%	7	0.2%	0.6%	5%	49%				
8	-1.4%	-17.4%	5%	31%	8	1.4%	16.9%	5%	25%	8	-0.5%	-8.3%	6%	64%	8	0.0%	-2.1%	5%	41%				
9	-1.5%	-18.6%	6%	33%	9	1.6%	19.5%	5%	28%	9	-0.2%	-4.7%	6%	64%	9	0.1%	-1.0%	6%	43%				
10	-1.1%	-15.2%	8%	44%	10	2.0%	25.0%	6%	39%	10	0.3%	1.3%	7%	64%	10	0.3%	0.6%	7%	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	-0.7%	8.1%	5.8%	277	Universe	2.3%	8.4%	6.9%	323	Universe	-1.0%	-4.8%	-4.6%	354	Universe	0.3%	4.1%	2.6%	305				
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	1.7%	22.0%	4%	69%	Long/Short	1.7%	21.8%	3%	69%	Long/Short	3.05	T-Stat	65	Long/Short	-1.5%	-18.2%	7%	33%	Long/Short	0.9%	9.29%	5.4%	58%
T-Stat	2.58		56	Avg Assets		Avg Assets		Avg Assets		Avg Assets		T-Stat	-1.32		T-Stat	72	Avg Assets		Avg Assets		Avg Assets		62

### Portfolio Index Performance

— Equal Wt Benchmark P1  
 — P2 P4 P7  
 — P3 P5 P8



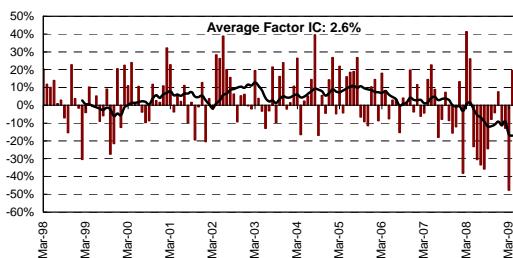
### Portfolio Spread. Annual Returns



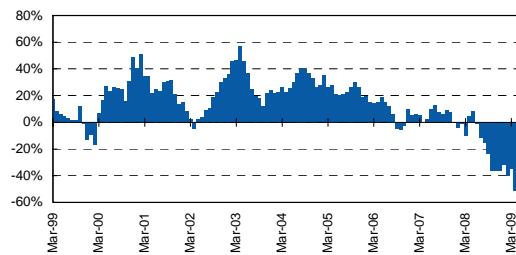
### Cumulative Returns



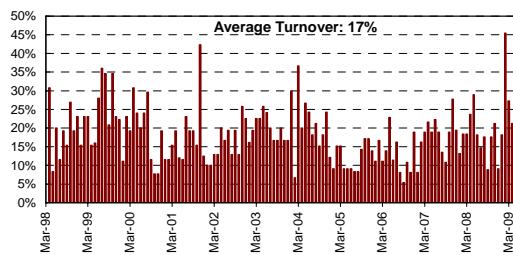
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



### Turnover within Portfolio 1

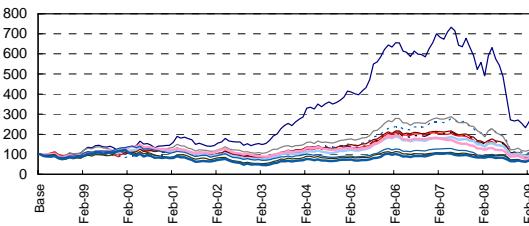


## Forecast EY in JP excluding negative earners

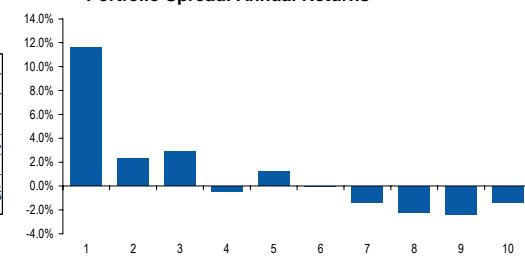
Forecast EY in JP excluding negative earners in JP								Rebalance every 1 month(s)											
3 Year(s): 31/05/2000 to 31/05/2003				3 Year(s): 31/05/2003 to 31/05/2006				3 Year(s): 31/05/2006 to 31/05/2009				Total Period: 31/03/1998 to 31/05/2009							
Port	Avg Ret	Ann Ret	St Dev	Port	Avg Ret	Ann Ret	St Dev	Port	Avg Ret	Ann Ret	St Dev	Port	Avg Ret	Ann Ret	St Dev				
1	0.7%	5.8%	7%	69%	1	3.8%	53.5%	5%	69%	1	-1.1%	-17.8%	10%	44%	1	1.2%	11.6%	8%	61%
2	0.0%	-2.0%	6%	69%	2	2.7%	36.1%	4%	58%	2	-1.2%	-16.9%	8%	53%	2	0.4%	2.3%	6%	55%
3	0.0%	-1.0%	5%	72%	3	2.3%	30.2%	4%	58%	3	-1.5%	-18.7%	7%	47%	3	0.4%	2.9%	6%	59%
4	-0.7%	-9.7%	5%	50%	4	2.4%	30.9%	4%	61%	4	-1.7%	-21.3%	6%	31%	4	0.1%	-0.4%	6%	48%
5	-0.4%	-6.1%	5%	56%	5	2.2%	29.3%	4%	50%	5	-1.4%	-17.2%	6%	44%	5	0.3%	1.2%	5%	51%
6	-1.1%	-13.7%	5%	44%	6	2.2%	28.8%	4%	50%	6	-1.3%	-16.2%	6%	56%	6	0.1%	0.0%	5%	51%
7	-1.0%	-12.6%	5%	47%	7	1.9%	24.0%	5%	39%	7	-1.8%	-21.1%	5%	42%	7	0.0%	-1.4%	5%	46%
8	-1.5%	-18.1%	5%	33%	8	1.4%	16.5%	4%	31%	8	-0.9%	-12.3%	5%	47%	8	-0.1%	-2.2%	5%	39%
9	-1.4%	-17.2%	6%	36%	9	1.7%	20.5%	5%	33%	9	-0.6%	-8.9%	5%	58%	9	0.0%	-2.4%	6%	40%
10	-1.5%	-19.0%	7%	36%	10	1.8%	22.0%	6%	31%	10	0.1%	-1.0%	5%	75%	10	0.1%	-1.4%	6%	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	-0.7%	8.3%	6.5%	267	Universe	2.2%	8.6%	8.1%	320	Universe	-1.2%	-3.7%	-2.3%	344	Universe	0.3%	4.3%	3.9%	297
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	2.2%	28.8%	4%	78%	Long/Short	1.9%	25.1%	3%	72%	Long/Short	-1.2%	-15.2%	6%	33%	Long/Short	1.2%	12.62%	5.6%	63%
T-Stat				Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets			
Long/Short	3.42			54	Long/Short	3.37			65	Long/Short	-1.18			70	Long/Short	2.37			60

### Portfolio Index Performance

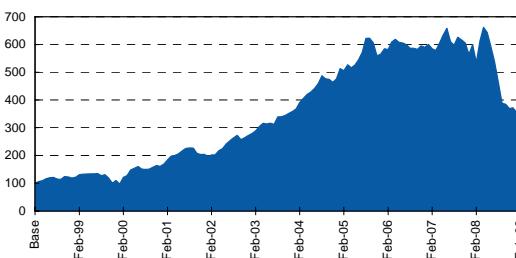
— Equal Wt Benchmark  
 — P3  
 — P6  
 — P1  
 — P4  
 — P2  
 — P5  
 — P7  
 — P8



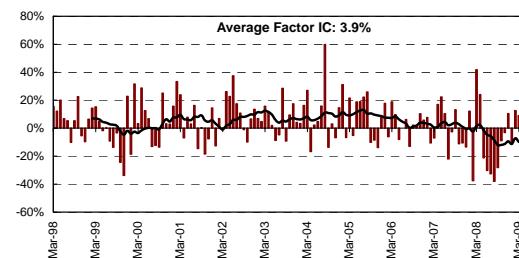
### Portfolio Spread. Annual Returns



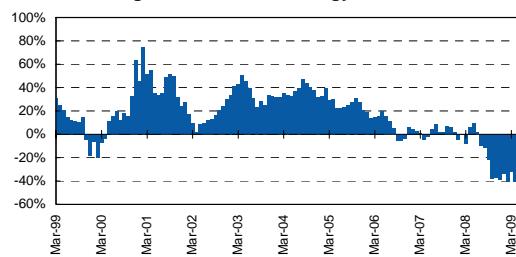
### Cumulative Returns



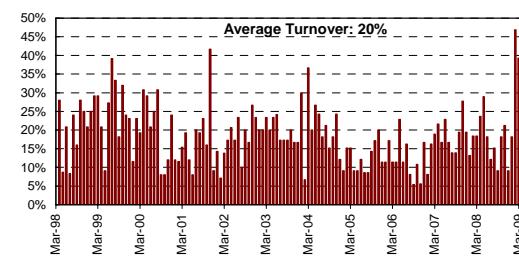
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



### Turnover within Portfolio 1



## Appendix IV: Back-Testing Methodology

Factor back tests aim to quickly identify potential factors that may form the basis of a sound investment process.

Otherwise known as univariate back tests, the process is designed to test one factor in isolation of other inputs. More complex constraints, such as turnover limits, asset capitalization weighting, risk constraints, are typically applied at the Portfolio Simulations stage, not while creating univariate back test.

### Data

We have access to a wide range of data from a number of vendors. Our preferred universe is made up of MSCI constituents, but we can also help with assets comprising many domestic indices, as well as other major index vendors such as FTSE, STOXX, etc. We base our forecast factors on IBES consensus figures while historical data is typically based on Reuters Fundamental data. We also utilize data services from FactSet, Bloomberg and others.

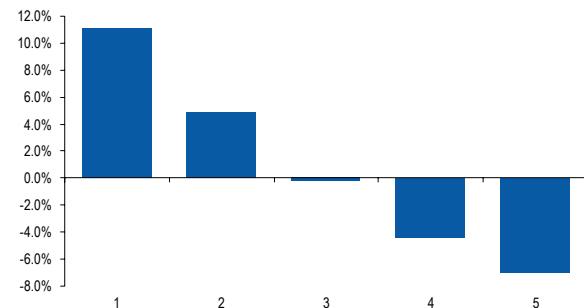
### Sampling

The first test we run on a factor (e.g. price/earnings, dividend yield, price momentum, *etc*) is a univariate back test. 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 (real world constraints are applied later in the portfolio construction phase). Instead, at this stage we are trying simply to identify if the signal under investigation contains any useful information.

Our single factor back-test process involves constructing portfolios monthly. The back test engine ranks the universe of  $n$  stocks from ‘best’ to ‘worst’ on the factor being analyzed. A rank of 1 is applied to the stock with ‘best’ factor score, and a rank of  $n$  is applied to the stock with the worst factor score. Having ranked the stocks, we create a number of equally weighted groups based on this ranking (for example quintiles, where each group contains 20% of the stocks in the universe). Then we track the performance of the various groups over time.

At the end of the test we can look at the performance of all the portfolios (groups) every month, and generate simple statistics to quantify the usefulness of the strategy over the entire period.

Figure 3: Quintile Performance – the ideal monotonic spread



Source: J.P. Morgan

## Analysis

When analyzing the usefulness of the signal, ideally we are looking for the quintiles to be ‘monotonic’. This means that we want to see a predictable spread in the performance of our portfolios across the groupings - ideally we want to see Quintile 1 outperforming Quintile 2, Quintile 2 outperforming Quintile 3, Quintile 3 outperforming Quintile 4, and so on (on average) over the analysis period. For example, perfect monotonic behavior is exhibited by (1 month) Earnings Momentum when tested in the Australian market as shown in Figure 3.

The second piece of information that we use in assessing the strategy is the average information coefficient (IC). We calculated the IC as the correlation between the scores at the start of the month and the actual realized excess returns at the end of the month. We do this each month and then take the average across all months. If the strategy was perfect at picking stocks every month, then the average IC would be 100%. Of course, the reality is that no Quant strategy is going to be anything like that useful. In fact, generally an IC of more than 5% is considered ‘good’ amongst quantitative analysts.

We also look at the percentage of months in which the strategy was successful on a long/short basis; i.e. in how many of the months observed did Quintile 1 outperform Quintile 5 (where 5 = number of groupings, n)? Obviously we want this to be as high as possible, and we would expect a typically ‘good’ quantitative strategy to outperform more than 65% of the time.

We supplement this with a T-Test of the ‘long/short’ Q1 – Q5. We use this test to determine how confident we are that there is a significant difference between the return characteristics of Quintile 1 and Quintile 5. As a rule of thumb, a t-Stat of > 2 (set at the 95% confidence limit) tells us that the hypothesis that ‘there is no significant difference between the two quintiles’ can be rejected, and that we are 95% confident that the two quintiles are different, and the return from Q1-Q5 is statistically different from zero.

The larger the t-Stat, the more confidence we have that the two quintiles (which are assembled according to the factor under examination) are distinct in their return characteristics).

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## The JPMQ back test engine

Our database incorporates the majority of Large Cap equities within the MSCI world universe and starts in 1993. The structure of our database means that we have a great flexibility in data handling prior to back-testing. Factors can effectively be normalized in many different ways and data can be truncated before the normalization process takes place. Truncation is important as it prevents large numbers (possibly incorrect data) from skewing the market average. For those practitioners that prefer to use the median, this option is made available within the normalization process. Our process allows the combination of any number of factors, allowing us to combine a positive factor with a negative factor (e.g. Earnings Revisions with Earnings Risk). Each factor is also independently weighted; the only constraint applied is that the sum of weights is equal to 1.

In our JPMQ back-test engine, each factor is put through a standard linear regression methodology where key statistical tests are performed and the relevant outputs are generated for each factor. When combined with our database, it permits any factor to be tested, over any time frame, any rebalance period, and against any universe.

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## Viewing the results

Our factor profile provides a number of key charts and statistics that can help to provide an understanding of the usefulness of a strategy. It is further broken into a number of different components, each of which is explained below in detail.

### The statistics summary table

The statistics summary table is the portion of our back-test output where we can see the full picture. A sample output is shown below. Key statistics to note are the t-statistic in the bottom of the table. This gives us an indication of the confidence that our results are not down to chance. 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.

Generally we break the table down into three equal periods and also show the overall results across the entire test period. Here we just show the full period results.

Figure 4: The summary stats table

Total Period: 1/31/1994 to 7/30/2007				
Portfolio Statistics				
Port	Avg	Ann	St	% Out
1	1.5%	15.2%	8%	60%
2	1.4%	13.1%	8%	55%
3	0.8%	7.1%	7%	47%
4	0.6%	3.4%	9%	38%
5	0.8%	6.0%	9%	46%

Long Short Strategy Statistics				
Portfolio 1 less Portfolio 5				
	Avg	Ann	Std	% Out
Long/Short	0.7%	7.0%	4%	61%
	T-Stat			
Long/Short	1.96			

The statistics summary table shows how each portfolio of stocks performed. In this sample, our strategy returned 0.7% per month of test. The Long/Short average return is the difference between the performance of Portfolio 1 and Portfolio5. **For this strategy the t-Stat of 1.96 we would consider to be pretty good along with the solid 61% hit-rate (i.e. the % positive months).**

Source: J.P. Morgan

**Figure 5: Output from our JPMO back-test engine, in this case J.P. Morgan Composite in Asia Top 250**

Factor: Composite Value Momentum Quality Price Model in ASIA TOP 250								Rebalance every 1 month(s)											
1 Year: 7/31/2006 to 7/30/2007 Portfolio Statistics				3 Year(s): 7/31/2004 to 7/30/2007 Portfolio Statistics				5 Year(s): 7/31/2002 to 7/30/2007 Portfolio Statistics				Total Period: 12/31/1993 to 7/30/2007 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	5.1%	81.2%	3%	87%	1	3.5%	49.4%	4%	69%	1	3.1%	42.5%	5%	72%	1	1.7%	19.3%	6%	70%
2	4.1%	61.1%	3%	42%	2	2.9%	40.1%	4%	58%	2	2.5%	33.0%	4%	50%	2	1.2%	12.9%	6%	55%
3	3.4%	49.7%	2%	25%	3	2.4%	32.4%	3%	33%	3	2.2%	28.4%	4%	43%	3	0.5%	4.1%	6%	46%
4	3.4%	48.8%	3%	25%	4	2.2%	28.7%	4%	33%	4	1.8%	22.4%	4%	33%	4	0.4%	2.2%	6%	36%
5	3.9%	56.9%	3%	33%	5	2.0%	25.5%	4%	25%	5	1.2%	14.1%	5%	23%	5	0.0%	-3.1%	7%	29%
Total Test				Total Test				Total Test				Total Test				Total Test			
Rank	Avg IC	Avg IC	Avg Assets	Rank	Avg IC	Avg IC	Avg Assets	Rank	Avg IC	Avg IC	Avg Assets	Rank	Avg IC	Avg IC	Avg Assets	Rank	Avg IC	Avg IC	Avg Assets
Universe	6.3%	7.6%	239	Universe	7.6%	8.7%	236	Universe	8.2%	8.9%	234	Universe	6.8%	6.3%	220				
<b>Long Short Strategy Statistics</b>																			
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.
Long/Short	1.3%	15.9%	3%	75%	Long/Short	1.5%	19.1%	2%	78%	Long/Short	1.9%	24.5%	3%	83%	Long/Short	1.7%	22.1%	3%	74%
T-Stat	Avg Assets			T-Stat	Avg Assets			T-Stat	Avg Assets			T-Stat	Avg Assets			T-Stat	Avg Assets		
Long/Short	1.53			Long/Short	96			Long/Short	95			Long/Short	5.50			Long/Short	6.68		

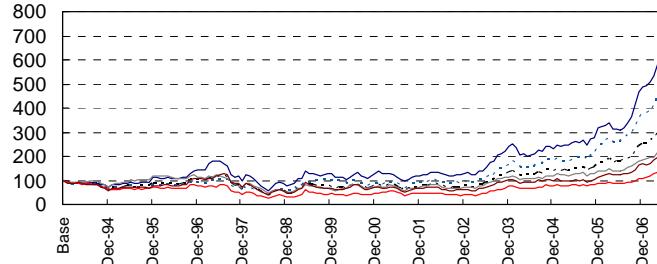
Source: J.P. Morgan, Thomson

### The quintile performance chart

The quintile performance chart is a simple visual representation of the performance of the strategy over the test period. Each quintile/portfolio is shown alongside the equal weighted benchmark.

**Figure 6: Quintile performance results - It works!**

— Benchmark  
 — P1  
 — P2  
 — P3  
 — P4  
 — P5



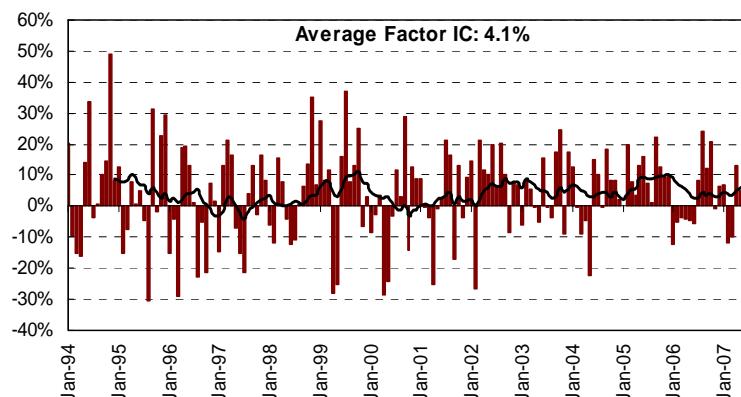
Source: J.P. Morgan

### The information co-efficient chart

The factor IC (information co-efficient) chart shows us the monthly correlation between the factor ranks at the start of the month and the subsequent 1 month returns from the factor. Obviously we are looking to see a positive correlation between the factor and subsequent returns most of the time in order that we can have the confidence to use the strategy for investing.

We add a 12-month trend line to show the cyclical nature of the factor and help to highlight those periods where the factor performed strongly and vice-versa. For example many value factors performed poorly during the tech-boom only to rebound strongly in the three years post 2000.

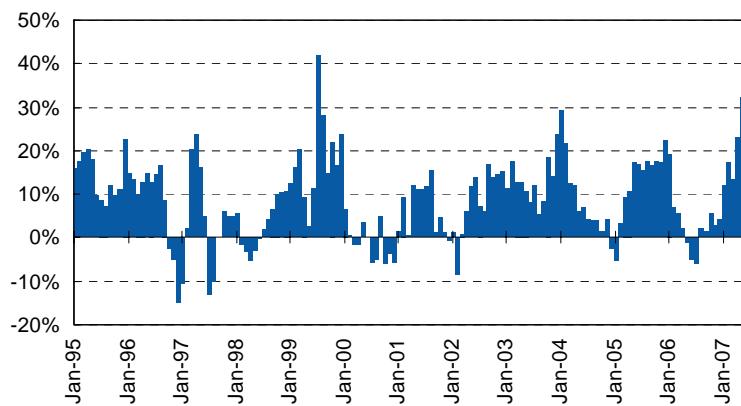
**Figure 7: The Factor IC chart**



### 12-month moving average long/short returns

The clearest picture of when we ‘made money’ using the strategy can be provided by the rolling 12-month performance chart shown below. Note that the chart represents the returns of the long /short strategy. When the line is positive our 12-month returns have been positive and vice-versa.

**Figure 8: The rolling 12-month moving avg - When did we make money?**



### The hit rate

The hit rate is the number of months the strategy works versus the number of months that it didn’t work. It’s shown in the results section as ‘% Outperformance’. Obviously the desire is for a consistent strategy rather than for a strategy that only works half the time (or less) then comes through with a single month of bumper returns. A good quant strategy would certainly have a hit rate in excess of 60%.

### The turnover chart

The turnover chart indicates the percentage of the **portfolio** (based on ‘number of names’) that we are turning over each month in this strategy. The first point to make is that for many single-factor back-tests the turnover is very high. Such strategies,

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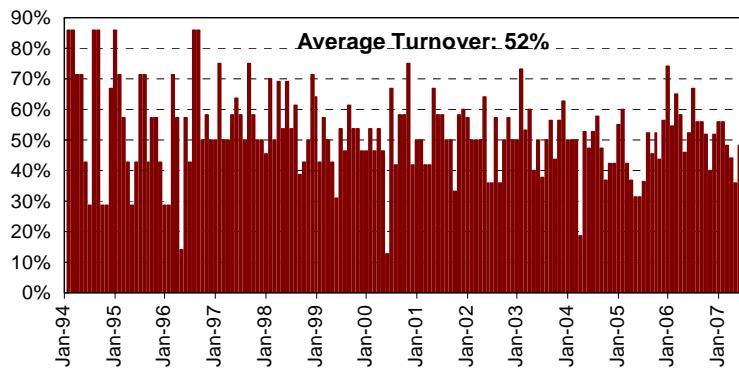
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while producing solid returns, would be impractical to implement in isolation for institutional investors as the transaction costs involved would be prohibitive. Even the most footloose hedge fund is likely to baulk at 30% turnover a month and in reality 10%-20% would be more typical cap even for a momentum driven fund.

However the fact that the turnover is prohibitively high does not mean the strategy is of no use (on the contrary). What it does mean is that the strategy can only be employed in moderation. For instance it should be included as one component of a multi factor model with the dial turned towards some of the lower turnover factors such as members of the ‘value family’. This not only lowers the turnover but also serves to diversify the alpha.

**Figure 9: Monthly turnover information**



Source: J.P. Morgan

If you have any questions on our backtesting methodology or are interested in using our custom back-testing services please contact Steve Malin  
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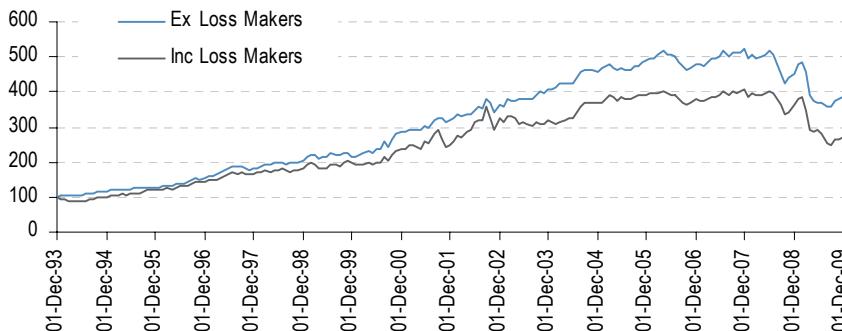
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## Quant Forensics - Volume 1: Cut the Loss-Makers

### The effect of loss-makers on Value Factors

- This year, J.P. Morgan brings you a new publication series called “**Quant Forensics**”. We hope to produce these *short* notes on a monthly basis.
- In our “Quant Forensics” publications we intend to dissect, analyse and uncover Quant, numerical and fundamental anomalies which, whilst small in nature, can significantly influence the performance and risk profile of Quant Managers.
- Our first volume of “Quant Forensics” focuses on loss-makers and how their treatment can affect Value Factors as well as Multi-Factor Quant Models.
- We indeed find that in the past we have fallen for the trick of treating loss-makers as “worse than expensive stocks” and failed to realise that loss-makers are often turn-around stories in the making and therefore significantly outperform expensive stocks.
- In the current document, we show that loss-makers outperform expensive stocks (even on a risk adjusted basis) and present ideas on how to “fix” this problem (avoid loss-makers, replace earnings based Value metrics with other metrics etc).

**Composite Model (Long/Short & Sector Neutral) Including vs. Excluding FY1 Loss-makers**



Source: MSCI, Factset, J.P. Morgan

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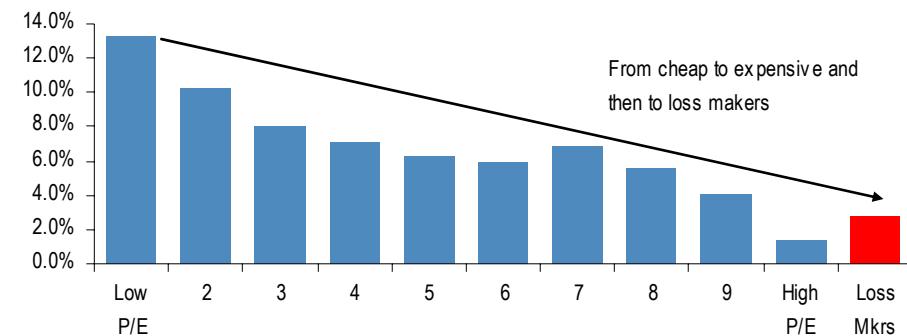
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## Introduction & Methodology

Historically, the J.P. Morgan Quant desk has placed a lot of emphasis on Value based Factors and particularly on Earnings based metrics (Earnings Yield, Forward PE etc).

During our investigations, we usually focus on yields and therefore classify negative earnings as “worse than” expensive valuations.

Figure 1: Example of ranking for earnings based metrics



Source: J.P. Morgan

We have recently taken the opportunity of investigating the relevance of this decision and found that loss-makers do not behave like expensive stocks and that our discretionary decision of allocating loss-makers to the short portfolio was actually counter-productive from an alpha and risk perspective.

We indeed find that classifying loss-makers as the ‘worst value’ stocks in the universe (and consequently always assigning them to the short portfolio) has a significant effect on performance of specifically the short portfolio, for long/short Earnings based models.

In the current document, we present the performance of loss-makers and compare their (risk adjusted) returns with those of expensive stocks. We then present an analysis on the implications of including and excluding loss-makers in Earnings Yield Factors. We finally identify possible solutions for dealing with loss-makers in both single Factor Earnings based models and when incorporating Earnings based Factors into a Multi-Factor model as a compulsory subcomponent.

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**We focus our attention on  
Earnings based valuations  
(Earnings Yield) throughout this  
note**

**15+ Years of MSCI Europe  
Earnings based data**

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It is worth noting that for simplicity, to conform to the most commonly used valuation metric in the market and to focus on the most logical way of identifying loss-makers, we focus our attention on Earnings based valuations (Earnings Yield) throughout this note.

We perform univariate backtests on both Historical and 12 month Forward Earnings Yield data for MSCI Europe back to 1993.

Portfolios are rebalanced each month with the stocks re-ranked according to the Z-Scores for their Earnings Yield (in descending order) unless otherwise specified and split into deciles (10 portfolios) with the cheapest/top 10% allocated to portfolio 1 (long) and the most expensive/loss-makers (ie bottom 10%) to portfolio 10 (short).

## How does the treatment of loss-makers impact the performance of P/E strategies?

As previously stated, when calculating exposures to Value Factors, we typically use the **yields** derived from underlying ratios rather than the ratios themselves to arrive at our Z-Scores.

This is the standard modus operandi across the majority of the Quant community, allowing managers to favour stocks so that those with the highest yields are allocated the highest scores within the relevant model and the lowest the worst.

Consequently loss-makers, stocks with **negative valuations**, will *always score poorly* and be allocated to the short portfolio in any simple long/short Value model.

We believe this methodology is erroneous, leading to a loss of alpha particularly within the short portfolio (bottom of the universe) according to the Value Factor used.

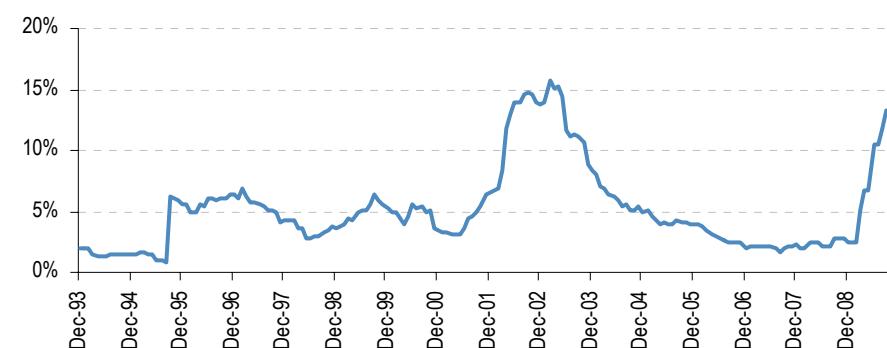
### How many loss-makers can we find historically?

Figure 2 shows the distribution of loss-making stocks over time. It is worth noting that at times a significant proportion of stocks have negative Earnings causing the short portfolio, according to a simple Earnings Yield Factor, to consist entirely of loss-making stocks – i.e. when this proportion crosses the 10% threshold.

**>50% of an average short (expensive) Earnings Yield portfolio can consist of loss-makers**

On average this proportion is 5.1%, implying that, on average, more than half of a short (expensive) Earnings Yield portfolio is made up of loss-makers.

Figure 2: Loss-making stocks (using Historical Earnings) as a% of MSCI Europe



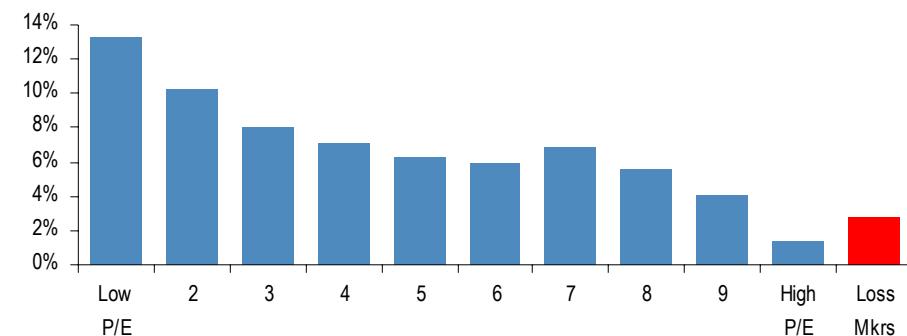
Source: MSCI, Factset, J.P. Morgan

## What is the performance and volatility of loss-makers historically?

Historically, we actually find that these *loss-makers* *outperform* high P/E stocks returning 2.9% annualised, more than double the return of their high P/E counterparts (1.4%)!

### Loss-makers outperform high P/E stocks

Figure 3: Annualised returns: Historical Earnings Yield portfolios, MSCI Europe



Source: MSCI, Factset, J.P. Morgan

From a risk adjusted perspective, although loss-makers are not an attractive long-only proposition, they do indeed offer an improved Hit Rate and Information Ratio when compared to their high P/E counterparts.

The volatility of the loss-makers portfolio is, however, considerably higher than other portfolios at the expensive end of the spectrum. It should however be noted that this increased volatility is predominantly caused by the loss-makers portfolio containing, on average, around half the stocks of the other (positive Earnings) portfolios.

### Loss-makers: higher volatility but higher returns resulting in an IR of 0.10

Table 1: Portfolio Statistics, Historical Earnings Yield - MSCI Europe

Portfolio	Annualised Return	Annualised Volatility	Hit Rate	IR
Low P/E	13.3%	25.0%	57.9%	0.53
2	10.3%	20.2%	60.5%	0.51
3	8.1%	18.8%	53.7%	0.43
4	7.1%	17.4%	49.5%	0.41
5	6.2%	16.6%	45.8%	0.38
6	6.0%	16.3%	53.2%	0.37
7	6.9%	16.6%	50.0%	0.42
8	5.6%	16.6%	44.2%	0.34
9	4.0%	18.7%	44.2%	0.22
High P/E	1.4%	20.7%	43.2%	0.07
Loss-makers	2.9%	27.3%	46.8%	0.10

Source: MSCI, Factset, J.P. Morgan

## Suggested Solutions

Hereafter we present 4 options we investigated with the aim of “solving” the issues created by loss-makers<sup>1</sup>.

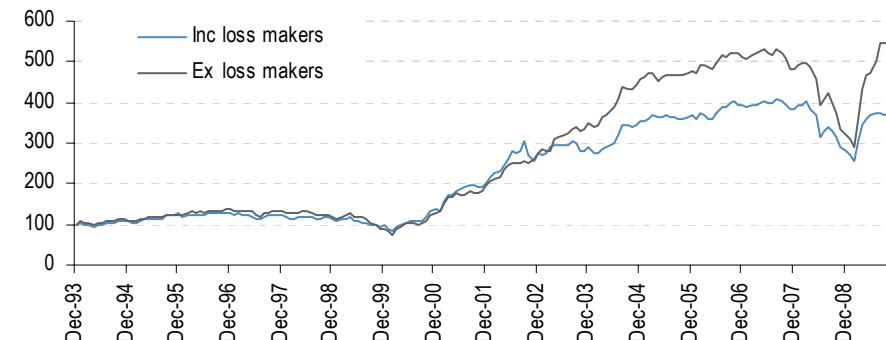
### Option 1: Remove loss-makers from the Model

One can logically conclude that *including* loss-makers in the short portfolio of a simple Earnings Yield model has a detrimental effect on long/short returns.

A simple solution to this problem would be to completely remove loss-makers from the Earnings Yield Factor. This results in marginally smaller portfolio sizes but does not have a detrimental effect on the risk profile of the overall long/short model, with the Information Ratio actually improving.

**Annualised returns improved by 30%, Information Ratio improved by 17% when eliminating loss-makers**

Figure 4: Historical Earnings Yield Factor, long/short returns including/excluding loss-makers, MSCI Europe



Source: MSCI, Factset, J.P. Morgan

Annualised long/short active returns are improved from 8.7% to 11.3%, with the IR increasing from 0.6 to 0.7.

<sup>1</sup> Cfr Appendix for further drawdown analysis on the suggested options.

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Table 2: Portfolio Statistics, Historical Earnings Yield including/excluding loss-makers, MSCI Europe

	Avg IC	T-Stat	Hit Rate	Long Return	Short Return	L/S Return	IR
Inc. Loss-makers	2.4%	2.6	57%	12.7%	2.7%	8.7%	0.60
Ex Loss-makers	3.3%	3.0	60%	13.2%	1.4%	11.3%	0.70

Source: MSCI, Factset, J.P. Morgan

It is evident from Table 2 that the majority of the increase in returns can be attributed to the short portfolio. Using the methodology defined above (i.e. ranking by Earnings Yield) it is impossible to assign loss-makers to the long portfolio.

**Changes in long returns are a direct consequence of reducing the number of stocks held**

Consequently, any changes in long returns are a direct consequence of reducing the number of stocks held within the long portfolio and the subsequent associated increase in risk.

- Including loss-makers, each portfolio (assuming the use of deciles) contains an average of 58 stocks.
- Excluding loss-makers, each portfolio (assuming the use of deciles) contains an average of 44 stocks (the equivalent of using 13 portfolios *including* loss-makers).

Table 3: Portfolio Statistics, Historical Earnings Yield including/excluding loss-makers, MSCI Europe

	Avg IC	T-Stat	Hit Rate	Long Return	Short Return	L/S Return	IR
Inc Loss-makers (10 Portfolios)	2.4%	2.6	57%	12.7%	2.7%	8.7%	0.60
Inc Loss-makers (13 Portfolios)	2.5%	2.9	57%	13.7%	2.1%	10.3%	0.69
Ex Loss-makers	3.3%	3.0	60%	13.2%	1.4%	11.3%	0.70

Source: MSCI, Factset, J.P. Morgan

This argument is further confirmed when running the same analysis (including loss-makers) for 13 portfolios (i.e. using approximately the same number of stocks per long/short portfolio as when we remove loss-makers from the model) results in a short return of 2.1% vs. 1.4% when removing loss-makers (while long returns do not significantly change).

**Removing loss-makers is the dominant force in improving short returns**

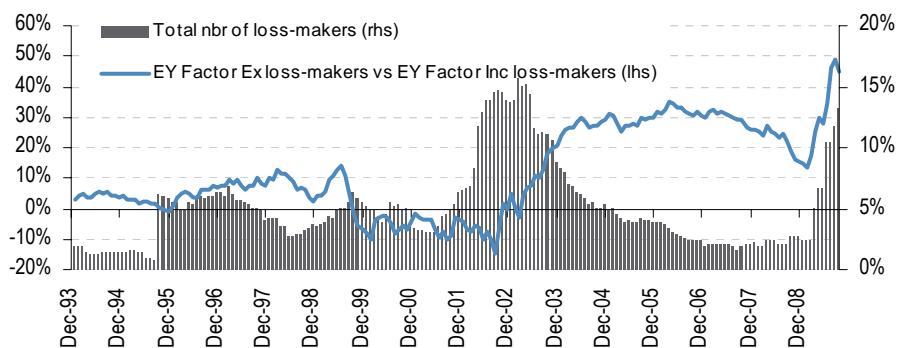
One can therefore logically conclude that removing loss-makers from the Model is the dominant force in improving (i.e. decreasing) returns of the short portfolio.

**Loss-makers offer significant outperformance with the increased risk appetite following market troughs**

A further analysis shows that a significant proportion of this outperformance can be attributed to periods immediately following significant market troughs: the Dotcom bottom (March 03) and the recent ‘Credit Crisis’ trough (March 09).

The number of loss-makers does indeed significantly increase during those periods as the chart below shows which seems to greatly influence the results.

Figure 5: Historical Earnings Yield, long/short returns including/excluding loss-makers compared to the number of loss-makers in the universe. MSCI Europe



Source: MSCI, Factset, J.P. Morgan

*Specifically, it appears that during periods when the number of loss-makers in the universe is high, it is beneficial to eliminate loss-makers from Earnings Yield models.*

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Table 4: Historical Earnings Yield, average monthly Long/Short returns by proportion of loss-makers - MSCI Europe

Total Number of Loss-makers	Inc Loss-makers	Ex Loss-makers	Ex vs. Inc	Frequency
<2.5%	0.3%	0.2%	-0.1%	49
<5%	0.6%	0.7%	0.1%	60
<7.5%	1.4%	1.3%	-0.1%	54
<10%	1.2%	3.1%	1.9%	4
>10%	0.7%	2.3%	1.5%	23

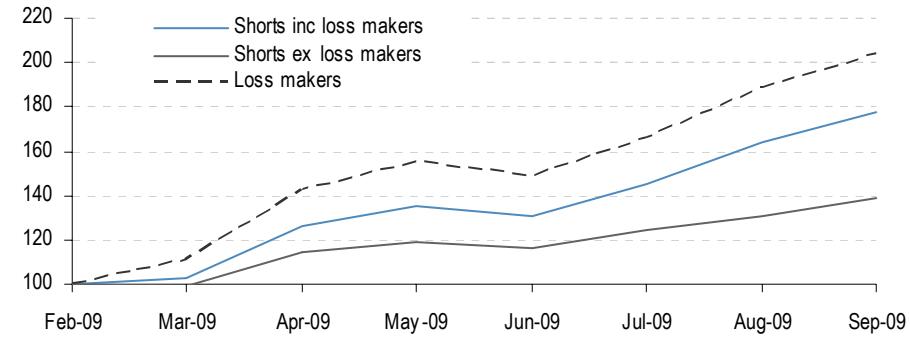
Source: MSCI, Factset, J.P. Morgan

Intuitively this makes sense as at the bottom of a bear market these loss-makers, previously viewed as the dregs of the universe, could be viewed as **classic turnaround stories** and consequently offer significant upside with the increased risk appetite following the inflection point in the market.

A good example can also be found recently, following the March 09 trough, when the market had previously priced in “the end of the world as we know it”, loss-makers significantly outperformed expensive (short) Earnings Yield portfolios, returning over 100% through the end of September 09. In the same time period the short (expensive) portfolio, i.e. excluding loss-makers, returned around 40%.

**Loss-makers cost long/short Earnings Yield model 45% since March 09**

Figure 6: Loss-makers & Historical Earnings Yield short returns, MSCI Europe



Source: MSCI, Factset, J.P. Morgan

*Including loss-makers in a long/short Earnings Yield portfolio since March 09 would have resulted in a 45% underperformance in comparison to filtering out those stocks with negative Earnings.*

## Option 2: Set Z-Scores for loss-makers equal to median

In the above examples whilst removing loss-makers from an Earnings based Model improves performance in theory, in reality it may not be a practical approach.

Indeed, whilst ignoring loss-makers is a perfectly reasonable solution for a simple Earnings based Model, when ones come to integrating the Factor into a Multi-Factor model it would perhaps be erroneous to assign loss-makers no Z-Score for the Value component, potentially removing them from or biasing the final Model score<sup>1</sup>.

### **Alternative - Assign loss-makers the market median Z-Score**

An alternative to removing loss-makers from the model would be to assign them the market median score. When calculating simple Z-Scores, assuming a normal distribution, this market median score will be zero.

This methodology would ensure that

1. within simple Earnings based models, loss-makers would still be in neither the long nor short portfolio.
2. loss-makers would not disappear from our universe. As explained these stocks do sometimes account for up to 15% of the universe. This would ensure that Multi-Factor models are not unduly biased and that universe size does not shrink depending on the business cycle.

**Table 5: Portfolio Statistics, Historical Earnings Yield Models**

	Avg IC	T-Stat	Hit Rate	Long Return	Short Return	L/S Return	IR
Inc. Loss-makers	2.4%	2.6	57%	12.7%	2.7%	8.7%	0.60
Ex Loss-makers	3.3%	3.0	60%	13.2%	1.4%	11.3%	0.70
Median Score	3.0%	2.9	58%	12.7%	1.2%	11.0%	0.69

Source: MSCI, Factset, J.P. Morgan

Performance characteristics and portfolio statistics for the two methods are extremely similar (99.6% correlation).

One can therefore conclude that, considering the possible implications on Multi-Factor models of removing these loss-makers, it is preferable and maybe more pragmatic to assign loss-makers a neutral/market median Z-Score than to remove them completely from the underlying Value Factor<sup>2</sup>.

<sup>1</sup> Whilst there are other ways around this issue, for simplicity in this case, we assume that a stock must have a Z-Score for each component of the model to receive a final model score.

<sup>2</sup> Cfr page 20 for a full analysis of our options when integrated into a Multi-Factor Quant Model.

### Option 3: Replace loss-makers Z-Scores with an alternative valuation metric

An alternative solution would be to replace the Earnings Yield Z-Scores for loss-makers with the Z-Scores from an alternative valuation metric.

The rationale would be that as a stock can't be measured by a negative yield, it should be replaced by a more "appropriate" metric.

Table 6: Portfolio Statistics, replacing loss-makers with alternative valuation metrics

**Using an alternative valuation metric is not as effective as simply removing loss-makers from the model**

	Avg IC	T-Stat	Hit Rate	Long Return	Short Return	L/S Return	IR
Including Loss Makers	2.4%	2.6	57%	12.7%	2.7%	8.7%	0.60
Excluding Loss Makers	3.3%	3.0	60%	13.2%	1.4%	11.3%	0.70
Median Score	3.0%	2.9	58%	12.7%	1.2%	11.0%	0.69
Book Value Yield	1.8%	1.7	57%	12.0%	5.1%	6.7%	0.34
Cash Flow Yield	3.2%	3.9	58%	12.5%	1.8%	9.9%	0.96
Dividend Yield	2.0%	1.5	55%	11.1%	3.7%	5.0%	0.32
Sales Yield	2.8%	2.7	60%	12.2%	1.2%	10.3%	0.62
P/E Relative History	2.5%	2.5	55%	12.3%	2.5%	9.2%	0.59
Composite Value	2.8%	2.6	56%	12.7%	2.2%	9.6%	0.59
Graham-Dodd 10yr Earnings	1.6%	2.1	58%	11.7%	4.3%	6.7%	0.46

Source: MSCI, Factset, J.P. Morgan

**Replacing loss-makers Earnings Z-Scores with Cash Flow based alternatives results in a significantly improved risk profile**

**Using Cash Flow Yield as an alternative to either removing loss-makers or assigning loss-makers median Z-Score results in a satisfactory improvement to returns with the added benefit of a significantly decreased volatility.**

One should be aware, however, that when substituting a loss-makers' Earnings Yield Z-Score with the corresponding Cash Flow Yield Z-Score, 50% of the stocks that are loss-makers are also negative Cash Flow producers.

As previously highlighted, loss-makers are *always* assigned to the short portfolio when scoring stocks according to their Earnings Yield. When replacing the Earnings Z-Score with an alternative valuation metric, one would intuitively expect to be able to attribute the majority of the difference in long/short returns to the short portfolio (the long portfolio remaining relatively static).

This is certainly the case in Table 6, above, with only small changes evident across the long portfolios and with more sizable differences in the shorts accounting for the increased alpha.

Dividend Yield and Book Value Yield are the notable exceptions with the short portfolios significantly outperforming once loss-makers have been replaced with an alternate Dividend or Book Value based Z-Score.

## Option 4: Replace loss-makers Z-Scores with Forecast Earnings metrics

Using the same methodology as solution 3 presented above, a 4th solution would be to replace the Earnings Yield Z-Scores for loss-makers on *Historic* Earnings to the corresponding Z-Scores for *Forecast* Earnings.

Similarly, the rationale hereafter is to replace negative yields scores (which can't be used) with more "appropriate" metrics.

As we demonstrate in Figure 7, analyst forecasts 1 year out contain considerably fewer loss-makers than actual reported numbers so there is scope to increase the size of the investable universe by replacing Historic Z-Scores for loss-makers with their corresponding Forecast Z-Scores.

**Returns of the short book significantly improved when incorporating forward Earnings metrics**

Table 7: Portfolio Statistics, replacing loss-makers with forecast earnings metrics

	Avg IC	T-Stat	Hit Rate	Long Return	Short Return	L/S Return	IR
Including Loss Makers	2.4%	2.6	57%	12.7%	2.7%	8.7%	0.60
Excluding Loss Makers	3.3%	3.0	60%	13.2%	1.4%	11.3%	0.70
Median Score	3.0%	2.9	58%	12.7%	1.2%	11.0%	0.69
FY1 Earnings Yield	2.9%	2.7	56%	12.8%	1.4%	10.2%	0.63
FY2 Earnings Yield	3.0%	2.6	56%	12.3%	1.4%	10.0%	0.61
12mth Fwd Earnings Yield	3.0%	2.6	57%	12.7%	1.9%	9.6%	0.59
Replace with FY1 CF Yield	2.8%	2.6	58%	12.3%	1.6%	9.9%	0.61

Source: MSCI, Factset, J.P. Morgan

Whilst results are attractive compared to keeping loss-makers, they do not present a proposition as interesting as simply eliminating loss-makers from the underlying Earnings Yield Factor.

For a consistent return of the long portfolio, T-Stat, Hit Rate and Information Ratio:

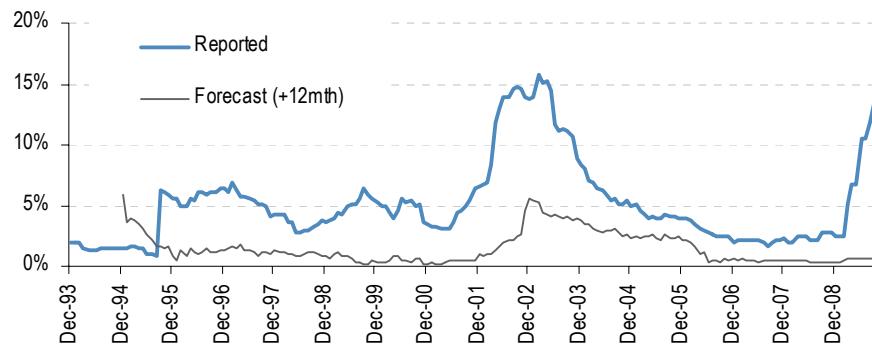
- returns of the short book are almost halved (improved), resulting in a 10-20% improvement in overall long/short returns.
- Information Coefficients are improved by pushing 20%.

## Is the same effect evident in Forecast P/E?

Due to positive/optimistic bias many times mentioned in academic papers<sup>1</sup>, Analyst Earnings Forecasts 1 year out (i.e. using 12 month Forward Earnings estimates) contain considerably fewer loss-makers than actual reported numbers.

**>16% of an average short (expensive) Forward Earnings Yield portfolio consists of loss-makers**

Figure 7: Loss-making stocks using 12mth Forward Earnings, MSCI Europe

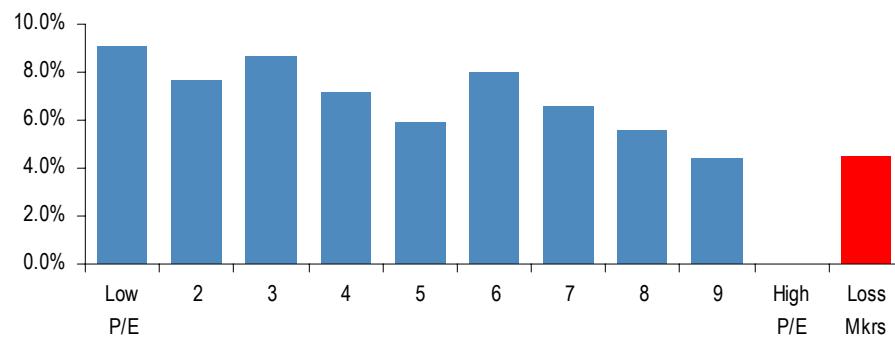


Source: MSCI, Factset, J.P. Morgan

On Average, according to these 12 month Forward Earnings Forecasts, 1.6% of stocks will be loss-makers (compared to 5.1% using actual Earnings). Consequently 16% of stocks in an average short Forward Earnings Yield portfolio are loss-makers. This compares to 50% for actual/reported loss-makers.

**Loss-makers (on Forward Earnings) significantly outperform high P/E stocks**

Figure 8: Annualised returns: 12mth Forward Earnings Yield portfolios, MSCI Europe



Source: MSCI, Factset, J.P. Morgan

<sup>1</sup> Cfr "How to Improve Earnings Momentum Strategies", J.P. Morgan Quant Research (June 2009) for a list of references.

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These *forecast loss-makers significantly outperform expensive (high P/E) stocks* – by 4.5% annualised since 1994 (compared with 1.5%) – and on average also outperform the market by over 20bps annualised, making this analysis even more relevant.

One should however note that, on 12 month Forward Earnings, an average of only 8 loss-makers would appear in the short portfolio. Consequently, the portfolio of loss-making stocks has double the volatility of the portfolio of high P/E stocks.

## Options for Suggested Solutions

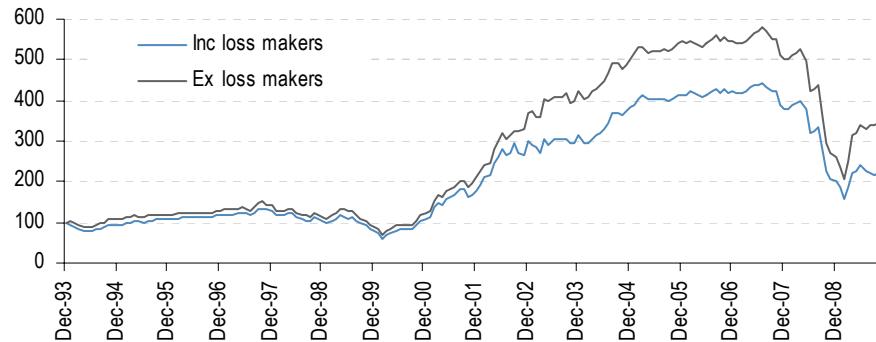
Similarly to the approach presented above, we present 4 different “solutions” we think interesting to investigate to “solve” the loss-makers issue explained previously.

### Option 1: Remove forecast loss-makers from the model

Although there are fewer instances of loss-makers when looking at 12 month Forward Earnings, these stocks still exert a strong influence on the performance of a long/short Earnings Yield model.

**Eliminating loss-makers improves both returns and IR > 50%**

Figure 9: Forward Earnings Yield, long/short returns including/excluding loss-makers, MSCI Europe



Source: MSCI, Factset, J.P. Morgan

Table 8: Portfolio Statistics, Forecast Earnings Yield Models

	Avg IC	T-Stat	Hit Rate	Long Return	Short Return	L/S Return	IR
Inc. Loss-makers	1.9%	1.4	58%	8.9%	2.2%	5.2%	0.26
Ex Loss-makers	2.4%	2.0	64%	9.1%	0.2%	8.1%	0.41

Source: MSCI, Factset, J.P. Morgan

When loss-makers are removed from the universe, annualised long/short active returns are improved from 5.2% to 8.1%, with the IR increasing from 0.26 to 0.41.

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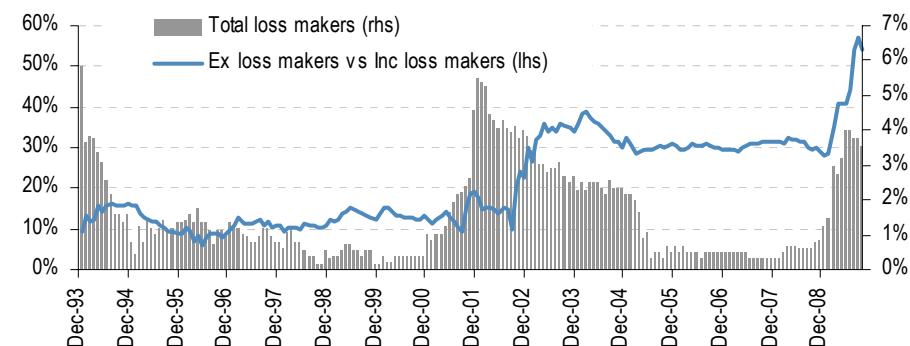
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**Peaks in total forecast loss-makers lead periods of outperformance**

Figure 10: Forward Earnings Yield, long/short returns including/excluding loss-makers, MSCI Europe



Source: MSCI, Factset, J.P. Morgan

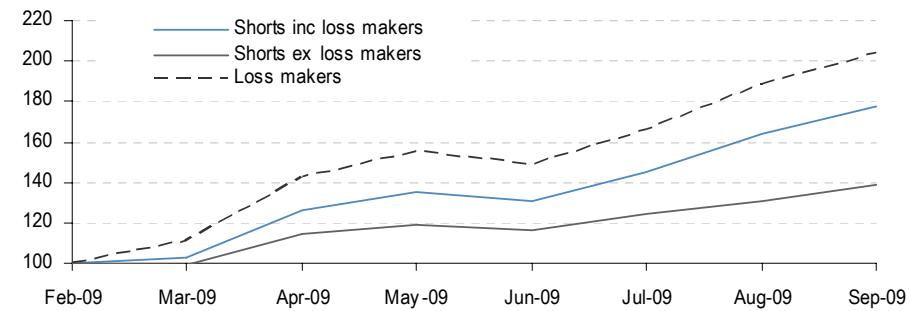
**As per our findings for loss-makers according to Historical Earnings, it is beneficial to remove forecast loss-makers from the model, particularly when there are an inflated number of loss-makers in the universe.**

Also, as would intuitively be expected with Earnings estimates, the peaks in the number of forecast loss-makers lead the periods of outperformance.

As mentioned previously, a great example to the problem faced is the current market action (since March 09). Forecast loss-makers have indeed returned over 120% causing a long/short model including loss-makers to underperform the same model excluding loss-makers by 30%.

**Loss-makers cost long/short Forward Earnings Yield model 30% since March 09**

Figure 11: Loss-makers & Forecast Earnings Yield short returns, MSCI Europe



Source: MSCI, Factset, J.P. Morgan

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## Option 2: Set Z-Scores for loss-makers equal to median

**When replacing Z-Scores for forecast loss-makers with the market median Z-Scores, performance characteristics and statistics are again similar to those attained by simply removing forecast loss-makers from the universe.**

**Replacing loss-makers with the market median score improves performance and risk profile**

Table 9: Portfolio Statistics, Forecast Earnings Yield Models

	Avg IC	T-Stat	Hit Rate	Long Return	Short Return	L/S Return	IR
Inc. Loss-makers	1.9%	1.4	58%	8.9%	2.2%	5.2%	0.26
Ex Loss-makers	2.4%	2.0	64%	9.1%	0.2%	8.1%	0.41
Median Score	2.2%	1.9	62%	8.9%	0.5%	7.6%	0.38

Source: MSCI, Factset, J.P. Morgan

As previously argued, for a simple Forward Earnings based model, it is certainly feasible to remove loss-makers from the universe, but when the Factor is a component in a Multi-Factor model we would again argue that it would perhaps be preferable to assign a neutral Z-Score of zero for the Factor to each loss-maker.

## Option 3: Replace loss-makers with an alternative valuation

As with the previous analysis on Historical Earnings, returns can again be improved by substituting Z-Scores for forecast loss-makers with an alternative valuation metric.

**Replacing loss-makers with the Z-Score from an alternative valuation metric improves performance and risk profile**

Table 10: Portfolio Statistics, replacing loss-makers with alternative valuation metrics

	Avg IC	T-Stat	Hit Rate	Long Return	Short Return	L/S Return	IR
Inc. Loss-makers	1.9%	1.4	58%	8.9%	2.2%	5.2%	0.26
Ex Loss-makers	2.4%	2.0	64%	9.1%	0.2%	8.1%	0.41
Median Score	2.2%	1.9	62%	8.9%	0.5%	7.6%	0.38
Book Value Yield	2.0%	2.0	53%	11.9%	4.0%	7.8%	0.47
Cash Flow Yield	1.8%	1.8	56%	9.8%	3.6%	6.2%	0.40
Dividend Yield	2.7%	2.7	55%	10.1%	1.0%	8.1%	0.64
P/E Relative History	2.2%	1.8	59%	9.3%	1.0%	7.2%	0.37
Composite Value	2.2%	1.6	59%	9.3%	1.7%	6.1%	0.30

Source: MSCI, Factset, J.P. Morgan

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In each of the above tests, performance and Information Ratios are significantly improved in comparison to the ‘vanilla’ Forward Earnings Yield Factor.

The tests however do not exhibit strong improvements to loss-makers being removed or set to the market median.

Interestingly, and while Cash Flow Yield does improve the results, the best returns and risk reward (according to the IR and long/short performance) comes when substituting the Earnings Yield Z-Scores for forecast loss-makers with their respective Z-Scores for forecast Dividend Yield.

## How do our options of solutions impact return for Multi-Factor Quant Models?

When it comes to looking at the effect of loss-makers on a Multi-Factor Model, it appears that loss-makers are, as expected, detrimental to long/short performance.

For our simple, generic model<sup>1</sup> (Price 20%, Value 30%, Quality 20%, Growth 30%), removing loss-makers from the final model results in a significantly improved portfolio from both an absolute and risk adjusted perspective.

**Excluding loss-makers, regardless of how they are classified, improves returns and risk profiles of our generic composite model**

Table 11: Composite Model (Long/Short & Sector Neutral) Including vs. Excluding Loss-makers

	Annualised Returns	Annualised Volatility	IR	Hit Rate
Including Loss Makers	8.2%	15.0%	0.54	59.4%
Excluding Historical Loss Makers	8.7%	13.7%	0.64	62.5%
Excluding FY1 Loss Makers	11.1%	12.9%	0.86	66.1%
Excluding 12mth Fwd Loss Makers	8.9%	13.5%	0.66	63.5%
Replace With Cash Flow Yield	8.6%	15.1%	0.57	60.4%
Replace With Median Valuation	8.0%	13.5%	0.59	63.5%

Source: MSCI, Factset, J.P. Morgan

Performance and risk profile are more attractive regardless of how loss-makers are classified (i.e. using historic, FY1, 12mth forward Earnings) with:

- Increased Annualised Returns
- Decreased Annualised Volatility
- Improved Information Ratio
- Higher Hit Rate

<sup>1</sup> “Price” is defined as 12mth Price Momentum  
“Value” is defined as a 12mth Forward Earnings Yield  
“Quality” is defined as ROE  
“Growth” is defined as a composite Earnings Momentum – equally weighting the 1 and 3 month change in both FY1 and FY2 consensus EPS.

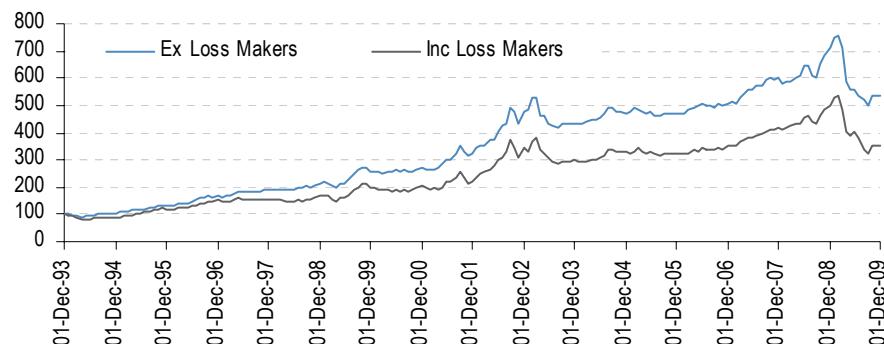
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Figure 12: Composite Model (Long/Short & Sector Neutral) Including vs. Excluding FY1 Loss-makers



Source: MSCI, Factset, J.P. Morgan

## Conclusion

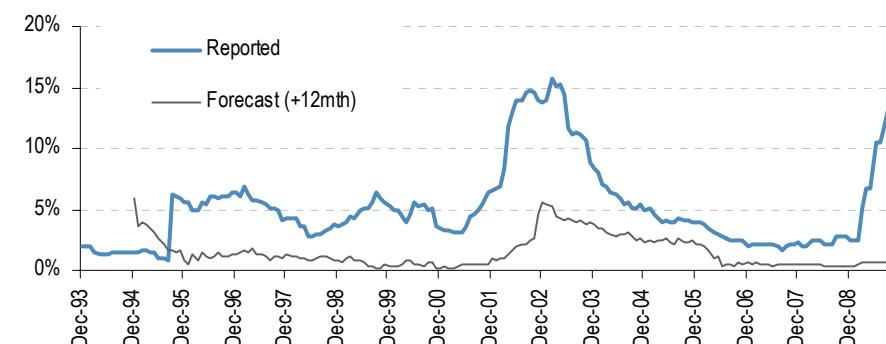
### Reported or Forecast loss-makers?

**12 months out, analysts only forecast 1/3 of loss-makers...**

One conclusion that immediately leaps to the eye, and one that some may not find all that surprising, is that 12 months ahead, analysts have a poor track record of forecasting loss-makers<sup>1</sup> and on average identify only 1.6% of all stocks as loss-makers. In reality, 12 months after these 12 month forward forecasts, 5.1% of all stocks turn out to be loss-makers.

This was particularly apparent over the past few years with analysts slow to issue downgrades let alone identify potential loss-makers.

Figure 13: Reported loss-makers vs. Forecast loss-makers (+12mth)



Source: MSCI, Factset, J.P. Morgan

**...so identifying loss-makers from historical data is more reliable (ie using actual data)**

We therefore propose that when analysing the effect of loss-makers on Earnings based models we should use historical/reported data as opposed to the latest (12mth forward) analyst forecasts to identify loss-makers.

If one classifies these loss-makers as potential turnaround cases it is then intuitive that they offer upside in comparison to their expensive, high P/E peers.

**These loss-makers significantly outperform expensive peers...**

Indeed we find that loss-makers based on Earnings Yields *significantly outperform* their expensive counterparts and that this phenomenon is present when looking at valuations relative to both the market as a whole or limiting it to sector peers.

<sup>1</sup> Due to the positive bias and overly optimistic forecasts analysts tend to make.

For additional information and academic references, please refer to “How to Improve Earnings Momentum based Strategies?”, J.P Morgan Quant Research (June 2009).

**...therefore loss-makers should not be automatically assigned to the short portfolio**

At times, the entire short portfolio can consist of loss-making stocks. Leaving Z-Scores for these loss-makers unchanged within a model will therefore logically lead to a loss of alpha.

*Consequently, loss-makers should not be treated as the ‘worst’ stocks according to Value Factors and their presence in short portfolios should be limited or indeed eliminated entirely*

## How should we handle loss-makers?

**Removing loss-makers from Multi-Factor models may deflect attention away from other alpha generating Factors...**

Whilst it is clearly beneficial to remove loss-makers from simple, single Factor Value models, at times doing so would decrease the size of the investable universe by more than 10%.

Whilst it is technically acceptable to eliminate these stocks when focusing purely on valuations, if we eliminate all loss-makers from a Multi-Factor Model we could potentially be ignoring other dominant Factors that may make the stock attractive from a final model point of view.

**...so we prefer to assign loss-makers a neutral Value score or replace them with an alternative valuation metric**

From a Multi-Factor model perspective, we therefore find it preferable to either:

- Replace Z-Scores for all loss-makers with a ‘neutral’ or market median score of zero; or
- Replace Z-Scores for all loss-makers with Z-Scores from an alternative valuation metric, with a preference for using a Forecast Earnings metric (like Cash Flow Yield) above that of a different valuation metric entirely. Using an alternative valuation metric does, however, have its pitfalls with the need to potentially iterate through numerous ‘replacement metrics’ until negative valuations are eliminated.

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## Appendix I: Applying a layer of sector neutrality

### For (reported) PE strategies

Within Europe, we are firm believers in applying a layer of sector neutrality to our Factor scores, particularly so when looking at valuation metrics.

We therefore also wanted to test the methodology and options presented above in a “sector neutral” context.

To calculate *sector neutral* Factor Z-Scores, we simply calculate a stock’s yield (according to the required valuation metric) relative to the mean and standard deviation of all stocks within that sector to get an exposure relative to its sector peers as opposed to the market.

**Applying a layer of sector neutrality significantly improves the risk profile of Earnings Yield Factors**

**26% improvement in returns when removing loss-makers**

**18% improvement in returns when replacing loss-makers with sector median**

Table 12: Portfolio Statistics, Sector Neutral Historical Earnings Yield Models

	Avg IC	T-Stat	Hit Rate	Long Return	Short Return	L/S Return	IR
Inc. Loss-makers	2.1%	3.1	60%	13.4%	3.9%	8.5%	0.75
Ex Loss-makers	2.7%	3.5	66%	13.9%	2.9%	10.8%	0.84
Median Score	2.5%	3.3	65%	13.4%	3.2%	10.0%	0.81

Source: MSCI, Factset, J.P. Morgan

Running the same analysis as before using *sector neutral* Factor Z-Scores we (unsurprisingly) find loss-makers have a similar effect on the performance of the short portfolio.

Performance and Information Ratio can again be improved when replacing the model Z-Scores with the market median to handle loss-makers within the short portfolio.

Replacing *sector neutral* Z-Scores for loss-makers with the median score improves returns by 1.5% and increases IR by 9%.

Substituting loss-makers with *sector neutral* Z-Scores from alternative valuation metrics follows the same pattern.

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Table 13: Portfolio Statistics, replacing loss-makers with alternative sector neutral valuation metrics

	Avg IC	T-Stat	Hit Rate	Long Return	Short Return	L/S Return	IR
<i>Including Loss-makers</i>	2.1%	3.1	60%	13.4%	3.9%	8.5%	0.75
Book Value Yield	1.7%	1.9	53%	12.5%	6.4%	6.1%	0.43
Cash Flow Yield	2.5%	3.9	61%	12.3%	2.6%	9.4%	0.99
Dividend Yield	1.7%	2.8	56%	12.8%	3.6%	7.9%	0.66
Sales Yield	2.3%	3.0	62%	12.7%	2.9%	9.6%	0.73
P/E Relative History	2.2%	3.1	63%	12.7%	3.0%	9.3%	0.76
Composite Value	2.4%	3.1	59%	13.2%	3.1%	9.5%	0.76

Source: MSCI, Factset, J.P. Morgan

**Replacing loss-makers with sector neutral Cash Flow Z-Scores improves risk profile**

Again, long/short performance is not as attractive as simply removing loss-makers from the model but replacing our loss-makers with Cash Flow Yield Z-Scores seem to provide a decent proposition.

Table 14: Portfolio Statistics, replacing loss-makers with forecast earnings metrics

	Avg IC	T-Stat	Hit Rate	Long Return	Short Return	L/S Return	IR
<i>Including Loss-makers</i>	2.1%	3.1	60%	13.4%	3.9%	8.5%	0.75
<i>Excluding Loss-makers</i>	2.7%	3.5	66%	13.9%	2.9%	10.8%	0.84
FY1 Earnings Yield	2.6%	3.4	61%	13.7%	2.6%	10.7%	0.83
FY2 Earnings Yield	2.5%	3.3	60%	13.6%	2.8%	10.1%	0.82
12mth Fwd Earnings Yield	2.2%	3.2	60%	13.5%	3.7%	8.8%	0.81

Source: MSCI, Factset, J.P. Morgan

As previously highlighted (Table 7), replacing the Historic Earnings Yield Z-Score with a Forecast Earnings alternative is another feasible solution. Again, returns are not as attractive as simply removing loss-makers from the model.

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## For forecast PE strategies

Table 15: Portfolio Statistics, Sector Neutral forecast Historical Earnings Yield Models

	Avg IC	T-Stat	Hit Rate	Long Return	Short Return	L/S Return	IR
Inc. Loss-makers	2.0%	1.6	55%	9.9%	4.5%	5.0%	0.35
Ex Loss-makers	2.3%	2.1	58%	10.1%	3.1%	7.0%	0.48
Median Score	2.2%	2.0	57%	9.9%	3.3%	6.6%	0.45

Source: MSCI, Factset, J.P. Morgan

Substituting *sector neutral* forecast Earnings Z-Scores for loss-makers with other *sector neutral* forecast valuation metric Z-Scores again improves returns and increases Information Ratios.

Replacing forecast loss-makers with their *sector neutral* Dividend Yield scores again appears to be the most attractive proposition, returning 8.1% annualised with an IR of 0.64.

Table 16: Portfolio Statistics, replacing loss-makers with alternative sector neutral forecast valuation metrics

	Avg IC	T-Stat	Hit Rate	Long Return	Short Return	L/S Return	IR
Book Value Yield	2.0%	2.0	53%	11.9%	4.0%	7.8%	0.47
Cash Flow Yield	1.8%	1.8	56%	9.8%	3.6%	6.2%	0.40
Dividend Yield	2.7%	2.7	55%	10.1%	1.0%	8.1%	0.64
P/E Relative History	2.2%	1.9	57%	10.1%	3.7%	6.0%	0.47
Composite Value	2.2%	2.1	55%	10.3%	3.5%	6.7%	0.41

Source: MSCI, Factset, J.P. Morgan

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## Appendix II: How do our options for solutions impact other Factors?

For reference, below we present a summary of how removing loss-makers affects long/short returns for a range of ‘vanilla’ Quant Factors. In each of the cases below, Factor scores are calculated sector neutral.

**Interesting to note that most Factors investigated exhibit improved returns when loss-makers are excluded, except for Dividend Yield where results worsen when loss-makers are excluded.**

### Earnings Momentum

*Defined as a composite Earnings Momentum – equally weighting the 1 and 3 month change in both FY1 and FY2 consensus EPS*

Table 17: Earnings Momentum (Long/Short) Including vs. Excluding Loss-makers

	Annualised Returns	Annualised Volatility	Information Ratio	Hit Rate
Including Loss-makers	6.0%	13.9%	0.43	61.5%
Excluding Historical Loss-makers	7.7%	13.0%	0.59	65.6%
Excluding FY1 Loss-makers	8.3%	12.1%	0.69	62.5%
Excluding 12mth Fwd Loss-makers	6.6%	13.2%	0.50	63.5%

Source: MSCI, Factset, J.P. Morgan

### Price Momentum

*Defined as 12 month total return (i.e. long outperformers vs. short underperformers)*

Table 18: Price Momentum (Long/Short) Including vs. Excluding Loss-makers

	Annualised Returns	Annualised Volatility	Information Ratio	Hit Rate
Including Loss-makers	1.9%	22.2%	0.08	57.8%
Excluding Historical Loss-makers	1.8%	22.0%	0.08	58.3%
Excluding FY1 Loss-makers	2.7%	21.7%	0.12	54.7%
Excluding 12mth Fwd Loss-makers	3.1%	21.6%	0.14	58.9%

Source: MSCI, Factset, J.P. Morgan

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## ROE

*Defined as last reported (annual) ROE*

Table 19: ROE (Long/Short) Including vs. Excluding Loss-makers

	Annualised Returns	Annualised Volatility	Information Ratio	Hit Rate
Including Loss-makers	-0.1%	10.4%	-0.01	55.2%
Excluding Historical Loss-makers	0.1%	8.9%	0.01	51.6%
Excluding FY1 Loss-makers	0.9%	9.5%	0.10	55.2%
Excluding 12mth Fwd Loss-makers	-0.5%	9.5%	-0.05	54.2%

Source: MSCI, Factset, J.P. Morgan

## Mean Reversion

*Defined as 1 month inverted total return (i.e. long underperformers vs. short outperformers)*

Table 20: Mean Reversion (Long/Short) Including vs. Excluding Loss-makers

	Annualised Returns	Annualised Volatility	Information Ratio	Hit Rate
Including Loss-makers	8.0%	15.4%	0.52	53.1%
Excluding Historical Loss-makers	8.7%	14.8%	0.59	54.2%
Excluding FY1 Loss-makers	8.0%	14.2%	0.56	51.6%
Excluding 12mth Fwd Loss-makers	9.3%	14.2%	0.65	57.8%

Source: MSCI, Factset, J.P. Morgan

## Dividend Yield

*Defined as Dividend Yield FY1*

Table 21: Mean Reversion (Long/Short) Including vs. Excluding Loss-makers

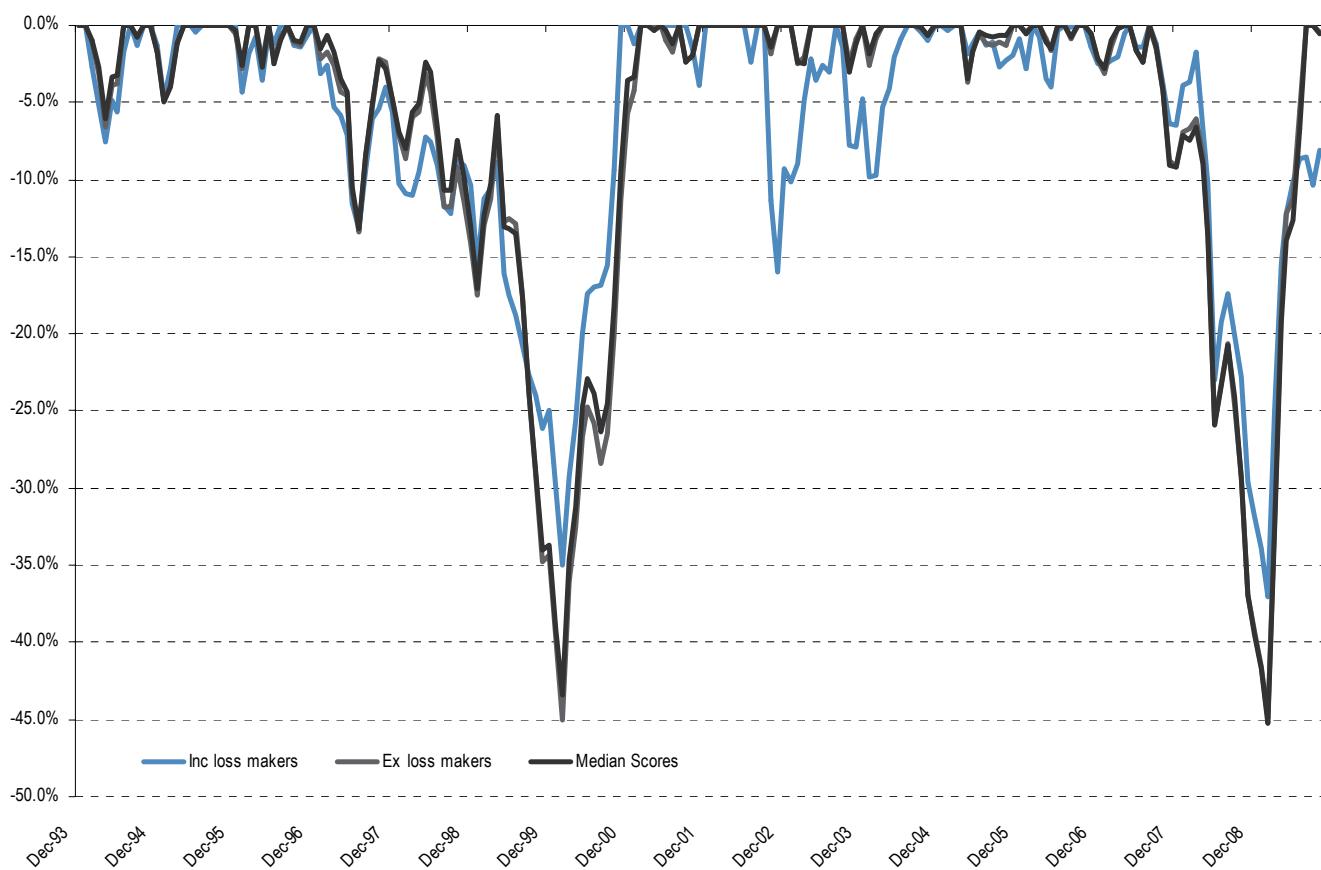
	Annualised Returns	Annualised Volatility	Information Ratio	Hit Rate
Including Loss-makers	9.1%	13.1%	0.69	55.2%
Excluding Historical Loss-makers	7.7%	12.5%	0.62	55.2%
Excluding FY1 Loss-makers	7.4%	12.6%	0.59	54.2%
Excluding 12mth Fwd Loss-makers	6.9%	12.9%	0.53	50.5%

Source: MSCI, Factset, J.P. Morgan

## Appendix III: drawdown analysis

### Drawdown comparison between loss-makers (actual) and our suggested options

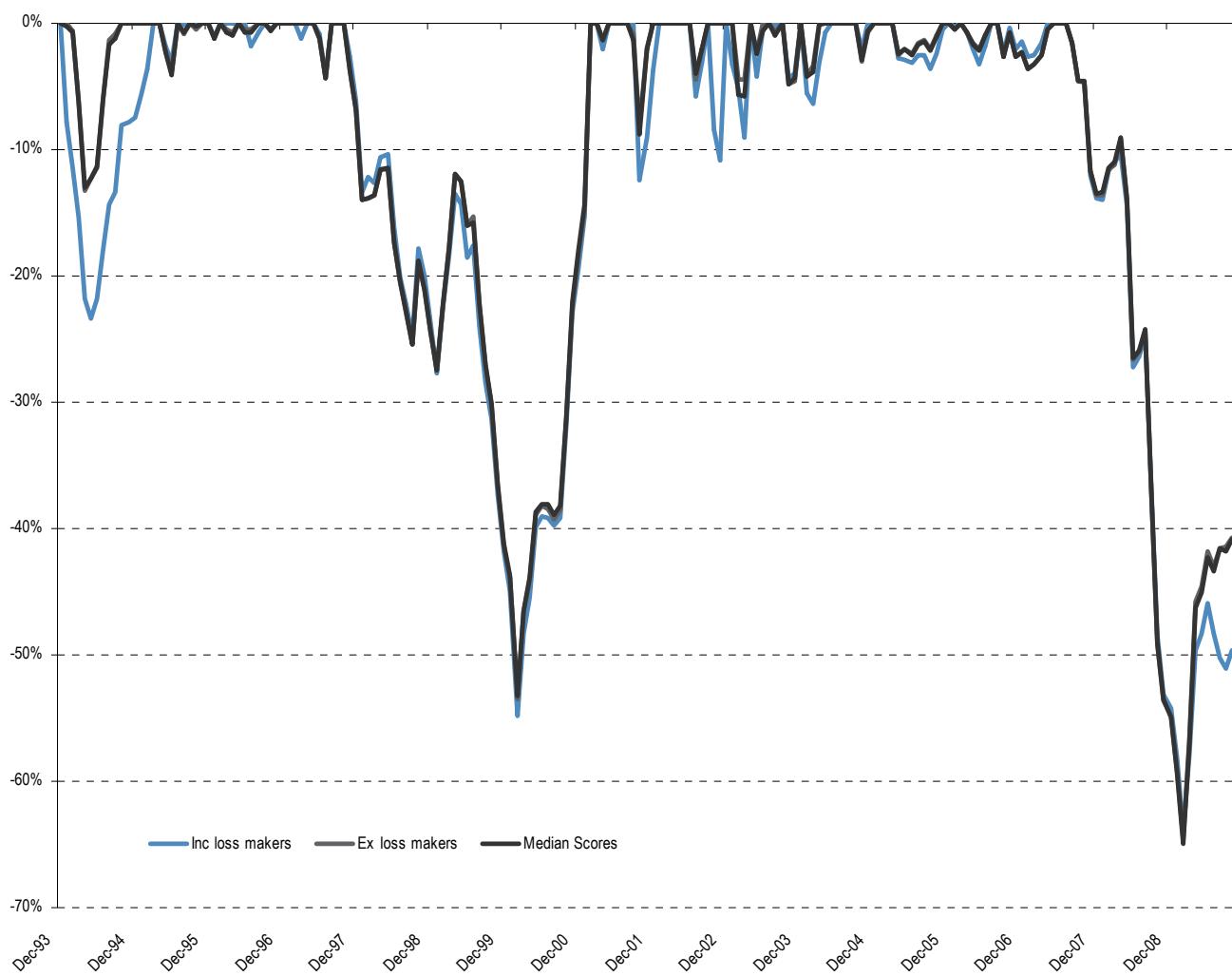
Table 22: Drawdown analysis for our different suggested options (ACTUAL loss-makers)



Source: MSCI, Factset, J.P. Morgan

## Drawdown comparison between loss-makers (forecast) and our suggested options

Table 23: Drawdown analysis for our different suggested options (FORECAST loss-makers)



Source: MSCI, Factset, J.P. Morgan

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## The Right Tools For The Job

Identifying the most effective valuation factors within APxJ sectors



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### AsiaPac Quantitative Analysis

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### Summary

In this analysis we investigate the usefulness of twelve popular valuation metrics within Asia Pacific sectors. We look to assess which metrics are most effective in which sectors both over the long term and in the [three year] ‘post sell off’ period starting towards the end of 2001.

We create a series of sector summaries that identify at a glance the most effective factors in each sector.

We conclude by confirming that our previous findings with regard to *the best overall performer* holds true, with **‘Price to forward Earnings’ proving to be most consistently effective. For practitioners electing to focus on a single factor for assessing value across all stocks in APxJ, this remains the tool of choice.** (Note that using a variation on P/forward earnings by using the local bond yield to adjust for local country effect and create an implied equity premium (IEP) factor also proved very effective.)

**Importantly however we also find that it is Cash flow based factors that dominate when ‘best in sector’ is considered and excel at stock selection in most sectors outside of the financials (basic Cash flow factors being inapplicable to most financials).**

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## Summary

In this analysis we investigate the usefulness of twelve popular valuation metrics within Asia Pacific sectors. We look to assess which metrics are most effective in which sectors both over the long term and in the [three year] ‘post sell off’ period starting towards the end of 2001.

We create a series of sector summaries that identify at a glance the most effective factors in each sector.

We conclude by confirming that our previous findings with regard to *the best overall performer* holds true, with **‘Price to forward Earnings’ proving to be most consistently effective. For practitioners electing to focus on a single factor for assessing value across all stocks in APxJ, this remains the tool of choice.** (Note that using a variation on P/forward earnings by using the local bond yield to adjust for local country effect and create an implied equity premium (IEP) factor also proved very effective.)

**Importantly however we also find that Cash flow based factors dominate when ‘best in sector’ is considered and excel at stock selection in most sectors outside of the financials (basic Cash flow factors being inapplicable to most financials).**

It appears that the case for using ‘Price to forward Earnings’ is largely driven by the ease with which it can be applied across *all* sectors consistently and not necessarily by its effectiveness.

Table 1: Most successful (basic) valuation metrics within APxJ sectors

Sector	Factor Score Used in the new ‘Sector Customised’ Value Factor
Energy	Dividend Yield
Materials	Price to Trailing Cash Earnings
Consumer Discretionary	Price To Last Actual Operating Cash Flow
Consumer Staples	Price To Last Actual Operating Cash Flow
Industrials	Price To Last Actual Operating Cash Flow
Healthcare	Price/Fwd Earnings {used as a default}
Financials	Implied Equity Premium
Technology	Price to Free Cash Flow
Telcos	Price to Free Cash Flow
Utilities	Price/Fwd Earnings

Source: J.P. Morgan

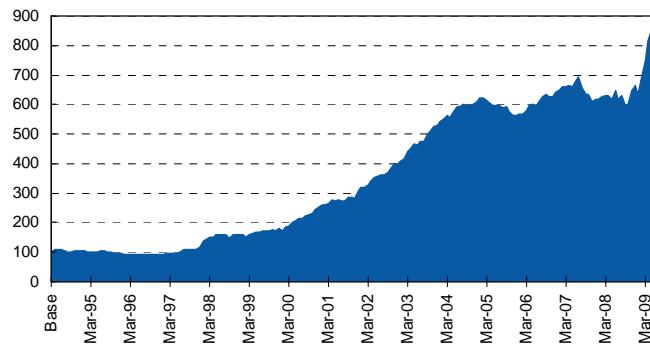
In summary valuation factors proved most effective at distinguishing subsequent out performers in the **Industrials, Consumer Discretionary, Materials** and **Utilities** sectors and least effective in the Energy, I.T. and Telco sectors.

We find that the period following September 2001 which has some parallels with recent history (it was the last time the market started to rally after a big fall) proved to be an exceptionally strong period for valuation factors in almost all sectors.

Using these insights regarding value performance within sectors we then construct a new ‘sector customised’ value factor.

A back-test analysis of this factor against our existing value factor library demonstrates that it is a more effective mechanism for exploiting the value anomaly across Asia Pacific stocks than any single of our existing value factors when tested over 10-15 years.

Figure 1: Custom Sector Value L/S return profile in APxJ



Source: J.P. Morgan

## Why Now?

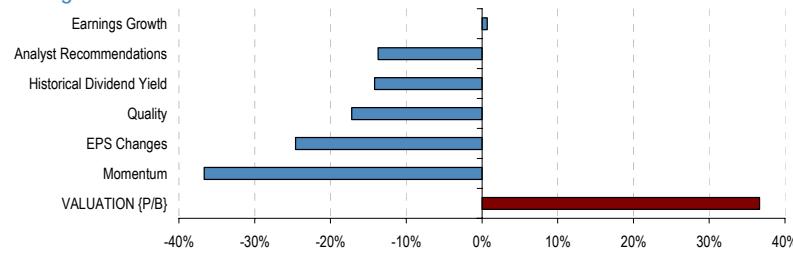
While we would consider this to be a useful exercise at *any* time, we consider this to be particularly timely for three key reasons.

- **Valuations have been the key driver of returns over recent months** and given the current level of dispersion between cheap and expensive stocks, there is reason to believe that **valuations will remain a key driver of investment decisions** going forwards.
- The scale of the recent reversion rally makes **differentiating ‘good’ and ‘bad’ value** far less obvious than it was a couple of months ago.
- **Price to Book Value - the valuation ‘tool of choice’ for most of the year to date – has recently started ‘losing ground’ to some of the other (traditionally more popular) value factors** (such as forward P/E). It follows that **going forward using a range of valuation factors will be a more prudent approach to decision making** and having the additional insight of understanding which value factors have (historically) been most suited to which Asia Pacific sectors can aid this process.

## Recent Events

Since the reversion rally began back in early March, all of the attention has been on valuations, and in particular ‘cheap valuations’. Indeed the return to ‘cheap valuations’ has been extraordinary during this period (in a historical context) eclipsing all of the other popular stock selection strategies we monitor. Outside of making a direct market call, focusing on valuations has been the only profitable recovery strategy at the stock selection level.

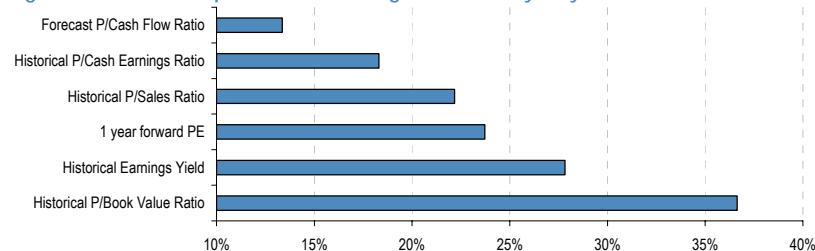
Figure 2: What's been working through the recovery rally? The L/S return for popular Alpha strategies from the End of Feb 2009 to the End of Jun 2009



Source: Thomson/Reuters, MSCI, J.P. Morgan Calcs

What is interesting is that during this period the market has almost exclusively relied on Price to Book as the metric to use when assessing ‘value’. Other popular valuation tools such as P/E ratios, P/Cash Flow, EV/EBITDA, Dividend Yield etc, have been lackluster in comparison. In the context of a market lacking in earnings clarity and fixated on ‘the crisis’ it is easy to rationalize this.

**Figure 3: Value factor performance through the recovery rally**



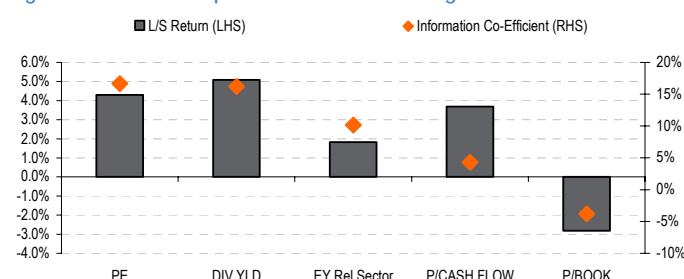
Source: Thomson/Reuters, MSCI, J.P. Morgan

In a regression analysis conducted **in the period from the end of February to the end of June we found that Price to book explained more than twice the return that was explained by Price to forward Earnings across a 250 stock large cap Asia Pac Universe.**

### A recent change in attitude...

Very recently, however, we have witnessed something interesting occurring on our Asia Pacific factor performance monitors. Over recent weeks valuations have remained the markets focus, but we have seen Price to Earnings and NOT Price to Book Value as the most effective driver of value based returns.

**Figure 4: Value factor performance week ending June 12th**



Source: Thomson/Reuters, MSCI, J.P. Morgan Calcs

Closer investigation revealed that most of the recent ‘valuation return’ has been generated by the expensive end of the P/E factor. In other words the market has been selling the stocks identified by analysts as having poor earnings and high PE’s even if their book valuations remained relatively attractive. This is a **significant change in attitude**.

### What next?

Although many stocks have rallied strongly over recent months, the dispersion in Valuations (i.e. the spread between the cheap and expensive stocks) remains in line with historical trends suggesting that valuations are likely to remain a key focus on investor radars.

What is also now apparent is that it is no longer ‘immediately obvious’ which stocks are cheap and which are expensive. It follows that going forward investors will need to rely on a range of valuation tools.

## About this Investigation

Like most quant practitioners we look at stock selection in Asia Pacific (and emerging markets in general) from a country perspective. This is because historically ‘country effect’ has been a much stronger driver of returns than ‘sector effect’. (For more information, please refer to “Who’s Ya (returns) Daddy? Country or Sector, What dominates in emerging markets?” Malin 2007.)

That said, we see a lot of merit in considering the sector specifics. Whilst using lowest common denominator factors across sectors is attractive from an implementation perspective, taking a more sophisticated approach to unlocking value by considering the ‘right tools for the job’ makes a lot of sense. (We also recognise that many investors and analysts approach regional stock selection on a sector basis.)

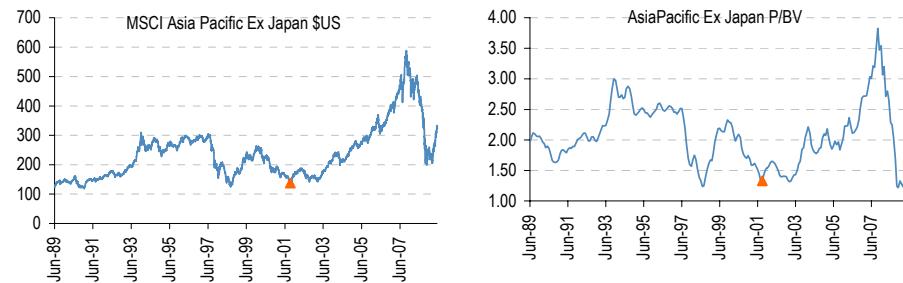
Whilst this opens up a number of extensive new avenues for our quant research, in this report we keep things fairly simple – our aim is to just set up a ‘base camp’ for further analysis. For this first cut we take twelve popular and easily obtained valuation metrics and investigate their effectiveness within each of the key Asia Pacific sectors.

As well as highlighting the most and least effective stock selection metrics based on the entire test period, to add some ‘additional context’ to this analysis, **we have further isolated the three year period from the end of September 2001.**

Some market watchers and strategists have drawn parallels between recent events, this post Sep 2001 period and also the period immediately following the Asian financial crisis (AFC) given that on all three occasions the market bounced strongly off trough valuations. Whilst there is a strong argument that the post AFC period is more interesting (given it’s also a post crisis period) the challenge here is that the post AFC recovery runs directly in the tech bubble which is yet another ‘once in a lifetime event’. (Three ‘once in a lifetime’ events in the last 15 years!... hmmm...).

It’s also the case that the economic conditions post the AFC. were far rosier than the current economic landscape as well as the landscape of 2001. As a result here we will just consider the post Sep 2001 period. In the charts below we highlight this period on both the aggregate Price to Book value chart as well as the share price chart.

Figure 5: Post September 2001 as a possible parallel?



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

## Which metrics did we consider?

We selected 12 simple factors from our library. The definitions are shown in the table below:

Figure 6: Test Factors

Dividend Yield	The 12 month trailing* dividends paid and the price as at the rebalance period. (includes ALL dividend types). Source MSCI.
P/Cash flow (Annual)	The price as at the rebalance period divided by the most recent FULL YEAR OPERATING Cash Flow from the Cash Flow Statement. Source Reuters Fundamentals.
P/Free Cash Flow (Annual)	The price as at the rebalance period divided by the most recent FULL YEAR OPERATING Cash Flow (from the Cash Flow Statement) LESS CAPEX but BEFORE Dividends. Source Reuters Fundamentals.
P/E 1 year forward	The price as at the rebalance period divided by the latest consensus mean EPS forecast for the year ahead (pro rata of FY1 & FY2), Source Thomson.
P/E Trailing	The price as at the rebalance period divided by the 12 month trailing earnings . Source MSCI.
EV/EBITDA	The Enterprise Value divided by the last actual EBITDA as at the rebalance period. Source Reuters.
P/Cash Earnings Trailing	The price as at the rebalance period divided by the 12 month trailing (i.e. NOT FULL YEAR) earnings + depreciation of fixed assets and amortization of intangibles. Source MSCI.
P/Sales	The price as at the rebalance period divided by the 12 month trailing Sales . Source MSCI.
P/Book	The price as at the rebalance period divided by the Book Value from the most recent financial statements. Source MSCI.
Implied Equity Premium	Calculated as $(1 - \text{Earnings Yield} / (\text{Bond Yield} + \text{ERP}))$ where Earnings Yield is based on 1 year forward consensus mean EPS. In our case the ERP was assumed at a constant 5% making this is essentially a "bond yield adjusted" price/earnings metric.
PEG	Calculated using forward FY1 PE and the consensus mean forecast EPS growth from FY1 to FY2
P/E 1 year forward relative to history	The lastest P/E 1 year forward is compared to 3 years of (month end) observations to indicate the degree to which the stock is cheap/expensive versus its own average level.

Source: J.P. Morgan

\* Where Trailing 12-month figure = Last reported fiscal period figure + (current interim figure – comparative interim figure)

## The Test Universes

Using the MSCI Asia Pacific Ex Japan universe (595 members as at June 30), we subdivided the universe using nine ‘top level’ Global Industry (GIC) sectors (electing to dispense with the Health Care sector due to low numbers). The test universes are summarised in the table below.

**Figure 7: Test Universe**

Name	GIC Code	Total \$US Investable Cap	# Members	Avg \$US Investable Cap
Energy	10	193889	34	5703
Materials	15	274632	65	4225
Industrials	20	219125	114	1922
Consumer Discretionary	25	116149	58	2003
Consumer Staples	30	126856	42	3020
Financials	40	765326	149	5136
Information Technology	45	276377	69	4005
Telecommunication Services	50	151633	25	6065
Utilities	55	78715	29	2714

Source: J.P. Morgan

## The Test Methodology

To assess the usefulness of each factor when applied to the individual sector we ran a standard uni-variate back-test. To avoid excessive country bias in the results all metrics were ‘country normalised’ with the exception of the Implied Equity Premium factor which has an inherent country adjustment via the local bond yield.

In all cases test were either started in 1993 or when the data item became available. We used ‘as at’ constituents to avoid any survivorship bias and portfolios were rebalanced on a monthly basis with no turnover or other constraints applied. Information content was assessed by considering the equal weighted performance of either 3 or 5 ‘baskets’ of stocks (depending on the size of the universe) with members allocated depending on factor rankings at the end of the month.

The results of the analysis follow and we highlight the most/least effective valuation tools. In general we make an assessment of the most effective tools based on three key criteria:

- The average monthly long/short performance which results from following the ‘tools’ recommendations.
- The strength of the tools’ stock picking ‘prowess’ based on correlating rankings and subsequent returns
- The statistical significance of the results

Note this is the J.P. Morgan Quant ‘standard’ back-testing methodology. For more details please refer to the end of this report.

## Key Test Results

- Over the entire test period Valuation factors were found to be extremely effective in the more ‘vanilla’ sectors of Industrials and Consumer Discretionary.
- They were also very effective in the Utilities, Materials and Financials sectors.
- Over the 1993 to 2009 period, valuation factors were NOT found to be consistently successful in other sectors. However it is worth highlighting the Tech bubble which has a large impact on the IT and Telco sectors.
- It is also worth highlighting that even where the long term results were not significant, there were often periods in which valuation factors did perform very strongly. **This is consistent with the notion that Value factors have an inherent cyclicality.**
- The post September 2001 period (highlighted above) was found to be a **very strong period for Valuation factors in most sectors.**
- Across all results our previous findings with regard to the best overall performer were confirmed, with **‘Price to forward Earnings’ proving to be the most effective.** Using the local Bond Yield to adjust for local country effect and create an Implied Equity Premium (IEP) factor (as opposed to a more standard Z-score normalization) also proved very effective.
- Importantly however we also find that **Cash flow based factors dominate when ‘best in sector’ is considered** and excel at stock selection in most sectors outside of the financials (basic Cash flow factors being inapplicable to most financials).
- It appears the case for using ‘Price to forward Earnings’ is largely driven by the ease with which it can be applied across *all* sectors consistently and not necessarily by its effectiveness.
- Valuation Factors were most disappointing in the I.T. sector. (In previous analysis we have found momentum factors and balance sheet quality factors perform well in this sector.)
- Within the broad financials sector (Banks + Insurance + Diversified) we were surprised to find that earnings based metrics were more effective (on average over the whole period) than (generally far more popular) P/Book metric.

**In the following section we highlight what proved to be the most effective valuation tools in each of the sectors.** Note that we will add a corollary here that in some cases/sectors historical data and sector size was smaller than we would generally prefer for back-testing.

## Sector Overviews

### Energy

- Over the full period generally we found valuation factors **were poor** in this sector though **valuation factors were strong in the 3 years post Sep 2001**
- (Surprisingly!) Dividend Yield was most effective over the long term.

Table 2: Effectiveness summary

	Entire Period	3 years Post 2001
<b>Most Effective</b>	Dividend Yield	IEP, Forward PE
<b>Also Effective</b>	Price to Cash Earnings	Price to Book, Dividend Yield, Price to Cash Earnings, PEG

Source: J.P. Morgan.

### Materials

- Generally Valuation factors **worked well** in this sector (8 out of 12 factors were statistically significant over the test period). **Post 2001 was a strong period for valuation factors.**
- Price to Free Cash flow, Price to trailing Earnings and Dividend Yield were not found to be effective.

Table 3: Effectiveness summary

	Entire Period	3 years Post 2001
<b>Most Effective</b>	Price to Cash Earnings, PEG,	IEP, Forward PE, PEG
<b>Also Effective</b>	IEP, Forward PE, Price to Book, Fwd PE rel history	Price to Cash Earnings, Price to Book

Source: J.P. Morgan.

### Industrials

- Generally Valuation factors **worked EXTREMELY well** in this sector (10 out of 12 factors were statistically significant over the full test period). **Post 2001 performance was also strong.**
- Only Price to TRAILING earnings was not found to be effective.

Table 4: Effectiveness summary

	Entire Period	3 years Post 2001
<b>Most Effective</b>	Price to Cash Flow	IEP
<b>Also Effective</b>	IEP, EV/EBITDA, P/Book, Div Yield, Price to FCFlow, Price to Cash Earnings, Price to Sales, Forward PE, PEG	Price to Cash Flow, EV/EBITDA, Price to Book , PEG

Source: J.P. Morgan.

## Consumer Discretionary

- Generally Valuation factors **worked very well** in this sector (10 out of 12 factors were statistically significant over the full test period) **and the post 2001 period was strong** for valuation factors.
- Price to Book and EV/EBITDA were generally not effective.

Table 5: Effectiveness summary

	Entire Period	3 years Post 2001
Most Effective	Price to Cash Flow	Price to Cash Flow
Also Effective	Price to Free Cash Flow, Price to Cash Earnings, Forward PE, IEP, Price to Sales, Fwd PE rel history, PEG	Price to Sales, IEP, PEG

Source: J.P. Morgan.

## Consumer Staples

- Generally Valuation factors were less effective in this sector (only 3 out of 12 factors were statistically significant over the full test period) but the **post 2001 period was strong** for valuation factors.
- Price to Book was generally not effective.

Table 6: Effectiveness summary

	Entire Period	3 years Post 2001
Most Effective	Price to Cash Flow	Price to Cash Flow
Also Effective	Price to Free Cash Flow, Fwd PE rel history	Price to Free Cash Flow, Price to Cash Earnings Yield, PEG, EV/EBITDA, Forward PE, IEP

Source: J.P. Morgan.

## Financials

- Generally applicable Valuation factors were ok in this sector (Only 4 out of 12 factors were statistically significant over the full test period **but** Cash Flow Factors and Price to Sales are NOT APPLICABLE. **Earnings based factors were very strong in the post 2001 period.**
- Price to Book was generally not effective over the long term.

Table 7: Effectiveness summary

	Entire Period	3 years Post 2001
Most Effective	IEP	IEP, forward PE
Also Effective	Forward PE, Trailing PE, Fwd PE rel history, PEG	Trailing PE, PEG

Source: J.P. Morgan.

## Information Technology

- Generally valuation factors worked **very poorly** in this sector (None of the 12 factors were statistically significant over the full test period, though it is worth mentioning that the entire period includes the Tech bubble).
- In the post 2001 period, most factors *except* Price to book, Sales yield and EV/EBITDA were effective. Price to Free Cash is our metric of choice.
- Price to book was very poor through the test period

Table 8: Effectiveness summary

	Entire Period	3 years Post 2001
Most Effective	None	Price to Free Cash Flow
Also Effective	None	Forward PE

Source: J.P. Morgan.

## Telecommunication Services

- Similar to I.T in that generally Valuation factors worked **very poorly** in this sector (None of the 12 factors were statistically significant over the full test period, though it is again worth mentioning that the entire period includes the Tech bubble).
- It's worth noting that this is the smallest of our sectors in terms of stock counts which impacts the integrity of the tests. Again Price to free Cash is preferred.

Table 9: Effectiveness summary

	Entire Period	3 years Post 2001
Most Effective	None	Price to Free Cash Flow
Also Effective	None	None

Source: J.P. Morgan.

## Utilities

- Generally Earnings based valuation factors **worked well** in this sector – especially post Sep 2001. (6 out of 12 were statistically significant over the test period). P/Book was also effective but Cash Flow based metrics were poor.

Table 10: Effectiveness summary

	Entire Period	3 years Post 2001
Most Effective	IEP, forward PE	IEP, forward PE,
Also Effective	Price to Book, Price to Sales, Fwd PE rel history, PEG	Price to Cash Earnings, PEG

Source: J.P. Morgan.

## A Closer Look at Banks

As the largest sector in Asia Pac in terms of stock count (149 members as opposed to next most heavily populated sector - Industrials at 114), an opportunity exists to break the Financials sector down further. In particular we were keen to focus specifically on the Banks. As mentioned we were shocked to find that the metric most often quoted in regard to bank valuations i.e. Price to Book Value, had failed to excel at stock picking in the broader financials sector versus earnings based ‘tools’.

To investigate further we repeated the back-testing exercise but this time isolated just the banks from the broader financials. The table below shows the results.

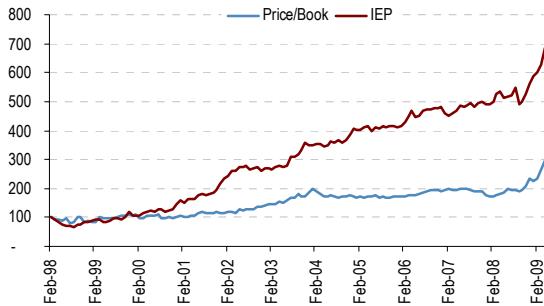
Table 11: Testing in the APxJ Banking Sector

Factor	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS
Implied Equity Premium	4.3%	3.79	67%	24%	1.54%
Price to forward Earnings	4.2%	3.89	64%	23%	1.72%
PEG Ratio	3.4%	2.57	59%	29%	1.11%
Forward P/E Relative to history (3yr)	3.0%	1.17	59%	27%	0.57%
Price to Book	2.6%	2.20	59%	17%	0.98%
EV/EBITDA (Trailing)	1.4%	0.49	57%	17%	0.20%
Price to trailing Earnings	3.4%	1.38	56%	18%	0.55%
Dividend Yield	0.4%	0.47	56%	14%	0.22%

Source: J.P. Morgan

On all of our key backtest evaluation metrics (i.e. information co-efficient, hit-rate, average return and significance), **earnings based factors are shown to be more effective stock pickers**. Whilst the 1% per month alpha generated by Price/book should not be dismissed (it is still a statistically significant result), it is well and truly eclipsed by the earnings based ratios. Once the compounding effect is introduced we see this difference expressed as a 200% return to Price to book versus a 600% return to I.E.P. over the life of the test. In the chart below we plot the long/short return to the Price/Book strategy alongside the I.E.P long/short return.

Table 12: Testing in the APxJ Banking Sector – L/S returns to P/book versus I.E.P.



Source: J.P. Morgan

In conclusion our initial hypothesis that the efficacy of Price/book may have been distorted by the non-bank financials is disproved and we find that **earnings based factors are a better predictor of future performance in the Asia Pacific banking sector than Book Value over the long term**.

## Constructing a ‘Sector Customised’ Value Factor

As mentioned earlier, historically we have typically favoured a ‘lowest common denominator’ to exploiting value. That is we have favoured the single factor that has proved most effective across all sectors within a particular country.

Having established that there is a hierarchy of value signal effectiveness within Asia Pacific sectors we have looked to exploit this insight by constructing a sector customised value factor.

The rationale is simple. Each stock is ranked on all value factors but only the ranking pertaining to the sectors most effective (basic) value factor is used in the backtest (as per the table below).

Table 13: Selecting one factor per sector for the sector customised value factor

Sector	Factor Score Used in the new ‘Sector Customised’ Value Factor
<b>Energy</b>	Dividend Yield
<b>Materials</b>	Price to Trailing Cash Earnings
<b>Consumer Discretionary</b>	Price To Last Actual Operating Cash Flow
<b>Consumer Staples</b>	Price To Last Actual Operating Cash Flow
<b>Industrials</b>	Price To Last Actual Operating Cash Flow
<b>Healthcare</b>	Price/Fwd Earnings {used as a default}
<b>Financials</b>	Implied Equity Premium
<b>Technology</b>	Price to Free Cash Flow
<b>Telcos</b>	Price to Free Cash Flow
<b>Utilities</b>	Price/Fwd Earnings

Source: J.P. Morgan

We show the results of this new factor when run through a standard factor backtest (in country normalized format) alongside all of the other single value factors. For details on our back-testing process and methodology please refer to the end of this report.

Table 14: Custom Sector Value versus other value factors

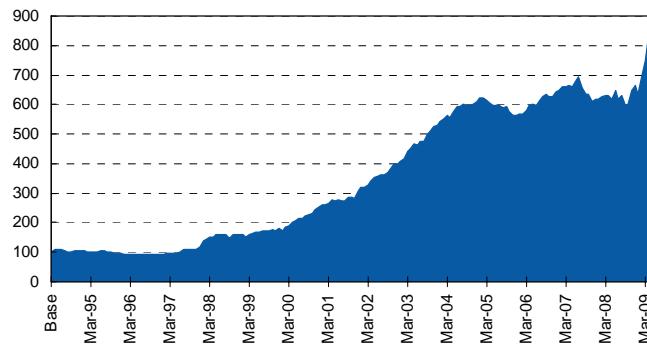
Factor	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS
<b>CUSTOM SECTOR VALUE</b>	3.2%	5.26	67%	13%	1.23%
Price to Operating Cash Flow (annual)	2.1%	5.04	65%	11%	1.22%
Price to Sales	2.2%	3.78	57%	9%	1.19%
Price to forward Earnings	2.7%	4.05	62%	15%	1.02%
PEG Ratio	2.2%	4.02	65%	21%	1.01%
Price to Book	1.7%	2.77	53%	10%	0.93%
Dividend Yield	1.9%	2.93	52%	11%	0.76%
Price to Cash Earnings	2.2%	3.11	59%	13%	0.70%
Implied Equity Premium	0.1%	1.12	58%	7%	0.57%
Price to trailing Earnings	1.9%	2.42	62%	14%	0.55%
Price to free Cash Flow	1.4%	2.70	65%	11%	0.51%
EV/EBITDA (Trailing)	0.7%	1.32	57%	13%	0.30%

Source: J.P. Morgan

As can be seen from the table our custom value factor ranks above all other value factors on both average I.C. and average monthly return. It also has a stronger t-stat and a better hit-rate. **In a 15 year test in Asia this factor has returned an average of 1.23% per month and has ‘worked’ 67% of the time.**

It is worth highlighting that the recent period (last 3-4 months) has been *very* strong.

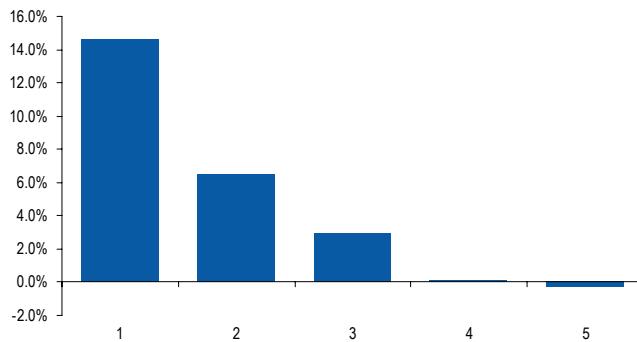
Figure 8: Custom Sector Value L/S return profile in APxJ



Source: J.P. Morgan

Over the entire history the returns to each of the 5 portfolios are pleasingly *monotonic*

Figure 9: Average Annual Portfolio returns through entire test period



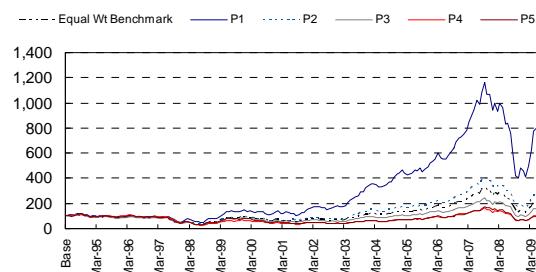
Source: J.P. Morgan

The full back-testing profile is shown over the page.

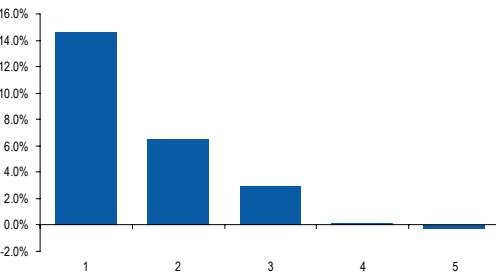
## The 'Custom Sector' factor Backtest

AP_SEC_VALUE in ASIAPAC EX JP MSCI WORLD								Rebalance every 1 month(s)											
5 Year(s): 30/06/1994 to 30/06/1999				5 Year(s): 30/06/1999 to 30/06/2004				5 Year(s): 30/06/2004 to 30/06/2009				Total Period: 30/04/1994 to 30/06/2009							
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	0.9%	5.1%	10%	55%	1	1.7%	19.6%	7%	80%	1	1.9%	18.9%	9%	58%	1	1.5%	14.7%	9%	65%
2	0.2%	-2.7%	10%	48%	2	0.9%	9.3%	6%	63%	2	1.4%	14.0%	8%	42%	2	0.8%	6.5%	8%	51%
3	0.0%	-5.6%	10%	45%	3	0.4%	2.7%	6%	48%	3	1.3%	12.0%	8%	43%	3	0.6%	2.9%	8%	46%
4	-0.2%	-7.6%	9%	47%	4	-0.1%	-2.9%	6%	33%	4	1.3%	12.1%	8%	47%	4	0.3%	0.1%	8%	42%
5	0.2%	-3.8%	10%	45%	5	-0.4%	-6.9%	6%	20%	5	1.2%	10.9%	8%	45%	5	0.3%	-0.3%	8%	37%
Total Test				Total Test				Total Test				Total Test							
Avg Ret	0.2%	Rank IC	Avg IC	Avg Assets	Avg Ret	0.5%	Rank IC	Avg IC	Avg Assets	Avg Ret	1.4%	Rank IC	Avg IC	Avg Assets	Avg Ret	0.7%	Rank IC	Avg IC	Avg Assets
Universe	0.2%	0.8%	1.1%	349	Universe	0.5%	6.3%	5.4%	495	Universe	1.4%	2.0%	3.0%	621	Universe	0.7%	3.1%	3.2%	485
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	0.8%	8.9%	4%	55%	Avg Ret	2.1%	28.3%	2%	82%	Avg Ret	0.7%	8.1%	3%	63%	Avg Ret	1.2%	15.18%	3.2%	67%
Long/Short	T-Stat	1.63	Assets	140	Long/Short	6.93	T-Stat	Assets	199	Long/Short	1.77	T-Stat	Assets	249	Long/Short	5.26	T-Stat	Assets	195

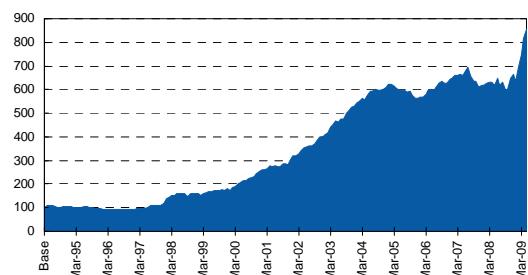
### Portfolio Index Performance



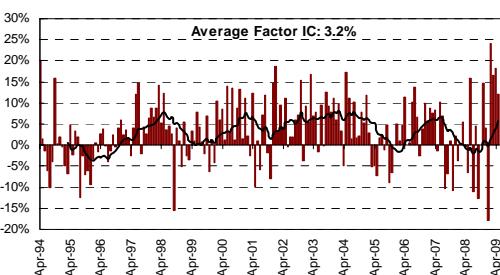
### Portfolio Spread. Annual Returns



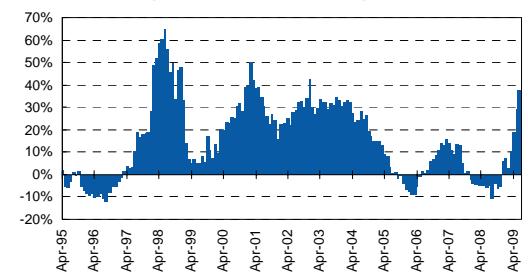
### Cumulative Returns



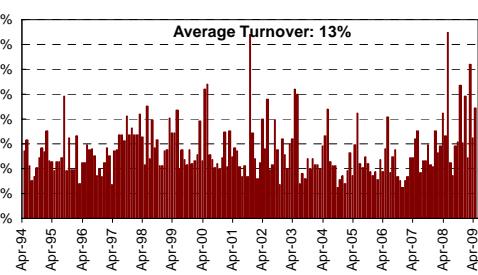
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



### Turnover within Portfolio 1



Source: J.P. Morgan

## Conclusions

From the results our previous findings with regard to *the best overall performer* hold true, with **'Price to forward Earnings'** proving to be most consistently effective. **For practitioners electing to focus on a single factor for assessing value across all stocks in APxJ this remains the tool of choice.** (Note that using a variation on P/forward earnings by using the local bond yield to adjust for local country effect and create an implied equity premium (IEP) factor also proved very effective.)

Importantly however we also find that **Cash flow based factors dominate when 'best in sector' is considered** and excel at stock selection in most sectors outside of the financials (basic Cash flow factors being inapplicable to most financials).

It appears the case for using 'Price to forward Earnings' is largely driven by the ease with which it can be applied across *all* sectors consistently and not necessarily by its effectiveness.

Valuation factors proved most effective at distinguishing subsequent out performers in the **Industrials, Consumer Discretionary, Materials** and **Utilities** sectors and least effective in the Energy, I.T. and Telco sectors.

The period following September 2001 which has some parallels with recent history (it was the last time the market started to rally after a big fall) proved an exceptionally strong period for popular valuation factors in almost all sectors.

A closer look at the banking sub-sector of the financials reveals that the popular tool of choice Price to book is actually less effective than earnings based factors.

A back-test analysis of a new sector customised factor against our existing value factor library demonstrates that it is a more effective mechanism for exploiting the value anomaly across Asia Pacific stocks than any single factors when tested over 10-15 years.

We find that it also produces a stronger back-testing profile than our existing (predominantly earnings based) composite valuation factors.

Steve Malin  
(852) 2800 8568  
steven.j.malin@jpmorgan.com

Asia Pacific Equity Research  
10 July 2009

J.P.Morgan

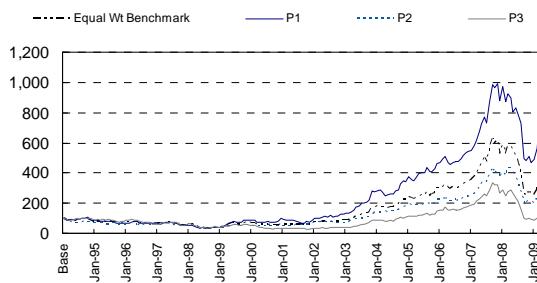
# Best in Class

Back-Test Results  
Most Effective Factor per sector

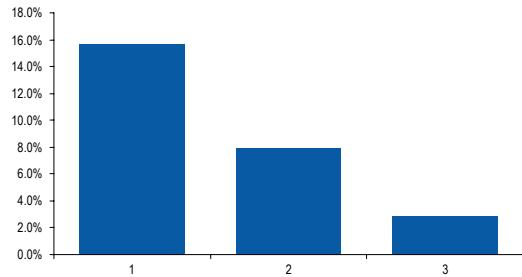
## Energy

ZC_YLD_HIST in AsiaPac Ex Jp SCT10								Rebalance every 1 month(s)															
5 Year(s): 31/05/1994 to 31/05/1999				5 Year(s): 31/05/1999 to 31/05/2004				5 Year(s): 31/05/2004 to 31/05/2009				Total Period: 28/02/1994 to 31/05/2009											
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	-0.2%	-6.4%	9%	50%	1	2.5%	29.8%	9%	52%	1	2.7%	30.4%	9%	58%	1	1.6%	15.7%	9%	54%				
2	-0.2%	-7.6%	9%	50%	2	2.0%	23.7%	7%	47%	2	1.7%	17.1%	9%	47%	2	1.0%	7.9%	8%	47%				
3	-0.8%	-13.2%	8%	50%	3	1.2%	12.4%	7%	47%	3	1.7%	14.0%	10%	47%	3	0.6%	2.8%	9%	48%				
<b>Total Test</b>				<b>Total Test</b>				<b>Total Test</b>				<b>Total Test</b>											
Avg Ret	<b>Avg Rank</b>	<b>Avg IC</b>	<b>Avg Assets</b>	Avg Ret	<b>Rank</b>	<b>IC</b>	<b>Avg Assets</b>	Avg Ret	<b>Rank</b>	<b>IC</b>	<b>Avg Assets</b>	Avg Ret	<b>Rank</b>	<b>IC</b>	<b>Avg Assets</b>								
Universe	-0.4%	3.2%	2.3%	15	2.0%	2.1%	2.5%	14	2.0%	2.0%	1.9%	29	2.0%	2.2%	2.2%	19							
<b>Long Short Strategy Statistics</b>								<b>Long Short Strategy Statistics</b>								<b>Long Short Strategy Statistics</b>							
<b>Portfolio 1 less Portfolio 3</b>								<b>Portfolio 1 less Portfolio 3</b>								<b>Portfolio 1 less Portfolio 3</b>							
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	0.7%	2.3%	10%	48%	Long/Short	1.3%	13.8%	7%	53%	Long/Short	1.0%	10.8%	5%	53%	Long/Short	1.0%	8.91%	7.3%	52%	Long/Short	1.80	2.2%	13
T-Stat				Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat			Avg Assets	T-Stat		
Long/Short	0.52			10	Long/Short	1.46			10	Long/Short	1.54			20	Long/Short	1.80			13	Long/Short	1.80		

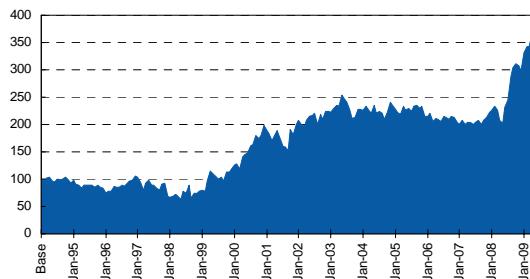
### Portfolio Index Performance



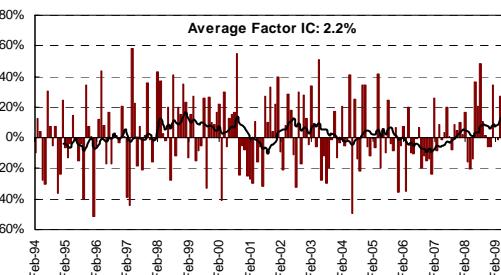
### Portfolio Spread. Annual Returns



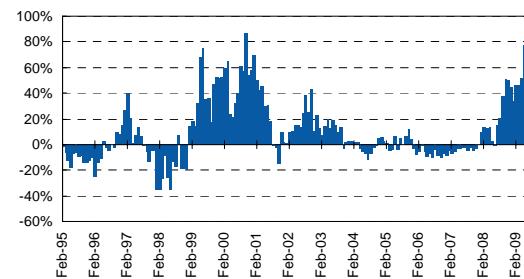
### Cumulative Returns



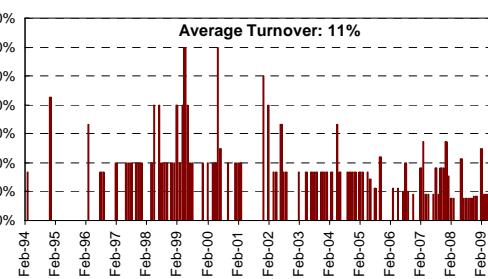
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



### Turnover within Portfolio 1

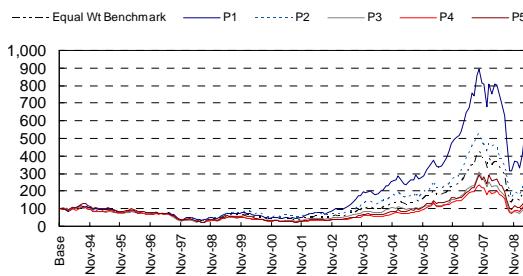


Source: Thomson, MSCI

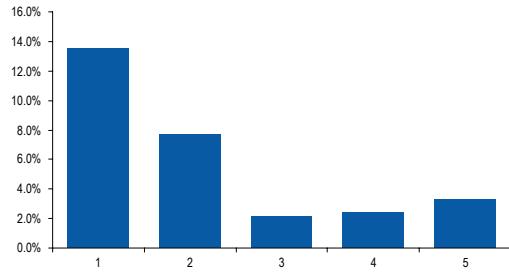
## Materials

ZC_CEY_HIST in AsiaPac Ex Jp SCT15										Rebalance every 1 month(s)									
5 Year(s): 31/05/1994 to 31/05/1999					5 Year(s): 31/05/1999 to 31/05/2004					5 Year(s): 31/05/2004 to 31/05/2009					Total Period: 31/12/1993 to 31/05/2009				
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%	-8.3%	9%	53%	1	1.9%	22.0%	8%	63%	1	2.9%	31.1%	11%	57%	1	1.5%	13.5%	9%	57%
2	-0.3%	-8.7%	10%	55%	2	1.3%	13.3%	7%	50%	2	2.1%	20.7%	10%	52%	2	1.0%	7.7%	9%	52%
3	-1.2%	-16.4%	8%	52%	3	1.3%	13.0%	7%	45%	3	1.5%	12.0%	10%	37%	3	0.6%	2.1%	9%	44%
4	-1.0%	-14.7%	8%	53%	4	0.5%	4.0%	6%	35%	4	2.2%	21.4%	10%	50%	4	0.6%	2.4%	8%	46%
5	-0.8%	-13.8%	10%	43%	5	0.7%	5.1%	7%	40%	5	2.1%	20.1%	10%	47%	5	0.7%	3.3%	9%	44%
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
-0.7%	0.6%	1.3%	134		1.2%	3.9%	3.4%	83		2.2%	1.5%	2.5%	70		2.2%	2.0%	2.3%	94	
Long Short Strategy Statistics																			
Portfolio 1 less Portfolio 5																			
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
0.5%	4.9%	4%	62%	Long/Short	1.3%	15.2%	4%	63%	Long/Short	0.8%	9.0%	5%	55%	Long/Short	0.8%	9.06%	4.4%	59%	Long/Short
T-Stat		Avg Assets		Long/Short	2.59				Long/Short	1.31				Long/Short	2.54				Long/Short
0.90		54																	

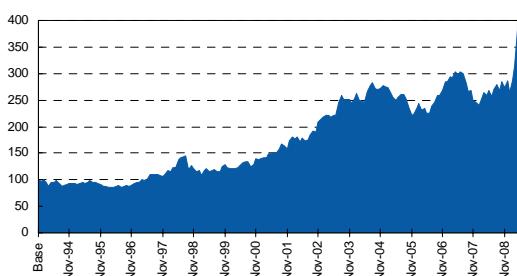
### Portfolio Index Performance



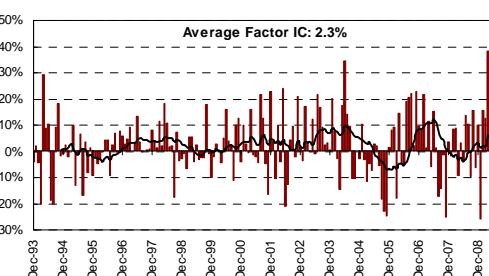
### Portfolio Spread. Annual Returns



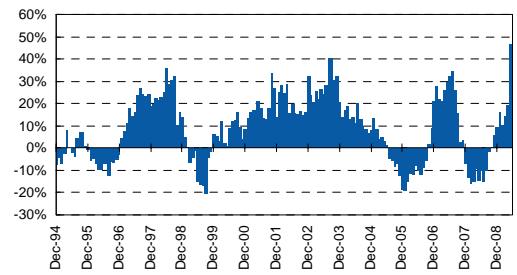
### Cumulative Returns



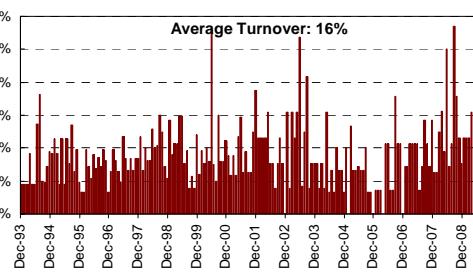
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



### Turnover within Portfolio 1

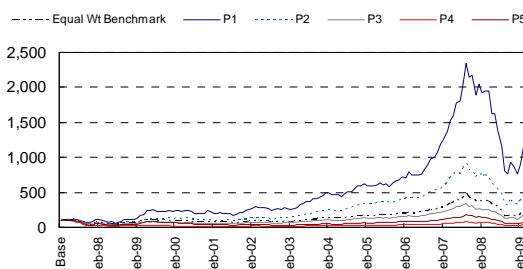


Source: Thomson, MSCI

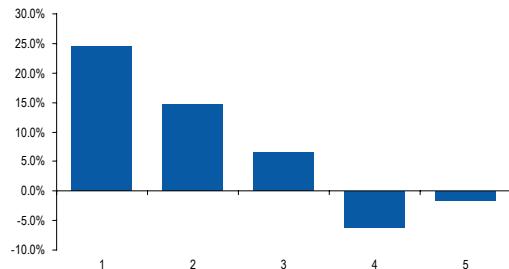
## Industrials

ZC_CFY_HIST in AsiaPac Ex Jp SCT20										Rebalance every 1 month(s)																					
3 Year(s): 31/05/2000 to 31/05/2003					3 Year(s): 31/05/2003 to 31/05/2006					3 Year(s): 31/05/2006 to 31/05/2009					Total Period: 31/03/1997 to 31/05/2009																
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	1.0%	9.2%	8%	53%	1	2.8%	37.1%	5%	58%	1	2.6%	24.4%	12%	69%	1	2.4%	24.5%	10%	60%												
2	1.2%	10.7%	8%	67%	2	3.0%	40.7%	4%	61%	2	1.1%	7.3%	10%	44%	2	1.7%	14.5%	11%	59%												
3	0.8%	6.9%	7%	56%	3	2.1%	27.4%	4%	47%	3	1.5%	11.3%	11%	44%	3	0.9%	6.6%	9%	49%												
4	0.4%	1.5%	8%	47%	4	2.1%	26.7%	5%	42%	4	1.3%	6.4%	12%	53%	4	0.0%	-6.2%	10%	40%												
5	-1.1%	-15.6%	8%	25%	5	2.5%	32.3%	4%	50%	5	0.7%	0.1%	11%	31%	5	0.5%	-1.6%	12%	39%												
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		0.5%		5.8%		2.5%		1.5%		2.1%		98		1.4%		4.6%		4.6%		118											
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.		Avg Ret		Ann Ret		Std Devn		% Out.		Avg Ret		Ann Ret													
Long/Short		2.1%		27.0%		4%		67%		Long/Short		0.3%		3.5%		3%		50%		Avg Assets											
T-Stat		2.87		33		Long/Short		0.60		Long/Short		3.21		48		Long/Short		3.46		35											

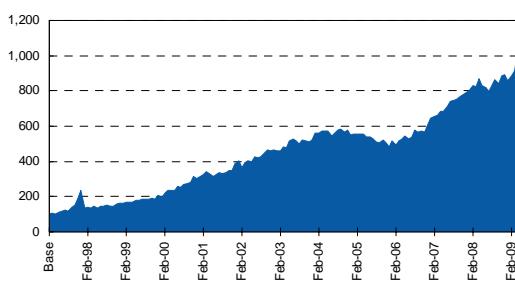
### Portfolio Index Performance



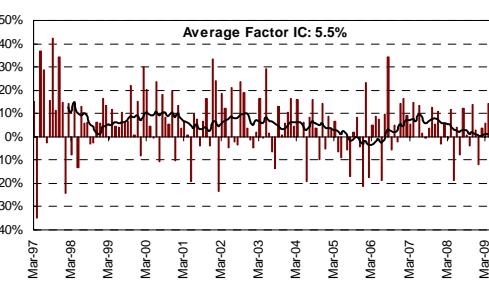
### Portfolio Spread. Annual Returns



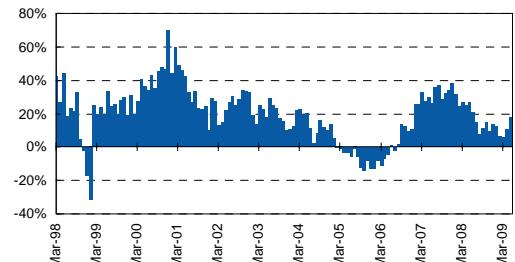
### Cumulative Returns



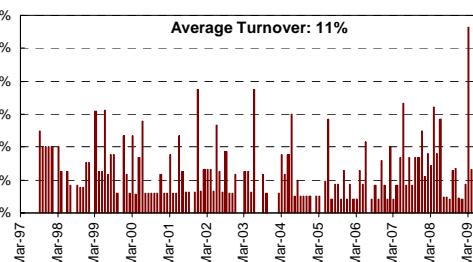
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



### Turnover within Portfolio 1

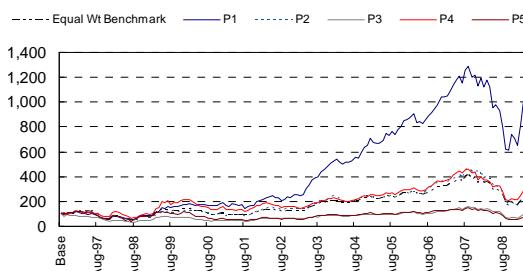


Source: Thomson, MSCI

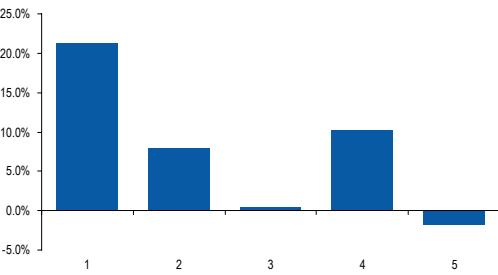
## Consumer Discretionary

ZC_CFY_HIST in AsiaPac Ex Jp SCT25								Rebalance every 1 month(s)																											
3 Year(s): 31/05/2000 to 31/05/2003				3 Year(s): 31/05/2003 to 31/05/2006				3 Year(s): 31/05/2006 to 31/05/2009				Total Period: 30/09/1996 to 31/05/2009																							
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	1.9%	21.6%	8%	61%	1	3.0%	40.8%	5%	72%	1	1.4%	11.5%	10%	53%	1	2.0%	21.4%	9%	64%																
2	0.8%	7.7%	7%	53%	2	1.7%	21.4%	5%	50%	2	0.4%	-0.4%	10%	53%	2	1.1%	8.0%	9%	52%																
3	0.9%	8.5%	6%	53%	3	1.2%	14.8%	4%	36%	3	0.6%	2.2%	10%	47%	3	0.4%	0.5%	8%	42%																
4	-0.1%	-4.2%	7%	44%	4	1.7%	21.9%	4%	47%	4	0.9%	6.1%	9%	64%	4	1.2%	10.4%	9%	53%																
5	-0.4%	-6.9%	6%	31%	5	1.5%	18.6%	5%	36%	5	-0.5%	-10.2%	9%	39%	5	0.3%	-1.9%	9%	38%																
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													
Universe		0.6%		5.5%		4.1%		72		1.9%		3.7%		5.5%		82		0.6%		3.3%		3.5%		71											
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.		Avg Ret		Ann Ret		Std Devn		% Out.		Avg Ret		Ann Ret		Std Devn		% Out.													
Long/Short		2.3%		30.3%		4%		75%		Long/Short		1.5%		18.4%		3%		72%		Long/Short		1.9%		23.0%											
T-Stat		3.29		29		Long/Short		3.09		Long/Short		3.09		Assets		33		Long/Short		2.20		29													

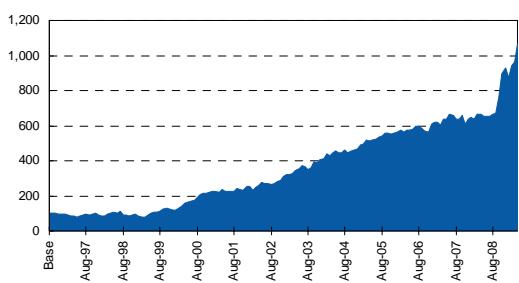
### Portfolio Index Performance



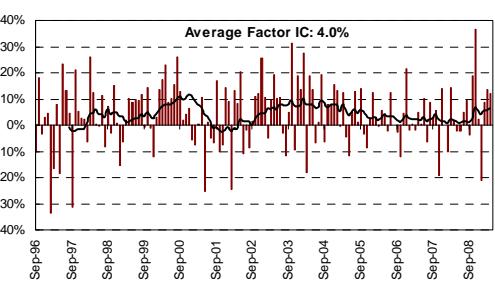
### Portfolio Spread. Annual Returns



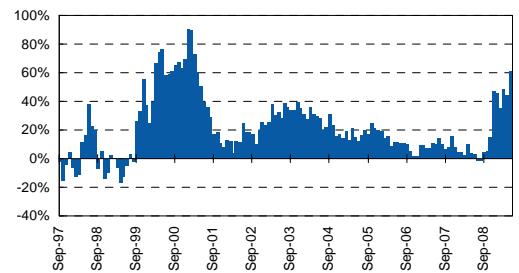
### Cumulative Returns



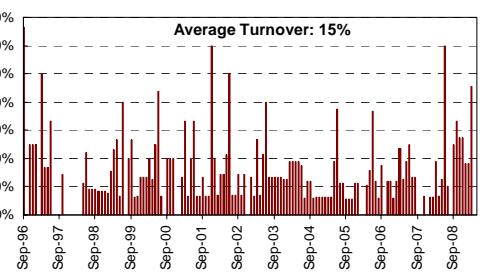
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



### Turnover within Portfolio 1

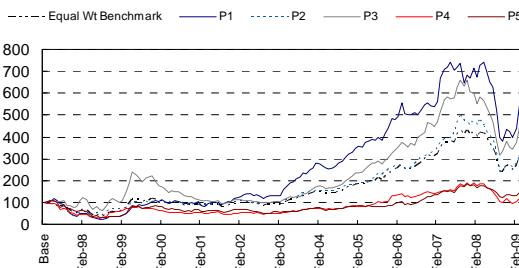


Source: Thomson, MSCI

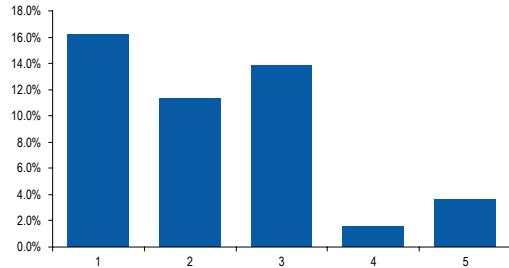
## Consumer Staples

ZC_CFY_HIST in AsiaPac Ex Jp SCT30								Rebalance every 1 month(s)											
3 Year(s): 31/05/2000 to 31/05/2003				3 Year(s): 31/05/2003 to 31/05/2006				3 Year(s): 31/05/2006 to 31/05/2009				Total Period: 31/03/1997 to 31/05/2009							
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%	21.2%	7%	72%	1	3.2%	43.2%	5%	53%	1	1.0%	7.0%	9%	56%	1	1.8%	16.2%	10%	60%
2	0.6%	5.4%	5%	50%	2	2.4%	31.9%	4%	53%	2	1.4%	13.0%	8%	58%	2	1.2%	11.3%	8%	53%
3	-0.5%	-6.5%	4%	36%	3	3.2%	45.6%	4%	67%	3	1.1%	9.9%	8%	44%	3	1.5%	13.9%	10%	51%
4	0.2%	1.2%	5%	50%	4	2.4%	31.2%	5%	42%	4	0.2%	-1.3%	7%	42%	4	0.4%	1.6%	8%	44%
5	-0.3%	-5.2%	5%	39%	5	1.3%	16.3%	4%	36%	5	1.6%	18.5%	6%	64%	5	0.6%	3.6%	8%	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					
Universe	0.4%	5.9%	7.7%	41	Universe	2.5%	7.4%	5.2%	41	Universe	1.1%	-0.4%	0.6%	43	Universe	1.1%	4.4%	3.7%	39
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.					
Long/Short	2.1%	26.3%	6%	67%	Long/Short	1.8%	22.9%	4%	69%	Long/Short	-0.7%	-9.3%	6%	44%	Long/Short	1.1%	11.28%	6.8%	61%
T-Stat		Avg Assets		T-Stat		Avg Assets		T-Stat		Avg Assets		T-Stat		Avg Assets					
Long/Short	2.17	17	17	2.78	17	17	18	Long/Short	-0.70	18	18	Long/Short	2.01	16	Long/Short	2.01	16		

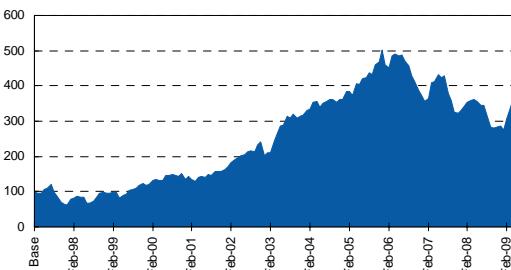
### Portfolio Index Performance



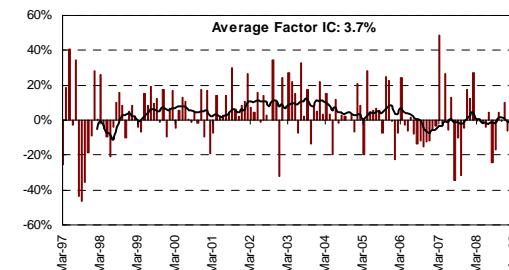
### Portfolio Spread. Annual Returns



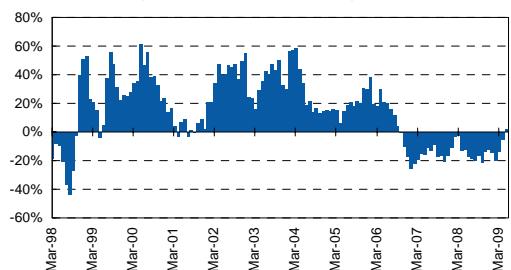
### Cumulative Returns



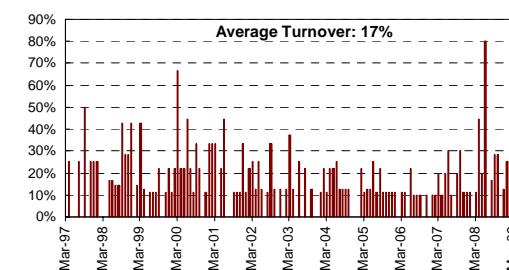
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



### Turnover within Portfolio 1

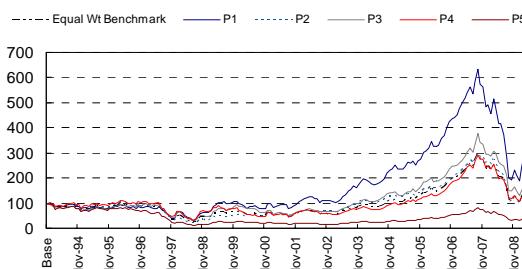


Source: Thomson, MSCI

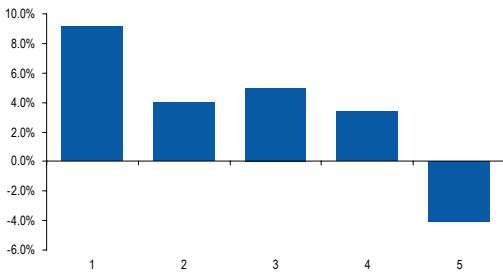
## Financials

IEP in AsiaPac Ex Jp SCT40										Rebalance every 1 month(s)									
5 Year(s): 31/05/1994 to 31/05/1999					5 Year(s): 31/05/1999 to 31/05/2004					5 Year(s): 31/05/2004 to 31/05/2009					Total Period: 31/12/1993 to 31/05/2009				
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	0.8%	0.6%	13%	48%	1	1.3%	13.8%	7%	57%	1	1.8%	16.8%	10%	47%	1	1.2%	9.1%	10%	51%
2	-0.5%	-12.9%	11%	48%	2	1.7%	18.3%	7%	62%	2	1.4%	12.1%	9%	43%	2	0.8%	4.0%	9%	51%
3	0.3%	-3.1%	11%	58%	3	0.9%	8.7%	7%	62%	3	1.5%	14.5%	8%	42%	3	0.8%	5.0%	9%	54%
4	0.5%	-1.9%	12%	57%	4	0.2%	-1.7%	8%	42%	4	1.7%	17.3%	8%	53%	4	0.7%	3.3%	9%	50%
5	-1.4%	-21.6%	11%	37%	5	0.1%	-1.1%	7%	37%	5	1.7%	18.2%	8%	47%	5	0.0%	-4.1%	9%	40%
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	
Universe	-0.1%	1.5%	1.9%	103	Universe	0.8%	5.6%	5.3%	93	Universe	1.6%	0.8%	0.8%	145	Universe	0.7%	2.8%	2.2%	113
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	
Long/Short	2.3%	27.2%	7%	60%	Long/Short	1.2%	14.2%	4%	65%	Long/Short	0.1%	0.3%	3%	48%	Long/Short	1.2%	13.46%	5.3%	58%
T-Stat		Assets		T-Stat		Assets		T-Stat		Assets		T-Stat		Assets		T-Stat		Assets	
Long/Short	2.36	42	38	59	Long/Short	2.36	38	59	59	Long/Short	0.18	59	59	59	Long/Short	3.03	46	46	46

### Portfolio Index Performance



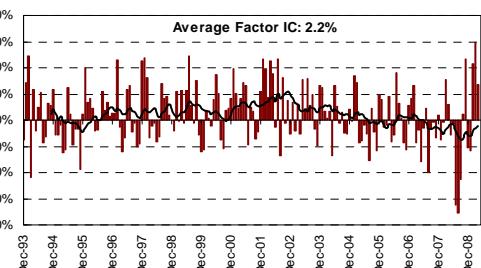
### Portfolio Spread. Annual Returns



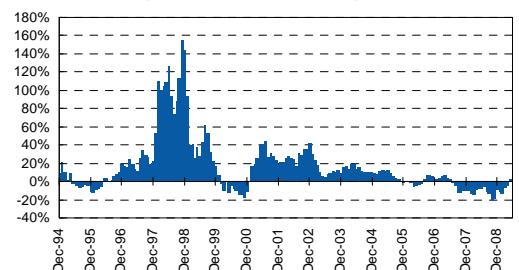
### Cumulative Returns



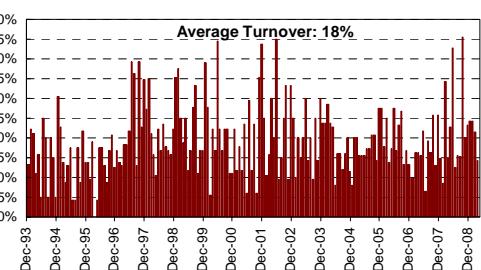
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



### Turnover within Portfolio 1

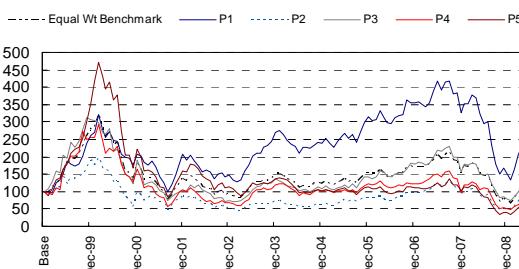


Source: Thomson, MSCI

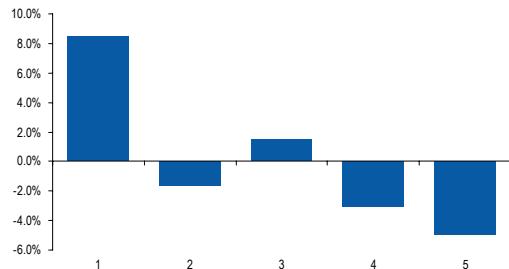
## Technology

ZC_FCF_YldPreDiv in AsiaPac Ex Jp SCT45								Rebalance every 1 month(s)															
3 Year(s): 31/05/2000 to 31/05/2003				Portfolio Statistics				3 Year(s): 31/05/2003 to 31/05/2006				Portfolio Statistics				3 Year(s): 31/05/2006 to 31/05/2009				Portfolio Statistics			
Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out	Port	Avg	Ann	St	% Out				
	Ret	Ret	Dev	Perf.		Ret	Ret	Dev	Perf.		Ret	Ret	Dev	Perf.		Ret	Ret	Dev	Perf.				
1	-0.7%	-14.5%	12%	67%	1	2.0%	24.8%	6%	58%	1	-0.2%	-9.5%	11%	58%	1	1.2%	8.4%	10%	60%				
2	-1.9%	-31.9%	17%	44%	2	1.3%	14.7%	6%	53%	2	0.8%	3.2%	11%	75%	2	0.6%	-1.7%	12%	56%				
3	-2.2%	-32.3%	15%	50%	3	2.0%	24.0%	7%	47%	3	-0.3%	-9.2%	10%	44%	3	0.8%	1.5%	12%	48%				
4	-2.0%	-30.0%	14%	50%	4	1.6%	18.0%	7%	47%	4	-0.7%	-14.9%	11%	44%	4	0.5%	-3.0%	12%	47%				
5	-2.9%	-37.6%	14%	50%	5	0.4%	2.3%	7%	33%	5	-0.7%	-16.6%	13%	36%	5	0.3%	-4.9%	12%	43%				
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				
Ret		IC	IC	Assets	Ret		IC	IC	Assets	Ret		IC	IC	Assets	Ret		IC	IC	Assets				
Universe		-1.9%	4.7%	4.4%	Universe		1.5%	7.7%	5.8%	Universe		-0.2%	5.1%	2.7%	Universe		0.7%	4.2%	3.1%				
Long Short Strategy Statistics				Long Short Strategy Statistics				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							
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%	26.1%	7%	Long/Short		1.6%	20.5%	3%	Long/Short		0.5%	4.7%	4%	Long/Short		0.9%	8.42%	6.3%				
T-Stat		2.77	25		T-Stat		2.92			T-Stat		0.71		31	T-Stat		1.56		26				

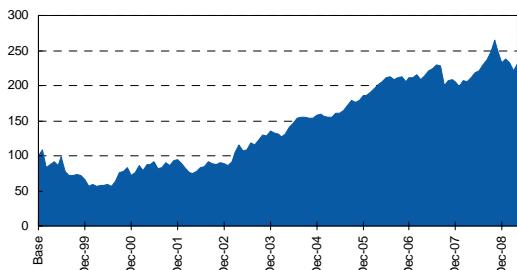
### Portfolio Index Performance



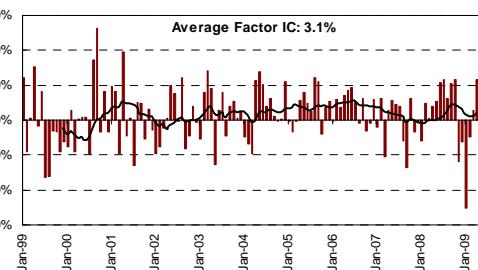
### Portfolio Spread. Annual Returns



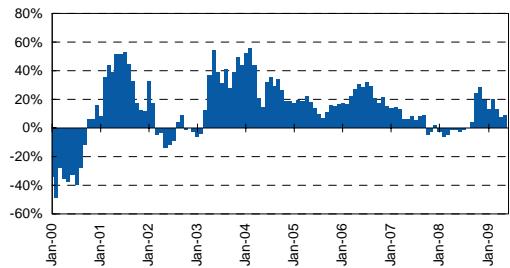
### Cumulative Returns



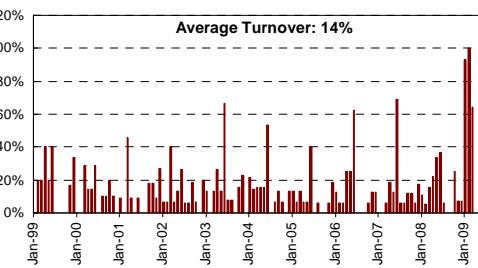
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



### Turnover within Portfolio 1

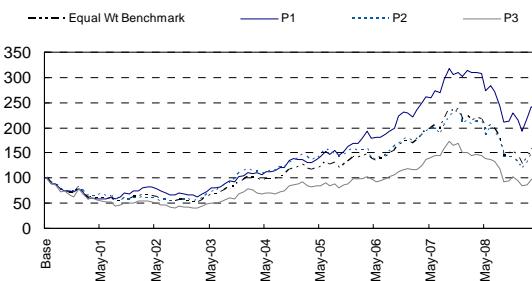


Source: Thomson, MSCI

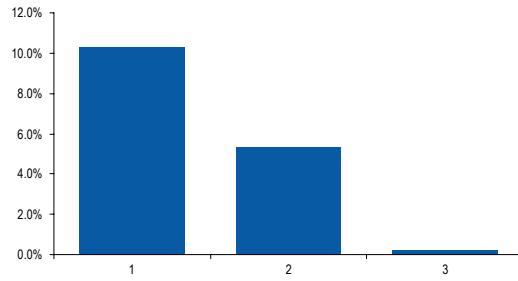
## Telcos

ZC_FCF_YldPreDiv in AsiaPac Ex Jp SCT50								Rebalance every 1 month(s)																				
2 Year(s): 31/05/2003 to 31/05/2005				2 Year(s): 31/05/2005 to 31/05/2007				2 Year(s): 31/05/2007 to 31/05/2009				Total Period: 30/06/2000 to 31/05/2009																
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	2.7%	36.3%	5%	46%	1	2.9%	38.9%	5%	58%	1	-0.1%	-4.4%	7%	54%	1	1.0%	10.3%	6%	53%									
2	3.2%	44.0%	4%	46%	2	1.5%	17.9%	4%	46%	2	-0.5%	-9.2%	8%	63%	2	0.6%	5.3%	6%	52%									
3	2.6%	33.0%	6%	46%	3	2.1%	27.2%	5%	54%	3	-0.9%	-13.8%	8%	46%	3	0.3%	0.2%	7%	45%									
<b>Total Test</b>				<b>Total Test</b>				<b>Total Test</b>				<b>Total Test</b>																
Avg Ret	Avg IC	Avg IC	Avg Assets	Avg Ret	Avg IC	Avg IC	Avg Assets	Avg Ret	Avg IC	Avg IC	Avg Assets	Avg Ret	Avg IC	Avg IC	Avg Assets													
Universe	2.8%	5.2%	2.1%	23	Universe	2.2%	3.5%	4.2%	24	Universe	-0.5%	5.8%	3.7%	26	Universe	0.6%	4.8%	4.3%	22									
<b>Long Short Strategy Statistics</b>								<b>Long Short Strategy Statistics</b>								<b>Long Short Strategy Statistics</b>												
<b>Portfolio 1 less Portfolio 3</b>				<b>Portfolio 1 less Portfolio 3</b>				<b>Portfolio 1 less Portfolio 3</b>				<b>Portfolio 1 less Portfolio 3</b>				<b>Portfolio 1 less Portfolio 3</b>				<b>Portfolio 1 less Portfolio 3</b>								
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	0.1%	1.0%	3%	54%	Long/Short	0.7%	8.6%	3%	54%	Long/Short	0.8%	8.9%	4%	46%	Long/Short	1.08	1.08	16	16	Long/Short	0.7%	7.64%	4.4%	56%	Long/Short	1.68	1.68	15
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	0.20			16	Long/Short	1.08			16	Long/Short	0.89			18	Long/Short	1.68			15	Long/Short	1.68			15	Long/Short	1.68		

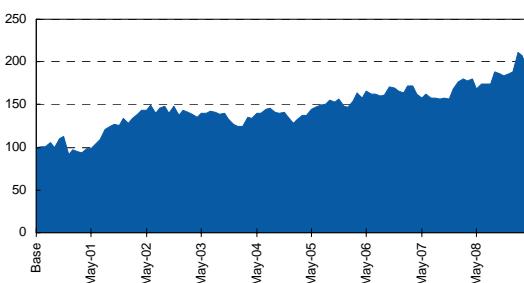
### Portfolio Index Performance



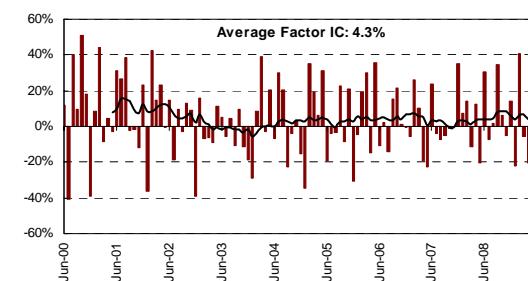
### Portfolio Spread. Annual Returns



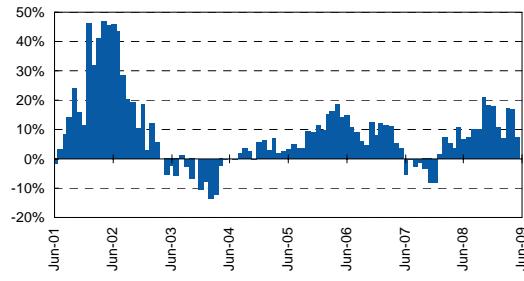
### Cumulative Returns



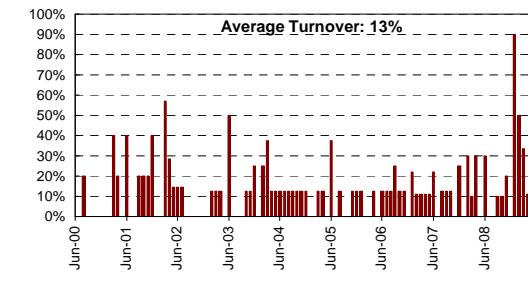
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



### Turnover within Portfolio 1

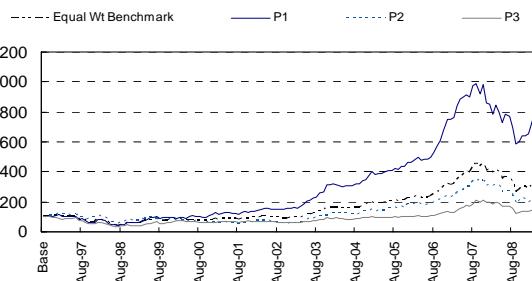


Source: Thomson, MSCI

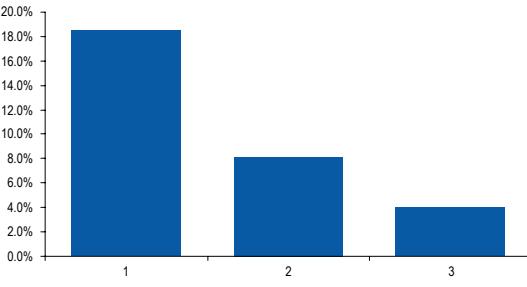
## Utilities

IEP in AsiaPac Ex Jp SCT55										Rebalance every 1 month(s)																																										
3 Year(s): 31/05/2000 to 31/05/2003					3 Year(s): 31/05/2003 to 31/05/2006					3 Year(s): 31/05/2006 to 31/05/2009					Total Period: 30/09/1996 to 31/05/2009																																					
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	Port	Avg	Ann	St	%Out																							
1	2.3%	28.3%	6%	64%	1	2.7%	36.9%	4%	56%	1	1.9%	21.5%	7%	44%	1	1.7%	18.5%	8%	56%	1	0.9%	8.2%	8%	46% <th>1</th> <td>0.6%</td> <td>4.0%</td> <td>7%</td> <td>39%</td>	1	0.6%	4.0%	7%	39%																							
2	0.1%	-0.9%	6%	44%	2	2.8%	37.8%	5%	53%	2	1.4%	13.5%	8%	39%	2	0.9%	8.2%	8%	46%	2	0.6%	4.0%	7%	39%																												
3	0.0%	-1.2%	4%	39%	3	1.3%	15.4%	4%	28%	3	1.6%	17.7%	7%	47%	3	1.1%	6.9%	6.1%	23	3	0.6%	4.0%	7%	39%																												
Total Test					Total Test					Total Test					Total Test					Total Test					Total Test																											
Avg		Rank		Avg		Avg		Avg		Avg		Avg		Avg		Avg		Avg		Avg		Avg		Avg		Avg																										
Ret					Ret					Ret					Ret					Ret					Ret																											
IC					IC					IC					IC					IC					IC																											
Assets					Assets					Assets					Assets					Assets					Assets																											
Universe	0.8%	11.2%	9.5%	20	Universe	2.3%	9.5%	7.1%	25	Universe	1.6%	2.0%	3.7%	30	Universe	1.1%	6.9%	6.1%	23	Universe	0.6%	4.0%	7%	39%	Universe	1.1%	6.9%	6.1%	23																							
<b>Long Short Strategy Statistics</b>										<b>Long Short Strategy Statistics</b>										<b>Long Short Strategy Statistics</b>																																
Portfolio 1 less Portfolio 3										Portfolio 1 less Portfolio 3										Portfolio 1 less Portfolio 3																																
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										Long/Short										Long/Short																																
T-Stat		Assets		Assets		Assets		Assets		Assets		Assets		Assets		Assets		Assets		Assets		Assets		Assets		Assets		Assets																								
Long/Short					Long/Short					Long/Short					Long/Short					Long/Short					Long/Short					Long/Short																						
2.18					3.73					0.39					2.79					2.09					1.31					1.5																						

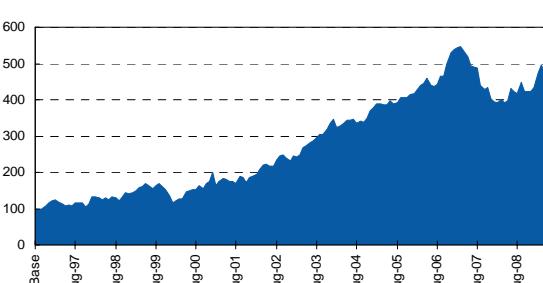
### Portfolio Index Performance



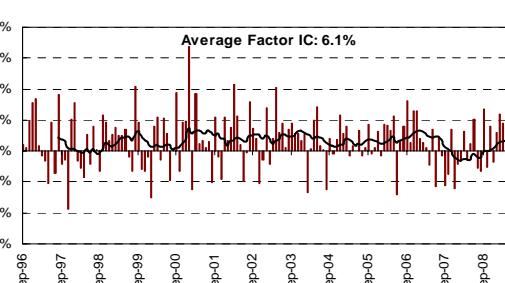
### Portfolio Spread. Annual Returns



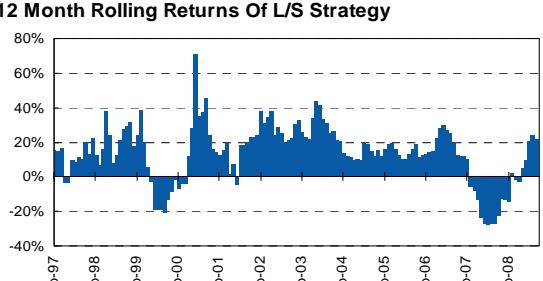
### Cumulative Returns



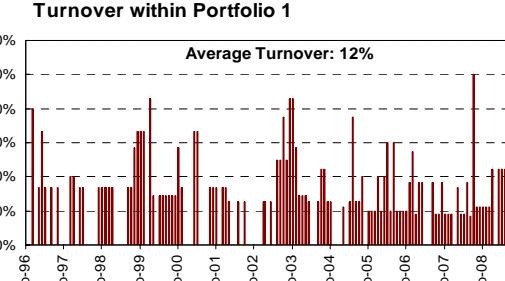
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



### Turnover within Portfolio 1



Source: Thomson, MSCI

## Results Summary

In the table below we summarise the most **statistically significant** test results. The table is sorted by sector and information co-efficient.

Table 15: Key Results

Universe	Description	Avg IC	T-Stat	Hit Rate	Turn Over	Avg Ret LS
BANKS	IEP	4.3%	3.79	67%	24%	1.54%
BANKS	Price to fwd Earnings	4.2%	3.89	64%	23%	1.72%
BANKS	PEG	3.4%	2.57	59%	29%	1.11%
BANKS	Price to book	2.6%	2.20	59%	17%	0.98%
MATERIALS	PE relative to history (3yr)	4.2%	3.64	60%	26%	1.60%
MATERIALS	PEG	2.8%	3.52	62%	26%	1.23%
MATERIALS	Price to trailing Cash Earnings	2.3%	2.44	59%	16%	0.79%
MATERIALS	Price to Sales	2.2%	2.47	54%	12%	0.98%
MATERIALS	Price to fwd Earnings	2.1%	3.53	56%	19%	1.12%
MATERIALS	IEP	2.1%	2.99	56%	18%	1.00%
MATERIALS	Price to book	2.0%	3.27	55%	13%	1.34%
MATERIALS	Price to Operating Cash Flow (ar)	1.9%	2.61	56%	14%	1.07%
INDUSTRIALS	Price to Operating Cash Flow (ar)	5.4%	3.44	66%	12%	1.81%
INDUSTRIALS	EBITDA/EV	4.0%	3.50	65%	14%	1.53%
INDUSTRIALS	PEG	3.9%	4.34	65%	25%	1.54%
INDUSTRIALS	IEP	3.5%	3.87	60%	19%	1.39%
INDUSTRIALS	Price to book	3.3%	3.67	59%	12%	1.42%
INDUSTRIALS	Dividend Yield	3.0%	2.02	57%	12%	0.76%
INDUSTRIALS	Price to free Cash Flow	2.8%	2.67	59%	13%	0.95%
INDUSTRIALS	Price to trailing Cash Earnings	2.4%	2.18	58%	14%	0.73%
INDUSTRIALS	Price to Sales	2.4%	4.04	58%	11%	1.77%
INDUSTRIALS	Price to fwd Earnings	2.3%	2.56	60%	17%	0.87%
CONS DESC	Price to Operating Cash Flow (ar)	4.1%	3.88	67%	15%	1.72%
CONS DESC	Price to free Cash Flow	3.3%	3.08	60%	13%	1.16%
CONS DESC	Price to trailing Cash Earnings	3.1%	2.80	54%	16%	0.89%
CONS DESC	Price to fwd Earnings	2.9%	3.90	61%	17%	1.24%
CONS DESC	IEP	2.5%	3.02	56%	18%	0.97%
CONS DESC	Price to Sales	2.4%	2.53	57%	11%	0.90%
CONS DESC	PE relative to history (3yr)	2.4%	2.79	58%	25%	1.17%
CONS DESC	PEG	2.2%	2.29	54%	24%	0.72%
CONS DESC	Dividend Yield	2.1%	2.46	53%	13%	0.73%
CONS STAP	Price to Operating Cash Flow (ar)	3.3%	1.85	61%	17%	1.04%
CONS STAP	Price to free Cash Flow	3.1%	2.40	65%	16%	1.14%
CONS STAP	PE relative to history (3yr)	3.1%	2.93	61%	27%	1.22%
FINANCIALS	PE relative to history (3yr)	3.2%	3.35	58%	26%	1.48%
FINANCIALS	IEP	2.3%	3.14	58%	18%	1.24%
FINANCIALS	Price to fwd Earnings	2.3%	2.27	55%	17%	0.92%
FINANCIALS	PEG	2.2%	2.80	56%	23%	1.04%
UTILITIES	PEG	6.0%	2.98	63%	17%	1.44%
UTILITIES	IEP	5.9%	2.71	59%	12%	1.13%
UTILITIES	Price to fwd Earnings	5.9%	2.36	61%	13%	1.04%
UTILITIES	PE relative to history (3yr)	2.8%	1.98	58%	19%	0.93%
UTILITIES	Price to Sales	2.5%	2.01	56%	9%	0.91%
UTILITIES	Price to book	2.1%	1.84	58%	10%	0.76%

Source: J.P. Morgan

## J.P. Morgan Back-Testing Methodology

Factor back tests aim to quickly identify potential factors that may form the basis of a sound investment process.

Otherwise known as univariate back tests, the process is designed to test one factor in isolation of other inputs. More complex constraints, such as turnover limits, asset capitalization weighting, risk constraints, are typically applied at the Portfolio Simulations stage, not while creating univariate back test.

### Data

We have access to a wide range of data from a number of vendors. Our preferred universe is made up of MSCI constituents, but we can also help with assets comprising many domestic indices, as well as other major index vendors such as FTSE, STOXX, etc. We base our forecast factors on IBES consensus figures while historical data is typically based on Reuters Fundamental data. We also utilize data services from FactSet, Bloomberg and others.

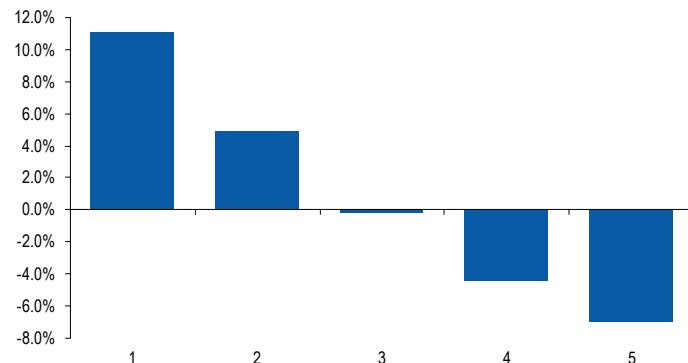
### Sampling

The first test we run on a factor (e.g. price/earnings, dividend yield, price momentum, *etc*) is a univariate back test. 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 (real world constraints are applied later in the portfolio construction phase). Instead, at this stage we are trying simply to identify if the signal under investigation contains any useful information.

Our single factor back-test process involves constructing portfolios monthly. The back test engine ranks the universe of  $n$  stocks from ‘best’ to ‘worst’ on the factor being analyzed. A rank of 1 is applied to the stock with ‘best’ factor score, and a rank of  $n$  is applied to the stock with the worst factor score. Having ranked the stocks, we create a number of equally weighted groups based on this ranking (for example quintiles, where each group contains 20% of the stocks in the universe). Then we track the performance of the various groups over time.

At the end of the test we can look at the performance of all the portfolios (groups) every month, and generate simple statistics to quantify the usefulness of the strategy over the entire period.

Figure 16: Quintile Performance – the ideal monotonic spread



Source: J.P. Morgan

## Analysis

When analyzing the usefulness of the signal, ideally we are looking for the quintiles to be ‘monotonic’. This means that we want to see a predictable spread in the performance of our portfolios across the groupings - ideally we want to see Quintile 1 outperforming Quintile 2, Quintile 2 outperforming Quintile 3, Quintile 3 outperforming Quintile 4, and so on (on average) over the analysis period. For example, perfect monotonic behavior is exhibited by (1 month) Earnings Momentum when tested in the Australian market as shown in Figure 16.

The second piece of information that we use in assessing the strategy is the average information coefficient (IC). We calculated the IC as the correlation between the scores at the start of the month and the actual realized excess returns at the end of the month. We do this each month and then take the average across all months. If the strategy was perfect at picking stocks every month, then the average IC would be 100%. Of course, the reality is that no Quant strategy is going to be anything like that useful. In fact, generally an IC of more than 5% is considered ‘good’ amongst quantitative analysts.

We also look at the percentage of months in which the strategy was successful on a long/short basis; i.e. in how many of the months observed did Quintile 1 outperform Quintile 5 (where 5 = number of groupings, n)? Obviously we want this to be as high as possible, and we would expect a typically ‘good’ quantitative strategy to outperform more than 65% of the time.

We supplement this with a T-Test of the ‘long/short’ Q1 – Q5. We use this test to determine how confident we are that there is a significant difference between the return characteristics of Quintile 1 and Quintile 5. As a rule of thumb, a t-Stat of > 2 (set at the 95% confidence limit) tells us that the hypothesis that ‘there is no significant difference between the two quintiles’ can be rejected, and that we are 95% confident that the two quintiles are different, and the return from Q1-Q5 is statistically different from zero.

The larger the t-Stat, the more confidence we have that the two quintiles (which are assembled according to the factor under examination) are distinct in their return characteristics).

## The JPMQ back test engine

Our database incorporates the majority of Large Cap equities within the MSCI world universe and starts in 1993. The structure of our database means that we have a great flexibility in data handling prior to back-testing. Factors can effectively be normalized in many different ways and data can be truncated before the normalization process takes place. Truncation is important as it prevents large numbers (possibly incorrect data) from skewing the market average. For those practitioners that prefer to use the median, this option is made available within the normalization process. Our process allows the combination of any number of factors, allowing us to combine a positive factor with a negative factor (e.g. Earnings Revisions with Earnings Risk). Each factor is also independently weighted; the only constraint applied is that the sum of weights is equal to 1.

In our JPMQ back-test engine, each factor is put through a standard linear regression methodology where key statistical tests are performed and the relevant outputs are generated for each factor. When combined with our database, it permits any factor to be tested, over any time frame, any rebalance period, and against any universe.

## Viewing the results

Our factor profile provides a number of key charts and statistics that can help to provide an understanding of the usefulness of a strategy. It is further broken into a number of different components, each of which is explained below in detail.

### The statistics summary table

The statistics summary table is the portion of our back-test output where we can see the full picture. A sample output is shown below. Key statistics to note are the t-statistic in the bottom of the table. This gives us an indication of the confidence that our results are not down to chance. 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.

Generally we break the table down into three equal periods and also show the overall results across the entire test period. Here we just show the full period results.

Figure 17: The summary stats table

Total Period: 1/31/1994 to 7/30/2007				
Portfolio Statistics				
Port	Avg	Ann	St	% Out
1	1.5%	15.2%	8%	60%
2	1.4%	13.1%	8%	55%
3	0.8%	7.1%	7%	47%
4	0.6%	3.4%	9%	38%
5	0.8%	6.0%	9%	46%
Long Short Strategy Statistics				
Portfolio 1 less Portfolio 5				
	Avg	Ann	Std	% Out
Long/Short	0.7%	7.0%	4%	61%
T-Stat				
Long/Short	1.96			

The statistics summary table shows how each portfolio of stocks performed. In this sample, our strategy returned 0.7% per month of test. The Long/Short average return is the difference between the performance of Portfolio 1 and Portfolio5. **For this strategy the t-Stat of 1.96 we would consider to be pretty good along with the solid 61% hit-rate (i.e. the % positive months).**

Source: J.P. Morgan

Figure 18: Output from our JPMO back-test engine, in this case J.P. Morgan Composite in Asia Top 250 over the past five years

Factor: Composite Value Momentum Quality Price Model in ASIA TOP 250										Rebalance every 1 month(s)											
1 Year: 7/31/2006 to 7/30/2007 Portfolio Statistics					3 Year(s): 7/31/2004 to 7/30/2007 Portfolio Statistics					5 Year(s): 7/31/2002 to 7/30/2007 Portfolio Statistics					Total Period: 12/31/1993 to 7/30/2007 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	5.1%	81.2%	3%	87%	1	3.5%	49.4%	4%	69%	1	3.1%	42.5%	5%	72%	1	1.7%	19.3%	6%	70%		
2	4.1%	61.1%	3%	42%	2	2.9%	40.1%	4%	56%	2	2.5%	33.0%	4%	50%	2	1.2%	12.9%	6%	55%		
3	3.4%	49.7%	2%	25%	3	2.4%	32.4%	3%	33%	3	2.2%	28.4%	4%	43%	3	0.5%	4.1%	6%	46%		
4	3.4%	48.8%	3%	25%	4	2.2%	28.7%	4%	33%	4	1.8%	22.4%	4%	33%	4	0.4%	2.2%	6%	36%		
5	3.9%	56.9%	3%	33%	5	2.0%	25.5%	4%	25%	5	1.2%	14.1%	5%	23%	5	0.0%	-3.1%	7%	29%		
Total Test					Total Test					Total Test					Total Test						
Rank		Avg IC		Avg Assets		Rank		Avg IC		Rank		Avg IC		Avg Assets		Rank		Avg IC		Avg Assets	
Universe		6.3%		7.6%		7.6%		8.7%		8.2%		8.9%		239		236		234		220	
Long Short Strategy Statistics Portfolio 1 less Portfolio 5										Long Short Strategy Statistics Portfolio 1 less Portfolio 5										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	
Long/Short		1.3%		15.9%		3%		75%		Avg Assets		Avg Assets		Avg Assets		Avg Ret		Ann Ret		Std Devn	
T-Stat		1.53		96																	
Long Short Strategy Statistics Portfolio 1 less Portfolio 5										Long Short Strategy Statistics Portfolio 1 less Portfolio 5										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	
Long/Short		1.5%		19.1%		2%		78%		Long/Short		1.9%		24.5%		3%		83%		Avg Assets	
T-Stat		4.04		95																	
Long Short Strategy Statistics Portfolio 1 less Portfolio 5										Long Short Strategy Statistics Portfolio 1 less Portfolio 5										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	
Long/Short		1.7%		22.1%		3%		74%		Long/Short		6.68		88		Long/Short		6.68		88	

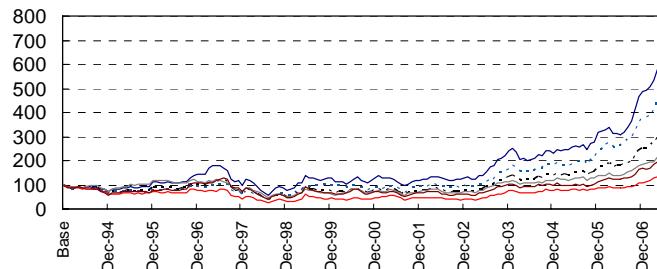
Source: J.P. Morgan, Thomson

### The quintile performance chart

The quintile performance chart is a simple visual representation of the performance of the strategy over the test period. Each quintile/portfolio is shown alongside the equal weighted benchmark.

Figure 19: Quintile performance results - It works!

— Benchmark  
 — P1  
 — P2  
 — P3  
 — P4  
 — P5



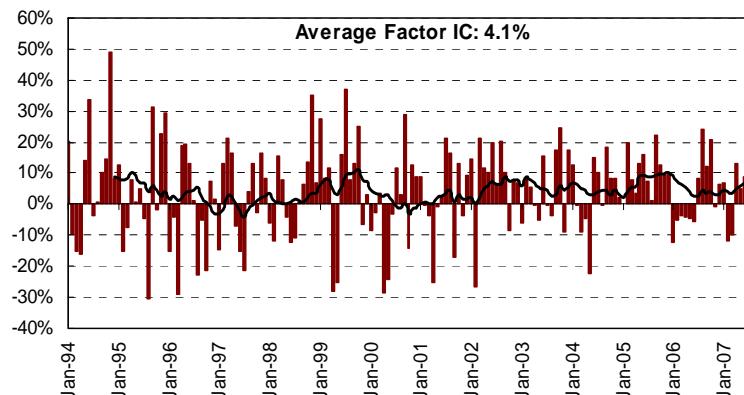
Source: J.P. Morgan

### The information co-efficient chart

The factor IC (information co-efficient) chart shows us the monthly correlation between the factor ranks at the start of the month and the subsequent 1 month returns from the factor. Obviously we are looking to see a positive correlation between the factor and subsequent returns most of the time in order that we can have the confidence to use the strategy for investing.

We add a 12-month trend line to show the cyclicity of the factor and help to highlight those periods where the factor performed strongly and vice-versa. For example many value factors performed poorly during the tech-boom only to rebound strongly in the three years post 2000.

Figure 20: The Factor IC chart

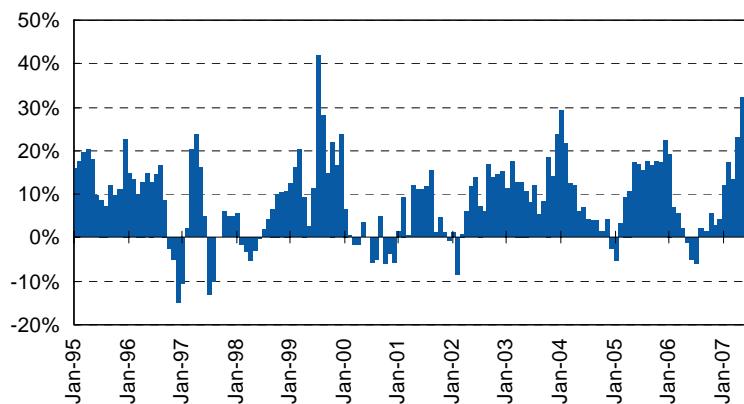


Source: J.P. Morgan

### 12-month moving average long/short returns

The clearest picture of when we ‘made money’ using the strategy can be provided by the rolling 12-month performance chart shown below. Note that the chart represents the returns of the long /short strategy. When the line is positive our 12-month returns have been positive and vice-versa.

Figure 21: The rolling 12-month moving avg - When did we make money?



Source: J.P. Morgan

### The hit rate

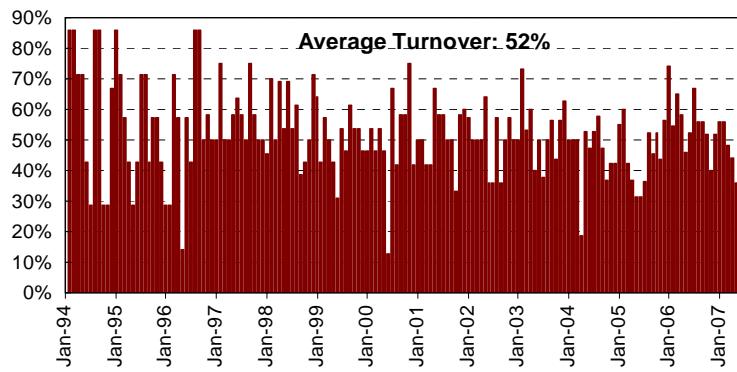
The hit rate is the number of months the strategy works versus the number of months that it didn’t work. It’s shown in the results section as ‘% Outperformance’. Obviously the desire is for a consistent strategy rather than for a strategy that only works half the time (or less) then comes through with a single month of bumper returns. A good quant strategy would certainly have a hit rate in excess of 60%.

### The turnover chart

The turnover chart indicates the percentage of the **portfolio** (based on ‘number of names’) that we are turning over each month in this strategy. The first point to make is that for many single-factor back-tests the turnover is very 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 footloose hedge fund is likely to baulk at 30% turnover a month and in reality 10%-20% would be more typical cap even for a momentum driven fund.

However the fact that the turnover is prohibitively high does not mean the strategy is of no use (on the contrary). What it does mean is that the strategy can only be employed in moderation. For instance it should be included as one component of a multi factor model with the dial turned towards some of the lower turnover factors such as members of the ‘value family’. This not only lowers the turnover but also serves to diversify the alpha.

Figure 22: Monthly turnover information



Source: J.P. Morgan

If you have any questions on our backtesting methodology or are interested in using our custom backtesting services please contact Steve Malin  
(steven.j.malin@j.p.morgan.com)

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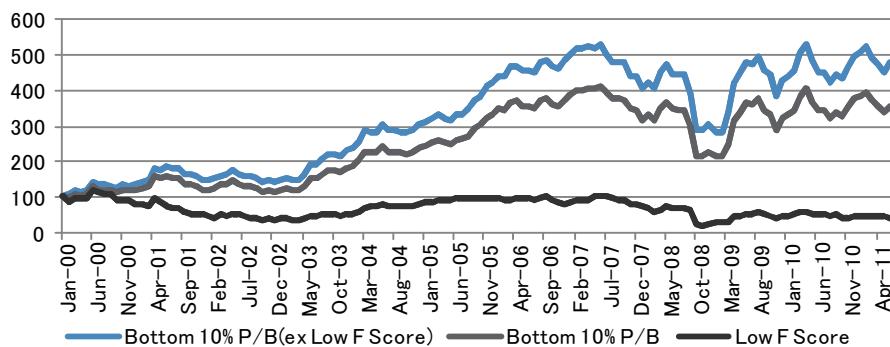
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## The Importance of Financial Strength for Value Investing

### Filtering Using Piotroski's F-Score

- P/B has been demonstrated to be a very effective quantitative factor in Japan's market (low-P/B stocks tend to outperform, while high-P/B stocks tend to underperform), but nearly half of all low-P/B portfolios do not generate positive returns.
- In this report, we look for neglected, undervalued stocks and eliminate the ones that are financially weak to see whether the performance of strategies based on P/B and other value metrics improves.
- We use Joseph Piotroski's F-score as a measure of financial strength. Our analysis shows that returns can be enhanced by excluding stocks with low F-scores.
- Using F-scores does not lead to much improvement in the percentage of outperformers but does result in a much less volatile percentage.
- We think using the F-score to screen undervalued stocks for financial strength is critically important for value investing.

**Figure 1: Effect of Excluding Low F-Score from Bottom 10% P/B**



Source: MSCI, Thomson Reuters, J.P. Morgan.

Note: Universe is MSCI Japan (Ex Financials)

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## Joseph Piotroski

Joseph Piotroski, currently an accounting professor at Stanford University, found in 2000 that some undervalued stocks perform well but about half do poorly or end up being delisted or go bankrupt. He wondered whether winners and losers could be picked out beforehand based on publicly available financial information.

In an academic paper titled "Value Investing: The Use of Historical Financial Statement Information to Separate Winners from Losers" (Journal of Accounting Research, vol. 38, supplement 2000), he noted that undervalued, neglected companies had the following characteristics:

- Value stocks offer a unique opportunity to investigate the ability of simple fundamental analysis statistics to differentiate firms.
- Value stocks tend to be neglected by analysts and are plagued by low levels of investor interest.
- Analyst forecasts and stock recommendations are generally unavailable for these firms.
- High Book/Market firms tend to be financially distressed and as a result the valuation of these firms concentrates on fundamentals such as leverage, liquidity, profitability trends and cash flow adequacy.
- Poor prior performance may lead to credibility issues in company-originated forecasts, suggesting financial statements present the most reliable and accessible source of information for these firms.

By focusing on value firms, the benefits to financial statement analysis

- are investigated in an environment where historical financial reports represent the best and most relevant source of financial condition and
- are maximized through the selection of relevant measures given the underlying economic characteristics of the high Book/Market firms

Based on the above, he came up with an F-score, ranging from 0 to 9, to rate companies based on nine financial strength criteria.

## F-score

The F-score is the total score based on nine criteria; each criterion has a score of 0 or 1. For example, if cash flow from operations is positive, then the score for this criterion is 1. If it is negative, then the score is 0. If the latest ROA is higher than ROA one year earlier, then the score is 1, otherwise the score is 0. The F-score ranges from a low of 0 to a high of 9. All criteria are based on the latest financial statements that have already been released and the financial statements from one year prior.

### Profitability

ROA: Net income before extraordinary items > 0

CFO: Cash flow from operations > 0

$\Delta$ ROA: Latest ROA > ROA one year earlier

ACCRUAL: Cash flow from operations > net income before extra ordinary items

### Stability

$\Delta$ LEVER: Latest long-term debt < long-term debt one year earlier

$\Delta$ Liquid: Latest current ratio > current ratio one year earlier

EQ\_OFFER: Latest no. of shares outstanding  $\leq$  no. of shares outstanding one year earlier

### Operating efficiency

$\Delta$ MARGIN: Latest OP margin > OP margin one year earlier

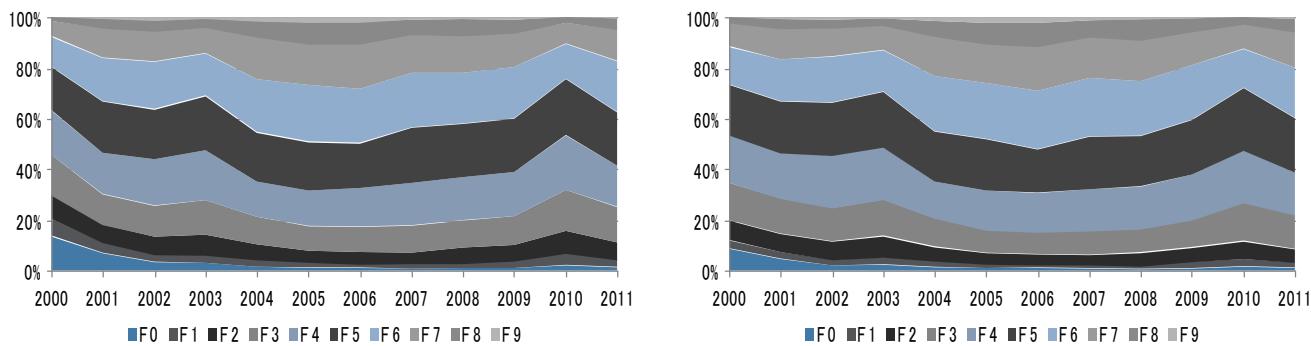
$\Delta$ TURN: Latest asset turnover > asset turnover one year earlier

The F-score is the total score for the nine criteria above.

$$\text{F-SCORE} = \text{ROA} + \text{CFO} + \Delta\text{ROA} + \text{ACCRUAL} + \Delta\text{LEVER} + \Delta\text{LIQUID} + \text{EQ\_OFFER} + \Delta\text{MARGIN} + \Delta\text{TURN}$$

The distributions of F-scores for the MSCI Japan Index components (left) and the MSCI World Index components (right) over time are shown below.

Figure 2: Time Series F-Score Ratios by MSCI Japan (Left) and MSCI World (Right)



Source: J.P.Morgan

## Backtest

### Effectiveness of the F-score

We take a look at whether Piotroski's F-score is an effective source of alpha. We first do so by analyzing its past effectiveness. Specifically, we did a backtest by sorting the universe of stocks into five groups, based on their F-scores, and measuring their performance between January 2000 and August 2011. Each group covers two scores because there are very few stocks with an F-score of 0 or 9. The five groups do not have the same number of stocks, though.

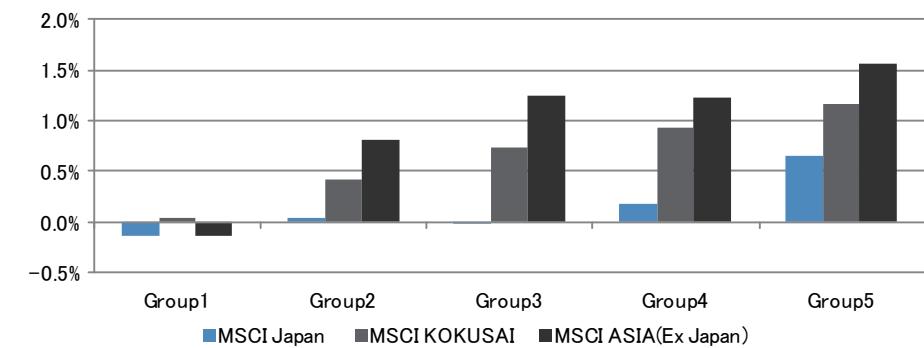
Figure 1: Grouping by F-Score

F-Score	Portfolio
0~1	Group 1
2~3	Group 2
4~5	Group 3
6~7	Group 4
8~9	Group 5

Source: J.P.Morgan

The chart below shows the average monthly returns for each group.

Figure 3: Average Monthly Returns by F-Score (from Jan 2000)



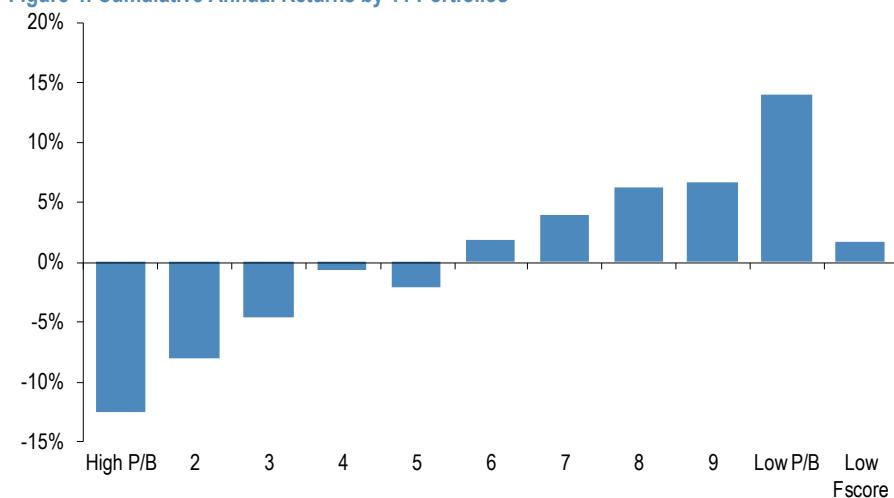
Source: FactSet, J.P.Morgan

The higher the scores of the group, the higher the average return tends to be. This is true not only for Japanese stocks but also stocks in other markets.

## Excluding stocks with low F-scores from a low-P/B portfolio

The objective of this report is to see whether the returns and the percentage of outperformers can be improved by excluding financially weak companies. For the backtest, we excluded from the portfolio of stocks in the bottom 10% in terms of P/B those stocks with low F-scores to see whether portfolio performance improves. For January 2000 to August 2011, we measured equal-weighted cumulative returns for 10 portfolios plus one other consisting of low-P/B stocks with F-scores of 4 or less. The portfolios are rebalanced monthly.

Figure 4: Cumulative Annual Returns by 11 Portfolios

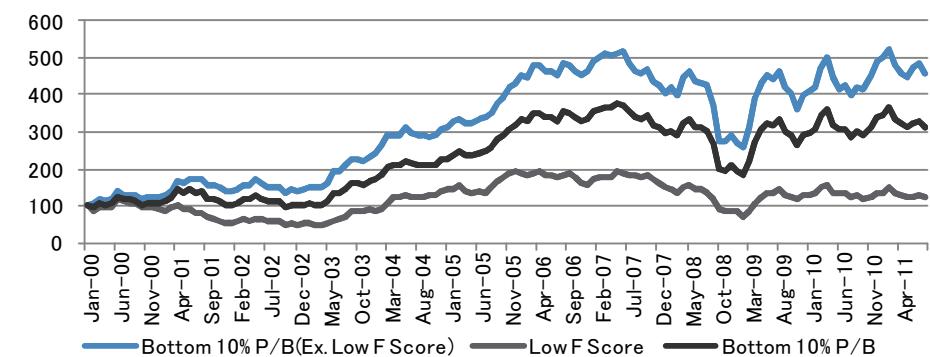


Source: MSCI, FactSet, J.P.Morgan

Note: Universe is MSCI Japan. Monthly Rebalance. Equal Weighting

The annual return of the low-P/B portfolio over the entire period was 14.0% and that of the low F-score portfolio (consisting of the low-P/B stocks with F-scores of 4 or less) was 1.6%, for a difference of 12.4ppts. The trend over time is shown below.

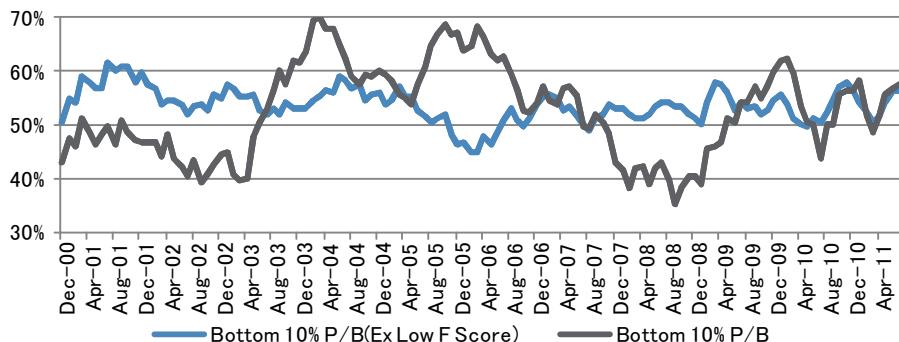
Figure 5: Cumulative Historical Return of Low P/B and Low P/B (Ex Low F-Score)



Source: MSCI, Thomson Reuters, J.P.Morgan

We then looked at whether the percentage of outperformers (relative to the average return of the universe) improved by comparing the 12-month moving averages of this monthly percentage.

Figure 6: 12-Month Average Hit Rate of Bottom 10% P/B and Bottom 10% P/B (Ex Low F-Score)



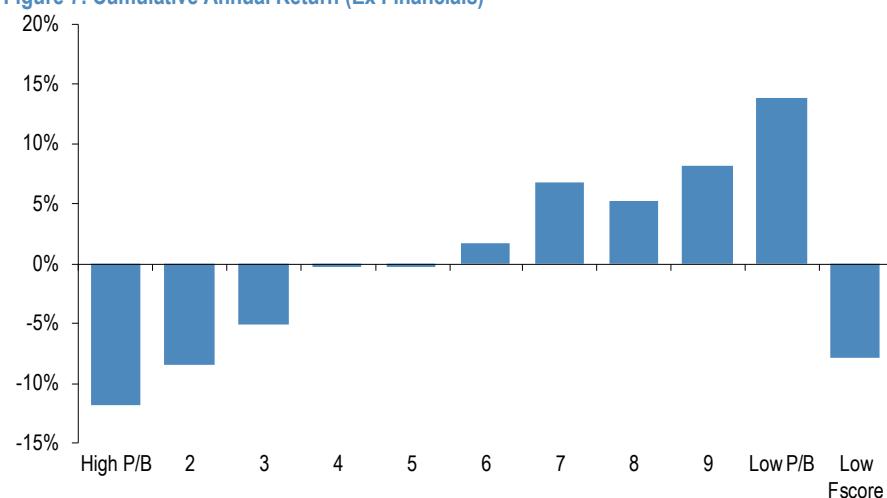
Source: MSCI, Thomson Reuters, J.P.Morgan

Whereas the overall percentage of outperformers for the lowest 10% in terms of P/B is 52%, the percentage for the lowest 10% in terms of P/B excluding those with F-scores of 4 or less is only 54%, not as much of an improvement as we expected. The volatility in the percentage of outperformers is noteworthy, though. The lowest percentage is 35% for the lowest 10% in terms of P/B but only 45% for the lowest 10% in terms of P/B excluding those with F-scores of 4 or less. The latter group's highest percentage is higher than the former group's, but the percentage is generally in a stable range of 50-60%, with no particularly high percentage but also no particularly low percentage.

## Backtest Excluding Financials

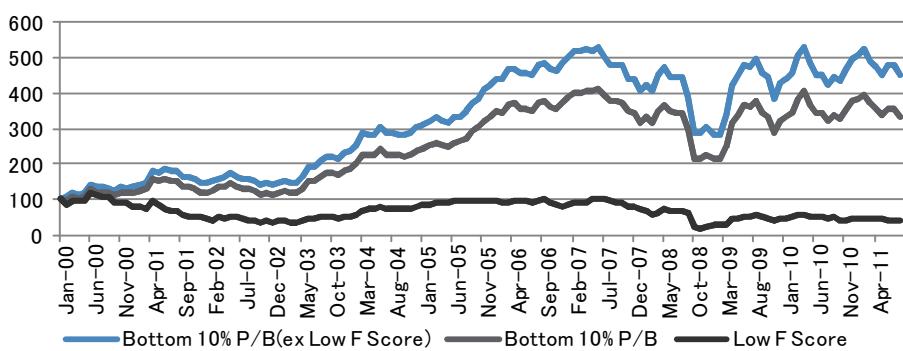
Given the nature of the Piotroski F-score criteria, financials tend not to have high scores, and hence the alpha of his model may come simply from the exclusion of financials. To examine this aspect, we did the same backtest with the MSCI Japan Index (excluding financials) as the universe. The chart below shows the cumulative returns.

Figure 7: Cumulative Annual Return (Ex Financials)



Source: MSCI, Thomson Reuters, J.P.Morgan

Figure 8: Cumulative Historical Return of Low P/B and Low P/B (Ex Low F-Score, Financials)



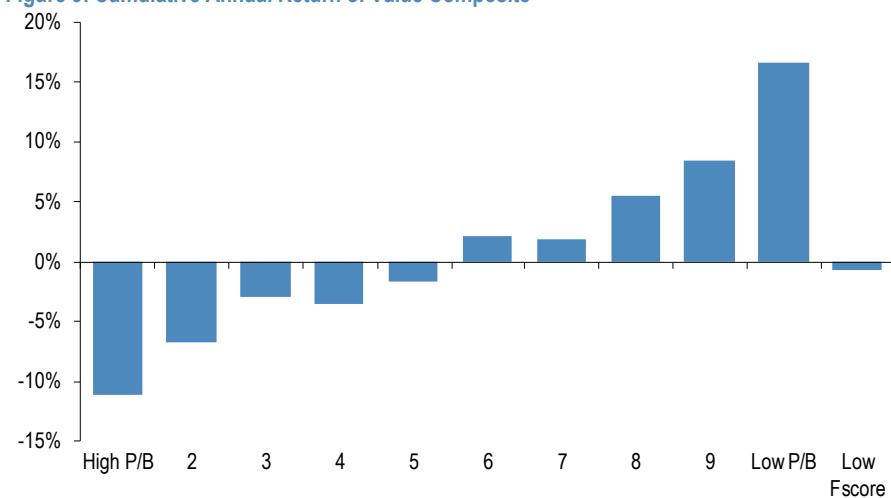
Source: MSCI, Thomson Reuters, J.P.Morgan

It is apparent that the results are similar and also strong. Indexed to 100 as of January 2000, the low F-score portfolio's return was 38 as of August 2011, representing a 62% decline. Piotroski's F-score model generates such results even when financials are excluded, indicating that the effect of the scoring method itself does not come from the exclusion of financials.

## Backtest Using a Value Composite

The previous section showed that using Piotroski's F-score with low-P/B stocks has an effect, but we did another backtest to see whether there is a similar effect with value stocks as a whole. We used a value composite consisting of three factors, forward P/E (based on I/B/E/S consensus estimates for next fiscal year), trailing P/B, and dividend yield, and sorted the universe into evenly distributed groups based on each.

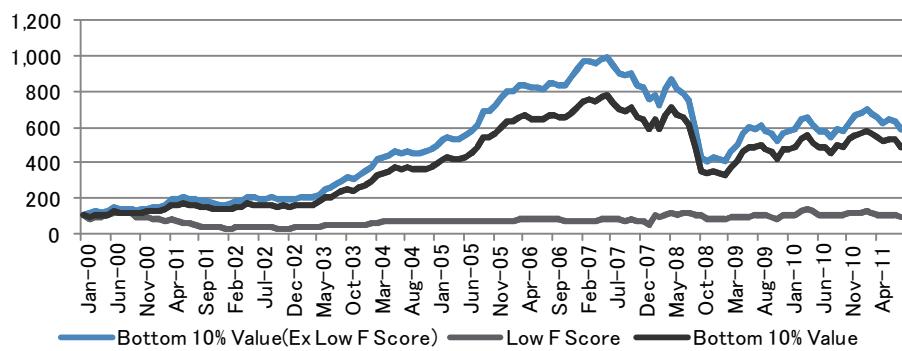
Figure 9: Cumulative Annual Return of Value Composite



Source: MSCI, Thomson Reuters, J.P.Morgan

Note: Excluding Financials

Figure 10: Value Composite vs Value Composite (Ex Low F-Score)



Source: MSCI, Thomson Reuters, J.P.Morgan

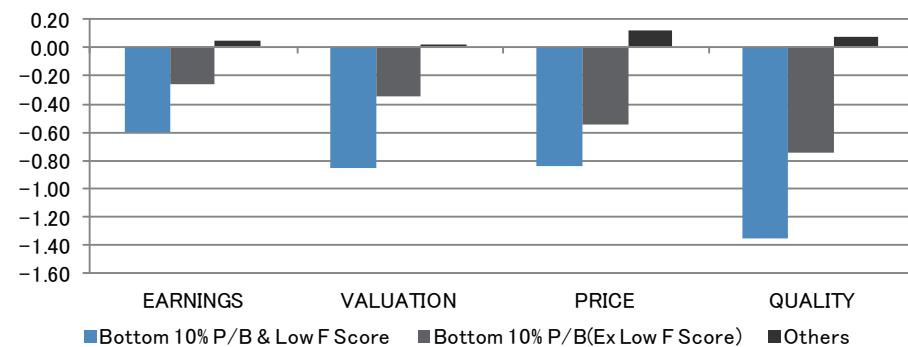
Note: Excluding Financials

The charts above show that performance can be enhanced by applying an F-score filter to not only P/B but also value factors overall.

## Characteristics of stocks with low P/Bs and low F-scores

We now take a look at the characteristics of stocks with low P/Bs and low F-scores. We analyzed average factor exposure based on four typical composite factors we created.

**Figure 11: Characteristics of Factor Exposures by J.P. Morgan Composite Factor Families**

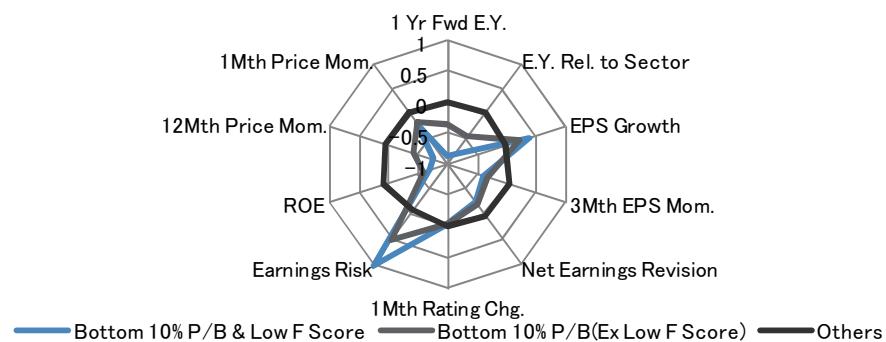


Source: MSCI, Thomson Reuters, J.P.Morgan

Note: Average Return from Jan 2000 to Aug 2011. Values are normalized within +/- 3 Standard Deviation. Excluding Financials.

The differences are clearest for the QUALITY factor, which consists of the inverses of RoE and earnings risk (the coefficient of variation for forecast EPS). Those in the bottom 10% by P/B and with low F-scores have very low exposure to this factor. As a result, either RoE is low or the coefficient of variation for forecast EPS is high. The latter indicates high uncertainties about earnings forecasts. If low RoE is an added factor, financial strength is truly an issue. Piotroski's F-score quantifies companies' financial strength.

**Figure 12: Characteristics of Factor Exposures by 10 J.P. Morgan Factor Families**



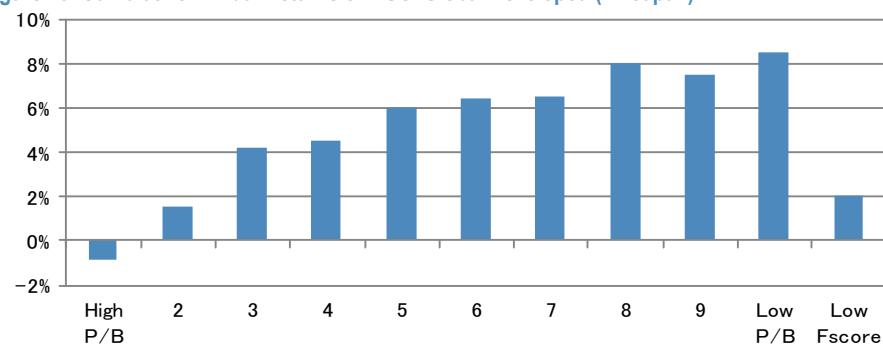
Source: MSCI, Thomson Reuters, J.P.Morgan.

Note: Average Return from Jan 2000 to Aug 2011. Values are normalized within +/- 3 Standard Deviation. Excluding Financials.

## Global Backtest

Finally, we did a backtest to see whether the results are similar for not only Japan but also the MSCI Kokusai Index (which excludes Japan), the MSCI Emerging Markets Index, and the MSCI AC Asia ex Japan Index. The results show that using F-scores as a filter on undervalued stocks is very effective globally.

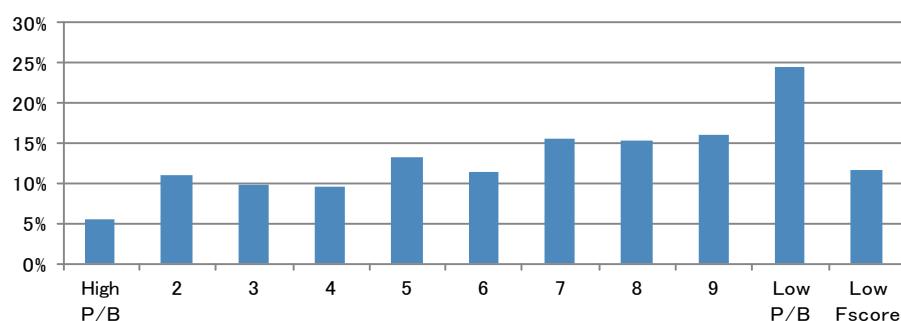
**Figure 13: Cumulative Annual Returns of MSCI Global Developed (Ex Japan)**



Source: MSCI, Thomson Reuters, J.P.Morgan

Note: Calculation from Jan 2001 to Aug 2011

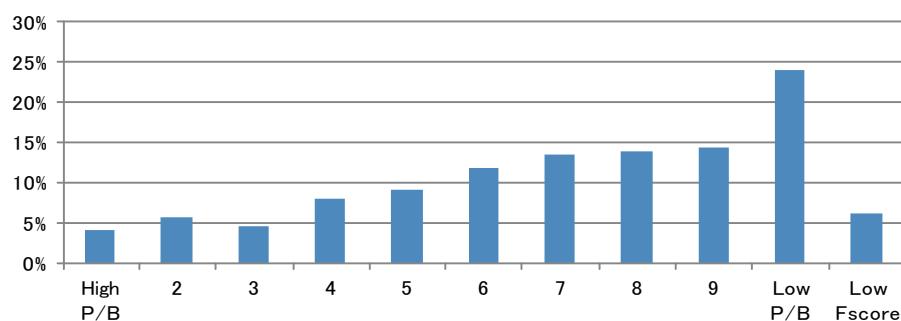
**Figure 14: Cumulative Annual Returns of MSCI Emerging**



Source: MSCI, Thomson Reuters, J.P.Morgan

Note: Calculation from Jan 2001 to Aug 2011.

**Figure 15: Cumulative Annual Returns of MSCI Asia Ex Japan**



Source: MSCI, Thomson Reuters, J.P.Morgan

Note: Calculation from Jan 2001 to Aug 2011.

## Conclusion

The lower that stocks rank in terms of P/B and other value metrics, the greater their prospects for recovery and the higher their expected returns tend to be. Nevertheless, very undervalued stocks include some very financially weak ones, which can often result in portfolio returns that are not as high as expected.

Our backtests show that analyzing value stocks for financial strength is very important for enhancing returns. Our global quantitative strategy colleague Steve Malin did a backtest using a composite P/B-RoE factor and found the results to be better than those from the conventional P/B factor alone (for details, see his September 16, 2010, report titled "[Return on Equity: Is It Useful for Stock Picking?](#)"). We think his study also suggests that financial strength is one useful gauge of which undervalued stocks are likely to do well and which are likely to do poorly. We reiterated throughout this report one investment idea, the crucial importance of analyzing companies' financial strength as part of value-driven strategies.

Piotroski's F-score, which we outlined, is a way of quantifying companies' financial strength based on financial statement data. Quant managers need to make decisions based on such scores and can improve quality further by adding their own forecasts to historical financial data. They can save time and effort by screening based on F-scores beforehand.

## Appendix

The tables below list low-P/B stocks and their F-scores based on the latest data (MSCI Japan excluding financials), as well as backtest results by region and style.

Figure 17: Latest Low P/B Stocks in MSCI Japan and F-Score (Ex Financials)

Ticker	Name	TSE33	Market Cap (bln Yen)	P/B	ROA	CFO	ΔROA	ACCRAUL	ΔLEVER	ΔLIQUID	EQ OFFER	ΔMARGIN	ΔTURN	F- Score	Previous F-Score
9501	TOKYO ELECTRIC P	Electric Power & Gas	538	0.34	1	1	1	1	0	1	0	1	0	6	5
5901	TOYO SEIKAN	Metal Products	253	0.43	1	1	1	1	0	0	1	1	1	7	5
1662	JAPAN PETROLEUM	Mining	179	0.47	0	1	0	0	1	1	1	0	1	5	3
7911	TOPPAN PRINTING	Other Products	384	0.48	1	1	1	0	0	0	1	1	1	6	6
6665	ELPIDA MEMORY IN	Electric Appliances	156	0.48	1	1	1	1	1	0	0	1	1	7	7
9107	KAWASAKI KISEN	Marine Transportation	142	0.49	0	1	1	0	1	0	1	1	1	6	3
1944	KINDEN CORP	Construction	172	0.50	0	1	0	0	1	0	1	0	1	4	5
6113	AMADA CO LTD	Machinery	202	0.52	0	1	1	0	1	0	1	1	1	6	5
4901	FUJIFILM HOLDING	Chemicals	962	0.52	0	1	1	0	1	1	1	1	1	7	5
5007	COSMO OIL CO	Oil & Coal Products	175	0.53	0	1	1	0	1	1	1	1	1	7	7
2768	SOJITZ CORP	Wholesale Trade	176	0.53	1	1	0	1	0	0	1	1	1	6	8
7752	RICOH CO LTD	Electric Appliances	511	0.54	0	1	0	0	1	1	1	0	0	4	3
3893	NIPPON PAPER GRO	Pulp & Paper	219	0.54	1	1	0	1	0	0	1	0	1	5	4
8252	MARUI GROUP	Retail Trade	182	0.55	1	1	1	1	0	1	1	1	0	7	6
7912	DAI NIPPON PRINT	Other Products	544	0.55	0	1	0	0	0	1	1	1	1	5	5
9508	KYUSHU ELEC PWR	Electric Power & Gas	606	0.57	0	1	0	0	0	1	1	0	1	4	5
3086	J FRONT RETAILIN	Retail Trade	184	0.57	1	1	0	0	0	0	1	1	1	5	5
9101	NIPPON YUSEN	Marine Transportation	396	0.58	0	1	1	0	1	0	1	1	1	6	4
7459	MEDIPAL HD	Wholesale Trade	182	0.58	1	1	0	0	1	0	1	0	1	5	8
8233	TAKASHIMAYA CO	Retail Trade	178	0.60	1	1	1	0	0	1	1	1	0	6	3
5019	IDEIMITSU KOSAN C	Oil & Coal Products	310	0.60	0	1	1	0	1	1	1	1	1	7	4
9509	HOKKAIDO ELEC	Electric Power & Gas	252	0.60	0	1	1	0	1	0	1	1	1	6	5
2579	COCA-COLA WEST C	Foods	152	0.61	0	1	1	0	0	1	0	1	0	4	5
9506	TOHOKU ELEC PWR	Electric Power & Gas	513	0.62	1	1	1	1	0	1	1	1	1	8	5
9104	MITSUI OSK LINES	Marine Transportation	411	0.62	0	1	1	0	1	0	1	1	1	6	5
9432	NIPPON TELEGRAPH	Information & Comm.	5,403	0.62	0	1	1	0	0	1	1	1	1	6	5
4118	KANEKA CORP	Chemicals	161	0.62	0	1	1	0	0	0	1	1	1	5	5
6758	SONY CORP	Electric Appliances	1,585	0.62	1	1	1	1	1	0	0	1	0	6	6
6752	PANASONIC CORP	Electric Appliances	1,886	0.62	0	1	1	0	0	0	1	1	1	5	6
6963	ROHM CO LTD	Electric Appliances	437	0.62	1	1	1	0	0	1	1	1	1	7	6
7261	MAZDA MOTOR	Transportation Equipment	274	0.64	1	1	1	1	1	0	1	1	1	8	7
7951	YAMAHA CORP	Other Products	160	0.65	1	1	1	0	1	1	1	1	0	7	5
9987	SUZUKEN CO LTD	Wholesale Trade	194	0.65	0	1	0	0	1	0	0	0	0	2	4
1928	SEKISUI HOUSE	Construction	493	0.66	0	1	1	0	0	1	1	1	1	6	7
9503	KANSAI ELEC PWR	Electric Power & Gas	1,270	0.67	0	1	1	0	1	0	1	1	1	6	6
6753	SHARP CORP	Electric Appliances	693	0.67	1	1	1	0	0	1	1	1	1	7	7
4902	KONICA MINOLTA H	Electric Appliances	289	0.67	0	1	0	0	1	1	1	1	0	0	4

Source: MSCI, Thomson Reuters, J.P.Morgan

Note: Sorted By P/B. Price based on Sep 16th. Listed stocks below 0.8 P/B.

Figure 18: Latest Low P/B Stocks in MSCI Japan and F-Score (Ex Financials) (Continued)

Ticker	Name	TSE33	Market Cap (bln Yen)	P/B	ROA	CFO	ΔROA	ACCURAL	ΔLEVER	ΔLIQUID	EQ OFFER	ΔMARGIN	ΔTURN	F- Score	Previous F-Score
9502	CHUBU ELEC POWER	Electric Power & Gas	1,121	0.68	0	1	0	0	0	0	1	0	1	3	5
4183	MITSUI CHEMICALS	Chemicals	268	0.68	0	1	1	0	1	0	1	1	1	6	6
6201	TOYOTA INDUSTRIE	Transportation Equipment	744	0.69	0	1	1	0	1	0	1	1	1	6	7
5407	NISSHIN STEEL	Iron & Steel	151	0.69	0	1	1	0	1	0	1	1	1	6	5
5411	JFE HOLDINGS INC	Iron & Steel	1,155	0.69	0	1	1	0	1	0	1	1	1	6	4
9301	MITSUB LOGISTICS	Warehousing & Harbor	142	0.69	0	1	1	0	0	0	1	0	1	4	3
2784	ALFRESA HOLDINGS	Wholesale Trade	164	0.70	0	1	1	0	1	0	0	0	0	3	4
9364	KAMIGUMI CO LTD	Warehousing & Harbor	186	0.70	0	1	1	0	0	0	1	1	1	5	4
7762	CITIZEN HOLDINGS	Precision Instruments	140	0.71	1	1	1	0	1	1	1	1	1	8	6
9504	CHUGOKU ELEC PWR	Electric Power & Gas	479	0.72	1	1	0	0	0	1	1	0	1	5	5
6592	MABUCHI MOTOR	Electric Appliances	143	0.72	0	1	1	0	0	1	1	1	1	6	2
5020	JX HD	Oil & Coal Products	1,175	0.72	1	1	0	0	0	1	0	0	3	1	
7003	MITSUI ENG&SHIPB	Transportation Equipment	119	0.72	0	1	0	0	1	1	1	1	0	5	5
9062	NIPPON EXPRESS	Land Transportation	344	0.72	1	1	0	0	0	1	1	0	1	5	6
6762	TDK CORP	Electric Appliances	391	0.73	0	1	1	0	1	0	1	1	1	6	6
2282	NIPPON MEAT PACK	Foods	223	0.74	0	0	0	0	0	0	1	1	1	3	2
5463	MARUICHI STL TUB	Iron & Steel	170	0.74	0	1	1	0	0	1	1	1	1	6	4
3099	ISETAN MITSUKOSH	Retail Trade	308	0.75	1	1	1	0	0	1	1	1	1	7	6
5202	NIPPON SHEET GLA	Glass & Ceramics Products	164	0.76	1	1	1	1	0	1	0	1	0	6	5
8015	TOYOTA TSUSHO	Wholesale Trade	466	0.77	0	1	1	0	0	0	1	1	1	5	3
6724	SEIKO EPSON	Electric Appliances	211	0.78	1	1	1	0	1	0	1	1	0	6	6
5444	YAMATO KOGYO	Iron & Steel	143	0.78	0	1	0	0	1	0	1	0	1	4	3
4202	DAICEL CHEM INDU	Chemicals	171	0.79	0	1	1	0	1	1	1	1	1	7	6
5406	KOBE STEEL LTD	Iron & Steel	449	0.79	0	1	1	0	1	0	1	1	1	6	5
8053	SUMITOMO CORP	Wholesale Trade	1,252	0.80	0	1	1	0	0	1	1	1	1	6	4
5401	NIPPON STEEL	Iron & Steel	1,613	0.80	0	1	1	0	1	1	1	1	1	7	4
5002	SHOWA SHELL	Oil & Coal Products	220	0.80	1	1	1	0	0	1	1	1	1	7	3

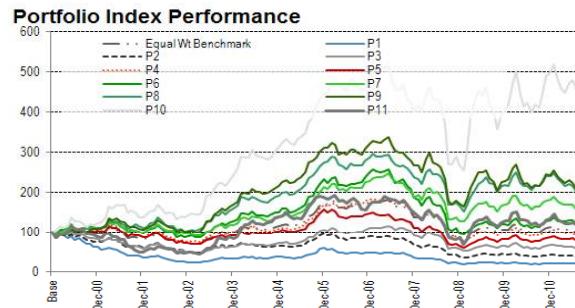
Source: MSCI, Thomson Reuters, J.P.Morgan

Note: Sorted By P/B. Price based on Sep 16th. Listed stocks below 0.8 P.B.

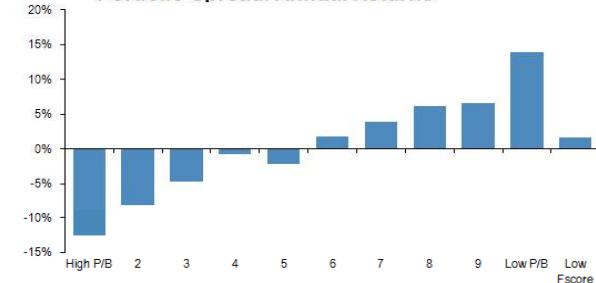
## P/B MSCI Japan

P/B MSCI Japan										3 Year(s): 2002/08/31 to 2005/08/31					3 Year(s): 2005/08/31 to 2008/08/31					3 Year(s): 2008/08/31 to 2011/08/31					Rebalance every 1 month(s)				
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	0.8%	8.2%	5%	39%	1	-0.5%	-8.3%	6%	36%	1	-0.9%	-12.2%	6%	47%	High P/B	-0.9%	-12.6%	6%	35%	2	-0.6%	-8.1%	5%	36%					
2	0.5%	5.3%	4%	31%	2	-0.3%	-4.7%	5%	39%	2	-1.1%	-14.9%	6%	42%	3	-0.2%	-4.7%	6%	44%	3	-0.2%	-0.8%	6%	47%					
3	0.9%	9.9%	5%	44%	3	0.5%	4.3%	5%	67%	4	-0.8%	-11.3%	7%	42%	4	0.1%	-0.8%	6%	47%	5	0.0%	-2.1%	5%	43%					
4	1.0%	11.6%	5%	36%	4	0.3%	2.3%	5%	56%	5	-0.5%	-8.3%	7%	53%	6	0.3%	1.8%	6%	51%	6	0.3%	1.8%	6%	51%					
5	1.0%	11.2%	4%	39%	5	-0.1%	-2.8%	5%	36%	7	0.7%	6.9%	5%	61%	7	-0.3%	-6.6%	7%	53%	8	-0.3%	-6.1%	7%	58%					
6	1.6%	19.5%	5%	56%	6	0.1%	-0.5%	5%	44%	8	0.4%	3.4%	4%	50%	9	-0.4%	-7.7%	8%	56%	9	0.7%	6.5%	6%	64%					
7	1.2%	14.6%	4%	47%	9	0.2%	1.7%	5%	50%	10	0.6%	6.5%	5%	50%	10	0.7%	2.4%	10%	72%	11	0.2%	-3.1%	10%	47%					
8	1.9%	23.1%	5%	61%	11	-0.1%	-3.5%	6%	53%	Total Test	Avg Ret	Ann Ret	St Dev	% Out Perf.	Total Test	Avg Ret	Ann Ret	St Dev	% Out Perf.	Total Test	Avg Ret	Ann Ret	St Dev	% Out Perf.					
9	2.3%	29.6%	5%	81%	Universe	1.4%	-9.1%	-8.1%	329	Universe	0.2%	-3.2%	-3.0%	378	Universe	-0.5%	-4.8%	-4.7%	342	Universe	0.2%	-6.8%	-6.5%	337					
10	2.5%	32.5%	5%	69%																									
11	3.0%	37.0%	8%	58%																									

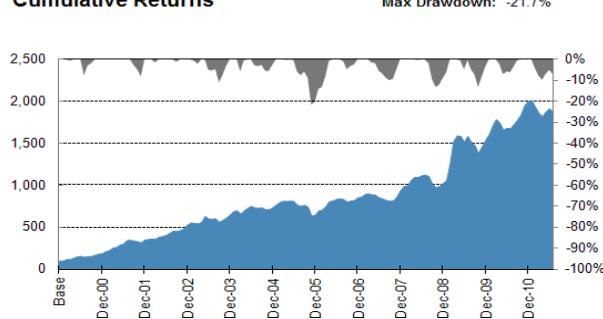
\* assumes Risk Free Rate of 0%



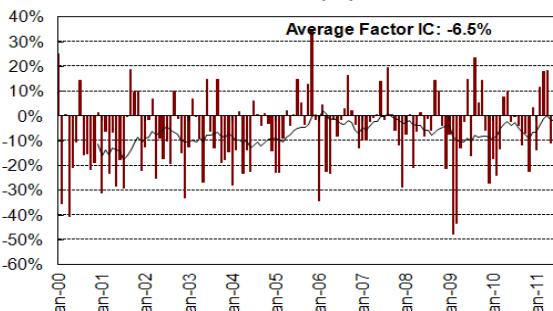
**Portfolio Spread. Annual Returns**



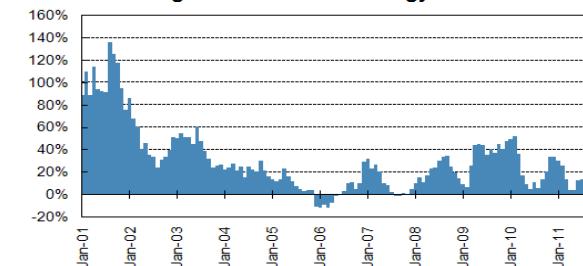
**Cumulative Returns**



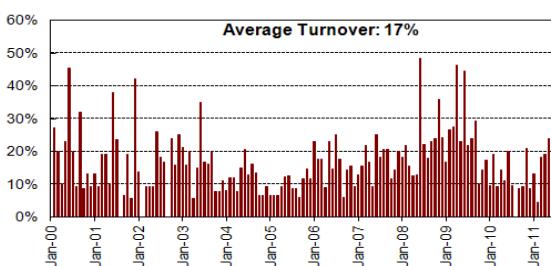
**Information Co-Efficients (IC)**



**12 Month Rolling Returns Of L/S Strategy**



**Turnover within Portfolio 1**

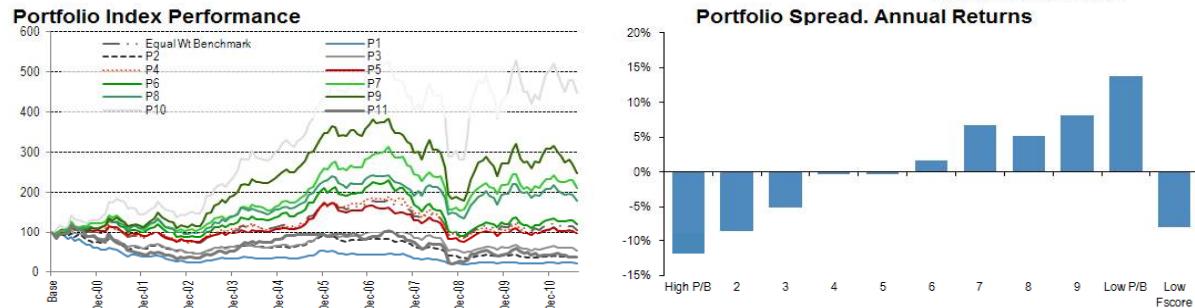


Source: MSCI, Thomson Reuters, J.P.Morgan

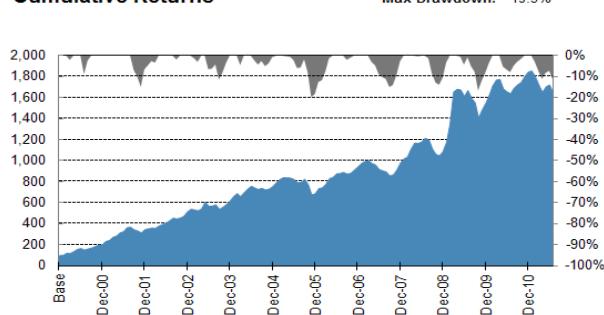
## P/B MSCI Japan (Ex Financials)

P/B MSCI Japan( Ex Financials)																				
3 Year(s): 2002/08/31 to 2005/08/31 Portfolio Statistics					3 Year(s): 2005/08/31 to 2008/08/31 Portfolio Statistics					3 Year(s): 2008/08/31 to 2011/08/31 Portfolio Statistics					Rebalance every 1 month(s) Total Period: 2000/01/31 to 2011/08/31 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%	5.5%	5%	39%	1	-0.5%	-7.7%	6%	33%	1	-0.6%	-8.4%	6%	53%	High P/B	-0.9%	-11.9%	6%	36%	
2	0.6%	6.0%	4%	28%	2	-0.4%	-5.7%	5%	33%	2	-1.2%	-14.9%	6%	36%	2	-0.6%	-8.5%	5%	32%	
3	0.6%	6.0%	5%	31%	3	0.6%	6.0%	5%	56%	3	-1.0%	-13.7%	7%	42%	3	-0.3%	-5.1%	6%	40%	
4	1.2%	13.6%	5%	44%	4	0.3%	2.3%	5%	61%	4	-0.7%	-10.7%	6%	44%	4	0.1%	-0.4%	6%	48%	
5	1.1%	13.2%	4%	50%	5	0.2%	1.1%	5%	42%	5	-0.5%	-8.1%	7%	56%	5	0.1%	-0.3%	5%	48%	
6	1.3%	16.1%	4%	50%	6	0.1%	-0.5%	5%	42%	6	-0.4%	-7.8%	7%	50%	6	0.3%	1.7%	6%	48%	
7	1.5%	19.2%	4%	61%	7	0.7%	7.7%	4%	67%	7	-0.1%	-4.3%	7%	61%	7	0.7%	6.7%	5%	63%	
8	1.4%	16.9%	4%	58%	8	0.5%	5.0%	4%	50%	8	-0.1%	-4.5%	7%	47%	8	0.6%	5.2%	6%	56%	
9	2.3%	29.4%	5%	72%	9	0.3%	2.3%	4%	53%	9	-0.2%	-6.1%	8%	56%	9	0.8%	8.2%	6%	63%	
10	2.4%	30.3%	5%	64%	10	0.8%	8.6%	4%	61%	10	0.4%	0.3%	9%	61%	10	1.3%	13.8%	7%	64%	
11	2.5%	30.7%	7%	56%	11	-0.6%	-9.0%	6%	50%	11	0.1%	-18.2%	17%	53%	Low P/B	0.0%	-7.9%	11%	50%	
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	
1.3%	-9.3%	-8.4%	291	0.3%	-3.8%	-3.8%	322	-0.4%	-4.6%	-4.2%	282	0.2%	-7.1%	-6.8%	289					

\* assumes Risk Free Rate of 0%

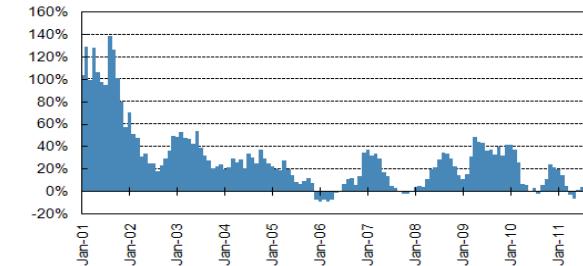


### Cumulative Returns



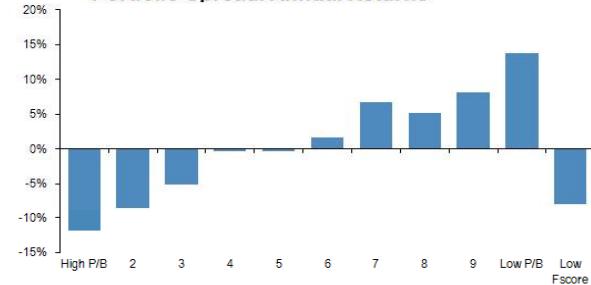
Max Drawdown: -19.5%

### 12 Month Rolling Returns Of L/S Strategy

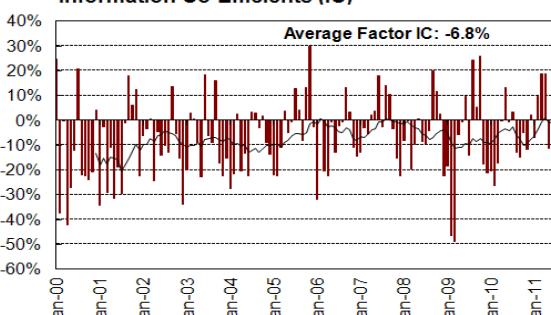


Source: MSCI, Thomson Reuters, J.P.Morgan

### Portfolio Spread. Annual Returns

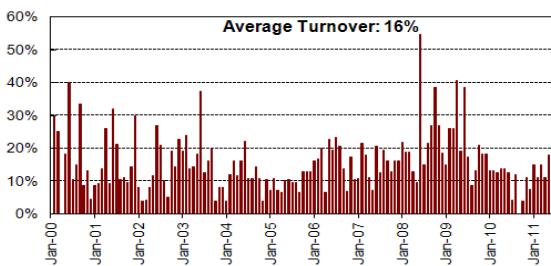


### Information Co-Efficients (IC)



Average Factor IC: -6.8%

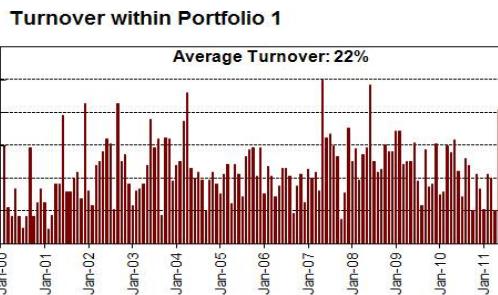
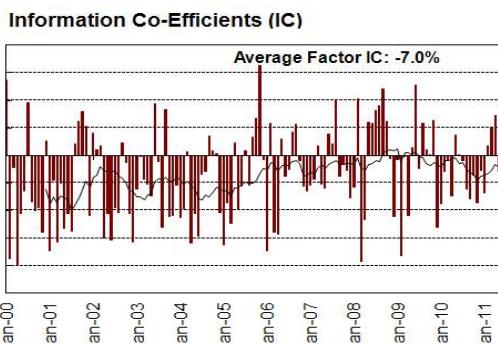
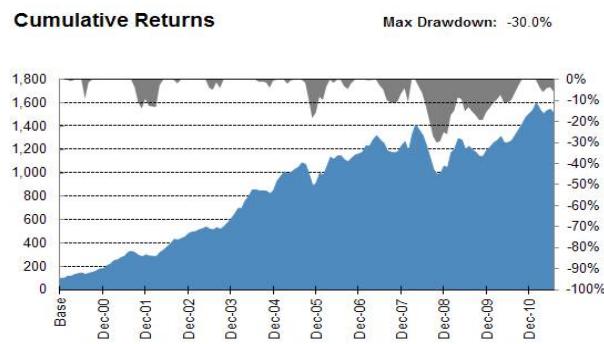
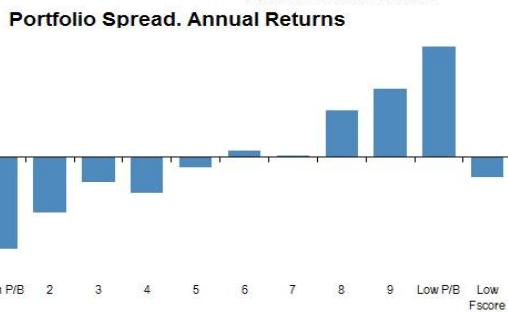
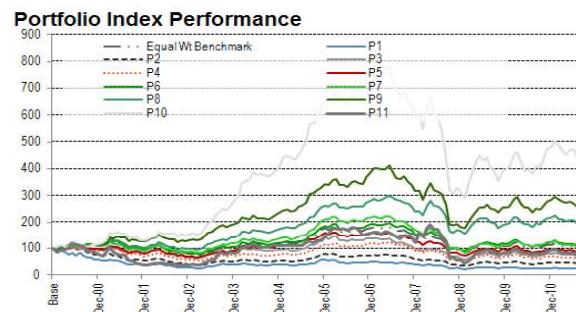
### Turnover within Portfolio 1



Average Turnover: 16%

## Value Composite MSCI Japan (Ex Financials)

Value Composite MSCI Japan(Ex Financials)					Rebalance every 1 month(s)															
3 Year(s): 2002/08/31 to 2005/08/31 Portfolio Statistics					3 Year(s): 2005/08/31 to 2008/08/31 Portfolio Statistics					3 Year(s): 2008/08/31 to 2011/08/31 Portfolio Statistics					Total Period: 2000/01/31 to 2011/08/31 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%	6.1%	5%	44%	1	-0.2%	-4.7%	6%	44%	1	-0.8%	-11.7%	6%	42%	High P/B	-0.8%	-11.3%	6%	40%	
2	0.4%	4.3%	4%	28%	2	0.0%	-1.8%	5%	50%	2	-0.4%	-6.8%	7%	47%	2	-0.4%	-6.8%	6%	37%	
3	0.8%	9.1%	5%	33%	3	-0.1%	-2.9%	5%	44%	3	-0.5%	-8.9%	7%	39%	3	-0.1%	-3.0%	5%	40%	
4	0.7%	7.0%	5%	25%	4	0.1%	-0.3%	5%	53%	4	-0.7%	-10.3%	7%	47%	4	-0.2%	-4.3%	6%	40%	
5	1.2%	14.7%	4%	58%	5	0.0%	-1.8%	5%	44%	5	-0.6%	-9.3%	6%	53%	5	0.0%	-1.3%	5%	51%	
6	1.2%	13.5%	5%	42%	6	0.3%	1.7%	5%	53%	6	-0.5%	-8.4%	6%	36%	6	0.2%	0.8%	5%	45%	
7	1.4%	16.6%	4%	50%	7	0.1%	0.1%	5%	42%	7	-0.8%	-12.6%	7%	42%	7	0.2%	0.3%	6%	47%	
8	1.8%	23.1%	4%	58%	8	0.7%	7.7%	5%	69%	8	-0.5%	-8.3%	7%	58%	8	0.6%	5.8%	6%	63%	
9	2.0%	26.1%	4%	72%	9	0.5%	4.0%	5%	53%	9	-0.2%	-6.0%	7%	58%	9	0.9%	8.4%	6%	60%	
10	3.4%	47.8%	5%	81%	10	0.3%	2.3%	5%	44%	10	-0.2%	-7.0%	9%	64%	11	-0.8%	-19.9%	13%	50%	
11	3.4%	43.1%	9%	58%	11	0.8%	5.1%	10%	50%											
Total Test					Total Test					Total Test					Total Test					
Avg Ret	Avg Rank	Avg IC	Avg Assets		Avg Ret	Avg Rank	Avg IC	Avg Assets		Avg Ret	Avg Rank	Avg IC	Avg Assets		Avg Ret	Avg Rank	Avg IC	Avg Assets		
Universe	1.4%	-12.3%	-11.4%	319	Universe	0.2%	-3.4%	-2.8%	371	Universe	-0.5%	-3.5%	-2.3%	337	Universe	0.2%	-7.7%	-7.0%	327	
Long Short Strategy Statistics Portfolios 1 to 10 less Portfolios 1 to 11					Long Short Strategy Statistics Portfolios 1 to 10 less Portfolios 1 to 11					Long Short Strategy Statistics Portfolios 1 to 10 less Portfolios 1 to 11					Long Short Strategy Statistics Portfolios 1 to 10 less Portfolios 1 to 11					
Avg Ret	Avg S.D.	Avg Perf.			Avg Ret	Avg S.D.	Avg Perf.			Avg Ret	Avg S.D.	Avg Perf.			Avg Ret	Avg S.D.	Avg Perf.			
Long/Short	2.8%	38.3%	4%	78%	Long/Short	0.6%	5.7%	5%	50%	Long/Short	0.6%	6.8%	4%	64%	Long/Short	2.1%	26.45%	5.1%	66%	
Benchmark	2.1%	27.4%	2%	81%	Benchmark	0.2%	1.6%	2%	44%	Benchmark	0.3%	3.5%	3%	64%	Benchmark	1.1%	13.95%	2.9%	65%	
T-Stat Sharpe*	Assets	IR			T-Stat Sharpe*	Assets	IR			T-Stat Sharpe*	Assets	IR			T-Stat Sharpe*	Assets	IR			
Long/Short	4.72	3.1	60	4.1	Long/Short	0.71	0.34	70	0.2	Long/Short	0.90	0.5	58	0.3	Long/Short	4.88	1.51	59	1.4	



Source: MSCI, Thomson Reuters, J.P.Morgan

## P/B MSCI Global Developed (Ex Japan)

3 Year(s): 2002/08/31 to 2005/08/31 Portfolio Statistics					3 Year(s): 2005/08/31 to 2008/08/31 Portfolio Statistics					3 Year(s): 2008/08/31 to 2011/08/31 Portfolio Statistics					Rebalance every 1 month(s) Total Period: 2000/01/31 to 2011/08/31 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%	12.2%	4%	33%	1	0.5%	5.4%	4%	50%	1	0.5%	4.5%	6%	69%	High P/B	0.1%	-0.9%	5%	45%	
2	1.1%	12.8%	4%	33%	2	0.8%	9.2%	4%	50%	2	0.4%	2.2%	6%	61%	2	0.2%	1.5%	5%	44%	
3	1.4%	17.4%	4%	36%	3	0.7%	8.4%	4%	47%	3	0.3%	1.5%	6%	58%	3	0.4%	4.2%	5%	44%	
4	1.5%	18.4%	4%	33%	4	0.5%	5.6%	4%	53%	4	0.3%	1.5%	6%	61%	4	0.5%	4.5%	5%	47%	
5	1.6%	19.3%	4%	50%	5	0.5%	5.9%	3%	44%	5	0.5%	3.5%	6%	58%	5	0.6%	6.0%	5%	53%	
6	1.5%	18.8%	4%	56%	6	0.6%	6.9%	4%	64%	6	0.4%	2.2%	7%	58%	6	0.6%	6.4%	5%	60%	
7	1.8%	23.3%	4%	58%	7	0.5%	5.9%	4%	50%	7	0.1%	-2.1%	7%	31%	7	0.7%	6.5%	5%	53%	
8	2.0%	24.8%	5%	64%	8	0.4%	4.2%	4%	50%	8	0.3%	0.4%	7%	44%	8	0.8%	8.0%	5%	58%	
9	2.0%	24.7%	6%	47%	9	0.2%	1.0%	4%	44%	9	0.4%	1.3%	8%	44%	9	0.8%	7.5%	6%	50%	
10	2.7%	34.4%	6%	67%	10	0.1%	0.2%	5%	42%	10	0.8%	3.2%	11%	42%	10	0.8%	8.5%	8%	51%	
11	3.2%	41.2%	8%	67%	11	-0.5%	-6.8%	5%	42%	11	-0.1%	-11.0%	14%	36%	11	0.6%	2.0%	10%	49%	
Total Test					Total Test					Total Test					Total Test					
Avg Ret	Avg Rank	Avg IC	Avg Assets		Avg Ret	Avg Rank	Avg IC	Avg Assets		Avg Ret	Avg Rank	Avg IC	Avg Assets		Avg Ret	Avg Rank	Avg IC	Avg Assets		
Universe	1.7%	-5.1%	-5.4%	1255	Universe	0.5%	1.7%	2.0%	1477	Universe	0.4%	2.2%	1.9%	1318	Universe	0.6%	-1.7%	-1.8%	1293	

### Long Short Strategy Statistics

Portfolios 1 to 10 less Portfolios 1 to 11

Avg Ret S.D. % Out Perf.

Long/Short 1.7% 20.9% 4% 75%

Benchmark 1.0% 12.3% 2% 67%

T-Stat Sharpe\* Assets IR

Long/Short 2.82 1.7 219 1.5

### Long Short Strategy Statistics

Portfolios 1 to 10 less Portfolios 1 to 11

Avg Ret S.D. % Out Perf.

Long/Short -0.4% -4.8% 3% 47%

Benchmark -0.3% -4.2% 2% 42%

T-Stat Sharpe\* Assets IR

Long/Short -0.79 -0.49 258 -0.7

### Long Short Strategy Statistics

Portfolios 1 to 10 less Portfolios 1 to 11

Avg Ret S.D. % Out Perf.

Long/Short 0.3% 1.0% 7% 33%

Benchmark 0.4% 4.1% 5% 42%

T-Stat Sharpe\* Assets IR

Long/Short 0.26 0.0 206 0.3

### Long Short Strategy Statistics

Portfolios 1 to 10 less Portfolios 1 to 11

Avg Ret S.D. % Out Perf.

Long/Short 0.9% 9.81% 5.1% 57%

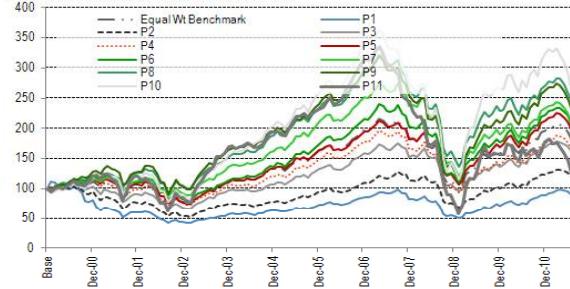
Benchmark 0.4% 4.36% 3.2% 51%

T-Stat Sharpe\* Assets IR

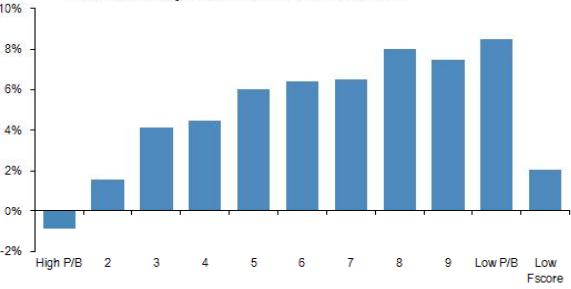
Long/Short 2.11 0.56 217 0.4

\* assumes Risk Free Rate of 0%

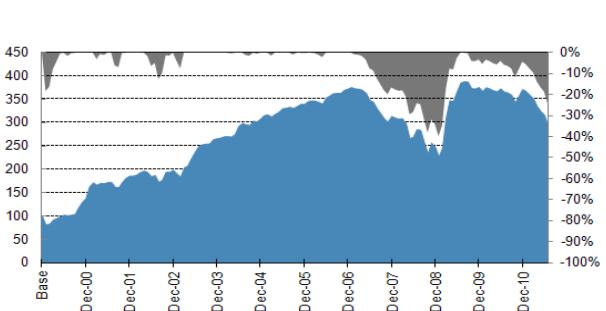
### Portfolio Index Performance



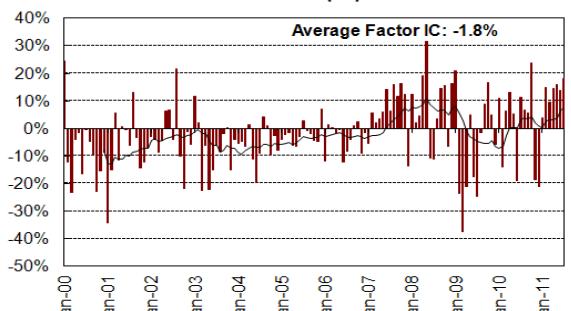
### Portfolio Spread. Annual Returns



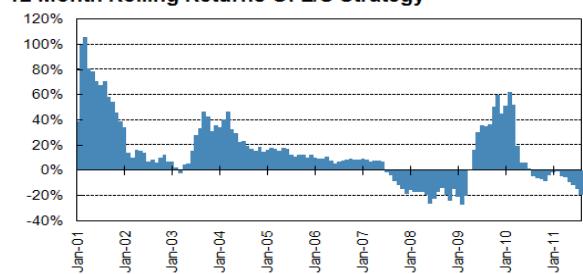
### Cumulative Returns



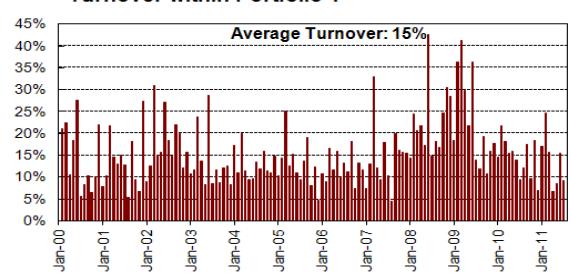
### Information Co-Efficients (IC)



### 12 Month Rolling Returns Of L/S Strategy



### Turnover within Portfolio 1



Source: MSCI, Thomson Reuters, J.P.Morgan

## P/B MSCI Asia (Ex Japan)

P/B MSCI Asia(Ex Japan)					Rebalance every 1 month(s)														
3 Year(s): 2002/08/31 to 2005/08/31 Portfolio Statistics					3 Year(s): 2005/08/31 to 2008/08/31 Portfolio Statistics					3 Year(s): 2008/08/31 to 2011/08/31 Portfolio Statistics					Total Period: 2000/01/31 to 2011/08/31 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%	16.3%	4%	47%	1	1.5%	16.4%	7%	58%	1	1.1%	10.4%	7%	50%	High P/B	0.5%	4.0%	6%	45%
2	1.8%	22.5%	4%	50%	2	1.2%	12.6%	7%	42%	2	1.0%	8.2%	8%	44%	2	0.7%	5.7%	6%	42%
3	1.2%	14.7%	4%	28%	3	1.3%	14.3%	6%	47%	3	1.2%	11.3%	8%	58%	3	0.6%	4.4%	6%	42%
4	1.5%	18.0%	4%	44%	4	1.3%	14.0%	6%	44%	4	0.8%	7.2%	7%	42%	4	0.8%	8.0%	6%	46%
5	2.0%	25.3%	5%	56%	5	1.4%	15.7%	6%	47%	5	0.9%	7.0%	8%	47%	5	0.9%	9.1%	6%	47%
6	1.5%	18.7%	4%	33%	6	1.5%	17.0%	5%	50%	6	1.2%	11.5%	8%	64%	6	1.1%	11.9%	6%	51%
7	1.8%	22.8%	5%	44%	7	1.6%	17.9%	6%	50%	7	1.3%	11.7%	8%	56%	7	1.3%	13.4%	7%	53%
8	2.1%	26.2%	5%	56%	8	1.2%	13.4%	5%	42%	8	1.2%	10.6%	9%	53%	8	1.3%	13.9%	7%	53%
9	1.9%	22.8%	6%	50%	9	1.5%	17.3%	5%	44%	9	1.2%	9.8%	9%	42%	9	1.4%	14.3%	7%	48%
10	3.0%	39.5%	6%	75%	10	2.0%	23.8%	6%	47%	10	2.1%	21.5%	10%	53%	10	2.2%	23.9%	9%	58%
11	1.6%	17.7%	7%	44%	11	0.5%	3.5%	6%	39%	11	1.2%	8.1%	11%	47%	Low P/B	0.9%	6.1%	9%	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	1.8%	-1.3%	-2.3%	480	Universe	1.4%	-0.1%	-0.3%	586	Universe	1.2%	0.6%	-0.2%	561	Universe	1.0%	-1.5%	-2.2%	531

### Long Short Strategy Statistics

Portfolios 1 to 10 less Portfolios 1 to 11

Avg Ret S.D. % Out Perf.

Long/Short 1.7% 20.7% 4% 67%

Benchmark 1.2% 15.3% 3% 75%

T-Stat Sharpe\* Assets IR

Long/Short 2.48 1.5 84 1.7

### Long Short Strategy Statistics

Portfolios 1 to 10 less Portfolios 1 to 11

Avg Ret S.D. % Out Perf.

Long/Short 0.4% 4.4% 4% 44%

Benchmark 0.6% 6.7% 2% 47%

T-Stat Sharpe\* Assets IR

Long/Short 0.62 0.29 104 0.8

### Long Short Strategy Statistics

Portfolios 1 to 10 less Portfolios 1 to 11

Avg Ret S.D. % Out Perf.

Long/Short 1.0% 11.2% 5% 53%

Benchmark 1.0% 11.4% 4% 53%

T-Stat Sharpe\* Assets IR

Long/Short 1.13 0.6 91 0.9

### Long Short Strategy Statistics

Portfolios 1 to 10 less Portfolios 1 to 11

Avg Ret S.D. % Out Perf.

Long/Short 1.6% 19.19% 5.5% 58%

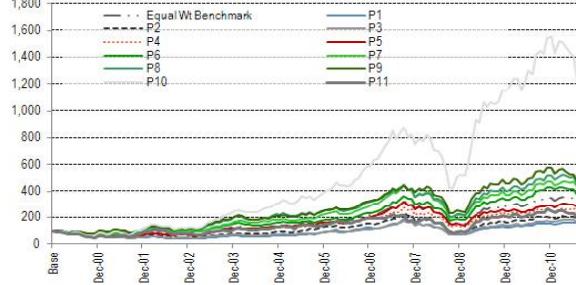
Benchmark 1.1% 13.49% 3.7% 58%

T-Stat Sharpe\* Assets IR

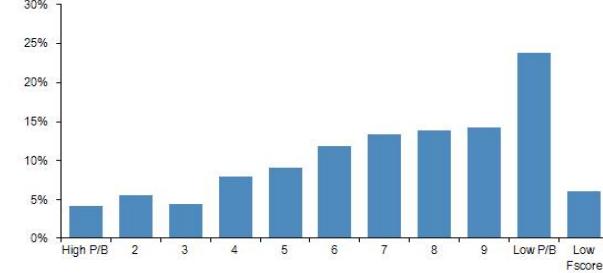
Long/Short 3.47 1.01 89 1.0

\* assumes Risk Free Rate of 0%

## Portfolio Index Performance

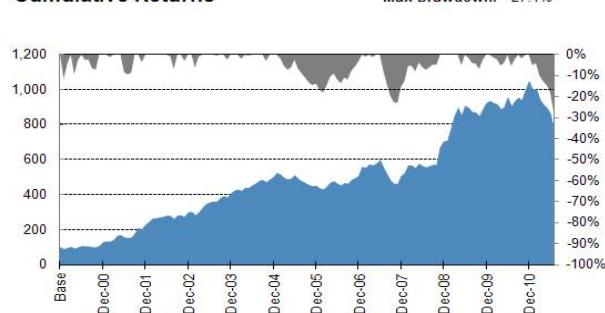


## Portfolio Spread. Annual Returns

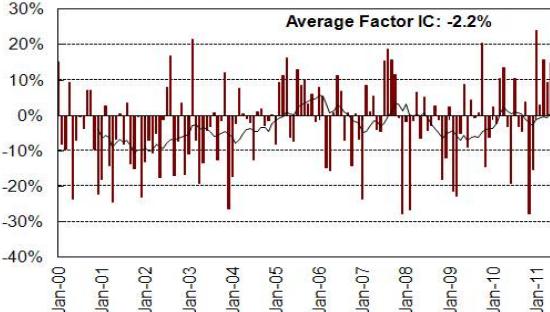


## Cumulative Returns

Max Drawdown: -27.1%



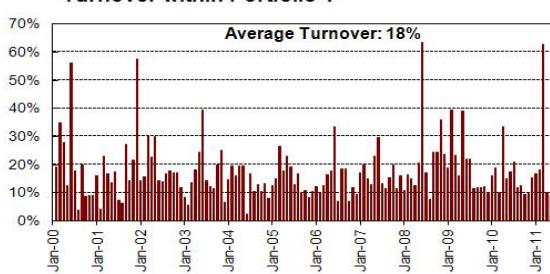
## Information Co-Efficients (IC)



## 12 Month Rolling Returns Of L/S Strategy



## Turnover within Portfolio 1

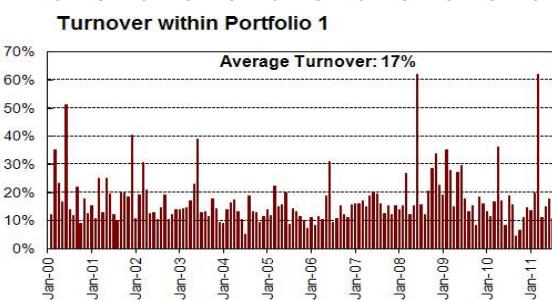
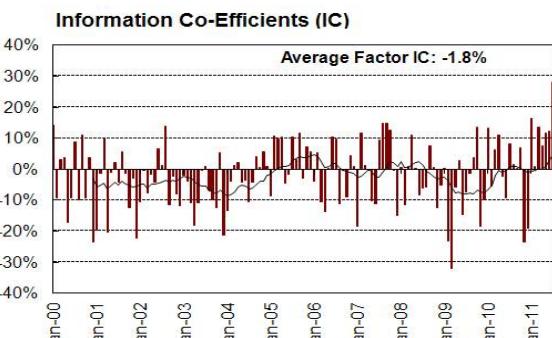
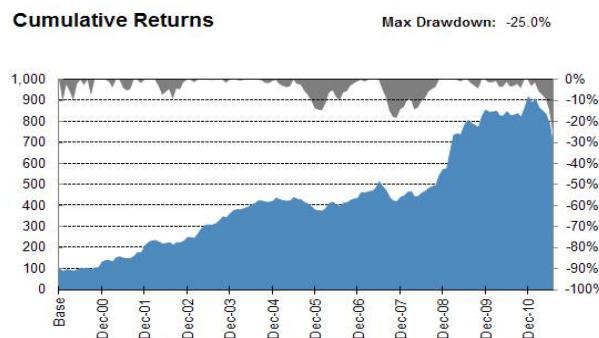
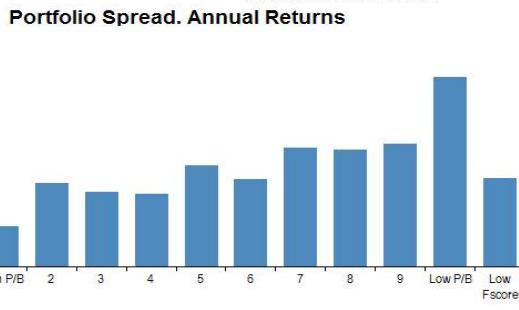
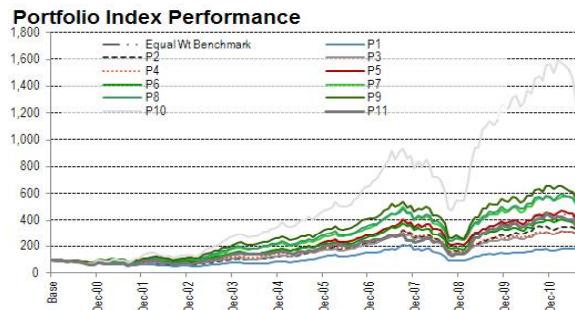


Source: MSCI, Thomson Reuters, J.P.Morgan

## P/B MSCI Emerging

P/B MSCI Emerging					Rebalance every 1 month(s)															
3 Year(s): 2002/08/31 to 2005/08/31 Portfolio Statistics					3 Year(s): 2005/08/31 to 2008/08/31 Portfolio Statistics					3 Year(s): 2008/08/31 to 2011/08/31 Portfolio Statistics					Total Period: 2000/01/31 to 2011/08/31 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%	18.9%	4%	36%	1	1.4%	15.7%	6%	53%	1	0.8%	7.1%	7%	47%	High P/B	0.6%	5.3%	6%	41%	
2	2.1%	27.7%	4%	47%	2	1.6%	19.1%	6%	58%	2	1.1%	10.7%	7%	47%	2	1.0%	10.8%	6%	47%	
3	2.1%	27.8%	4%	47%	3	1.2%	13.9%	5%	47%	3	1.0%	9.6%	7%	50%	3	0.9%	9.8%	6%	47%	
4	2.0%	26.4%	4%	39%	4	1.4%	16.0%	5%	47%	4	0.6%	4.8%	7%	33%	4	0.9%	9.5%	6%	41%	
5	2.2%	29.1%	4%	56%	5	1.7%	19.9%	5%	56%	5	1.0%	8.8%	7%	53%	5	1.2%	13.2%	6%	55%	
6	2.2%	28.4%	4%	39%	6	1.2%	13.4%	5%	47%	6	0.9%	7.7%	7%	39%	6	1.1%	11.4%	6%	42%	
7	2.3%	30.6%	4%	56%	7	1.4%	16.1%	5%	50%	7	1.4%	13.7%	7%	72%	7	1.4%	15.4%	6%	60%	
8	2.4%	31.9%	4%	44%	8	1.4%	16.8%	5%	56%	8	1.2%	10.3%	8%	56%	8	1.4%	15.2%	6%	53%	
9	2.7%	36.1%	5%	58%	9	1.3%	15.5%	5%	53%	9	1.1%	9.2%	9%	42%	9	1.5%	15.9%	7%	51%	
10	3.4%	46.8%	6%	75%	10	1.7%	20.3%	6%	56%	10	2.0%	21.1%	9%	58%	10	2.1%	24.4%	8%	62%	
11	2.3%	29.0%	6%	47%	11	1.2%	13.0%	5%	44%	11	1.7%	14.9%	11%	50%	11	1.2%	11.5%	8%	47%	
Total Test					Total Test					Total Test					Total Test					
Avg Ret	Avg Rank	Avg IC	Avg Assets		Avg Ret	Avg Rank	Avg IC	Avg Assets		Avg Ret	Avg Rank	Avg IC	Avg Assets		Avg Ret	Avg Rank	Avg IC	Avg Assets		
Universe	2.3%	-1.9%	-3.0%	694	Universe	1.4%	0.5%	0.1%	848	Universe	1.1%	0.0%	-0.8%	766	Universe	1.2%	-1.0%	-1.8%	768	
Long Short Strategy Statistics Portfolios 1 to 10 less Portfolios 1 to 11					Long Short Strategy Statistics Portfolios 1 to 10 less Portfolios 1 to 11					Long Short Strategy Statistics Portfolios 1 to 10 less Portfolios 1 to 11					Long Short Strategy Statistics Portfolios 1 to 10 less Portfolios 1 to 11					
Avg Ret	Avg S.D.	Avg Perf.			Avg Ret	Avg S.D.	Avg Perf.			Avg Ret	Avg S.D.	Avg Perf.			Avg Ret	Avg S.D.	Avg Perf.			
Long/Short	1.9%	24.2%	3%	64%	Long/Short	0.3%	2.8%	3%	56%	Long/Short	1.2%	13.7%	5%	61%	Long/Short	1.5%	18.16%	5.1%	60%	
Benchmark	1.1%	13.9%	2%	75%	Benchmark	0.3%	3.3%	2%	56%	Benchmark	0.9%	10.7%	3%	58%	Benchmark	0.9%	11.27%	3.3%	62%	
T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		T-Stat	Sharpe*	Assets	IR		
Long/Short	3.48	2.2	121	1.9	Long/Short	0.51	0.24	151	0.5	Long/Short	1.43	0.8	124	1.0	Long/Short	3.54	1.03	128	1.0	

\* assumes Risk Free Rate of 0%



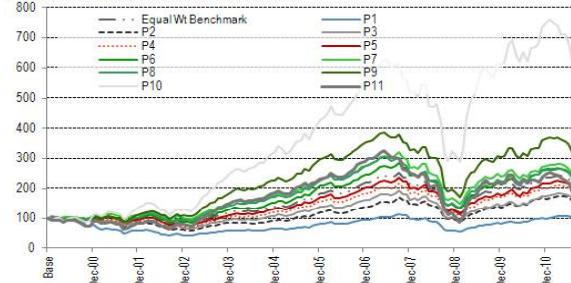
Source: MSCI, Thomson Reuters, J.P.Morgan

## P/B MSCI World

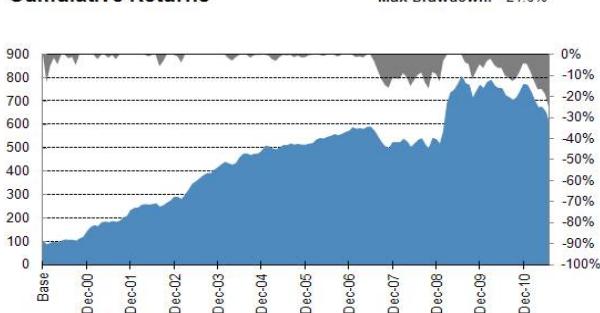
P/B MSCI World																			
3 Year(s): 2002/08/31 to 2005/08/31				3 Year(s): 2005/08/31 to 2008/08/31			3 Year(s): 2008/08/31 to 2011/08/31				Rebalance every 1 month(s)								
Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.	Port	Avg Ret	Ann Ret	St Dev	% Out Perf.
1	1.2%	14.0%	4%	33%	1	0.7%	8.2%	4%	50%	1	0.6%	5.2%	6%	61%	High P/B	0.1%	0.2%	5%	42%
2	1.3%	15.6%	4%	31%	2	0.9%	10.9%	4%	50%	2	0.5%	4.4%	6%	58%	2	0.5%	4.2%	5%	44%
3	1.5%	18.9%	4%	33%	3	0.7%	7.9%	4%	53%	3	0.5%	3.3%	6%	61%	3	0.5%	4.7%	5%	45%
4	1.6%	20.3%	4%	42%	4	0.7%	8.4%	4%	47%	4	0.4%	2.5%	6%	50%	4	0.6%	5.6%	5%	47%
5	1.6%	19.6%	4%	39%	5	0.8%	8.9%	4%	56%	5	0.4%	1.7%	7%	44%	5	0.6%	6.2%	5%	49%
6	1.8%	22.5%	4%	53%	6	0.8%	8.7%	4%	56%	6	0.4%	2.0%	7%	50%	6	0.7%	7.7%	5%	55%
7	1.9%	24.0%	4%	61%	7	0.7%	7.1%	4%	53%	7	0.3%	0.7%	7%	39%	7	0.8%	8.2%	5%	56%
8	1.9%	24.1%	4%	56%	8	0.6%	6.5%	4%	42%	8	0.3%	0.6%	7%	44%	8	0.7%	7.6%	5%	51%
9	2.4%	32.1%	4%	67%	9	0.6%	6.3%	4%	47%	9	0.4%	1.4%	8%	39%	9	1.0%	10.4%	5%	54%
10	3.1%	41.3%	5%	72%	10	0.9%	10.0%	5%	61%	10	1.1%	8.2%	9%	47%	Low P/B	1.6%	16.9%	7%	61%
11	3.2%	42.4%	6%	69%	11	0.2%	0.7%	5%	36%	11	0.4%	-3.5%	12%	33%	Low Fscore	0.8%	5.8%	8%	45%
Total Test				Total Test				Total Test				Total Test				Total Test			
Avg Ret	Avg Rank	Avg IC	Avg Assets	Avg Ret	Avg Rank	Avg IC	Avg Assets	Avg Ret	Avg Rank	Avg IC	Avg Assets	Avg Ret	Avg Rank	Avg IC	Avg Assets	Avg Ret	Avg Rank	Avg IC	Avg Assets
Universe	1.8%	-4.4%	-5.1%	2277	Universe	0.7%	0.9%	0.6%	2703	Universe	0.5%	1.8%	1.3%	2427	Universe	0.7%	-1.4%	-2.0%	2398

\* assumes Risk Free Rate of 0%

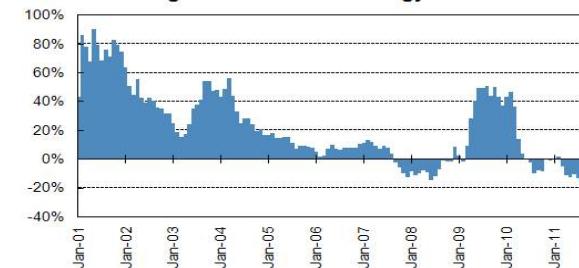
### Portfolio Index Performance



### Cumulative Returns

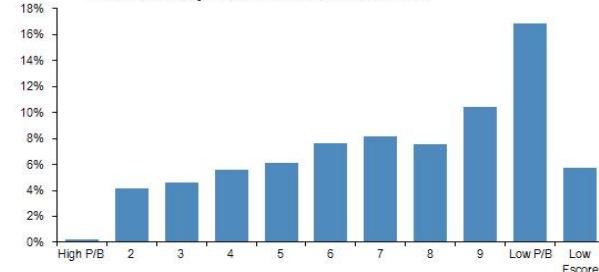


### 12 Month Rolling Returns Of L/S Strategy

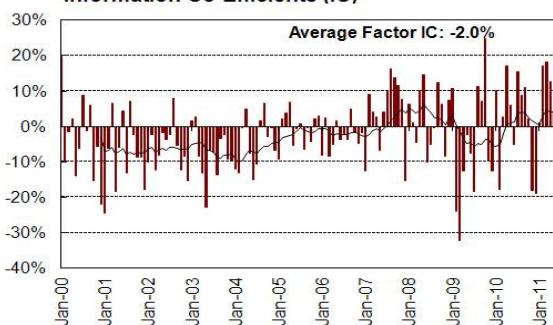


Source: MSCI, Thomson Reuters, J.P.Morgan

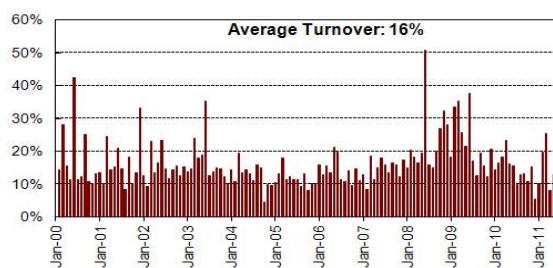
### Portfolio Spread. Annual Returns



### Information Co-Efficients (IC)



### Turnover within Portfolio 1



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20 September 2011

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