Testing global equity strategies in extreme markets

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The extreme volatility that followed the collapse of Lehman Brothers last year provided an ideal climate for Habib Subjally, ASIP, Dag Wetterwald and Perry Winfield to assess the performance of a variety of investment management strategies

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Since the collapse of Lehman Brothers in September 2008 the financial markets environment has been among the most volatile in living memory. As such, it represents an ideal climate under which to assess the relative effectiveness of the various strategies available to a portfolio manager.

We developed a portfolio simulation framework that allows us to study the return characteristics of different portfolio management strategies under different assumptions, such as skill level and portfolio construction method. Using this framework we tested a number of different investment management strategies over this period of extreme market volatility, namely:

EXECUTIVE SUMMARY

- Sector allocation skill is of limited value to a global portfolio manager
- Stock selection is the primary source of generating consistent outperformance
- Unconstrained bottom up stock picking is exceptionally risky with significant unrewarded risk

- **Top Down:** sector allocation with bottom up stock picking;
- **Sector Neutral:** bottom up stock picking with sector neutrality;
- **Unconstrained:** bottom up stock picking without sector constraints;
- **Sector Allocation:** sector allocation with passive stock selection .

In the course of our analysis, we adopted the following assumptions:

- multiple simulations of each strategy;
- monthly rebalancing;
- same skill level and level of uncertainty in decision making;
- MSCI World index constituents as the universe;
- period covered August 31, 2008, to September 30, 2009;
- Sector allocation decisions restricted to +/– 5% of sector index weight (no restriction for Unconstrained Strategy);
- Portfolio construction; market capitalisation (free float) weighted.

Our objective was to study the behaviour of each of the four strategies during this period of high volatility. Since we postulated a degree of skill in

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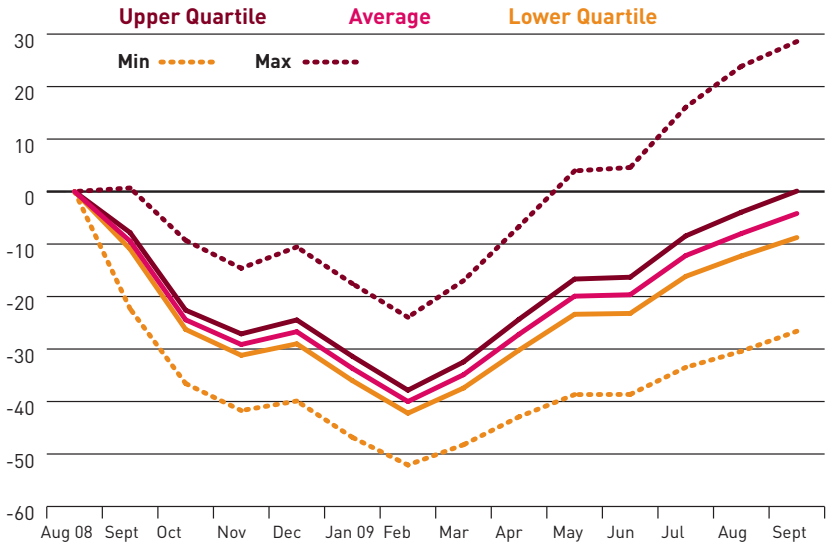
TABLE 1: RETURN CHARACTERISTICS OF SIMULATED PORTFOLIOS OVER THE PERIOD AUGUST 31, 2008, TO SEPTEMBER 30, 2009*

	Top-down	Sector neutral	Uncon-strained	Sector allocation
Average return	-4.18%	-5.30%	-6.18%	-11.47%
MSCI World Index	-13.29%	-13.29%	-13.29%	-13.29%
Average excess return	9.11%	7.99%	7.12%	1.83%
Minimum excess return	-13.32%	-13.62%	-24.84%	-6.80%
Maximum excess return	41.87%	35.16%	49.74%	11.36%
Upper quartile excess return	13.38%	12.23%	13.57%	3.43%
Lower quartile excess return	4.53%	3.46%	-0.09%	0.15%
Information ratio	1.39	1.22	0.71	1.47
Tracking error	6.54%	6.56%	9.99%	0.56%
Number of portfolios	20,000	20,000	20,000	20,000

Source: First State Investment, own simulation models and Thomson QA Direct. **Date:** November 2009
* All returns in US$.

FIGURE 1: TOP DOWN STRATEGY



"In our opinion sector neutrality is an attractive solution"

PROFILE – FACT BOX

Habib Subjally, ASIP

Career highlights:

Habib Subjally, ASIP, joined First State Investments in April 2006. He previously worked as head of small and mid cap research at Credit Suisse Europe, and head of the global equities team at INVESCO Asset Management. Before this he worked at Merrill Lynch Investment Managers (formerly Mercury Asset Management), where, as the head of North American and global equities research, he developed and managed the concentrated global equity product including the Mercury Global Titans Fund. He began his career as a chartered accountant specialising in the insurance industry at Ernst & Young. He holds a BSc from the London School of Economics and is also a chartered accountant.

decision-making in all the strategies studied, a positive active return is expected for each strategy. Hence, the focus of our study is the risk/return profile of each strategy.

We simulated 20,000 portfolios per month for each strategy. The assumed expected level of skill for all decisions was 0.05 (information coefficient). To approximate the real world (uncertainty) we actually used a uniform distribution of skill levels ranging from -0.05 to +0.15. We also assumed that all the stock picking strategies covered a randomly drawn list of approximately 300 stocks, including the 50 largest stocks in the MSCI World index. Each of the stock picking portfolios consisted of 50 stocks.

On a monthly basis we computed the

PROFILE – FACT BOX

Dag Wetterwald

Career highlights:

Dag Wetterwald joined First State in October 2006 from Dimensional Fund Advisors (DFA), where he had held a research role between 2002 and 2006. Before joining DFA, Dag held various investment roles at Carnegie Asset Management in Scandinavia, and was a researcher at Statistics Norway. Dag holds a masters degree in Finance from the London Business School and an MSc in Economics from the University of Oslo (1993).

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FIGURE 2: SECTOR NEUTRAL

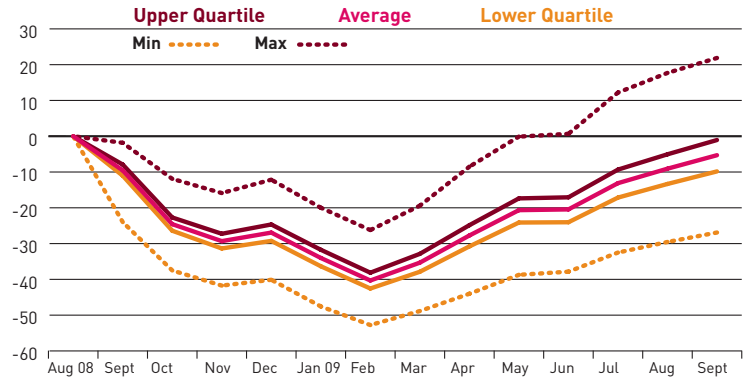


FIGURE 3: BOTTOM UP STRATEGY

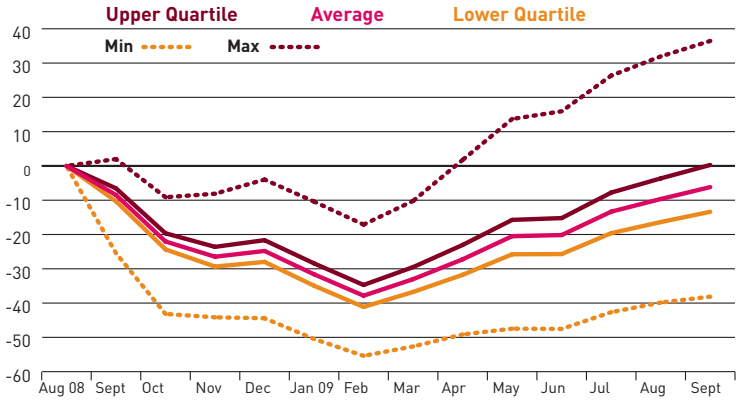
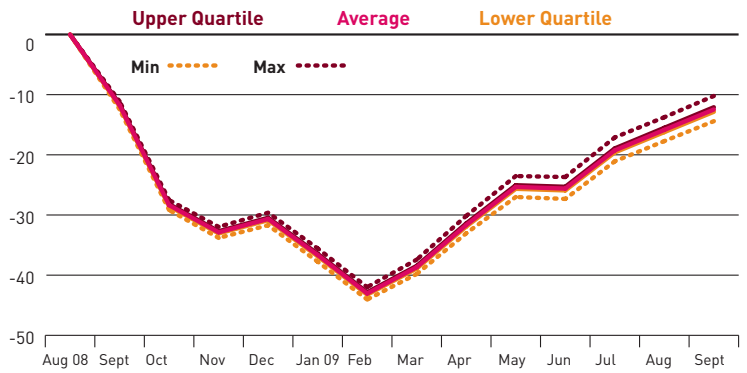


FIGURE 4: SECTOR ALLOCATION



"For sector allocation to add significant outperformance, the size of the sector bets would need to be huge"

actual returns for all the simulated portfolios. This resulted in 20,000 portfolio returns per strategy, per month. For each simulated portfolio the monthly returns were linked to generate full period returns. The results of these simulations are set out in *table 1*.

What stands out from these findings is although we assumed what is considered to be a modest level of skill, the actual outperformance for all the strategies is remarkably high. While the average return for each strategy beat the market by a considerable margin, the range of outcomes is eye-wateringly large.

Comparing the four strategies we make the following observations:

The **Top Down** strategy has clearly delivered the best average excess returns. This should not be surprising given that we assumed that skill is being applied at two levels (i.e. sector allocation and stock picking). In addition risk-adjusted returns were very good (Information Ratio of 1.39).

Given that only one level of skill was applied, it is remarkable that the **Sector Neutral** strategy generated a risk-adjusted return as close to that of the Top Down strategy (Information Ratio of 1.22). Bear in mind that this strategy would have maintained a full weighting to financials and other cyclical sectors throughout this period.

The **Unconstrained** strategy also produced a high excess return. However, the risk level associated with the strategy raises questions about its competitiveness. The information ratio is significantly lower than the other two stock picking strategies. This strategy also produced the best and the worst simulated portfolios in terms of excess return.

One would have thought that **Sector Allocation** would be a highly profitable strategy given that the credit crunch emanated from specific sectors. Intuitively one may think that that the opportunity to underweight sectors such as financials and consumer discretionary (autos, housing etc) would have generated massive outperformance during this period. Although this strategy has the highest information ratio, the excess return was modest compared to the other strategies. It will be an interesting topic for further research to study the risk/reward implications of relaxing the portfolio construction parameters.

WHAT CONCLUSIONS CAN WE DRAW FROM THIS?

First of all, sector allocation skill was of limited value to a global portfolio manager even in such a volatile environment. For the sector allocation strategy to add significant outperformance, the size of the sector bets would need to be huge.

Second, across all the strategies evaluated the vast majority of outperformance comes from stock selection. However, unconstrained bottom up stock picking is an exceptionally risky business with significant unrewarded risk.

The best strategy lies somewhere in between Sector Allocation and Unconstrained stock picking. Sector Neutral and Top Down offer high excess average returns and information ratios. What may surprise many readers is that the pure Sector Neutral strategy came very close to the Top Down strategy.

While portfolio managers have a range of strategies available to them, we believe that stock selection is the primary source of generating consistent outperformance. Unfortunately, unconstrained stock picking does not generate sufficient returns to compensate for the risks taken. Therefore it is essential to focus not only on the returns but also on the risks inherent in stock picking. In our opinion, sector neutrality is an attractive solution. If asset allocation is required, we believe that it is important to deploy and measure asset allocation and stock picking skills separately. PI

PROFILE – FACT BOX

Perry Winfield

Career highlights:

Perry Winfield joined First State in May 2005. He has over fifteen years of equity markets experience, mostly covering pan-European and emerging markets. He joined from JPMorgan after a time in investment banking. Before this he led the European building/construction equities research team at JPMorgan (formerly Flemings). Most of the period from 1993 to 1999 was spent in New York covering Latin American markets at Salomon Brothers and Paribas, where he was also director of research. He began his career at Hill Samuel Investment Management. Perry has a degree in economic history from Durham University.