INSIDE TRACK: CAMOMILLE

A systematic strategy can avoid complexity and offer transparency and understanding if it follows observable behavioural concepts, writes Camomille's Richard Hutchings.

Sell-off, consolidation, recovery…

When attempting to explain and understand why markets sell off, it becomes apparent that, although easily observed and explained after the event, market sell-offs are almost impossible to predict.

Didier Sornette (*Why Stock Markets Crash*) echoes this when he writes that bubbles do not burst because of the significance of a single event, but rather because market participants have become "irrationally exuberant" and, as such, market conditions have developed unsustainably. When the bubble finally bursts, the last piece of information that breaks the camel's proverbial back, often given so much weight with hindsight, is actually largely inconsequential in itself.

However unpredictable the sell-off might be, what we do know for certain is that once it has happened, markets will always recover either fully, or enough so that we can profit.

The Camomille Leveraged Opportunities Fund is a proprietary, systematic, behavioural-based program designed specifically to offer superior risk-adjusted absolute returns. Camomille's fund trades a maximum of 20 equity index and oil futures. Long positions are traded on a twice-leveraged basis and short positions are unleveraged. The formulation of the strategy spans two decades of empirical observations of equity market behaviour.

We are not trying to predict bubbles, or crashes. We are proposing that once these events have occurred, markets behave in a predictable way, and that is where we aim to capitalise – on the recovery.

Our empirical observation

and initial research led us to ask why this pattern occurs and why the recovery can be so predictable. Research into the psychology of markets tells us that equity markets in particular are governed by the madness of crowds, repeatedly displaying herd behaviour. In the field of psychology, research by Yannis Georgellis has supported the theory of humans operating according to a "thermostat of happiness", stating that after a significant event, positive or negative, we return to a state of mental equilibrium after a surprisingly short period of time. This is an evolutionary development to manage emotional well-being and mental health. Translate this to the markets and, following financial pain from a sell-off, the 'herd' soon regains its confidence and stimulates the market into recovery.

So what constitutes a market correction? Each of the markets within the strategy's universe has its own unique set of algorithms that identify a specific rate of sell-off that determines a correction or 'trigger' event.

In 2011, we applied our theory by extensively testing 50 major global equity markets covering more than 1,500 years of data to determine if the 'sell-off, consolidation and recovery' pattern of markets was in fact predictable, and possible to model.

Interestingly, our results showed that markets showed signs of selling off more regularly than expected, on average three to four times a year with a predictable recovery pattern. We observed markets repeatedly selling off, consolidating over two months, then recovering in the third month after the sell-off.

By mapping this behaviour, we were able to create a model with an expected win rate of more than 60%, a ratio that we have managed to achieve through live performance since 2011. An additional boost to this favourable win ratio is that wins are typically 50% larger than losses.

How do we differ from other systematic strategies? Human behaviour is persistent, sculpted by thousands of years of evolution, and thus our capitalisation of this pattern is where we differentiate from traditional systematic strategies – we are not seeking fleeting correlations or relationships within markets; the specific human behaviour we are focused on, as reflected in the markets, is a constant. Hence there is longevity. Also while classical systematic strategies use advanced scientific and programming expertise to find patterns in markets through data mining, subsequently attempting to attribute explanations to them, we have worked in the opposite direction. Rather than fit explanations to patterns, we have targeted patterns that fit our explanations.

We believe having this intuitive story behind the data not only

Three-month sell-off and recovery pattern
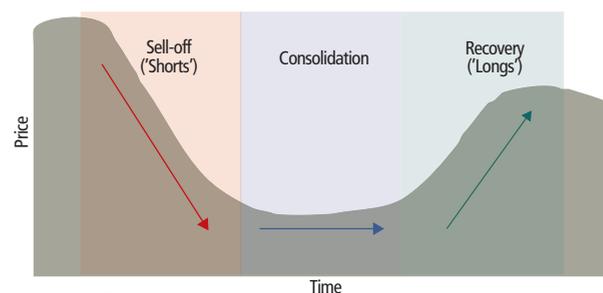
Source: Camomille.

provides a stronger foundation for persistent long-term performance, but it also enables investors to fully understand and buy into the concept.

What are the advantages to employing this approach? First, if you want to outperform the market you need to take alternative risks to what the herd is doing. Second, a portfolio must have a risk budget that should be used wisely. There are times when it is better to be exposed to risk than other times. To expand on this it is not necessary to be exposed to the same level of risk all the time. If we know that markets always recover after a sell-off and have 60% confidence of when best to invest, why not aim to avoid the sell-off by sitting in cash and invest heavily into the predicted recovery? What we aim to do is use a finite risk budget as effectively as possible, getting maximum return for each unit of risk exposed. Although our risk exposure may go as high as 200%, the expected average exposure is only 95% due to the times we are sitting risk-free and waiting. We have no obligation to be exposed to risk all of the time.

In the construction of our model, a key objective was to maximise the Sortino ratio even at the expense of pure return metrics. Although performing well in bull markets is important and we expect to do so, what is critical is outperforming and making money in bear markets, minimising our downside risk. Camomille's strategy significantly outperforms equities during bear markets, the most critical periods to many investors. This is intuitive, as capital is not allocated to risk assets until after corrections, at which time it is readily available to benefit from the subsequent recovery.

The strategy has a low correlation, over the long term, with the equity markets in which we invest. In the graphs, the simulated performance in the bull and bear market periods against the S&P 500 index demonstrate the strategy's ability to outperform in a bear market and to keep pace during bull periods.

Although our live performance has not thus far given us the expected returns of 20%, we have achieved expected Sharpe and Sortino ratios of 1.1 and 2.3. Over the last two years our annualised volatility has been half what we expect at 7.6%.

What about back-testing? An important aspect of our model that applies to all systematic strategies is the reliance on back-testing. Although all weaknesses associated with back-testing cannot be eliminated, we have mitigated them in a number of ways. Initially, we back-tested all available data over as long a period as was possible, rather than being selective or cherry-picking. Subsequently, in the construction of our model we have applied our algorithms on a consistent basis from 1970 to 2012. To add further validity we applied K-fold cross-validation – statistical testing – to our algorithms, which verifies out-of-sample persistence. This gave us additional comfort that our live algorithms are robust and can be expected to perform going forward.

By investing in global equity index and oil futures the strategy is designed to be highly liquid, cost-efficient and operates in markets that are governed by the collective, removing any specific risks or noise that might interfere with the strategy's overall theory. Included in our universe are major indexes from the US, Canada, UK, Germany, Sweden, Mexico, Hong Kong, Italy, the Netherlands, Mexico, Brazil, Taiwan and South Africa.

In terms of allocation between markets, we adopt a 'smart beta' approach. Starting from an equal weighting, each index is then adjusted relatively up or down based on a matrix of metrics ranging from volatility all the way to correlation and return over maximum drawdown.

Although the fund has a long bias, it also takes selective short positions that act as an effective insurance policy against market crashes. Their activation requires

Bull market returns
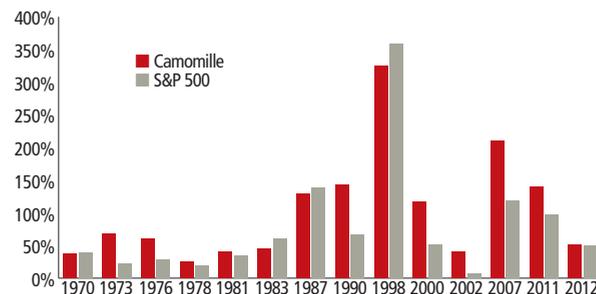
Source: Camomille.

Bear market returns
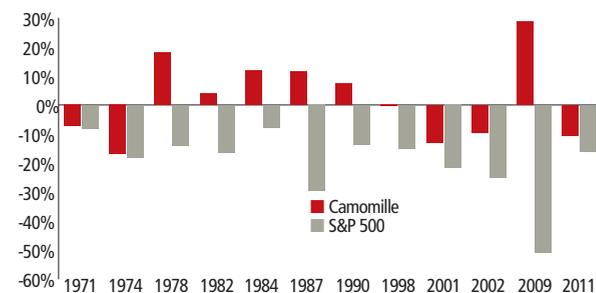
Source: Camomille.

a sharper sell-off than for the long 'triggers' and the short holding period is only one week.

While it is human nature to believe that major socioeconomic and political events, as well as various technological advances within financial markets, render this a unique time for global or, indeed, regional markets, we refute the line that 'it's different this time'. The financial crisis of 2008 may have been a catastrophic time in the financial markets but so was the 1973-74 stockmarket crash, the 1987 crash, the Asian financial crisis in 1997, the Russian crisis in 1998 and the dotcom bubble bursting in 2000-01. In every case, markets recovered and, to a large extent, showed that the sharper the sell-off, the sharper the eventual recovery. It is no surprise therefore that when the strategy was back-tested, the largest drawdowns were followed by the largest periods of gains. ∎

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