

# Getting carried away with currency carry

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Schroder Investment Management North America Inc.  
875 Third Avenue, New York, NY 10022  
(212) 641-3800



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## Talk outline

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- **What** is currency carry?
- **How** does currency carry work?
- **Why** does currency carry work?
  - What behaviors create a carry opportunity?
    - Understand it better
    - Benefit more from carry

## What is currency carry?

### The simple, traditional approach

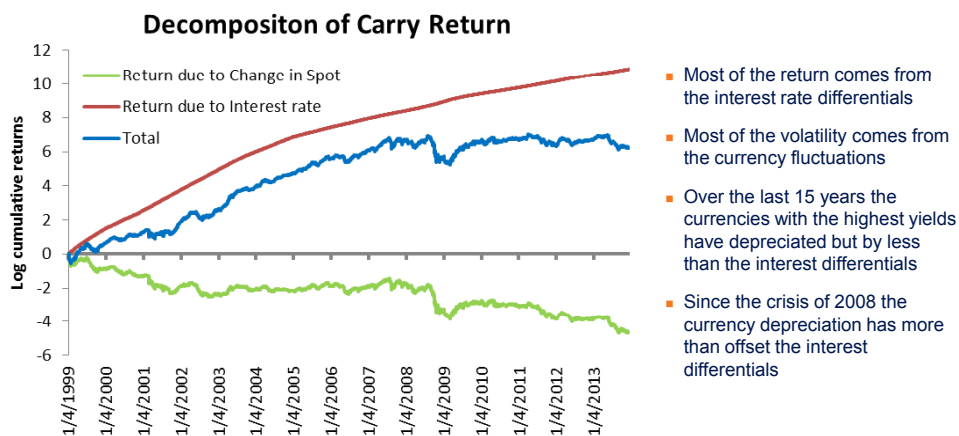
- Simplest currency carry is
  - Buy high yielding currencies (high cash rates) and sell low yielding currencies (low cash rates)
  - With the hopes of capturing some of the interest differential allowing for foreign exchange movements
- Recent yield spreads
  - Developed markets cash rates range from 0.0% to 2.7% (Switzerland / New Zealand)
  - Emerging markets cash rates range from 0.4% to 10.0% (Czech to Brazil)
  - Global markets cash rates range from 0.0% to 10.0%

Source: Bloomberg, various Central Bank Web pages, Schroders.

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## How does currency carry work?

### Pretty well, when it works



Sources: Bloomberg, various Central Bank Web pages, Schroders. January 1999- December 2013

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## Why does currency carry work?

Hmmmm...

- Some ideas
  - Who cares? It works!
  - Uncovered interest parity fails (but why?)
  - It is compensation for some risk being born (liquidity, ...)

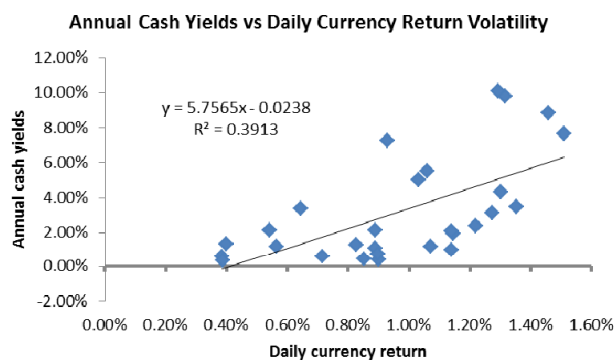


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## Volatility and cash yields

Carry as a risk premium

- Are cash yields a good proxy for high volatility FX rates?



- Over much of the past 15 years this R-square has been between 0.2 and 0.7 (t-stats between 2 and 8)

Source: June 30, 2009 Bloomberg, various Central Bank websites, Schroders.

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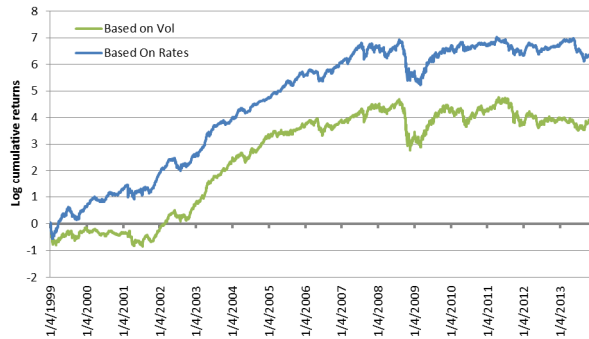
# Simple carry versus buying high volatility currencies

Not twins separated at birth but close cousins

If volatility is a better proxy for potential loss than cash yields are then

- Volatility based carry should outperform yield based carry... but it doesn't

## Carry performance based on rates and volatility



Is there more information in cash yields than there is in currency volatility?

Source: Bloomberg, various Central Bank websites, Schroders. January 1999 – Dec 2013

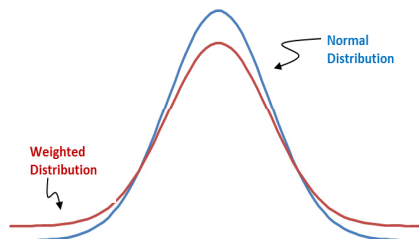
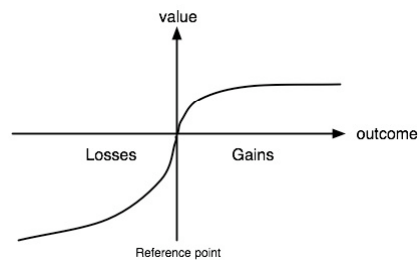
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# A behavioral explanation

Investor biases create opportunities. They are the “why” the opportunities exist

**Prospect Theory** - Utility is driven by two things

- The value people ascribe to various outcomes
  - Value is subject to loss aversion
  - Value is evaluated relative to a reference point (Relative wealth matters)



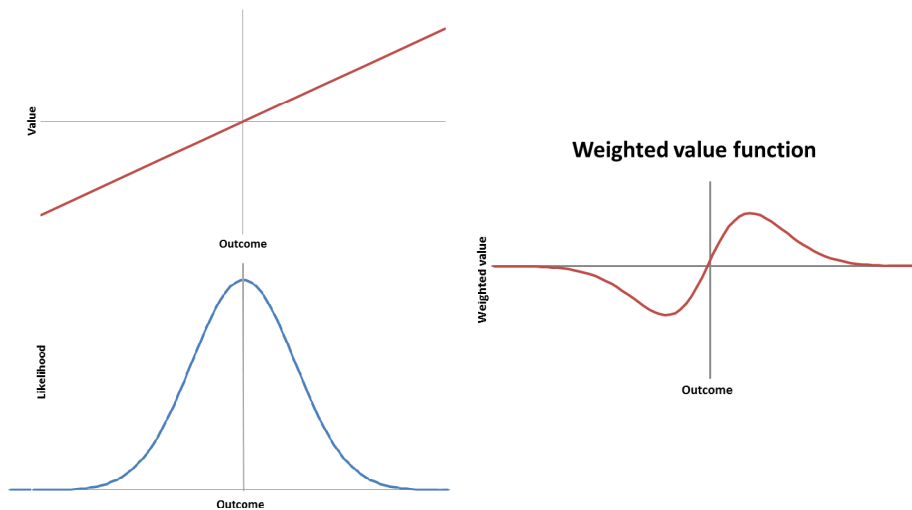
- The weightings people assign to the outcomes
  - people tend to overweight small probability events, but underweight large probability events

Source: [http://en.wikipedia.org/wiki/Prospect\\_theory](http://en.wikipedia.org/wiki/Prospect_theory), Schroders

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## Weighted value

Value + Likelihood = Weighted Value



Source: Schroders.

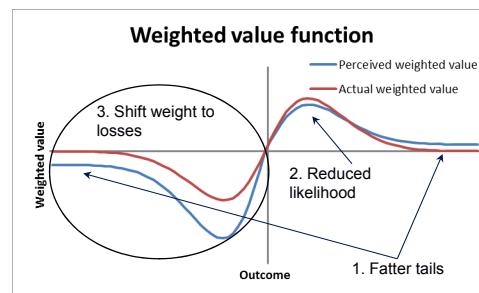
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## The actual and perceived weighted values diverge

Prospect theory tells us how

Prospect theory suggests that three things happen to distort the perceived weighted value function

- Overweighting of unlikely events
  1. Produces fatter perceived tails, and
  2. Reduces perceived likelihood of likely events
- Loss aversion suggests that
  3. weighted value shifts into the realm of losses



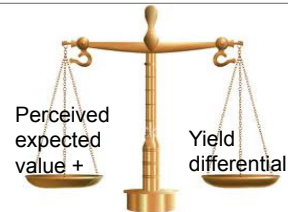
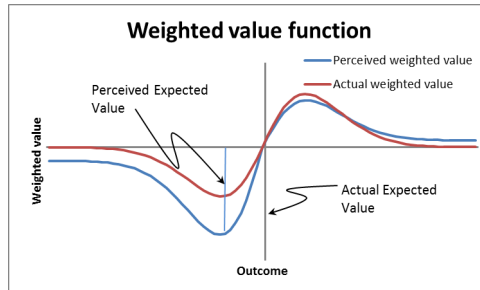
Source: Schroders.

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## Prospect theory and currency carry

Uncovered interest rate parity should NOT hold

- Prospect theory implies that
  - The perceived expected value of an actuarially fair bet is negative
  - The difference between the perceived value and the actual value
    - Creates an opportunity, and
    - The direction of bias is known
- Bottom-line:** The carry must be more than the absolute value of the perceived expected value for the trade to have a positive perceived expected value



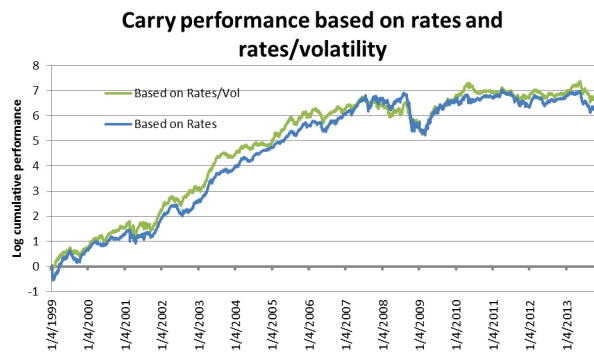
Source: Schroders.

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## A Prospect theory inspired carry

Loss aversion coupled with misweighted probabilities

- Prospect theory suggests that the currencies with the least chance of losing money may offer the most attractive opportunities (ie where the perceived and actual distribution are most different)



- Currencies with the least chance of losing money are those for which yield differentials are the greatest number of standard deviations away from zero

$$\frac{Y_{Fcash} - Y_{Bcash}}{\sigma_{currency}}$$

- This is like a Sharpe Ratio or a t-stat
- The numerator incorporates the biases
- The denominator is in some sense unbiased

Source: Bloomberg, various Central Bank websites, Schroders. January 1999 – Dec 2013

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## Conclusion

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- We have been doing a lot of work to better understand the opportunities created by investor biases
  - Prospect theory provides an interesting framework for thinking about investor behavior
  - Some investor behaviors result in systematic biases and create opportunities
- Applying prospect theory to currency carry
  - investors are loss averse and they overweight low probability events
  - These lead to negative perceived expected values
  - Interest differentials must more than offset the negative perceived expected value to entice investors
- Metrics that best describe the divergence between actual and perceived weighted values should best highlight the opportunities

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Schroder Investment Management North America Inc.  
875 Third Avenue, New York, NY 10022-6225  
(212) 641-3800  
[www.schroders.com/canada](http://www.schroders.com/canada)