



**Transtrend**

## Potential profitability for trend following systems

What happened to medium to long term trend following CTAs in 2008 & 2009?

April 2010

## Introduction to Transtrend

- Established in Rotterdam, the Netherlands in 1991.
- Trading its “Diversified Trend Program” (DTP) since June 1992; the AuM of DTP amounts to USD 7.8B as of 1 April 2010 (including notional funding).
- Trading its “Equity Trend Program” (ETP) since January 2007; the AuM of ETP amounts to USD 99M as of 1 April 2010.
- Registration: in the US with the National Futures Association (NFA) as CTA since 1994 and in the Netherlands with the Authority for Financial Markets (AFM) as asset manager since 1996.
- Organization: 57 people of which 26 are dedicated to research & development (as of 1 April 2010).
- Ownership: Transtrend is fully owned by Robeco, a Dutch asset manager which in its turn is fully owned by Rabobank.

## Introduction to *Trendpot*

- The 2009 performance of many medium to long-term trend following programs, including Transtrend's DTP, was disappointing after a very successful 2008.
- *“The market environment did not provide sufficient strong and exploitable trends, and consequently lacked sufficient opportunity.”*
- The purpose of the new measure *Trendpot* is to help explain and understand the performance (or the lack thereof) of medium to long-term trend following programs like DTP.
- Although the measure can provide useful insights for individual markets, its real strength lies in explaining the performance for groups of markets and the portfolio as a whole.

## Introduction to *Trendpot*

- *Trendpot* is a backward looking measure that indicates for an individual market whether a medium to long-term trend following system could potentially have been profitable when applied on that particular market during the preceding month.
- Trendpot is a number between 0 and 1:
  - 0 indicates a very low chance for a medium to long-term trend following system to have been profitable
  - 1 indicates a very high chance for a medium to long-term trend following system to have been profitable
- The measure does not show the direction (long or short) of the potentially profitable trend.
- The measure is not defined to explain losses.

## Data used

- Price history of all markets traded in DTP as of 31 January 2010
- One price series for every market
  - Liquidity weighted combination of tradable active months
- Based on daily closing prices
- Price data for each month  $m$  reduced to 3 data points
  - Highest closing price,  $H_m$
  - Lowest closing price,  $L_m$
  - Closing price of last trading day,  $C_m$
- *Trendpot* for month  $m$  is a function of:
  - $H_{m-2}, L_{m-2}, C_{m-2}$
  - $H_{m-1}, L_{m-1}, C_{m-1}$
  - $H_m, L_m, C_m$

## Markets included

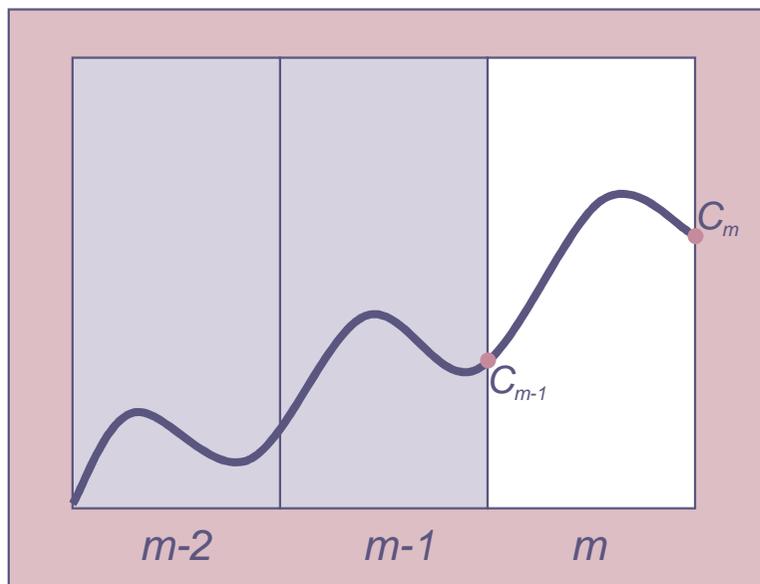
	Number of markets in DTP as of 31 January 2010
All Markets	380
Outright markets	259
Synthetic markets	121
Interest rates	58
Equity related markets	100
Currencies	81
Metals	17
Energies	22
Agriculturals	60
Hybrids	42

**These data should be viewed in conjunction with the attached explanatory notes.**

## Definition of *Trendpot*

Step 1.

- Determine whether *Trendpot* should measure the potential profitability of an uptrend or a downtrend



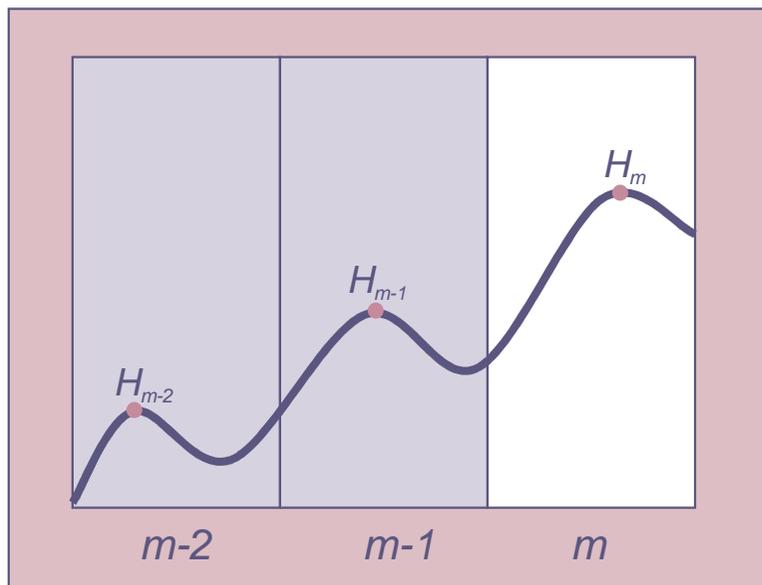
If last month's close  $C_m$  is higher than the close of the preceding month  $C_{m-1}$ , *Trendpot* should measure the potential profitability of a possible uptrend and vice versa.

In the next pages, we will assume  $C_m > C_{m-1}$  i.e., a possible uptrend.

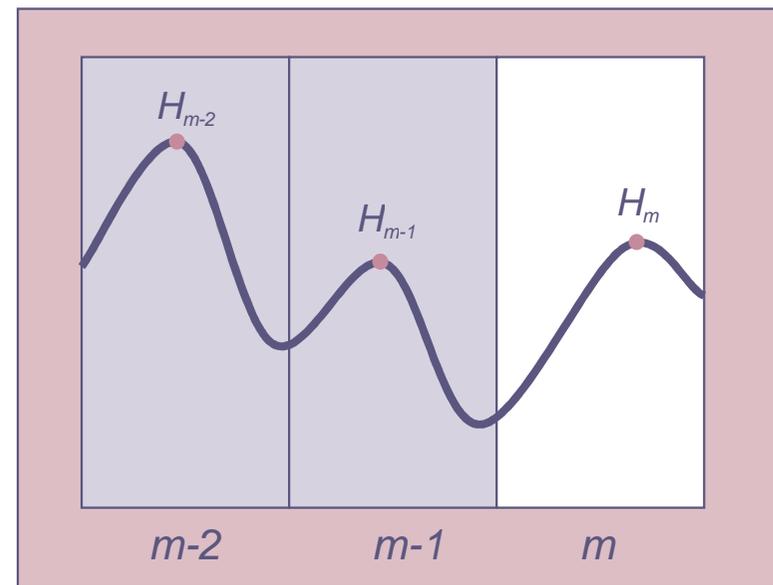
# Definition of *Trendpot*

Step 2.

- Identify whether last month's high  $H_m$  exceeds previous highs. If last month's high is not higher than the high of the previous 2 months, we can not speak of a significant upmove. There might even have been a downtrend during the previous 2 months with the last month being a trend reversal.



An uptrend;  
 $Newhigh > 0$



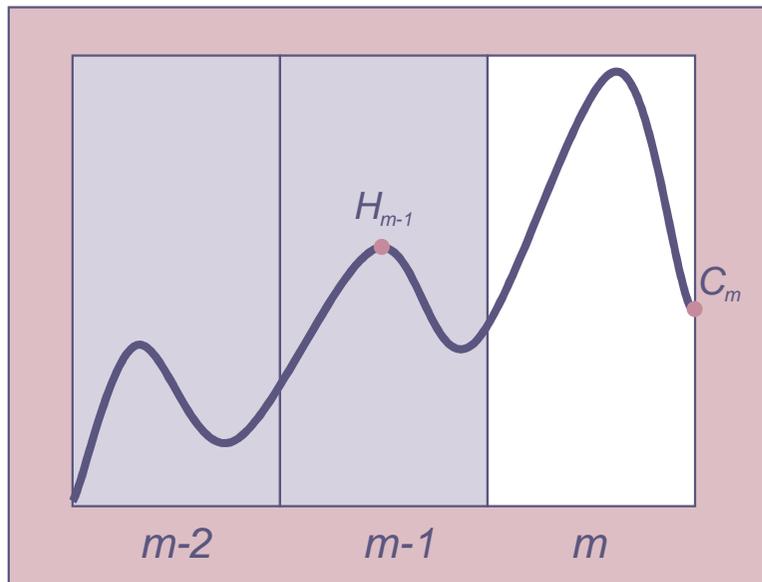
A trend reversal;  
 $Newhigh < 0$

$$Newhigh = H_m - \max(H_{m-1}, H_{m-2})$$

# Definition of *Trendpot*

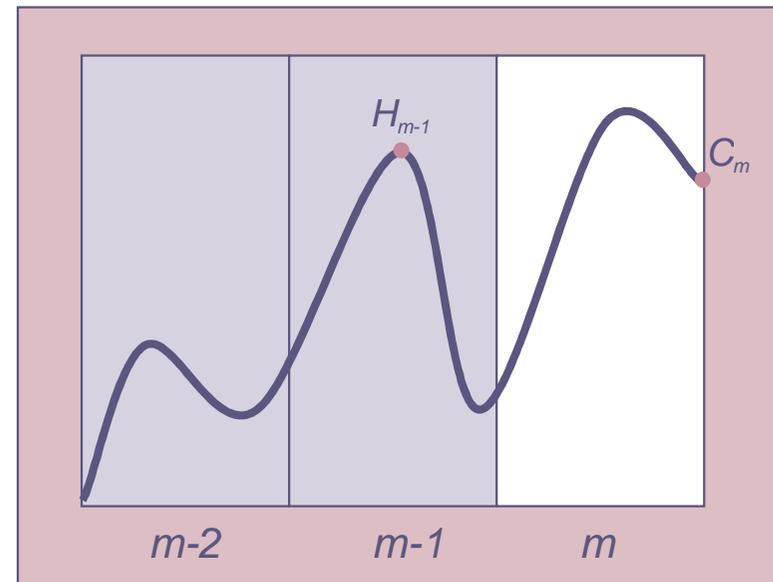
Step 3.

- Identify whether last month's close  $C_m$  exceeds previous month's high  $H_{m-1}$ . If the market sets a new high during the last month (as measured by *Newhigh*), but did not close on its high, the decline from high to close may have resulted in a costly give-in. Also, if previous month's close was much lower than the previous month's high, the decline from previous month's high to previous month's close might have caused a trend following system to be short, or at least not long, by the start of last month. That is why we compare  $C_m$  with  $H_{m-1}$ .



Costly give-in;  
 $Highend < 0$

$$Highend = C_m - H_{m-1}$$



Low probability of being long at start of month  $m$ ;  
 $Highend < 0$

## Definition of *Trendpot*

Step 4.

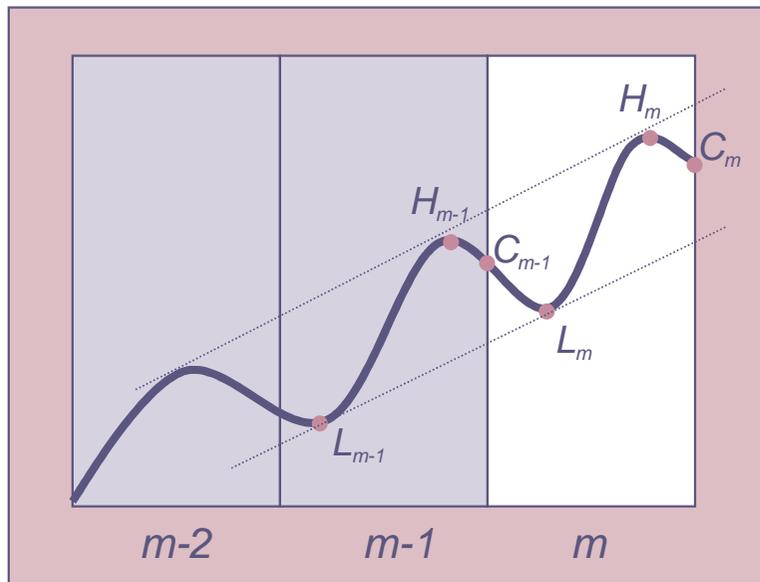
- Since we regard *Newhigh* and *Highend* both as necessary conditions for a medium to long-term trend following system to be profitable, we define *Upmove* as the minimum of both.

$$Upmove = \min(Newhigh, Highend)$$

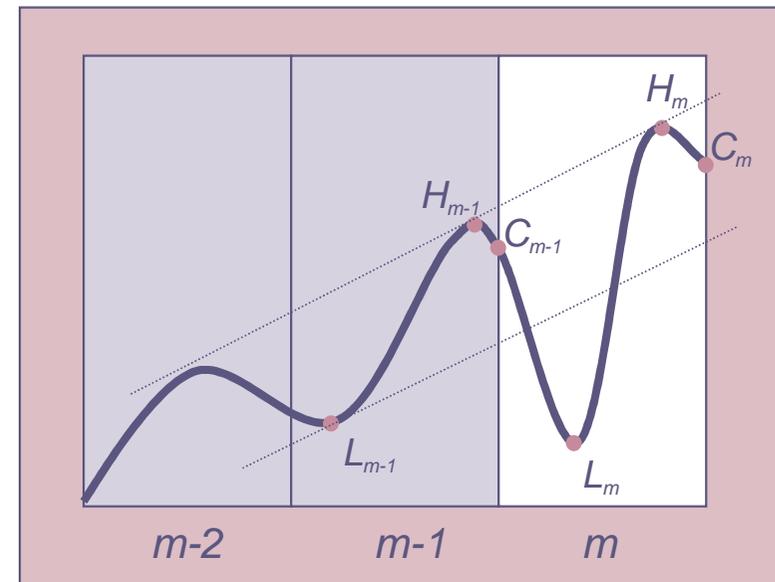
# Definition of *Trendpot*

Step 5.

- An upmove is a necessary but not a sufficient condition for defining an uptrend. The upmove needs some 'smoothness'. Suppose the market traded and closed high last month, but intra-month it traded extremely low, maybe even lower than previous month's low. In this case, one can not expect from a medium to long-term trend following system to have maintained a long position and benefit from the upmove. If a market moves upward in a straight line, the high-high, low-low and close-close would all result in the same slope. By taking the minimum of the 3 measured slopes, we measure the smoothness of the upmove.



A smooth uptrend versus...



... a less smooth uptrend

$$\text{Smoothup} = \min (H_m - H_{m-1}, L_m - L_{m-1}, C_m - C_{m-1})$$

A decorative L-shaped graphic in the top-left corner with a purple-to-red gradient.

## Definition of *Trendpot*

Step 6.

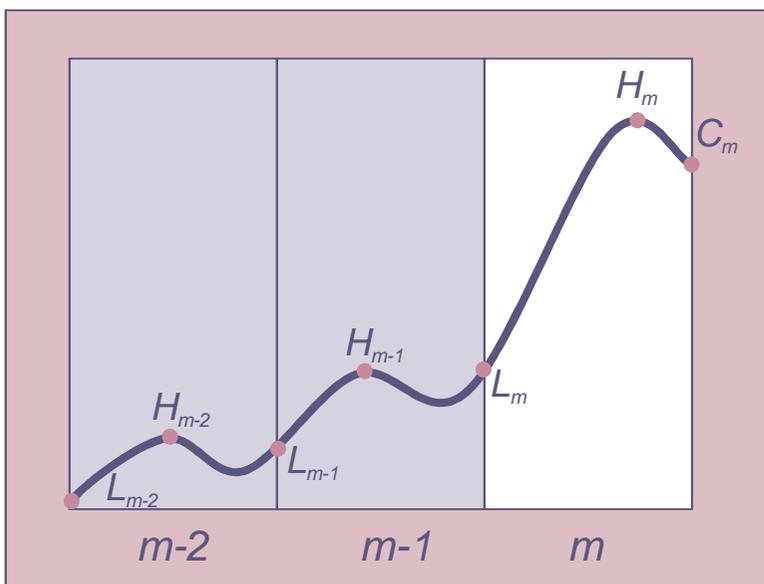
- Calculate *Trendup* by combining *Upmove* and *Smoothup*, by taking the mean of the two and not allowing this to get below zero.

$$Trendup = \max(0, \text{mean}(Upmove, Smoothup))$$

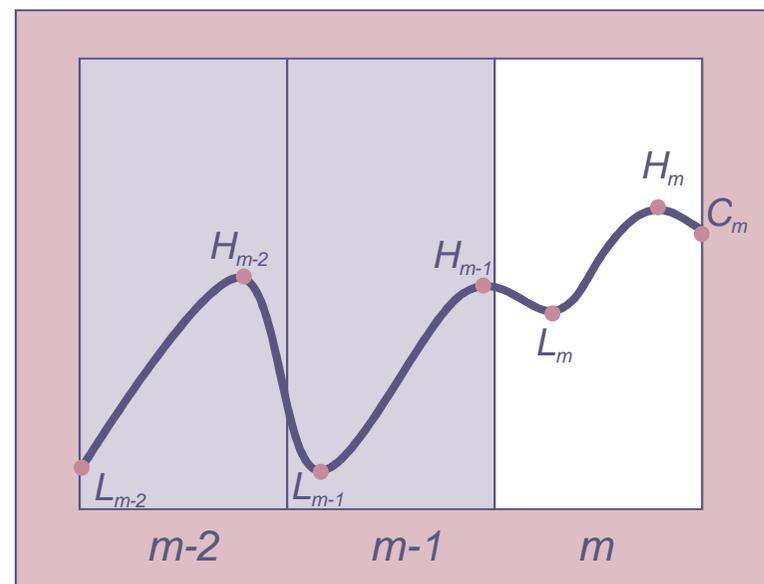
# Definition of *Trendpot*

Step 7.

- Determine the significance of the upmove by comparing it to the largest interim decline. To measure the significance of the uptrend, we compare it with the maximum decline at any time during the last three months. The four elements of this function contain a high and a subsequent low (or later close), thereby measuring, when larger than zero, large declines in this period.



A trend with a small interim decline versus...



... a trend with a large interim decline

$$\text{Decline} = \max (H_{m-2} - L_m, H_{m-2} - L_{m-1}, H_{m-1} - L_m, H_m - C_m)$$

## Definition of *Trendpot*

Step 8.

- Calculate *Scale* by taking the maximum of *Decline* and *Trendup*.
- *Trendpot* can then be calculated as the ratio of *Trendup* and *Scale*.

$Scale = \max (Decline, Trendup)$

$Trendpot = Trendup / Scale$

## Definition of *Trendpot*

- As we require a trend following system to be completely symmetric, without any long or short bias, the definition of *Trendpot* in case of a declining monthly close is as follows:
- If  $C_m < C_{m-1}$  then:
  - *Newlow* =  $\min(L_{m-1}, L_{m-2}) - L_m$
  - *Lowend* =  $L_{m-1} - C_m$
  - *Downmove* =  $\min(\text{Newlow}, \text{Lowend})$
  - *Smoothdown* =  $\min(H_{m-1} - H_m, L_{m-1} - L_m, C_{m-1} - C_m)$
  - *Trenddown* =  $\max(0, \text{mean}(\text{Downmove}, \text{Smoothdown}))$
  - *Rise* =  $\max(H_m - L_{m-2}, H_{m-1} - L_{m-2}, H_m - L_{m-1}, C_m - L_m)$
  - *Scale* =  $\max(\text{Rise}, \text{Trenddown})$
  - *Trendpot* =  $\text{Trenddown} / \text{Scale}$
- And to complete the definition: If  $C_m = C_{m-1}$  then *Trendpot* = 0

# Example 1

US 5-YEAR INTEREST SWAP



Source: Reuters

# Example 1

US 5-YEAR INTEREST SWAP



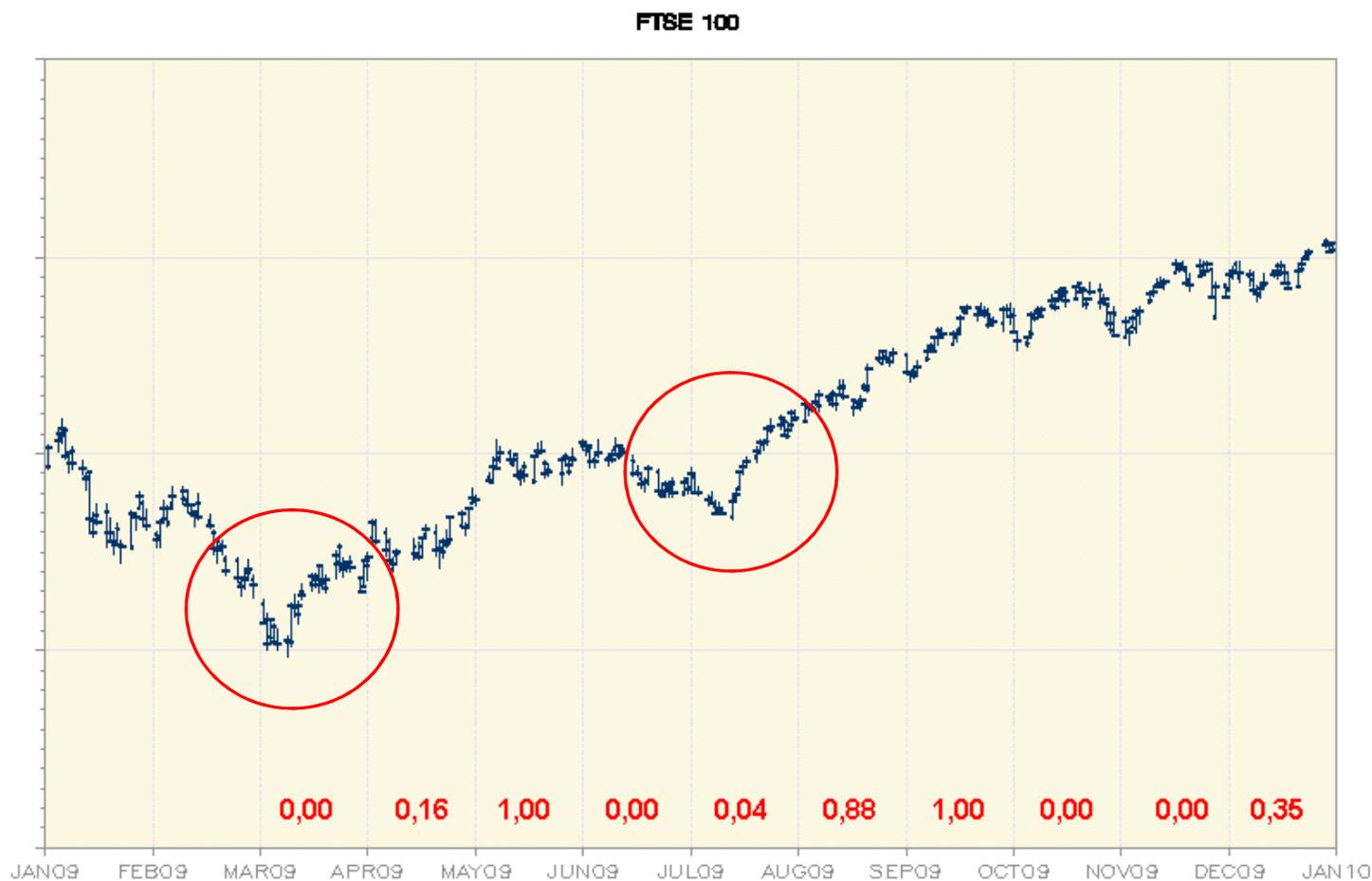
Source: Reuters

# Example 2



Source: Reuters

# Example 2



Source: Reuters

## Measure versus Indicator

- *Trendpot* is a measure, not an indicator
  - No predictive value!
- A high value for *Trendpot* means that a medium to long-term trend following system has a high chance of having been profitable during that specific month, if it would have been active in that market.
  - It does not mean that a medium to long-term trend following system should have been active in that market during that month.
- A low value for *Trendpot* means that a medium to long-term trend following system has a low chance of having been profitable during that specific month, if it would have been active in that market.
  - It does not mean that a medium to long-term trend following system should not have been active in that market during that month.

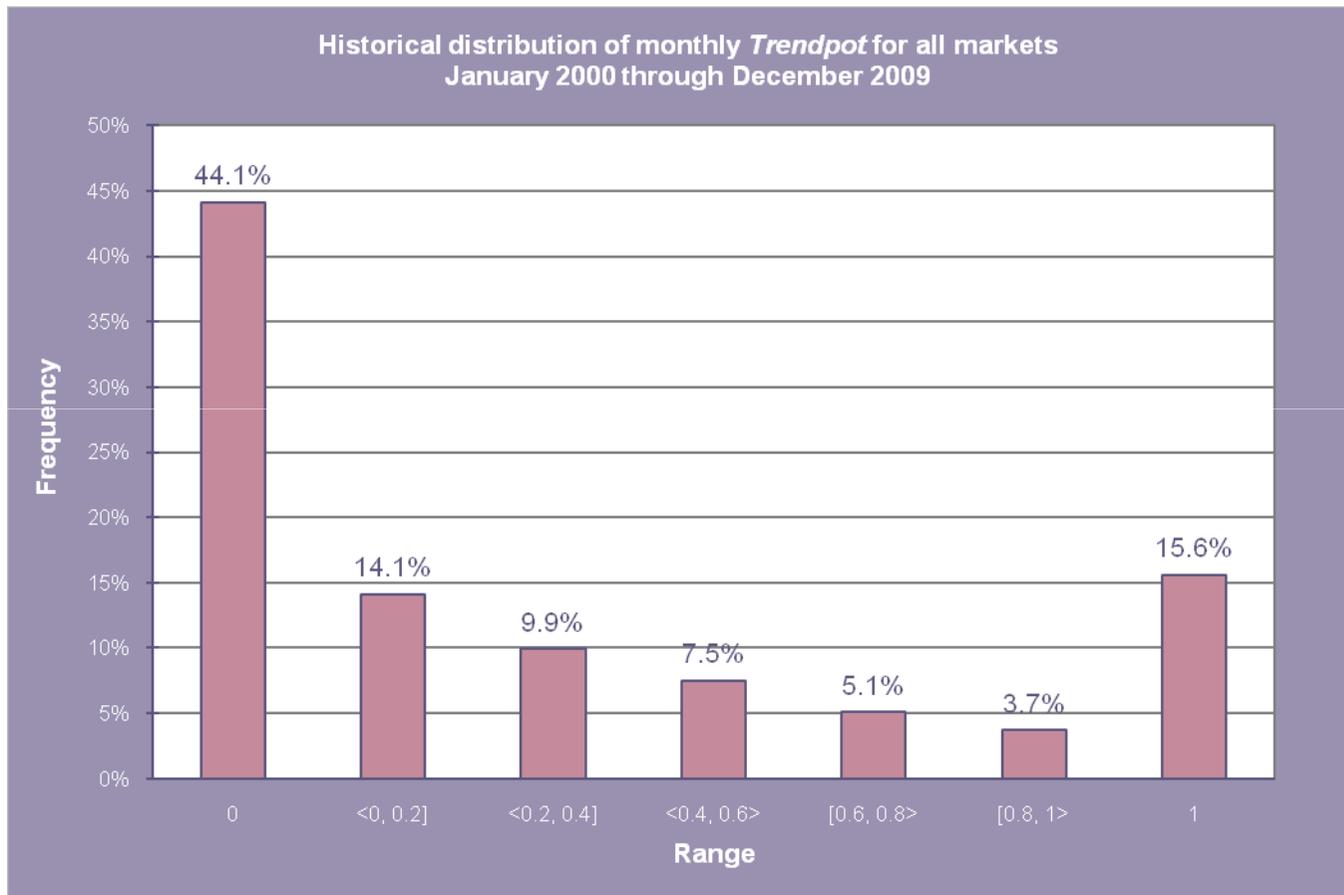
# Example 1

US 5-YEAR INTEREST SWAP



Source: Reuters

## Historical distribution of *Trendpot*



## Compounding *Trendpot*

- Equally-weighted
  - The *Trendpots* of all markets (in the selection) are averaged, giving each market the same weight.
- Capacity-weighted
  - The *Trendpots* of all markets (in the selection) are averaged, giving full weight to all markets that can be traded by Transtrend without any capacity constraint, but a relatively lower weight to markets for which Transtrend's capacity is limited, relative to the extent of this limitation. Weighted this way, small markets that can only have a limited impact on Transtrend's performance also have a limited impact on the compounded Trendpot.
- Diversity-weighted
  - The *Trendpots* of all markets (in the selection) are averaged, giving each market a weight inversely proportional to its correlation with all other markets, (again) taking into account capacity constraints. The rationale behind this is that one expects a diversified CTA to take diversification into account for allocation decisions. If two markets would be fully correlated (for instance the same product on two different exchanges), each market will be weighted for half.

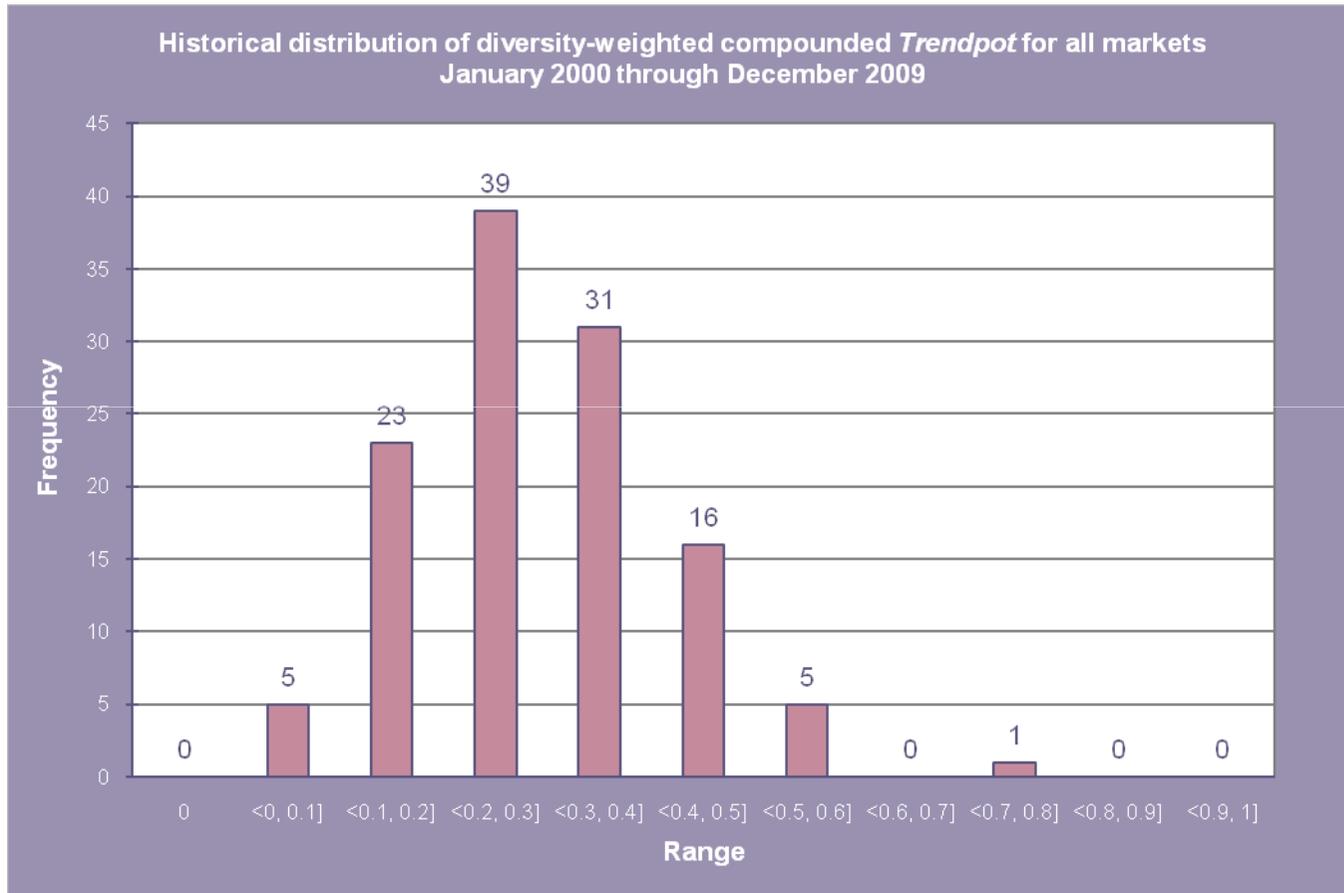
# Historical average monthly compounded *Trendpot*



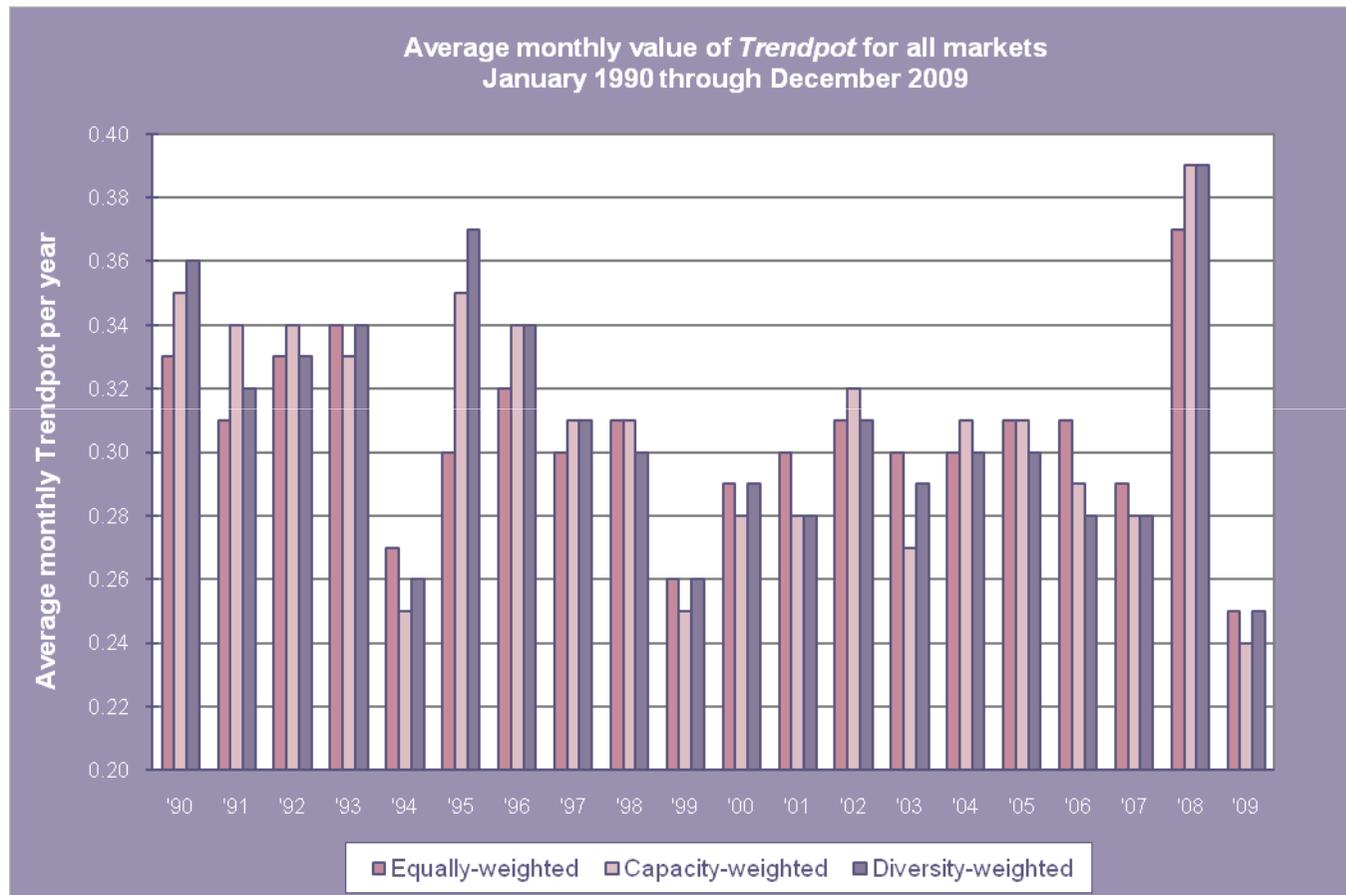
	Equally-weighted	Capacity-weighted	Diversity-weighted
All Markets	0,30	0,30	0,30
Outright markets	0,31	0,30	0,30
Synthetic markets	0,30	0,30	0,30
Interest rates	0,33	0,33	0,33
Equity related markets	0,29	0,28	0,28
Currencies	0,29	0,28	0,28
Metals	0,29	0,28	0,29
Energies	0,33	0,33	0,34
Agriculturals	0,30	0,29	0,29
Hybrids	0,30	0,29	0,29

Average monthly compounded *Trendpot* for the 10-year period January 2000 through December 2009

# Historical distribution of compounded *Trendpot*



# Average monthly *Trendpot* for the past 20 years



A decorative graphic in the top-left corner consisting of a purple L-shaped shape with rounded corners.

## Contact details

- Transtrend B.V.  
Weena 723, Unit C5.070  
P.O. Box 444  
3000 AK Rotterdam  
The Netherlands  
+31 10 453 6510  
[www.transtrend.com](http://www.transtrend.com)  
[info@transtrend.com](mailto:info@transtrend.com)

# Explanatory Notes & Important Notice

## IMPORTANT NOTICE

- This document is for informational purposes only. This document should not be construed as an offer to sell investment management services or interests in any investment vehicle managed by Transtrend. Trading in futures pursuant to one of Transtrend's trading programs entails significant risks. No assurance can be given that a client will realize a profit on its investment or that it will not lose some, all or amounts in excess of its investment. Futures trading is speculative and can be highly leveraged. Futures prices are volatile. Futures trading may be illiquid and it may not be possible to execute a buy or a sell order due to various circumstances. An investment may be subject to substantial charges for advisory fees and brokerage commissions. Any information regarding trading performance must be considered in conjunction with Transtrend's commodity trading advisor disclosure document.
- THE VALUE OF YOUR INVESTMENT CAN FLUCTUATE. PAST PERFORMANCE IS NOT NECESSARILY INDICATIVE OF FUTURE RESULTS.

## EXPLANATORY NOTES TO THE MARKETS INCLUDED IN THE RESEARCH PRESENTED IN THIS DOCUMENT

- For the research presented in this document, Transtrend used the price history of all markets traded in Transtrend's Diversified Trend Program (DTP) as of 31 January 2010. This includes outright futures and forward markets as well as synthetic markets constructed from combinations of these outright markets.
- For each market the price history is used starting from the date that the market was liquid enough to (potentially) be traded by DTP. This could be earlier than the moment that DTP actually started trading this market.
- For markets without a long trading history that have a clear precedent, the price history is backfilled with the price history of this precedent. For instance, the price history of Nymex NY Harbor RBOB Gasoline has been backfilled before November '06 with the price history of Nymex Unleaded Gasoline. And the price history for all currency pairs containing a Euro-leg is backfilled before 1999 with the price history of the same currency with the Euro-leg being replaced by the Deutsche Mark, where available.
- Markets that have been traded by DTP in the past, but that are currently not traded are not included in this research, unless they are used as a precedent for an actual traded market. Reasons why markets are not traded anymore can be that the market does not exist anymore (for instance the Deutsche Mark versus French Franc), or because it is not liquid enough anymore (for instance the Osaka Rubber Index).

THE VALUE OF YOUR INVESTMENT CAN FLUCTUATE. PAST PERFORMANCE IS NOT NECESSARILY INDICATIVE OF FUTURE RESULTS.

This presentation is meant only for the person to which it is provided or presented by Transtrend B.V..

No part of this presentation may be reproduced and/or distributed in any form, by print, photoprint, microfilm, digital data carriers or any other means without the prior written consent of Transtrend B.V..

Although Transtrend B.V. has exerted great care in creating this document, it cannot be held responsible for computational or clerical errors, nor for errors in transmission.