Behavioural Finance: from biases to bubbles

Paul Craven
Head of EMEA Institutional Business, GSAM

This material is provided for educational purposes only and should not be construed as investment advice or an offer or solicitation to buy or sell securities.
The Jastrow Illusion
A question of perspective

Source: Joseph Jastrow (1889). For illustrative purposes only.
Today’s talk

A. How Behavioural Finance can help
   - System 1 vs. System 2 Thinking
   - Cognitive Biases - The Herd Instinct, Base Rate Neglect and Anchoring
   - Bubbles - Historical Examples

B. What can we do about our biases?
   - The Loser’s Game
   - Market Cap. Indices
   - The Wisdom of Crowds, Randomness & ‘Nudge’
**Perspective: how Behavioural Finance can help**

<table>
<thead>
<tr>
<th></th>
<th><strong>TRADITIONAL ECONOMICS</strong></th>
<th><strong>BEHAVIOURAL FINANCE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INVESTORS</strong></td>
<td>Rational - ‘homo economicus’</td>
<td>Cognitive biases</td>
</tr>
<tr>
<td><strong>MARKETS</strong></td>
<td>Efficient</td>
<td>Not always efficient</td>
</tr>
<tr>
<td><strong>RETURNS</strong></td>
<td>Driven by risk</td>
<td>Risk and greed/fear/emotion</td>
</tr>
</tbody>
</table>

“*I’d be a bum on the street with a tin cup if the markets were always efficient.*” (Warren Buffett)
System 1 vs. System 2
‘Dual process’ model of the brain

<table>
<thead>
<tr>
<th>SYSTEM 1 - THINKING FAST</th>
<th>SYSTEM 2 – THINKING SLOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard wired, instinctive, based on intuition</td>
<td>Evolutionarily recent, rational, analytical</td>
</tr>
<tr>
<td>Unconscious reasoning, effortless, quick process</td>
<td>Conscious reasoning, requires effort, slow process</td>
</tr>
<tr>
<td>Influenced by emotions and memories</td>
<td>Influenced by evidence, facts and logic</td>
</tr>
</tbody>
</table>

“System 1 can never be switched off…” (Daniel Kahneman)

Biases
‘Mental Shortcuts’

Social Biases
- e.g. Herd Instinct
- e.g. Conformity

Decision Making
- e.g. Base Rate Neglect

Probability & Belief
- e.g. Anchoring
- e.g. Overconfidence

Memory Biases
- e.g. Hindsight bias

Source: Various, including The Triune Brain in Evolution, Paul D. MacLean (1990). For illustrative purposes only.
1. The Herd Instinct

- You observe others’ actions before you make your own decision.
- An ‘information cascade’ arises if it becomes optimal to ignore your own information in favour of the (inferred) information of others.
- The herd instinct…

In financial markets, the herd instinct can lead to bubbles.
Bias Awareness

2. A Medical Example

“The emotional tail wags the rational dog” (Jonathan Haidt)

Bias Awareness
3. Anchoring

- A cognitive bias whereby we rely too heavily on a particular piece of information
- Sometimes we unconsciously or illogically anchor on irrelevant information
- Important consequences for assessing probabilities
Wow, I feel great about this investment

Point of maximum financial risk

"Wow, I feel great about this investment"

Point of maximum financial opportunity

"Maybe the markets just aren’t for me"

Famous bubbles in history

- Dutch ‘Tulipmania’ 1630s
- US Railway Boom 1870s
- Japanese Stock market Boom 1980s
- The Global ‘Dot com’ bubble 1990s

Extraordinary Popular Delusions will be worth many times its purchase.

Great Britain ‘South Sea Bubble’ 1720
US ‘Wall Street’ crash 1929
Global ‘Credit boom’ 2000s

Bull markets cause risk amnesia...

This information discusses general market activity, industry or sector trends, or other broad-based economic, market or political conditions and should not be construed as research or investment advice. Please see additional disclosures.
Recent Bubbles
An emotional rollercoaster

"History does not repeat itself, but it does rhyme" (Mark Twain)

Source: Dr Jean-Paul Rodrigue, Hofstra University. This information discusses general market activity, industry or sector trends, or other broad-based economic, market or political conditions and should not be construed as research or investment advice. Please see additional disclosures.
Beware the Lazy Consensus

The consensus reflects the herd instinct, base rate neglect and anchoring.

Source: GMO. This information discusses general market activity, industry or sector trends, or other broad-based economic, market or political conditions and should not be construed as research or investment advice. For illustrative purposes only.
B. What can we do about our biases?

- The Loser’s Game
- Market Cap. Indices
- The Wisdom of Crowds, Randomness & ‘Nudge’
Tennis: “The victor in a game of tennis gets a higher score than the opponent, but he gets the higher score because his opponent is losing even more points.” (Charles D. Ellis)

The key is to AVOID LOSERS – often more important than picking winners:

- Keep it simple
- Concentrate on your defences
- Don’t take it personally
- Play your own game

Market Cap. Benchmarks: inherently flawed because they contain losers

This principle can apply to investment, waging war, campaigning for office, flying a plane

The Herd Mentality and Market Cap Indices
Overweight what is overvalued and underweight what is undervalued

Weight of Japan in the MSCI World (1982-2010)

Weight of the IT sector in the S&P 500 (1992-2010)

“I contend that markets work well on the whole, and can normally be relied upon to decide the allocation of resources and, within limits, the distribution of income, but that occasionally markets will be overwhelmed …”

(Kindelberger 1978)

Source: S&P, MSCI. The time periods shown above are from Jan-82 to Dec-10 and Jan-92 to Dec-10, as illustrations of the Japanese equity run-up and US technology bubble. This information discusses general market activity, industry or sector trends, or other broad-based economic, market or political conditions and should not be construed as research or investment advice. Please see additional disclosures. Past performance is not indicative of future results, which may vary.
Benchmark components: higher volatility stocks underperform
This evidence contradicts conventional thinking

Portfolios that hold low-and medium beta stocks can generate better risk-adjusted returns than portfolios with high-beta stocks

Source: GSAM, S&P. The “Global developed” region includes 26 countries, based on the S&P BMI’s definition. Time period selected due to data availability. For illustrative purposes only. There is no assurance that these objectives will be met. The returns are gross and do not reflect the deduction of investment advisory fees, which will reduce returns. Simulated performance is hypothetical and may not take into account material economic and market factors that would impact the adviser’s decision-making. Simulated results are achieved by retroactively applying a model with the benefit of hindsight. The results reflect the reinvestment of dividends and other earnings, but do not reflect fees, transaction costs, and other expenses, which would reduce returns. Actual results will vary. For these simulations, we generate historical estimates of beta for all stocks in S&P Global BMI using our research database. The Market Cap Index for a given region is an equity portfolio that is based on internal calculations through 2001 and uses the corresponding component of the S&P Broad Market Index from 2002 onwards due to data availability. Please see additional disclosures.
The Wisdom of Crowds, Randomness & ‘Nudge’

Conclusion 1: there are four features of most good decision making bodies

Conclusion 2: human beings overestimate causality

Conclusion 3: people’s decision making can respond well to appropriate ‘nudges’

Source: Google Images. For illustrative purposes only.
## Diversity of Opinion
- Ensure there are a diversity of backgrounds, roles, interests and personality types

## Independence
- Due diligence based on independent facts and assign homework

## Decentralisation
- Specialist or local knowledge and encourage all members to speak up (incl. devil's advocates)

## Aggregation
- Collective decisions: agenda, goals, voting systems etc.

---

These appear necessary for any effective team…

… including decision making groups and trustee boards

In the 1950s, Solomon Asch devised an experiment relating to social pressure.

A subject was told he was studying visual perception – his task was to decide which of the bars on the right was the same length as the one on the left.

75% yielded to the majority on at least one trial.

Source: Solomon Asch, *Effects of Group Pressure Upon the Modification and Distortion of Judgments*, 1951. For illustrative purposes only.
## The Nudge concept

<table>
<thead>
<tr>
<th>TRADITIONAL FOCUS</th>
<th>‘NUDGE’</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORGAN DONATION</td>
<td>Opt-in</td>
</tr>
<tr>
<td>CAR TAX</td>
<td>Reminder</td>
</tr>
<tr>
<td>INSULATION</td>
<td>Energy saving</td>
</tr>
<tr>
<td>LITTER</td>
<td>Rubbish bins</td>
</tr>
<tr>
<td>PENSIONS</td>
<td>Opt-in</td>
</tr>
</tbody>
</table>

1. Traditional economic models assume that people are rational decision makers who analyse data and act logically before they reach conscious decisions...

2. In real life, however, we are all subject to a variety of biases, often subconscious, that affect our judgment. This can lead to ‘Groupthink’ in decision making bodies.

3. Behavioural Finance - the study of the psychology behind the real life thought processes of individuals or groups – offers exciting insights for superior decision-making.

Being aware of our cognitive biases:
(i) reduces potential downside consequences and (ii) offers opportunities for upside in all areas of our lives…
Shades of Grey...
...do you prefer shade A or shade B?

Be prepared to challenge your own beliefs...

Source: http://www.moillusions.com. For illustrative purposes only.
Appendix
Paul Craven
Head of EMEA Institutional Business,
Goldman Sachs Asset Management

Paul is head of EMEA Institutional Business. He joined Goldman Sachs Asset Management in 2007 as a managing director. Prior to joining the firm, Paul worked at PIMCO Europe Ltd for four years, where he was head of UK Business Development. Previously, he spent seventeen years at Schroders as a portfolio manager and latterly as head of UK Institutional Sales.

He is a Trustee of the Goldman Sachs Pension Plan and is a regular guest speaker on the topic of behavioural finance at the Cass and London Business Schools. Paul has an MA (Hons) in History from St. John’s College, Cambridge University, is a Freeman of the City of London, and is a member of the CFA Institute and the Magic Circle.
Additional notes

This material is provided at your request solely for your use. This material is provided for educational purposes only and should not be construed as investment advice or an offer or solicitation to buy or sell securities.

Views and opinions expressed are for informational purposes only and do not constitute a recommendation by GSAM to buy, sell, or hold any security. Views and opinions are current as of the date of this presentation and may be subject to change, they should not be construed as investment advice.

These examples are for illustrative purposes only and are not actual results. If any assumptions used do not prove to be true, results may vary substantially.

Past performance does not guarantee future results, which may vary. The value of investments and the income derived from investments will fluctuate and can go down as well as up. A loss of principal may occur.

Economic and market forecasts presented herein reflect our judgment as of the date of this presentation and are subject to change without notice. These forecasts do not take into account the specific investment objectives, restrictions, tax and financial situation or other needs of any specific client. Actual data will vary and may not be reflected here. These forecasts are subject to high levels of uncertainty that may affect actual performance. Accordingly, these forecasts should be viewed as merely representative of a broad range of possible outcomes. These forecasts are estimated, based on assumptions, and are subject to significant revision and may change materially as economic and market conditions change. Goldman Sachs has no obligation to provide updates or changes to these forecasts. Case studies and examples are for illustrative purposes only.

Although certain information has been obtained from sources believed to be reliable, we do not guarantee its accuracy, completeness or fairness. We have relied upon and assumed without independent verification, the accuracy and completeness of all information available from public sources.

Backtested performance results do not represent the results of actual trading using client assets. They do not reflect the reinvestment of dividends, the deduction of any fees, commissions or any other expenses a client would have to pay. If GSAM had managed your account during the period, it is highly improbable that your account would have been managed in a similar fashion due to differences in economic and market conditions.

This material has been prepared by GSAM and is not a product of Goldman Sachs Global Investment Research. The views and opinions expressed may differ from those of Goldman Sachs Global Investment Research or other departments or divisions of Goldman Sachs and its affiliates. Investors are urged to consult with their financial advisors before buying or selling any securities. This information may not be current and GSAM has no obligation to provide any updates or changes.

In the United Kingdom, this material is a financial promotion and has been approved by Goldman Sachs Asset Management International, which is authorized and regulated in the United Kingdom by the Financial Conduct Authority.

Confidentiality
No part of this material may, without GSAM's prior written consent, be (i) copied, photocopied or duplicated in any form, by any means, or (ii) distributed to any person that is not an employee, officer, director, or authorized agent of the recipient.

© 2013 Goldman Sachs. All rights reserved. 88884.OTHER.TMPL/1/2013 . 110185.OTHER.MED.OTU.