Behavioural Finance

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NUS Invest Society-Wide Presentation 2026

If markets are rational, why do bubbles exist?

Introduction

What is Behavioural Finance?

Definition

Traditional Finance

Behavioural Finance

Traditional Finance	Behavioural Finance
Rational decision makers	Normal decision makers
Perfect self-control	Limited self-control
Not influenced by biases and cognitive errors	Influenced by biases and cognitive errors
Risk-average, never averse to regret	Varying risk preferences; regret losses

Why It Matters To Us?

Explains why people make irrational financial decisions driven by emotions and biases rather than logic.

Understanding this helps investors avoid common pitfalls like panic selling or chasing trends, reducing costly mistakes, and lead to better, more disciplined, and successful long-term financial outcomes

In the Barber & Odean's study of 66,465 brokerage accounts, the households that traded the most earned 11.4% annually vs 17.9% for the market

Suggests that excessive trading and overconfidence can hurt investor returns

Key Pioneers – Theory Cases

The Nudge Theory by Richard Thaler

What it is:
Small changes in how choices are presented can influence behaviour **without removing freedom of choice**. People are not always fully rational, decisions can be shaped

Why it matters:
Thaler's work is central to behavioural finance because it shows that decisions are shaped not just by information, but also by **the choice environment**.

How it challenged traditional theory?
It challenged the standard assumption that people make consistently rational decisions. Thaler argued that more realistic models must account for actual huma behaviour

Prospect Theory by Daniel Kahneman & Amos Tversky

What it is:
People evaluate outcomes relative to a **reference point**, and they **feel losses more strongly than equal gains**. This is why decisions under risk depart from pure rationality

Why it matters:
Prospect Theory is a core foundation of behavioural finance because it explains **loss aversion, framing effects, and irrational reactions** to gains and losses

How it challenged traditional theory?
It challenged **expected utility theory** by showing actual decisions under risk are better described by a behavioural model than by a purely axiomatic rational model

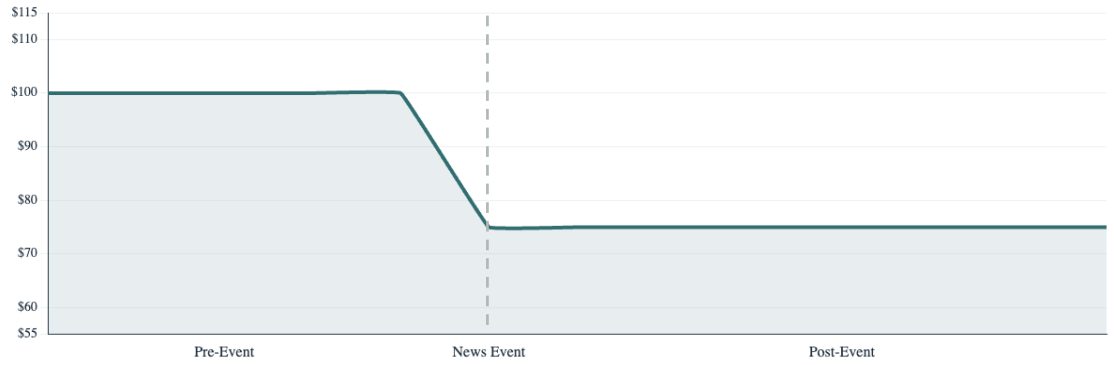
Source: Journal of Finance, Corporate Finance Institute, NobelPrize, UC Berkeley Research

Background

Why Behavioural Finance Exists: Markets Are Not Always Fully Rational

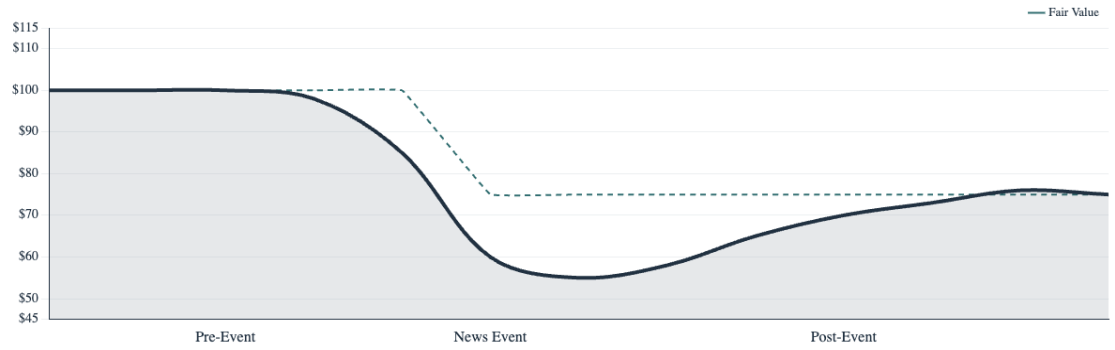
Efficient Market Hypothesis (EMH)

Assumes investors are rational and that asset prices fully reflect all available information, and no one can consistently "beat the market"



Reality

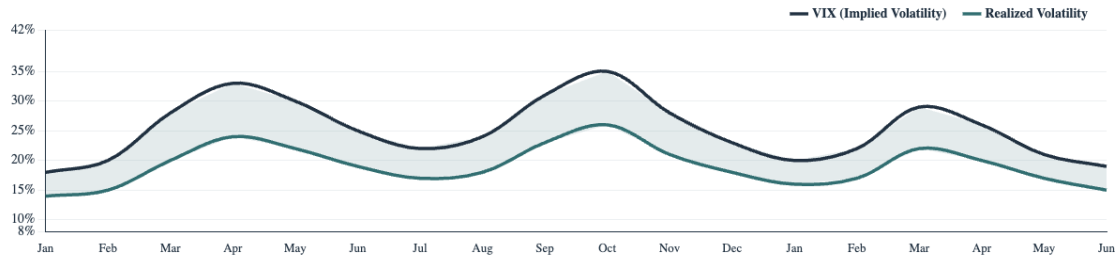
Markets regularly overshoot, undershoot, and are driven by emotion, herd behaviour, and cognitive biases, creating persistent mispricings



Volatility Index (VIX) vs Realised Volatility

Volatility Index (VIX)
Measures the market's implied explanation of volatility over the next 30 days, on how much fear is priced into options

Realised Volatility
Measures the actual price movement that occurred over a given period; what the market really did, stripped of expectation or emotion



Systematic Errors Create Mispricing

Systematic, Not Random

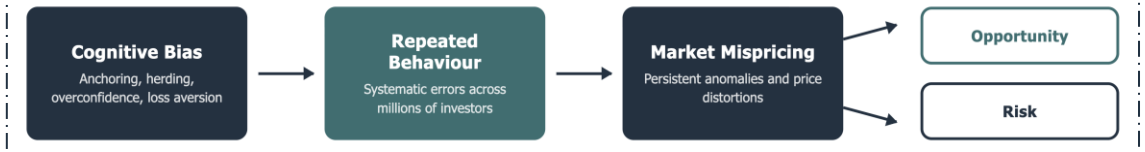
Behavioural errors are **predictable**. Humans consistently anchor, herd, panic, and overestimate in repeating patterns

They Don't Cancel Out

Millions of investors making the same biased decisions **push prices in the same direction**, creating persistent market distortions

Mispricing = Opp + Risk

These systematic errors create mispricing that **don't self-correct quickly**, presenting both exploitable opportunities and hidden risks.



Source: Investopedia, Tastylive, National Bureau of Economic Research

Biases (1/2)

Overconfidence and Illusion of Control Distort How Investors Take Risk

Self-Control Bias

Fear, impatience, and greed cause investors to **abandon good processes** at the wrong time. The DALBAR study shows this costs the average investor roughly half their potential returns over 30 years.

Rule-Based Investor	Emotional Investor
Stays the course during dips	Panic sells at the bottom
Rebalances on schedule	Chases hot sectors after they peak
Follows a set allocation	Switches strategy after headline
Removes emotion from execution	Let fear and greed drive decisions

Overconfidence

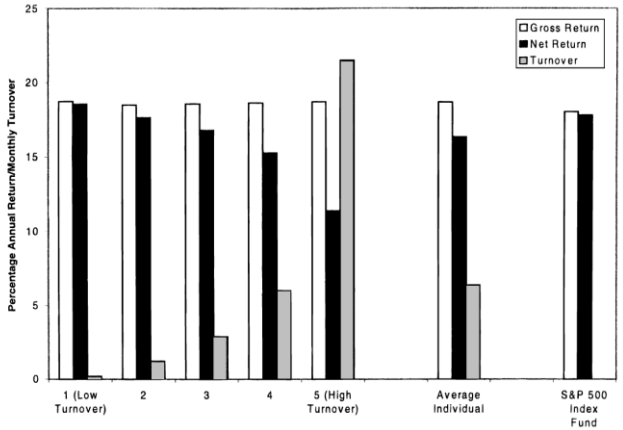
Overestimating your skill, judgment, and forecasting ability. Most investors believe they perform above average.

A few good trades get mistaken for real skill, leading to overtrading, oversized positions, and underestimated risk. The most confident investors often underperform the most, because they act on belief rather than evidence.

Activity Often Hurts Performance

> *...households that trade frequently earn a net annualized geometric mean return of 11.4%, and **those that trade infrequently earn 18.5%**. These results are consistent with models where trading emanates from investor overconfidence...*

Prof. Brad M. Barber & Prof. Terrance Odean
UC Davis & UC Berkeley,
The Journal of Finance (2000).



(Barber & Odean, 2000)

Familiarity Is Not the Same as Safety

Familiarity bias is the tendency to invest in what you know — domestic companies, local stocks, or brands you recognise. This leads to under-diversified portfolios concentrated in a narrow set of investments, increasing risk instead of reducing it.

- "I know this company."
- "It feels safer."
- "So it must be lower risk."

- Large wealth exposed to a company risk
- That is idiosyncratic risk
- Diversifiable, but kept due to comfort

Source: The Journal of Finance, Investopedia, UC Berkeley Research

Biases (2/2)

Confirmation Bias Makes Investors Seek Comfort Instead of Truth

Confirmation Bias Explained

"Investors do not always seek the truth, they often seek validation."

Confirmation bias is the tendency to **favour information that supports what we already believe**, while ignoring or downplaying evidence that challenges it.

For investors, this means once a thesis is formed, supportive data stands out more than conflicting signals.

Sentiment Skew

Scenario:
Imagine you bought a stock, and you are very bullish about the stock

Confirmation Bias leads to:

Look for bullish technical analysis signals that support your bullish view

Bearish technical warning signals may be downplayed or even ignored

Investors often spend more time reading bullish research on stocks they already own, while giving less attention to negative views.

This can strengthen conviction without improving objectivity. What feels like due diligence may actually be selective information consumption.

Why This Matters?

"Bias Delays Corrective Action."

1. Overconfidence
2. Under-diversified Portfolios
3. Unnecessary Financial Risks

Actionable Recommendations

Investors can reduce confirmation bias by **building rules that challenge their own views.**

Seek disconfirming evidence and pay attention to info that disagree with your ideas → Keep an open mind about possible alternatives to your methods → Ask yourself why you are wrong rather than why you are right

Strong investing is not about defending a view. It is about **updating quickly when evidence changes**.

Source: Investopedia, Corporate Finance Institute

Reaction Gap (1/2)

Investors Often Underreact Because Old Beliefs Are Hard to Replace

Underreaction

Measures the price adjustment between:

Immediate price reaction to information. E.g., stock jumps +4% on the same day

Subsequent delayed adjustment. E.g., the stock drifting up another +3%

Behavioural	Models of sentiment and biased learning imply delayed incorporation of news
Market friction	Delays correlated with segmentation and asymmetric access to information

Conservatism Bias

Investors place too much weight on prior beliefs and too little weight on new signals, especially when the new information challenges an existing narrative

Case Study: Covid-19 analyst forecasts

From the chosen 1000 companies[1], 2020 earnings forecasts were cut only 16% by mid-May 2020, and that long-term expectations moved much less

The updating of beliefs are smooth and sluggish, even though market prices were extremely volatile

Analysts under-react, leading to auto-correlation in revisions and forecast errors

Post-Earnings Announcement Drift (PEAD) – *the grand-daddy of underreaction events*

Definition

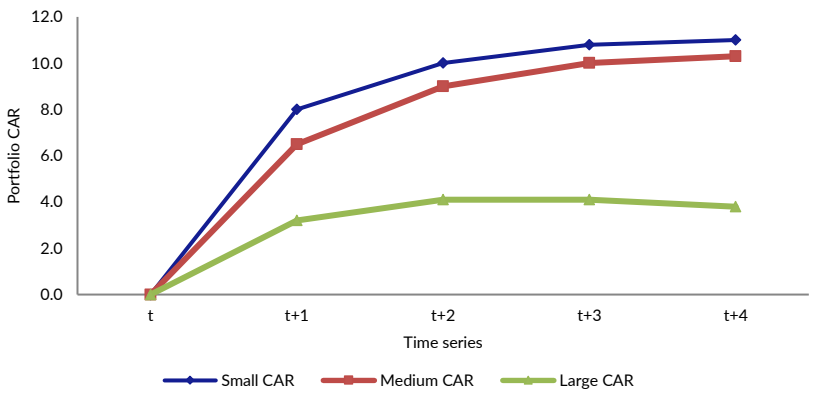
An anomaly where stock prices tend to continue to drift upward (downward) following earnings announcements that either exceed or fall short of investor's expectations

Efficient market hypothesis: publicly information is instantly impounded into the stock price with no abnormal excess return

Reasons for PEAD

1. Trading frictions: transaction costs such as bid-ask spreads, illiquidity
2. Information uncertainty -> underreaction -> PEAD
3. Firm characteristics such as past PEAD, reputation

Portfolio cumulative abnormal return (CAR) for small, medium, and large sized companies[2]



After a positive earnings surprise, stock prices continue to drift upward over time, as measured by the CAR. The effect is strongest for small firms, and weaker for larger firms

Source: Journal of Behavioural and Experimental Finance, Journal of Accounting and Economics. NBER
1: Refers to firms trading on NYSE, Nasdaq or AMEX and is the top 1000 by total market cap as of Dec 31, 2019
2: Classification based on market value of equity for a sample of 2600 US listed firms over 1974 to 1986

Reaction Gap (2/2)

Anchoring and Loss Aversion Distort How Investors Exit and Reprice Positions

Anchoring Bias

Tendency for investors to rely too heavily on a salient reference point when making judgements, even when that reference point is not fully relevant to current fundamentals

1. **52-week high:** hesitate to buy more as 'the stock has already run too much'
2. **52-week low:** hesitate to sell even with deteriorating fundamentals

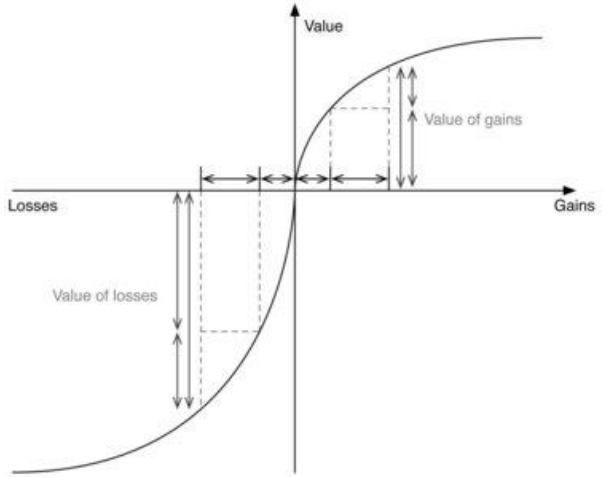
The post GFC 2009 Rebound

Stocks far from peaks outperform stocks near peaks, while momentum winners and losers earned almost the same returns

Loss Aversion

Pain of Loss > Pleasure of an equivalent gain

Loss aversion contributes to the reaction gap by affecting risk-taking decisions, holding behaviours, and selling discipline by causing investors to respond to bad news in a distorted way



Disposition Effect

Investors dislike realizing losses more than they enjoy realizing gains:

Stock trades at $13, but we bought it at $16. Then bad news arrives, and the stock's value drops to $11

Holders do NOT want to realise their losses -> hold on instead of selling – less supply -> delayed price drift to $11

Stock trades at $11, but we bought it at $5. The good news arrive, and the stock's value increases to $13

Holders want to LOCK in their gains -> sell into the price increase -> more supply -> delayed price drift to $13

Recommendations

Reduce cost-basis salience	Review positions using screens or template that emphasise current thesis and opportunity cost
Pre-commit sell rules	Craft stop-loss rules: "sell if thesis breaks" "trim if valuation exceeds targets'
Rebalance rules	Review positions systematically and resize according to thesis, risk, and portfolio fit
Evidence, not Emotion	Behavioural adjustment: separate how the position feels from what the fundamental evidence says

Source: Journal of Economic Behaviour & Organisation, Journal of Finance

Herding

Crowd Behaviour Can Sustain Trends, Then Reverse Violently

Why It Occurs

Investors follow the crowd and sentiment without understanding the rationale for their actions

Fund managers prefer to be wrong with the market rather than wrong alone

Institutional mandates and other factors mechanically force investors into similar trades

Empirical Findings

Christie and Huang (1995)

During **periods of extreme market movements**, instead of blindly following the market trend, research suggested that **investors were still treating companies differently based on their specific risks**

Bohl, Branger, Trede (2017)

They **challenge and corrected the math behind the 1995 paper**. With the revised methodology, they found clear and significant evidence of herding behaviour on the S&P 500 during the 2008-2013 period

Outside of mathematical evidence, herding exists because of social psychology

Herding Measures

Cross-Sectional Absolute Deviation (CSAD)

Measures relationship between dispersion and market returns

Low CSAD during market volatility → Stocks are huddled together, moving in lockstep, signalling clustering

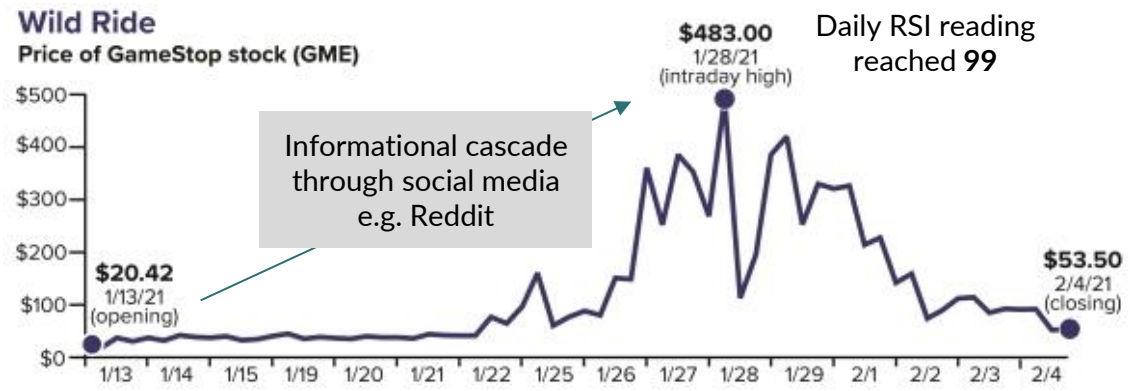
Relative Strength Index

Measures the speed and strength of price changes

0 — Oversold — 30 — 70 — Overbought — 80 — 100

Momentum is so extreme that a violent reversal is statistically likely ← **Exit Signal**

Market Examples



Source: Yahoo Finance

Trading the Bias

Behavioural Edges Are Strongest When Turned Into Rules, Not Opinions

Focusing on the Process

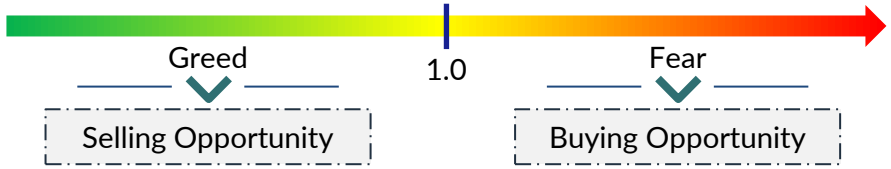
Risk-adjusted returns of hedge funds from 1996 to 2014:

Alpha (annualised)	Macro		Equity	
Median	Systematic	Discretionary	Systematic	Discretionary
	1.67%	1.78%	2.03%	2.76%

Unless you're an elite investor, it's safer to stick to a fixed plan and stop yourself from making impulsive changes when the market crashes

Contrarian Indicators

Put-Call Ratio (PCR) = $\frac{Total\ Put\ Option\ Volume}{Total\ Call\ Option\ Volume}$



Forward-Looking returns: Top 5% of the PCR (i.e. PCR > 1.23)

Metric	5D	10D	30D	60D	90D	180D	360D
Top 5%	0.58	0.52	2.22	4.37	4.41	4.58	9.17
S&P 500	0.15	0.29	0.86	1.68	2.37	5.16	10.97
p-Value (5%)	0.12	0.31	0.04	0.01	0.07	0.38	0.24

Quality at a Reasonable Price (QARP)

Overvaluation of "lottery-like"* stocks

Underperformance of a risk-adjusted return of c. 1.2% in the subsequent month

A QARP filter systematically removes these stocks from the universe

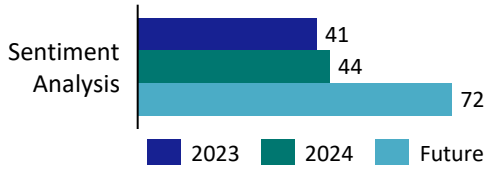
MSCI World Quality Index uses ROE, earnings growth, and financial leverage

	Annualised Return %			Sharpe Ratio		
	5Y	10Y	Inception	5Y	10Y	Inception
MSCI World Quality	13.93	15.50	12.05	0.71	0.90	0.69
MSCI World	12.98	13.85	8.9	0.70	0.81	0.47

Pain of Loss > twice Joy of Gain → Having a margin of safety reduces the likelihood of panic selling during downturns

AI: Dual-Edged Sword

Use of NLP in the investment process, % citations



Hybrid AI model achieved 68.5% directional accuracy and **22% reduction in prediction error** compared to traditional linear models

Mitigate confirmation bias by processing all data without selectivity

Data Quality → Amplify biases

Data Quality → Sentiment Manipulation

AI can over-react to the same signal, amplifying the herd thinking bias

Sources: Wall Street Courier, Duke University, Invesco, Daniel Kahneman ** "Lottery-like" stocks are those with high maximum daily returns in the prior month*

Conclusion

In the short run, the market is a voting machine. In the long run, it is a weighing machine

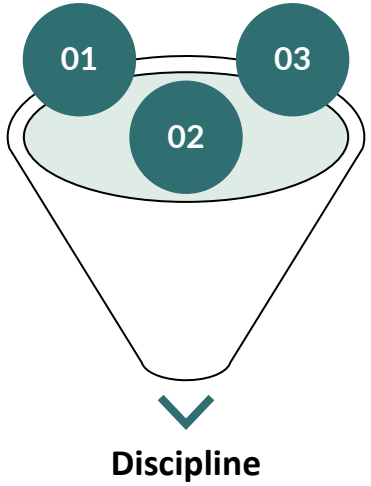
Key Insight

The Rationality Gap	In reality, markets are not perfectly efficient because the humans who comprise them are not perfectly rational
Impact of Inefficiency	Psychological deviations from rational decision-making create both significant risk and measurable opportunity
The Mindset	Focus on data-driven execution and avoid trading emotionally

Market Impact

Alpha Traps	Behavioural forces like herding and overconfidence often lead investors to mistake market beta for unique skill
Predictable Mispricing	Anomalies such as PEAD prove that markets are often slow to digest quality information due to conservatism bias
Euphoria Extremes	When the investment reaches mathematical extremes (e.g. excessively high P/E relative to peers), reversals are probable

Investor Implication



01 Sit down and identify your own cognitive biases; You don't know what you don't know

02 Conduct trading through rules-based strategies, automated rebalancing, and pre-set triggers

03 Use checklists and pre-defined triggers to maintain discipline when markets are volatile

Final Takeaway

Beta over Alpha	Prioritise capturing systematic beta and fundamental factors (e.g. quality)
Logic-driven Conviction	Trades should be anchored in quantitative logic rather than emotions or unstructured sentiment-driven trends
Intellectual Humility	Maintain an open mindset and play devil's advocate to challenge your own assumptions