

## Perceived and Actual Risk in Financial Markets: Insights from Emotional Finance

Nick Bullman BBA and Richard Fairchild Ph.D

### Summary

- The rational choice model assumes that financial market participants are fully rational, unbiased, emotionless self-interested maximisers of expected utility (with stable preferences).
- A recent development, behavioural finance, recognises that real-world actors may suffer from bounded-rationality, may have psychological biases, may be captive to emotions, and may not be maximisers of expected utility.
- The focus of this article is on a further, recent exciting development: emotional finance. Emotional finance employs Freudian psychoanalysis to study the effects of investors' and managers' unconscious emotions on financial market behaviour.
- Unconscious emotions may cause bubbles and extreme crashes at critical emotional tipping-points.
- Emotional finance emphasises the difference between actual and perceived risk.
- Investors' state of mind exists in two distinct phases: the paranoid-schizoid phase (when perceived risk is low), and the depressive phase (when the perceived risk is high).
- Emotional finance predicts a dynamic inverse relationship between perceived and actual risk
- Perceived risk may be at its lowest precisely when actual risk is at its highest.

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*CII Introduction: traditional approaches explaining human choices in financial services have done little other than reveal our limited understanding of this subject. Only in the last twenty years or so with the advent of “behavioural finance” have we been afforded a more colourful picture of the factors affecting peoples’ decision making. More recently, researchers have come to realise that far from making rational, robotic decisions, in fact emotions such as first impressions and “falling in love” actually have a more powerful part to play in the decisions of casual consumers and professional investors alike. In this article, financial services risk expert and former hedge fund manager Nick Bullman teams up with Richard Fairchild at the University of Bath School of Management to explore some of these new theories and their implications to understanding financial markets.*

The traditional approach to analysing human choices in financial services is the rational choice model, which is based on the view that market participants are fully rational, unbiased, emotionless self-interested maximisers of expected utility (with stable preferences). Our entire understanding of how investors worked in the complex markets, and how consumers bought financial products, was predicated on the assumption that investors and managers in the financial markets are emotionless robots! Furthermore, the traditional approach assumes that investors are a homogeneous group, with identical information sets and expectations. In a final twist, we assume that stock returns follow a well-behaved normal distribution, itself implying that extreme negative shocks are very unlikely.

In the last twenty years, a new school of thought called *behavioural finance* has emerged, recognising that real-world actors are only rational to a point (we call this *bounded rationality*), may have psychological biases, may be captive to emotions, and may not be maximisers of expected utility. In short, real-world actors in the financial markets are human beings! Furthermore, in the real world, stock return distributions are far from normal.

The focus of this article is on a further exciting new development: *emotional finance*. This approach employs a Freudian psychoanalytical framework to study the effects of investors’ and managers’ *unconscious* emotions on financial market behaviour. The approach helps us to understand how these unconscious emotions may cause bubbles and, at a critical emotional tipping-point, extreme crashes.

## The traditional finance view: rationality leads to benign markets

The traditional ‘homo economicus’ view of the finance world led to the development of three key theories explaining human rationality and decision-making in financial services:

- **Portfolio theory:** rational risk-averse investors all hold the same well-diversified ‘market’ portfolio in which each stock’s specific risk has been diversified away, and the only risk that remains is the market risk<sup>1</sup>;
- **Capital Asset Pricing model:** an equilibrium pricing model that says that all share prices adjust in equilibrium such that risk and expected return are positively correlated. Furthermore, returns are assumed to follow a normal distribution, and all investors have the same information and expectations; and
- **Efficient Market Hypothesis (EMH):** states that the market rapidly incorporates all information into current stock prices.

Combining these three theories, the implications are as follows:

- all investors should be well-diversified;
- there should be very little trading; homogeneous investors share the same information and expectations, and hence would value a share identically: furthermore, the EMH states that market prices very accurately reflect fundamentals: so, again, there is no room for trading or abnormal gains; and
- market volatility should be very low: in the EMH, the only thing driving share price movement is news, and news is not very volatile.

## Behavioural Finance: the Evidence

Behavioural Finance arose to explain evidence that contradicts the traditional finance view:

- there is an extreme amount of trading in the market (suggesting that investors are heterogeneously informed, and/or have heterogeneous expectations),

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<sup>1</sup> See especially H.M Markowitz, “Portfolio Selection.” The Journal of Finance, March 1952; and by the same author Portfolio Selection: Efficient Diversification of Investments. New York, John Wiley and Sons, 1959.

- there is a great deal of volatility in the market, and
- financial market values often diverge considerably from fundamentals.

### Diversification to Reduce Risk

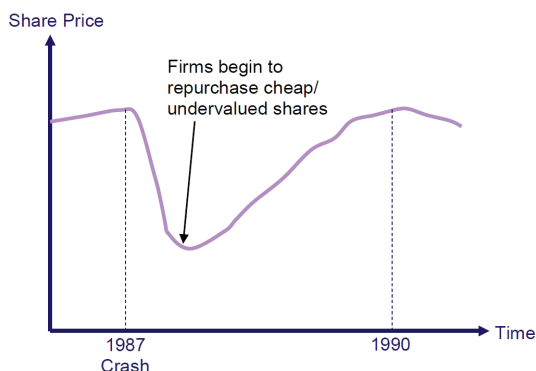
Furthermore, there is much evidence that the market over-reacts negatively to bad news, and under-reacts positively to good news. All of this suggests that investors face an extreme level of risk when trading in the markets. These extreme risks appear to be exacerbated by the evidence (in contradiction to portfolio theory) that investors are not well-diversified (often investing in only one or two shares), or, if they are diversified, they are not diversified in an efficient manner.

Behavioural finance explains this behaviour by considering bounded rationality (investors do not understand fully), psychological biases, and emotions.

### Explaining over-reaction to bad news, and under-reaction to good news

In the stock market crash of 1987, the market initially *over*-reacted to bad news, for example firms engaged in massive share repurchases following the crash, which suggests that informed corporate managers were taking advantage of extreme under-pricing. However, following the large repurchase program which should have provided good news to the market, investors *under*-reacted, and the market took an extremely long time to recover.

**Diagram 1: The market's over-reaction (under-reaction) to bad (good) news.**



### Emotional Finance

In 2005, a major paradigm shift in the understanding of human responses to financial activity occurred with the introduction of a new field of research called *Emotional*

Finance.<sup>2</sup> This approach develops the research in behavioural finance by considering the effect of *un*conscious, emotions on investors' decisions. Emotional Finance employs a Freudian psychoanalytical framework to understand how investors' unconscious emotions can drive financial market bubbles and crashes.

The starting point of the approach is Freud's theory of phantastic objects. This is defined as a mental representation of something (or someone) which in an imagined scene fulfills the protagonist's deepest desire to have exactly what she wants, when she wants it.<sup>3</sup> It is argued that individuals are more susceptible to the phantastic object when a particular sense of reality blocks their thinking... People make decisions in one of two basic oscillating states of mind, namely the depressive (D) state and the paranoid-schizoid (PS) state. In the D state of mind, we see things as they really are, both good and bad. In the PS state, we deal with psychic pain by mentally splitting the good from the bad, with the bad features of the object being buried deep in the unconscious.

Furthermore, according to Freudian theory, in the PS state, individuals transform an object into a phantasy; that is, they unconsciously assign a magical, exceptionally exciting, and highly desirable image to an object. Individuals 'fall in love' with the object. Later, when reality sets in (the D state), the pain that had been buried in the unconscious floods the individual's sensitivity, and conscious emotions of anger and blame dominate, combined with a hatred of reality.

In emotional finance theory, financial market phenomena such as stock market bubbles and crashes may be analysed in terms of the unconscious emotions associated with phantastic objects. In financial markets, the phantastic object represents a new innovation with a certain mystique about it: an "Aladdin's Lamp." Examples from history are: tulip-mania, the South Sea Bubble, and 19<sup>th</sup> Century railway stocks. More recent examples include, the 1990s' Internet Bubble (dot com companies), the Chinese stock market, the hedge fund market, and the latest 'sub-prime crisis.'

<sup>2</sup> See for example, R. Taffler and D. Tuckett, "A Psychoanalytical Interpretation of Dot.com Stock Valuations." SSRN Working papers database, 2005; and A. Eshragi, A and R. Taffler, "Hedge Funds and Unconscious Phantasy." SSRN Working Paper Database, 2009.

<sup>3</sup> R. Taffler and D. Tuckett, *op.cit.*

In the Freudian framework, investors initially ‘fall in love’ with a new innovation (for example, dot com stocks). Then, in the paranoid–schizoid phase, they split out the pain from the pleasure (with the pain being buried deep in the unconscious). This means that the investment is viewed as infallible/riskless (it cannot fail! Thus *perceived* risk is minimised)<sup>4</sup>. Excitement mounts, and other investors want to get in on the action (*herding*). During this phase, experts’ views are sacrosanct.

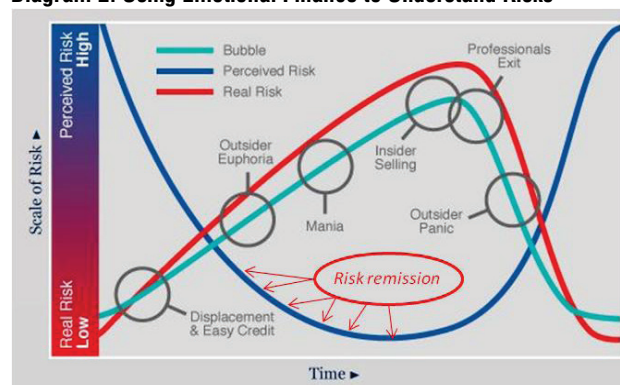
At a critical tipping-point, reality intrudes, and we enter the depressive phase. The pain emerges from the unconscious, and floods the conscious: investors now fully understand the risk (perceived risk increases dramatically). Panic sets in, the market crashes, and investors now look for scapegoats (as in BF overconfidence, where successes are down to oneself, but failures are others’ faults).

Thus, this framework can be used to explain the pattern in diagram 2. Critics of behavioural finance argue that any psychological bias (from a potentially infinite list) may be called upon to explain particular market anomalies. A major contribution of *emotional* finance is that it provides a unified and coherent framework to explain the anatomy of financial market bubbles and crashes, by arguing that there exists a path-dependent trajectory of emotions. This thinking also explains the critical ‘tipping’ point, at which investors dramatically switch from ‘love’ to ‘hate’ of an investment, thus causing the market to crash.

### Perceived versus Actual Risk

Emotional finance demonstrates that a difference exists between actual and perceived risk. In the PS phase, perceived risk is very low (as pain is split from pleasure, and submerged deep into the unconscious: thus investments seem infallible). It is precisely in this phase that bubbles emerge, so that the actual risk facing investors becomes extremely high). At the critical tipping-point, investors switch to the D phase, and reality floods their consciousness. Thus perceived risk increases dramatically. As the market crashes, the ‘heat’ is taken out of the market, and actual risk is greatly reduced. The dynamic inverse relationship between perceived and actual risk is conceptualised in the following diagram.

Diagram 2: Using Emotional Finance to Understand Risks



This chart demonstrates how the EF framework can be used to consider the dangers facing investors through perceived and actual risks. Actual risk is at its highest precisely when perceived risk is lowest. Thus it helps to explain why so many investors invest at the peak, precisely when they should be avoiding the market (and hence, they lose much wealth when the bubble bursts).

A practical example that compares perceived and real risk may be found in the way euro interbank rates are calculated. We have identified a differential between Euro BBA LIBOR, and EUROBOR, which we term the ‘spread which should not exist’.

Interbank rates are calculated in a quirky, subjective and somewhat old fashioned manner. So it is interesting to see how EURIBOR is calculated in London when compared to the identical rate calculation in Europe. In the UK, the contributor banks are asked to base their British Bankers Association (BBA) Euro LIBOR submissions on the following question: “At what rate could you borrow funds, were you to do so by asking for and then accepting interbank offers in a reasonable market size just prior to 11am?” There are 15 banks on the panel. The top and bottom four submissions are deleted, and a simple average is taken of the remaining seven.

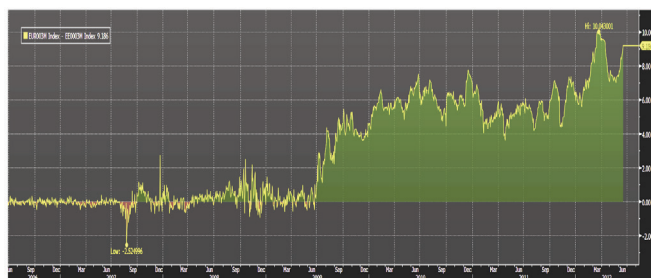
In Europe, EURIBOR is sponsored by the European Banking Federation, and is based on submissions from a panel of 43 banks who respond to a question which identifies the rate that the respondent believes that one prime bank is quoting to another prime bank for interbank term deposits within the Eurozone. In the latter case, the top and bottom 15% are removed and a simple average of 30 banks is used.

The nature of the two questions is different. In the case of LIBOR, the submission is based on the bank’s own experience. In the EURIBOR situation, the question is directed to ask what the respondent thinks other banks are achieving. There are a whole host of behavioural heuristics associated with the way each question is

<sup>4</sup> This has parallels with overconfidence in behavioural finance.

posed. In the first, the question is directed to the individual respondent; in the latter the question is asking for an opinion on another bank. If you ask a group of drivers if they think they are of above median driving ability, 90% will say they think they are. This is, of course, a statistical impossibility, and is evidence of overconfidence. A similar effect could be generated by the difference in questions. In the case of the European bank question, it may well lead to a respondent “projecting” their own heuristic biases on to the other banks.

**Diagram 3: Euro BBA LIBOR versus EURIBOR 3 Month Spread June 2006 to June 2012**



The chart demonstrates the 3 month spread between the Euro BBA LIBOR and the EURIBOR. It can be observed that the current spread is only 9.32% below its recent all time high. Furthermore, the chart demonstrates only negligible spread differentials in the period from June 2006 until June 2008, with rapidly increasing spread differentials in the period June 2008 to December 2010. At no point has the spread been as consistently wide as it is today.

It is important to note that no spread should exist, as the rates are not just technically identical, they are indeed one and the same rate. We suggest that the spreads are driven by risk perceptions, exacerbated by the difference in questions posed to the two groups of banks, as outlined above. It appears that the spread differential occurs because, in the case of the Euribor calculations, the banks’ (German Landesbanks, Spanish, Italian and Greek banks) perception of risk is greater than their counterparts in London who form part of the Euro LIBOR calculation. Clearly some of the risk premium is justified and real, however, given that European Central Bank intervention has driven interbank rates to the lowest point since the crisis began, a large proportion of the risk differential may only be described as a Perceived Risk Premium.

## Conclusion

Emotional Finance employs a Freudian psychoanalytical framework that helps to understand how investors’ unconscious emotions can drive financial market bubbles and crashes. Furthermore, it provides fresh thinking on the dangers facing investors, since it demonstrates that perceived risk may be at its lowest precisely when actual risk is at its highest.

There is much work to be done in this exciting new area. Currently, it is a conceptual framework that provides no indication of timing of bubbles and crashes. Thus far, it has merely been applied ex post to explain historical bubbles and crashes. We have undertaken a major task to attempt to develop a formal framework.<sup>5</sup> The question will then be: can this framework be used to predict the unfolding and timing of future bubbles and crashes? Furthermore, can the framework be used to educate investors to recognise their unconscious biases, in order to more bring perceived and actual risks into closer alignment? If this can be achieved, we will go a long way to reducing the real risks facing market participants.

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*Nick Bullman BBA is managing director of CheckRisk LLP, an investment management firm, and has over 25 years’ experience in investment management, including managing investments in the hedge funds and fund-of-funds business. He is also a non-executive director of Zurich Bank, part of the Zurich Group. He is a guest lecturer on Risk at the Chartered Institute of Securities and Investment and holds a BBA in International Business and Finance from George Washington University.*

*Richard Fairchild PhD is Senior Lecturer in Corporate Finance in the School of Management, University of Bath. He specialises and has published widely in Behavioural Finance and Emotional Finance, and is a regular presenter at academic and practitioner conferences. He is editor-in-Chief for the International Journal of Behavioural Accounting and Finance.*



<sup>5</sup> See Richard Fairchild, “From Behavioural to Emotional Corporate Finance: A New Research Direction.” *Management Online Review Network* (Oxford Management Publishing, 2009).

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**No.82: Plugging the “Financial Advice Gap”: Bringing Good Advice to the Mass Market**, by Nick Hurman (28 June).

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The European Insurance & Occupational Pensions Authority (EIOPA) was formed in January 2011, at a time when many in the industry were still wondering how a pan-European insurance “supervisor-of-supervisors” could operate in practice without compromising the work of the national authorities. In this article, Gabriel Bernardino, Chair of EIOPA provides a perspective on the Authority's first year of operation.

**No.74: From Brussels with Love: A Perspective on Developing Insurance Regulation at the EU Level**, by Karel van Hulle (4 May).

With EU insurance regulation landscape more relevant to individual firms than ever before, Karel van Hulle, the European Commission's lead official on insurance & occupational pensions, and author of many of the proposals under discussion in these areas, offers his own strictly personal view of insurance regulation in the post-financial crisis world.

**No.71: The Challenge of Age: Global Longevity Trends and Economic and Social Implications**, by George Magnus (23 March).

George Magnus (“the man who predicted the financial crisis”) argues that the current economic turmoil is colluding with rising longevity to severely depress returns for the elderly. Governments, societies and industries must take robust action now in order to ensure that rising longevity is celebrated rather than feared over the decades to come.

**No.68: Who Saves for Retirement? Analysing Incentives for Saving Using the Wealth & Assets Survey**, by James Lloyd and Timothy Fassam (26 Jan)

James Lloyd of the Strategic Society Centre and Tim Fassam of the Prudential summarise the results of an extensive survey exploring public attitudes driving pension saving, and draw conclusions in the context of the Government's new workplace pension auto-enrollment system starting this October.

# CPD Reflective Questions



Reading this Thinkpiece with respect to the learning outcomes below can count towards *Structured CPD* under the CII CPD Scheme. The questions are designed to help you reflect on the issues raised in the article in relation to these learning outcomes. Please note that the answers to the questions are not meant for CPD records purposes.

## Learning Outcomes

- To gain an understanding of various approaches to explaining human behaviour in financial services, including traditional theories and more recent models.
  - To be able to understand how some recent models can be used in practice, and applied to understand trends within financial markets.
  - To be able to summarise how Emotional Finance can demonstrate that a difference exists between actual and perceived risk.
1. What are some of the flaws with traditional theories of human economic behaviour? How do the new theories address them? Do you think they go far enough?
  2. In what way can understanding human behaviour with respect to financial services be applied to understanding financial markets?
  3. In emotional finance theory, financial market phenomena such as stock market bubbles and crashes may be analysed in terms of the unconscious emotions associated with phantastic objects. Explain how this could be applied to other decision making in financial services.



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