Money and Emotions

Male 1:
Emotions play a significant role in every decision we make. This programme looks at the impact emotion has on our financial decisions, and how it affects the risks traders take when gambling with money.

The Open University's Mark Fenton-O'Creevy has been investigating the importance of emotion regulation in the world of finance.

Mark Fenton-O'Creevy I'm here in Liverpool Street station, in the heart of the City of London. We are surrounded here by buildings which are full of City workers, bankers, economists, traders, dealers. The decisions that they're making in their daily working lives affect us all, enormously, as the recent credit crisis demonstrates.

Whether it's a highly pressurised trader, or someone organising their personal finances, human emotions play a key role. The way emotions affect our decision making is more complex than we might have thought. Poorly managed emotions can lead to some major errors in decision making, but they also have an important positive role to play.

Professor Antoine Bechara is Professor of Behavioural Neurology at Toronto University, and an international expert of the role of emotions in decision making.

Prof Bechara:
A lot of us are taught from early on that emotion is very bad for you. Emotion clouds your mind, and the assumption is always that logic can drive decision making, but what we are learning from neurology that that's not true at all, because you take patients who have damage in the areas of the brain that make them lose that capacity to emote and express emotions in an appropriate situation. And yet they still have all the machinery for making good logic.

So they have a very high intellect, very high IQ and a very good memory. And those patients, you would think they would be better because they don't have any emotions at all. And what we've found out is completely the opposite. They end up making a lot of disadvantageous decisions in their lives, so a lot of times they lose their friends and family, or they have bankruptcy. And it's mostly because of the bad judgement and bad decisions after they're brain damaged, even though they were not like that before.

So this is one lesson where we learn about the importance of emotions in shaping and influencing what we call 'advantageous decisions' in your life.

Mark Fenton-O'Creevy:
So emotions can both hinder and help our decision making. It is neither optimal, nor usually possible to be without emotions. But how we regulate our emotions can make a real difference to how well we make decisions, and this is just as true for the world of finance.

The Open University is one of several partner institutions across Europe collaborating on the xDelia project. This is a major research effort that's funded by the European Commission. The project involves more than just studying the link between emotions and financial decision making, we're also involved in designing learning approaches which can help to improve financial decision making by improving the ways we regulate our emotions.

Between us, we're taking a variety of approaches, carrying out research studies out in the field and in the lab, using physiological sensors and games technologies, both for the research and in our design of learning aids.

Trader 1:
I'm a trader in foreign exchange. I find emotions play a much bigger role when the market is going against you. I find it a lot easier to suppress emotions and to make more rational decisions when the positions that I have are going the right way. It's a lot harder to stay that way when the positions you're in are going the wrong way.

Mark Fenton-O'Creevy:
In one part of research, we've been studying traders to see how their ability to regulate their emotions affects their financial judgement. Traders work in an environment where they constantly take high stakes decisions, which involve significant risk.

They're subject to significant pressure, and the outcomes of their decisions are affected, to a large extent, by events beyond their control. Perfect research material.

One of the most experienced traders in our research study is Nana Dahlerup, Global Head of Spot trading at Saxo Bank. She's been a trader for 25 years, so knows all about the emotional makeup of today's traders.

Nana Dahlerup:
They're more outgoing, so they have to let off steam. And I think it's important for traders to be able to let that steam out and avoid that steam affecting their position, so to speak. So that could be swearing or stamping their foot on the ground or banging their phone on the table, and they can look very frustrated and very angry.

But it's just a way of getting rid of emotions that might otherwise affect their position.

Mark Fenton-O'Creevy:
We already have some evidence that how traders regulate their emotions makes an important difference to their performance. We're currently gathering data on emotional regulation and performance by wiring traders up to heart monitors as they trade.

I managed to grab two of our researchers, Dr Shalini Vohra and Dr. Gill Clough as they came out of one of the banks where we've been collecting data.

Female 1:
Well, we try and prepare them for this by showing a photograph of a sensitive place. One goes on the sternum, and the other one goes on the side of the ribcage. So, as you can imagine, they have to undo their shirts. If they have hair on their chests, we have to either ask them to remove it or they let us remove it!

Female 2:
That wasn't part of the job description, I have to say! And obviously it ensures better signal, because the hair can interfere with the data collection. They're quite interested to be able to improve their trading and to improve their decision making, so they are quite keen the next day to see what happened with the data, whether we've got any interesting results.

So as well as us getting data during a trading day, we also need overnight data from while they are sleeping so we will be able to compare what was happening to their heart rate while they were under stress, as compared to while they were in rest.

Basically, when you analyse the data, we compare the low frequency of the heart rate with a high frequency of the heart rate, and that allows us to assess the extent to which they are regulating their emotions.

Actually, a lot of the time these people don't realise that they're suppressing their emotions. There's this calm exterior, beneath which all the madness and all the emotional hassles are going on. So, when they see it, it's as a physiological thing which is undeniable, so it makes them have to admit, yes, there is this emotional suppression going on. There's something you do need to do about it.

Mark Fenton-O'Creevy:
So one of the things we're interested in is whether emotional regulation plays an important role in an individual's susceptibility to bias in different areas of decision making. This is one of our key lines of investigation.

We know, for example that people tend to hold on to loosing assets longer than they hold onto winning assets. They tend to cut their wins, and let their losses run, not always very helpful.

We call this the Disposition effect. One explanation of this effect concerns the emotional impact of turning a paper loss into a real life loss. Most of us tend to avoid things that make us feel bad. One of the ways that we investigated this was by collecting data from people who invest their own money and who trade on a regular basis with their own money, and preparing evidence about their susceptibility to biases in their trading with data we collect on how well they regulate their emotions.

It's all very well for a psychologist to claim that we should be concerned with the role of emotions, but is this taken seriously in the hard headed world of investment banking? Saxo Bank has been involved as a partner in the xDelia research from the outset.

Jeffrey Lins is their director of quantitative research, and I asked him why investment bankers should care about emotions.

Jeffrey Lins:
Investment banks actually spend a great deal of money and effort investigating all kinds of fundamental research questions, both on quantitative matters and computational matters of how human beings make their financial decisions. When it comes to who's playing in the financial markets, people making decisions there have real emotions, and they very likely are impacted by having these emotions during the process of buying and selling things.

From the perspective of an investment bank, this matters to us, because ultimately we are the ones who are facilitating participation in the markets for these individuals. If we can interact with them with a better understanding of what's going on in their world with respect to emotions, this helps us put better tools, perhaps, in place.

It helps us to modify some of the technical applications that we develop. It also helps us make better predictions of what to expect from humans. This kind of research is critical to our own agency insight of the financial markets.

Trader 2:
I'm a trader. I do use my emotions, but I tend to suppress the positive ones and follow a little more the negative ones. And, in particular, fear is an emotion that I recognise and I tend to follow. At the peak of the crisis in 2008 there was a lot of fear in the market and I had a lot of fear. And I could relate to this fear with the liquidity in the market.

I think the fear I had was that all of the markets were going to disappear, and that there were positions I needed to turn around. And most of my decisions at that time were driven by that particular emotion.

Mark Fenton-O'Creevy:
In many cases, regulating your emotions effectively involves the ability to think about events in different ways, so that they don't cause such intense emotions. But it doesn't necessarily involve suppressing all display of emotion.

This is a point that came up when I talked with Nana Dahlerup.

Nana Dahlerup:
I do think traders get better at not letting their emotions affect their actual trading. Experience will help them realise that usually, at least, what comes up must come down, whereas an inexperienced trader has no sense of where this is going to stop, and the panic just grows and they simply lose overview. Whereas, if you've been in the situation many times, then you

draw on that experience and that recognition in terms of calming your emotions down, at least to a degree where they affect your trading the least.

Mark Fenton-O'Creevy:
If we're right about this very important role played by emotional regulation in financial decision making, then this has major implications in how to improve decision making. We suspect that learning to make good financial decisions doesn't just mean acquiring financial knowledge, but also involves learning how to regulate your emotions effectively.

In the recent financial crisis, many investment banks have been making unusual levels of profit from investment instruments relating to housing loans. Any banker knows that there's a strong relationship between risk and return.

A rational question then, for them to have asked was, 'What risks are we carrying to account for these high returns?'

Why were they not focused on this question? The explanation may have a lot in common with the reason why someone facing serious debt may go out shopping to cheer themselves up. One of the ways, as human beings, we sometimes regulate our emotions, is by avoiding information that makes us feel bad.

So it's not all about professionals on the trading floor. Many of the things we're studying apply just as much to all of us as we go about dealing with our everyday personal finances, just like any of the people around me in this shopping centre.

Shopper 1:
I'm very aware of what an emotional topic my personal finances are, and so I'm very, very careful when making any decisions in that area to make sure I've got my emotions well reigned in, otherwise I'm in big trouble.

Mark Fenton-O'Creevy:
The partners in the xDelia project come from right across Europe. The coordinator is Gilbert Peffer at the International Centre for Numerical Methods in Engineering in Barcelona.

Gilbert Peffer:
The credit crisis in 2007 and 2008 made people, of course, ask, 'What are the origins of the crisis? How did this crisis come about?' And a lot of the explanations were grounded in the more traditional models of economic theory, the more traditional financial models.

So these question that arose was whether more recent advances in emotional research could shed new light on the crisis events. Rather than just looking at how people made the wrong decisions, how people are irrational, the question here was how emotions had an effect on decision making during the crisis.

And as we have improved understanding of how decision making might work, and how emotions might affect decision making, and as it's the major aim of the project, what we wanted to do is to use this understanding to improve decision making in the end.

Mark Fenton-O'Creevy:
One of our partners in this research is Professor Ale Smidts of Erasmus University, Rotterdam. His expertise is in the new and growing field of neuro-economics.

Prof Smidts:
Mostly neuro-economics is studying the brain processes underlying economic decision making. Economists collaborate with neuro-scientists in understanding choice behaviour. With the advent of modern brain imaging techniques we are now able to measure brain responses directly when people make a choice.

So we now quite precisely know how people will react when they lose money, gain money or when they are deliberating a risky prospect, for example.

Mark Fenton-O'Creevy:
And what is science teaching us about the role of emotions in decision making?

Professor Smidts:
Neuroscience has found that there are different neuro networks underlying decisions and underlying choices, and these networks act together, but also, in a sense, compete.

So the balance between these different neural networks drives the final decision. So there is a fast and quite immediate emotional response towards a choice that drives how people evaluate reward and pain, for example when they lose money or when they gain money.

But then there is another system, a more cognitive, deliberate system from the frontal areas of the brain that control the emotional system. By looking at different factors, you can modulate the balance between these systems. For example, if you give someone the instruction 'Think like a trader', you will already affect the balance between these two systems and that will affect the choice.

Mark Fenton-O'Creevy:
That's what's going on deep inside the brain. Meanwhile, another of our partners, the FZI Institute in Karlsruhe is using physiological sensors to look at what the external signals our bodies give off can tell us.

Kristina Schaaff:
Physiological sensors are measurement devices which are used to record back parameters, for instance heart rate or activity of the sweat glands. These parameters make it possible to

draw conclusions about the emotional state of a person, for example if a person is highly aroused, this can be seen in an increase in heart rate can be seen. While on the other hand, relaxation will cause a decrease in heart rate.

At the moment, the development of sensor technology goes towards ambulatory assessment, which means that data is collected in everyday life conditions. This is a novelty, as up till now, most physiological experiments have been conducted under very controlled laboratory conditions.

But not all effects can be easily reproduced in the lab, especially when we talk about emotions. Therefore, more and more studies are conducted in the field. The current vision is to develop devices which are small and unobtrusive enough that they can be worn throughout the day and provide constant feedback on the emotional state, in a way that the person who is wearing it does not feel disturbed by the sensor.

Within the project, the recorded data can help us to learn more about the differences in emotional regulation between novice and expert traders during decision making. In the later stages of the project, this information can be used to provide feedback to the traders about their current states, to help them to improve their emotional regulation strategies.

Mark Fenton-O'Creevy:
In Sweden, at the Blekinge Technical Institute, Professor Craig Lindley's research centres on devising games. Serious games which can support learning.

Prof Lindley:
Serious games are really games where we emphasise the kind of cognitive learning outcome of game playing. All games involve some sort of learning, but with serious games, the learning is the purpose of the game. Serious games could be computer games or board games, or in fact they could be live action role playing games.

So what we really mean is experiences which are created with the use of game design principles. In this project, we're particularly concerned with games and game type experiences created by computers.

One of the main things in the xDelia project is making people aware of their emotions and how emotions come into decision processes.

And this is based on the belief that decisions which are less emotional tend to be better decisions. One of the games that we've been working with is called the balloon analogue risk test, which is used to assess peoples' risk taking tendencies.

And obviously risk taking is very important when people are doing things like stock broking or investment. They need to not be too afraid of risk, otherwise they'll never invest anything. The balloon analogue risk test is a 2-dimensional computer game, and it's based up the player being presented with inflating balloons.

The player has to click on the balloon to burst the balloon. If they don't click on the balloon, the balloon will burst anyway. So the risk taking element is how long you're willing to

wait, because you get more points when the balloon is larger. It becomes a way of directly measuring peoples' risk taking tendencies.

Mark Fenton-O'Creevy:

We're just over a year into the three year xDelia project, and the current economic climate is certainly making things very interesting for us. For example, it's provided the opportunity to study traders and investors during a period of significant market turbulence. In the next couple of years we aim to deepen our understanding of the role of emotions in the world of finance, and to develop better ways of supporting learning that recognise the important role of skilled emotion regulation in making effective decisions.

You can find out more at our website, www.xdelia.org.