The psychology of financial participants and its implications for finance

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'The point is, ladies and gentlemen, that greed, for lack of a better word, is good'. Now, before I am pelted by tomatoes, let me say that those are the words of Gordon Gekko in the 1987 film 'Wall Street'. As he stands in front of the workforce of Teldar Paper in his New York City suit he goes on: 'Greed is right. Greed works. Greed clarifies, cuts through and captures the essence of the evolutionary spirit. Greed in all its form - greed for life, greed for money, for love, knowledge - has marked the upward surge of mankind, and greed, you mark my words, will save not only Teldar Paper, but that other malfunctioning corporation called the United States of America.'

Many economists would argue that, to a point, Gekko is right. But the American plain-talking makes most feel uncomfortable and for the movie to work, Gekko had to have some comeuppance. The direct appeal to someone's greed, without caveat and subtlety, is unlikely to work, but whether we like it or not, many economists believe personal greed is an important driver of human activity.

To discuss the underlying assumptions being made about human behaviour and motivation, its impact on economics, markets and government policy, I am pleased and proud to be joined by my brother, Dr Rajendra Persaud, consultant psychiatrist at the Maudsley Institute and Visiting Gresham Professor of Psychiatry - most of you know him as Raj. This is the first time in the 400 years of Gresham's history that two brothers have been Gresham Professors. Along the way of becoming the youngest consultant psychiatrist, Raj also picked up a strong interest in, and a first degree in, psychology. So what you have tonight, ladies and gentlemen, is an economist and a psychologist talking about the psychology of economics. Why should this be of any interest at all?

'The ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood.' So wrote John Maynard Keynes in his concluding notes to the General Theory of Employment, Interest and Money in 1935. He went on: 'Indeed the world is ruled by little else. Practical men who believe themselves to be exempt from any intellectual influence are usually the slaves of some defunct economist. Madmen in authority who hear voices in the air are distilling their frenzy from some academic scribbler of a few years' back.'

It is certainly the case that today, seemingly more so than ever before, economists have the ear of politicians, and in many cases hold the reins of policy. The mortgage rate today is determined by my former tutor, Mervin King, Governor of the Bank of England. Whether the house price is going up or down is probably influenced by Kate Barker, that other economist, with her latest review of planning permissions and controls in the UK. The price of your gas, electricity and telephone bills are influenced by the

economists at the utility regulators. The latest Climate change report, the Stern Report, was of course by that other LSE economist, Sir Nicholas Stern, and the Reith Lectures this year are being carried out by Jeffrey Sachs, a famous Harvard Professor in Economics.

In fact, I noticed that in a somewhat disparaging review of Jeffrey Sachs' Reith Lectures he was referred to as a 'bean counter'. As we are going to be giving economics a few knocks today, I think I probably ought to stand up for bean counters and say that the economics profession is far removed from counting beans. Indeed, long before climate change became fashionable, economists would have argued that we are going to have more pollution than we would like, that the nature of economics is people not capturing the cost of what they are doing when they pollute the atmosphere, etc., and that means there is going to be more pollution than you would otherwise expect. Indeed, many economists were part of the process of dismantling empire, by their arguments that free trade and the volumes of trade was far more important than the amount of bullion you may have from a disparity in trade.

So, to paraphrase, Brutus, we come not to bury or phrase economics, but to consider the underlying assumptions it makes about humanity, and consider the implications of these assumptions if they are wrong, especially with the knowledge of the scientists of behaviour - the psychologists and psychiatrists.

There are three assumptions. I am going to outline these assumptions and tell you how confident the economists feel about them, and then turn over to Raj to talk about whether these assumptions relate at all to the way psychologists think about motivation and human behaviour.

Underpinning economic ideas and policies are assumptions about human behaviour and motivation. Many of these assumptions were originally forged in the 18th Century and have hardly been amended since. I would say there are three critical assumptions that much of economics and financial market analysis is built upon. The first is that self-interest drives economic activity. This is slightly softer than 'Greed is good', but not a million miles away. Here is another quote some of you will be familiar with: 'It is not from the benevolence of the butcher, the brewer or the baker that we expect our dinner, but from their regard to their self-interest.' So wrote the great Scottish economist Adam Smith in 'An Inquiry into the Nature and Causes of the Wealth of Nations', first published in 1776. He went on: 'We address ourselves not to their humanity but to their self-love, and never talk to them of their own necessities but of their advantages.' Thus self-interest is the first assumption of economists.

The second assumption that economists like to use is the idea of diminishing returns. Needs can be satisfied: you can have the right amount of something, and more does not give you the same benefit. Greed can be satiated.

The third assumption we like to assume is that individuals are rational.

Now, all this does not tend to add up to a very cheery message. Indeed, it is no wonder that in 1849 Thomas Carlyle said of economics: 'Not a gay science, I should say, like some we have heard of; no, it is a dreary, desolate and indeed quite abject and distressing one, what we might call, by way of eminence, the dismal science.'

I think it is important to recognise the historical context of these ideas. These assumptions were put forward not as universal truths, but in increasing disaffection with the repressive rule of governance before the Enlightenment, where tradition, irrationality, superstition and tyranny conspired together so that commerce was not about the freedom to sell things, but was about governments' favours and licences.

These assumptions lead to the following ideas: the polluter pays; that governments should have a light hand in the economy, perhaps provide the funding for schools and health, but not be involved in the

provision; that trade is the best way for development, not aid; and progressiveness is a good thing, in taxation, etc., where it maintains the cohesiveness of society, but not to be driven purely for the sake of fairness. These ideas run counter to a number of other ideas: that maybe pollution and GM crops should be banned and not 'polluter pays'; that we should have regional and industrial subsidies and incentives to encourage certain things that we consider to be good; exchange controls or other restrictions on markets.

One of the key points I want to leave you with in this first section is that all these assumptions imply that financial markets provide good discipline. This means that rational, self-interested investors will sell stocks if they believe they are not going to perform very well because of what the management is up to, and buy stocks that they believe will perform well because of what the management is up to, thereby disciplining managements of companies to focus on good performance.

Most economists believe that these assumptions are self-evident, and indeed, we seldom question these assumptions. Of course, because economics is not a laboratory science, it is very hard to have lots of evidence for them, but most economists would say that not only are these assumptions self-evidence, but indeed, they have been and can be falsified. One of the many things my brother has taught me is the idea of falsifiability. Sir Karl Popper articulated in 1934 that the criterion of the scientific status of a theory is its ability to be falsified, to be disproved, to be refuted, to be tested. Economists would argue that their assumptions have come out of those tests quite well. Systems which lean on no self-interest or are driven by the interests solely of rules do not function very well - evidence might be the former Soviet Union. There is lots of evidence around the world of diminishing returns. Most people have one washing machine; a few probably have two washing machines; not many have three, four or five - the value we get at some point of additional things diminishes.

What about rationality? Economists are not really assuming that people are hyper-rational. I would say the test we use for rationality is similar to the old adage that you cannot fool all the people all the time. Economists assume that people do not make systematic mistakes on a regular basis. A good example of that is hyper-inflation. When a country like Zimbabwe has no money and It is simply printing money to fund its government activities, if you believed in what they were doing and you were fooled, then there would be not much inflation in Zimbabwe, but there is - a thousand percent.

Let us now turn to Raj, so he can talk a little bit about human behaviour and human motivation. To see whether these assumptions that economists make really stand up to some of the ideas that psychologists have on human behaviour.

Raj Persaud

One key account of human behaviour which the economists take is that people do things, and when they are doing that thing it must make sense that they do it, otherwise they would not be doing it. Therefore people have a pursuit of rational self-interest. If we look on a busy London street and we observe human behaviour, we notice that a lot of human activity is engaged in the process of making money. You will see many commuters busy on their way to go home, having worked a long day at the office. Why do they do that? They want to make money. You will see trading going on on the streets out there, people selling various merchandise, various products in the shops, so there is a lot of human activity around the notion of trade. A lot of human activity is around the pursuit of money, and in particular the pursuit of more; having more money than you already have. The economists would say that people are doing that because having more stuff, and the pursuit of it must be in people's self-interest, otherwise they would not be doing it.

However, psychologists want to call some of those assumptions into question. I will start with one example of where I think psychology brings a deeper dimension to understanding human behaviour. For this I will tread over into the central territory of economics and pick the example of what happens if you go out and buy a stock or a share in the stock market.

For the first few days you are very excited by your purchase: you wake up in the morning, open the Financial Times and look through the columns to find your share, and there it is, reassuring at the price at which you bought it. A few weeks go by, and maybe the share price starts to go up - you see a little plus sign in the little numbers on the columns - and you are beginning to feel rather wealthy because your share is going up. When you go to restaurants you now choose a different kind of wine which makes your fellow guests slightly nervous, and you look at nice products in shops - you are feeling wealthy. After a while, the share price stops going up, and then it starts to come down. Now you begin going out every morning and feverishly opening the FT slightly nervous. It is going down further and it plummets past the price at which you bought the share - now, you are losing money. Now you are checking the price of your share on the internet every night before you go to bed; you are getting very worried about what is going on. Here is the really interesting thing about the psychology of the situation: most investors, even very canny ones, hang on to a share or an asset when it is on the slide in value long after the point at which they should have got rid of it. Why do they do that? They do that for a very important psychological reason, which is regret. You do not want to regret the purchase of that share. You are focusing and thinking about all that money you are losing from the time at which you bought the share to the price at which it is plummeting and going further and further down, and because of this you are desperately hoping that share is going to turn and return to its previous value and go up in value. Because you keep focusing on the amount you are losing, it makes it very difficult for you to take that final step and sell the share and realise the loss. So the psychology of regret leads to dramatic financial implications: people end up losing much more money because they will not unload a sliding asset when they should have done, and they hang on there much too long as it slips further and further down the slope into oblivion.

When you do a bit of psychological advice to investors and ask them to think about their shares in a slightly different way, they make better investment decisions. Here is the way you should think about that share of yours that is on the slide: you should think about the fact that you have assets of yours invested in that share. You should think about where is the best place for your assets to be at any one moment. Is not it better to transfer your assets from something that has a very poor prospect, no matter how small your asset may be getting, into something else, some other investment that has a much better prospect in the future? So, simply thinking about your share in a slightly different way - thinking about the fact you have assets that are transferable and it is much better to transfer your assets into something that has a better long-term bet - is a much better way of thinking about this share and actually leads to much better investment decisions in the long run. That is pure psychology right there. The economists, I would argue, would predict that actually people should unload the share at the rationally efficient moment, because of their pursuit of rational self-interest, but even the best fund managers in the City tend not to do that, and that is because of this very powerful psychology of regret.

Let me give you another example of the power of regret. Bungee jumping is a scenario that I like to use to explain the psychology of regret. The scenario is a relatively simple one: you climb up a tall structure, people tie a bungee rope around your waist, you jump off the tall structure, and you suspend and go like a yoyo up and down, and this is meant to be a rather thrilling experience. A lot of people do not realise that there is a guy at the top of the structure who is part of the bungee jumping operation. His job is to tie the rope securely round the waist so that when you jump off nothing terrible happens, but actually, there are many people who can tie a rope securely around someone, but the kind of person who gets picked to be at the top of the bungee jump is a very special person.

He is picked because he has a very special psychological characteristic, and this is it: many people climb up a tall structure fully intending to do a bungee jump; then they get to the top and they look down over the edge and everything seems awfully small and a long way down, and they change their minds. They say, 'I am having second thoughts. I don't want to do this bungee jump!' Those people, to be frank, are a real

pain for the bungee jumping industry, because those people hold up the queue of people coming up the ladder to do the jump and it causes economic chaos. So the guy who ties the rope around you has a very special job: he has to persuade you to jump, even when you do not want to do it. He is picked for his psychological ability to persuade people who are wavering to make the jump. How does he do it? They say to you: 'if you don't make this jump now, you'll look back on this, and in a week's time, you will kick yourself for not having done it'. They play on the psychology of regret. They get you to anticipate the regret of not making the jump. That is a very powerful psychology in terms of getting people to actually make the jump.

There is actually another bit of psychology in play, which is separate, which is getting you to think about the fact that in a week's time you are going to look back on this, and if you don't make the jump, you are going to regret it. There is a subtle, hypnotic, almost subconscious point here, which is that you are still going to be alive after the jump, in a week's time.

Here is another example. Many times, if you look through your junk mail, there is an envelope that comes from some kind of prize draw lottery, and it says something like 'Open this envelope, send off the information in the middle, and you'll be automatically entered into a free prize draw, and you could win £100,000.' The trouble is, most people look at the envelope and throw it away straight away, so the wording on the front of the envelope has got to persuade you to open the envelope. At the beginning it used to say things like, 'Open this envelope, and you could win £100,000,' but that was not very persuasive to many people, because they also knew that you could not win £100,000. They have now changed the wording on the front of envelopes to get people to open them, and what they say now is, 'If you throw this envelope away, you could be throwing away the £100,000 you might have already won.' So what they are doing, again, is playing on regret. Most people say, 'Oh, I don't want to throw this thing away if it could have contained £100,000. That would be a terrible thing to do.' So they are playing on the psychology of regret and playing on the notion of loss, because people do not want to think about having lost something, as opposed to potential gain, and that is the way they get people to open the envelope.

In a way, there is a challenge there to Avinash and the economists as to why economists are not really thinking about these psychological dimensions of people's investment decisions, but let me move on to another key flaw with the economic model.

Let us take this as an example: hypothetically, later on this evening I have got a choice. I could get into my hypothetical Bentley and drive to Harley Street to do some overtime and see some private patients; or I could go home and read to my children. Let us just say hypothetically, if I went to Harley Street and saw a patient for an hour I would earn £400. On the way to Harley Street, I have to put petrol in my Bentley. I stop at the petrol pump. The petrol pump attendant who helps me put petrol into my Bentley perhaps earns £20 an hour. So I am earning roughly 20 times what he is earning. He's also got a hypothetical decision to make tonight: should he stay and do some overtime and earn another £20, or should he go home and read to his kids. Let us say we both are equally committed fathers to the wellbeing of our children.

The economists will argue it actually makes perfect, rational sense, given the massive value of my time at £400 an hour, that I do not go home and read to my kids; I go to Harley Street, earn the £400, and put the money in a trust fund to look after my kids' financial future. Because the petrol pump attendant's time is so much less valuable and investing £20 in a trust fund is so negligible in terms of helping the future of his kids, it makes more sense for him to go home and read to his kids. So the economists say I shouldn't go home and read to my kids, I should go to Harley Street; but he, the petrol pump attendant, should go home and read to his kids. What do we find from the research into the relationship between wealthy people and their children? Wealthy people spend less time with their children, and it makes perfect economic sense that they should do that, because the value of their time is so much greater. So here is a problem: that economics is very good at valuing certain things - petrol pump attendants, private practise on Harley Street. It finds it very difficult to value reading to your kids. How do we value that? Because we live in a

society that finds it difficult to value reading to your kids, a lot of stuff that is difficult to value gets neglected, and instead, wealthy people pursue things in terms of earning money which actually, in the long run, probably is not in their best interests or in their kids' best interests. It is probably in the better interest of my kids that both of us, the petrol pump attendant and myself, go home and read to the kids, but the economic system creates a situation whether I, the wealthy person, who actually in a way has more theoretical choice, ends up making the worse decision.

So now I think we should put the challenge back to Avinash to give his thoughts on these issues.

Avinash Persaud

There are a few ways in which economists think about that. First, they say we are not here to say that what people do is right, but to explain their behaviour. So an economist would have explained the behaviour of the man in the Bentley. It is predicted that he would go and earn his £400. What he is doing may be wrong for him to do, but it predicts his behaviour, and predictability is a test of a good science.

The second thing the economists would say is that we observe regret in financial markets all the time. Regret is a real behaviour. The question is, and many economists like to say this: 'Yes, there are many things wrong with our assumptions, but are they critically wrong? Does the faultiness of the assumption change the outcome?' Assumptions are about simplifying behaviour. They are not about sketching the perfect picture. But does regret change the outcome? Indeed, I would be one of the first to argue that the discipline of financial markets over the near term is not as strong as most market participants believe, or economists believe, because of issues like regret. But one of the most powerful things about free market economics is not actually about keeping costs down, but about the power of innovation.

Let us say regret is a very powerful force. Someone is incentivised to come up with a computer model to trade their financial markets. The computer has no emotion, let alone regret. The computer, if regret is such a powerful phenomena, would start out-performing the human fund managers, investors would see that investing with a computer will earn you more money than investing with a human being and they will opt for investing with the computer. Maybe they will be a bit nervous and you would need to have some degree of out-performance that would justify their behaviour. If it was neck-and-neck, maybe not. So I think that regret is a genuine phenomena, but it is not so powerful that it means that all investments are done by computers. That is the way I would think about regret.

Now I want to throw back a couple of ideas. I believe that the assumptions of more or less rationality, self-interest are correct. Economists will say that in fact what people are trying to do is to maximise utility. But utility can include many things, including money, but it could also include leisure time. It could include time spent with your kids. It could include all kinds of things. So when an economist is talking about maximisation of utility, it is not maximisation of money. I have to say that the science though is less strong, because whenever we get it wrong, we add something else in the utility function and it is not very falsifiable. So that is a challenge to economics. But I think it is wrong to view economics as saying people are only maximising their money. They may make a genuine, legitimate trade-off with their leisure. They may make a legitimate trade-off for other things.

I have found that one of the funny things about the City of London is that we spend almost every day, every hour, complaining about the French, and then we all have a plan to retire in France because the lifestyle's so good! So I think that many people put things in their utility function besides money.

But let me spend two minutes describing what I think are two genuine issues for economics. Economics has a tough time in dealing with issues of risk and uncertainty, and these are powerful issues. Economic activity, economic growth, depends on risk-taking, and if we cannot fully understand and model risk-taking behaviour then we have a problem. No economic gain is had without a risk being had. Economists are well aware of the problems of uncertainty. There is a wonderful little theory called the Market for Lemons, written by the Nobel Prize winning George Akerlof in the 1970s. Indeed, a number of Nobel Prize winners have included people who have departed away from traditional economics, experimented economics, behavioural economics, etc. George Akerlof came up with this little theory where the conclusion was that there is no such thing as a good second-hand car. In America, a bad second-hand car is called a lemon. So the Market for Lemons says there is no such thing as a good second-hand car. The problem is that if you have got a good second-hand car, you know it is good, but nobody else knows it is good. The price for second-hand cars, because nobody knows whether it is a good or bad one, is the average price between a good and bad second-hand car. But because you know that that is a lot less than the value of your good second-hand car, you withdraw your good second-hand car from the marketplace. The only thing that is left are bad second-hand cars. It is called adverse selection, and that is something economists are very familiar with.

Here is what I think is the real challenge to economics, and especially in financial markets: it is that the market participants' view of risk and their willingness to take risk, appetites or preference for risk, is not fixed. It is changing. There were times, at the top of the dot.com bubble, where everyone was prepared to take a risk. Everyone had a fanciful idea of setting up their own website and their own company and doing an IPO. Then the crash comes, and everyone's thinking of working for a nice big company with a pension plan. Risk appetite changes back and forth, and that causes a real problem for economics, because it removes the discipline of financial markets.

A stock price may be going up not because the management's doing anything good, but simply because the appetite for risk has changed. The stock price or a country's exchange rate or a bond price can be going down not because of anything they have done, but because investors' appetite for risk has fallen. Faced with that volatility of investor risk preferences, many countries and company managements will say, 'I am forgetting about the market. The market does not really know what it is doing.' So the fact that risk appetites change reduce the discipline of financial markets. If you are the governor of a central bank and your exchange rate is under pressure, not because people question the fundamentals of your country, but simply because some outside investors have lost their appetite for risk, how do you respond to that? How do you know what is changing your exchange rate? That uncertainty and that volatility leads people to want to reject being exposed to financial markets, and that is the key fundamental problem: risk appetites change. Economists find this a very difficult assumption - so difficult that we assume it away, and that is one of the problems of economists.

It reminds me of the joke, before I hand back to Rajendra to ask him whether there is any psychological underpinning for the idea that risk appetites change. One of the first jokes I ever heard about economists was that there are three people on a desert island, and they have only got one tin of baked beans. There is a physicist, is a chemist, and an economist. The physicist is saying, 'Well, if we angle the tin in the right direction, we'll get the sun's rays to bore a hole in the can, which will open the can of baked beans.' The chemist is saying, 'Well, we can rub some sticks together and create a fire, and we will put the baked beans on the fire and the pressure will blow it open.' The economist looks confused and says, 'Assume a tin opener?!' Where we have inconvenient things, we tend to assume them away, and I think that is one of the key challenges of economics: individuals may be rational, they may be self-interested, they may have diminishing rates of return, but their appetite for taking a risk changes with time.

Raj Persaud

Avinash is talking about appetite for risk, and that is a very interesting concept for psychologists because it is obviously very psychological. Let us go back to the example of the bungee jump. You are standing up there and the guy is trying to persuade you to make the jump, and your appetite for risk at that moment is absolutely crucial in determining whether you are going to leap or not. There are several things at a psychological level - and we have talked about some of them - that will influence your appetite for risk at an emotional level. We know, for example, that when people are in a very good mood, their appetite for risk goes up, and when people are in a very low mood, they are very concerned about a loss and their appetite for risk tends to go down.

One of the really interesting things about this is the notion that things happen to people and they change as a result. Economists find that very difficult to take account of. Let us go right to the centre again of economic territory and look at a fundamental challenge to it that comes from psychology.

When people go to work, their managers are constantly scratching their heads and thinking how do we get these people to work harder, better and more productively. What they do is they hit upon a key idea that we see throughout industry, which is we will incentivise people to work harder and better: if you work harder and better, we will pay you more, and we give financial incentives for better performance. At one level that would seem to incentivise people, and in fact the whole of industry, you could say, in pay structures, is based on this fundamental economic idea. But there is a very interesting strand in the psychological literature which challenges that idea, and it is a group of psychology experiences which run along this kind of theme: you give people a task to do, and you divide people into two groups. Both groups are doing exactly the same task, only one group you pay to do the task, and the second group you do not pay to do the task. After they have finished doing the task, you then give them some free time where they are free to make a decision to continue doing the task or to do something else.

The free time condition is an interesting moment to psychologists because you can choose whether to continue doing the task, and the psychologists argue that if you continue to choose to do the task, even though you no longer have to. This would be a sign of preference, because you in some way enjoy doing the task and you are now going to continue doing it because of some intrinsic pleasure you get from performing the task. A very interesting thing happens, and this is a recurrent finding in psychological literature: the group of people you pay to do the task are the ones least likely to make the decision to continue doing the task given free time. The ones you do not pay to do the task are much more likely to continue doing the task when you give them the freedom to make the decision whether they do it or not. Therefore, paying people to do stuff seems to have a profound impact on the derivation of intrinsic satisfaction from the task itself. In other words, paying people more to do stuff actually makes them less interested in doing it in a real sense, if you have free time.

You can see this in a very real sense in the example that Avinash gave, because many people in the City earn some of the highest incomes in the country, and what do they spend all their time doing? - Thinking about how to leave the City and do something else!

The psychological theory of what is going on here is when people are performing a task, they are asking themselves why they are doing it, at some level. Sometimes people find it difficult to answer that question, so they look around their environment for an answer to the question about why am I doing something. If they discover they are being paid to do it, then the answer to the question about why am I doing it is because I am being paid to do it. Having been supplied with the answer of 'I am being paid to do it', the answer cannot be 'I am doing it because I enjoy doing it'. When people look around and they are doing the task which they're not being paid to do and they ask themselves the question why the hell am I doing this task if there is the absence of payment or any external reason for doing it, the answer is 'I must be doing it because, at some level, I enjoy doing it'. That is one very interesting theory about why it is, if you do not pay people to do something, they actually continue to do it, are much more likely to continue to do it, given the free time condition.

The free time condition is a very important and interesting one because, again, economic theory ends at the beginning of the free time condition. Economists say, 'All we care about is the fact you pay people more, and during the working day between 9 and 5, they are more productive and work harder. We do not care about the fact that after 5 o'clock the people we are giving more money to are rushing off home,' because, they are not being paid to be there anymore, so what is the point of being there. The people you do not pay to be there tend to linger on and actually put in a lot of time for free. They do not care about what happens after 5 o'clock. All they care about is what is happening between 9 and 5. Psychologists would argue this is a very limited view of human behaviour and human beings, and we need to think about the impact of incentivising people in terms of people's wider lives.

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