Brief

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The hour between dog and wolf: or risk-taking, gut feelings and the biology of boom and bust - a book by John Coates

The hour between dog and wolf... the hour of metamorphoses, when people half hope, half fear that a dog will become a wolf Jean Genet

The trouble with men – and why women have less volatile hormonal reactions

John Coates is an ex-financial-market trader, investment banker and is now a neuroscience professor who has combined the latest biology and psychology, with observation of people taking risk under pressure – and even analysis of blood samples of traders. In this book he aims to help us stop and think about the extent to which we may have little control over how we behave under tough but not unusual business conditions. While the book is primarily a route to explaining some of the causes of the financial bust of 2008, it carries lessons for any leader who faces pressurised, unpredictable decisions with high stakes. Coates has more to say to describe what happens than he has solutions – but believes that being well informed about why we do things is an important start.

These are the key themes in this surprisingly readable book:

1. "Fight or flight" biology triggers hormones to alter mind and body

Mind and Body in the Financial Markets

We are all programmed, through evolution, with the overwhelming biological reaction known as the 'fight-or-flight' response. In fact anyone faced with risk can be caught up in this visceral turmoil even when death poses no immediate threat. Anyone who plays a sport or watches from the stands knows what this is like, even when it is 'just a game': risk engages our entire being, and changes our behaviour, to the extent that we are for the moment at least a slightly different person. The same applies to financial and other business risk taking.

In one important respect, financial risks carry even graver consequences than brief physical risk – they linger for months, even years. We are not built to handle such long-term disturbances to our biochemistry. Our defence reactions were designed to switch on in an emergency and then switch off after a matter of hours, a few days at the most. But an above-average win or loss in the markets, for example, can change us, Jekyll-and-Hyde-like, beyond all recognition.

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Recent advances in neuroscience and physiology have shown that when we take risk, including business risk, we do a lot more than just think about it. We prepare for it physically. Our bodies switch on an emergency network of physiological circuitry, and the resulting surge in electrical and chemical activity feeds back on the brain, affecting the way it thinks. In this way body and brain twine as a single entity, united in the face of challenge. Normally this fusion of body and brain provides us with the fast reactions and gut feelings we need for successful risk-taking. But under some circumstances the chemical surges can overwhelm us so we suffer irrational exuberance or pessimism. On a winning streak, we can become euphoric, and our appetite for risk expands so much that we turn manic, foolhardy and puffed up with self-importance. On a losing streak we struggle with fear, so that the stress hormones linger in our brains, promoting a pathological risk-aversion, even depression, and circulate in our blood, contributing to recurrent viral infections, high blood pressure, abdominal fat build-up and gastric ulcers.

Whereas in situations of personal physical danger this may have limited wider impact on others, when the body causes irrational exuberance or pessimism in the context of stress or risk at work, this can (at its worst) destabilise financial markets and wreak havoc on the wider economy.

The role of hormones – whether we like or know it, or not

When expected patterns of events break down or a new pattern emerges, when something is just not right, the primitive part of the brain stem registers the change long before conscious awareness, placing the brain on high alert. Testosterone levels rise - a naturally produced hormone to prime the body for the challenge ahead, as it does in athletes preparing to compete and animals steeling for a fight. This increases haemoglobin and the blood's capacity to carry oxygen, while also increasing state of confidence and, crucially, the appetite for risk. This is a moment of transformation, what the French since the Middle Ages have called 'the hour between dog and wolf'.

Another hormone, adrenalin, also kicks in. Produced by the adrenal glands located on top of the kidneys, it surges into the blood, quickens physical reactions and speeds up the metabolism, tapping into glucose deposits, mostly in the liver, and flushing them into the blood as back-up fuel supplies to support the body for whatever trouble their testosterone gets them into. A third hormone, the steroid cortisol, commonly known as the stress hormone, travels to the brain where it simulates the release of dopamine, a 'feel good' chemical. Dopamine operates along neural circuits known as the pleasure pathways – making us seek to repeat the activity that leads to the dopamine being produced (even to the extent of this becoming addictive behaviour).

Some people believe that greed certainly can and does cause investors to run with their profits too long. But bubbles like the dot.com era and perhaps the Roaring Twenties are not just about cynicism and cunning – they are driven by deeper, more physiological and less conscious forces. Assessment of risk is replaced by judgements of certainty. Normally, a sober and prudent lot, traders and investors become by small steps euphoric and delusional. Their minds troubled by racing thoughts, and their personal habits changing, they make do with less sleep, become reckless, show an inattention to detail, overwhelming self-confidence, and a contempt for others; all which can result in disastrous leadership and cause damage on a large scale.

All of this can lead, eventually, to an individual feeling exhausted and in feeling in the need to serious rest and recuperation.

Thinking with Your Body

At the centre of all this is the idea that we may have lost the accurate idea of the relationship between mind and body – and their respective roles. We have come to see them as quite separate, or at least with a relationship where the brain is clearly 'in charge' of our overall bodies. We tend to believe that the proof of human achievement lies in the books we have written, the theorems we have proved, the music and art we have made – the turning away from the flesh towards a life of the mind so celebrated by Plato and philosophers since.

But such an attitude blinds us to the extraordinary beauty of what the body can achieve. When our body and brain embrace, we produce movements that are like nothing else ever seen on earth. This is a uniquely human form of excellence. The brain grew in order to work with a more sophisticated body – one that can handle a sword like Alexander, play the piano like Glenn Gould, control a tennis racket like John McEnroe, or perform open-brain surgery like Wilder Penfield. The 'simple' act of running on two legs is so complex that we have not yet built robots that can happily replicate this.

So, our thoughts are intimately tied to our physiology – indeed can be driven by it unconsciously. Scientists, step by step, are thus patiently stitching closed an ancient wound opened up between mind and body. By doing so they have helped us understand how body and brain cooperate at crucial moments, like the taking of risks - including those in business.

2. We start taking decisions before we are aware of them

The Enigma of Fast Reactions

A spear launched in battle at 65 miles an hour from 30 feet away will pierce our chest in a little over a third of a second. Our time to escape runs out, the speed of the reactions needed to survive shortens into a timeframe our conscious mind has difficulty imagining. Over millennia of prehistory, the difference between someone who lived and someone who died often came

down to a few thousandths of a second in reaction time. When fast reactions are demanded the body cuts out consciousness altogether and relies instead on reflexes, automatic behaviour and what is called 'pre-attentive processing.' Pre-attentive processing is a type of perception, decision-making and movement initiation that occurs without any consultation with your conscious brain and before it is even aware of what is going on. All this applies also to tennis players, pianists or even any of us driving cars.

So, we have to ask: what role does consciousness play in our lives? Consciousness, these experiments suggested, is merely a bystander observing a decision already taken, almost like watching ourselves on video. However, the mind is ready to veto these decisions, if need be, before they are put into effect, much as we do when we practise self-control by stifling inappropriate emotional or instinctive urges. We may be on autopilot for much of the day, but that does not mean we cannot take responsibility for our actions. This means we should trust our 'instincts', but we should also work to maximise our self-awareness and be prepared to step in when unconscious though may lead us astray.

Thinking in parallel

Automatic thought is involuntary, effortless and proceeds in parallel, with many steps carried out simultaneously. It is largely opaque, and we do not know how it is happening. Conscious thought is voluntary, effortful and tends to precede serially – one step at a time. It is more transparent and we can understand the steps followed.

Can we trust judgements that simply pop into our heads? We should first recognise that intuition is not an occult gift – it is a skill. We can train our instincts – and know when we are in situations where they can be trusted. Good judgement may be a trait as physical as kicking a football. An increasing number of professions are coming to use coaches, and they have lately been appearing on more and more trading floors. This is far more basic common sense than the 'soft' support many may think.

The research for this book found that when morning levels of testosterone in male traders were higher than average, the traders went on to make an above-average profit later that day. This is clear evidence of how there unforeseen physical factors than can be more powerful that just the conscious ones in effecting our actions and performance.

3. Surprise, uncertainty, loss of control and status can make us dysfunctional:

The Stress Response to the Bear Market

Workplace stress provides a vivid illustration of how our body can have a plan of its own for handling a crisis, one over which our conscious minds have little control. In response to danger signals, the body floods with cortisol, pulse after pulse, potentially in such large quantities that it alters the character of the stress response, causing the body and brain to

hunker down for a long siege. From here on, attempts to remain cool and rational will encounter the same difficulties as a student trying to finish an exam in the middle of a fire drill.

Volatility means uncertainty, and uncertainty can have as large an effect on our bodies as actual harm, a fact of great importance in understanding stress in modern life. Researchers have found that key types of threat can elicit a massive physiological stress response – those driven by surprise, uncertainty, uncontrollability and threat to status. When this pattern takes over a person can no longer concentrate but instead scans the environment no longer knowing what is relevant and what to focus on. Scanning becomes hurried and indiscriminate, almost panicky. Too stressed to think clearly, attention jumps from one thing to another, resulting in dysfunctional inaction.

Research also suggests that optimistic people, those who are used to things working out, may not handle failure very well, and may end up with an impaired immune system and increased illness. Bankers, so well suited to the bull market, may be constitutionally ill prepared to handle bear markets.

What can help?

1. ***Build resilience***

   To begin with, mental toughness involves a particular attitude to novel events; a toughened person welcomes novelty as a challenge, sees in it an opportunity for gain. Someone who has not had the experience and coaching to build resilience dreads new events and risks as a threat and sees nothing but potential harm. A toughened person, counter-intuitively, has a stronger initial stress response than an untoughened person, but he or she masters the situation, permitting the cortisol to abate, while the untoughened person mounts a weak arousal but the cortisol lingers, causing catabolic damage. Importantly, toughened people endure a sustained challenge without depleting the amines in their brain or succumbing to learned helplessness.

2. ***The importance of physical exercise***

   Humans are built to move, so move we should. The more research emerges on physical exercise, the more we find that its benefits extend far beyond our muscles and cardiovascular systems. Exercise expands the productive capacity of our amine-producing cells, helping to inoculate us against anxiety, stress, depression and learned helplessness. It also floods our brains with what are called growth factors or ‘brain fertiliser’, and these keep existing neurons young and new neurons growing. Our brains are strengthened against stress and ageing. Well-designed physical exercise can be a boot camp for the brain. The advice to exercise, administered so liberally by doctors everywhere, could be made more effective by being more explicit.

3. ***Fresh tasks not rest***

   The cure for fatigue, according to this research, is not a rest, it is a fresh task. Overtime work does not in itself lead to work-related illness such as hypertension and heart disease; these occur mainly if workers have no control over the allocation of their attention.

4. ***Include more women***

   Partly thanks to producing less testosterone, women have less volatile hormonal reactions. It also seems that women may be less prone to volatile or extreme 'fight or flight' reactions. – some research says that in non-life threatening situations they may (more than men) try the 'tend and befriend' – seeking collaboration and affiliation. The research confirms that women, and older men, are biologically better at long-term, strategic thinking, take more time before acting, and are less aggressively competitive and less risk-prone. Women appear to have a slower approach to risk and danger – with less volatility as one outcome. This is presumably why up to 60% of client asset managers are female, only 5% on the trading floor are.

   As the book suggests: boom and bust may be a male phenomenon, and the risk-prone and more strategically important part of business might well be better served with a better balance between men and women (and between youth and age).

Stonecourt view: This book is hardly the standard management bestseller – much more of a left-field primer in biology and neuroscience. It is, however, a very worthwhile, high readable – even gripping – description of the human being with major responsibilities, under great pressure. It is a reminder that we are not in full rational control of our decisions and actions, especially so in extreme high-risk circumstances. We think there is a great deal of insight here for all leaders – even if the book is stronger on analysis of the issues than on the solutions

