Seed Weekly

7 May 2020

The Chemistry of a Crisis

To say the financial system is complex, is to put it mildly. It consists of a network of participants the world over, each with an almost unique goal or function. Let's be conservative and say there are millions of cogs in this machine. On top of that we have the sheer variety of products involved. So if this machine has millions of cogs that move/create/settle millions of different products, it becomes something otherworldly.

This is the modern financial system we see working today. It grows ever more complex over time. Today, it costs almost nothing to develop a program that performs trades, thus adding participants. Most financial products are cheap to produce – it is intangible after all. Because it's relatively costless to increase both the participants and the products of the modern financial machine, the system is likely to become harder to define in the years to come. This is not necessarily a bad thing. It is quite elegant that a pension fund in Japan can help fund infrastructure development in South America.

For a piece of machinery to be this complex, one would expect it to break down every now and again.

At face value, we have this highly complicated system. But just beneath the surface we find emotional beings pulling at the levers. To be fair, most people aren't slaves to their emotions when it comes to engaging with the financial system. We are critical thinkers after all. But we do have our faults. If a Japanese pensioner reads about the South American government defaulting on its debt obligations, it is quite normal for him to experience stress, and to reach out to the manager of the pension fund. No doubt the fund manager also experiences stress. However, it's disingenuous to say (like many articles do) that stress overwhelms our ability to make rational decisions. It's an over-simplification of a complex mental process. To state that we resort to our emotions when faced with a stressful situation, simply isn't true.

Stress is extensively studied, and has been for years. It is easy to identify but hard to define. It's contextual and complex. Stress does impact your brain, but it is nuanced.

One of the main problems the financial machine faces is human unpredictability. Stress compounds this unpredictability because it is so contextual.

Cortisol, also known as the 'stress hormone', is produced by the body in response to stress. However, as with everything else involving the brain, it's not that simple. Increased levels of cortisol in the brain may have a positive impact on our decision-making abilities, but only to an extent. When over-produced, it can have a detrimental impact on our cognitive abilities.

A study conducted with traders and their measured cortisol levels, showed that acute increases in cortisol as a result of stress, increased the traders' performance. But only up to a point. When faced with uncertainty, the traders were able to 'cope' well if said uncertainty was within the normal range. When faced with severe stress, their performance notably declined as their cortisol levels spiked. Chronic stress caused elevated levels of cortisol for a prolonged period, and had a uniformly negative impact on the traders' performance.

When faced with chronic stress, we create an allostatic load (allostasis). Simply put, allostasis is the brain's way of deciding that an elevated level of cortisol (or any other chemical) is normal, thus stopping counteractive measures. It is well-documented that cortisol impacts our pre-frontal cortex and working memory functions. In severe cases, it alters our sociability. The brain's pre-frontal cortex is vital in complex decision-making processes. Our working memory is our ability to keep multiple things 'in mind' when making a call, for example.

Unfortunately, most people are constantly stressed – even when times are good. In a global pandemic such as this, where the economy is affected and everyone is in lockdown, it's unsurprising to find people more stressed than ever. As a result, we have an allostatic load of cortisol that diminishes our use of the pre-frontal cortex. Not removed, but diminished. We end up relying on our amygdala a little more, in order to make complex decisions during times of uncertainty. The amygdala does add some level of emotionality to our decisions. This adds a bit of unpredictability in our decision-making, which is impossible to model in any reliable way.

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The financial system doesn't like uncertainty. Well, maybe 'like' is not the right word. Participants in the financial system demand an ever-greater payoff for increasing levels of uncertainty, or risk. In the study mentioned above, it was posited that a prolonged increase in cortisol levels inhibit the traders' ability to accurately frame risk and reward. As a result, traders shied away from risk/uncertainty without a much larger payoff than normal. This is a self-reinforcing cycle. Realising losses increases stress, thus reducing your risk appetite, which leads to more selling. On a larger scale, this leads to reduced financial security prices, which leads to losses, which leads to more stress, etc. It's a bad situation with a ripple effect.

As we know, the best way to reduce stress and cortisol levels is through healthy diet and exercise. Social interaction with friends and family is also beneficial. With the world currently in lockdown it has become harder to exercise, and most people haven't seen their loved ones in person for weeks. As mentioned, chronic stress can lead to changes in our sociability. This means that people under constant stress might not want to engage with others, even though it's exactly what they need to improve their mental health. Although many of us are staying in contact via video calls, it just isn't the same as the real thing. Given these circumstances, it's understandable that our stress levels are higher than would be during a 'normal' financial crash.

The global economy wasn't exactly in great shape at the end of 2019. Growth was observed in only a few sectors and countries. Although the stock market surged in the 2019 calendar year, it should be mentioned that a mere small subset of companies underpinned this growth. If US companies were excluded from the world index, it's interesting to note that we would have been worse off for eight of the last ten years. Similarly, if investments were made in the S&P 500 equally weighed index vs the S&P 500 index (weighted by market cap), the investor would have lost out on over 10% growth over the past three years. This is a clear picture of unbalanced and lopsided growth – almost completely driven by large tech companies listed in the US. Add to this the record-low interest rates across the developed world, plus historically high debt levels, and we have the recipe for a crisis.

Debt is the usual suspect in a recession or stock market crash. Debt is also critical to the functioning economy. As with everything else, a healthy balance is needed. On the back of record-low interest rates, most governments and companies levered up their balance sheets, becoming much more susceptible to a shock than would normally be the case in a bull market. Working with debt is like using a rope: It can be used in a multitude of productive ways, but you can also end up with a noose around your neck if not careful.

Due to the pandemic, people are abnormally stressed. The economy is highly sensitive to shock, debt levels are high, and there is no clear path out of this crisis. It seems almost rational for the market to react the way it did in the first quarter. Due to stress, problems became harder to solve, than they would under normal circumstances. Stress also contributed to risk aversion and slightly more emotional decision making.

However, things are looking up. Since March we've witnessed a remarkable recovery. Even though the lockdown hasn't eased up much, and we don't know when life will return to normal (whatever that may be going forward), the market has welcomed relief from the developed world, mostly from the US Federal Reserve. A staggering stimulus package was announced, providing the Federal Reserve with almost limitless support to the US economy through this crisis. This was in part due to the speed with which it was announced. My theory is that this is just about the only tool they have left in their kit, so the debate didn't include as many facets as in the past. In past crises it took months for the US government and monetary authorities to provide a life raft for the economy.

Much of the initial stress has subsided, and people are generally more positive. The market is very receptive of additional money as it improves liquidity – this being one of the main concerns early on in the crisis. In short, it seems there is some level of confidence in central agencies to provide support in these unprecedented times.

No one expects the economy to be on hold for two months, only for things to return to 'business as usual' thereafter. It is likely that the world will undergo fundamental changes because of this crisis, and we are far from being in the clear.

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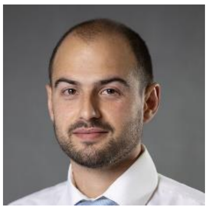
As it stands however, we find ourselves in a unique situation. The path ahead is unclear. It's fair to assume that uncertainty and constraints placed on individuals could lead to volatility in the market, as well as stop-start economic growth.

For now, it's best to focus on what we can control. We need to take care of ourselves, and be aware that our mental state may impact our decisions as we are under severe stress. We need to make an effort to 'audit' our wellbeing. The stresses placed on us as a collective has, and will, impact us in unknown ways. To be self-aware is the first step. Speak to people you trust, and avoid making high-stakes decisions under pressure if you are not feeling like 'yourself'. Together, we will get through this.

Kind regards,



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