



An Interview with Bob Swarup about *Money Mania*

This summer, we met up with Bob Swarup, author of *Money Mania: Booms, Panics, and Busts from Ancient Rome to the Great Meltdown*, a book examining the lessons to be learned from the last 25 centuries of financial crises, that has received high praise from a number of prominent publications including the *Financial Times*, *The Economist*, and *The Guardian*. Bob has an M.A. (Hons.) from the University of Cambridge and a Ph.D. in cosmology from Imperial College London. He has managed investments at financial institutions and served on the boards of hedge funds and private equity firms. He also works closely with leading think tanks, advising both policymakers and industry executives. Bob is a CAIA member and a former member of the CAIA Exam Council. He also holds a seat on the Editorial Board of the *Journal of Alternative Investments*. *Money Mania* is his first book.

BJM: So, I am reading the book and it takes a very long perspective on the booms, panics, and busts. One of the things that I noticed in particular is that you have a Ph.D. in Cosmology and now you are working in finance; that is quite an interesting combination and I wonder if you could comment on your background and current interests.

Bob Swarup: As you said, my Ph.D. is in cosmology and the pursuit of a way to understand the universe. That kind of study certainly does give you the ability to develop a long perspective - when you're examining events over billions of years, a few centuries is neither here nor there. But it also highlights the fact that very simple, small events can have very large consequences. My research focused on the early universe. I was studying the universe mere instants after the Big Bang in an effort to understand how what we see in the universe today - the planets, stars, galaxies and all the rich complex structure we observe - came about. The simple point of the matter is that during those moments, just after the Big Bang, when the universe was infinitesimally small, but growing incredibly rapidly, the tiny fluctuations of quantum particles and their collisions, all those little tiny events had enormous ramifications that eventually laid the seeds for galaxies and everything else.

For me, the experience had a deep and profound effect on my philosophical bent of mind. However, the problem is that the work is so theoretical, there is almost no way that you will know whether your views are right or wrong. Certainly in cosmology, it is not unusual to

spend your whole career believing in one particular theory of the universe, only to find out in the end that you were completely wrong and wasted the last forty years of your life. That teaches you to be skeptical of models and not to take any theory - no matter how elegant - as being sacrosanct. This has had a strong influence on how I view the world, the way that I approach life, and the way that I have approached finance.

I moved into finance, partly because I found it interesting, but also, to be bluntly honest, because the state of funding in physics was not very good. If you wanted to get a permanent position at a good university, you probably had to spend about ten years travelling the world as a nomad, perhaps a year or two in Berlin, a couple of years in Asia, likely something at Harvard or another Ivy League - all in an effort to build up those precious CV points and always surrounded by copious amounts of form-filling. The lack of positions was so acute, that any time something came up, a flood of overly talented people would rush to apply. One lucky person got the position, the rest brushed their bruised egos and continued on their wanderings. I suddenly understood why so many physicists I knew were single - incentive rather than intent - and the prospect of badly paid altruism didn't seem so attractive anymore.

So I became one of the latest brain drain statistics to flee the world of academia for finance. In finance, if you are a quant - someone who understands mathematics at a deep level - it is very easy to be accepted in the field; they can teach you the economics and the financial aspects, but not the math. And you're well paid, because you have a skill in high demand. This is actually kind of bizarre, if you think about how important math is today - and yet in most finance and economic courses, math is still taught relatively simplistically.

So I have spent the last decade or so in finance, mostly in alternatives, and variations on that. But a lot of what I learned previously helped me to be skeptical of models and to have a perspective that is not just tied to the next week, month, or quarter. In the markets, for all the talk of sophisticated models and financial wizardry, we are still primal creatures driven by emotion. For example, the current Bank of England Governor, Mark Carney, recently talked about how interest rates were going to be two and a half percent in three years time and that was going to be the new normal. He then pointed to the financial markets as supporting this, noting that the for-

ward yield curve predicted for 2017 that interest rates will be two and half percent as well.

The irony is, of course, that what the financial markets tell you is going to happen in 2017 is not a forecast. It is actually a projection of huge pools of expectations and emotions. All you are doing is projecting forward what you hope or fear will happen, based on what you know today, and volatility is nothing more than these pools of emotion competing against one another. Uncertainty is the norm and the danger is that we always create models that try to convert uncertainty to risk, but forget that risk is nothing more than an idealized mathematical proxy for uncertainty. The problem in finance or any other aspect of life, is that if you like the story enough, you will begin to believe the ideology or the models more than the reality.

BJM: A lot of what you are saying reminds me of the quant finance community, particularly in London and New York. People with backgrounds similar to yours, like Emanuel Derman, found in physics that if you hadn't found a really critical problem to do your dissertation on, it created great difficulty for you, not just in terms of a nomadic lifestyle, but also in what are you devoting your life to; it may be so small or in the wrong direction, it could be quite disappointing in the longer term.

BS: Certainly the situation for scientists is very acute, but it affects every aspect of human endeavor. One of the things I focused on at university was the history and philosophy of science. There is a famous philosopher called Thomas Kuhn who wrote a book called *On the Nature of Scientific Revolutions*, which subsequently became hugely influential across many disciplines; the phrase "paradigm shift" actually comes from that book. In spite of what we may believe, revolutions in science don't happen because somebody finds a better theory and somehow we all realize that the science is better, and the consensus rationally shifts over. His point was that rather, you have a dominant theory that over time gradually begins to accumulate more and more flaws - eventually it becomes unworkable. However, partly due to ego and partly blind belief, the people at the time refuse to accept the erosion of the theory and keep inventing more and more fantastical flights of fancy that try to force the world to continue to fit the theory somehow.

Eventually the evidence is so great against the old the-

ory that there is a dramatic shift when another theory comes along that actually explains something meaningful. Also over time, the older adherents die out. New ideas sometimes don't even win the battle; they just outlive the old. So, the paradigm shift is driven by human emotion, ego, generational change, and the like. This view destroyed the myth of the scientist as some rational relentless seeker of knowledge. In fact, maybe most scientists (and people for that matter) are ideologues who become obsessed with certain views of the world and will fight, sometimes literally to the death, to defend those views.

BJM: I read the Kuhn book as an undergrad in an anthropology class and it was a life-changing book...

BS: Yes. In *Money Mania*, I have a section on financial crises from the perspective of revolutions and the Kuhnian shift. It's very important, because most systems exhibit similar dynamics in how they evolve. If you think about the quant community, many people blame quants for what happened in the past few years, and when you talk to a lot of quants, they are relatively obsessive about their models and the belief that they can capture all the relevant risks in the context of a few numbers. The world can be defined through the perfect lens of their model.

What is interesting, however, is that within the same community, if you take someone like Paul Wilmott or Emanuel Derman, you will find that they are amongst the most skeptical people that you will ever meet. Paul Wilmott and I agree a lot on areas of risk management, because he believes much as I do that the real question of risk management isn't one where you call on some beautiful scenario that tells you the downside is 17.38%, add a couple of additional decimal places and scenarios for good measure. Actually good risk management starts off by saying, "I have just lost 25%, what the hell happened here?" and working backwards.

The point is that you can't divorce the human being from the model or the market. They are very much entwined and part of the problem with the human is that the brain is a remarkably difficult thing to model. Therefore, you have to allow for the uncertainty that human behavior brings to the financial markets. It is not efficient or perfectly rational, rather it is bounded by gigantic pools of emotion. Whatever we may call volatility is the end result of huge herd mentalities fighting it out for dominance in the market. We are emotional

creatures and we cannot get away from that ebb and flow; we will fall in and out of love, get angry and hate, and be passionate about the teams we support, the food we eat, the assets we buy and trade; this is true about almost anything in life.

BJM: There has been a great increase in the number of books that touch on behavioral economics lately and many have gained traction in the popular press...

BS: There is an interesting paradox about books that try to take these perspectives out to the masses; the authors will show you how your biases really affect almost all economic decisions, but part of the message of behavioral economics is that we all love stories. If it's a good story, we'll believe it, irrespective of the facts. So, the irony is, if you read a book like *Freakonomics* or *Thinking Fast and Slow*, you are more likely to end up believing the narrative, as opposed to thinking more deeply about all of the things you do every day. It has simply provided a new narrative in how people talk about the world.

There is an episode in *Money Mania* called the "Seattle Windshield Epidemic," which is an amazing exercise in human hysteria. It started with some reports in a small town near Seattle, where vandals were said to have been sling-shotting stones at people's car windshields, causing little dings and scratches. As people talked about it, the police investigating this situation soon had more reports coming in. Then the media picked up the story and once it was in the news, other towns began reporting similar occurrences. The police began setting up roadblocks between towns, trying to catch the vandals. That effort failed. Then, some cars showed up dinged badly at a military base, so the base shut down and soldiers went through the site with a fine-toothed comb, but could not find anyone.

At that point, the investigators and wider populace felt it could not be vandals and moved on to instead speculating if the windshield damage was linked to the new hydrogen bomb that had been exploded just a few months before, or cosmic rays (the space race had recently begun) or fleas laying eggs in the glass. It was a wonderful example of how people had taken simple events and woven them into a narrative, not because it was true, but because they could not explain the events otherwise.

It got to the point where there were 1,000s of reports in a single day and the Governor sent a panicked demand to the President to call in the National Guard. A scientific task force was set up and at the end of it all, what they found was that the dings had always been there. The difference was that people had always looked through their windshields and never at them; they had accumulated over the years from driving on the roads in the region. But once people did notice the damage, they tried to put it into a narrative that could explain their new view of the world. You may know Occam's Razor, but there is also Hanlon's Razor, "Never attribute to malice that which can be explained adequately by stupidity."

BJM: That is a funny, if somewhat disturbing story! So the book has been well-received – how do you feel and where are you planning to go with your next projects?

BS: That's a tough question. As a writer, when you put a new book out there, it is your baby and you are deeply sensitive about the feedback. So, of course, when people like it, you tend to be over the moon. I'm lucky to have had such nice reviews from the *Financial Times*, *The Economist*, Paul Tudor Jones, and *The Guardian*, amongst others.

The book has only been out for five or six months now, so it's a bit hard to think about the next one in detail yet. However, if I look at what are the burning issues out there, two come to mind. The first is inequality - Piketty's book has really set off that whole perennial debate again. In times of crisis, as I discuss in my book, the debate about equality and society is never far behind. A crisis exposes structural frailties and very often when crises keep occurring, we can see that the structural flaws are just papered over and so, keep cropping up again and again. Eventually the system will fix the problem, but often in a catastrophic way.

A classic example would be the French Revolution. It was not about freedom or democracy, rather, it was the culmination of nearly a century of financial crises that had acutely destroyed faith in the financial system, in the French government, and eventually in their model of society. So, at some point people move toward mass revolution. As with many revolutions, once the middle class committed to change, everything else followed very rapidly. It is important to understand inequality in the right context - society and the structures we create

are, by definition, unequal, because we have a human bias towards getting ahead and being competitive.

In addition, if you look at almost every structure we have, it's still a very feudal system - every political party has a hierarchy that ends up with a leader, every company has a hierarchy that ends up with a CEO, every family has a hierarchy with parents, as it were. We don't really do decisions by committees in any sphere of our lives and often view them negatively (after all, who doesn't gripe about bureaucracy?). So, even though we have ideological systems like democracy, the reality of "first among equals" endures. Given all that, how do you manage the tensions in such a way that people can work together for the greater good and not decide periodically that the game may be permanently fixed against them?

BJM: And you mentioned a second topic or theme...

BS: Well, the second one is regulation and policy makers in general. In the book, I mention that in the last 400 years, there has been a financial crisis in Western Europe about once a decade, on average. In the last 200 years, there has been new regulation introduced once a decade on average as well. What this tells you is that the way we do regulation doesn't really work. What it comes down to is a fundamental flaw - we always try to fight complexity with complexity. Furthermore, we tend to forget that policy makers are people too and therefore are subject to the same kind of biases as the rest of us. If you go back to Keynesianism, the one glaring flaw in his work is his belief that the state can somehow provide better outcomes; the state itself is a nebulous independent entity in his work.

The problem is that the state, particularly if you accept the way that society works on a hierarchical level, is ultimately going to be run by a few people who have their own views of the world. We can all see an enormous disconnect between economists and people in financial markets. Equally, on one hand, policy makers argue that banks should be safer and hold more capital, and on the other hand, they also demand that banks should be lending more to small businesses and widening home ownership. They seem to miss the fact that the two objectives cannot work together. There is a constant tradeoff between financial stability and growth. A more stable system is usually a less leveraged system, with less credit as a result. That is rarely palatable given the temporal myopia of policymakers, and so what hap-

pens with that particular tension is that financial stability usually ends up being sacrificed on the altar of growth.

So, one goal is to understand the government advisors and policy makers and how they behave. Then to examine what a sensible regulatory framework would look like - how do you tackle these bigger issues, given all of the tensions and constraints in the world? This is a fascinating and critical area of study. More than broad thinking about inequality, world peace, or the environment, what you are talking about here is how to manage that basic tension between the human drive to move forward and achieve economic growth and the desire to keep things stable, in a kind of status quo. Society will always have dislocations and disruptions from growth and how do you balance those dual forces, so it doesn't fall apart.

There is one other episode that is worthy of a book in itself. One of my opening chapters is about Rome in 33 A.D. and how they had a huge real estate-fueled bust that was very similar to our subprime crisis. The solution in the end was that the Emperor Tiberius flooded the system with money, set up a bad bank, and proceeded to bail out all the senators. He gave them money against their mortgages and took little pieces of paper as security - a rudimentary form of mortgage-backed securities.

Today, if you talk about too-big-to-fail banks, probability and history will tell you that eventually everything fails. So if you create a system where things are too big to fail, you have a problem, because when that failure happens, you haven't planned for it and you won't know what to do.

Looking at the Middle Ages, in the 12th and 13th centuries, there was an early Renaissance where art, culture, innovation and money all grew rapidly. Marco Polo travelled to China; the loom and button were invented; the first great European writers like Chaucer emerged; and art and architecture began to evolve rapidly past the icons of the last millennium. These developments were accelerated thanks to the rise of large banking families and the use of human ingenuity to find ways around the ban on usury that the Catholic Church has implemented. In doing so, credit growth was fuelled and in time, there were more innovations like cheques, forward contracts and currency exchange contracts. For example,

monasteries – the great farmers of the day - began to sell forward their wool harvest a year, 10 years, 20 years into the future, sometimes losing enormous amounts of money because tradeoff their ill-judged bets. All of this came to a crashing standstill at the end of the 13th century, because as these families got bigger, they became gigantic conglomerates whose tendrils extended deep into European trade. They also began to lend a lot of money to the kings and sovereigns of the day - who were seen as the safest to lend to thanks to their absolute power.

In the 1290s, a number of sovereigns started to run into trouble and suddenly these families found that their biggest clients were defaulting - they were completely exposed. Events rapidly escalated, building up to a crescendo in the mid-14th century. In those days, the families could not finance themselves through a depositor base, instead they had borrowed money from other guilds and families around Europe - effectively wholesale financing to make these loans to sovereigns. So when this started to fall apart, they all went bankrupt in different ways. Some very famous cities in Italy, like Siena, literally became frozen in time at that point, as all the money went away. A few of these groups were so vital to the economy, with tendrils everywhere, that as soon as the money dried up, the economy died. The next hundred years was basically the Great Depression of the time - what we now think of as The Dark Ages. There is a hundred year gap when too big to fail simply did fail.

BJM: And then later the Medicis picked up the pieces.

BS: Yes, at the end of the 14th century, decades after the whole thing went under and it took almost a hundred years to put it all behind. But a major part of the reason the system recovered was due to the Black Death. Ignoring the horrors of it, just economically speaking, when a third of the population was lost, suddenly everyone who survived was one half times richer. It rebooted the system, but no one ever signs up for that kind of creative destruction. It shows how too big to fail can be disastrous.

BJM: Thanks very much for this great discussion - there is plenty of food for thought here and we will look forward to your next endeavors.

In addition to the publication of *Money Mania* and

planning for his next book, Bob is also a contributor to *The Guardian*, *City AM*, *The Huffington Post*, and specialized trade publications like *Coindesk.com*, and *AllAboutAlpha.com*, covering issues in the alternatives arena as well as bitcoin and the digital currency world. A sampling of recent work is available through the links below.

- 2,500 Years of financial crises, a video interview with Bob Swarup by John Authers, courtesy of the Financial Times, April 25, 2014. Part 1: <http://t.co/cApIrbIUTr>
- Keep it Simple, Stupid, FT video interview with Bob Swarup by John Authers, courtesy of the Financial Times, April 28, 2014. Part 2: <http://tinyurl.com/o53wge4>
- How 'Too Big to Fail' Became 'Too Big to Manage,' in *The Huffington Post*, April 7, 2014: http://www.huffingtonpost.com/bob-swarup/how-too-big-to-fail-becam_b_5100646.html
- Is Bitcoin Fated for Boom and Bust?, in *Coindesk*, April 12, 2014: <http://www.coindesk.com/bitcoin-fated-boom-bust/>
- Bubble trouble: We're sacrificing financial stability for a growth illusion, June 12, 2014: <http://www.cityam.com/article/1402603210/bubble-trouble-were-sacrificing-financial-stability-growth-illusion>
- How QE has harmed the economy, April 07, 2014: <http://www.cityam.com/article/1396898990/why-qe-now-harming-growth>
- London property - the barbarous gold of our times, May 16, 2014: <http://www.theguardian.com/business/economics-blog/2014/may/16/london-property-barbarous-relic-economics-blog>

You can find Bob on Twitter as well: www.twitter.com/BobSwarup