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In this issue:

Ever closer union between man and machine

Eoin Treacy, Investment Director

A couple of years ago, I was at the Daily Journal AGM and Charlie Munger was fielding questions from the audience. It was a pleasure and an honour to sit in the first row and witness one of the world's most famous investors expound on various topics. There were a number of interesting subjects covered but it was his answer to one question in particular which really stuck with me.

What was his opinion of Elon Musk? He said the man's accomplishments are beyond question, but that he is always wary of someone with an IQ of 170 who thinks it is 190. For me that statement elegantly captured the enigma of Musk: both the scale of his success and his penchant for the grandiose.

There is no denying that Tesla has succeeded, where other companies have failed, and delivered a suite of electric vehicles which people aspire to own. Not to mention his success with SpaceX, developing a reusable rocket which massively reduces the cost of delivering payloads into space. Musk's original company created PayPal, now on track to rival Mastercard and Visa as a payments network. However, it is another one of his other ventures I want to talk to you about today. It too has grand intentions, and it is at the forefront of a trend that could change the face of humanity forever – combining the mind of man with the mind of a machine.

Bloom and gloom

Musk and Mark Zuckerberg have been arguing recently over the threat posed by artificial intelligence and robotics. Musk takes a dystopian view and believes there is a serious threat of artificial intelligence eventually endangering human life. Zuckerberg has presidential ambitions so has a vested interest in portraying a rosier perspective: that this threat can be managed.

Once a computer has been taught something, it never forgets and that lesson can be shared with every other computer forever. The power of a constantly self-improving problem-solving machine is hugely appealing to those wanting to solve large problems. After decades of slow development, progress in the sector is quickly advancing – momentum has been achieved.

Should this momentum continue to grow faster, the applications for this digital intelligence will grow also, and begin to replace humans in the workplace through robots.

There are three primary challenges in developing robots which can replace humans in their endeavours. These are power usage, optical comprehension and programming. The precision engineering required to build the necessary infrastructure is comparatively easy compared to these challenges. That suggests it will still take time before robots are fully up to the task of completely displacing humans, but the trend makes it seem inevitable. They are coming first for the jobs that require little education, and from there will advance up the chain of worker value, replacing progressively more skilled workers.

Zuckerberg and Musk are trying to answer the most important question of this generation: what will humans do when robots remove our need to work?

I've written about this topic previously when I recommended 2U as a play on the evolution of Massive Open Online Courses. Education is the most optimistic answer to the question. The rapid pace of technological innovation is such that many of the skills we learn in school are quickly becoming obsolete so that we are all challenged to adapt to a lifelong pursuit of education. However, the reality is that not everyone is either willing, able or has the motivation to embark on a programme of retraining.

What will humans do when robots remove our need to work?

Let them eat cake

Trials of universal basic income (UBI) are already underway in a number of cities and countries. Musk himself has said that UBI may well become the norm when robots have taken everybody's job in society. But what will people do with their time when they have enough income to cover their basic cost of living? The dream is that they will embark on a course of personal development, and do whatever they are naturally gifted at doing. But what would be the incentive? Regardless of one's income, self-control is required to abide by a diet. But when the food is free it is hard not to relax. My suspicion is that UBI will be similar.

Quite apart from ignoring everything we already know about human motivations and how we respond to stimuli, risk and reward, UBI removes the need to strive for a better life, which is what has been the most successful strategy for delivering millions of people out of poverty in capitalistic societies.

UBI also comes up against Margaret Thatcher's simplest argument against socialism: "eventually they run out of other people's money [to spend]." I find it particularly illustrative that the majority of high profile advocates for it often don't pay taxes at all, but find no problem deciding how everyone else's taxes are spent.

UBI is guilt extinguishing for the mega wealthy, but is the modern equivalent of saying "Let them eat cake". The owners of the world's largest technology companies will never fund it, but will expect everyone to continue to use their products.

They are in a situation where they have accumulated vast wealth but in order to keep that fortune growing, billions of people must keep consuming their products. They advocate giving everyone enough money to live on but never seem able to answer where this money will come from. I'm going to be amazed if UBI is the answer to the ails afflicting society.

But perhaps there is a way of keeping robots out of the workplace, and keeping the populous away from UBI, for a while longer. How? By making humans smarter.

Magnifying your wits

An interesting way of thinking about the subject is to consider average IQs. The reason the IQ scale ranges around 100 is because that is the average IQ. 68% of the global population has an IQ between 85 and 115. Most of us would like to think we are in the upper side of that scale, but the rather harsh reality is that 50% of the global population has an IQ of less than 100 – below average.

If the unemployment rate is somewhere around 4%, then it is reasonable to assume there is a significant number of jobs out there which require less than average intelligence to successfully accomplish. These jobs will be the first to be automated. That represents a major issue. Do we either find new jobs for less academically minded people or do we find a way to make them smarter? These are huge questions which many companies are grappling with, producing a range of possible answers.

The pace of technological innovation is advancing so quickly that the number of jobs that can be automated is increasing rapidly. The two categories of job that appear to be most at risk are those which are heavily unionised, which increases costs, or those which do not require a great deal of skill to complete.

Google relaunched its smart glasses, Google Glass, in July – this time aiming them at the corporate sector. It expects that putting more information in the field of view of employees will make them more productive. I know I tend to watch YouTube videos when I need to fix something in my home and having a headset that puts the action right in front of me is a potentially useful overlay.

Microsoft has developed an augmented reality headset called HoloLens which is also being aimed at the corporate sector. Augmented reality overlays computer-generated imagery on top of the world we see. It is a step in the direction of virtual reality, which many people have experienced through the Pokémon GO mobile game. Pokémon GO overlays a Pokémon on to the camera feed of your phone so that it appears to be right in front of you. But Microsoft has loftier ambitions for the HoloLens than gaming. It wants to create augmented reality work stations, collaborative groups and to own the corporate work environment of the future in much the same way it did with Windows.

Both the HoloLens and Google Glass are aimed at making workers more adept at their jobs – increasing their "work IQ".

Here is a section from a recent article about Facebook's research into brain-computer interfaces:

Today at F8, Facebook revealed it has a team of 60 engineers working on building a brain-computer interface that will let you type with just your mind without invasive implants. The team plans to use optical imaging to scan your brain a hundred times per second to detect you speaking silently in your head, and translate it into text.

I'll be an early adopter for that kind of product since I reckon I type upwards of 10,000 words a week and to say it is time consuming is an understatement. But while the potential to read minds so that we can get our thoughts our there into the world is tantalising, it does not solve the question of how to make us smarter.

> If wearable devices won't make you smarter, there is always the extreme option: changing your genetics.

And if wearable devices won't make you smarter, there is always the extreme option: changing your genetics. If you are a veteran subscriber, you are likely already familiar with how excited we are at the potential

for CRISPR-CAS 9 gene editing technology to revolutionise the genetics industry. It is already well known that genetics play an important role in intelligence and whether you have the drive, motivation and perseverance to succeed with it. As more and more of humanity's genetic code is understood, it is inevitable that people will begin to think about how genetics can be harnessed to become superior humans.

We might think of fiddling with our genetics to attain a certain eye colour, height, skin tone, intelligence, etc, as creepy, or wrong. But we make this judgement from a privileged position. I have met Chinese women who travelled to the US for its sperm banks to ensure their children would be fathered by a blond haired, blue eyed Russian. The only reason they did not opt for outright genetic manipulation is because it was not available.

It could be ten more years before that kind of enhancement is possible and it may take another ten years before legislation is passed to legalise it. However, it is worth remembering that it is a big world out there, which is growing progressively more competitive and countries, not least China, will seize whatever advantage they can. Genetic enhancements will likely be available internationally long before it is possible within the NHS, and could end up being the only way to stay ahead of the robots after your job.

Brain-computer interfaces (BCIs)

Elon Musk is taking a radical approach to the problem, in founding a new company called Neuralink. Neuralink is actively hiring engineers, and aims to produce a tool which will tap directly into the brain to provide us with all the information we need. If computers are getting smarter than we are, we had better have one inside our own heads to have a chance of competing with them.

In order to sort through the torrent of information that we are faced with on a daily basis and more importantly to make it relevant to what we need to do in our daily lives, some form of assistance is going to be required. A bolt-on tool which has direct access to the neocortex is what is suggested.

If computers are getting smarter than we are, we had better have one inside our own heads to have a chance of competing with them.

The internet is the most profound library of human knowledge ever created and it is expanding at an exponential rate. Metcalfe's law states that "the value of a telecommunications network is proportional to the square of the number of connected users of the system." With seven billion people on Earth and let's say half connected to the internet today, the value of the internet becomes unimaginably valuable.

Fans of *Star Trek: The Next Generation* will likely be familiar with the Borg, which appear to be hominids that have been augmented with various tools that allow them all to communicate seamlessly with a hive mind. Dan Simmons' book *Hyperion* also explores a future world where genetic and physical augmentation are de rigeur. I could go on with more examples of how brain-computer interfaces have been imagined, but the more pressing question is whether they are feasible with today's technology.

There are two major obstacles. These are that we still do not have a full understanding of the brain, and nor do we fully understand the immune system.

A map of the brain detailing every neural interconnection could be as large as 1,000 exabytes or almost four times as large as the entire internet was in 2007. Computers do not exist today which can handle that quantity of data.

The immune system poses another problem. It was practically impossible to measure immune responses until the early 20th century – the field of clinical immunology is less than a 100 years old. Inserting a permanent wireless interface into the skull is no small matter – we had better

be confident it is not going to be attacked by the immune system as an intruder.

Taming the immune system is perhaps the most important medical endeavour of the century.

Anyone who has ever suffered from tonsillitis will be familiar with the havoc that can be caused when the immune system misfires and attacks its host, the body. The very same process can be observed with arthritis, autoimmune disorders and rejection of transplanted organs. On the other hand, failure of the immune system to identify impostors like cancer allows them to flourish and eventually kill us. HIV/AIDS kills the immune system leaving the body defenceless to even modest infections. The range of impressive potential outcomes that can be achieved through greater understanding and mastery of the immune system is truly exciting. Mastering the immune system would have huge benefits

I've written previously about the field of immuno-oncology which is making impressive advances in the development of tools to redeploy the immune system to combat cancer. The billions invested in trying to understand the deleterious effect HIV/AIDS has on the immune system are yielding impressive results and these fields of study are all contributing to the corpus of information relating to the sector.

The possible investment gains to be reaped from this trend are massive

Right now, the most common brain-computer interface is the cochlear implant for those who are deaf or extremely hard of hearing. As of 2012 over 300,000 had be implanted in patients all over the world. The implant functions using a microphone which bypasses the damaged part of the ear and transmits audio data directly to the brain through the auditory nerve.

Similar devices for the blind are currently in development. Second Sight Medical Products began the first clinical trial of its Argus 1 bionic eye product in 2002 and followed up with an additional product, Argus 2, in 2006 with a clinical trial of 30 patients. It is a privately held company and continues to improve its product offering – there is the very real possibility that vision can be restored, at least partially, to blind people. The system works by inserting an electrode on to the eye, which is linked to a camera and processing unit housed in a pair of glasses. It is a forerunner for the kind of brain-computer interface that Neuralink aspires above and beyond in the future.

Musk's vision for Neuralink is altogether more ambitious, with an implant communicating directly with the brain to lend people with even below-average intelligence the capability to complete highly complex tasks and to enhance their creative potential. To my mind it is not really a question of if but rather when an attractive pure-play investment opportunity will open up in this sector. The question of what we are going to do with all those who lose their jobs over the next decade will persist and grow in importance on a social, political and economic level. The bigger question is whether the Neuralink solution is a near-term project or a long-term research project. I think it is a little too far in the future to make a pure-play investment right now.

That brings me to the question of what we invest in right now to give us exposure to this evolving story. It has the potential to change the planet as we know it and reshape the human condition – the possible investment gains to be reaped from this trend are massive. I anticipate revisiting this sector again in the future – delivering a workable brain-computer interface is going to take time. But the augmented reality sector is rapidly advancing, and represents a bridge to the ultimate future of brain-computer interfaces.

Microsoft has been resurgent

since it ditched Steve Ballmer and pursued creative new projects like the HoloLens. While the HoloLens is becoming an increasingly commercial product, it is the software subscription model the company has adopted which is driving performance.

The valuations of the FANG companies (Facebook, Amazon, Netflix, Alphabet/Google and Tesla) are at eyewatering levels that are hard to justify on current earnings. However, Microsoft has a long history of delivering on both cash flows and dividends, and has the potential to develop even more products. Right now, the HoloLens does not move the needle in terms of overall company revenues but that isn't something I'm particularly worried about. After a decade of outsized sales, the Xbox accounts for about 11% of revenue. If the HoloLens can eventually account for that portion of the business, Microsoft will be well on its way to developing a commercially viable brain-computer interface machine.

Microsoft's adoption of a subscription model for its business has helped to streamline cash flows, reduce volatility and allow customers to plan for expenditures in a predictable manner, while always being assured that its software is up to date. This is helping the share to maintain a position of outperformance, which I anticipate will continue well into the medium-term.

I recommend buying Microsoft up to $80 with a 12-month target of $100 and five-year target of $300.

The share currently has an historic price/earnings ratio (P/E) of 28.66 but an estimated P/E for this year of 23.13 which anticipates further growth in earnings. In fact, against a macro background of synchronised global economic expansion, the outlook for earnings is likely to remain positive well into the medium-term.

Considering Microsoft's size and reach, the biggest threat to its positive outlook is a lapse in global growth or the erection of trade barriers. The company has deftly handled such threats in the past; for example, I am writing this month's issue from China and all my Microsoft applications work perfectly, while YouTube and Google are persona non grata in the country. Nevertheless, the threat of a rising protectionist tide is non-trivial and is perhaps the greatest potential obstacle to the company's continued growth.

Sino-cryptoism

Why is everyone so interested in initial coin offerings (ICOs)?

It's a question a lot of people unfamiliar with the cryptocurrency market may be asking. The process of launching your own cryptocurrency is getting easier and the number of these vehicles is proliferating. The media is filled with stories of companies raising hundreds of millions of dollars overnight instead of listing on the stockmarket to fund expansion. Investment bankers are leaving high paying jobs to join the ICO craze. By getting in on the ground floor the rewards can be immense for the owners of newly minted coins, assuming of course there is a ready secondary market to sell them into later.

A picture really is worth a 1,000 words.

Name:	**Microsoft**
Ticker:	**MSFT**
Buy below:	**$80**
Last closing price:	**$73.04**
Market cap:	**$560.4 billion**
52-week high/low:	**$74.42/$55.61**

figures accurate as of last market close: 31.07.2017

Five-year performance:
2012: 1.43%| 2013 +41.02%|2014 +35.15%|2015 +29.30%| 2016 +36.76% |2017 +10.83%

Look at these two pictures of bitcoin (above).

The one on the left is the nominal price you're probably familiar with.

The one on the right is a logarithmic chart where the right-hand scale depicts a percentage gain rather than nominal appreciation.

For a leveraged trader, the nominal scale is the most important because they are interested in how many percentage points the price moves. The higher the price, the greater the number of points it moves, and the more potential for profit or loss.

For unleveraged investors, which are the majority of people participating in the cryptocurrency boom, I would argue the log scale chart is more important. With a log scale chart you get a true representation of how explosive the initial growth stage is and how much the price has to rise to replicate that initial couple of doublings.

In simple terms, it is easy to double when the price is 1 but requires an additional multiple to double when the price is 2.

The log scale chart of bitcoin highlights the extent to which it has already rallied from modest beginnings and helps to illustrate why there has been such interest in ICOs. After all, it is much easier for a cryptocurrency to double from $0.01 to $0.02 than from $1,000 to $2,000.

That's true of just about all markets. One of the reasons emerging markets so often represent high beta plays on developed markets is for the exact same reason. Imagine someone in Africa or India who has worked for $1 a day for the last decade and her salary increases to $2. Her standard of living has just doubled – she can literally buy double the quantity of goods and services she could yesterday. The impact that has on an economy is much greater than if someone making $25 an hour suddenly moves up to $26.

It's also why small-cap shares tend to outperform large-cap shares. It's why small business growth rates have the potential to outpace much larger businesses. For example, my wife's business is set to grow 300% this year because she started small and is leveraging up conservatively. For Apple to grow 300% in a year would require a new product as successful as the iPhone.

The simple reason then that so many people are interested in ICOs is because if you can get in at the ground floor you have massive potential to make a profit.

Logarithmic scale charts are useful for another reason too. The difficulty of minting new coins increases in a predictable manner. The trajectory of the price of a cryptocurrency should follow a log scale chart because value should increase as the cost of minting new coins increases, assuming traffic over the blockchain network backing it increases in at least the same manner.

In a closed system, when supply of a commodity is strictly

controlled, the cost of mining and demand for it will be the only factors influencing price.

In an open system where supply can come from a number of sources, such as when a central bank has complete control over the supply of a currency, or banks can lend money into existence, the demand side of the equation is less important. In fact in the vast majority of cases, it is supply which dictates price, while demand for the commodity or currency grows at a reasonably steady pace.

That's why the question of a hard fork in the bitcoin blockchain is so important. It's a big deal but let me first explain what it means. The bitcoin blockchain is built on rules which all miners must abide by in order to mine bitcoin. As with a nation's constitution there is often a time when people feel the need to improve it either because there was a deficiency in the original document or because events have occurred which change circumstances. Generally speaking the government of the day puts it to a referendum to decide what to do.

At its core, the current issue dominating the bitcoin community is regarding the currency's ability to scale. The debate is between the crypto equivalent of monetary purists, who are opposed to anything that would tamper with the existing supply of coins, and those focused on promoting growth by expanding supply.

Bitcoin's blockchain was originally set up so that there could only ever be 21 million coins. Back in 2007 that sounded like a lot, but as interest in the technology boomed, and mining activity proliferated, the question of how to facilitate further growth became progressively more urgent. If bitcoin and its blockchain are to fulfil the potential we believe it has to create a new global marketplace for smart contracts, international transfers, record keeping, etc, then the scaling issue must be addressed once and for all.

The bitcoin mining community is dominated by Chinese industrial scale operators

Since bitcoin miners make money by creating and holding new coins, they are sensitive to anything that affects the value of the cryptocurrency. They are the equivalent of monetary purists interested in curtailing supply to support prices. The bitcoin mining community is dominated by Chinese industrial scale operators like a cryptocurrency equivalent of De Beers. They control the mining infrastructure and have an interest in withholding supply to support prices. They would need a very good reason to change that stance.

On the other side of the argument are those who are focused on growth to drive profitability. They want the blockchain to expand into just about every facet of our lives – they want every person on Earth to have access to the blockchain. They want to circumvent the established status quo, increase lending transparency, promote greater efficiency and lower costs to all financial and legal transactions. These are lofty goals, but to allow the system to grow to those proportions the network must scale.

Even under a gold standard, new mining increases supply in an unpredictable fashion. Gold rushes, when new seams were discovered, whether in South America, California, Australia or South Africa, all created inflation from the new supply of money entering the economy.

The pace of bitcoin mining is controlled both by the difficulty in verifying transactions on the blockchain, and electrical and computing power required to do this. These ensure that fresh bitcoin does not suddenly flood into the system and have an inflationary effect.

Creating a system that allows supply to increase in line with the ideal of monetary purism is possible provided the rate of supply is not arbitrarily influenced. The problem with

the fiat currency world we have lived with since the end of the Bretton Woods agreement in 1971 is that the supply of currency is controlled by a small number of people within central banks and in the board rooms of lending institutions. Their acceptance of the Keynesian system of fiat currencies is so complete that nary a thought is given to whether it functions for the benefit of the majority.

I'm reminded of the old Victoria quip focused on the healthcare sector, "the operation was a success but the patient died". The constant attempts by this fiat elite to create inflation eventually work. Governments or banks seeking to inflate debt away or boost the perception of growth debase their currencies. This leads to a loss of faith and scepticism in fiat currencies, but would be a death knell for cryptocurrencies. What holds the bitcoin network together is faith in the value and ability of the currency to fulfil transactions as an alternative to government-mandated fiat.

A split in the system

As you can see there are strong arguments on both sides, but the most important thing to understand is a hard fork does not represent an existential threat. An Ethereum hard fork was completed last year, after being the subject of a hack which allowed one holder to acquire 25% of the outstanding balance of coins. The community went through a painful debate over what to do about it and the decision was eventually made to go back through the history of Ethereum transactions to before the point where the hack had taken place and create a new currency from that point forward. Some miners were against this winding back of time, and kept the transactions the hacker had used on their blockchain – this original iteration of Ethereum became known as Ethereum Classic. The new currency was known simply as Ethereum, and was also created with the ability to incrementally increase the total number of Ether tokens in existence. In effect, the hack was a catalyst for Ethereum to focus on the growth of the network, in opposition to the monetary purists.

Since both the original and new coins still exist, we now know which one the community of investors most fervently supports. The answer is the new iteration of Ethereum, which focused on growth rather than monetary absolutism. That's important for the bitcoin argument because it provides an example of what a hard fork looks like and which outcome worked best.

On 21 July, the bitcoin community decided to adopt the SegWit2x protocol. The aim of this fix will be threefold. The first question it answers is whether to allow supply to increase. 91% of developers backed its first iteration known as "BIP91". One of the inhibiting factors that has dogged bitcoin's evolution has been that the speed of the network is often slow, with transactions taking a long time before being verified on the blockchain. SegWit2x is designed to address this issue, and is essential if bitcoin and its blockchain are to ever take on the likes of Visa or Mastercard. It is going to take at least a few months of testing to ensure the new system works as expected, but the news was greeted with near euphoria among the cryptocurrency community.

The bitcoin price rallied smartly from $2,000 to almost $3,000 in four days.

I'm in China right now and have been talking with bitcoin miners; I'm waiting on news of whether I can visit one of the primary factories producing ASIC ANT machines (computers used to mine cryptocurrencies) in Shenzhen. Two things I'm hearing from a number of sources, via Mrs Treacy, who is originally from Beijing, is that a lot more people are getting into Ethereum mining. The news about the adoption of

A hard fork does not represent an existential threat

BIP91 being adopted has been greeted with enthusiasm, but the volatility in Ethereum pricing makes it a more attractive mining target.

The second point everyone is talking about is the Commodity Futures Trading Commission's decision to allow the derivative creation and trading of bitcoin – this will be active within the next few months. The introduction of leverage into a market which has previously been dominated by unleveraged investors is a transformative event, and should have a huge impact on the price of the underlying currencies. We have only one recent example of a market where options were introduced and that is in China from early 2015. The market had been rallying in advance of the Shanghai-Hong Kong Stock Connect program which allowed direct trading between the two cities. However, the introduction of options sent the bull trend into overdrive and the market doubled in a short period of time. Take a moment to consider that the Shanghai A-Share market is comprised of the largest companies in the world's second largest economy and it doubled following the introduction of options.

What effect will the introduction of options have on bitcoin? Bitcoin is a fraction of the size of the Chinese stockmarket. The volatility that approaches could present huge opportunities, which is why Chinese investors are getting so excited about the introduction of options. They know what leverage can do to prices.

It was for that reason I reached out to you on the 27 July to initiate a position in Advanced Micro Devices. With the potential for options to pour fuel on the bullish consequences of the scaling decision, a manufacturer of crypto mining equipment should perform well.

A covert war on cash

There is another lesson I've learned since arriving in China which I want to share with you. In the two years since I was last in China there have been a number of notable changes. The first is how quickly the online marketplace has grown. Delivery is now possible from just about any restaurant and there is literally an army of delivery people crisscrossing the city during the evenings. In the US, UberEats and Grubhub are gaining increasing popularity but are relatively expensive and tipping is pretty much obligatory. Regardless of how one feels about gratuities versus the low wage they are associated with, the reality is that tipping increases costs at every stage of the service chain and is a drain on growth. No such barrier exists in China: the price is the price – it's that simple.

Alibaba invested quite heavily in Ele.me back in 2015 and it is now ubiquitous and growing at a much faster pace than comparable services elsewhere.

Alibaba is also clearly present in the consumer finance sector. A sales girl we met yesterday was brimming with pride at the ¥2 (23 pence) daily interest rate on her deposit of ¥20,000(£2,266). It was the fact interest is paid daily that had captured her imagination and she likes nothing more than to watch her savings grow every day. Alipay was not part of the original Alibaba IPO and could become part of a future listing, but it is arguably the more valuable side of the Alibaba empire. E-commerce firms such as Alibaba, Tencent's WeChat and JD.com have so far succeeded in fending off the protests of the conventional banks at the outsized deposit rates they are paying which are above the official caps.

Part of the reason they have succeeded is undoubtedly due to the rise of online payments, which has aided the Chinese administration in reducing the roll of cash in the economy. As recently as two years ago, the vast majority of payments occurred with cash, and in a country where the largest bank note is equivalent to about $15, that meant carrying a lot it around. The situation couldn't be

> The introduction of options sent the bull trend into overdrive

more different today. It is now difficult to pay with cash. Almost every transaction is conducted via one's phone and the ATMs often don't even have money to dispense. That represents a massive transition in a very short period of time. Consumers no longer have to carry large sums of cash, businesses no longer have to transport cash at the end of the day, the government gains much greater control over the money supply and online payments enhance tax collection capabilities. India's demonetisation might have gained a great deal of media attention but China has accomplished the same feat on a much grander scale without causing nearly so much disturbance.

The Chinese administration is investing heavily in artificial intelligence, has been touting the use of surveillance cameras to develop a social score card system, and with access to Alipay, WeChat Pay, etc, now has much more knowledge on the credit habits of its citizens. It is equipping itself with a level of control over the monetary and social system that is incomparable with just about anywhere else.

There has been a great deal of commentary focused on India's demonetisation, which was an attempt to introduce greater government control over the monetary system and has been partially successful. However, China's efforts to reduce the role of cash in the economy has been gone pretty much unremarked, while permeating every layer of the economy and further enhancing the Communist administration's continued stranglehold on the reins of power. The fact that this has passed completely under the radar of international commentators is a testament to how adept China is at manipulating public opinion both at home and abroad. But smart investors are focusing on the cryptocurrency market, which has so far avoided the heavy hand of the government.

Energy

Company	Ticker	Rec Date	Price Then	Price Now	Gain/ loss %
Orocobre Ltd	ORE. AX	07/04/16	A$ 2.92	A$ 3.20	9.59
Ormat Technologies	ORA on NYSE	06/06/17	$58.79	$59.30	0.87%

Technology

Company	Ticker	Rec Date	Price Then	Price Now	Gain/ loss %
Cyberdyne	7779	30/05/16	JPY 2,353	JPY 1,502	-36.21
IBM	IBM LN	07/06/16	$153.33	$144.67	-5.65
SAIC	SAIC US	05/07/16	$58.17	$70.41	20.98
Garmin	GRMN US	02/08/16	$55.75	$50.19	-9.97
2U INC	TWOU: US	06/02/17	$33.25	$51.75	55.64
Cisco Systems Inc.	CSCO: US	03/04/17	$33.80	$31.45	-6.95
Advanced Micro Devices	AMD US	26/07/17	£14.76	£13.61	-7.79
Microsoft	MSFT	31/07/17	£73.04	£73.04	0

Medical

Company	Ticker	Rec Date	Price Then	Price Now	Gain/ loss %
Terra Tech Corp	TRTC	11/10/16	$0.41	$0.25	-40.29
Autodesk	ADSK	19/07/17	$108.83	$110.79	1.8
Abcam	ABC	07/03/17	907.5p	1027p	13.17
Zynerba Pharmaceuticals Inc	ZYNE: US	03/04/17	$20.10	$14.10	-29.85

Moonshot

Company	Ticker	Rec Date	Price Then	Price Now	Gain/ loss %
SolarWindow	WNDW	07/04/16	$3.96	$3.09	-21.97
Alkane Resources Ltd	ALK: AU	05/09/16	AU$ 0.31	AU$ 0.34	11.48
Editas	EDIT: US	07/03/17	$21.02	$16.92	-20.49
Haydale Graphene Industries	HAYD	02/5/17	178.5p	172.5p	-3.36

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