PREFACE

Goldman Sachs wants to build Wall Street on a blockchain. And NFTs will become the currency of the internet.

This book describes the legal aspects of why and how.

Let's start at the beginning. The history of writing is the history of recording transactions. Writing was invented in different places, but always for the same reason: to record the ownership of assets. Writing was invented by people who wanted databases. These databases recorded ownership and transfers of commodities in exchange for forms of value: what we now call money. But this money was not fiat money, which has only been adopted in the last 1,500 years. Physical money, the first examples of which are coins, post-date these databases.

After the internet, bitcoin was inevitable. The internet enabled transmission of information digitally and "peer-to-peer", meaning directly through computers on a shared network. Engineers then got to work on the technical problem of whether value could also be transferred peer-to-peer, securely and without risk of double-spending.

The most consistent supporters of bitcoin have been technologists, privacy advocates, and citizens in the developing world. The most prominent critics have been the Chair of the US Securities and Exchange Commission, the Governor of the Bank of England and Bill Gates. Who do you agree with?

Since we're only on the first page of the book, it's a bit premature to be asking you that.

Of course, however, you are inclined to one of the answers. That reveals something about your background, job, politics, location and what psychologists refer to as openness. Opinions about crypto say more about their holders than they do about crypto. Keep that in mind. And I want to make the point that this is a topic on which a book will not always provide definitive answers, including on some legal questions.

We had digital money before bitcoin, and that did not need to work through banks. The most significant digital money project before crypto was mPesa.[1] mPesa was launched by Vodafone and Safaricom in 2007 to assist the unbanked in Africa by providing access to simple transaction services. The user deposits money into an account on their phone and can send amounts to other users, using PIN-secured SMS messaging. mPesa has done a lot of good. Some people are sceptical because it is part owned by large telecoms corporations. So even if mPesa is good for people, it's also good for the shareholders of large corporations. Maybe it's possible for a similar project to be owned by its users or people who have been involved in its development and have the interest of the project purpose at heart. That is (broadly) the justification for bitcoin. It is also the justification for other crypto projects, now including decentralised and user-owned telecoms projects.[2]

Cryptography describes a range of techniques for secure communications. Cryptocurrencies are examples of how these techniques can be applied to transfer digital tokens representing some form of value. Crypto-tokens are examples of

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[1] *m-pesa.org*.

[2] For example, World Mobile Chain.

how these techniques can be applied to transfer information. Reference to "crypto" in our current context is normally just shorthand for saying that a blockchain is one of the tools used in a project. Crypto is a "how" rather than a "what". Different blockchains are designed to respond to criticisms of existing software. The best way to think about blockchains is as methods of solving technical problems. This may be to improve security, or speed, or scale, or to provide some desirable functionality.

The well-publicised characteristics and benefits of **blockchains** can be simply explained:

Why decentralised? So they can't be hacked. There is a reason that hackers call centralised servers "honeypots".

Why immutable? So you can't cook the books. There is no way to hide liabilities or inflate assets recorded on blockchains.

Why transparent? So you can see your trading counterparties' positions in real time at any time. The whole central securities clearing regime required by European regulators to be set up at huge cost following the Great Financial Crisis solves a problem that doesn't exist if blockchains are used.

Blockchain is an information verification system that is now used to optimise corporate infrastructure. That is an obvious requirement for success in its initial (bitcoin) use case. For me and you to transfer value between us, we both need to know: am I who I say I am, are you who you say you are, are the assets to be transferred between us what we each think they are, and will our trade settle automatically simultaneously (i.e. both legs)? Solving these technical issues addresses other information security problems. For example, authorised signatory management lends itself well to using blockchains (and this has given rise to a new UK business[3]). Blockchains provide digital, secure business information databases that update simultaneously on all relevant ledgers. This is a clear improvement on physical books of out-of-date information. Beyond this, it goes without saying that the internet has a radical misinformation problem. These technologies can start to fix that.

Inevitably, the creation of alternative currencies is a political act. Maybe the CIA invented bitcoin. It would give them a way to observe criminals. Also, a significant stake in an alternative monetary system to the US dollar, retaining US influence as unfriendly states' attempt to dedollarise. The CIA employ and work with many of the best cryptographers in the world. They could certainly do it.[4]

The **politics** of crypto is interesting. A citizen who is dissatisfied with their state has various options. They can pursue political action by voting. They may exercise a right to exit. Exiting a state normally involves immigrating to another one. But America is an example of a new state created ab initio by exiting the existing state of Great Britain. The American founders built a new system of governance as described in the Federalist Papers. Blockchain's governance tokens are also an

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[3] *https://www.Cygnetise.com.*

[4] Neither the writer nor the publisher is saying they did …

experiment in governance. Governance tokens enable users to make decisions about projects. Decisional authority as well as the operation of the software is decentralised.

Why would people want to exit states or monetary systems? When banks, or states, fail people look for alternatives. Better Markets, a nonprofit watchdog for financial regulatory reform, attempted to analyse the full cost of the Great Financial Crisis in: "The cost of the Wall Street-caused financial collapse and ongoing crisis", published in September 2012. It found the US government spent around $23 trillion in bailouts and related programs. It estimated lost household wealth at $7 trillion in real estate, $11 trillion in stock market losses, and $3.4 trillion in retirement account losses. (You may know what a trillion is: a million million. But you may not know what it is like. A million seconds takes us to the middle of next week. (I'm writing this on a Sunday). A trillion seconds takes us to Christmas 22711. A trillion seconds is about 31,700 years. A trillion is a lot.)

The Genesis Block (containing the first 50 bitcoin), created in January 2009, embedded the headline of an article in that day's The Times of London newspaper. The headline read "Chancellor on brink of second bailout for banks".

People also use crypto when they don't have banks. Vietnam often tops lists assessing crypto adoption by various metrics. Around 70% of Vietnamese citizens do not have bank access. Vietnam is also one of the countries with the lowest public trust in banks and the highest levels of remittances.

We are still debating whether bitcoin achieves its aim to be an independent **currency**. It is often said that bitcoin is unsuitable as a store of value. But, if you had $100,000 of Argentinian pesos in 1995, they would be worth $137 at the time of writing. In the US, $100 at the time of writing has equivalent purchasing power to $15 in 1973. The dollar in your wallet lost 84% during the last 50 years.

It is often said that bitcoin is a **fraud** vector, but in the US financial sector fraud was estimated at $1.5 trillion in 2018. Fraud using crypto was estimated at $1.9 billion in 2020. (Remember what I was saying about millions and trillions. A billion seconds is approximately 32 years.)

It is the same with **crime**. The Chainalysis 2023 Crypto Crime Report found that crypto transaction volumes tied to "illicit activity" have never exceeded 2% in the past six years. In 2022 this represented around $20 billion. The UN estimates money laundering using the US dollar alone is between from $800 billion and $2 trillion annually.

A research paper: "Anti-money laundering: The world's least effective policy experiment? Together, we can fix it" by Ronald F. Pol concluded that criminal enterprises retain 99.95% of the proceeds of crime. As Simon Taylor writer of the Fintech Brain Food newsletter says: "Today's KYC and AML processes are ineffective at preventing drug, arms, and human trafficking".

All transactions on public blockchains are transparent and auditable, the exact opposite objective of money laundering. The US Department of Justice has stated that crypto "provides law enforcement with ample information about how, when, and how much cryptocurrency is being transferred … no subpoenas or warrants are required to obtain it". "Cryptocurrency is not a safe haven for criminals".

That certainly doesn't mean that crypto has a clean record. But most of the worst stuff has gone on in plain sight. Patrick McKenzie, writer of the financial newsletter Bits About Money, wrote on 29 September 2023 in his review of the book Number Go Up by Zeke Faux:

> "Crypto marched through our most important institutions like cordyceps with a gain-of-function upgrade. It was a malevolent memeplex which corrupted some through ideology, some with crass lucre, and some by merely showing them a good time.
>
> The corrupted were not merely no-account jokers, drug-addled former childhood actors, or members of hitherto fore obscure Internet subcultures. They include every level (every level!) of our most significant national industries, regulators, and politicians, past and still serving."

Scott Alexander, writer of the State Star Codex blog, makes a more balanced case:

> "Big Crypto Projects Are Very Rarely Scams
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> I realize this is a bold sentence to use as a section header in 2022. But I recently tried to figure out the exact scam rate, and it seemed low. I searched for articles called things like The Top Crypto Projects Of 20XX, and then I checked how many of those projects, years later, had turned out to be scams, I tried my best not to cherry-pick, and to focus on the first article that Google fed me of each of various relevant search terms, I ended up using four articles for this experiment:
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> – Most promising crypto projects 2015
> – Top stablecoins of 2020
> – Best crypto exchanges of 2020
> – Biggest cryptocurrencies by market cap of 2020 [References can be found in his Substack post of 9 December 2022: Why I'm Less Than Infinitely Hostile to Cryptocurrency.]
>
> … which between them described 54 different crypto projects. Looking back at these from our position in late 2022, as best I can tell zero of them have been revealed to be outright rug-pull-style scams. A few fizzled out for lack of interest, like any business can. Two of the 10 stablecoins lost their pegs, going to 70-80 cents instead of the expected $12. One exchange got in trouble for money laundering, although this didn't negatively affect users. But overall this doesn't seem worse than any other industry."

He summarises: "crypto isn't so different from most other industries where the biggest companies are legitimate innovators, with dodgy projects and tokens on the long tail".

It is often said of crypto that no one uses it. But, in 2022, stablecoins (the generic name for cryptocurrencies that are pegged to or backed by a state currency or other real world asset) settled over $11 trillion on-chain (comparable numbers for PayPal are $1.4 trillion and for Visa are $11.6 trillion). "It is remarkable that in just a few years, a new global money movement rail can be compared with some of the world's largest and most important payment systems" per Alex Tabarrok in The Relentless Rise of Stablecoins published 30 August 2023 on Marginal Revolution.

It is often said that the **environmental impact** of crypto is a problem. But bitcoin is less energy-intensive than the traditional payments system (by a factor of 28 according to latest available figures at the time of writing); the gold industry and tumble dryers. Ethereum has 0.0001% the energy usage of YouTube. Bitcoin mining is a "green" industry. Almost 60% of its electricity use comes from renewable sources.

The techniques and technologies developed in the great crypto experiment are now used in traditional **financial markets infrastructure**. This is known as

tokenisation (in part to avoid the connotations of the term "crypto"). Tokenisation involves payments and financial assets working with blockchains, meaning that they can be programmable and composable. Simon Taylor, again:

> "Tokenisation is how Fintech eats capital markets. All assets becoming tokens and being compatible with the internet creates a default digital, default global economy. The regulation hurdles and bumps in the road are necessary, and my conviction on Web3 and tokens has never been higher. Yes, for consumers, but businesses, brands, and the whole economy too."

He describes the benefits of stablecoins as "faster, lower cost, global, instant settlement rails that are upgradable, programmable, and permissionless".

We can see that crypto-tokens operate in or alongside the financial system. Financial systems are regulated. **Regulation** exists for good reasons, generally summarised as necessary to manage risk to markets and to customers.

Of course, regulators are not natural supporters of crypto. Crypto has allowed inexperienced, irresponsible people to establish shadow banks and shadow financial systems. And then things have gone badly wrong, as Patrick McKenzie describes above. Regulators carry only downside risk. They are blamed when things go wrong but ignored when they don't. The things that characterise crypto as a social movement: democratisation, decentralisation and unchecked product development are anathema to regulators.

But, accepting that their jobs are impossibly difficult, the best thing for regulators would be a steady state ecosystem with few participants. If there were just three big banks and they did everything, that should be much easier to regulate. Do you think that would be better?

As Matt Levine of Bloomberg and others point out, central banks must say that they will in no circumstances bail out failed banks, but if banks do fail, in practice they must bail them out to avoid contagion. This is part of the original objection that inspired bitcoin.

Among many problems with too few, too big firms in a sector is the concept of regulatory capture, the theory that regulators are, in the end, dominated by the interests they regulate.

A cliché that still provides useful information is that crypto is speed running finance. Crypto has copied everything in finance and made it all available to mass-market investors. That has meant that customers and investors have had to learn firsthand why is it important to clearly establish before anything else: how are customer funds are taken in and held? This is what causes the regulators such great difficulty: on a financial balance sheet, whose money it is can't be part of an experiment. No regulator or policymaker can accept FAFO philosophy applied to retail customer funds.

We have also relearnt in just the last five years:

- What goes wrong with too much leverage?
- Why does Warren Buffett call derivatives "financial weapons of mass destruction"?
- Why is counterparty risk management so important?
- Why is restructuring and recapitalisation so prevalent in banking?
- Why are Hero CEOs a problem?

Decentralised finance developers do not see themselves as constrained by the history of the financial markets in creating their software. Unlike traditional financial institutions, who build products by reference to regulatory frameworks, they build products by reference to utility. This is what lies behind the never-ending argument in the US of what is, or should be, a security.

The "crypto" argument made against the regulator's position asserting characterisation as a security goes like this: (taken from the brief filed at the US District Court (SDNY) on behalf of Ripple in its defence of the SEC's claims against it:

> "For the SEC to prevail in its opposition, the Court would have to endorse the SEC's theory that there can be an 'investment contract' without any contract, without any investor rights, and without any issuer obligations. It would have to endorse the SEC's theory that there can be a 'common enterprise' even if the SEC cannot say what the enterprise is or prove any of the elements that define such enterprises. And it would have to endorse the SEC's theory that purchasers could reasonably have expected profits from Ripple's efforts even though Ripple never promised to make any efforts, even though it expressly disavowed any obligation to do so, and even though profits were overwhelmingly due not to Ripple's efforts, but to market forces.
>
> ... The SEC's position boils down to a view that any time someone buys an asset hoping to make money, and the seller's interests are even partly aligned with the buyer's, it is a security subject to registration. That is not the law, even if the seller uses the sales proceeds to run its business. If Congress wants to expand the securities laws that way, it can do so; but this Court should not."

The problem that the SEC has is that its logic suffers from a reductio ad absurdum. Enforcement proceedings against the Stoner Cats NFT promoters picks up on the poorly thought out and boosterish materials advertising the project but we are now heading down a round of needing a prospectus to accompany autographed photographs of celebrities that they sign and hand out at film premieres and fans then list on eBay the following day. Financial regulators have enough trouble regulating finance, they should not want to start regulating the rest of the world. Everything is about money, but it can't all be regulated.

So, why is it an upgrade on what we have already? The financial markets, the current engines of capitalism, are home to a lot of the real world adoption of the crypto experiments. The reason: crypto just spent 10 years building and testing trading systems using the very latest information technologies. In the newsletter Capitalism Onchained published in September 2023 Packy McCormick explains:

> "I asked Anthropic's AI, Claude, what ideal capitalism would like, and it told me that while economists don't agree on an answer, there are some basic principles that would apply:
>
> 1. Strong property rights and contract enforcement.
> 2. Free markets with prices set by supply and demand.
> 3. Low barriers to starting a business.
> 4. Healthy competition among firms with low concentration of power.
> 5. Open trade and capital flow between nations.
> 6. Democratic processes that reflect popular input and interests.
> 7. Equality of opportunity regardless of identity or background.
> 8. Alignment of business interests with long-term societal welfare.
> 9. Limited regulation focused on correcting market failures and protecting rights.
> 10. Sufficient government revenue to fund public goods like infrastructure, education, basic research, and a social safety net to moderate capitalism's

structural challenges.

We can quibble with specifics, but it's close enough. And what's striking to me is that **the first seven read like a list of crypto's ideal-world features"** (emphasis his).

Crypto is undoubtedly a **social** phenomenon. This reveals itself in various ways. Much of the work is still done by loosely affiliated groups whose working methods mirror the work that they produce. Just as the blockchains and code are open source, so the groups actively collaborate to solve engineering problems.

The industry still reflects the social philosophy of the cypherpunks formed in the early '90s in the Bay Area. The group comprised various technical specialists interested in public-key cryptography and rallied around a document produced by Eric Hughes: titled: A Cypherpunk's Manifesto. The manifesto most famously stated:

> "Privacy is necessary for an open society in the electronic age. Privacy is not secrecy. A private matter is something one doesn't want the whole world to know, but a secret matter is something one doesn't want anybody to know. Privacy is the power to selectively review oneself to the world."

Crypto is demotic. Anybody can join, anybody can code, decisions are made by community voting. Experiments in voting and governance in crypto have been characteristic of the development of the industry.

As a social movement, crypto has representatives of all political views. In particular, discussion returns again and again to the nature and politics of money. Right-wing economic thinkers who dislike centralised authority, including monetary authority, support bitcoin. Although obviously Friedrich Hayek wasn't around to see bitcoin, he proposed replacing state monopoly on legal tender with competing private currencies. On the left, many of the original crypto enthusiasts have communitarian and even anarchist backgrounds. David Graeber, one of the leading figures in the Occupy Wall Street movement was not a crypto advocate, but many of his ideas developed in his book Debt: The first 5000 years, exploring economic activity as inherent and inseparable from social relationships and spiritual beliefs, have influenced social justifications of crypto.

Another important strand of debate in the sociology of crypto reflects ideas of Jean Tirole, a French Nobel prize winning economist, whose work includes innovative studies of monopolistic industries. His work centres on the economic analysis of regulation and (in the words of the title of one of his books) Economics for the Common Good. In that book he states:

> "economic agents react to incentives, some of which derive from the social groups to which they belong: they are influenced by social norms; they yield to conformism and fashions, construct multiple identities, behave gregariously, are influenced by the individuals with whom they are directly or indirectly connected in social networks, and tend to think like just other members of their communities."

We should keep in mind that this applies not just crypto people, but also to banks, regulators, politicians and others.

The reason that digital economic communities are unstoppable is the combination of Tirole's analysis and Metcalfe's law – every time you add a new user to a network, the number of connections increases proportionately to the square of the number of users (my translation: digital economies are by nature winner takes all). Which explains somewhat the scandals and risky behaviour we've seen.

But it isn't going away. Bitcoin is Twitter (X) for money. A platform for social and political engagement.

Decentralisation is a crypto principle. As we have seen above, it brings resilience and innovation, but it is unacceptable to regulators who want someone to be responsible when things go wrong.

However, truly decentralised projects are beyond regulation. Financial regulators regulate entities and activities. But a decentralised project (bitcoin is the best example) is simply a piece of open-source software. There is no entity, no product, no issuances of anything like a security, no characteristics of a security such as obligations to pay interest or dividends; there is nothing to invest in. Even the creators are not publicly identifiable. Of course, when customer of a centralised exchange buys bitcoin on the exchange, there is an entity and an activity that can be regulated. This is the reason that decentralisation is important and controversial: in fact, whether or not by design it has the effect of evading financial regulation.

And decentralisation is by no means a uniquely crypto principle. The decentralized science (DeSci) movement "aims to build public infrastructure for funding, creating, reviewing, crediting, storing, and disseminating scientific knowledge fairly and equitably using the Web3 stack".

According to Paul Kohlhaas, co-founder and CEO of the developer Molecule, their IP-NFT aims "to solve a real problem like creating a more fluid IP marketplace". The Scheibye-Knudsen Group at the University of Copenhagen ran a large-scale analysis of the impact of prescription drugs on patient survival to identify drugs correlated with extended human lifespan. This finding was minted as an IP NFT using the Molecule protocol and transferred to VitaDAO, a Web3 community focused on funding longevity research. The transaction funds a study focused "on optimizing, repurposing, and reformulating the 3 drugs with the strongest effect on human lifespan."

In another case, LabDAO members create software in return for token ownership.

> "The DAO interacts with physical labs by paying to run experiments and providing data or materials to the token holders who funded the work. Data is managed on chain, using NFT datasets, for later licensing or use by third parties. New labs can join the DAO to earn tokens for their services or to support scientific progress by providing their methods at cost."[5]

And, to use better known example, if you like newsletters or podcasts you are supporting new media whose thesis is decentralised and distributed. The recent flourishing of independent creators is an argument for decentralisation.

The relationship between crypto and **AI** is important. AI supports crypto because crypto's complexity (particularly in DeFi) means that in practice for non-experts an AI brain is needed to help engage with the machines and the markets. And crypto supports AI because, while generative AI make things less trustworthy,

[5] Arye and Niklas Rindtorff, "Building a labDAO for Web3 biotech" (12 November 2021), available at *https://arye.substack.com/p/building-a-labdao-for-web3-biotech*.

crypto verifies information sources and so fills spaces suffering from a shortage of trust. Decentralisation in crypto can also counterbalance the (currently) highly centralised AI industry.

There is political support for the **technology** and interest in traditional financial institutions.

In February 2023 HM Treasury launched its consultation on the future financial services regulatory regime for cryptoassets. It states:

> "'crypto' technologies can have a profound impact across financial services. By capitalising on the potential benefits offered by crypto we can strengthen our position as a world-leader in fintech, unlock growth and boost innovation."

Plans include the creation of financial market infrastructure sandboxes to enable firms to innovate through providing the services (in particular, using distributed ledger technology) that underpin markets.

Institutional demand for digital assets and tokens grows consistently. According to a 2022 survey of global institutional clients, asset managers, asset owners, and hedge funds commissioned by BNY Mellon, 91% of institutional investors are interested in investing in tokens (and 41% already hold crypto in their own portfolios).

Blockchain technology is already being tested and used in finance. The World Bank and the European Investment Bank have both issued bonds using blockchain technology. That is, two of the best-known multilateral development banks in the world have investigated the facility and safety of blockchain technology and concluded that it has value and can be used. Many central banks (including the Bank of England) are considering developing central bank digital currencies (known as CBDCs). These may validate the further use of blockchain technology in finance infrastructure. Two of the largest investment banks, J.P.Morgan and Goldman Sachs (and many others), have also demonstrated the ability to process transactions using blockchain technology.

The author and speaker Dror Peleg makes the case for governments and policymakers to better understand and support the ability of retail investors to access projects with high **risk and reward**. Paraphrasing and simplifying this argument:

First, policymakers need to see how money is made in the 2000s:

> "Those who own the machines gain more power than those who operate them and consume their products."

Secondly, to see what that means in a digital economy:

> "To accumulate capital, you don't have to own a machine or a piece of land. You can also produce and own intellectual property or even a mailing list with an audience. Or you can invest in someone else who does."

Finally, to see the implication for investing:

> "In the past, rich people and 'regular' people invested in completely different things. […] Rich people invest early. […] To get a chance at accumulating capital, 'regular' people will have to invest earlier – to take more risk."

On this analysis, it is rational for retail investors to be attracted to crypto-token moonshots.

Is speculation bad? In his 1999 book Devil Take the Hindmost, A History of Financial Speculation Edward Chancellor says:

> "The spirit of speculation is anarchic, irreverent, and anti-hierarchic. It loves freedom, detests cant, and abhors restrictions. From the tulip Colleges of the seventeenth century to the Internet investment clubs of the late twentieth century, speculation has established itself as the most demotic of economic activities. Although profoundly secular, speculation is not simply about greed. The essence of speculation remains a Utopian yearning for freedom and equality which counterbalances the drab rationalistic materialism of the modern economic system with its inevitable inequalities of wealth. Throughout its many manifestations, the speculative mania has always been, and remains to this day, the Carnival of Capitalism, a 'Feast of Fools'."

A 2024 Treasury Secret Committee report (note, not a report by HM Treasury, but by a group of MPs tasked to provide policy support and oversight) characterised crypto as gambling. In the case of speculative investment in crypto that is not wholly wrong. But people are allowed to gamble. And, in common with gambling, day trading, contracts for differences and many other things the most significant issue of consumer harm is that hedge funds are trading against retail investors. It is the same problem in crypto trading as everywhere else in markets.

This must be a good time to hear from Elon Musk … :

> "This is how civilizations decline. They quit taking risks. And when they quit taking risks, their arteries harden. Every year there are more referees and fewer doers. When you've had success for too long, you lose the desire to take risks."

The Law Commission Digital Assets Final Report describes clearly what is at stake for **lawyers**.

> "Digital assets are fundamental to modern society and the contemporary economy. They are used for an expanding variety of purposes – as valuable things in themselves, as a means of payment, or to represent or be linked to other things or rights – and in growing volumes. Electronic signatures, cryptography, distributed ledgers, smart contracts and associated technology have increased the ways in which digital assets can be created, accessed, used and transferred."

It recommends that English law recognises a third kind of property. That recommendation marks the first time that English law has recognised the new type of property since the conceptual leap that allowed recognition of things in action. That is a pretty significant achievement for crypto: has changed the law.

The Report has profound implications for the creation of assets. We noted above that decentralised finance developers are not building with the history of the financial system in mind. And, while it used to be the case that source code required some action by a lawyer before it became capable of recognition as an asset under the law, that is no longer the case. Like the finger of God in Michaelangelo's, The Creation of Adam on the ceiling of the Sistine Chapel, computer code creates property.

Digital assets (and classes of digital assets) are not all the same. This affects their legal and regulatory treatment. It is not necessary for lawyers to know how to code but they must be able to understand how to interpret code for the purpose of analysing the characteristics of assets in the modern economy.

Crypto and digital assets is a significant and important topic for the law. So we now need a Lex Mercatoria for crypto that is also flexible enough to continuously develop. For example, we have a live problem that in English law legal personality still exists in established boundaries. That leaves us saying that AI isn't a creator, DAOs aren't legal entities, etc.

And there are stresses in overlapping legal rules. Under English law information isn't property. *Your Response v Datateam* remains good law. It makes sense that information shared is not information transferred. But digital assets can really only be described as abstractions. Therefore, they really are information – they aren't the private key, they aren't the blockchain, they aren't the ledger, they aren't nothing. They are information. And property.

The stresses will continue because digital developments are not technically constrained by existing analogue systems that impose boundaries that appear inherent to our social and economic systems but are in fact only inherent to the technologies we (used to) use.

By now, you will know that I think these technologies are important (and, therefore, this book is worth your time). They power digitalisation, automation and simplification in a digital economy and our current digital economy includes not just capital markets, but also payments, the internet, business information, personal data and more.

But have I made good arguments? You should been able to identify in the text some confirmation bias (I do this for a living); straw man arguments (the one about celebrity photos is a bit out there, no?); whataboutism (does it matter if bitcoin's carbon footprint is less than tumble driers if it serves no purpose?); weak man arguments (you can prove anything using arguments about store of value with a wide enough lens); selective quotation (when referring above to HMT's positive view of crypto technologies, I did not also include the view of the House of Lords' committee that described blockchain as a solution looking for a problem). And so on. You'll have to sift the evidence and make up your own mind.

And also be a part of it. Crypto lawyers have all learnt about their subject and the industry by trial and error. Compare your understanding of driving a car by considering listening to someone explain what it is like to drive a car against your experience of actually driving a car. (This phenomenon is called the "cone of learning"). "Tell me and I forget, teach me and I may remember, involve me and I learn." – Benjamin Franklin.

One of the most famous descriptions of crypto is that it is everything you didn't understand about math, combined with everything you didn't understand about finance. This book aims to start to change that for lawyers and to start to establish a Lex Mercatoria for the new science.

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