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# Crypto & Digital Assets: Hubris, Nemesis, Catharsis

Professor Alistair Milne, Professor of Financial Economics, Loughborough University

Wednesday, 17 May 2023



## A Word From Today's Chairman

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# Today's Agenda



- 11:00 – 11:05 Chairman's Introduction
- 11:05 – 11:25 Keynote Presentation – Professor Alistair Milne
- 11:25 – 11:45 Question & Answer



## Today's Speaker

**Professor Alistair Milne**  
Professor of Financial  
Economics  
Loughborough University



# Crypto & Digital Assets: Hubris, Nemesis, Catharsis

Financial Services Club Webinar  
17th May, 2023

Alistair Milne  
Loughborough Business School  
Loughborough University

# Supporting papers

- “Much ado about nothing? The Law and Regulation of Digital Assets” (not yet in public domain)
- Related work
  - Milne (2023, online) “Argument by False Analogy: The Mistaken Classification of Bitcoin as Token Money”, *Journal of Money, Credit and Banking*, <https://onlinelibrary.wiley.com/doi/full/10.1111/jmcb.13061>
  - Kavuri and Milne (2020, working paper). Evolution or Revolution? Distributed Ledgers in Financial Services. CAMA WP 4/2020. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3527192](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3527192)
  - McNulty, Miglionico and Milne (2023, third round review) “Data access technologies and the ‘new governance techniques of regulation”, *Journal of Financial Regulation*
  - He, Llewellyn and Milne (2023, working paper) “Financial Technologies and Financial Regulation”

# Audience poll

- Is “crypto” a competitive opportunity for London and UK financial services?

Topical

HMT say **Yes**

Treasury Committee say **No**



# Hubris, Nemesis, Catharsis

In [classical Greek] tragedy, catharsis is experienced by both the play's characters and the audience.

The tragic characters who commit hubris and then receive nemesis, “cleanse” their mind and heart from all the negative emotions that led them to make unjust decisions or actions.

<https://helinika.com/2021/02/26/hybris-nemesis-catharsis-drama>

# A parallel with the early 2000's?

- Industry enamoured with innovations in credit risk management
  - Opportunity for more effective risk transfer
  - Substantial lobbying, inspired Basel II
  - Masked growing risks in the years 2003-2007
- Now industry is enamoured with digital assets
  - Viewed as a “nascent asset class”
  - Opportunity for new trading and
  - Substantial lobbying for regulatory recognition

# Takeaways from this talk

- Resolving widespread conceptual confusions
  - Drawing on the legal discussion of digital assets
  - Digital assets are not new
  - What is new is permissionless holding of digital assets
- A central question for regulation
  - Permissioned digital assets, *even if held on shred distributed ledgers*, pose few new regulatory issues
  - So key question is to what extent and in what way to allow regulated institutions to transact in permissionless assets?
  - Questions such as “is this a security” are a side issue.
- Promoting crypto as a new asset class is confused
  - Digital data technologies applied to permissioned (conventional) assets have tremendous potential
  - Limited economic benefits from allowing transactions in permissionless assets.

# Agenda

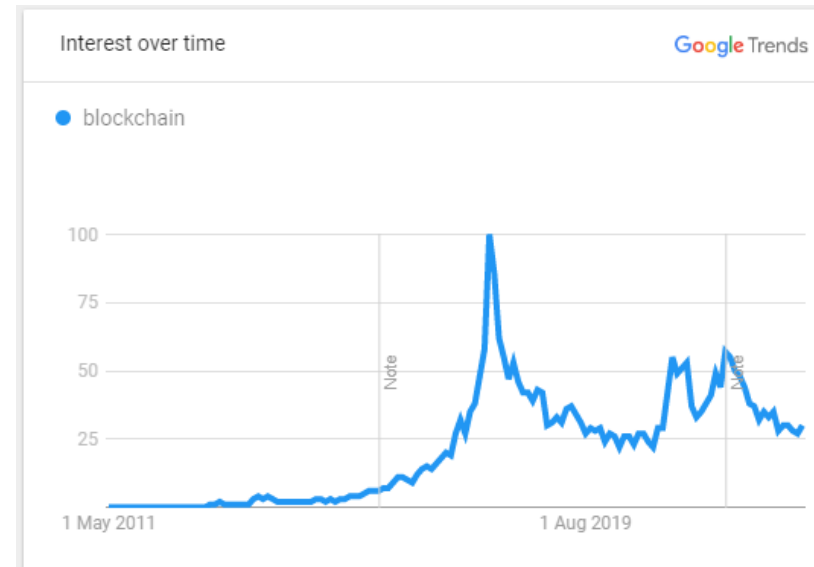
- Historical review
- Permissionless/ permissioned
- Policy issues
- Questions and discussion?

# Agenda

- **Historical review**
- Permissionless/ permissioned
- Policy issues
- Questions and discussion?

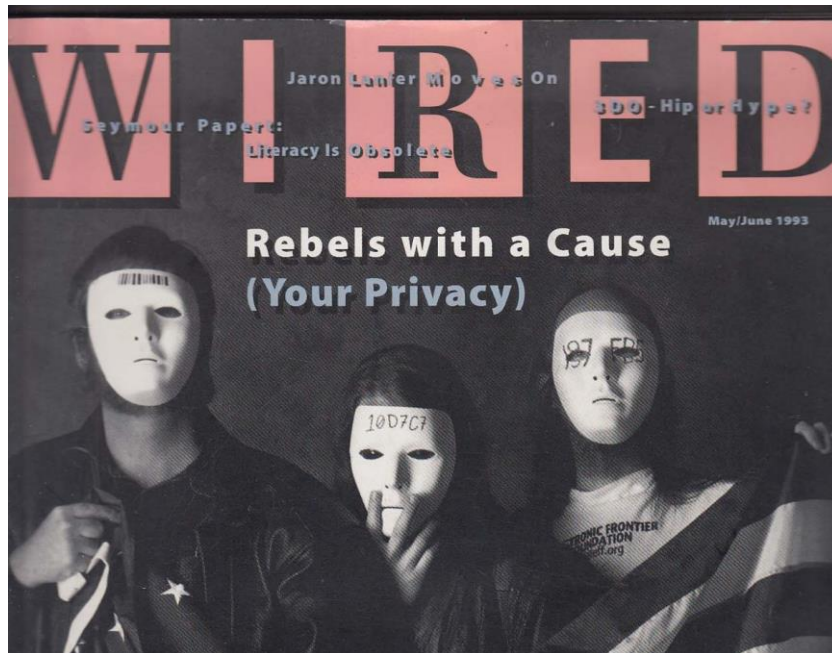
# A digital assets timeline

1965-1973:	ARPANET, forerunner of the internet
1977:	Public key encryption, RSA
1982-1983:	TCP/IP and DNS protocols established
1983:	Chaum's digicash
1990:	CERN (Berners-Lee) create HTML and
1991:	launch the WWW
1993:	The cypherpunk manifesto
1995-2006:	Big tech internet (Netscape/IE to Twitter)
2008:	Nakamoto Bitcoin whitepaper
2010:	Founding of Mt Gox
2013:	Creation of Ethereum
2013 onward:	Rising interest in crypto/blockchain
2017:	Stablecoins
2018:	DeFi



## Cypherpunks

- Eric Hughes, John Gilmore and Timothy C May in 1993;
- John Gilmore in 2018



# Agenda

- Historical review
- **Permissionless/ permissioned**
- Policy issues
- Questions and discussion?



Table 1: the main developments in digital assets (excluding NFT, ICOs).

	<i>Development</i>	<i>Examples</i>	<i>Economic value</i>	<i>Social and behavioural drivers</i>	<i>Technological design</i>
<b>DeFi (decentralised finance) and crypto</b>	Cryptocurrencies	Bitcoin	Use in private transactions; avoiding currency controls	Cypherpunk, trading culture.	<b>Permissionless DL</b>
	Stablecoins	Tether, USDC, DAI, PAX &tc.	Crypto trading; DeFi	Cypherpunk, trading culture	
	Programmable blockchain/ DeFi	Ethereum	Decentralised finance without intermediaries	Trading culture, techno-enthusiasm	
<b>New forms of regulated digital money</b>	Wholesale DL money/ CBDC	Finality, JP Morgan coin	Improved liquidity management	user needs, techno-enthusiasm	Permissioned DL/ centralised databases
	e-money	Paypal, MPesa, Alipay, etc.	Better payment services	user needs	
	Guaranteed retail DL money	Diem, USDC?	Better payment services	user needs, techno-enthusiasm	
	Retail CBDC	e-CNY, Bahamian Sand Dollar, Digital \$, £ etc.	Financial inclusion; better payments services	Policy goals, techno-enthusiasm	
<b>Operations in financial markets and services</b>	Programmable DL	Quorum, Hyperledger	in services; supporting automation.	user needs, techno-enthusiasm	Permissioned DL/ centralised databases; also permissionless DL?
	DL securities; Fractionalised security holdings	W Bank, Thailand, SIX digital exchange	Facilitating direct retail bond and equity investment	user needs, techno-enthusiasm	
	Automated operations	ISDA common domain model	Lowering operational costs and risks	user needs	

# A key distinction: permissionless v. permissioned record keeping systems

- Reminder: Law Commission digital object “... (2) *it exists independently of persons and exists independently of the legal system; ...*”
- i.e. open source digital data records, with a decentralised consensus mechanism.
- As Table 1 indicates there is a clear divide
  - Permissionless crypto
  - Permissioned mainstream

# Proposition 1

*A permissioned distributed ledger has an institutional arrangement for governance and control that can be subjected to all the same legal obligations and regulatory oversight and compliance that is applied to a central operator of a conventional centralised database recording ownership of financial and non-financial assets.*

The energy intensive process of proof of work, used to ensure consensus across the different instances of the ledger in many permissionless blockchains, is not required in a permissioned distributed ledger.

A permissioned distributed ledger (unlike a permissionless ledger) can support a variety of tailored participation rights with different levels of permission, both on reading data and to execute changes in the records held in the ledger.

# Digital objects and smart contracts

- Implications of Law Commission analysis.
  - Digital objects are permissionless records of ownership
  - Permissioned records of ownership are not digital objects
- Why does the Law Commission not also say:  
*“... Smart contracts are pre-coded agreements to transfer of digital objects that exist independently of persons and exist independently of the legal system; ...”* ?
- Avoids a category error, confusing:
  - Precoded contracts for exchange of digital objects; with
  - Automated execution of contracts for other forms of property

# Tokenisation ambiguities

- See Milne (JMCCB, 2023)
- False analogy
  - No such thing as a digital object/ token transferred directly P2P
  - Digital assets are always account based
- A consistent definition of a tokenised asset
  - Recorded on permissionless record system
  - Directly held (not the liability of e.g. a custodian bank or commercial bank).

# A wider issue .... data access

- The substantial opportunities of data access technologies
  - See McNulty, Miglionico and Milne (2023) on use in regulation
  - Highlights the BoE/ FCA “transforming regulatory reporting initiative”
- One form of data access is shared data
  - Blockchain offers “pure” permissionless data sharing, but with very narrow application
  - Alternative is permissioned ‘distributed ledger technologies’
    - Note the plural – many, many variations
    - Facing severe problems going beyond “proof of concept”
    - Unsurprising in light of Kavuri and Milne (2020).
- Data access need not mean data sharing, does not need DL
  - Cryptography supports many forms of permissioned data access
  - Key issues include co-ordinated adoption and governance
  - Hence a central role for public authorities

# Agenda

- Historical review
- Permissionless/ permissioned
- **Policy issues**

Several slides, only going to touch on them

- Questions and discussion?

# Policy context

- Law
  - Unidroit, UCC, and especially Law Commission of England and Wales <https://www.lawcom.gov.uk/project/digital-assets/>
  - Para 5.10 *“In summary, we provisionally propose that a thing should be recognised as falling within our third category of personal property [that of data object] if:*
    - (1) it is composed of data represented in an electronic medium, including in the form of computer code, electronic, digital or analogue signals;*
    - (2) it exists independently of persons and exists independently of the legal system; and*
    - (3) it is rivalrous.”*
- *Regulation*
  - Substantial current work documented in paper
  - Focus on conduct regulation, but concern also about monetary and financial stability



# Responses

- EU MiCA regulation sensible
  - Regulating the providers of crypto (permissionless) asset services
  - No real alternative
  - Principal challenge is regulatory competition
- More separation of permissionless and permissioned?
  - We could prohibit regulated entities from issuing permissionless liabilities (e.g. ICOs, stablecoins)
  - We could limit permissionless assets to “sophisticated investors” , prohibit all promotion to retail customers

# An open question

- Open question: to what extent and in what way do regulators allow regulated financial institutions to transact in permissionless assets?
    - Can be kept separate from permissioned assets
  - “Cypherpunks” claim a natural right ...
    - To privacy including permissionless financial transactions
    - But balancing this against other rights
      - Customer protection
      - Prevention of crime and terrorism
- suggests that this right should be quite limited.

# Why are we concerned about stablecoins?

- Digital C2B and B2B, also C2G and B2G payments require permissioning
  - So permissionless fiat monetary assets (stablecoins) cannot be widely used in payments
- USDC coin could obtain the equivalent of e-money regulation, and switch to the

# Crypto/ digital as a “nascent asset class”

- Technologies for holding/ transferring assets
    - Permissionless or permissioned
  - V.
  - Claims on underlying cash flows
    - Directly held or a legal claim
  - Two potential (very different) candidates as new asset class
    1. Permissionless private assets offering no underlying cash flows e.g. Bitcoin, DeFi
    2. Permissionless trading of conventional financial assets
- My personal view, strictly limit 2.

# The two forms of tokenised asset

1. No legally secured underlying value
  - Cryptocurrencies.
  - Stablecoins, are really just cryptocurrencies, because *no guarantee of value*
  - Economic parallel. When a country moves from a floating to a fixed exchange rate, we do not say this is the creation of a new currency
2. A security or other permissioned asset placed on a permissionless record system for exchange
  - Echoes of Chaum Digicash
  - Implication: tokenisation does not support settlement.
    - Permissioned direct holding might.

# Regulation of DeFi

- The recently close HMT consultation, pushes this back for later discussion
- The permissionless/ permissioned distinction suggests this is unnecessary
- Apply the Law Commission definition of 'data object' which includes DeFi
- Use MiCA approach to all financial 'data objects'
- Potentially supplemented with further obligations for creators of DeFi "smart contracts"

# Agenda

- Historical review
- Permissionless/ permissioned
- Policy issues
- **Questions and discussion?**

Hubris, nemesis, catharsis



# Audience poll

- Is “crypto” a competitive opportunity for London and UK financial services?

Thank you !



# Comments, Questions & Answers



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- Thu, 18 May (10:00-10:45)      Constructing The Future - The Dilemma Of ESG & Supply Chains In The Construction Industry
- Fri, 19 May (16:00-17:00)      Thinking About, Preparing For, And Responding To Threats To Resilience
- Tue, 23 May (15:00-18:30)      Catalysing The Green Development Pact Through Financial Architecture Reform
- Wed, 24 May (11:00-11:45)      Parametric Insurance In 2023 - In, Out & Shaking About

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