

Embrace Moral Transparency

How Financial Technology Innovation Affects Efficiency and Equality in the UK Financial Regulatory System

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This thesis is the result of the author's original research. It has been composed by the author and has not been previously submitted for examination which has led to the award of a degree.

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Previously Published Material

The author developed and published two articles based on the case studies in the thesis.

The first article is: Zi Yang, ‘GameStop or Game Just Started? Levelling the Playing Field for Social Media Meme Investors to Rebuild the Public’s Trust’ (2023) 16(1) *Journal of Risk and Financial Management* 1,13. This article is developed based on the case study of GameStop in Chapter 3. Zi Yang is the sole author of the article.

The second article is, Zi Yang, ‘Is It Wise for UK CCPs to Clear Crypto Derivatives?’ (2023) February Issue *Butterworths Journal of International Banking and Financial Law* 115,118. This article is developed based on Chapter 4. Zi Yang is the sole author of the article.

Abstract

Inspired by transparency studies in the 1900s US financial market and distributed ledger technology, this thesis proposes an original theoretical concept of moral transparency. Moral transparency perceives easing social inequality as its purpose, which responds to the public's sentimental critique towards failures of the UK financial regulatory system and the causes of financial crises.

By asking transparency to whom and for what, the thesis distinguishes transparency from information disclosure. Subsequently, the thesis criticises the UK financial regulatory system for being hijacked by information disclosure both before and after 2008. As a notion of transparency, information disclosure suits regulators and market participants' pursuing of efficiency, but feeds into the excessive speculative culture and leads to excessive concentration of information, wealth, and power in financial intermediaries. This excessive inequality caused financial crises and is still dividing the society.

Moral transparency balances the power dynamic between the public and traditional insiders of the financial market (regulators and market participants), by calling for regulators to communicate their reasonings and share knowledge with the public. In doing so, moral transparency help rebuilding the public's trust towards regulators, allowing regulators to engage with financial innovations and reduce information reliance on financial intermediaries.

Via two case studies from the contemporary UK financial market, the thesis then demonstrates the methods and urgency for UK financial regulators to implement moral transparency. The first case study concerns how MiFID II information disclosure system falls short against meme investors' involvement in the UK financial market. The second case study unveils how speculative products like crypto derivatives create a paradox between monitoring and reducing systemic risks under the EMIR. These cases studies show that the public's growing involvement in investment brings back the old debate between financial inclusion and speculation, which cannot be addressed via information disclosure. To avoid another systemic failure, regulators need to embrace moral transparency, change the excessive speculative culture in the UK financial market, rebuild the public's trust and engage with RegTech.

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Chapter 1 Introduction

1. Research Question

Using contemporary UK derivatives market as an example, the thesis proposes an original theoretical concept, moral transparency, to understand and respond to the ongoing innovation and instability in financial markets. The Financial Crisis of 2008 was a systemic failure of the global financial markets, with a catastrophic impact on society and the public's trust towards financial regulators.¹ In reviewing the Financial Crisis of 2008, the *High-Level Group on Financial Supervision in the EU Report* (hereafter, the de Larosière Report) used the term 'lack of transparency' twenty seven times criticising five major aspects of the financial markets.² The de Larosière Report subsequently triggered an EU level transparency reform, with key legislation like the EMIR³ and MiFID II⁴ implemented across the EU financial markets.⁵ Under Article 288 Treaty on the Functioning of the European Union (TFEU), both EMIR and MiFID II were then transposed into UK law.⁶ Subsequently, transparency becomes a regulatory objective in the post-2008 UK financial regulatory system. With Britain leaving the EU, the UK Financial Conduct Authority (FCA) is set to review and ditch the 'disproportionately costly'⁷ transparency requirements for firms and for the regulator.

Against this background, this research set to answer the following research questions: The thesis evaluates the transparency reform's impact on the UK financial market. Fourteen years into the post-2008 transparency reform, is the UK financial market getting more stable? Should the UK financial regulators continue its own transparency reform outside the EU? If so, how? If not,

¹ Ben Bernanke, Timothy F. Geithner, and Henry M. Paulson, *Firefighting: The Financial Crisis and Its Lessons* (Profile Books 2019) 3

² The de Larosière Report unveiled the lack of transparency in the EU financial market including international corporation, domestic supervision, accounting, corporate governance and selling of financial products.

See Jacques de Larosière, *The High-Level Group on Financial Supervision in the EU* (Brussels, 25 February 2009)

³ The Regulation (EU) No 648/2012 of the European Parliament and of the Council on OTC Derivatives, Central Counterparties and Trade Repositories.

⁴ Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on Markets in Financial Instruments and Amending Directive 2002/92/EC and Directive 2011/61/EU(recast)

⁵ de Larosière (n 2)

⁶ Treasury, *Financial services: EU supervision of UK-based central counterparties after Brexit (EMIR 2.2) Background and Committee's Conclusions* (2019) (a) (38840), 10363/17 + ADDs 1–3, COM(17) 331)

⁷ FCA, *Improving Transparency for Bond and Derivatives Market* (Consultation Paper, CP23/32, 2023)

why? Due to the ambiguity regarding what transparency is, the thesis eventually proposes a theoretical concept of moral transparency, and demonstrates how embracing moral transparency could help UK financial regulators understand and respond to ongoing instability.

It is undeniable that Brexit played a role in raising the debate over EU regulations' suitability in the UK financial market. However, examining the impact of post-2008 transparency reform is a pressing issue against soaring financial instability. In October 2022, the UK government and financial regulators were forced to bail out pension funds, which engaged with speculative derivatives trading and nearly collapsed.⁸ This story shares the same tales as the local authorities swaps case in 1980s⁹ and the Financial Crisis of 2008¹⁰, which was the very problem previous transparency reform aimed to address. With history repeating itself, transparency reform in its current form is clearly insufficient.

Instead of losing faith in transparency, this thesis recognises that including transparency as a regulatory objective is a significant step forward in the UK financial regulatory system. It argues that, existing transparency reform enhances information disclosure among market participants (layer 1), and between market participants and regulators (layer 2). As one notion of transparency, information disclosure suits regulators and market participants' pursuit of efficiency.¹¹ Yet, such pursuit of efficiency also feeds into the excessive concentration of information, wealth and power in society.¹² In reviewing the Financial Crisis of 2008 and the Great Depression, Krugman perceives excessive social inequality as the root of financial crises.¹³ In this sense, the post-2008 transparency reform fails to address the actual cause of financial crisis, while risks intensifying financial instability. With the COVID-19 Pandemic and the Cost-of-Living Crisis pushing inequality to a dangerous level,¹⁴ the thesis proposes a

⁸ Sir Jon Cunliffe, Letter to Mel Stride MP, Chair of the Treasury Committee (5 October 2022) <<https://committees.parliament.uk/publications/30136/documents/174584/default/>> accessed 02 November 2022

⁹ Analysed in Chapter 3, Section 4

¹⁰ Analysed in Chapter 2, Section 7

¹¹ Daniel Fitzpatrick, 'The Global Financial Crisis: A Critical Moment Not Juncture' in *The Politics of Regulation in the UK: Between Tradition, Contingency and Crisis. Understanding Governance*. (London: Palgrave Macmillan, 2016)

¹² *ibid*

¹³ Paul Krugman, 'Bankers Gone Wild' in *End This Depression Now!* (W. W. Norton & Company First ed. 2012)

¹⁴ Niels de Hoog, Ashley Kirk and Hilary Osborne, 'How the Cost of Living Crisis Is Hammering UK Households – in Chats' (The Guardian, 21 June 2022) <<https://www.theguardian.com/business/ng-interactive/2022/jun/21/cost-of-living-crisis-uk-households-charts->

theoretical concept of moral transparency to ease inequality. In *A Brief History of Inequality*, Piketty highlights that while there are different metrics used to measure inequality, none of them is exclusive.¹⁵ This thesis focuses on the concentration of information, wealth and power in financial intermediaries. This emphasis on reducing equality contributes to the UK's commitment to achieving the UN Sustainable Development Goals.¹⁶

This thesis defines moral transparency as follows: Moral transparency perceives easing social inequality as its purpose, which responds to the public's sentimental critique towards failures of the UK financial regulatory system and the causes of financial crises. Moral transparency balances the power dynamic between the public and traditional insiders of the financial market (regulators and market participants), by calling for regulators to communicate their reasonings and share knowledge with the public. In doing so, moral transparency help rebuilding the public's trust towards regulators, allowing regulators to engage with financial innovations and reduce information reliance on financial intermediaries. It is important to note that as a legal principle, moral transparency has wider implications across and outside financial markets. But this thesis mainly considers enforcing moral transparency through financial regulators.

The term *moral* is chosen to emphasise the need for regulators to respect the public's moral sentiments. In the *Theory of Moral Sentiments*, Adam Smith perceives transparency and morality as a set of shaming mechanisms preventing individuals from acting in a selfish manner.¹⁷ In this classical economics, transparency served as a threat to anyone attempting to unfairly exploit the others.¹⁸ If exposed, the exploiter would be shamed and isolated from the others. As to what morality is, Adam Smith argues that morality, it is not something we have to calculate, but naturally built into us as social beings.¹⁹ In this sense, morality distinguishes from ethical codes, which often come in the form of articulated rule-book.²⁰ Natural law

[inflation#:~:text=Britain%20is%20facing%20the%20highest,firm%20Kantar%20said%20on%20Tuesday.>](#)
accessed 23 June 2022

¹⁵ Thomas Piketty, 'The Movement toward Equality' in *A Brief History of Equality* (Belknap Press of HUP 2022)

¹⁶ Goal 10 Reduced Inequalities

¹⁷ Adam Smith, 'Chapter II of the Sense of Justice, of Remorse, and of the Consciousness of Merit' in *The Theory of Moral Sentiments* (1st edition 1759, Cambridge University Press 2002)

¹⁸ *ibid*

¹⁹ *ibid*

²⁰ James Pasztor, 'What Is Ethics, Anyway?' (2015) 69(1) *Journal of Financial Service Professionals* 30

provides a jurisprudence foundation for combining morality with banking regulation.²¹ As Radbruch argued in the aftermath of the Second World War, in abnormal times, in times of legal crisis, natural law needs to come back.²² This thesis' theoretical concept of moral transparency is a comeback of natural law, which facilitates the practical reflections of those concerned to act²³ against soaring social inequality and ongoing financial innovations. Under moral transparency, regulators need to communicate their reasoning with various stakeholders to rebuild the public's trust, ease excessive speculation and engage with financial innovation.

Meanwhile, while accountability also concerns transparency to the public, it relies on representatives (centralised agencies) to achieve such transparency.²⁴ But moral transparency emerges against de-centralised financial innovations, where the public is growingly involved in decision-making in financial markets and financial regulators can directly engage with the public.²⁵ Therefore, moral transparency distinguishes from existing accountability studies.

After demonstrating the research question and the main argument, the remaining parts of the Introduction highlights the scope of the research, establishes transparency as a dynamic and layered concept via literature review, justifies the research methodology, and layouts the structure of the thesis.

2. Scope of the Research

As mentioned above, the de Larosière Report criticised a lack of transparency in wider aspects of financial markets. This argument is echoed by researchers from different legal disciplines. In the aftermath of the Financial Crisis of 2008, Kerzner and Chodikoff emphasise the transparency and information exchange required in fighting against international tax evasion.²⁶

²¹ Raymond Wacks, 'Natural Law and Morality' in *Understanding Jurisprudence an Introduction to Legal Theory* (5th edition, Oxford University Press)

²² Gustav Radbruch, Bonnie Litschewski Paulson and Stanley L. Paulson, 'Statutory Lawlessness and Supra-Statutory Law (1946)' (2006) 26(1) *Oxford Journal of Legal Studies* 1

Seow Hon Tan, 'Radbruch's Formula Revisited: The Lex Injusta Non Est Lex Maxim in Constitutional Democracies' (2021) 34(2) *Canadian Journal of Law and Jurisprudence* 461

²³ John Finnis, 'Natural Law: The Classical Tradition' in Jules Coleman and Scott Shapiro (eds), *The Oxford Handbook of Jurisprudence and Philosophy of Law* (Oxford University Press, 2002)

²⁴ See Section 3

²⁵ See Section 2.1

²⁶ David S Kerzner and David W Chodikoff, 'Introduction and the Problem of Offshore Tax Evasion' in *International Tax Evasion in the Global Information Age* (Cham: Springer International Publishing AG 2016).

By comparing the administration of mandatory disclosure in EU member states, Chiu expresses the same concern that the administrative inconsistency among member states affects transparency in the EU financial market.²⁷ Lander and Auger revealed several ways financial institutions used to off-balance sheet their liabilities, and suggested that the ill-designed remuneration scheme encouraged the managers to engage with the off-balance sheet strategies.²⁸

It is unrealistic and unwise for the thesis to cover every aspect of the transparency discussion. Using the contemporary UK derivatives market as the example, this thesis demonstrates how moral transparency allows regulators to understand and respond to ongoing innovation and instability in financial markets. The following subsections clarify and justify this research scope.

2.1 Financial Innovation, Derivatives and Distributed Ledger

Derivatives are a bundle of financial instruments whose values derive from the prices of the underlying financial assets.²⁹ Chapter 2 contains a detailed review of the regulatory system in the UK derivatives market from the 1970s when financial derivatives were first created, to 2022 where the UK government was forced to bailout pension funds' derivatives trading. The following is a snapshot for the reader to understand the scope of the research.

In reviewing derivatives trading before and during 2008, Hudson argued that excessive derivatives trading activities reduce capital adequacy and increases systemic risk in financial markets.³⁰ Regulators failed to detect and respond to this systemic risk as they did not have accurate information on the size of the market, the risks contained and the interdependency among financial institutions.³¹

In the aftermath of the Financial Crisis of 2008, Article 9 of the EMIR requires all derivatives counterparties to report details of their transactions to the trade repositories (TRs). The EU also participates in reforming the International Financial Reporting Standards and other auditing

²⁷ Iris H-Y Chiu, 'Delegated Regulatory Administration in Mandatory Disclosure — Some Observations from EU Securities Regulation' (2006) 40(4) *The International Lawyer* 737

²⁸ Gerald H. Lander and Kathleen A. Auger, 'The Economic Impact of the Lack of Transparency in Financial Reporting' (2008) 36(1) *Atlantic Economic Journal* 105

²⁹ Alastair Hudson, *Swaps, restitution, and trusts* (Sweet & Maxwell 1999) 21

³⁰ *ibid*, 14

³¹ Venetia Thompson, *Gross Misconduct* (Pocket Books 2010) 215

rules.³² The MiFID system imposes Know Your Customer rules on derivatives sellers, protecting investors against overly complex products.³³ Yet, after over a decade of transparency reform, the UK government and financial regulators were forced to bail out derivatives trading again in 2022.³⁴ With financial instability and public crises keep repeating themselves in this particular sector, derivatives market makes a perfect subject for examining the impact of the post-2008 transparency reforms.

It is worth noting that before the Financial Crisis of 2008, the international financial market already experimented reforms, like Basel II.³⁵ However, this thesis argues these reforms are technical improvements, whereas financial markets need a radical culture change. After reviewing the history of UK derivatives regulation in Chapter 2, Chapter 3 demonstrates how a radical moral transparency theory would address this historical issue.

Ironically, before its catastrophic failure in 2008, derivatives were seen as a great innovation in the financial market, offering market participants a cost-efficient way to hedge risks, speculate on price movements and manage their portfolios.³⁶ In the aftermath of the Financial Crisis of 2008, the contemporary UK financial market is witnessing another wave of financial innovation led by distributed ledger technology.³⁷ Distributed ledger technology is a digital innovation providing a way to maintain digital ledgers in decentralised computer networks.³⁸ The UK Government Office for Science highlights distributed ledger as a promising technology, which could reduce fraud and increase efficiency in financial markets, and facilitate a better

³² Commission Regulation (EC) No [1126/2008](#)

³³ ESMA/2012/387 - Guidelines on certain aspects of the MiFID suitability requirements.

³⁴ Sir Jon Cunliffe, Letter to Mel Stride MP, Chair of the Treasury Committee (5 October 2022) <<https://committees.parliament.uk/publications/30136/documents/174584/default/>> accessed 02 November 2022

³⁵ Bank for International Settlement, *Basel Committee on Banking Supervision, International Convergence of Capital Measurement and Capital Standards. A Revised Framework*. (June 2004)

³⁶ J.C. Hull, *Options, Futures, and Other Derivatives* (9th ed, Pearson) 5

³⁷ Burcu Yüksel Ripley, 'The Law Applicable to (Digital) Transfer of Digital Assets: The Transfer of Cryptocurrencies via Blockchains' in M Fogt (ed.), *Private International Law in an Era of Change* (Edward Elgar, Forthcoming), Available at SSRN: <https://ssrn.com/abstract=4613821> or <http://dx.doi.org/10.2139/ssrn.4613821>

³⁸ UK Government Chief Scientific Adviser, 'Distributed Ledger Technology: beyond block chain' (Government Office for Science, 2015)

distribution of resources for achieving the UN Sustainable Development Goals.³⁹ Against this background, understanding and responding to distributed ledger innovation is crucial for UK financial regulators. This thesis contributes to this forward-looking regulation by drawing experiences from regulating derivatives innovation internationally.

In addition to being forward-looking, distributed ledger technology also closely connects with transparency in the current derivatives market. The first distributed ledger-based payment system, Bitcoin, creates an innovative de-centralised payment method where information and decision-making power are shared with the public instead of concentrated in financial intermediaries.⁴⁰ As Yüksel Ripley suggested, products can be referred to by a variety of terms, including crypto, cryptocurrency, digital currency or digital asset.⁴¹ This thesis chooses the term ‘crypto’ as it has potential as future payment method, yet currently being abused for financial speculation.⁴² With some crypto being used as the underlying assets in derivatives market, Chapter 5 unveils a dilemma where monitoring crypto derivatives under the EMIR would enhance transparency but increase systemic risks. This paradox highlights a need to re-define transparency in the UK derivatives market against ongoing financial innovation.

Meanwhile, through case studies of the GameStop Frenzy and SQUID, Chapter 4 also connects the distributed ledger technology with the emergence of meme investors in financial markets. Unlike traditional investors, meme investors are significantly less wealthy than traditional investors, rely on social media information for investment decision-making and access investment through digital trading platforms. Since meme investors access derivatives trading outside regulated financial intermediaries, regulators struggle to monitor meme-related systemic risks and keep meme investors informed. The new players further highlight the need to redefine transparency in the UK financial regulatory system. In this sense, studying distributed ledger technology is the front line of studying transparency reform in the derivatives market.

³⁹ Richard Adams, Beth Kewell and Glenn Parry, ‘Blockchain for Good? Digital Ledger Technology and Sustainable Development Goals’ in Walter Leal Filho, Robert W. Marans and John Callewaert (eds), *Handbook of Sustainability and Social Science Research* (Springer 2017)

⁴⁰ Craig Wright, ‘Bitcoin: A Peer-to-Peer Electronic Cash System’ [2019] SSRN Electronic Journal <<https://ssrn.com/abstract=3440802>> accessed 03 December 2022

⁴¹ Yüksel Ripley (n 37)

⁴² *ibid*

It is worth highlighting that, crypto and crypto derivatives are relatively new tools for the old speculation culture in the UK financial market, while meme investors only mimic and respond to traditional investors' speculation. Therefore, financial innovation does not create new challenges. Meanwhile, as illustrated in Chapter 3, distributed ledger technology shares information and decision-making power with the public, which is a crucial mechanism for achieving moral transparency. Thus, financial innovation is a double-edged sword that merits careful study.

2.2 Financial Regulation and Financial Regulators

Before proposing a theoretical concept of moral transparency for a future UK financial regulatory system, it is important to lay out the structure of the relevant law. As introduced at the beginning of the thesis, EU legislation like the EMIR and MiFID II are key to the post-2008 transparency reforms, in both the UK and EU market. This subsection introduces the corresponding UK financial regulatory system.

It is important to note that form regulatory system was only established in the late twentieth centuries; whereas the UK financial market dates back to the seventeenth centuries.⁴³ Therefore, common law is a crucial component of the UK law of finance.⁴⁴ Key cases like *Hazell v Hammersmith and Fulham*⁴⁵ will be discussed in detail in the following chapters to demonstrate transparency as a legal principle in the UK financial market.

In the aftermath of the Financial Crisis 2008, FSMA 2000 was amended to provide more effective mechanisms for coordination across HM Treasury and regulators.⁴⁶ On one hand, the Financial Policy Committee (FPC) and Prudential Regulation Authority (PRA) were established within the Bank of England, which are responsible for macroprudential regulation and micro prudential management, respectively.⁴⁷ Chapter 3 will take a closer look at these regulators in relation to the development of central bank digital currencies (CBDC).

⁴³ Iris Chiu and Joanna Wilson, 'UK Banking Supervision and Regulatory Architecture' in *Banking Law and Regulation* (OUP 2019)

⁴⁴ *ibid*

⁴⁵ *Hazell v Hammersmith and Fulham* [1990] 2 Q.B. 697

⁴⁶ Martin Lodge and Kai Wegrich, 'Letter to the Editor of Public Administration Review in Response to a Recent Symposium on Financial Regulatory Reform' (2010) 70(2) *Public Administration Review* 336

⁴⁷ *ibid*

On the other hand, the Financial Conduct Authority (FCA) was established to replace the Financial Services Authority (FSA).⁴⁸ Under FSMA 2000, the FCA carries the operational objectives of consumer protection, market integrity and competition; whereas protecting and enhancing **transparency** of the price formation process in the UK financial markets is part of the integrity objective.⁴⁹

It is also important to highlight that the Bank of England, the FCA and the PRA are all autonomous regulatory agencies.⁵⁰ That is to say, while FSMA 2000 is key to the law of finance in the UK, rule-making and standards setting in these areas are the FCA's responsibility.⁵¹ Therefore, the FCA handbook is a key document in this thesis' discussion over transparency in the UK financial market. The system is designed to allow expertise in the FCA to regulate the market without 'undue political influence'.⁵² To what extent should the public get involved in financial regulation is a key issue discussed in the following chapters, and for developing the concept of moral transparency. This subsection here only focuses on preparing the reader with the legal framework of the thesis.

The FCA also has the independence to determine the level of supervision imposed on individual financial institutions, based on its own risk assessment results.⁵³ This assessment will normally result in a requirement for risk mitigation, which will be proportionate to the issues identified. Firms with systems and controls that are trusted by supervisors will be asked to provide less detailed work. The FCA is not directly responsible to Parliament. Meanwhile, to protect the confidentiality of the regulated firms, the FCA's decision-making process is also not disclosed to the public.⁵⁴ Against this background, it is difficult for the public to assess the quality of the FCA's regulation. In other words, the public has limited say in the post-2008 financial regulatory system. This thesis does not agree with perceiving the public's moral sentiments as

⁴⁸ FSMA 2000 (amended by Financial Services Act 2012), Chapter 8, Part 1A, Chapter 1, s1A

⁴⁹ FSMA 2000 (amended by Financial Services Act 2012), Chapter 8, Part 1A, Chapter 1, s1D (2)(e)

⁵⁰ Miao Han, *Central Bank Regulation and the Financial Crisis: A Comparative Analysis* (Palgrave Macmillan 2016) 121

⁵¹ FSMA 2000 (amended by Financial Services Act 2012), Chapter 8, Part 1A, Chapter 1, s1B (3);

FSMA 2000 (amended by Financial Services Act 2012), Chapter 8, Part 1A, Chapter 1, s1B (6)

⁵² FCA, 'How We Make Regulatory Decisions' <<https://www.fca.org.uk/publication/corporate/our-mission-2017.pdf#page=12>> accessed 04 May 2020

⁵³ *ibid*

⁵⁴ *ibid*

undue political pressure. As will be demonstrated in Chapter 5, social inequality is a systemic risk that threatens the stability of the UK financial market and the economy. In the aftermath of the COVID-19 Pandemic and against the soaring Cost-of-Living crisis,⁵⁵ regulators need to embrace moral transparency, respect the public's moral sentiments and ease excessive social inequality.

3. Literature Review

Paraphrasing St Augustine's concerns over time,⁵⁶ Bianchi describes the confusion over the definition of transparency as 'what then is transparency? If one asks of me, I know; if I wish to explain to him who asks, I know not.'⁵⁷ As a term widely used in everyday life and academic studies, and one so fundamentally important for regulators, the meaning of transparency is frustratingly unclear.⁵⁸ Like Fisher rightly recognised,

as a concept, transparency is the scholar's worst nightmare... getting a hold on the concept becomes almost impossible, and yet to say anything meaningful about it, that is what the scholar must do.⁵⁹

Through a literature review, this section clarifies key concepts including transparency, information disclosure and accountability; hence, sets the parameters for navigating this frustratingly ambiguous concept. It reaches the conclusion that transparency is a dynamic and layered concept. Subsequent chapters then contextualise notions of transparency in financial markets, and develop the original theoretical concept of moral transparency.

⁵⁵ Brigid Francis-Devine, Paul Bolton Matthew Keep, and Daniel Harari, 'Rising Cost of Living in the UK' (2022) House of Commons Research Briefing Number 9428, < https://archive.welhat.gov.uk/media/22304/CD-12-20-House-of-Commons-Rising-Cost-of-living-in-the-UK-/pdf/CD_12.20_House_of_Commons_Rising_Cost_of_living_in_the_UK_.pdf?m=638373763765230000> accessed 15 February 2024

⁵⁶ Herman Hausheer, 'St. Augustine's Conception of Time' (1937) 46(5) *The Philosophical Review* 503

⁵⁷ Andrea Bianchi and Anne Peters, *Transparency in International Law* (CUP 2014) 9

⁵⁸ Mark Fenster, 'The Opacity of Transparency' (2006) 91(3) *Iowa L Rev* 885

⁵⁹ Elizabeth Fisher, 'Transparency and Administrative Law: A Critical Evaluation' (2010) 63(1) *Current Legal Problems* 272

3.1 Transparency Metaphors

According to the Oxford English Dictionary, transparency means ‘perviousness to light’ and ‘pellucidity’.⁶⁰ Similarly, the Merriam-Webster Dictionary defines transparency as the quality of ‘transmitting light without appreciable scattering so that bodies lying beyond are seen clearly’.⁶¹ In both the UK and US linguistic contexts, transparency is a quality associated with light and truth. Therefore, using the word transparency in the context of the financial market is figurative and sentimental.

When criticising the unfair excessive concentration of wealth in the US in the 1900s, Brandeis gave the following well-known statement to welcome the publication of the Pujo Report.

Publicity is justly commended as a remedy for social and industrial diseases. **Sunlight** is said to be the best of disinfectants, electric light the most efficient policemen.⁶²

This statement is often known as ‘sunlight is the best disinfectant.’ Even though the word transparency is not directly used in the statement, it fits in the dictionary definition. Later proponents often borrow such metaphoric expression, using ‘turning on lights’⁶³ and ‘letting the sunlight in’⁶⁴ to call for transparency. Although such abstract, figurative transparency expressions connect academic studies and the UK financial regulatory system with people’s feelings.⁶⁵ The shared language and perception of transparency are the premise for regulators to communicate with various stakeholders in modern financial market.

Yet, in the contemporary UK financial market, the sunlight statement is also abused as a political buzzword. In the aftermath of the Financial Crisis of 2008, David Cameron, the then leader of the Conservative Party and soon to be Prime Minister, advocated for a complete transparency, where ‘every single dollar spent by the government was searchable, analysable,

⁶⁰ The Oxford English Dictionary, ‘Transparency’ <<https://www.oed.com/view/Entry/204968?redirectedFrom=transparency#eid>> accessed 18 February 2024

⁶¹ Merriam-Webster, ‘Transparent’ <<https://www.merriam-webster.com/dictionary/transparent>> accessed 18 February 2024

⁶² Louis D. Brandeis, ‘What Publicity Can Do’ in *Other People's Money and How the Bankers Use It* (Binker Norther, 1914)

⁶³ *Eisai Ltd, R (on the application of) v National Institute for Health and Clinical Excellence* [2008] EWCA Civ 438

⁶⁴ Steve Aftergood, ‘Reducing Government Secrecy: Finding Out What Works’ (2009) 27 *Yale Law and Policy Review* 399

⁶⁵ See the next paragraph on the Cameron example.

and checkable.’⁶⁶ This statement is relevant to the UK financial market regulatory system, as it echoed the public’s anger towards the government’s massive banks bailout scheme at that time.⁶⁷ In this context, transparency was sentimental. But a decade later, Keir Starmer, the leader of the opposition and the Labour Party, quoted Cameron’s speech on transparency to press the government into investigating Cameron’s lobbying scandal.⁶⁸ The then Prime Minister, Boris Johnson, did not even try to address this question on transparency.⁶⁹ In this context, transparency is merely a buzzword politicians used to catch public support or attack the oppositions.

Such abuse is associated with the ambiguity as to transparency’s purpose. Often, the sunlight metaphor is quoted as a self-evident good,⁷⁰ or a symbol of good practice in democratic countries.⁷¹ The political drama inevitably gives an excuse for dismissing transparency critiques and transparency reforms. Since the post-2008 transparency reform is a regulatory respond to the Financial Crisis of 2008, Chapter 2 evaluates the reform by testing its impact on increasing financial stability and rebuilding public’s trust.

3.2 Information Disclosure and Accountability

Nevertheless, against ongoing political drama, Pollitt and Hupe argued that researchers must define transparency in a specified and practical fashion.⁷² Otherwise, transparency would become political buzzword without actual meaning. To overcome this vagueness, Bianchi and Peters suggest that authors could focus on ‘information about legal processes.’⁷³ Similarly, Judge Brandeis emphasises ‘disclosure’ alongside with the famous ‘Sunlight is ... the best of

⁶⁶ David Cameron, ‘The Next Age of Government’ (TED, February 2010) <https://www.ted.com/talks/david_cameron_the_next_age_of_government?language=en> accessed 15 August 2021

⁶⁷ The public anger was also showed in movements like Occupy London and Occupy Wall Street. These examples will be further analysed in following parts of the thesis.

⁶⁸ HC Deb 14 April 2021, vol 692, cols 200

⁶⁹ *ibid.*

⁷⁰ Amitai Etzioni, ‘Is Transparency the Best Disinfectant?’ (2010) 18 *Journal of Political Philosophy* 389

⁷¹ Bianchi and Peters (n 57)

⁷² Christopher Pollitt and Peter Hupe, ‘Talking about Government: The Role of Magic Concepts’ (2011) 13(5) *Public Management Review* 641

⁷³ Bianchi and Peters (n 57)

disinfectants' statement.⁷⁴ In other words, information disclosure is the common approach to capture the essence of transparency in law, which addresses the how to achieve transparency question. The following analysis shows that this *how* question is closely associated with a *whom* question.

On the comprehensive disclosure side, Martínez⁷⁵ proposed a three-types of transparency theory for evaluating the transparency circumstances in international financial institutions like the G20. Since the G20's decisions directly led to mandatory clearing and reporting requirements in the international derivatives markets, Martínez argued that the organisation should be more transparent to non-member states and the public, and provided a comprehensive list for examining the transparency.⁷⁶ Firstly, documentary transparency, which concerns the public's access to G20 documents, including the types of documents and conditions to access.⁷⁷ Secondly, decision-making transparency, which refers to the information provided as to how decisions are made, especially the decision-makers and the reasoning.⁷⁸ Thirdly, operational transparency, which allows the public to check how decisions have been put into practice.⁷⁹ Martínez believed that the three-types of transparency theory covered a wide range of documents, hence should keep the public informed.⁸⁰

This long list also indicates Martínez's transparency is not just about numbers and accounts. Rather it is about being open with one's reasoning. This emphasis on openly communicating one's reasoning with the public can also be found in Piketty's *A Brief History of Inequality*, although Piketty used the word 'confrontation' to highlight the intensiveness of the debate.⁸¹ By analysing systemic risks related to meme investors, Chapters 4 and 5 also highlight the need for regulators to communicate their reasoning with investors in the contemporary UK financial market. Such communication is crucial for rebuilding the public's trust towards regulators.

⁷⁴ Louis Brandeis, 'What Publicity Can do' in *Other People's Money and How the Bankers Use It* (Binker Northier, 1914) Brandeis' transparency reforms will be discussed in detail in Chapter 2.

⁷⁵ Luis Miguel Hinojosa Martínez, 'Transparency in Financial Institutions' in Andrea Bianchi and Anne Peters (eds), *Transparency in International Law* (CUP 2014)

⁷⁶ *ibid*

⁷⁷ *ibid*

⁷⁸ *ibid*

⁷⁹ *ibid*

⁸⁰ *ibid*

⁸¹ Piketty (n 15)

Unlike Martínez's comprehensive information list, Judge Brandeis argued that effective disclosure must be comprehensible for investors.⁸² Even though Brandeis called for 'full disclosure',⁸³ he only focused on uncovering the business connection between the issuing company and the banks to investors.⁸⁴ Issuer companies tend to offer discounted shares to banks as part of the compensation scheme for arranging the issuing. When the shares could be obtained at a lower price, investors who bought the share at its initial price were less likely to profit from selling these shares. As a result, less money went to investors; more wealth flowed to banks. If investors knew the share was overpriced, investors would not buy it. The reduced demand would then drive share prices low. Hence, such simple information can protect investors and ease the excessive concentration of wealth in banks.

Similarly, Kaufmann and Weber also agreed that transparency should be kept simple.⁸⁵ The markets need to give the audience the information they need and understand, not just more information.⁸⁶ That is to say, if Brandeis were to advocate for a more comprehensive disclosure of the issuing companies' financial status, unsophisticated individual investors would have difficulties in interpreting the information.

At the first glance, the two groups seemed to contradict each other in how to achieve transparency. A closer look suggests that the two groups concern different receivers of transparency with different information processing capacities. Martínez proposed the comprehensive information list because the G20 is a crucial rule maker in the international financial market, and it is necessary to hold the organisation accountable to non-member states and the public.⁸⁷ Accountability is another word one would encounter in studying transparency in financial markets. Microwski and Nik-Khah perceived accountability as an advanced phase

⁸² Brandeis (n 57)

⁸³ *ibid*

⁸⁴ *ibid*

⁸⁵ Christine Kaufmann and Rolf H. Weber, 'The Role of Transparency in Financial Regulation' (2010) 12(3) *Journal of International Economic Law* 779

⁸⁶ The need to communicate also decided the metaphoric expression of Brandeis's transparency. According to the Oxford English dictionary, transparency means 'perviousness to light' and 'pellucidity.' In its plain English context, transparency is a quality that allows light to pass without obstacles, diffusion or distortion; hence, gives a true image of the object. Instead of giving technical definitions, this plain English expression fits the public's understanding of transparency and fairness. Such public support is crucial for financial reforms.

⁸⁷ Martínez (n 75)

of transparency, where the observed has a sense of duty to explain its behaviour to the public.⁸⁸ The lack of accountability encourages banks' selfish risk-taking speculation, which is an ongoing threat against financial stability.⁸⁹ In other words, accountability links transparency with the public. In contrast, Kaufmann, Weber and Brandeis' short disclosure list only concerns individual investors in financial markets.

In this sense, transparency is a layered concept in financial markets. At the transparency to whom level, the first layer concerns information disclosure between market participants. The second layer involves public representatives. Both layers emphasis on information being disclosed. However, to make the disclosure meaningful, information receivers also need to be able to process such information. In recognise of this condition, Chapter 3 emphasises sharing knowledge with the public as a way to enforce moral transparency.

Transparency in the UK financial markets were long understood as a private matter between contractual parties, decision-making power was dominated by financial institutions.⁹⁰ During the last forty-years of reforms, UK derivatives regulatory system gradually enhanced transparency for market participants and for regulators.⁹¹ The thesis recognises transparency to regulators as a major step forward. As Stirton and Lodge recognised, representative (like regulators) is a key mechanism in ensuring accountability (transparency to the public).⁹² Going back to Martínez's comprehensive list, understanding such extensive list of documents required receivers to have substantial knowledge to understand and evaluate highly sophisticated political and economic issues, which is largely beyond everyday individuals. Therefore, the public Martínez referred to are Non-Governmental Organisations (NGOs) and governments, the institutional representatives, instead of directly communicating with ordinary individuals.⁹³ In other words, linking transparency with information is based on the premise that information receivers are centralised institutions with suitable knowledge in the field.

⁸⁸ Philip Mirowski and Edward Nik-Khah, 'It's Not Rational' in *The Knowledge We Have Lost in Information: The History of Information in Modern Economics* (OUP 2017)

⁸⁹ *ibid*

⁹⁰ Chiu and Wilson (n 43)

⁹¹ Fitzpatrick (n 11)

⁹² Lindsay Stirton and Martin Lodge, 'Transparency Mechanisms: Building Publicness into Public Services' (2001) 4(28) *Journal of Law and Society* 471

⁹³ Martínez (n 75)

This centralised agency approach is problematic, as it overlooks a power imbalance between financial institutions and the public. As Levitin argued, the financial institutions are well-organised and resourceful small group, focusing constantly on banking issues.⁹⁴ But the public, including bank customers, are not. Against this power imbalance, banking reforms are hijacked by financial institutions to represent their interests.⁹⁵ In studying personal insolvency reform in post-2008 Ireland, Spooner criticised how the reform prioritises creditor's (financial institutions) interest over debtor's (public house owners), which further intensifies social and financial instability.⁹⁶ This thesis contributes to this discussion by proposing the theoretical concept of moral transparency.

In *Transparency Mechanisms: Building Publicness into Public Services*, Stirton and Lodge argued that the level of transparency in a regulatory system is a result of who do we want to exercise decision-making authority over how public services are provided?⁹⁷ This emphasis on the connect between transparency and power is shared by Fisher, who argues that transparency is about the power relationship between insiders and outsiders.⁹⁸ Through a historical review, Chapter 2 illustrates who the insiders and outsiders in the UK financial market are, and how power flow among them. In short, the first and second layers of transparency empower power flow among market participants, and from market participants to regulators. Against the emergence de-centralised financial innovation, this thesis proposes a third layer of transparency (moral transparency) to enhance power flow from regulators to the public.

It is important to note that transparency is not the panacea for all disease, nor could moral transparency alone achieve social equality. However, moral transparency includes the public into the crucial conversation to make the financial regulatory system safer and fairer, which is the starting point for rebuilding the public's trust and forming a sustainable financial system.

In summary, transparency is a dynamic layered concept in financial markets. Against the public's growing involvement in finance and soaring inequality in society, regulators need to

⁹⁴ Adam J. Levitin, 'The Politics of Financial Regulation and the Regulation of Financial Politics: A Review Essay' (2014) 127 *Harv L Review* <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2401298> accessed 15 February 2024

⁹⁵ *ibid*

⁹⁶ Joseph Spooner, 'The Quiet-Loud-Quiet Politics of Post-Crisis Consumer Bankruptcy Law: The Case of Ireland and the Troika' (2018) 81(5) *The Modern L Review* 790

⁹⁷ Stirton and Lodge (n 92)

⁹⁸ Fisher (n 59)

move on to the third stage and more directly engage with the public in the transparency consideration.

4. The Methodology of the Research

This thesis adopts the socio-legal lens in exploring what transparency ought to be in the UK financial market. The framework adopted here is a legal school focusing on the relationship between law and society.⁹⁹ This is because, this thesis recognises a deep connection between the UK financial market and the wider society. On the one hand, failures in the financial market have a wide range of catastrophic impacts on society. In addition to economic harm, the Financial Crisis of 2008 also divides the society with the feeling of being left behind.¹⁰⁰ On the other hand, while the Financial Crisis of 2008 was triggered by the failure of the US sub-prime mortgage market, the crisis was caused by long-term excessive social inequality.¹⁰¹ In recognise of these socio-economic factors of the crises, this thesis adopts the socio-legal lens in re-defining transparency the UK financial market. Subsequently, the thesis develops a working definition of moral transparency, which perceives easing social inequality as its purpose and urges regulators to communicate their reasoning with the public.

In reviewing previous transparency reforms in the UK market, Chapter 2 reaches the conclusion that the UK financial regulatory system has been dominated by the insiders' focus on efficiency for too long. Thus, calling for financial regulators to respect the public's moral sentiments, ease social inequality and excessive speculation is radical. To convey this radical call to UK financial regulators, this thesis follows the traditional law and economics approach in the UK financial market and borrows transparency theories from the US legal history, especially the Pujo Report 1912 and Judge Brandeis' work on transparency.

The UK financial regulatory system follows the law and economics tradition,¹⁰² where economic theories and lobbies influence the regulatory system,¹⁰³ while the regulatory system

⁹⁹ Austin Sarat and Thomas R. Marred, 'Beyond the Great Divide: Forms of Legal Scholarship and Everyday Life' in *Law in Everyday Life* (University of Michigan Press 1995) 3

¹⁰⁰ Mark Blyth and Matthias Matthijs, 'Black Swans, Lame Ducks, and the Mystery of IPE's Missing Macroeconomy' (2017) 24 *Review of International Political Economy* 203

¹⁰¹ Paul Krugman, *The Return of Depression Economics* (Allen Lane, 2008) 165

¹⁰² Fitzpatrick (n 11)

¹⁰³ Cornelia Woll, 'Lobbying under Pressure: The Effect of Salience on European Union Hedge Fund Regulation' (2013) 51(3) *Journal of Common Market Studies* 555

also affects the general market condition.¹⁰⁴ This thesis has no intention of dismissing the connection between law and economics in the UK financial market. But it challenges neo-liberalism as *the* underlying economic theory, with the narrowed focus on market values.¹⁰⁵ In the *Theory of Moral Sentiments*, Adam Smith perceives transparency and morality as a set of shaming mechanism preventing individuals from acting in a selfish manner.¹⁰⁶ Meanwhile, Keynesian economics advocate for the government's role in stimulating demand and boosting economic growth.¹⁰⁷ Whereas social economics like Abhijit Banerjee and Esther Duflo emphasise the need for easing inequality in society.¹⁰⁸ All these diverse economic theories provide a solid ground, within the law and economics tradition, for UK financial regulators to step in, respect the public's moral sentiments and ease social inequality.

This thesis' working definition of moral transparency is also heavily influenced by transparency reforms in the US financial market in the early 20th century, including the Pujo Report 1912 and Judge Brandeis' ruling in *Benedict v Ratner* (1925).¹⁰⁹ The thesis justifies the adoption of US theories in the UK financial market from two aspects. Firstly, the US economists and regulators traditionally have a strong influence over the UK financial market, especially in the derivatives¹¹⁰ and meme segments.¹¹¹ Secondly, modern UK financial market faces the same challenge as the US financial market in the 1900s, including the unfair bank-customer relationship, banks' dominancy in the economy and excessive speculation.¹¹² Thus, the US examples can be used in defining transparency in modern UK financial market. Nevertheless, historical transparency reforms failed to keep the public informed and regulated in the long-term. Against this backdrop, Chapter 3 then explores distributed ledger innovation's role in

¹⁰⁴ David McWilliams, *Follow the Money* (Gill Books 2010) 195

¹⁰⁵ Christopher Crowe and Ellen E. Meade, 'The Evolution of Central Bank Governance around the World' (2007) 21 *Journal of Economic Perspectives* 69

¹⁰⁶ Adam Smith, 'Chapter II of the Sense of Justice, of Remorse, and of the Consciousness of Merit' in *The Theory of Moral Sentiments* (1st edition 1759, Cambridge University Press 2002)

¹⁰⁷ Krugman (n 101)

¹⁰⁸ Abhijit V. Banerjee and Esther Duflo, *Good Economics for Hard Times: Better Answers to Our Biggest Problems* (Allen Lane 2019) 61-63

¹⁰⁹ See Chapter 3, Sections 1 and 2.

¹¹⁰ See Chapter 2, Section 2.

¹¹¹ See Chapter 4, Section 2.

¹¹² See Chapter 3, Section 2.

sharing knowledge, decision-making power and access to finance with the public. Against this backdrop, Chapter 3 presents a unique combination of legal history and technology innovation. It is also worth emphasising that the thesis does not call for egalitarianism. It is undeniable that the last one and half centuries' pursuit of efficiency has contributed to an overall increase of wealth in society.¹¹³ Meanwhile, through the history of the UK financial regulatory system, regulators have been demanding more information to mitigate market inefficiency.¹¹⁴ But the growth has not been shared fairly across society.¹¹⁵ At the time of finalising this thesis, the UK is facing the worst Cost-of-Living Crisis since the 1980s.¹¹⁶ With the COVID-19 lockdown and Russia's invasion of Ukraine disturbing the global supply chain, inflation hit a historical high in May 2022.¹¹⁷ Such soaring prices have a severe impact on households, with 1.3 million facing absolute poverty in the UK.¹¹⁸ Meanwhile, the Cost-of-Living Crisis is rapidly escalating into a political crisis. On the 18th of June 2022, thousands marched in London demanding a 'better deal' for people,¹¹⁹ which was followed by massive railway strikes causing the biggest stoppages in decades.¹²⁰

¹¹³ Thomas Piketty, *A Brief History of Equality* (Belknap Press of HUP 2022) 2

¹¹⁴ For example, the EMIR shared more information with market participants and regulators in the UK derivatives market, comparing with pre-2008.

¹¹⁵ Piketty (n 113) 16

Kate Raworth, 'Design to Distribute' in *Doughnut Economics* (Penguin 2017)

¹¹⁶ Niels de Hoog, Ashley Kirk and Hilary Osborne, 'How the Cost of Living Crisis Is Hammering UK Households – in Chats' (The Guardian, 21 June 2022) <<https://www.theguardian.com/business/ng-interactive/2022/jun/21/cost-of-living-crisis-uk-households-charts-inflation#:~:text=Britain%20is%20facing%20the%20highest,firm%20Kantar%20said%20on%20Tuesday.>>> accessed 18 February 2024

¹¹⁷ Francis-Devine (n 55)

¹¹⁸ Kate Bell, 'We Need an Emergency Budget to Tackle the Cost of Living Crisis' (Trade Union Congress, 01 April 2022) <<https://www.tuc.org.uk/blogs/we-need-emergency-budget-tackle-cost-living-crisis>> accessed 18 February 2024

¹¹⁹ Anna MacSwan and Tom Ambrose, 'Thousands March in London over Cost of Living Crisis' (The Guardian, 18 June 2022) <<https://www.theguardian.com/business/2022/jun/18/march-protest-london-tuc-cost-of-living-crisis>> accessed 18 February 2024

¹²⁰ Archie Bland, 'What Are the UK Rail Strikers about and How Long Will They Go on?' (the Guardian, 21 June 2022) <<https://www.theguardian.com/uk-news/2022/jun/21/uk-rail-strikes-what-is-happening-today>> accessed 18 February 2024

While the Pandemic and the war's impact on prices are undeniable, a much deeper cost of the current crisis is excessive concentration of wealth in society.¹²¹ Decades of stagnation have left the low-income ones with little margin against price changes.¹²² Therefore, like the Financial Crisis of 2008, the Cost-of-Living Crisis is a result of unbearable social inequality. The UK regulators need to tackle social inequality now, before it is too late. This emphasises on easing inequality is also part the UN sustainable development goals.¹²³ Against this background, this thesis uses transparency and financial innovation to unlock a running battle between efficiency and equality in financial markets.

5. Thesis Outline

In addition to this Introduction and Conclusion, this thesis contains four additional chapters. The first two develop the theoretical concept of moral transparency. The latter two demonstrate how UK financial regulators could implement moral transparency in responding to contemporary financial innovation.

Chapter 2 answers what transparency is in the UK financial market, through a conceptual history analysis of the market between late 1970s and 2022. In each crisis, the public's call for transparency contains outsiders' sentimental critiques towards the failures within the UK financial regulatory system.¹²⁴ Yet, existing transparency reform (information disclosure) merely address market participants and regulators' concern over efficiency. However, by analysing the Financial Crisis of 2008, Chapter 2 argues that the narrowed focus on efficiency intensified social inequality in the UK, which is the actual cause of financial crisis. With inequality reaching a dangerous level post the COVID-19 Pandemic, the UK financial regulators need to re-define transparency to ease inequality.

Against this background, Chapter 3 explores what transparency ought to be, and proposes the theoretical concept of moral transparency. Inspired by historical transparency studies from the

¹²¹ Resolution Foundation, 'Cost of living Gap between Rich and Poor Highest since Records began in mid-2000s. (22 May 2022) <<https://www.resolutionfoundation.org/press-releases/cost-of-living-gap-between-rich-and-poor-highest-since-records-began-in-mid-2000s/>> accessed 18 February 2024

¹²² *ibid*

¹²³ Chapter 3 further demonstrates how information and wealth became concentrated in banking industry, which is under Goal 10, Reduced Inequalities.

¹²⁴ See Chapter 2's analysis of the JMB bailout.

Also see, Occupy London, 'Initial Statement' <<https://occupylondon.org.uk/about/statements/initial-statement/>> accessed 18 February 2024

1900s US stock market, Chapter 3 argues that transparency should and could serve social equality. But the historical transparency reform has its limitations. On one hand, historical transparency reforms failed to keep the public informed and unified in the long-term. Chapter 3 argues that distributed ledger technology could be used to overcome this obstacle, as it provides a way to share knowledge, decision-making power and access to investment with the public. On the other hand, the 1900s reforms rely on the courts for remedies, which does not meet the complex nature of modern UK financial market. Thus, Chapter 3 emphasises financial regulators' role in implementing moral transparency.

After establishing the theoretical concept of moral transparency, Chapters 4 and 5 then demonstrate how regulators could implement moral transparency in the modern UK financial market. Chapter 4 starts as a case study of the GameStop frenzy, where for the first-time, meme investors successfully short squeezed traditional investors. Through investigation, Chapter 4 argues that meme investors exist both in the emerging crypto section and the traditional bond, stock, and derivatives markets. Since meme investors trade independently outside traditional financial intermediaries, they fall outside existing regulated information disclosure system. This large unregulated group represents the public's desire for financial inclusion, and has the potential to challenge the concentration of power in financial intermediaries. Yet, in the absence of proper regulatory intervention, meme investors are disproportionately affected by default risks, which intensifies social inequality in the UK. Guided by moral transparency, regulators need to better protect meme investors by strengthening existing financial reporting mechanisms, and promoting financial literacy in the UK.

Chapter 5 uses crypto derivatives as a tangible example to show how speculative products can trigger another systemic failure in the contemporary UK financial market. With both traditional investors and meme investors getting involved in crypto, crypto derivatives are created. Chapter 5 finds that the current UK crypto derivatives market operates in the pre-2008 fashion with little transparency. As a lesson learned from 2008, the lack of transparency in such a highly speculative market could be dangerous. Subsequently, Chapter 5 explores the probability of disclosing information in the crypto derivatives market through central clearing, the major achievement of the post-2008 transparency reform. Yet, Chapter 5 finds such information disclosure contains a dilemma between monitoring crypto derivatives-related systemic risks and reducing crypto derivatives-related systemic risks. Chapter 5 argues that this dilemma further unveils the insufficiency of information disclosure in the UK financial regulatory system. Regulators could use smart contracts to create a de-centralised clearing mechanism which

would help keeping regulators informed and easing the systemic risks concentrated in central counterparties (CCPs).

Together, the thesis presents a theoretical analysis on transparency in the UK financial market and urge UK financial regulators to embrace moral transparency. Distributed ledger technology amplifies information disclosure's existing shortfalls, but also contains seeds for easing the concentration of information, wealth and power in society. Against the complex nature of the financial market and technology innovation, financial regulators need to openly communicate their reasoning with various stakeholders, ease speculation and inequality, and engage with technology.

Chapter 2. Transparency in the UK Financial Regulatory System – A Conceptual History

1. Introduction

This chapter presents a conceptual history of transparency in the UK financial market prior to, during, and after the Financial Crisis of 2008. It illustrates transparency's changing position in the UK financial regulatory system against ongoing market instability. Krugman stated aftermath of the Financial Crisis of 2008 that, 'I'm tempted to say the crisis is like nothing we've ever seen before. But it might be more accurate to say it's like everything we've seen before.'¹ This Chapter's analysis shows that over the last four decades, crises led to transparency reforms in the UK financial market. Such reforms enhanced information disclosure among market participants, and from market participants to regulators.² But the public's sentimental critiques towards the failures within the UK financial regulatory system were undervalued.³ Due to this power dynamic, the following discussion labels these traditional players (ie, banks, financial intermediaries and institutional investors) as 'insiders', while the public as 'outsiders'. It is important to note that, regulators are simultaneously insiders of the regulatory system, yet outsiders of financial institutions. Since this thesis' transparency discussion is within the UK financial regulatory system, regulators are categorised as insiders here.

Information disclosure as a technical notion of transparency addresses insiders' concern over efficiency. However, a closer look at the cause of the Financial Crisis of 2008 suggests that the crisis was a result of excessive social inequality fuelled by market participants and regulators'

¹ Paul Krugman, *The Return of Depression Economics* (Allen Lane, 2008) 165

² Barbara Crutchfield George, Lynn V. Dymally and Maria K. Boss, 'The Opaque and Under-Regulated Hedge Fund Industry: Victim or Culprit in the Subprime Mortgage Crisis?' (2008) 2 *New York University Journal of Law & Business* 359

³ Cynthia A. Williams, 'The Securities and Exchange Commission and Corporate Social Transparency' (1999) 112(6) *The Harvard Law Review* 1197

Greta R. Krippner, 'The Social Politics of U.S. Financial Deregulation' in *Capitalizing on Crisis* (Harvard University Press 2019)

Wulf A. Kaal and Dale A. Oesterle, 'Hedge Fund Regulation' in H. Kent Baker and Greg Filbeck (eds), *Hedge Funds: Structure, Strategies, and Performance* (OUP 2017)

narrowed focus on efficiency. With COVID-19 Pandemic and the Cost-of-Living Crisis pushing inequality to a dangerous level, transparency reform needs to break this old pattern and include the public's sentimental desire. Inspired by transparency reform in the 1900s US market and the modern distributed ledger technology, Chapter 3 then develops the theoretical concept of moral transparency. Moral transparency derives from this old pattern as it includes the public in the conversation and aims at easing social inequality.

In the remaining part of this chapter, Sections 2 and 3 analyses financial regulation in the 1980s. This analysis shows that transparency was historically perceived as an ethical issue outside the UK financial regulatory system, especially in the derivatives market. Banking regulation (or the absence of it) had a narrowed focus on market efficiency. Against increased financial instability in early 2000s, the FSMA 2000 created tripartite regulators to better monitor the market. Through a case study of Northern Rock, Section 4 demonstrates how tripartite regulators failed to detect and struggled to handle the Financial Crisis of 2008. Finally, moving on to the post-2008 period, Section 5 explains how a new information disclosure mechanism, mandatory clearing, was established under the EMIR to increase market stability.

This chapter's systemic chronological analysis carries two functions. Firstly, it demonstrates that transparency in the financial regulatory system is a dynamic concept shaped by and affecting the economic and political environment. In consistent with this finding, the thesis adopts a socio-legal lens in developing the theoretical concept of moral transparency and evaluating the current financial innovation.

Secondly, it unveils shortcomings of existing transparency reform, which are valuable lessons for making moral transparency practical. On one hand, information disclosure in the UK financial market has a narrowed focus on efficiency,⁴ which led to financial institutions' excessive risk-taking behaviour and social inequality. As the COVID-19 Pandemic has pushed inequality to a dangerous level in the UK,⁵ this narrowed focus on efficiency needs to be

⁴ Frank Pasquale and others, 'Eleven Things They Don't Tell You about Law & Economics: An Informal Introduction to Political Economy and Law' (2019) 37(1) *Law & Inequality: A Journal of Theory and Practice* 97. More discussions see Sections 2 and 3.

⁵ Brigid Francis-Devine, Paul Bolton Matthew Keep, and Daniel Harari, 'Rising Cost of Living in the UK' (2022) House of Commons Research Briefing Number 9428, < https://archive.welhat.gov.uk/media/22304/CD-12-20-House-of-Commons-Rising-Cost-of-living-in-the-UK-/pdf/CD_12.20_House_of_Commons_Rising_Cost_of_living_in_the_UK_.pdf?m=638373763765230000> accessed 15 February 2024

changed. Inspired by transparency reform in the 1900s US market, Chapter 3 then establishes easing social inequality as the purpose of moral transparency. On the other hand, information disclosure overlooks the knowledge gap between outsiders and insiders, which increases agency risks in the UK financial market.⁶ Inspired by the distributed ledger innovation and the emergence of meme investors, moral transparency emphasises on sharing knowledge with the public.

⁶ See Sections 2 and 3.

2. Transparency in the Pre-2008 Derivatives Market

This section demonstrates the lack of transparency and regulatory intervention in the derivatives market prior to the Financial Crisis of 2008. Section 3 then compares this with regulating deposit-taking business during the same period.

As Lord Mance held in *Kennedy v Charity Commission*:

Unwillingness to disclose information may arise through habits of secrecy or reasons of self-protection. But information can be genuinely private, confidential, or sensitive, and these interests merit respect in their own right... ⁷

Transparency is not a self-evident overarching virtue in the society. When facing the choice between transparency and other competing principles, advocates of transparency should justify themselves. This comparison between (not) regulating derivatives trading and regulating deposit-taking shows that transparency's position in the regulatory system reflects an insiders' concern on market efficiency. Section 4's analysis on the Financial Crisis of 2008 then demonstrates the catastrophic impact of this narrowed focus on efficiency. Unfortunately, Section 5 still finds the same narrowed focus on the post-2008 transparency reform. Learning from the transparency reform in the 1900s US market, Chapter 3 then establishes easing social inequality as moral transparency's purpose.

2.1 The Opaque Derivatives Market

The modern UK derivatives market was formed in the late 1970s, as a response to the ever-evolving volatility in the global financial market.⁸ In its early years, derivatives knowledge was dominated by the US economists and accountants.⁹ Based on the knowledge monopoly, the US economists had significant influence over rule-making in the UK derivatives market. According to Alan Greenspan,¹⁰ the former chairman of the US Federal Reserve, derivatives products can be separated into two categories. 'Relatively straightforward and transparent'¹¹ derivatives

⁷ *Kennedy v Charity Commission* [2014] UKSC 20

⁸ John C. Hull, *Options, Futures, and Other derivatives* (8th ed, Pearson 2012) 1

See also Ernst Juerg Weber, 'A Short History of Derivative Security Markets.' (Discussion Paper, August 2008) <http://www.rdi.uwa.edu.au/_data/assets/pdf_file/0003/94260/08_10_Weber.pdf> accessed 03 December 2022

⁹ Ronald W. Anderson, 'Derivatives Markets' in Xavier Freixas, Philipp Hartmann and Colin Mayer (eds), *Financial Markets and Institutions: A European Perspective* (OUP 2009)

¹⁰ Alan Greenspan, 'International Financial Risk Management: Remarks at the Council on Foreign Relations' (Washington, D.C, November 2002)

¹¹ *ibid*

products like ‘loan syndications, loan sales, and pooled asset securitizations’,¹² and ‘relatively more complex and less transparent’¹³ products like credit default swaps, collateralized debt obligations and credit-linked notes.¹⁴ In this speech, Greenspan recognised the connection between transparency and the complexity of a derivatives product. However, this categorisation also allowed Greenspan to underestimate the importance of increasing transparency in the derivatives market. Although less transparent, derivatives products had ‘significantly reduced... stress on banks and other financial institutions and the financial market was resistant enough to absorb unanticipated shocks.’¹⁵ In other words, the market was as transparent as it was supposed to be. It is important to note that transparency here was a mix of insiders’ desire for information disclosure and outsiders’ outrage towards scandals like the UK and US local authorities’ swap exposures.¹⁶ Greenspan’s speech dismissed both the insiders and outsiders’ concerns. Due to the American economists’ significant impact on the UK derivatives market, the speech influenced information disclosure in the UK derivatives market.

To justify the lack of transparency in the derivatives market, an empirical study conducted by Scalia and Vacca in 1999 argued that the derivatives market flourished when there was less transparency.¹⁷ This was because, competent traders needed to actively enter into transactions to acquire more information, which subsequently, increased liquidity in the market.¹⁸ If some traders were incapable of acquiring necessary information themselves, they would soon go out of business. By eliminating incapable players, the overall market became more efficient. Thus, the derivatives market was naturally balanced.¹⁹ Advocating greater transparency was unnecessary and even counterproductive. The impracticality of such an assumption will be further analysed in Section 4’s review of the Financial Crisis of 2008. Nevertheless, Scalia and

¹² *ibid*

¹³ *ibid*

¹⁴ *ibid*

¹⁵ *ibid*

¹⁶ This case will be analysed in Chapter 3 Section 4 to demonstrate the approaches in enforcing moral transparency.

¹⁷ Antonio Scalia and Valerio Vacca, ‘Does Market Transparency Matter? a Case Study’ *Temi di discussione* (Economic working papers, 1999, no. 359) Bank of Italy, Economic Research and International Relations Area.

¹⁸ *ibid*

¹⁹ Tom C.W. Lin, ‘Reasonable Investor(s)’ (2015) 95(2) *Boston University Law Review* 461

Vacca's theory enhanced the ground for dismissing transparency and information disclosure requirements in the UK derivatives market.

To explain insiders' resistance against transparency, Stiglitz argued that derivatives trading was a zero-sum game, where increasing transparency would negatively affect profitability for the winners.²⁰ The sellers' strategy was making products too complicated to comprehend. Therefore, even if the terms of the contracts were disclosed fully, assessing their risks was impossible for buyers. A similar strategy is used in crypto scams where coding language is used to prevent buyers from understanding the true nature of the transaction.²¹ These examples confirm moral transparency's argument: without closing the knowledge gap, more information will not bring transparency.

Influenced by these theories, even though the British financial institutions were pioneers in this international market, legal research in this field was underdeveloped.²² Little legal research was published in major journals in the UK until 1989, when local authorities' involvement in the derivatives market finally attracted public attention.²³ These public concerns were dismissed by the insiders. In 1994, Miller published an article '*Inside Financial Derivatives*' in the Tax Magazine, claiming that 'outsiders' concern over derivatives-induced financial meltdown was 'naïve'.²⁴ The article stated that outsiders did not even know who the financial players were; hence, their call for regulating the derivatives market would make the world a riskier place. Such statement further confirms Chapter 3's argument, for outsiders' voice to be respected, regulators need to close the knowledge gap between insiders and outsiders. Against this background, the UK derivatives market remained unregulated until after the Financial Crisis of 2008. Chapter 5 argues that the current UK crypto derivatives market resembles the pre-2008 derivatives market. Therefore, analysing the economic theories during this period helps understand and redefine transparency against crypto derivatives innovation.

²⁰ Joseph Stiglitz, 'The Fruit of Hypocrisy' (The Guardian, 16 September 2008) <<https://www.theguardian.com/commentisfree/2008/sep/16/economics.wallstreet>> accessed 18 February 2024

²¹ See Chapter 4 Section 4

²² Anderson (n 9)

²³ *Hazell v Hammersmith and Fulham* [1990] 2 Q.B. 697

²⁴ *ibid*

2.2. The Efficiency-Focused Culture in the UK Legal System

However, this is not to say that the lack of regulation and transparency in the derivatives market was a US problem imported into the UK. Rather, the following analysis shows that, while Law of Tort also discusses fairness, in a commercial context, the courts in England and Wales traditionally define fairness based on common business practices, which mainly concerns market efficiency. The lack of regulation and transparency in the UK derivatives market had its domestic roots. This explains why the post-2008 transparency reform in the derivatives market turned into an efficiency-focused information disclosure, instead of providing the public with transparency. After illustrating the danger of this narrowed focus on efficiency, the chapter highlights the need to clarify transparency's purpose. Inspired by distributed ledger innovation and historical transparency reforms, Chapter 3 then argues that moral transparency should serve social equality. Following this argument, Chapters 4 and 5 demonstrate methods for regulators to change the speculative efficiency focused culture in contemporary UK financial market and ease inequality.

2.2.1 Information Disclosure and Mandatory Acquisition

In *Re Hoare & Co, Ltd [1933]*, the plaintiff, a small shareholder, representing 0.38 per cent of the total issued share capital challenged the fairness of a share transfer plan passed by majority shareholders.²⁵ The plaintiff argued that the offering price was substantially lower than current market value of the company, where the major shareholder being further compensated by a position in the new company.

Maugham J admitted that the offering price may not represent the company's true value, as 'from modern balance-sheets very little real information can be obtained as to the capital value of assets.'²⁶ However, Maugham J could not support the plaintiff's argument as the court could not set up its own view of fairness in opposition to a very large majority of insiders in the absence of very strong grounds to support the opposite.²⁷ In this case, since over 98% of shareholders approached the offer, the offer should be considered fair. Subsequently, the plaintiff was forced to sell his share. Even though the plaintiff found the result unfair, the decision was nevertheless legal. In this case, information disclosure was for facilitating transactions. Individuals' sentiments towards the fairness of the transactions and disclosure

²⁵ *Re Hoare & Co, Ltd [1933]* ALL ER Rep 105

²⁶ *ibid*

²⁷ *ibid*

were dismissed. Such treatment led to the public's distrust towards the authority, which could be found in the subsequent chapters' discussion on the UK crypto market. Moral transparency rebuilds the public's trust by asking regulators to respect the public's moral sentiments.

Chapter 3 highlights that, when a similar forced acquisition was disclosed by the Pujo Committee in the US,²⁸ Brandeis took a moral standard and criticised such reorganisation practice as unfairly enriching bankers by exploiting small investors.²⁹ He further added that through these unfair practices, big bankers acquired their control over the American economy.³⁰ In other words, Brandeis linked the issue with transparency back to the excessive concentration of wealth. Nevertheless, this mandatory buyout increased efficiency in mergers and acquisitions in the UK, where acquirers saved time and energy from negotiating with minority shareholders. Thus, even since the 1900s, the courts in England and Wales already had taken a strong position in supporting efficiency in the commercial world. The long history explains why this thesis uses a historical US theory to redefine transparency in contemporary UK financial market.

2.2.2 The Courts' Traditional Position in Law and Efficiency

The Courts in England and Wales managed to follow their traditional position in law and efficiency in the commercial world with little disruption. One milestone, where common practices were directly linked to the courts' understanding of fairness, is *Re Press Cap Ltd*.³¹ In this case, the compulsory acquisition of the plaintiff's shares was argued to be unfair because the referred exchange share price was calculated based on the wrong balance sheet asset price. In his judgment, Somervell LJ directly linked common accounting practices to the fairness of the scheme by stating that:

This figure in the balance sheet in accordance with what is very common practice ...

Therefore, it does not seem to me that there is anything misleading about it.³²

²⁸ During the reorganisation of the Southern Railway Co., J. P. Morgan Co., as the majority shareholder, forced old stockholders to give up their voting rights in the new company. When the stockholders refused the offer, J. P. Morgan Co. asked the Exchange to un-list the old company's stock. Subsequently, those who refused to sell their stocks to the bank in the first place suffered great loss, as now the stock could not be traded in the public market. Pujo Report, 40

²⁹ Louis Brandeis, 'Our Financial Oligarchy' in *Other People's Money and How the Bankers Use It* (Binker Norther 1914)

³⁰ *ibid*

³¹ *Re Press Caps Ltd* [1949] 1 ALL ER 1013

³² *ibid*

The very common practice Somervell LJ referred to was historical cost. This accounting method was recommended by the Institute of Chartered Accountants in England and Wales's accounting recommendations (ICAEW) and adopted by Companies Act 1974. But the ICAEW was not an authoritative standard-setter. Accounts prepared in accordance with relevant accounting standards shall be seen as true and fair if without strong opposite evidence.³³

To highlight the courts' position, Woolf J in *Lloyde Cheyham* (1987) suggests that even though the exclusion of certain information from the accounts may lead to an unfavourable result for investors, it does not necessarily lead to auditors' breach of duty of care, if relevant accounting standards are compliant with.³⁴ The accounting practice will be further discussed in Chapter 4 against the FCA registered crypto firms' positional accounting frauds. Nevertheless, commercial principles' dominancy in the UK law is a tradition. The next subsection argues that this traditional position is supported by legal positivism.

Later, in *JP Morgan Chase Bank and others v Springwell Navigation Corp*,³⁵ the Queen's Bench Division, Commercial Court claimed that the banks did not owe any contractual obligation or common law duty of care when advising the defendant. In this case, Springwell, a wealthy family and a long-term customer of JP Morgan, entered into derivatives contracts with JP Morgan, investing in emerging market funds. After the Russian Financial Crisis of 1998, Springwell suffered substantial losses from these contracts. This case will be re-visited in Chapter 4 for two reasons. Firstly, post-2008, the MiFID II regulatory system imposes a know-your-client (KYC) rule to reduce agency risk, hence protect bank clients like Springwell. Secondly, meme investors in the UK crypto market have no access to traditional financial institutions for advice; thus, are not protected by the MiFID II. While the thesis acknowledges the value of MiFID II, the different treatments unexpectedly increase social inequality between the wealthy traditional investors and the less wealthy meme investors. This example confirms Section 5.2.2's argument that increasing transparency post-2008 was essentially information disclosure among insiders. Outsiders, like less wealthy meme investors, are not left behind.

³³ *Macquarie Internationale Investments Ltd v Glencore UK Ltd* [2010] EWCA Civ 697

³⁴ *Lloyd Cheyham & Co Ltd v Littlejohn & Co* [1987] BCLC 303

³⁵ *JP Morgan Chase Bank and others v Springwell Navigation Corp* [2008] All ER (D) 167

2.2.3 Legal Positivism and Market Value's Dominancy in Law

The judges' advocacy of efficiency is linked to the raise of legal positivism, where the law is treated as a separate issue from morality.³⁶ However, as Dworkin argued, 'lawyers make use of standards that do not function as rules but operate differently as principles.'³⁷ This is to say, when lawyers claimed to focus on legal principles within existing cases, the value that underpins the legal principles originates in society. By excluding morality, positivism opens the gate for market values to dominate the law.³⁸ As Radbruch argued in the aftermath of the Second World War, in abnormal times, in times of legal crisis, natural law needs to come back.³⁹ This thesis' working definition of moral transparency is a comeback of natural law, combining morality with law in time of social crises.

In the 1940s, Aron Director conducted substantive research using judgments as rare materials to analyse industrial behaviour.⁴⁰ By analysing the judgments, Director identified a gap between the legal and economic understandings of trades. Subsequently, as an economist, he criticised the US courts and the Justice Department's understanding of economic activities as 'insufficient if not naïve'.⁴¹ While harsh, Director was correct that the economic substance of a transaction often did not match with its legal form. For instance, under the UK Companies Act 2006, the supplier only becomes the customer's subsidiary and shall be presented on the

³⁶ Dworkin R, 'Is Law a System of Rules?' in *Legal Philosophy* (OUP 1977)

³⁷ *ibid*

³⁸ James K. Galbraith, 'Estimating the Inequality of Household Incomes' in *Inequality and Instability: A Study of the World Economy Just Before the Great Crisis* (OUP 2012)

Frederic S. Mishkin, *The Economics of Money, Banking, and Financial Markets* (Boston: Pearson/Addison Wesley 2006) 309

Zoe Adams, 'Understanding the Minimum Wage: Political Economy and Legal Form' (2019) 78(1) *Cambridge Law Journal* 42

Richard Craven, 'Social-Legal Studies and Economics' in Naomi Creutzfeldt, Marc Mason and Kirsten Mcconnachie (eds), *Routledge Handbook of Socio-Legal Theory and Methods* (Routledge 2019)

³⁹ Gustav Radbruch, Bonnie Litschewski Paulson and Stanley L. Paulson, 'Statutory Lawlessness and Supra-Statutory Law (1946)' (2006) 26(1) *Oxford Journal of Legal Studies* 1

Seow Hon Tan, 'Radbruch's Formula Revisited: The Lex Injusta Non Est Lex Maxim in Constitutional Democracies' (2021) 34(2) *Canadian Journal of Law and Jurisprudence* 461

⁴⁰ Aaron Director and Edward Hirsch Levi, 'Law and the Future: Trade Regulation. (reprinted from Northwestern University Law Review, Vol. 51, P. 281, 1956)(The Past and Future of Antitrust: Reconsiderations of Director and Levi's Law and the Future After Forty Years)' (1996) 17 *Mississippi College Law Review* 7

⁴¹ *ibid*

customer's consolidated balance sheet, when the customer company owns over 50% shares of the supplier.⁴² But under a take or pay contract, the customer company can achieve control over the supplier without holding its share. In other words, the supplier is an economic subsidiary of the customer, while remaining legally independent. Against this background, judges need economic knowledge to decide the legality of the contract.

Posner further declared in '*What Do Judges and Justices Maximize?*' that,⁴³ efficiency was the central principle of the common law system. This statement represents another milestone in the development of law and economics.⁴⁴ He suggested that maximizing the wealth of society was a major force that encourages the common law system to develop.⁴⁵ The fairness over the distribution of such wealth and the concentration of wealth were not considered. Efficiency became the dominant value in the legal system, instead of equality.

Section 4 criticises this efficiency-focused culture for causing the Financial Crisis of 2008 and still dividing the society. Chapter 3 then argues that moral transparency addresses three crucial problems in the UK financial regulatory system. Firstly, moral transparency aims to ease the concentration of wealth, which severely threaten the stability of the UK financial market and society. Secondly, Brandeis was able to keep disclosure simple, making transparency meaningful to the public. Thirdly, Brandeis combined morality with market economy, which presents a solution for market society.

2.2.4 Morality, Transparency and Economics

Sandel warns that during the last century, the society has turned from a market economy to a market society.⁴⁶ He argues that previously, market values were only used for organising production; Now, market values dominate every aspect of human endeavour.⁴⁷ Against this background, markets became detached from morals, causing corruption and injustice in

⁴² Eilis Ferran and Look Chan Ho, *Principles of Corporate Finance Law* (OUP 2014) 64

⁴³ Richard A. Posner, 'What Do Judges and Justices Maximize? (The Same Thing Everybody Else Does)' (1993) 3 *Supreme Court Economic Review* 1

⁴⁴ This theory is also known as the economic analysis of law.

See, Jonathan Law, *A Dictionary of Law* (OUP, 8ed) 240

⁴⁵ Posner (n 43)

⁴⁶ Michael J. Sandel, 'Market and Morals' in *What Money Can't Buy: The Moral Limits of Markets* (Penguin, Allen Lane, 2012)

⁴⁷ *ibid*

society.⁴⁸ To resolve the issue, markets should be reconnected with morals. This criticism is consistent with Section 5's analysis that the narrowed focus on efficiency increases inequality and encourages excessive speculation in the UK financial market. Yet, this subsection suggests that classic economics and social economic theories both recognise the importance of morality and transparency. Since the Courts in England and Wales have the tradition to embrace commercial values like efficiency, the same tradition could open the gate to moral transparency.

Economics do not necessarily exclude morality. In the *Theory of Moral Sentiments*, Adam Smith recognised that market participants are self-interested.⁴⁹ However, such self-interest was different from selfishness.⁵⁰ In advancing their own profit, market participants should also be prudent in their behaviour and have sympathy for others.⁵¹ Such merits would then prevent them from enriching himself at the expenditure of the others. This thesis' call for moral transparency mainly focuses on regulators. Future research will explore how financial institutions could adapt to moral transparency; hence, regain the public's trust.

In this classical economics, transparency served as a threat to anyone attempting to unfairly exploit the others.⁵² If exposed, the exploiter would be shamed and isolated from the others. Together, morality and transparency act as a shaming mechanism and help to prevent unfair exploitation in society. This builds the economic rationale for Chapter 2 to argue that moral transparency aims at easing social inequality.

The disfunction of the shaming mechanism was identified by Wilson in the 1930s,⁵³ who argued that capitalism had demoralised the society. Under the corporate veil, individuals no longer took responsibilities for their behaviour.⁵⁴ The absence of morality then encouraged powerful individuals to act selfishly and recklessly. Wilson suggested these men should be brought to criminal courts for their damage to society.⁵⁵ Similarly, Judge Brandeis also

⁴⁸ *ibid*

⁴⁹ Adam Smith, 'Of Sympathy' in *the Theory of Moral Sentiments* (First published 1759, Cambridge University Press 2002)

⁵⁰ *ibid*

⁵¹ *ibid*

⁵² *ibid*

⁵³ Woodrow Wilson, 'Before the War How Things Looked Then' in William Z. Ripley (ed), *Main Street and Wall Street* (Scholars Book co, 1927)

⁵⁴ *ibid*

⁵⁵ *ibid*

emphasised the courts' role in ensuring transparency. However, Chapter 3 argues that in the increasingly complicated financial market, regulators are in a better position to ensure transparency. This explains why the thesis' call for moral transparency emphasises the role of financial regulators.

The disfunction of the shaming mechanism was predicted by Marx. When demonstrating the relationship between law, morality and economics, Marx argued that law and morality, as part of superstructure, cannot drastically change the economic foundation.⁵⁶ In contrast, when the economic foundation of the society moved towards financialisation, the entire superstructure, including law, politics and people's consciousness, transformed accordingly.⁵⁷ Against this background, Chapter 3 argues that crypto experiment represented an intensified public consciousness on the foundational political economic principles.⁵⁸ Such consciousness is necessary for social justice and financial stability.

In contrast to this moral concern, Piketty suggested that interfering with the economy based on social justice concerns could be counterproductive.⁵⁹ Allowing firms to exploit workers may seem to be unfair at the first glance. But, with more capital, firms would be able to expand their operations, thus create more employment opportunities for workers. Therefore, a short-term inequality was for long-term prosperity. This neo-liberal economic theory could explain why the courts ruled the banks did not owe any contractual obligation or common law duty of care in *JP Morgan Chase Bank and others v Springwell Navigation Corp.*⁶⁰

On behalf of Springwell, Michael Brindle QC argued, the bank failed to fulfil its duty of care to Springwell, as the bank knew or ought to have known that Springwell relied upon the bank for advice.⁶¹ Such an argument was seen as a disruptive signal by Gibaud, who re-emphasised that sophisticated investor in the capital markets should generally be bound by written

⁵⁶ A. Claire Cutler, 'Toward a Radical Political Economy Critique of Transnational Economic Law' in Susan Marks, *International Law on the Left - Re-Examining Marxist Legacies* (CUP 2009)

⁵⁷ *ibid*

⁵⁸ Daniel Crane, 'The New Deal and the Institutionalists' in *The Making of Competition Policy: Legal and Economic Sources* (OUP 2013)

⁵⁹ Thomas Piketty, 'Capital-Labour Inequality' in *The Economics of Inequality* (Harvard Belknap 2015)

⁶⁰ See Section 5.1.

⁶¹ [2008] All ER (D) 167

contracts.⁶² Although salesmen in the derivatives market did give recommendations and advice, such advice was part of ‘normal role of a salesman in the City of London’,⁶³ and did not form any duty of care. That is to say, professionals in the derivatives market only guide their behaviours through market values. Traders were not required to be fair and compassionate. This argument is consistent with Piketty’s statement. In reviewing the case, Bahamón and Leonardo criticised the fact that courts were reluctant to recognise any advisory duty of sellers, putting buyers in a disadvantaged, ill-informed position.⁶⁴ This criticism is consistent with Section 4’s analysis on the knowledge gap between insiders and outsiders in the UK financial market. Section 6 further argues that the efficiency-focused culture led to the Financial Crisis of 2008 and is still dividing the society now. More importantly, Chapter 4 illustrates that, while the MiFID II imposed Know Your Customer (KYC) requirements on financial intermediaries, such rules do not apply to meme investors who trade outside traditional financial intermediaries. Thus, despite its merit, KYC has an unexpected consequence of increasing social inequality between wealthy traditional investors and meme investors. The complexity of the situation further highlights the need for UK financial regulators to embrace moral transparency and ease social inequality.

In summary, information disclosure’s narrowed focus on efficiency is influenced by the UK legal tradition, legal positivism, and neo-liberalism economic theory. In other words, the narrowed focus on efficiency reflects the culture in the UK society. After establishing efficiency as information disclosure’s purpose, Section 6 then explains how this efficiency focused culture led to the Financial Crisis of 2008 and still divides the society. Against this backdrop, this chapter concludes that redefining transparency and clarifying transparency’s purpose require a culture change in the UK financial regulatory system. Coincide with this conclusion, the Financial Times also found that crypto is a ‘cult’ masquerading as a currency.⁶⁵ This builds the rationale for defining moral transparency via distributed ledger technology.

⁶² Catherine Gibaud, ‘JPMorgan Chase v Springwell: a ‘High Water Mark’ for Banks Facing Mis-selling Claims?’ (2008) 8 *Journal of International Banking and Financial Law* 391

⁶³ *ibid*

⁶⁴ González-Bahamón and José Leonardo, ‘Responsibility in the Sale of Financial Derivatives’ (2007) 9(2) *Estudios Socio-Jurídicos* 142

⁶⁵ Siddharth Venkataramakrishnan and Robin Wigglesworth, ‘Inside the Cult of Crypto’ (FT Magazine, 10 September 2021) < <https://www.ft.com/content/9e787670-6aa7-4479-934f-f4a9fedf4829> > accessed 15 February 2024

2.3 Researchers' Attempt to Increase Transparency

As Fung, Graham and Weil argued, the establishment of transparency mechanisms requires crises to raise extensive public attention, economic rationale and an early generation of research on transparency as intellectual preparation.⁶⁶ The following discussion illustrates researchers' concerns over lack of transparency in derivatives trading in the early stage. Sections 4 and 5 then demonstrates the public pressure after the Financial Crisis of 2008 and the economic incentives of clearing. Together, these factors lead to the post-2008 transparency reform in the UK derivatives market.

In 1987, Levich⁶⁷ advocated that more information should be disclosed to facilitate buyers' evaluation of risks involved in securitisation, which would enhance investors' confidence in the market. For Levich, buyers' information shortage was due to objective market circumstances.⁶⁸ As a recent innovation in 1987, there was limited historical data for analysing the risks involved in securitisation and financial derivatives.⁶⁹ In the absence of historical experience, traders needed more information to develop their knowledge. This lack of knowledge Levich described resembles the current UK crypto market, where investors struggle to price crypto.⁷⁰

The late 1987 also witnessed the emergence of local authorities swaps cases in the UK, where both the courts and local authorities struggled to understand the nature and risks involved in swaps.⁷¹ The same lack of knowledge can be found in Chapter 5's discussion over the SQUID scam in current crypto market explosion. Therefore, previous transparency studies like Levich's are relevant in defining transparency in the UK crypto market. By analysing these examples, the thesis reaches the conclusion that the knowledge gap can only be mitigated by providing financial literacy to the public.

Nevertheless, Levich's recognition of knowledge gap stood out in information asymmetry discussions during this period. The UK councils' struggle in the derivatives market was shared

⁶⁶ Archon Fung, Mary Graham and David Weil, *Full Disclosure: The Perils and Promise of Transparency* (Cambridge University Press 2007) 18, 19

⁶⁷ Richard M. Levich, 'Financial Innovations in International Financial Markets' NBER working paper No. 2277

⁶⁸ *ibid*

⁶⁹ *ibid*

⁷⁰ Meme investors' struggle is discussed in Chapter 4 Section 3, while traditional investors' struggle is discussed in Chapter 5.

⁷¹ See Chapter 3 Section 4

by the US. Take the *County of Orange v. Merrill Lynch & Co* as an example.⁷² Orange County entered into a securities loan agreement with an investment bank, Merrill Lynch, in November 1993, in which billions of dollars short-term repurchase agreement⁷³ were traded. Unfortunately, the county suffered catastrophic losses and was forced into bankruptcy in 1994. The County sued Merrill Lynch for fraudulently recommending the County the contracts. This allegation implied that there was an information asymmetry between the two contractual parties, which unfairly put the Country in a disadvantaged position. Merrill Lynch dismissed the claims and applied for counterclaims. The US Bankruptcy Court for the Central District of California denied Merrill Lynch's motion to dismiss the claims and counterclaims. However, the courts' discussion focused purely on information asymmetry. As the court was reluctant to impose any advisory duty on sellers,⁷⁴ the knowledge gap between the councils and the banks was left unaddressed.

⁷² *County of Orange v. Merrill Lynch & Co* [1996] 191 B.R. 1005

⁷³ An interest rate related derivatives product.

⁷⁴ The debate on the seller's disclosure obligation went into a different direction. Despite Orange County's mis-selling claim, in his testimony at a congressional hearing, Arthur Levitt, the Chairman of SEC suggested that the problem was within Orange County's management. Such management problems concerned the power imbalance between management and shareholders. Since the mid-1990s, corporate governance reforms were debated and later implemented to address this issue. This thesis considers corporate governance reforms as a branch of first-generation transparency research. On the one hand, corporate governance reforms are modest self-regulations, whose implementation created an excuse for denying government intervention in the derivatives market. On the other hand, corporate governance research is influenced by institutional financial theories, which are neo-classical economic theories. As will be discussed in Chapter 3, the public's growing involvement in investment falls outside traditional corporate governance regime. Thus, the thesis recognises corporate governance reform as one approach to transparency. But it is not the central piece of this thesis.

see George L. Priest, 'The Rise of Law and Economics: A Memoir of the Early Years' in Henry N. Butler and Jonathan Klick (eds), *History of Law and Economics* (Edward Elgar 2018)

Mark Platte, Matt Lait and Robert A. Rosenblatt, 'Orange County Files Suit Against Merrill Lynch: Bankruptcy: \$2.4 billion in damages is sought. The brokerage denies being behind risky investment strategy.' (Los Angeles Times, 13 January 1995) <<https://www.latimes.com/archives/la-xpm-1995-01-13-mn-19560-story.html>> accessed 3 December 2022

Kern Alexander and Rahul Dhumale, 'Enhancing Corporate Governance for Financial Institutions: The Role of International Standards' (ESRC Centre for Business Research, University of Cambridge, Working Paper No.196, March 2001)

Similarly, in December 2003, the EU Prospectus and Transparency Directives came into force, aiming to alter the asymmetrical information between buyers and sellers.⁷⁵ Yet, even after the law was implemented, Bahamon and Leonardo⁷⁶ still found buyers in disadvantaged positions in the financial market. They argued that derivatives sellers had the expertise to fully understand their products, while buyers entered derivatives contracts based on sellers' advice.⁷⁷ Therefore, it was the knowledge gap that put derivatives buyers in a disadvantaged position against banks, rather than simply information asymmetry. Subsequently, moral transparency emphasises the need to share knowledge with the public. The US and EU examples suggest that while the thesis' discussion of moral transparency focuses on the UK financial market, the challenges, especially the excessive concentration of information, power and wealth in financial intermediaries discussed here and the public's growing involvement in unregulated investment channels, can apply to other markets.

Traditionally, the financial market offers a solution to mitigate this knowledge gap by financial institutions advising ordinary investors as their clients. The following paragraphs discuss the inherited flaws in this approach. Chapter 4 then argues that this approach falls short, where meme investors have no access to financial intermediaries for investment advice. Against this backdrop, addressing the knowledge gap becomes an even more urgent issue in the contemporary UK financial market.

According to Licht, principals (individual investors who are customers of a bank) were exposed to two information asymmetries that would render them vulnerable against bankers' opportunistic behaviour.⁷⁸ Firstly, principals may not have the information necessary to evaluate the banker's performance. Secondly, the courts may not be the most efficient way to restore order in the complex and fast-changing financial market. Against this background, Licht suggested that fiduciary duty should require bankers to fully disclose even unobservable and unverifiable information.⁷⁹ Although Licht recognised correctly that the transparency issue within the principal-agent relationship, this simplified belief ignored the fact that customers and

⁷⁵ EMSA, 'Transparency Directive' <<https://www.esma.europa.eu/regulation/corporate-disclosure/transparency-directive>> assessed 03 December 2022

⁷⁶ Bahamón and Leonardo (n 64)

⁷⁷ *ibid*

⁷⁸ Amir N. Licht, 'Lord Eldon Redux: Information Asymmetry, Accountability and Fiduciary Loyalty' (2017) 37(4) *Oxford Journal of Legal Studies* 770

⁷⁹ *ibid*

the courts still rely, if not more so, on bankers to interpret the growing amount of information. Thus, more information cannot address the information asymmetry between the bankers and their customers as Licht expected.⁸⁰ This is because, more information does not close the knowledge gap between information producers and information receivers.

It is important to note that in the aftermath of 2008, the MiFID II regulatory system imposes stricter KYC requirements on financial intermediaries to keep investors better informed.⁸¹ However, this approach fails to reach emerging meme investors who trade outside traditional financial intermediaries. Against this backdrop, MiFID II intensifies inequality between meme investors and traditional investors. To address this issue, Chapter 4 calls for regulators to provide financial literacy to the public and ensure the creditability of FCA registered crypto firms.

Against the paradox of information and agency risk, Moloney stated that, given the ordinary investors' lack of financial literacy, the model of the informationally-rational investor is largely hypothetical.⁸² Real retail investors are simply trusting the soundness of the products and the regulatory framework.⁸³ Chapter 3 highlights that the creation of Bitcoin is a result of such trust being destroyed during the Financial Crisis of 2008. Thus, more information cannot achieve transparency both within and outside the UK crypto market. The focus, as Levich suggested, should be on developing knowledge and rebuilding trust. Against this backdrop, moral transparency emphasis promoting financial literacy and easing speculation as the means to achieve these purposes.

Furthermore, trading is not straightforward. As summarised by Stiglitz,⁸⁴ derivatives traders' strategy was making products too complicated to comprehend. Therefore, even if the terms of the contracts were fully disclosed, assessing them was impossible. With financial products becoming more and more complicated, it is impossible for individual investors to be properly

⁸⁰ Particularly alongside financial innovation, which will be illustrated in Chapter 3 Section 3 via smart contracts.

⁸¹ Danny Busch, 'MiFID II and MiFIR: Stricter Rules for the EU Financial Markets' (2017) 11 (2-3) *Law and Financial Markets Review* 126

⁸² Niamh Moloney, 'Reform or Revolution? The Financial Crisis, EU Financial Markets Law, and the European Securities and Markets Authority' (2011) 60(2) *International and Comparative Law Quarterly* 521

⁸³ *ibid*

⁸⁴ Stiglitz (n 20)

informed by simple information.⁸⁵ While Chapter 4 recognises social media's role in educating the public, it also calls for the regulators to invest more in financial literacy.

Information disclosure overlooks the knowledge gaps between insiders and outsiders in the UK financial regulatory system. In the traditional market, the knowledge gap was mitigated via agency approach. Yet, due to conflict of interest, the agency approach failed to facilitate UK financial regulators' handling of the Financial Crisis of 2008 effectively. Meanwhile, against innovative financial products, financial intermediaries like credit rating agencies were also incapable of keeping investors informed. Most importantly, as will be discussed in Chapter 4, the agency approach does not apply in the de-centralised UK crypto market. To address the shortcomings of the agency approach and information disclosure, previous researchers explored methods like disclosing more information, being open with one's reasoning and keeping disclosure simple. Learning from these theories, this thesis' call for sharing knowledge with the public and easing excessive speculation among traditional market participants to reduce agency risk and regain the public's trust.

To conclude, before the Financial Crisis of 2008, the UK derivatives market was not regulated. Transparency discussions, including both small market participants' desire for more information, and the need to keep regulators informed, were dismissed. The Lack of regulatory intervention was a deliberate choice rooted in neo-liberalism and legal positivism's dominance in the UK. Researchers explored options to increase transparency during this period. But the discussion largely focused on balancing the bank-customer relationship, and struggled to overcome the knowledge gap and agency risk.

⁸⁵ Edwin J. Elton, Martin J. Gruber and Jeffrey A. Busse, 'Are Investors Rational? Choices among Index Funds' (2004) 59 *The Journal of Finance* 261

3. Information Disclosure regarding Deposit-Taking Institutions

Despite transparency being discussed in early derivatives market, the late 1970s did witness the implementation of the Banking Act 1979 (BA 1979). According to Article 5 BA 1979, institutions wishing to conduct deposit-taking business must provide ‘any information which the Bank may reasonably require’, with ‘criminal penalties for knowingly or recklessly furnishing materially false or misleading information’.⁸⁶ In this sense, Article 5 introduced an information disclosure obligation from market participants to regulators into the UK banking industry. Through a case study of the Bank of England’s handling of Johnson Matthey Bankers (JMB) in the 1980s, following discussion demonstrates that transparency and information disclosure were two parallel concepts in the UK financial regulatory system. Regulators’ decision to strengthen information disclosure in the UK financial market was driven by efficiency concerns and follows an agency approach. The post-2008 transparency reform merely imposed this flawed information disclosure requirements in the previously unregulated derivatives market.

It is important to highlight that regulating the financial market was not fully the UK government’s choice. Rather, the implementation of BA 1979 was part of the UK’s commitment to the European Communities (EC, including the European Economic Community, the European Coal and Steel Community and the European Atomic Energy Community).⁸⁷ When the UK joined the European Economic Community (EEC) in 1973,⁸⁸ the EC had already begun its process of harmonising the banking laws within member states.⁸⁹ In 1977, the European Economic Community Banking Directive was passed requiring all member states to establish an authorisation procedure for credit institutions. Fearing the potential impacts on the EC decisions on the freedom of the UK banking industry, the UK played a key role reshaping the content and direction of the debates and only passed the BA 1979 at the last minute.⁹⁰ Therefore, for the UK financial regulatory system, information disclosure was for accessing the EC market, instead of increasing transparency. EU legislation also played a key role in shaping the post-2008 transparency reform in the UK. As highlighted throughout the thesis, including

⁸⁶ BA 1979, Article 5

⁸⁷ B Quinn, ‘The Influence of the Banking Acts on the Bank of England’s Traditional Style of Banking Supervision’ in Joseph Norton (ed), *Bank Regulation and Supervision in the 1990s* (Lloyd’s 1991)

⁸⁸ European Communities Act 1972

⁸⁹ *ibid*

⁹⁰ *ibid*

transparency as a regulatory objective is an ambitious step forward. Through the example of clearing crypto derivatives in the UK CCPs, Chapter 5 warns against further deregulation in the UK financial market after Brexit.

3.1 The JMB Scandal

JMB was one of the first few banks regulated by the Bank of England⁹¹ after the implementation of the Banking Act 1979 (BA 1979).⁹² In late summer 1984, JMB appeared unable to sustain its lending business.⁹³ Almost immediately, in October 1984, the Bank of England purchased JMB at the cost of £1 to save the bank.⁹⁴ The bailout decision effectively exposed the Bank of England to over £175 millions of JMB's debt.⁹⁵ This situation resembled the UK government's decision to bail out banks during the Financial Crisis of 2008.⁹⁶ Due to this shared background, studying the transparency discussions in JMB helps understanding transparency in the post-2008 UK market.

Figurative expressions of transparency appeared in several occasions questioning the Bank of England's handling of JMB.⁹⁷ For instance, the Bank of England's decision to bail out JMB was described by David Owen MP in the Parliament as 'operating under a considerable cloud'.⁹⁸ This was to say, the Parliament had 'constant difficulty in getting at what is really happening'

⁹¹ Bank of England, Annual Report 1985.

⁹² Until 1979, the UK had no statute or statutory regulation that governed the establishment of a new bank or the conduct of banking business generally. The Bank of England relied on personal connects with the banking industry to do its job.

See Robert C. Effros, 'Regulatory and Other Changes in the U.K. Banking Market' in Current Legal Issues Affecting Central Banks, Volume II (International Monetary Fund, June 1994)

The background of this legislation will be introduced in Section 5 to highlight the UK financial regulatory culture.

⁹³ *ibid*

⁹⁴ Maximilian J. B. Hall, 'UK Banking Supervision and the Johnson Matthey Affair' in Charles Goodhart, David Currie, David T. Llewellyn (eds), *The Operation and Regulation of Financial Markets* (Palgrave Macmillan 1987)

⁹⁵ *ibid*

⁹⁶ The government's decision to bailout banks' exposure to risky products like securitisation and CDSs in 2008 will be discussed in Sections 4 and 5.

⁹⁷ Hall (n 94)

⁹⁸ David Owen, '1986 Speech on Johnson Matthey Bankers (UKPOL.CO.UK, 25 August 2019) <<http://www.ukpol.co.uk/david-owen-1986-speech-on-johnson-matthey-bankers/>> accessed 01 December 2022

between the Government and JMB.⁹⁹ Therefore, in the absence of such information, Owen believed that the bailout decision could not be justified. This metaphor described a situation where light could not get through obstacles and let people see the truth. In other words, the public was kept as outsiders in the UK financial regulatory system. Thus, although the word transparency was not used in this speech, Owen's statement used transparency as a bridge to connect the public's feeling with the UK financial regulatory system. To rebuild the public's trust in the aftermath of 2008 and against the public's growing involvement in investment, this thesis brings back this metaphoric and sentimental aspect of transparency to the UK financial regulatory system.

Furthermore, the Bank of England insisted, JMB was operating normally as a deposit-taking institution registered under Article 5 BA 1979, where deposit-taking institutions were required to provide 'any information which the Bank may reasonably require'.¹⁰⁰ Therefore, Article 5 introduced an information disclosure obligation into the UK banking industry. However, as Neate criticised, the registration process contained 'arcane criteria known only to the members' of the insider club.¹⁰¹ That was to say, the scope and the quality of the disclosure were unclear. The Bank of England only accepted applications from established banks whose reputations were well-known in the country.¹⁰² No detailed application criteria was published, except the 'reputable' requirement.¹⁰³ Like Owen, Neate also did not use the word transparency explicitly. But the feeling he described, the arcane environment and the outsiders' difficulty to look through, met the dictionary definition of transparency. In this sense, Neate's statement was an early critique from the public towards the lack of transparency in the UK financial regulatory system.

It is important to note that these metaphors of transparency both came from outside the financial market. In contracts, financial regulators choice to use the word 'information' in their descriptions. This choice of words suggest that transparency and information disclosure were

⁹⁹ David Owen, 'Johnson Matthey Bankers; Volume 92: Debated on Thursday 27 February 1986' (UK Parliament) <<https://hansard.parliament.uk/Commons/1986-02-27/debates/8d31457f-1f93-4841-a4a7-16b4e5366591/JohnsonMattheyBankers>> accessed 18 February 2024

¹⁰⁰ BA 1979, Article 5

¹⁰¹ Francis. W. Neate, 'The Banking Act 1979' (1980) 199(8) *International Business Lawyer* 199

¹⁰² Bank of England, Consolidated Supervision of Institutions Authorised under the Banking Act 1979. (Quarterly Bulletin 1986 Q1)

¹⁰³ *ibid*

two separated issues within the UK financial regulatory system during this period. Information disclosure essentially also addresses transparency discussion established in the Literature Review. However, information disclosure only concerns insiders of the UK financial regulatory system and does not include the public's moral sentiments.¹⁰⁴ To distinguish the two concepts, the public (outsiders) concern is called transparency in the following discussion, while the regulators (insiders) concern is referred to as information disclosure. Nevertheless, the insiders' pursuit of information disclosure provides valuable lessons for the outsiders.

After bailing out JMB, the Bank of England struggled to acquire reliable information for assessing JMB's financial situation. Disclosed in the House of Commons debate on 17th July 1985, the then Chancellor, Nigel Lawson, admitted that after taking over JMB, the Bank of England found several documents related to substantial past transactions missing, leaving large losses in JMB's account unexplained.¹⁰⁵ The difficulty, the Bank of England faced as an entity outside of the JMB's management in assessing the true image of JMB's financial situation, meets the dictionary's definition of transparency. The Bank of England chose to use the word information¹⁰⁶ in describing the problem, where the public was excluded from this discussion.¹⁰⁷

3.2 Transparency Was Excluded from the Regulatory System

In response to the critiques, the Bank of England insisted that its general regulatory approach was 'based on the analysis of statistical information and regular discussions with the management of deposit-taking institutions'.¹⁰⁸ In other words, regulating the UK financial market is an insiders' professional decision. The following analysis shows that outsiders were traditionally excluded from discussions in the UK financial regulatory system, which echoes Section 2's discussion over lack of transparency and regulation in the UK derivatives market. Sections 4 and 5 highlight the catastrophic impact of this exclusion, building the rationale for regulators to re-define transparency and include the public's moral sentiments.

In the *Report of the Committee to Review the Functioning of Financial Institutions 1981*, Harold Wilson, the former UK Prime Minister, recognised transparency as a higher ethical standard

¹⁰⁴ See Section 2.

¹⁰⁵ HL Deb 17 December 1985 vol 469 cc694-703

¹⁰⁶ *ibid*

¹⁰⁷ Bank of England, Annual Report 1985, Appendix: The Bank of England and Johnson Matthey Bankers Limited.

¹⁰⁸ *ibid*

for banking practices.¹⁰⁹ But Wilson argued that the law did not deal with ethical issues.¹¹⁰ Providing a legal definition or even measurable criteria for how much information banks should disclose to customers could be harmful, as it would cause more burden on business, slow innovation and reduce the flexibility of the system.¹¹¹ This argument could explain why Article 5 BA 1979 was so arcane, as it implied that Article 5's information disclosure requirement was a separate issue from transparency. The statement confirmed Section 2's discussion over legal positivism and neo-liberal economic theory's impact in the UK banking law system. Redefining transparency in the UK financial regulatory system will require regulators to radically change their mindset. This change is justified with historical transparency reforms in the 1900s, the Radbruch Formula and Keynesian economics.¹¹² It is worth noticing that Wilson used the word 'ethic' to describe transparency. While connected with morality, ethics often come in the form of articulated rule-book.¹¹³ In contrast, moral, as Adam Smith argued, is not something we have to calculate, but naturally built into us as social beings.¹¹⁴ Against the emergence of meme investors, this thesis adopts the term moral in its theoretical concept to emphasise individuals' autonomy.

Later in 1989, the Jack Committee on the Review of Banking Services Law conducted its review of the law and practice in UK banking industry.¹¹⁵ This report warned that banks failed to disclose meaningful information to their customers, where bank customers were often not sure how much they would be charged for using the banks' services.¹¹⁶ However, in addition to preventing banks from exploiting the customers, the Committee also emphasised the need to protect banks from customers' unrealistic over-expectations.¹¹⁷ Therefore, information disclosure was about procedural fairness, letting parties know their rights. The Jack Committee

¹⁰⁹ Peter G. Moore, 'The Wilson Committee Review of the Functioning of Financial Institutions- Some Statistical Aspects.' (1981) 144 (1) *Journal of the Royal Statistical Society* 32

¹¹⁰ *ibid*

¹¹¹ *ibid*

¹¹² See Chapter 3, Section 3.

¹¹³ James Pasztor, 'What Is Ethics, Anyway?' (2015) 69(1) *Journal of Financial Service Professionals* 30

¹¹⁴ *ibid*

¹¹⁵ Committee on the Review of Banking Services Law (Jack Committee): Report and Government Response.

¹¹⁶ *ibid*

¹¹⁷ *ibid*

did not discuss whether the arrangements were substantially fair, leaving the knowledge gap between insiders and outsiders unaddressed.

In contrast with the 1957 Radcliffe Committee on the Working of Monetary System,¹¹⁸ the Jack Committee nevertheless included bank customers in the conversation. Sharing previously undisclosed information to parties can be seen as transparency based on Fisher's definition.¹¹⁹ Yet, this transparency discussion was still outside the UK financial regulatory system. This is because, in line with the Wilson Report, the Jack Report also argued that transparency must be brought by the banking industry themselves.¹²⁰ In a free market, where banks compete against each other, banks can eventually reach the appropriate degree of transparency with their customers. Whereas if imposed by regulators, the rules could cause unnecessary financial burden.¹²¹ As will be discussed in Section 4, the statement suggested that transparency was decided on a cost-benefit base. The public's desire for fairness was overlooked by regulators for market efficiency.¹²²

This simplified perception of transparency overlooked the power imbalance between banks and bank customers. As Spooner argued, the financial institutions are well-organised and resourceful small group, focusing constantly on banking issues; whereas the public, including bank customers, are not.¹²³ This power dynamic separates insiders and outsiders in the financial market. In the 1930s, this power imbalance was challenged by the Financial Crisis of 1929, hence, allowed transparency reform in the US financial market to proceed. This historical background resembles the post-2008 transparency reform in the UK. In addition to the Financial Crisis of 2008 and the COVID-19 Pandemic, Chapter 3 highlights social media's role in keeping the public unified and informed. Chapter 4 further emphasises the need to change the power imbalance by highlighting social inequality as a systemic risk.

¹¹⁸ The Radcliffe Report 1957: A Short Guide. (1959) 5(1) *Notional Institute Economic Review* 18

¹¹⁹ Elizabeth Fisher, 'Transparency and Administrative Law: A Critical Evaluation' (2010) 63(1) *Current Legal Problems* 272

¹²⁰ *ibid* 118

¹²¹ *ibid*

¹²² For instance, in *Re Hoare & Co, Ltd* – [1933] ALL ER Rep 105, Maugham J admitted that the offering price may not represent the company's true value, but the court cannot set up its own view of fairness against the very large majority of insiders. More discussions on case law, fairness and market efficiency see Section 2.

¹²³ Joseph Spooner, 'The Quiet-Loud-Quiet Politics of Post-Crisis Consumer Bankruptcy Law: The Case of Ireland and the Troika' (2018) 81(5) *The Modern L Review* 790

3.3 Why Bailing out Banks?

The Bank of England defended JMB's failure by stating that 'JMB was faced with a familiar banker's dilemma of deciding whether to lend more to help the customers... or to refuse further credit and bring about the customer's failure.'¹²⁴ In other words, JMB's failure was a self-sacrifice for helping businesses. This statement was untrue as JMB's major debtors were its shareholders' associated companies.¹²⁵ Nevertheless, the regulators' logic is consistent with the regulators' reluctance to interfere with Northern Rock's excessive lending before the Financial Crisis of 2008 and the regulators' decision to keep a blind eye over the potential accounting fraud in registered crypto firms.¹²⁶

This defend is inconveniencing. As recognised by *the Economist*, JMB's practice and management were considered 'wildly imprudent' and 'lax' by bigger players.¹²⁷ Therefore, even experts from the UK financial market could not fully accept the Bank of England's excuse. However, *the Economist* also emphasised that JMB was a 'fairly modest size' bank.¹²⁸ The argument implied that it would be unnecessary to put tighter supervision over other banks, as the big banks know the right way to conduct their businesses. Later, the Financial Crisis of 2008 demonstrated that the flawed corporate governance structure and excessive risk-taking culture were not only a JMB issue, but a systemic risk shared by too big to fail financial institutions.¹²⁹ Chapter 4 further argues that meme investors mimic this speculative culture, causing even more uncertainty in the UK financial market. Against this background, Chapter 5 calls for regulators to ease speculation in the UK financial market.

Nevertheless, it is also important to ask, why regulators bailout banks in the 1980s and during the Financial Crisis of 2008? In the UK, the Bank of England plays a crucial role in the traditional payment system via its control over currency.¹³⁰ On one hand, the Bank of England

¹²⁴ Bank of England (n 107)

¹²⁵ *ibid*

¹²⁶ See Chapter 3 Section 2's criticism of the FCA registered crypto firms' poor accounting situation.

¹²⁷ *The Economist*, 'Summer Pudding' Volume 296, Issue 7405, August 1985.

¹²⁸ *ibid*

¹²⁹ See for instance, Andrew Sorkin, *Too Big to Fail: Inside the Battle to Save Wall Street* (Penguin 2010) The excessive risks taking business model in the UK financial market is criticised in Section 5. More discussion on systemic risks in Chapter 4.

¹³⁰ Peter Conti-Brown, 'The Central Banking Century: An Introduction to Institutional Central Banking', in *Research Handbook on Central Banking*, Vol I (Elgar 2018)

produces banknotes.¹³¹ These notes¹³² have security features and are difficult to forge,¹³³ hence, users can use notes to represent the currency. On the other hand, the Bank of England stabilises prices.¹³⁴ Therefore, people are confident to use the currency in the following ways. Firstly, as a store of value.¹³⁵ When people put one pound in the safe, it's the value (one pound) that matters, instead of the material. Secondly, as a unit of account.¹³⁶ This is to say products are priced by how many units (£). Thirdly, as a medium of exchange,¹³⁷ where sellers and buyers exchange the currency for transactions. These three aspects are also known as the basic functions of currency. While distributed ledger based crypto is also referred to as cryptocurrencies,¹³⁸ at least now, crypto has yet to fulfil these basic requirements. Thus, this thesis chooses to use the term 'crypto' in using how crypto should be regulated in the UK.

Banks act as a crucial agency for central banks in the financial market, where banks take deposits from the public and then lend those deposit to industries and households.¹³⁹ During the lending process, banks gather crucial information on currency demands and supplies, including who needs the money and at what cost. Such information is shared with the central bank,¹⁴⁰ so the latter can stabilise prices by adjusting banknote supply and interest rates. JMB is a deposit-taking business regulated by the Bank of England under BA 1979.

¹³¹ Bank of England, 'About Us' <<https://www.bankofengland.co.uk/about> > accessed 19 October 2021

¹³² This discussion concerns mainly England and Wales. In Scotland, commercial banks print the notes under licence.

¹³³ Bank of England (n 131)

¹³⁴ *ibid*

¹³⁵ Malcolm Sawyer, 'Money: Means of Payment or Store of Wealth?' in Louis-Philippe Rochon and Sergio Rossi (eds), *Modern Theories of Money. The Nature and Role of Money in Capitalist Economies* (EE 2003)

¹³⁶ *ibid*

¹³⁷ *ibid*

¹³⁸ Bank of England, 'UK Central Bank Digital Currency' <<https://www.bankofengland.co.uk/research/digital-currencies>> accessed 03 December 2022

¹³⁹ Miao Han, 'Bank of England and the Global Financial Crisis' in *Central Bank Regulation and the Financial Crisis* (Palgrave Macmillan 2016)

In Scotland, commercial banks also provide notes under licences to the public.

¹⁴⁰ John T. Woolley, 'Monetary Policy Instrumentation and the Relationship of Central Banks and Governments' (1977) 434(1) *The Annals of the American Academy of Political and Social Science* 151

In addition to the deposit-taking and lending businesses, banks also act as credit providers. This is because banks can leverage the deposits they hold and lend several times the amount out.¹⁴¹ This role will be further discussed in Chapter 3 as innovations in the payment system could lead to a short supply of credit in society. Meanwhile, where physical notes are exchanged between the buyer and the seller, the seller does not need to worry the buyer would double spend the money. This is because the notes are secured by the central bank and hard to forge. However, no physical notes are exchanged in the online environment. Rather, ‘e-money’ is involved.¹⁴² According to the Bank of England, e-money is an electronic store of monetary value that can be used for making payments.¹⁴³ The buyer and the seller conduct the transaction via bank card or apps as intermediaries. In contrast with the Bank of England, Low and Teo argue that, talking about digital money without crypto fails to ‘distinguish the legal right held by holders of such money from the manner in which they were recorded.’¹⁴⁴ This is because, even though physical notes are not exchanged when using card payments and online transactions, e-money still requires intermediaries to record, verify and eventually settle the monetary value in pounds.¹⁴⁵ Therefore, the traditional payment system is based on the agency approach, where banks are entrusted to process and verify information. Society’s reliance on banks as the information provider then focused the UK government to bailout the banking industry during the Financial Crisis of 2008. Chapter 3 then introduces Bitcoin and Central Bank Digital Currencies (CBDC) as alternatives to the bank payment system. The decreased reliance on banks could reduce the government’s need to bail out banks in the future. However, it is also important to note that, as banks largely record money in digital records, it opens up the possibility for distributed ledgers

¹⁴¹ Although this leverage is restricted by capital adequacy requirements. See Giovanni Dell’Ariccia, Luc Laeven and Gustavo A. Suarez, ‘Bank Leverage and Monetary Policy’s Risk-Taking Channel: Evidence from the United States’ (2017) 72(2) *The Journal of Finance* 613

¹⁴² Bank of England, New Forms of Digital Money (Discussion Paper) Published on 07 June 2021. <<https://www.bankofengland.co.uk/paper/2021/new-forms-of-digital-money>> accessed 18 February 2024

¹⁴³ *ibid*

¹⁴⁴ Kelvin F.K. Low and Ernie Teo, ‘Legal Risks of Owning Cryptocurrencies’ in David Lee Kuo Chuen and Robert Deng (eds), *Handbook of Blockchain, Digital Finance, and Inclusion*, Vol 1 (1st ed, Elsevier Inc 2018)

¹⁴⁵ FCA Handbook. Payment Services Regulations. Schedule 1.

to transform the financial system more generally.¹⁴⁶ This possibility will be discussed further in Chapter 4.

Nevertheless, for macro-economic purposes or in circumstances like countering money laundering and other criminal activities, regulators rely on banks as the main source of information to maintain the order of the market.¹⁴⁷ In theory, this bank-dominated payment system ensures that the central bank has access to gain an accurate image about the economy for market efficiency. In return, the public trust the central bank's ability to stabilise prices, hence, continue to use the currency. Meanwhile, the public trust banks' ability to repay the principals and interests because banks are regulated by the government and backed by deposit protection insurance. Thus, the public continue to put deposits in banks. Therefore, under the traditional efficiency focused notion of transparency, this traditional bank-dominated payment system is considered transparent, whereas crypto is considered not. In the absence of a financial intermediary, regulators are blind over crypto transactions. Against this background, the FCA started registering some crypto firms to counter crypto money laundering and terrorist financing.¹⁴⁸ Chapter 5 finds the FCA scarifies transparency for crypto investors to achieve this regulatory purpose. It warns that this traditional agency approach cannot work in the de-centralised crypto market.

Under this agency approach, regulators rely on financial institutions as the main source of information in the payment system. Yet, this arrangement is not applicable to the de-centralised crypto market.¹⁴⁹ This subsection demonstrates the agency approach's impact on the payment system. Chapter 3 then introduces crypto as an alternative to this traditional payment system. It is important to note that the thesis does not intend to replace the traditional payment system with blockchain. As will be illustrated in the following paragraphs, the traditional payment

¹⁴⁶ Robleh Ali, John Barrdear, Roger Clews, and James Southgate, 'Innovations in Payment Technologies and the Emergence of Digital Currencies' Bank of England Quarterly Bulletin 2014 Q3, Available at SSRN: <https://ssrn.com/abstract=2499397>

¹⁴⁷ Joseph E Stiglitz, 'The Financial Crisis of 2007–8 and Its Macroeconomic Consequences' in Joseph E Stiglitz, Stephany Griffith-Jones and José Antonio Ocampo (eds), *Time for a Visible Hand: Lessons from the 2008 World Financial Crisis* (OUP 2010)

¹⁴⁸ The FCA, 'Registered Cryptoasset Firms' <<https://register.fca.org.uk/s/search?predefined=CA>> accessed 04 December 2022

¹⁴⁹ See Chapter 5's analysis on how registering crypto firms cannot effectively reduce money laundering in the UK crypto market.

system has its pros and cons. Crypto is merely one experiment to address these issues. This echoes the thesis' main argument that distributed ledger technology does not cause the chaos in the UK financial regulatory system but amplifies existing problems, including the over-reliance on financial intermediaries and the excessive speculative culture. Regulators should focus on addressing long existing problems in the system.

3.4 The Aftermath: Enhance Information Disclosure from Banks to Regulators

After bailing out JMB, the Bank of England complained about the lack of reliable information for assessing JMB's financial situation. The difficulty, the Bank of England faced as being outside JMB's management in assessing the true image of JMB's financial situation, meets the dictionary's definition of transparency. Yet, the Bank of England chose to use the word *information*¹⁵⁰ in describing the problem, instead of *transparency*. Section 2 criticised this language choice for excluding the public from the conversation. This section further argues that this early debate in JMB illustrates the relationship among transparency, information disclosure and the UK financial regulatory system. This early example is analysed here to show insiders' historical dominance in the UK financial regulatory system, which is why Chapter 2 needs to turn to a 1900s US theory for combining moral transparency with law in modern UK financial market to define moral transparency.

The Bank of England insisted that its general regulatory approach was 'based on the analysis of statistical information and regular discussions with the management of deposit-taking institutions'.¹⁵¹ Against the JMB scandal, Lord Belstead stated that,

The supervisors cannot do their jobs unless they have adequate, accurate and timely information. This was one clear lesson of the JMB affair. Under the existing legislation it is not a criminal offence to mislead the supervisors, even if this is done knowingly or recklessly. I propose to make it one—with appropriate penalties.¹⁵²

In other words, ensuring the supervisors' access to accurate information is essential in the banking regulatory system. In comparison with Neate and Owen, Lord Belstead's expression was more in the form of law. In this sense, he connected transparency, information disclosure with the law. In the aftermath of the JMB scandal, the Banking Act 1987 (BA 1987), replaced

¹⁵⁰ Bank of England (n 107)

¹⁵¹ *ibid*

¹⁵² HL Deb 17 December 1985 vol 469 cc694-703

BA 1979, significantly increased the Bank of England's information gathering power.¹⁵³ It is necessary to highlight that the Bank of England is outside financial institutions, but inside the UK financial regulatory system. In this sense, Lord Belstead and BA 1987 only addressed the insiders, the Bank of England's transparency concerns. The outsiders (public)'s concern over the lack of transparency in the Bank of England's bailout decision was dismissed.

Similarly, while the Banking Act 2009 (BA 2009) states that arrangements should be made 'as transparent as possible', such transparency is nevertheless subject to 'the circumstances and the need to maintain financial stability'.¹⁵⁴ This thesis criticises this narrowed focus on market efficiency for overlooking social inequality as a systemic risk that threat financial stability. Inspired by transparency studies from the 1900s US financial market and modern blockchain innovation, this thesis then develops the working definition of moral transparency, addressing the public's desire for social equality in the context of the UK financial regulatory system.

Previously, the law did not give UK financial regulators legal access to information.¹⁵⁵ As suggested by the 1957 Radcliffe Committee on the Working of Monetary System, banks were essentially commercial undertakings, with their primary responsibility to their shareholders.¹⁵⁶ Thus, concentration of wealth in banks was not an immorality or danger. Rather, it was bankers' fulfilling their duties. As for the role of transparency, the Committee argued that transparency was a private matter between the bank and its shareholders.¹⁵⁷ Hence, regulators' lack of access to information was not a transparency issue. Furthermore, there was no need for the government, who was an outsider in this relationship, to intervene. Bank customers and the public were not even considered as relevant parties in the discussion. This explains why the UK did not have a formal financial regulatory system before the implementation of the BA 1979.

Later in 1989, the Jack Committee on the Review of Banking Services Law conducted its review of the law and practice in UK banking industry.¹⁵⁸ This report warned that banks failed to disclose meaningful information to their customers, where bank customers were often not

¹⁵³ Michael Taylor, 'Financial Services and Markets Act 2000' (2000) 30 *Amicus Curiae* 3

¹⁵⁴ BA 2009, 11A

¹⁵⁵ Taylor (n 153)

¹⁵⁶ The Radcliffe Report 1957: A Short Guide. (1959) 5(1) *Notional Institute Economic Review* 18

John H. Karehen, 'Some Observations on the Radcliffe Report' (1960) 15(4) *The Journal of Finance* 481

Ethne Harkness, 'Saying Yes to Fairness and Transparency' (1990) 41(4) *Northern Ireland Legal Quarterly* 339

¹⁵⁷ *ibid*

¹⁵⁸ Committee on the Review of Banking Services Law (Jack Committee): Report and Government Response.

sure how much they would be charged for using the banks' services.¹⁵⁹ However, in addition to preventing banks from exploiting the customers, the Committee also emphasised the need to protect banks from customers' unrealistic over-expectations.¹⁶⁰ Therefore, information disclosure was about procedural fairness, letting parties know their rights. The Jack Committee did not discuss whether the arrangements were substantially fair, leaving the knowledge gap between insiders and outsiders unaddressed.

Nevertheless, in contrast with the 1957 Radcliffe Committee on the Working of Monetary System,¹⁶¹ the Jack Committee included bank customers in the conversation. Sharing previously undisclosed information to parties can be seen as transparency based on Fisher's definition.¹⁶² Yet, this transparency discussion was still outside the UK financial regulatory system. This is because, in line with the Wilson Report, the Jack Report also argued that transparency must be brought by the banking industry themselves.¹⁶³ In a free market, where banks compete against each other, banks can eventually reach the appropriate degree of transparency with their customers. Whereas if imposed by regulators, the rules could cause unnecessary financial burden.¹⁶⁴ As will be discussed in Section 5, the statement suggested that transparency was decided on a cost-benefit base. The public's desire for fairness was overlooked by regulators for market efficiency.¹⁶⁵ This simplified perception of transparency overlooked the power imbalance between banks and bank customers.

As for how to disclose information within the UK financial regulatory system, the Chancellor, Nigel Lawson, advocated an agency approach.¹⁶⁶ In line with Lord Belstead's suggestion, Lawson also recognised the difficulty for the Bank of England to get access to information under the then applicable legal system. As to how the supervisors can be better informed, Lawson suggested, instead of directly acquiring information from financial institutions, the

¹⁵⁹ *ibid*

¹⁶⁰ *ibid*

¹⁶¹ This report will be discussed in Section 2.1 to highlight insiders' narrowed focus on market efficiency.

¹⁶² Fisher (n 119)

¹⁶³ *ibid* 161

¹⁶⁴ *ibid*

¹⁶⁵ For instance, in *Re Hoare & Co, Ltd* – [1933] ALL ER Rep 105, Maugham J admitted that the offering price may not represent the company's true value, but the court cannot set up its own view of fairness against the very large majority of insiders. More discussions on case law, fairness and market efficiency see Section 5.1.

¹⁶⁶ HL Deb 17 December 1985 vol 469 cc694-703

supervisors would be informed via banks' auditors. Auditors are a professional body with access to the companies' financial documents, which gave them both the ability and the resources to identify red flags within the banks. Unfortunately, due to the confidentiality between the auditors and the audited companies, even though the auditors might discover problems within a bank, the auditors could be hesitant to share this information with the supervisors.¹⁶⁷ If the code of conduct could be changed to allow auditors to report issues to the supervisors, the supervisory system would be more effective. Sections 4 and 5 further argue that Lawson's statement touched upon three major reasons (obstacles) against transparency in the UK financial market, the receivers' ability to process the information, business confidentiality, and costs of collecting and distributing the information. These obstacles decide only limited information can be disclosed in the UK financial regulatory system.

It is important to note that the regulator is simultaneously an outsider of the financial institution but insider of the financial regulatory system. In this sense, this knowledge gap between the regulator and the financial institution is still between outsiders and insiders. But the public is in an even more disadvantaged position for two reasons. Firstly, the public is not considered as insiders in the UK financial regulatory system. Secondly, it is more difficult for the public to develop or borrow the knowledge. Through the example of Ethereum, Chapter 3 illustrates how modern information technology shares knowledge with the public; hence mitigates the knowledge gap. The enhance knowledge is the premise for the public to make informed actions and get meaningfully involved in the UK financial market.

Nevertheless, regulators backed by public finance are in a better position to close the knowledge gap. In contrast, the public does not have such extensive resource to do so easily. Consequently, it is difficult to achieve transparency for the public in the UK financial market. This situation is consistent with Judge Brandeis' historical moral transparency practices in the 1900s US. Blockchain overcomes this difficulty by sharing knowledge with the public via open-source codes and social media, which brings real opportunities for transparency. However, as will be highlighted in subsequent chapters, the public's involvement in blockchain and crypto can be highly speculative and disruptive. Therefore, the thesis does not advocate blockchain as the panacea for all ills. Rather, the thesis brings back the historical debate between financial

¹⁶⁷ See for instance, in *Hedley Byrne & Co Ltd v Heller & Partners Ltd* (1964) AC 465 (HL), when giving information to clients, agents also include exclusion clause to the effect of that information. The information was later proven reliable.

inclusion and speculation, and challenges the chronic excessive concentration of information, wealth, and power in society.

To conclude, the Bank of England's decision to bailout JMB in the 1980s represents transparency's early encounter with the UK financial regulatory system. Like during the Financial Crisis of 2008, regulators' decision to bailout banks triggered wider public anger. Subsequently, regulators and legislators recognised the need for reliable information disclosure from banks to the regulators for financial stability. However, the public's sentimental critique towards regulatory failure was dismissed, since transparency was considered as an ethical issue outside the law.

4. Transparency and the Financial Crisis of 2008

This section studies the catastrophic failure of the Financial Crisis of 2008, highlighting transparency's position under the tripartite regulators system. It is important to note that the current UK financial regulatory system derives from its pre-crisis model and follows the same agency approach. Therefore, reviewing this history helps the reader understand the post-2008 regulatory system. Meanwhile, by unveiling the limitations of the agency approach, this section also builds the rationale for perceiving de-centralised blockchain innovation as an opportunity for easing the excessive concentration of information, wealth and power in society, despite chaos in the current UK crypto market.¹⁶⁸

4.1 Northern Rock

A significant event during the Financial Crisis of 2008 in the UK was the nationalisation of Northern Rock.¹⁶⁹ By analysing Northern Rock's business model, this subsection shows how excessive risks-taking culture in banks jeopardises financial stability. Chapter 4 further argues that meme investors' speculation behaviour mimics this excessive risk-taking culture in the UK financial industry. Systemic risks cannot be mitigated without changing this culture. It is important to note that this thesis focuses on the regulators' role in practicing moral transparency. This is because regulator needs to change their own mind first to enforce moral transparency among market participants. Traditional financial institutions should also embrace moral transparency to regain the public's trust and access the emerging investors, which will be discussed in future research.

4.1.1 Mortgage-Backed Security (MBS)

Before its nationalisation, Northern Rock was the biggest home mortgage lender in the UK.¹⁷⁰ In the first half of 2007, Northern Rock as a middle-sized bank issued 25% of the total new mortgage lending in the UK.¹⁷¹ The bank's mortgage lending substantially exceeded its deposit

¹⁶⁸ Through the example of the GameStop frenzy and SQUID scam, Chapter 4 demonstrates how crypto exposes meme investors to excessive default risks. Through the example of clearing crypto derivatives, Chapter 5 explains the systemic risk related to crypto derivatives.

¹⁶⁹ Oana Brindusa Albu and Stefan Wehmeier, 'Organizational Transparency and Sense-Making: The Case of Northern Rock' (2014) 26(2) *Journal of Public Relations Research* 117

¹⁷⁰ David T. Llewellyn, 'The Northern Rock Crisis: A Multi-Dimensional Problem' in Franco Bruni and David Llewellyn (eds), *The Failure of Northern Rock - A Multidimensional Case Study* (The European Money and Finance Forum, 2009)

¹⁷¹ *ibid*

taking ability, causing a funding gap in the business. The funding gap was filled via mortgage-backed security (MBS),¹⁷² the business model of which is as follows.

MBS pack individual mortgages (the pool) from the originating lender bank's (the originator) balance sheet into a special purpose vehicle (SPV).¹⁷³ This process provides lenders with immediate payments from the SPV, without spending years receiving periodical payments from borrowers.¹⁷⁴ Therefore, this process allows lenders turn illiquid future mortgage income into immediate cash flows,¹⁷⁵ diminishing lenders' exposure to borrowers' default risks.¹⁷⁶

As new owner of the mortgages, SPV splits future mortgage repayment streams into different tranches to meet different investors' needs.¹⁷⁷ Higher tranches represent a safe investment channel, as payments collected from the entire pool are used to first fulfil these obligations.¹⁷⁸ Meanwhile, lower tranches promise higher return to compensate the risks,¹⁷⁹ which is a profitable investment opportunity. This business module met the market's desire for investment opportunities. As more capital flowed into the MBS, more mortgages were issued.

Credit rating agencies play an essential role in the securitisation process.¹⁸⁰ Section 2's discussion on information disclosure in derivatives market highlights a knowledge gap where individual investors struggle to understand the risks involved. Credit rating agencies fit this knowledge gap, offering professional judgement of the credit worthiness of products.¹⁸¹ The rating results have a substantial impact on investors,¹⁸² where even sovereign debts require

¹⁷² *ibid*

¹⁷³ Larry McDonald and Patrick Robinson, *A Colossal Failure of Common Sense* (Crown Publishing 2009) 109

¹⁷⁴ Richard Green, *Introduction to Mortgages & Mortgage-Backed Securities* (Amsterdam: Academic Press 2014) 83-92

¹⁷⁵ Tetsuya Ishikawa, *How I Caused the Credit Crunch* (Icon Books 2009) 31

¹⁷⁶ Albu and Wehmeier (n 169)

¹⁷⁷ *ibid*

¹⁷⁸ *ibid*

¹⁷⁹ *ibid*

¹⁸⁰ Gianluca Mattarocci, *The Independence of Credit Rating Agencies: How Business Models and Regulators Interact* (Academic Press, 2013) 2

¹⁸¹ Jie He, Jun Qian and Philip E. Strahan, 'Credit Ratings and the Evolution of the Mortgage-Backed Securities Market' (2011) 10(3) *The American Economic Review* 131

¹⁸² Adam Ashcraft, Paul Goldsmith-Pinkham, Peter Hull and James Vickery, 'Credit Ratings and Security Prices in the Subprime MBS Market' (2011) 101(3) *American Economic Review* 115

regular assessments from rating agencies to assess the risk level.¹⁸³ The improving result of evaluations by international credit rating agencies has become one of the requirements for the success of economic policy.¹⁸⁴

However, the accountability of rating results is controversial. Voorhees suggested, credit rating agencies contributed to the Financial Crisis of 2008 by giving their highest ratings to poorly understood derivatives products.¹⁸⁵ Misled by these rating results, ill-informed investors blindly brought in risky MBS products, which further accelerated the housing bubble. Meanwhile, Cuccia¹⁸⁶ further pointed out that financial products soon grew too complicated, even agencies could not fully understand the risks involved in such products. The difficulty, if not impossibility, of accurately calculating and predicting the derivatives products' default risk will be illustrated in Chapter 5 via crypto derivatives pricing. This subsection mainly focuses on the credit rating agencies' conflict of interest. Essentially, credit rating agencies are paid by a financial institution to rate the institution. In 2007, Moody, one of the world's biggest credit rating agencies, earned \$868.4 million through derivatives related finance, which represented the company's biggest revenue resource.¹⁸⁷ This large financial gain was a strong conflict of interest, which put shadow on the accuracy of the rating reports. In AIG's case, even though the company suffered a \$11.25 billion loss in market valuation during the fourth quarter of 2007,¹⁸⁸ Standard & Poor's only downgraded AIG's long-term credit rating from AA minus to A minus in September 2008.¹⁸⁹ As the variation margin provisions were triggered, AIG suddenly found itself struggle with liquidity. Since AIG was unable to meet its payment

¹⁸³ József Simon and Henrietta Simon-András, 'Assessment of the Macroeconomic Risk Analysis of International Credit Rating Agencies against the Principles of Soundness and Credibility.' (2019) 64(3) *Public Finance Quarterly* 337

¹⁸⁴ *ibid*

¹⁸⁵ Ryan Voorhees, 'Rating the Raters: Restoring Confidence and Accountability in Credit Rating Agencies' (2012) 44 (3) *Case Western Reserve Journal of International Law* 875

¹⁸⁶ Christine Cuccia, 'Informational Asymmetry and OTC Transactions: Understanding the Need to Regulate Derivatives' (1997) 22(1) *Delaware Journal of Corporate Law* 197

¹⁸⁷ Moody's, '2009 Annual Report' <http://www.annualreports.com/HostedData/AnnualReportArchive/m/NYSE_MCO_2009.pdf> accessed 18 February 2024

¹⁸⁸ U.S. Congressional Oversight Panel, *The AIG Rescue, Its Impact on Markets, and the Government's Exit Strategy* (29) (Washington 2010)

¹⁸⁹ Financial Times, 'Downgrades deepen AIG woes' <<https://www.ft.com/content/abaf3dee-834d-11dd-907e-000077b07658>> accessed 18 February 2024

obligation, its contract party, the Royal Bank of Scotland's financial situation deteriorated accordingly.

Against this background, re-defining transparency needs to overcome the agency risk. Section 4.2 further argues that the agency risk is not a synonym of information asymmetry. Simply disclosing more information can be counterproductive as it will enhance information receivers' reliance on financial intermediaries for interpreting information. Inspired by Ethereum's open-source code, Chapter 3 then highlights sharing knowledge with the public in moral transparency. Chapters 4 and 5 urge regulators to embrace moral transparency as the agency approach fails to address the public's growing direct involvement in investment and concentrates excessive systemic risks in CCPs.

4.1.2 Problems of the Business Model

Going back to Northern Rock's MBS, the business contained two risks, a housing bubble for homeowners, lack of long-term capital for banks. The following paragraphs illustrate the problematic capital structure in the UK banks, while Section 5 analyses the housing bubble as part of ongoing inequality in the UK. This case study on MBS is also related to Chapter 5's discussion on transparency and systemic risk. MBS created a complex network both within the financial market, and between the financial market and society. Based on lessons learned from MBS, Chapter 5 warns against clearing crypto derivatives, another financial innovation which could boost market efficiency, yet contain excessive systemic risks.

Funding mortgage with MBS contained a liquidity risk. If Northern Rock failed to sell mortgage packs to SPVs, the bank would not have enough capital to sustain its business. This liquidity failure happened to Northern Rock in 2007 after the subprime mortgage hit the US. Global investors were hesitant to buy more MBSs, making Northern Rock run into illiquidity.

The problematic capital structure was a result of pursuing excessive profits. Selling the mortgages to SPV gave Northern Rock immediate payments, saving years from receiving periodical payments from borrowers.¹⁹⁰ With the immediate funding, Northern Rock was able to issue more loans without raising more capital. This short-term funding structure allowed Northern Rock to maintain a growth rate of around 20% for over a decade. Thus, even though Northern Rock recognised that potential liquidity risk involved in the business model, the bank

¹⁹⁰ *ibid*

ignored the risk. The narrowed focus on efficiency confirms Section 2's analysis and will be further discussed in Chapter 3's review of *Benedict v Ratner*.

In September 2007, Northern Rock was seen as a single institution problem. Immediately after the Northern Rock crisis, the Governor of the Bank of England reassured Parliament that:

It [the British banking system] is very well capitalised, it is very strong... I cannot believe and do not believe that there is any lasting damage to the reputation of the British banking system [from the run on Northern Rock].¹⁹¹

This comment was wrong. UK banks held a substantial amount of MBS in their balance sheets during the Financial Crisis of 2008. To rescue the banks, the Bank of England offered to swap MBS with Treasury Bills under the Asset Backed Securities Scheme.¹⁹² As of 31 March 2019, the Treasury still had £50 billion outstanding support in this scheme.¹⁹³ Thus, poor capital structure generally existed among the UK banks. Market contagion as a systemic risk will be further discussed in Chapter 5.

In 2020, the former Chairman of the Bank of England, David Rouch, called for the return of morality in the UK financial market in his book *the Social Licence for Financial Market*.¹⁹⁴ Rouch advocated that the UK financial market should place itself as a servant to human dignity and people's wellbeing, instead of self-interest.¹⁹⁵ This call is consistent with this thesis's advocacy of moral transparency. Yet, it is also important to note that Rouch emphasises that banks should operate under a social licence.¹⁹⁶ However, as Hart argued, law needs to have both internal and external perspectives to be followed.¹⁹⁷ On the internal perspective, people need to

¹⁹¹ HM Treasury, 'Review into HM Treasury's Management Response to the Financial Crisis' (March 2012) <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/220506/review_fincrisis_response_290312.pdf> accessed 18 February 2024

¹⁹² National Audit Office, 'NAO Briefing for the Treasury Select Committee – Performance of HM Treasury 2007-08' (NAO, 30 October 2008) <<https://www.nao.org.uk/report/nao-briefing-for-the-treasury-select-committee-performance-of-hm-treasury-2007-08-2-2/>> accessed 03 December 2022

¹⁹³ National Audit Office, 'Taxpayer support for UK banks: FAQs' (NAO, November 2019) <<https://www.nao.org.uk/highlights/taxpayer-support-for-uk-banks-faqs/>> accessed 03 December 2022

¹⁹⁴ David Rouch, 'The Great Re-evaluation: Reading for an End' in *The Social Licence for Financial Markets* (Palgrave Macmillan 2020)

¹⁹⁵ *ibid*

¹⁹⁶ *ibid*

¹⁹⁷ H.L.A. Hart, 'Justice and Morality' in *The Concept of Law* (Oxford: Clarendon Press, 3rd edition)

feel they are doing the right thing in following the law.¹⁹⁸ On the external perspective, the law poses sanctions/punishments, hence forces people to obey.¹⁹⁹ Rouch's call for a change in culture only address the internal perspective. This thesis's call for moral transparency targets UK financial regulators. Since UK financial regulators share the market participants' problematic philosophy of efficiency as a priority, changing the regulators' mind is part of Rouch's attempt to change the culture in the UK financial market. More importantly, since the regulators shared the efficiency focused philosophy, rules that could impose harsher sanctions, hence, discourage bankers' excessive risks taking behaviour were barely invoked.²⁰⁰ Thus, regulators embracing moral transparency is crucial for changing market participants' behaviour in the UK financial market.

To conclude, the near bankruptcy of Northern Rock was caused by its problematic funding structure, where the over-emphasising on efficiency damaged financial stability. Chapter 4 further argues that, excessive risk-taking still exists in the current UK financial market and affects meme investors' behaviour. In this sense, crypto systemic risk is only a modern example of this historical problem. Regulators need to change the long-existed problematic culture in the UK financial market.

4.2 Regulatory Failure during the Financial Crisis 2008

During this period, the UK financial market was overseen by tripartite regulators.²⁰¹ The framework was established via the Financial Services and Markets Act 2000 (FSMA), consisting of the HM Treasury, the Bank of England and Financial Services Authority (FSA).²⁰² Among the Tripartite regulators, the Bank of England, as the central bank, was responsible for monetary stability and financial stability.²⁰³ The FSA was a non-governmental body, regulating the banking and insurance industries as well as self-regulating organisations.²⁰⁴ The Treasury

¹⁹⁸ *ibid*

¹⁹⁹ *ibid*

²⁰⁰ See for example Section 2.1's discussion on the Bank of England's handling of JMB.

²⁰¹ HM Treasury (n 191)

²⁰² FSMA 2000, Chapter 8, Part 1, Section 1

²⁰³ HM Treasury, 'Financial Stability and Depositor Protection: Further Consultation' (July 2008) <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/243379/7436.pdf> accessed 18 February 2024

²⁰⁴ FSMA 2000, Chapter 8, Part 1, Section 1

The replacement of the FSA with the FCA will be analysed in the following sections to highlight the UK's efforts to increase transparency.

was responsible for the institutional structure of financial regulation and legislation, and keeping Parliament informed.²⁰⁵

In the aftermath of the Financial Crisis of 2008, the tripartite regulatory framework was found ‘asleep at the wheel’.²⁰⁶ The following analysis suggests that regulators failed to respond to early warnings against the crisis,²⁰⁷ due to a lack of experience and expertise in systemic bank failure.²⁰⁸ However, as unveiled in the Bank of England’s handling of JMB, regulators also denied problems existed in the UK financial market and were reluctant to take action. In line with this analysis, this thesis believes that the pressure to change must come from outsiders, the public. This builds the rationale for the thesis to develop the working definition of moral transparency, which includes the public in the conversation in regulating the UK financial market. This open conversation is crucial for rebuilding the public’s trust towards UK financial regulators.

4.2.1 Early Warnings before 2008 Were Overlooked

In 2005, the Standing Committee on Financial Stability of the Tripartite published its Financial Stability Review.²⁰⁹ The report recognised several potential systemic risks²¹⁰ within the UK financial market, including excessive leveraged derivatives trading, and large complex financial institutions.²¹¹ These problems were later known as toxic credit default swaps (CDSs)

²⁰⁵ HM Treasury (n 191)

²⁰⁶ Christine Gibbs-Springer, David S. Arnold, Martin Lodge and Kai Wegrich, ‘Letters to the Editor: Comment on Laurence E. Lynn, Jr., "Restoring the Rule of Law to Public Administration: What Frank Goodnow Got Right and Leonard White Didn't," and Donald P. Moynihan, "'Our Usable Past': A Historical Contextual Approach to Administrative Values," PAR 69 (5)' (2020) 70 (2) *Public Administration Review* 336

²⁰⁷ *ibid*

²⁰⁸ *ibid*

²⁰⁹ Bank of England, ‘Financial Stability Review’ (December 2005) <<https://www.bankofengland.co.uk/-/media/boe/files/financial-stability-report/2005/december-2005.pdf?la=en&hash=22F213403741DE4E3B3CC132D8F01D2F154F6DEE>> accessed 03 December 2022

²¹⁰ Chapter 4 will come back to the systemic risks discussion and argue that social inequality is a systemic risk in the UK financial market. To maintain the stability of the UK financial market, regulators need to address social inequality as they address other systemic risks.

²¹¹ Bank of England (n 209)

trading,²¹² and too big to fail²¹³ in 2008. Meanwhile, the Committee also warned about the absence of a legislative framework to resolve failing banks,²¹⁴ which would leave the UK derivatives market incapable of handling derivatives default risk. Working papers from the Bank of England²¹⁵ and the International Monetary Fund (IMF)²¹⁶ pointed out the potential damage of a banking crisis on society, including detrimental effect on real economy, especially on small firms.

These working papers highlighted two points. Firstly, default risk, where individual bank, like the Northern Rock, fails to honour its contractual obligations. As the UK had not experienced a bank run in over a century before Northern Rock, bank default was perceived as more of a ghost story instead of a real threat. Secondly, systemic risk. As Stiglitz illustrated,²¹⁷ one bank's failure could affect other banks through their derivatives contract exposures with each other, which is a great systemic risk within the banking sector. Meanwhile, since companies rely on banks and financial institutions for finance, the systemic risk within the financial industry then leads to a systemic risk in the wider economy.²¹⁸ However, as bank default risk was not considered as a real threat, the consequent systemic impact was hence overlooked by the regulators. Chapter 5 will further elaborate the systemic risk point to include social inequality. Against this backdrop, the thesis calls for regulators to embrace moral transparency and ease social inequality.

4.2.2 Decision to Bailout Banks Was Controversial

The UK government's bailout scheme was a step to prevent systemic failure during the Financial Crisis of 2008. However, injecting large amount of cash into the financial market to

²¹² Christoph Stubbe, 'Sponsored Report: Credit Default Swaps - Credit Default Swap Indices for the Buy-Side.' *Financial Times Mandate* (November 1, 2005)

More discussions on CDSs can be found in Chapter 3.

²¹³ Andrew Ross Sorkin, *Too Big to Fail: Inside the Battle to Save Wall Street* (Penguin 2010) 91

²¹⁴ Bank of England (n 209)

²¹⁵ Glenn Hoggarth, Ricardo Reis and Victoria Saporta, 'Costs of Banking System Instability: Some Empirical Evidence' (2002) 26(5) *Journal of Banking & Finance* 857

²¹⁶ Giovanni Dell'Ariccia, Raghuram Rajan and Enrica Detragiache, 'The Real Effect of Banking Crises' IMF Working Paper (WP/05/63)

²¹⁷ Joseph E. Stiglitz, 'Where Modern Macroeconomics Went Wrong' (2018) 34 (1-2) *Oxford Review of Economic Policy* 70

²¹⁸ *ibid*

rescue banks also increased inflation.²¹⁹ More damagingly, as discussed in Section 3.2.2, the UK regulators relied on banks' advice in handling the Financial Crisis of 2008. Thus, the decision to bail out banks contained a conflict of interest, which further damaged the public's trust towards regulators. Chapter 3 then demonstrates how this distrust triggered the creation of crypto. Due to this historical background, the thesis argues that to address disruptions caused by crypto,²²⁰ regulators need to address existing problems in the traditional financial market.

As revealed by the *Review of HM Treasury's Management Response to the Financial Crisis*, the Treasury's senior management had limited personal experience of bank failures.²²¹ In response to the collapse of Northern Rock in 2007, the Treasury established a project team.²²² This 'well resourced' team only had a few members with specific banking expertise, while the majority had to 'learn on the job'.²²³ Though the Bank of England and the FSA were supposed to advise the Treasury with their expertise, the former had cut back staffing on financial stability, while the latter was increasingly focused on consumer protection and competition issues.²²⁴ This resulted in neither regulator being able to advise the Treasury on the stability of the financial system as a whole. Consequently, the Treasury heavily relied on external legal and financial advice.²²⁵ Therefore, financial institutions took over the decision-making power through this procedure. The conflict of interest rendered it impossible for the Parliament and the public to be properly informed, not to mention the difficulty for the Treasury to process the knowledge, then pass them to the Parliament.

In conclusion, during the Financial Crisis of 2008, the UK financial market was under the supervision of tripartite regulators. Both the FSA and the Bank of England are autonomous regulatory agencies independent from public influence, while the Parliament relies on the Treasury to keep it information. However, during this period, financial products soon grew too

²¹⁹ IMF, 'World Economic Outlook Database' <https://www.imf.org/en/Publications/WEO/weo-database/2009/October/weo-report?c=156,132,134,136,158,112,111,&s=NGDP_R,PCPI,PCPIE,FLIBOR6,LUR,&sy=2007&ey=2014&ssm=0&scsm=1&sc=0&ssd=1&ssc=0&sic=0&sort=country&ds=.&br=1> accessed 18 February 2024

²²⁰ See Chapters 2 and 3's analysis on how crypto disrupts the financial regulatory system in the UK.

²²¹ HM Treasury (n 191)

²²² *ibid*

²²³ *ibid*

²²⁴ *ibid*

²²⁵ *ibid*

complicated, even financial institutions could not fully understand the risks involved. Since regulators had an over-reliance on financial institutions for information and knowledge, regulators unable to detect and respond to banks' excessive risks-taking business, and the systemic risks contained. In the aftermath of the Financial Crisis of 2008, the FSA and the Bank of England were reformed to mitigate the knowledge gap; hence, reduce regulators' knowledge reliance on financial intermediaries. But these reforms do not alter the agency approach in the UK financial market and the regulatory system.

5. The Post-2008 Transparency Reform in the UK Derivatives Market

As recognised by Baldwin, the global financial markets have witnessed a call for more rigorous regulation in the aftermath of the Financial Crisis of 2008.²²⁶ Through the example of central clearing, this section argues that even though the post-2008 reforms include transparency as a regulatory objective, the post-2008 transparency reform has a narrowed focus on insiders' concern over market efficiency and follow the same agency approach. Therefore, it merely enhances existed information disclosure, without addressing inequality as the actual cause of financial crises. Inspired by distributed ledger technology and historical reform in the US market, Chapter 3 then develops the theoretical concept of moral transparency to address inequality and include public's moral sentiments.

5.1 Mandatory Central Clearing

In the Introduction, the thesis lays out how transparency becomes a regulatory objective in the UK financial market. A key movement to increase transparency in the post-2008 derivatives market is central clearing.²²⁷ Clearing is the period between execution and settlement of a contract, during which time the two contract parties have claims against each other.²²⁸ During the clearing period, market conditions as to the profitability of the transactions or the financial positions of the counterparties may change dramatically. Hence, parties to the contract may have difficulties or become unwilling to fulfil their obligations, which can cause financial loss on the other contract party.²²⁹ This risk is known as the default risk. More discussions on derivatives clearing will be included in Chapter 5. To safeguard default risk during clearing, contract parties need to closely monitor the financial circumstances of each other and changes on the value of the contracts over a long-time period. Traditionally, this default risk was monitored via credit rating agencies.²³⁰ The limitations of this approach led to the creation of central counterparties (CCPs). More details about CCPs will be illustrated in Chapter 5 to help understand crypto derivatives' impact on systemic risks. This section illustrates the mechanism

²²⁶ Robert Baldwin, Martin Cave and Martin Lodge, *Understanding Regulation: Theory, Strategy, and Practice*. Vol. 2nd ed, (OUP Oxford, 2012) 1, 9

²²⁷ G20 Declaration, (Pittsburgh 2009)

²²⁸ Jon Gregory, *Central Counterparties: Mandatory Clearing and Bilateral Margin Requirements for OTC Derivatives* (Wiley 2014) 27

²²⁹ Steven L. Schwarcz, 'Central Clearing of Financial Contracts: Theory and Regulatory Implications' (2019) 167(6) *University of Pennsylvania Law Review* 1327

²³⁰ See Section 4.1

of CCPs. It argues that CCPs largely enhance information disclosure among insiders. In other words, the focus is still on market efficiency. The public's desire for transparency is left unaddressed. Through the example of crypto derivatives, Chapter 5 explains how this efficiency-focused information disclosure fails to keep regulators informed with systemic risks in the UK financial market and risks intensifying social inequality.

In 2009, the G20 leaders declared that 'all standardized OTC derivative contracts should be cleared through central counterparties by end-2012 at the latest.'²³¹ EMIR demonstrated requirements and rules of conduct for CCPs operating in the EU market.²³² This legislation became part of the UK legal system in 2012,²³³ making CCPs financial infrastructures in the UK financial market.²³⁴ The Validation Rules of Brexit allow the UK to amend current EU legislation. This will not challenge the CCPs' central position in the UK derivatives market, as central clearing is a global trend and benefits efficiency. The EMIR and its implementation in the UK derivatives market will be further explained in Chapter 5.

It is important to note that, the Financial Crisis of 2008 also led to an increased EU influence on the UK regulatory system. The European Securities and Markets Authority (ESMA) was established to supervise the EU derivatives market, the lack of transparency in which played a key role in intensifying the crisis.²³⁵ Post-Brexit, the supervisory power is entrusted to the FCA.²³⁶ Through an example of defining clearable products, Chapter 5 is concerned whether the FCA is willing to closely monitor the market as ESMA does. Meanwhile, domestic reforms are also monitored by international bodies. After setting up the agenda on improving financial regulation in 2009, the Financial Stability Board (FSB) is monitoring the progress of the reform continuously and keeps the G20 updated.²³⁷ Chapter 5 uses the FSB reports to argue that the UK may be slow to catch up with the EU post-Brexit, causing concerns over a future

²³¹ G20 Declaration, (Pittsburgh 2009)

²³² Paola Lucantoni, 'Central counterparties and trade repositories in post-trading infrastructure under EMIR Regulation on OTC derivatives' (2014) 29 *Journal of International Banking Law and Regulation* 681

²³³ Treasury, *Financial services: EU supervision of UK-based central counterparties after Brexit (EMIR 2.2) Background and Committee's Conclusions* (2019) (a) (38840), 10363/17 + ADDs 1–3, COM(17) 331)

²³⁴ Gregory (n 228)

²³⁵ Regulation (EU) No [1095/2010](#) of the European Parliament

²³⁶ FCA, 'FCA Statement on the Reporting of Derivatives under the UK EMIR Regime in A No-deal Scenario' (FCA Statements, 07 November 2019) <<https://www.fca.org.uk/news/statements/fca-statement-reporting-derivatives-under-uk-emir-regime-no-deal-scenario>> accessed 09 April 2020

²³⁷ FSB, 'Reports to the G20' <<https://www.fsb.org/publications/g20-reports/>> accessed 04 May 2020

deregulation on transparency rules and instability of the UK derivatives market.

Instead of overseeing the default risk by contractual parties with the help of credit rating agencies, central clearing allows contract parties to appoint a third party to manage the clearing of derivatives contracts.²³⁸ This means that after a derivatives contract is executed between the original seller and the buyer, a third party enters into the transaction working as buyer for the original seller, and seller for the original buyer.²³⁹ The appointed intermediary is known as CCP.²⁴⁰ Under the new central clearing arrangement, the original contract is replaced by two contracts on the same economic terms as the original one, as well as standard CCP terms (contained in the CCP rulebook) between the CCP and each party.²⁴¹ Therefore, the original contract parties can still achieve their planned economic targets, while exposed to lower contract default risk due to the high creditworthiness of the CCP.

An early example illustrating the function of CCP and its impact on market stabilisation is LCH. Clearnet's handling of Lehman Brothers Special Financing Inc's (LBSF, a derivatives segment of the Lehman Brothers) default. The following paragraphs use this example to give a snapshot of clearing, whereas Chapter 5 presents a more in-depth analysis of the UK CCPs.

When LBSF was declared in default on 15 September 2008, LCH. Clearnet had a £5 trillion OTC portfolio comprising 66,390 trades with LBSF.²⁴² The clearing house managed to close out the traders as quickly as possible without creating large losses or knock-on effects.²⁴³ Margins were immediately applied to cover payment obligations.²⁴⁴ Within the first week, the majority of Lehman client positions were transferred to other solvent clearing members.²⁴⁵ Within 20 days, auctions were arranged and successfully sold Lehman portfolios in each of the five relevant currencies.²⁴⁶ It was impressive that LCH. Clearing was able to handle the default

²³⁸ Max Weber, 'Central Counterparties in the OTC Derivatives Market from the Perspective of the Legal Theory of Finance' (2016) 17(1-2) *European Business Organization Law Review* 71

²³⁹ *ibid*

²⁴⁰ *ibid*

²⁴¹ Khader Shaik, *Managing Derivatives Contracts: A Guide to Derivatives Market Structure, Contract Life Cycle, Operations, and Systems* (Berkeley, CA: Apress 2014) 92

²⁴² Gregory (n 228)

²⁴³ Alexandra G. Balmer, *Regulating Financial Derivatives Clearing and Central Counterparties* (Elgar 2018) 38

²⁴⁴ *ibid*

²⁴⁵ *ibid*

²⁴⁶ *ibid*

event effectively while the global market was in chaos.²⁴⁷ This effective default management was enabled by information. As the CCP sat in the centre of the network and closely monitored its clearing members' positions, the CCP had a clear image as to the parties involved in Lehman Brothers' default and parties' risk exposure to each other.

5.2 CCPs Enhances with Efficiency Focused Information Disclosure

In comparison with bilateral clearing, central clearing provides greater information to contractual parties, which enables an efficient default management.²⁴⁸ As different CCPs have slightly different rules, this subsection uses the LCH to demonstrate how CCPs increase transparency. To begin with, CCPs operate on a membership basis.²⁴⁹ LCH memberships are granted in a transparent manner where substantial amounts of information are exchanged between the LCH and applicants who are future contractual parties.

From the applicants' side, the CCP's rulebooks are published online.²⁵⁰ Hence, applicants have certainty over the application process and standards, which distinguishes sharply from the BA 1979's arcane criteria. Meanwhile, applicants can presume the general financial situation of the existing members based on these criteria. For instance, the LCH requires its members to maintain a minimum net capital of £5 million at all times.²⁵¹ If the applicant considers another trader with such a net capital and risk management ability sound, it may apply for membership of the LCH. In contrast, if the applicant believes that the LCH's capital requirement does not match its standards, it can choose to use another CCP's services. Therefore, disclosing these criteria provides transparency to applicants without jeopardising existing members' privacy. Furthermore, the LCH also commits to communicate its decision openly with applicants. Where an application is refused, the LCH will inform the applicant with the reasons of rejection in writing. So, the decision-making process is transparent to applicants. In this sense, if crypto derivatives are cleared, the regulators and market participants could have more information as

²⁴⁷ *ibid*

²⁴⁸ *ibid*

²⁴⁹ While the membership criteria are relatively straightforward, hence, discussed here in this chapter, another crucial part of central clearing, CCPs' default management processes and the transparency involved are more complicated. These elements will be discussed in Chapter 4.

²⁵⁰ LCH, 'LTD membership' <<https://www.lch.com/membership/ltd-membership>>, accessed 03 December 2022

²⁵¹ LCH, Clearing Member and Dealer Status, Article 1.7.2 Net Capital Requirements. <https://www.lch.com/system/files/media_root/200323_Procedures%20Section%201.pdf> accessed 03 December 2022

to who are trading crypto derivatives. As recognised in Chapter 5, this could be an incentive for regulators to support cleared crypto derivatives, despite the increased CCP's default risks.

In return, members provide CCPs with sufficient information for decision making. Applicants are asked to provide financial statements including profit and loss accounts, balance sheets and auditors' statements in accordance with the UK Companies Act 2006.²⁵² These highly-regulated and well-organised documents are likely to present a true and fair view of the applicant's long-term financial position.²⁵³ Meanwhile, against short-term changes, the LCH requires its clearing members to maintain a back desk specifically for dealing with the CCP.²⁵⁴ The back desk is responsible for 'at all times respond(ing) promptly to enquiries or requests for information made by the Clearing House.'²⁵⁵ This information enables the LCH to make an informed decision in granting memberships to its applicants. In this sense, some crypto market participants also call for crypto derivatives to be cleared to enhance the stability of the crypto market.²⁵⁶

Furthermore, CCPs are obliged to monitor the clearing members' financial circumstances and report the information to regulators.²⁵⁷ Thus, in comparison with the OTC market pre-2008, this membership system enables the supervisors to identify the market participants and monitor their positions in the relevant markets. Hence, having a CCP in place increases information availability in the UK derivatives market for the regulators. Furthermore, CCPs themselves concentrate great systemic risk in the derivatives market. As the UK CCPs are regulated by the Bank of England, the systemic risks related are overseen by the Bank of England. However, as will be illustrated through the GameStop frenzy, retail investors' direct involvement in the derivatives market imposes a new systemic threat, which falls outside the scope.

It is important to note that the above discussion only concerns insiders in the derivatives market, the regulators and the market participants. In other words, these benefits echo insiders' desire for information disclosure and market efficiency. Nevertheless, this is a significant step forward comparing with Green Span's early statement on transparent and less transparent products. In

²⁵² *ibid*, Article 1.9.1 (a)

²⁵³ The Financial Reporting Council, International Accounting Standards and the True and Fair View (10/43166144-5)

²⁵⁴ LCH (n 251), Article 1.3.1

²⁵⁵ *ibid*

²⁵⁶ See Chapter 5, Section 4.

²⁵⁷ ECB, OTC Derivatives and Post-trading Infrastructures (r 18072019)

this sense, derivatives market regulation moved from Stage Zero to Layer One, transparency among market participants. And as will be discussed later, CCPs also have the obligation to keep regulators informed, which touches Layer Two, transparency to regulators. But since the two layers both focus narrowly on market efficiency, they fall into the traditional discussion of information disclosure in the UK financial regulatory system.

The public is only slightly better informed through central clearing compared to pre-2008.²⁵⁸ Since the criteria are established in the rulebooks and published online, anyone can access and evaluate these rules. Hence, the derivatives market becomes less mysterious to the public. As will be discussed in Chapter 4 through the example of the GameStop Frenzy, this limited disclosure failed to address the public's outrage towards excessive risk-taking in the derivatives market and the frustration towards regulators. Therefore, even though the EMIR includes increasing transparency as a regulatory objective, what the legislation actually offered is enhanced information disclosure to insiders.

In fact, in the UK crypto derivatives market, not all derivatives are clearable.²⁵⁹ By October 2021, only one crypto derivative product, the Bitcoin ETN future, had been central cleared.²⁶⁰ Thus, the crypto derivatives market is still largely opaque. Consequently, the default risk of crypto derivatives is naturally hard to manage. On one hand, this builds the rationale for regulators to exclude retail customers from this excessive risk. On the other hand, it also leads to questions on whether allowing financial institutions to trade crypto derivatives will lead to another systemic failure. Subsequently, Chapter 5 further questions the idea of relying on CCPs to monitor the derivatives market. For unclearable products like crypto derivatives, if not cleared, regulators cannot monitor the default risk and systemic risk in the absence of information disclosure. Yet, if cleared, while regulators would be better informed, the default risk and systemic risk also surge dangerously. The products should be kept outside the cleared market but closely monitored by regulators. In other words, change the agency-centralised information disclosure system in the UK financial market and its regulatory system. Simply

²⁵⁸ EMIR, Article 9 requires CCPs to report transactions cleared to the supervisory authority.

Weber (n 238)

²⁵⁹ See Chapter 5, Section 4.

²⁶⁰ EUREX, 'Bitcoin ETN Futures (FBTX)' <<https://www.eurex.com/ex-en/markets/crypto/bitcoin-etn/Bitcoin-ETN-Futures-2774070>> accessed 03 December 2022

restricting meme investors' access to the market is unpractical²⁶¹ and will intensify the feeling of being left behind.²⁶²

To conclude, in the UK financial market and its regulatory system, transparency is always secondary to market efficiency. While the post-2008 regulatory reforms aimed at increasing transparency in the derivatives market, what the EMIR actually achieved is information disclosure for insiders to trade efficiently. As will be further criticised in Section 6, transparency does not and should not share this narrowed focus on efficiency. By comparing the Financial Crisis of 2008 with the Financial Crisis of 1929 and blockchain innovation, Chapter 3 highlights social inequality as the cause of financial crises. Against soaring inequality in the aftermath of 2008 and the COVID-19 Pandemic, this thesis pushes transparency discussions in the UK financial regulatory system towards easing social inequality.

5.3 Unaddressed Inequality

While Chapters 4 and 5 demonstrate how the narrowed focus on efficiency falls short in regulating the contemporary UK financial market, the following analysis illustrates how efficiency focused information disclosure led to the Financial Crisis of 2008 and still divides the society. Against this background, Chapter 2 questions whether the post-2008 transparency reform could ensure stability in the UK financial market.

Since the late 1969s, the UK has turned into one of the most unequal countries in the OECD.²⁶³ The following analysis shows that the excessive concentration of wealth was the actual cause of the Financial Crisis of 2008 in the UK. Regulators should be concerned more about the concentration of wealth, instead of focusing solely on efficiency. Chapter 3 further compares this period with the US market in the 1900s, between the Financial Crisis of 1907 and the Financial Crisis of 1929. The comparison unveils excessive social inequality as the cause of financial crises and allows Chapter 3 to define moral transparency in contemporary UK financial market via historical transparency studies.

²⁶¹ See Chapter 4 Sections 2 and 3. Meme investors trade outside financial intermediaries, over which the regulatory ban has little impact.

²⁶² See Chapter 4 Section 1's analysis on the GameStop frenzy.

²⁶³ Mike Brewer and Liam Wren-Lewis, 'Accounting for Changes in Income Inequality: Decomposition Analyses for the UK, 1978-2008' (2016) 78(3) *Oxford Bulletin of Economics and Statistics* 289

5.3.1 How the Focus on Efficiency Led to the Concentration of Wealth

Similar inequality appeared also in the US. As Mazzucato pointed out, between the late 1970s and 2017, the size of the US economy tripled, with productivity grew by about 60 per cent.²⁶⁴ This growth was not shared by the workers as Piketty assumed. The real hourly wages for the great majority of workers stagnated or even fell.²⁶⁵ Wealth was captured by a small group of elites. This shared socio-economic background allows the following chapters to use US examples like the GameStop Frenzy as an early warning to the UK regulators on the need to communicate with the public.

Between 1978 and 1983, the UK's manufacturing capacity fell by 25%.²⁶⁶ Against this background, the government started privatising the manufacturing industry to increase efficiency and profitability. Soon after private investors bought the companies, their first movement was to cut jobs and boost profitability.²⁶⁷ This movement severely affected workers' income. Similar to this historical example, in October 2022, the UK government announced an unexpected tax cut, removing the 45% tax for the highest earners in the country. As criticised in the Introduction, this movement triggered immediate public backlash and financial market panicking. This recent event further highlights the urgency for the UK to change the efficiency focused culture and ease social inequality. This thesis contributes to the must-needed debate by developing the theory of moral transparency in the context of the financial regulatory system.

After its privatisation in the late 1970s, British Steel alone cut over 100,000 jobs in less than six years to boost profitability.²⁶⁸ While shareholders, mainly financial institutions, gained from the increased profitability and reduced costs, some workers were left jobless.²⁶⁹ For those who managed to keep their jobs, financialization also sabotaged workers' income. As Alvarez illustrated,²⁷⁰ financialization severally reduced workers' bargaining power in wealth

²⁶⁴ Mariana Mazzucato, 'Stories about Wealth Concentration' in *The Value of Everything: Making and Taking in the Global Economy* (Allen Lane 2018)

²⁶⁵ *ibid*

²⁶⁶ Roderick Floud and Donald N. McCloskey, *The Economic history of Britain since 1700* (Cambridge University Press 1981) Volume 2, 325

²⁶⁷ *ibid*, 329

²⁶⁸ *ibid*, 329

²⁶⁹ *ibid*, 331

²⁷⁰ Ignacio Alvarez, 'Financialization, Non-Financial Corporations and Income inequality: the Case of France' (2015) 13(3) *Socio-Economic Review* 449

distribution. More wealth concentrated in financial sectors, those who bought those firms. Such concentration of wealth severely damaged consumption power in society. While the Thatcher government believed that workers who lost their jobs during privatisation could find opportunities in other industries, switching jobs was easier said than done. Those who previously worked in manufacturing did not have the knowledge and skills required for working in finance, in the absence of proper training. The mis-match between the government's expectation and reality further highlights the need for regulators to communicate their reasoning openly with the public. This point will be further emphasised in Chapter 2's definition of moral transparency.

Subsequently, social inequality and the feeling of being left behind grew in society, until they reached a dangerous level in 2008.²⁷¹ In a 2012 review concerning the Treasury's handling of 2008, the regulators insisted that there was a global consensus that systemic risks were reduced.²⁷² Through the example of monitoring systemic risks under the EMIR information disclosure system, Chapter 4 criticises the mainstream understanding of systemic risks for focusing narrowly on market efficiency. By reviewing the causes of the financial crises,²⁷³ this thesis argues that social inequality is a systemic risk that should not be overlooked by financial regulators.

It is important to note that social economic scholars did bring up their concerns over social inequality pre-2008.²⁷⁴ In the early 2000s, Topalova, studied the impact of the massive trade liberalisation on workers in India.²⁷⁵ While the poverty rate dropped rapidly in 1990s and 2000s across India, Topalova found that poverty reduction was slow in industrial manufacturing districts which were more exposed to tariff drop.²⁷⁶ Topalova argued that while trade liberalisation benefited the society in general, some areas are in a more advantageous position

²⁷¹ See Chapter 2's discussion on social inequality and financial crises.

²⁷² HM Treasury (n 191)

²⁷³ See Chapter 2's comparison between the Pujo Report after the Financial Crisis of 1907 and the Financial Crisis of 2008.

²⁷⁴ Abhijit V. Banerjee and Esther Duflo, *Good Economics for Hard Times: Better Answers to Our Biggest Problems* (Allen Lane 2019) 61, 63

²⁷⁵ *ibid*

²⁷⁶ Petia Topalova, 'India: Is the Rising Tide Lifting All Boats?' International Monetary Fund Working Paper. Wp/08/54

than the others.²⁷⁷ The story is consistent with previous discussion on the inequality between the North and the South of England after privatisation.

But mainstream economists and regulators refused to open-up the conversation and communicate with other voices. In other words, a lack of moral transparency. The thesis does not advocate moral transparency as a panacea against this complex social problem, as there is a myriad of factors beyond this thesis' discussion. However, if the UK government communicated their reasonings more openly, the government could have known that workers suffered from privatisation, instead of moving to another industry effortlessly as assumed. Then, the government could have done more to support the workers and reduce inequality. To avoid repeating the same mistake against the emergence of crypto, this thesis calls for open conversations, where different voices are respected and heard in the UK crypto market.

The following example further highlights that while the Financial Crisis 2008 was triggered by failure in the US subprime mortgage market, it was caused by decades of increasing inequality in the UK society.²⁷⁸ In the 1980s, the UK government announced its right to buy policy, giving tenants of council houses a substantial discount to buy the flats.²⁷⁹ The policy was believed to enable people from disadvantaged group to buy their own house, hence, promoted social equality.²⁸⁰ In subsequent years, banks like Northern Rock joined the market, offering home loans greater than the value of property,²⁸¹ not only helping buyers to purchase the house but also decorate their new homes. Against this background, Northern Rock's lending practice could be seen as a market response to aid less-wealthy buyers. However, giving people credit did not ease the concentration of wealth. Instead, it created a housing bubble, which accelerated the income gap between homeowners and non-homeowners.²⁸²

The housing bubble first broke in the US, where more borrowers failed to repay their mortgages, triggering the US subprime mortgage crisis. This subprime crisis led to a credit crunch in the UK financial market, where banks took excessive risks in the MBS market and relied on short-term liquidity from one another for finance. On 13th September 2007, Northern Rock suffered

²⁷⁷ *ibid*

²⁷⁸ See Chapter 2's discussion on social inequality and financial crises.

²⁷⁹ Mary Robertson, 'The Great British Housing Crisis' (2017) 41 *Capital & Class* 195

²⁸⁰ Sorkin (n 213) 66-67

²⁸¹ Martin Wolf, *The Shifts and the Shocks What We've Learned - and Have still to Learn - from the Financial Crisis* (Allen Lane 2014) 359

²⁸² Michael Lewis, *The Big Short: Inside the Doomsday Machine* (W. W. Norton 2011) 8

the first large depositor run on a British bank since the 19th century.²⁸³ Later, Lehman Brothers' bankruptcy revealed how fragile these financial institutions were and how toxic their derivatives portfolios actually were,²⁸⁴ which destroyed investors' confidence on the financial market and triggered a systemic failure.²⁸⁵ According to the European Central Bank, systemic risk is a risk of financial instability whose impacts go beyond the financial system to wider economy.²⁸⁶ This is not to say the collapse of the UK MBS market was a collateral damage of the US. If the UK housing market was sound, the housing price would have soon recovered from the immediate shock. Instead, the UK housing price dropped sharply after Northern Rock and barely recovered to its pre-Financial Crisis level in the following decade.

Mortgages did not actually generate wealth for the poor, but dragged them into more debt.²⁸⁷ In this sense, Stiglitz also labels the Financial Crisis of 2008 as a debt crisis, where due to the unfair distribution of wealth, the public could not afford to repay.²⁸⁸ One might blame mortgage-takers for spending the money they do not have. However, consumption is crucial for the economy. The main problem is not spending too much, but not having the money in the first place. Chapters 3 and 4 will revisit the financial inclusion debate in the mortgage crisis in analysing meme investors' impact on systemic risks in the UK crypto market.

The narrowed focus on efficiency allowed excessive risk-taking behaviour and the unfair wealth re-distribution in the UK society, which led to the Financial Crisis of 2008. Against this background, transparency needs to find a new purpose.

5.3.2 How Inequality Affects the Society

The Financial Crisis of 2008 imposed catastrophic impacts on the UK society. This subsection reviews these impacts, thus, highlighting the need for regulators to address the causes of the Financial Crisis. Later subsections further demonstrate that the Financial Crisis of 2008 was

²⁸³ Wolf (n 281) 34

²⁸⁴ Lewis (n 282) 107

²⁸⁵ Ben Bernanke, Timothy F. Geithner, and Henry M. Paulson, *Firefighting: The Financial Crisis and Its Lessons* (Profile Books 2019) 3

²⁸⁶ ECB, 'Macro-Prudential Policy Objectives and Tools' (2010) *Financial Stability Review* 129

²⁸⁷ Jon D. Wisman, 'Wage Stagnation, Rising Inequality and the Financial Crisis of 2008' (2013) 37(4) *Cambridge Journal of Economics* 921

²⁸⁸ Joseph Stiglitz, *People, Power and Profits* (Penguin, 2019) 32

caused by unfair excessive concentration of wealth, where society focused narrowly on market efficiency. Thus, regulators' attempt to compromise transparency for efficiency is irrational.

The immediate impact of the Crisis was wealth reduction. After Lehman Brothers declared bankruptcy and closed their doors to business in London on 15th September 2008, approximately £90 billion was lost on the London Stock Exchange.²⁸⁹ Such wealth reduction affected wider society through pension funds. As the OECD reported, one of the UK's biggest pension plans, British Telecom, had a deficit of £9 billion at the end of 2008 due to the crisis.²⁹⁰ To mitigate the deficit, plan holders, potential pensioners, had to contribute more to the fund or reduce their benefits. Seeing the fund bankrupt and losing their pensions could be devastating for people.

Meanwhile, the UK unemployment rate jumped up 1% in the third quarter of 2008.²⁹¹ The unemployment rate kept growing until late 2011, when another 2% of the population became unemployed.²⁹² Chapter 4 further argues that, if the government had communicated its reasoning with the wider society, the excessive inequality could have been avoided. The regulators need to embrace moral transparency to avoid the same mistake against the soaring inequality post-COVID.

These direct economic impacts were only resolved in recent years. However, although Office for National Statistics report suggests that the level of employment reached a record high in December 2019,²⁹³ a substantial amount was under zero-hour contract or self-employment.²⁹⁴ Such contracts not only fail to provide sufficient financial and emotional security for employees,

²⁸⁹ London Stock Exchange Group, 'Annual Report 2008' (LSEG) <https://www.lseg.com/sites/default/files/content/documents/lseg-annual-report-2008_0.pdf> accessed 12 February 2020

²⁹⁰ Brain Keeley and Patrick Love, 'Pensions and the Crisis' in *From Crisis to Recovery: The Causes, Course and Consequences of the Great Recession* (OECD Insights, Paris 2010)

²⁹¹ Office for National Statistics, 'A04: Summary of employment, unemployment and economic inactivity for people below state pension age' (Dataset, 12 November 2019)

²⁹² *ibid*

²⁹³ Office for National Statistics, 'Labour market economic commentary: February 2020' (Blessing Chiripanhura, 18 February 2020) <<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/labourmarketeconomiccommentary/february2020>> accessed 03 December 2022

²⁹⁴ Daiga Kamerāde and Helen Richardson, 'Gender Segregation, Underemployment and Subjective Well-being in the UK Labour Market.' (2018) 71(2) *Human Relations* 285

but also intensify inequality among workers.²⁹⁵ Later subsections will reveal that the Financial Crisis 2008 was caused by excessive concentration of wealth. Regulators need to address this intensified concentration of wealth. Or the UK risks another devastating crisis.

Socially, the intensified income inequality makes people feel left-behind, thus, further divides the country. Between 2011 and 2019, the number of hate crimes recorded by the police in England and Wales soared from 43,968 to 103,379.²⁹⁶ Such crimes traumatise the victims and their communities while enhancing the sense of insecurity in the society.²⁹⁷ Therefore, easing the concentration of wealth is an urgent issue in the UK.

In 2020, the Covid-19 pandemic further exposed the gravity of inequality in the UK and its impacts on individuals and the society.²⁹⁸ The government must address inequalities in the UK to regain public support, instead of cutting taxes for the richest. Chapter 4 argues that the money used to bail out banks could have been used to support the public through COVID-19, which further enhances the public's frustration towards banks and financial regulators.

The narrowed focus on efficiency contributes to banks' excessive risk-taking behaviour and the unfair concentration of wealth in the UK society. Excessive inequality caused the Financial Crisis of 2008 and is still dividing the UK society. For regulators to regain the public's trust

²⁹⁵ *ibid*

Martin Lindström and Giuseppe N. Giordano, 'The 2008 Financial Crisis: Changes in Social Capital and Its Association with Psychological Wellbeing in the United Kingdom – A Panel Study.' (2016) 153 *Social Science* 71

²⁹⁶ Hate crime: In 2007, the police, Crown Prosecution Service and Prison Service (now the National Offender Management Service) defined hate crime as a new category of criminal offences, concerning any criminal offence motivated by hostility or prejudice towards someone based on personal characteristics.

Home Office, 'Hate Crime, England and Wales, 2018/2019' (John Flatley, 15 October 2019)

<https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/839172/hate-crime-1819-hosb2419.pdf> accessed 18 February 2024

²⁹⁷ Home Office, 'Hate Crime: A Thematic Review of the Current Evidence' (Research Report 102, October 2018)

<https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/748140/hate-crime-a-thematic-review-of-the-current-evidence-oct2018-horr102.pdf> accessed 18 February 2024

²⁹⁸ Anne Templeton, Selin Tekin Guven, Carina Hoerst, Sara Vestergren, Louise Davidson, Susie Ballentyne, Hannah Madsen and Sanjeedah Choudhury, 'Inequalities and Identity Processes in Crises: Recommendations for Facilitating Safe Response to the COVID-19 Pandemic.' (2020) 59(3) *British Journal of Social Psychology* 674
Lucinda Platt and Ross Warwick, 'COVID-19 and Ethnic Inequalities in England and Wales. (2020) 41(2) *Fiscal studies* 259

and ease social inequality, the thesis develops a working definition of moral transparency, which includes morality into consideration and focuses on promoting social equality.

6. Conclusion

According to Fung, Graham and Weil,²⁹⁹ the establishment of transparency mechanisms in a legal system requires crises to raise extensive public attention, economic rationale and an early generation of research on transparency as intellectual preparation.³⁰⁰ This chapter reviews transparency's changing position in the UK financial regulatory system between the late 1970s and 2022.

It argues that, in the context of the UK financial regulatory system, transparency contains the public's moral sentiments towards UK financial regulators' failure in managing the JMB scandal and the Financial Crisis of 2008. In this sense, transparency distinguishes from information disclosure in the UK financial regulatory system, as information disclosure only considers insiders. Although post-2008 transparency reforms include transparency as a regulatory objective, what the reforms achieved is enhancing information disclosure. The conversation is still about insiders' concern over efficiency, without addressing the public's desire for equality.

It is important to note that thesis does not intend to undermine the merits of post-2008 transparency reforms. Rather, it recognises that including transparency as a regulatory subjective as a big step forward. However, the UK financial regulatory system has been dominated by information disclosure for too long.³⁰¹ The narrowed focus on market efficiency is closely associated with legal positivism, dated back to the courts' traditional position since the 1930s and fuelled by the social-political environment in the 1980s. Against this backdrop, it is hard to imagine transparency outside information disclosure.

The chapter identifies two major flaws in information disclosure, building the rationale for subsequent chapters to develop the working definition of moral transparency and urge UK financial regulators to adopt moral transparency. Firstly, information disclosure relies on financial institutions to mitigate the knowledge gap between insiders and outsiders. This approach contains agency-risk, which fallen short in the regulators' handling of the Financial Crisis of 2008 and in credit rating agencies' valuation of securitisations. Chapters 4 and 5

²⁹⁹ Archon Fung, Mary Graham and David Weil, 'What Makes Transparency Work?' in *Full Disclosure: The Perils and Promise of Transparency* (Cambridge University Press 2007)

³⁰⁰ Archon Fung, Mary Graham and David Weil, *Full Disclosure: The Perils and Promise of Transparency* (Cambridge University Press 2007) 18, 19

³⁰¹ See Section 2 and Section 5.

further argue that the agency approach cannot apply to the de-centralised crypto market, which highlight the urgency for UK financial regulators to redefine transparency and change the already flawed agency approach.

Secondly, information disclosure has a narrowed focus on efficiency, which reflects the efficiency focused culture in the UK society, the financial market and its regulatory system. This culture enhanced social inequality pre-2008 with privatisation boosting profit for wealthy institutional investors at the cost of workers' rights. Financial innovations like derivatives and MBS covered this much deeper inequality with cheap credit. Reviewing this history provides useful lessons for contemporary regulators, who are facing the pressure of blockchain-related financial innovations.

In the aftermath of the Financial Crisis of 2008 and the COVID-19 Pandemic, UK financial regulators need to change this efficiency focused culture to re-unite the society. In this sense, previous studies on information disclosure provide valuable lessons for achieving transparency. Chapter 5 further argues that information disclosure's narrowed focus on market efficiency reflects a limited understanding of systemic risks in the financial market. By comparing the Financial Crisis of 2008 with the Financial Crisis of 1907 and Financial Crisis of 1929, Chapter 3 demonstrates that social inequality is the systemic risk and worth financial regulators' attention.

Inspired by distributed ledger technology and historical US transparency reforms, Chapter 3 then develops a working definition of moral transparency. This moral transparency serves social equality. It encourages regulators to openly communicate their reasonings with various stakeholders, reduce information reliance on financial intermediaries and respect the public's morality. Through a case study of the UK crypto market, Chapters 4 and 5 illustrate how regulators struggle to oversee default risks and systemic risks through the traditional agency approach and information disclosure. These analyses build the rationale for UK financial regulators to embrace moral transparency both within and outside the emerging crypto market. Nevertheless, this Chapter also recognises that abstract transparency can be abused as a political buzzword. Thus, Chapters 4 and 5 also provide concrete methods in applying moral transparency.

Chapter 3. Developing Moral Transparency based on Historical Reforms and Distributed Ledger Innovation

1. Introduction

Through a historical review, Chapter 2 demonstrates that the post-2008 transparency reform overlooked three crucial questions, transparency to whom, for what and how.¹ In other words, transparency is an open concept with a high level of ambiguity. Against this conceptual ambiguity, the post-2008 transparency reform merely enhanced traditional market participants and regulators' need for information disclosure in the UK financial market, without addressing the public's desire for equality. As one notion of transparency, information disclosure facilitates traditional market participants and regulators' pursue of market efficiency. However, it also has an over-reliance on agency approach and narrowed focus on efficiency. These features of information disclosure feed into an excessive speculative culture and concentration of information, wealth, and power in society, which caused the Financial Crisis of 2008 and are still dividing the society.² With the COVID-19 Pandemic and the Cost-of-Living Crisis pushing inequality and market uncertainty to a dangerous level in the UK,³ regulators need to reform the insufficient notions and mechanisms of transparency. Through case studies, Chapters 4 and 5 further highlight how distributed ledger innovation and meme investors blur the boundary between insiders and outsiders in the financial market, rendering this traditional information disclosure even more ineffective.⁴ Against these rooted and contemporary problems, the UK financial regulatory system needs a new notion of transparency.

¹ As a result, the reform was hijacked by insiders' concern over market efficiency, instead of the public's concern over equality. See Chapter 2, Section 5.

² Chapter 2, Section 5.

³ Brigid Francis-Devine, Paul Bolton Matthew Keep, and Daniel Harari, '*Rising Cost of Living in the UK*' (2022) House of Commons Research Briefing Number 9428, < https://archive.welhat.gov.uk/media/22304/CD-12-20-House-of-Commons-Rising-Cost-of-living-in-the-UK-.pdf/CD_12.20_House_of_Commons_Rising_Cost_of_living_in_the_UK_.pdf?m=638373763765230000> accessed 15 February 2024

⁴ Section 5 of this chapter highlights the opportunities distributed ledger technology brought to the UK financial market. Chapters 4 and 5 present case studies as to how regulators struggle to cope with FinTech innovations. Overall, the thesis argues that the regulators' incapacities of regulating the FinTech market is caused by the flawed traditional information disclosure, thus, highlighting the need for regulators to embrace moral transparency.

Against this background, Chapter 3 develops an original theoretical concept of moral transparency. Moral transparency is a legal principle enforced by financial regulators. It perceives easing social inequality as its purpose, which responds to the public's sentimental critique towards failures of the UK financial regulatory system and the causes of financial crises. Moral transparency balances the power dynamic between the public and traditional insiders of the financial market (regulators and market participants), by calling for regulators to communicate their reasonings and sharing knowledge with the public. In doing so, moral transparency help rebuilding the public's trust towards regulators, allowing regulators to engage with financial innovations and reduce information reliance on financial intermediaries.

Chapter 3 lays out the principles of moral transparency from three aspects. Firstly, Chapter 3 establishes easing social inequality as moral transparency's purpose in the UK financial market. By comparing the Financial Crisis of 2008 with the 1900s US stock market and distributed ledger innovation, Chapter 3 connects the public's desire for equality with morality in contemporary UK financial market. It argues that easing social inequality is crucial for maintaining financial stability and regaining the wider public's trust. This renewed purpose addresses Chapter 2's criticism of information disclosure's narrowed focus on efficiency.

Secondly, Chapter 3 demonstrates the relationship between moral transparency and law in the context of the UK financial market. Chapter 3 re-visits Judge Brandeis' ruling in *Benedict v Ratner*⁵ and the Securities Act 1933 as historical moral transparency reforms in financial markets. By comparing the historical reforms with practices in the modern UK financial market, the chapter concludes that moral transparency should be a legal principle, while enforced by financial regulators. Chapters 4 and 5 then further illustrate how regulators should embrace moral transparency in real-world scenarios.

Thirdly, Chapter 3 explores challenges and opportunities distributed ledger innovation brings to overcoming agency risks in the UK financial market. It is important to note that historical transparency reforms did not prevent the Financial Crisis of 1929 due to difficulties in keeping the public informed and unified in the long-term. Chapter 3 argues that distributed ledger innovation could mitigate agency risks by sharing information, decision-making power and access to finance with the public, which is a unique opportunity that historical transparency reforms did not have. However, distributed ledger innovations' implications in the UK financial

⁵ *Benedict v Ratner* 268 US 353 (1925)

market also echo the public's distrust towards UK financial regulators.⁶ Thus, as will be emphasised in Chapters 4 and 5, to engage with the technology, regulators need to first respond to the public morality and regain public's trust.

In developing the theoretical concept of moral transparency, Chapter 3 follows the UK financial market's law and economic tradition, while learning from legal history and distributed ledger innovation. This comprehensive approach provides a solid theoretical ground for the thesis to propose such a radical change. Chapters 4 and 5 then explore how regulators should enforce moral transparency in real-world scenarios, making moral transparency practical. Through examples of meme investors and crypto derivatives, Chapters 4 and 5 also emphasise that the current crypto frenzy represents an intensified version of the long-lasting problematic speculative culture and inequality in the financial market. Regulators need to embrace moral transparency and react now before it is too long.

⁶ See Chapter 1, Section 1's discussion on Occupy London.

2. Inequality and Financial Crises in the 1900s

While the thesis studies moral transparency in the context of the contemporary UK financial regulatory system, inequality in financial markets has a historical root. This section demonstrates this historical root via *the Report of the Committee Appointed Pursuant to House Resolutions 429 and 504 to Investigate the Concentration of Control of Money and Credit* (hereafter, the 1912 Pujo Report). Sections 5 and 6 then argue that, by blurring the boundary between insiders and outsiders in the UK financial market, distributed ledger innovation forces financial regulators to have this long overdue conversation on speculation and equality in the UK financial regulatory system. This historical context then allows the thesis to urge UK financial regulators to change the speculative culture in the UK financial market, instead of focusing narrowly on the emerging crypto segment.

As Krugman stated aftermath of the Financial Crisis of 2008, ‘I’m tempted to say the crisis is like nothing we’ve ever seen before. But it might be more accurate to say it’s like everything we’ve seen before.’⁷ The modern UK financial market and the 1900s US financial market are both dominated by insiders,⁸ suffered from excessive speculation,⁹ and challenged by social inequality.¹⁰ In the aftermath of the Financial Crisis of 1907, the problems were criticised in the 1912 Pujo Report, which led to a social movement against the extreme concentration of wealth in the US.¹¹ The historical similarities illustrate why moral transparency focuses on easing social inequality in the contemporary UK financial market. Meanwhile, since Judge Brandeis’s theory derived from the 1912 Pujo Report,¹² this section also builds the rationale for Section 4 to revoke Judge Brandeis’ work in developing moral transparency in the modern UK financial regulatory system.

⁷ Paul Krugman, *The Return of Depression Economics* (Allen Lane, 2008) 165

⁸ See Section 2.1.

⁹ See Section 2.2.

¹⁰ See Section 2.3.

¹¹ Daniel Crane, ‘The New Deal and the Institutionalists’, in *The Making of Competition Policy: Legal and Economic Sources* (OUP 2013)

¹² Louis Brandeis, ‘What Publicity Can do’ in *Other People’s Money and How the Bankers Use It* (Binker Norther, 1914)

It is important to note that after Krugman's statement in 2008, the global financial market witnessed the emergence of distributed ledger based crypto innovation.¹³ This emerging market shares the same problematic speculative culture as the traditional market.¹⁴ But the underlying distributed ledger technology also blurs the boundary between insiders and outsiders in the financial market, hence, contains opportunities for changing the power dynamic between the public and traditional insiders.¹⁵ Against this backdrop, Chapters 4 and 5 analyse the challenges and opportunities distributed ledger innovation brought to the UK financial regulatory system. The analysis concludes that regulators need to embrace moral transparency and change the historical speculation culture in the UK financial market¹⁶ before engaging with central bank digital currencies (CBDC) and smart contracts based de-centralised clearing. Therefore, even though the thesis studies the current crypto frenzy, it addresses long-lasting problematic speculation and inequality in the traditional financial market. This contributes to the UN's sustainable development commitment on industry, innovation and infrastructure,¹⁷ and reduced inequalities.¹⁸

2.1 The 1912 Pujo Report

In his book *Other People's Money and How Banks Use It (1914)*, Brandeis praised that:¹⁹

Publicity is justly commended as a remedy for social and industrial diseases. Sunlight is said to be the best of disinfectants, electric light the most efficient policemen.

.....

Publicity has already played an important part in the struggle against the Money Trust... The hostile forces have been located, counted and appraised. That was a necessary first step—and a long one—towards relief. [Emphasis added]

¹³ Saule T Omarova, 'Fintech and the Limits of Financial Regulation' in I Chiu and G Deipenbrock (eds), *Routledge Handbook of Financial Technology and Law* (2021)

¹⁴ See Section 6's discussion on speculation and concentration of wealth and power in the crypto market.

¹⁵ See Section 5.

¹⁶ Chapter 4 calls for the regulators to improve financial literacy to help meme investors understand the danger of speculation. Chapter 5 calls for the regulators to ease speculation among traditional investors.

¹⁷ Goal 9

¹⁸ Goal 10

¹⁹ Brandeis (n 12)

This statement was analysed in Chapter 1 as a metaphor for transparency. The word ‘publicity’ did not refer to individual firms’ statistics like the Bank of England preferred.²⁰ Rather, it referred to a specific document, the 1912 Pujo Report. Brandeis praised the 1912 Pujo Report as ‘the promise of New Freedom’.²¹

The following analysis of the 1912 Pujo Report confirms that the Report was more than simple information disclosure. Rather, the 1912 Pujo Report comprehensively communicated the committee’s reasoning to the public. Such open communication led to a social movement against the excessive concentration of wealth in the US.²² Brandeis’s transparency theory derived from the 1912 Pujo Report, where the name of Brandeis’s well-known book, *Other People’s Money*, was a direct quotation from the 1912 Pujo Report.²³ Inspired by these historical movements, this thesis’ definition of moral transparency emphasises that regulators should recognise the need to ease social inequality and communicate their reasoning openly with various stakeholders in the contemporary UK financial market.

Since the 1900s, there were rumours that a small group of banks were loosely bonded into ‘the Money Trust’ based on their shared interest and subsequently controlled the supplies of credits in the New York Stock Exchange.²⁴ The Congress investigated the issue, as activists warned the existence of such a group could severely diminish industrial freedom.²⁵ Against this backdrop, the Congress formed the Pujo Committee to investigate ‘banking and currency conditions in the United States as a basis for remedial legislation’.²⁶ While ‘the Money Trust’ was in the backdrop of the establishment of the Pujo Committee, the Pujo Committee conducted a much thorough and wider investigation on the US economy.²⁷

The Pujo Committee’s main findings referenced three aspects. Firstly, bankers unfairly exploited ordinary investors and sabotaged the economy by speculating in the New York Stock

²⁰ This Bank of England’s emphases on statistics information disclosure was criticised in Sections 1 and 3 in Chapter 1.

²¹ *ibid.*

²² Crane (n 11)

²³ Brandeis (n 12)

²⁴ Crane (n 11)

²⁵ *ibid*

²⁶ *ibid*

²⁷ House of Representatives, The Report of the Committee Appointed Pursuant to House Resolutions 429 and 504 to Investigate the Concentration of Control of Money and Credit’ (Report No. 1593, 1913) Chapter First

Exchange.²⁸ Secondly, within the banking industry, big banks gained unfair control over small banks via clearing house associations.²⁹ Thirdly, as to the relationship between the banking industry and the US economy, wealth was concentrated in and controlled by major bankers.³⁰ The 1912 Report represents a moral outrage towards the concentration of wealth in banks, vast aggregations of power and unfair business conduct in the early 20th Century.³¹ The following subsections highlight how these historical findings still apply in the modern UK financial market, building the rationale for adopting the 1912 Report's call for easing social inequality as moral transparency's purpose in the modern UK financial regulatory system. Section 6 further argues that similar desire for social equality underpins blockchain innovation. Thus, for regulators to engage with blockchain and oversee the emerging market, regulators need to respect the public's desire for social equality and ease speculation in the UK financial market. This argument will be further supported via case studies in Chapters 4 and 5.

2.2 The Unfair Bank-Customer Relationship

Many of the problems identified by the Pujo Committee resemble the current UK society. Firstly, the Pujo Committee's investigation showed that the New York Stock Exchange allowed bankers (brokers) to use their clients' property as collateral.³² If brokers went into insolvency, clients were forced to pay off the debt or risk losing their property.³³ In other words, bankers were able to keep the profit from stock trading, while allocating the risks and losses to their clients.

It is important to note that such conduct was allowed by the New York Stock Exchange's rules and contracts.³⁴ Therefore, the Pujo Committee was not discussing an illegal issue. Rather, it raised a moral question here: is this arrangement between bankers and their customers fair? This moral consideration distinguished from information disclosure's narrowed focus on efficiency. Section 4.2 and 4.3 illustrate how Brandeis combined morality with law, which provides guidance on incorporate moral transparency in the UK financial regulatory system.

²⁸ *ibid*

²⁹ *ibid*, Chapter Second.

³⁰ *ibid*, Chapter Third

³¹ Mary A. O'Sullivan, 'Wall Street on the Defensive, 1908-1913' in *Dividends of Development: Securities Markets in the History of U.S. Capitalism, 1866-1922* (OUP 2016)

³² Brandeis (n 12)

³³ *ibid*

³⁴ The Pujo Report, 36

Brandeis further unveiled the unfairness of this arrangement in his book *Other People's Money*. According to Brandeis, banks were merely a credit intermediary between the investors with credit and the companies in need of credit.³⁵ The credit belonged to investors, while the actual production was conducted by companies. However, instead of paying investors for using their money,³⁶ banks charged investor services fees and allocated the potential losses to investors. The arrangement was substantially unfair.

The same unfairness repeats itself in the modern UK financial market. T. Ishikawa, a former banker, confessed that:

all the clients we ever made money off had either folded or were in such a bad state that we didn't know if they were going to be in their job the next day. Sure, we could make some money helping those clients restructure the deals we sold them, so they looked aesthetically better. But this was only going to make things worse in the future.³⁷

Looking back to his experience as a banker at Salomon Brothers in the City of London in the 1980s, Lewis confessed that he could not justify how a young man without any experiences and actual contributions to society could be rewarded so handsomely by merely schmooze customers.³⁸ By 2008, incomes (wages plus bonuses) in financial sectors, including hedge funds, investment banks were 40% higher than in other sectors.³⁹ Wealth was concentrated in the financial sector, leaving non-financial workers worse-off. Against the financial difficulties, workers needed credit to support their lives. This historical similarity highlights the need for moral considerations in transparency, with a focus on social equality.

This problem was analysed in Chapter 2 as the agency risk in the UK financial market. Brandeis argued that transparency could play a role in changing the unfair situation.⁴⁰ According to

³⁵ Brandeis (n 12)

³⁶ *ibid*

³⁷ Tetsuya Ishikawa, *How I Caused the Credit Crunch* (Icon, 2009) 10

³⁸ Michael Lewis, 'Learning to Love Your Corporate Culture' in *Liar's Poker* (Hodder Paperbacks, 2006)

³⁹ Will Hutton, *Them and Us: Changing Britain -- Why We Need a Fair Society* (London: Abacus 2011) 175

Frederic Mishkin, *The Economics of Money, Banking, and Financial Markets* (Boston: Pearson/Addison Wesley 2006) 309

John Hull, *Options, Futures, and Other derivatives* (8th ed, Pearson 2012) 1

However, similar products have been traded in history. For instance, ancient Greek traded olive oil and other future. For this research, we only discuss the modern form of financial derivatives.

⁴⁰ Brandeis (n 12)

Brandeis, banks' unjust exploitation of investors was only able to continue because investors were not aware of it.⁴¹ Transparency would reveal to investors the excessive extent of the exploitation.⁴² Then, investors would no longer accept this ill-treatment. To regain access to investors' credit, banks would need to change their practices. This logic is consistent with Adam Smith's argument in *The Theory of Moral Sentiments*, where transparency and morality working together as a shaming mechanism to prevent individual from acting in a selfish manner.⁴³ Under this arrangement, transparency served as a threat to anyone attempting to unfairly exploit the others.⁴⁴ If exposed, the exploiter would be shamed and isolated from the others. As to what morality is, Adam Smith argues that morality, it is not something we have to calculate, but naturally built into us as social beings.⁴⁵ In this sense, morality distinguishes from ethical codes, which often come in the form of articulated rule-book.⁴⁶ Similarly, Microwski and Nik-Khah argued that the lack of accountability caused the banks' selfish behaviour before and after 2008.⁴⁷ This again a moral critical that goes beyond the narrowed focus on efficiency.

Going back to the financial market, in this original context, transparency would balance bank-customer relationship through a chain of actions, which would eventually ease the concentration of wealth and power in banks. Later, in *Benedict v Ratner*, Brandeis further expanded the subject from banking to wider lending practices in society.⁴⁸ Since the UK financial market is challenged by the same unfair bank-customer relationship, the 1912 Report and Judge Brandeis' transparency reforms are worth visiting for defining moral transparency and easing social inequality in the UK financial regulatory system. In recognition of this connection between transparency and morality, this thesis labels its theoretical concept, as moral transparency. Following this theoretical concept, Chapter 3 studies the GameStop frenzy as a public's response to traditional financial institutions' speculative short-selling behaviour. Subsequently,

⁴¹ *ibid*

⁴² *ibid*

⁴³ Adam Smith, 'Chapter II of the Sense of Justice, of Remorse, and of the Consciousness of Merit' in *The Theory of Moral Sentiments*. (1st edition 1759, Cambridge University Press 2002)

⁴⁴ *ibid*

⁴⁵ *ibid*

⁴⁶ James Pasztor, 'What Is Ethics, Anyway?' (2015) 69(1) *Journal of Financial Service Professionals* 30

⁴⁷ Philip Mirowski and Edward Nik-Khah, 'It's Not Rational' in *The Knowledge We Have Lost in Information: The History of Information in Modern Economics* (OUP 2017)

⁴⁸ See Section 3.1.

Chapter 3 warns that regulators need to change this excessive self-interest culture in the UK banking industry to ease meme investors' anger and reduce systemic risks in the crypto-derivatives market.

However, it is important to note that products traded in the 1900s US financial market were relatively straightforward stakes, whereas products traded in the modern UK financial market are more complicated.⁴⁹ Therefore, simply disclosing more information cannot reduce the agency risks in the modern UK financial market.⁵⁰ Subsequently, Section 5 explores distributed ledger technology's role in mitigating the knowledge gap between insiders and outsiders, as a way to reduce agency risks in the UK financial market.

2.3 Banks' Dominance in the Economy

In addition to the unfair bank-customer relationship, the Pujo Committee further confirmed that non-financial firms were controlled by major bankers.⁵¹ Through affiliations, six of the largest banks and their bankers controlled the small banks and financial trusts, insurance companies, railway companies, manufacturing firms, transporting channels and agriculture.⁵² Chapter 2 illustrates that wealth was concentrated in banks in the UK through the same method in the 1980s. The UK government's decision to bail out banks during the Financial Crisis of 2008 further intensified the concentration of wealth, leaving the public feeling left behind.⁵³ later analysis shows that, the same concentration of power and wealth repeats itself in the UK crypto market, where institutional investors dominate the mainstream Bitcoin and Ethereum market. This shared problem highlights the need for contemporary UK financial regulators to embrace moral transparency and ease the concentration of information, wealth, and power both within and outside the crypto segment.

⁴⁹ See Section 4's analysis of the UK derivatives market.

⁵⁰ As demonstrated in Chapter 2, Section 4.

⁵¹ The Pujo Report, Chapter Third

⁵² *ibid*

Jeffrey Fear and Christopher Kobrak, 'Banks on Board: German and American Corporate Governance, 1870–1914' (2010) 84 *The Business History Review* 703

⁵³ See Chapter 2, Section 5. It is important to note that the thesis is not about evaluating the rightfulness of the massive bailout. Rather, from a moral transparency perspective, this thesis argues that the bailout decision could be better communicated with the public. And in making the bailout decision, regulators should take social equality into consideration.

While Brandeis was shocked by the gravity of the concentration,⁵⁴ his major concern was how banks' control over non-financial firms affected investors. Since banks controlled a wide range of industries through directorships and worked as underwriters for the issuers, these business interests motivated banks to sell poorly performed bonds and shares to the investors; hence, relief themselves from potential losses.⁵⁵ Under such an unfair distribution arrangement between banks and investors,⁵⁶ investors cannot gain from their investments. This historical example confirms Chapter 2's critique that under the agency approach, information, wealth and power were concentrated in banks. Although Judge Brandeis proposed to resolve the issue by disclosing more information to the public, without addressing the knowledge gap between insiders and outsiders, simply disclosing more information risks intensifying outsiders' reliance on financial intermediaries.⁵⁷ Neither the Pujo Committee nor Judge Brandeis was able to overcome the unfair bank-customer relationship. Section 5 argues that modern technology like distributed ledger shares knowledge with the public, hence, present a unique opportunity for easing the concentration of information, wealth and power in financial intermediaries.

The fact that stock prices paid by investors failed to reflect the true value of the issuing companies was revealed by Mitchell. In 1913, Mitchell identified a contradictory performance between real industry and the stock market during the end of 1900s and the beginning of 1910s.⁵⁸ During this period, industrial stagnation was at its worst. If the stock prices were to reflect this stagnation, the prices would not jump.⁵⁹ For Mitchell, it was irrational that stock prices kept rising, which was caused by investment channels being controlled by banks. Driven

⁵⁴ *ibid* 51

Direct quotations from *Other People's Money*. Three major investment banks, the National City, the First National and J.P. Morgan & Co., along had effectively controlled 341 directorships in 112 corporations with an aggregate capitalization of about \$22 billion. Within the 112 corporations, there were life insurance companies, railway companies, telephone networks, steel companies, etc. Essentially, banks controlled essential services and jobs in the US society.

⁵⁵ Brandeis (n 12)

⁵⁶ How traditional individual investors rely on banks for their investments will be demonstrated in Chapter 3 Section 1. In this chapter, these bank customers are called investors. But as will be illustrated in Chapter 3, these traditional investors are different from meme investors, who have no access to traditional financial intermediaries, hence, not bank customers.

⁵⁷ As discussed in Chapter 1 Section 3, without mitigating the knowledge gap, more information risks enhancing the public's reliance on intermediaries.

⁵⁸ Wesley C. Mitchell, 'Security Prices and Interest Rates in 1910-12' (1913) 21 *Journal of Political Economy* 500

⁵⁹ *ibid*

by profits, banks merged corporations into huge new groups, and then sold the stocks to the public. Since interest rates were low, depositors were poorly rewarded for lending their money to the bank.⁶⁰ Subsequently, those with credits were eager to buy these stocks. Furthermore, in comparison with bank deposits, stock investments were more complex and sophisticated. Thus, investors were unable to evaluate the corporation's performance by themselves, hence, relied on banks to invest. Essentially banks were selling their controlled stocks to their customers.⁶¹ Therefore, transparency and financial inclusion did not cause speculation in the US financial market. Excessive speculation was caused by big financial institutions.

This situation resembles Chapter 2's analysis on financial inclusion and banks' excessive risk-taking behaviour in mortgage lending. Through a case study of the GameStop frenzy, Chapter 4 further argues that meme investors' speculation only responds to and mimics the traditional market players. Via the hypothesis of clearing crypto futures under the EMIR regulatory system, Chapter 5 urges UK financial regulators to embrace moral transparency and change the speculation culture in the UK financial market.

2.4 Price Manipulation in the US Stock Market

When reviewing the causes of the Financial Crisis of 1929, Willis further demonstrated that banks manipulated stocks and bonds prices.⁶² On the one hand, bankers controlled the production of these financial products through their affiliated financing companies. On the other hand, bankers misled investors by recommending the shares and bonds to their customers and claiming the products could hold their value. Against this background, the stock market boom was nothing but a bubble.⁶³ Chapter 4 finds the same price manipulation still exists in the post-2008 financial markets. In reviewing the GameStop, the US Securities and Exchange Commission (SEC) found market makers on digital trading platforms manipulating prices and exploiting meme investors. While the GameStop mainly concerns the US trading platforms, Chapter 4 also warns against the lack of transparency over market makers on the UK digital trading platforms and the potential conflict of interests involved.

⁶⁰ *ibid*

⁶¹ One highly criticised example in the Pujo Report was J.P. Morgan, the empire held over 112 corporations through directorships.

⁶² H. Parker Willis, 'Who Caused the Panic of 1929?' (1930) 229(2) *The North American Review* 174

⁶³ *ibid*

In *Other People's Money*, Brandeis advocated the disclosure of the business connection between the issuer company and the banks to investors. Such disclosure would level the playing field between banks and small investors, thus, ease the concentration of wealth in banks. How this call for transparency was embedded into the Securities Act 1933 will be discussed in Section 3. Even though post-2008 transparency reforms like the MiFID II aims to balance the bank-customer relationship by imposing the know-your-customer requirements on banks, this approach fails to address meme investors, who are significantly less-wealthy than traditional investors and trade independently outside traditional financial intermediaries. Similarly, as illustrated in Section 5 Chapter 2, mandatory clearing discloses business connections to derivatives traders. However, this enhanced information disclosure only addressed insiders' desire for information. The public as outsiders still has little knowledge in the derivatives market. Against this backdrop, moral transparency emphasises sharing knowledge with the public.⁶⁴

2.5 Excessive Speculation Intensified Social Inequality

In reviewing the efficiency-focused culture in the UK financial market and its regulatory system, Chapter 2 already demonstrated how the narrowed focus on efficiency encouraged speculation and intensified social inequality in the UK. This section argues that the Pujo Committee shared the same concern over speculation in the 1900s. In other words, speculation is a historical problem in financial markets. Chapters 4 and 5 use contemporary examples from the UK crypto market to highlight the gravity of excessive speculation in the UK financial market. But the emphasis lies on addressing the historical excessive speculation culture in the financial market, instead of questioning blockchain innovation.

During its investigation, the Pujo Committee argued that the New York Stock Exchange acted as a casino where banks speculated on price movements.⁶⁵ To support the argument, the Pujo

⁶⁴ See Section 5's discussion on distributed ledger technology.

⁶⁵ The Pujo Report, Chapter Second

How the situation resembles the UK crypto market will be illustrated in Chapter 4.

Meanwhile, Keynes also has a famous analogy comparing the London Stock Exchange and the Wall Street with casinos.

See John Maynard Keynes, 'The State of Long-Term Expectation' in *The General Theory of Employment, Interest, and Money* (First edition 1936, Palgrave Macmillan 2017)

Controversy over meme investors' involvement in this casino will be demonstrated in Chapters 4 and 5. Overall, the chapters argue that the emergence of meme investors represent the public's desire for inclusion. Simply

Committee identified over 14 listed companies whose sole purpose was facilitating banks' excessive speculation on price movements.⁶⁶ Take the Reading Co. as an example. Since 1906, the company's listed stocks were sold entirely at least 20 times annually, while only less than 10% of the traded shares were actually transferred. The Exchange permitted these questionable transactions, so long as commissions were paid.⁶⁷ However, such practices were deemed illegal in *Hurd vs. Taylor* (1905) 181 N. Y. 231, where the Court of Appeals of New York clearly defined those speculations where no changing hands, were illegal, wagers for gambling. The FCA's review of the UK crypto market emphasises the gambling feature.⁶⁸

The Pujo Committee further demonstrated that speculation sabotaged the US economy in two ways, which are consistent with Chapter 2 Section 7's argument on how excessive speculation triggered the Financial Crisis of 2008 in the UK. On the one hand, such transactions created a bubble in the US economy by making the parties involved appear to own more capital than they did.⁶⁹ This bubble rendered the US government unable to manage the Financial Crisis of 1929, as the exact scope of the US stock market was unknown.⁷⁰

On the other hand, such transactions allowed banks to profit simply from gambling in the stock market with money they did not even have.⁷¹ Consequently, banks would be reluctant to supply real credit to real businesses. Without investments, companies could not develop. Therefore, while banks and bankers were profiting from stock market speculation, the US economy was in stagflation.⁷² People's livelihoods were under threat.

banning meme investors from accessing the market will not resolve this desire. Regulators need to change the speculation culture in the UK financial market.

⁶⁶ *ibid*

⁶⁷ The Pujo Report, 47

⁶⁸ The FCA, 'FCA Bans the Sale of Crypto-Derivatives to Retail Consumers' (the FCA, 06 October 2020) <<https://www.fca.org.uk/news/press-releases/fca-bans-sale-crypto-derivatives-retail-consumers>> accessed 18 February 2024. More discussions on this, see Chapter 4.

⁶⁹ *ibid*

⁷⁰ Lionel D. Edie, 'The Banks and the Stock Market Crisis of 1929' (1930)3 *The Journal of Business of the University of Chicago* 16

⁷¹ Brandeis (n 12)

⁷² Stagflation refers to the situation where the economy is slow in growth, the society experiences high unemployment, but prices keep rising. In the aftermath of the COVID-19 Pandemic, there are concerns over stagflation in the current society. Against this backdrop, it is necessary to review the history in the 1900s for useful lessons.

The speculation economy also accelerated the concentration of wealth and power in society. In 1932, Berle and Means published their book *the Modern Corporation and Private Property*, warning of the danger of wealth concentration and financialization.⁷³ According to Berle and Means, modern investors have become increasingly disengaged. While numerous common people became investors and shareholders, the daily management of businesses heavily relied on corporate management. As managers gained actual control over the corporation,⁷⁴ wealth concentrated excessively in this new class. Along with their excessive wealth, the management class also gain great social power. This power could be dangerous for society as managers lacked accountability to the public. The situation is consistent with Chapter 2's discussion on how excessive risk-taking led to the Financial Crisis of 2008.⁷⁵ Chapter 4 further argues that meme investors' speculation risks further intensifying social inequality. Since meme investors' speculation responds and mimics traditional investors' speculation, Chapter 5 argues that excessive inequality is a systemic risk that falls outside the EMIR information disclosure system's radar. Against this backdrop, UK financial regulators should focus on easing speculation among traditional investors, instead of banning meme investors from trading.

The Governor's Committee on Speculation in Securities and Commodities took a less radical position but raised questions on speculation.⁷⁶ The Committee argued that,⁷⁷ there were two types of speculations in the New York Stock Exchange, harmful speculation conducted by non-professionals and beneficiary speculations conducted by professionals. Consequently, the Committee proposed to eliminate the wasteful and morally destructive non-professionals' speculation, while retaining and allowing beneficial plays. A similar tone is found in Chapter 5's analysis of speculation in the UK derivatives market, where the FCA restricted the public's capacity to trade crypto derivatives. Such partial restriction jeopardises the public's support

See Chad G. Marzen and Michael Conklin, 'Stagflation in American Jurisprudence' (2021) 42(1) *Pace Law Review* 1

⁷³Bernard C. Beaudreau, 'On the Origins of "The Modern Corporation and Private Property."' (2019) 42 *Seattle University Law Review* 327

⁷⁴ *ibid*

⁷⁵ See Chapter 2.

⁷⁶ New York (State) Committee on Speculation in Securities and Commodities, Report of Governor Hughes' Committee on speculation in securities and commodities (June 7,1909)

⁷⁷ *ibid*

towards financial regulators as it is unfair that opportunities to profit from stock trading were exclusive to big banks, who are insiders of the traditional market.

3. Combining Transparency with Law in Historical Financial Market

Even though the 1912 Pujo Report was not a legally binding document, it served as an intellectual preparation for transparency reform in the 1900s US financial market. In addition to this intellectual preparation, Fung, Graham and Weil argued that the establishment of transparency mechanisms also requires crises to raise extensive public attention and economic rationale.⁷⁸ This section illustrates how transparency was incorporated into law after the Financial Crisis of 1929. This analysis unveils the difficulties in keeping the public informed and unified in the financial market, which leads to Section 5's exploration of distributed ledger technology in the contemporary UK market.

3.1 *Benedict v Ratner*, Transparency as a Legal Principle

This section explains how Brandeis incorporated moral transparency into the common law. By ruling an off-balance receivable financing scheme void in *Benedict v Ratner*, Brandeis challenged fairness in the distribution of wealth among creditors and turned transparency into a legal principle.

In May 1921, Hub Carpet Company (the Company) found itself in financial difficulty, hence, entered into a secured loan arrangement with financier Ratner, the father of the Corporation's vice-president.⁷⁹ Under this arrangement, Ratner provided the Company with a total \$300,000 credit.⁸⁰ In return, the loan was secured by the Hub Carpet Company's most important assets, the right to be paid by its customers.⁸¹ Due to the father-son relationship, no collections were required to account in any way to Ratner. Nevertheless, Ratner gained effective control over the Company's account. This was because 'Ratner was given the right, at any time, to demand a full disclosure of business and financial conditions; to require that all amounts collected be applied in payment of his loans; and to enforce the assignment although no loan had matured.'⁸² According to Brandeis, the arrangement was void and fraudulent as the account failed to reflect Ratner's effective control over the assets.⁸³ By keeping this fact from other debt holders, the arrangement was fraudulent and unfair for other debtholders. The judgment is consistent with

⁷⁸ Archon Fung, Mary Graham and David Weil, *Full Disclosure: The Perils and Promise of Transparency* (Cambridge University Press 2007) 18, 19

⁷⁹ *Benedict v Ratner* 268 US 353 (1925)

⁸⁰ *ibid*

⁸¹ *ibid*

⁸² *ibid*

⁸³ *ibid*

Section 2.3's analysis on how wealth is concentrated in banks via private business connections. In this sense, Judge Brandeis' ruling in *Benedict v Ratner* was an extension of the 1912 Report. However, Brandeis's appeal for transparency in *Benedict* was heavily criticised⁸⁴ and eventually abandoned by Article 9.205 of the Uniform Commercial Code 1952.⁸⁵ As Gordon argued, *Benedict v Ratner* caused concerns for banks over warehousing mortgage-backed securities.⁸⁶ In practice, banks relied on the notion that their loans to mortgage companies were secured by the mortgage notes.⁸⁷ If *Benedict* was invoked, banks' liens over the mortgage notes could be challenged by other creditors.

For Gordon, this legal consequence was a severe and inappropriate punishment to banks.⁸⁸ A prudent lender should secure the loans by themselves, rather than waiting for other creditors or the law to do it for them.⁸⁹ Thus, he concluded that *Benedict* was a 'postulate divorced from the considerations of sound business practices'.⁹⁰ This emphasis on business value is consistent with Chapter 2's criticism of information disclosure's narrowed focus on efficiency in the UK financial market. A change of morality can be identified in Gordon's statement. Brandeis's ruling expressed a moral outrage towards the excessive concentration of wealth. Thus, for Brandeis, unfairness meant small and unsecured creditors suffer disproportionately against big and preferred lenders. Two decades later, unfairness meant asking powerful lenders to compromise their interests for others. The same efficiency focused philosophy is still troubling the UK financial market.⁹¹ Thus, even though Brandeis's theory discussed a historical US market, it is contemporary to the UK.

An alternative way to avoid this legal risk raised by *Benedict* was for creditors to monitor the loans. Such policing required regular auditing on mortgage companies' accounts and checking the quality of the underlying loans carefully. In this sense, Brandeis intended to create a monitoring device in the debtor-creditor relationship, therefore increasing the stability of the

⁸⁴ Thomas C. Gordon, 'Why *Benedict v. Ratner*?' (1964) 21(1) *Washington and Lee Law Review* 70

⁸⁵ Peter Coogan and John Bok, 'The Impact of Article 9 of the Uniform Commercial Code on the Corporate Indenture' (1959) 69 *The Yale Law Journal* 203

⁸⁶ Gordon (n 84)

⁸⁷ *ibid*

⁸⁸ *ibid*

⁸⁹ *ibid*

⁹⁰ *ibid*

⁹¹ See Chapter 2, Section 5.

lending business via transparency. However, such mechanism was only established after the Financial Crisis of 1929.⁹² Whereas transparency remained as a legal principle open for interpretation. In addition to the inefficiency of the courts in providing remedies in modern financial market,⁹³ the courts in England and Wales also have a long tradition of judging the fairness of transactions based on market efficiency.⁹⁴ Section 3.3 further argues that the difficulty of incorporating transparency into law is related to the power imbalance between the public and financial institutions. Against this backdrop, Section 5 explores blockchain technology's role in changing the power dynamic.

Janger revisited *Benedict v Ratner* when off-balance sheet financing became abused in the later 1990s.⁹⁵ He argued that forcing creditors to police debtors were the wisdom of Brandeis.⁹⁶ However, until then, *Benedict* seemed to unfairly force prudent creditors to look after the imprudent ones. During the Financial Crisis of 2008, the quality of subprime mortgage loans was proven to be astonishingly poor.⁹⁷ To make the situation even worse, securitisation also rendered debt-forgiveness impossible.⁹⁸ As a result, despite the fact that the US and UK governments pooled billions into rescuing schemes, house owners still lost their homes.⁹⁹ Such devastating events suggest a need to incorporate moral transparency into law, as well as change the regulators' narrowed focus on efficiency.

3.2 Transparency, the Financial Crisis of 1912, and the Securities Act 1933

Brandeis was known as the people's lawyer.¹⁰⁰ His call for transparency, as well as the 1912 Pujo Report, aimed at protecting the public against banks' unfair exploitation.¹⁰¹ The problem

⁹² See Section 2.2.

⁹³ See Section 3.

⁹⁴ See Chapter 1, Section 5's discussion on *Re Hoare & Co, Ltd* – [1933] ALL ER Rep 105.

⁹⁵ Edward J Janger, 'Brandeis, Progressivism, and Commercial Law: Rethinking *Benedict v. Ratner*' (1998) 37(1) *Brandeis Law Journal* 63

⁹⁶ *ibid*

⁹⁷ Ryan Voorhees, 'Rating the Raters: Restoring Confidence and Accountability in Credit Rating Agencies' (2012) 44(3) *Case Western Reserve Journal of International Law* 875

⁹⁸ Jie He, Jun Qian and Philip E. Strahan, 'Credit Ratings and the Evolution of the Mortgage-Backed Securities Market' (2011) 101(3) *The American Economic Review* 131

⁹⁹ *ibid*

¹⁰⁰ John Braeman, 'The People's Lawyer' Revisited: Louis D. Brandeis versus the United Shoe Machinery Company' (2008) 50 *American Journal of Legal History* 284

¹⁰¹ As demonstrated in Section 2.

with people was that while large in number, people was disorganised, easily distracted by other important issues, and with a short attention span.¹⁰² In contrast, the financial industry was a well-organised small group, focusing solely and constantly on banking issues, with expertise and money for constant lobbying.¹⁰³ Due to the power imbalance, financial legislation and regulations were highly likely to be hijacked by banks. This explains why *Benedict v Ratner* was repealed in 1950s. Through the example of the GameStop frenzy, Chapter 4 explains how social media plays a key role in keeping meme investors informed and unified, supporting moral transparency in the UK financial market.

Nevertheless, the Financial Crisis of 1929 unified the people, allowing Brandeis' transparency to influence the law.¹⁰⁴ As illustrated by Edie in 1930, banks' behaviour during the crisis had triggered public anger.¹⁰⁵ On one hand, banks deceived the public by covering up the true scope of the problem and insisting that the market was fundamentally sound at the beginning of the Financial Crisis of 1929.¹⁰⁶ On the other hand, after stock prices collapsed dramatically, banks refused to support the market, and eventually walked away free from the crisis they created.¹⁰⁷ The injustice triggered public anger and formed the crucial political power for legal reform in the financial market. Sensing this public anger against banks, Roosevelt, the 1932 presidential candidate and 32nd US president, promised to reform the financial market.¹⁰⁸ Similarly, in the aftermath of the Financial Crisis of 2008, David Cameron, the then leader of the Conservative Party and the soon-to-be Prime Minister, advocated for a complete transparency, where 'every single dollar spent by the government was searchable, analysable, and checkable'.¹⁰⁹ This

¹⁰² Joao Rafael Cunha, 'The Advent of a New Banking System in the U. S. - Financial Deregulation in the 1980s' University of St Andrews, School of Economics and Finance Discussion Paper No. 2003

¹⁰³ Simon Deakin, David Gindis, Geoffrey M. Hodgson, Huang Kainan and Katharina Pistor, 'Legal Institutionalism: Capitalism and the Constitutive Role of Law' (2017)45(1) *Journal of Comparative Economics* 188

¹⁰⁴ Fung (n 78)

¹⁰⁵ Edie (n 70)

¹⁰⁶ *ibid*

¹⁰⁷ *ibid*

¹⁰⁸ Elisabeth Keller, 'Introductory Comment: A Historical Introduction to the Securities Act of 1933 and the Securities Exchange Act of 1934' (1988) 49 *Ohio State Law Journal* 329

¹⁰⁹ Cameron D, 'The Next Age of Government' (TED, February 2010) <https://www.ted.com/talks/david_cameron_the_next_age_of_government?language=en> accessed 15 August 2021

statement is relevant to the UK financial market regulatory system, as it echoed the public's anger towards the government's massive bank bailout scheme at that time.¹¹⁰ Financial crises and scandals effectively attracted people's attention to the banking industry. To gain public support, hence, stay in office, regulators and legislators had a strong motivation to regulate banks.

Shortly after his inauguration, the Roosevelt administration started legal reforms in the banking industry. Subsequently, the Securities Act 1933 was implemented.¹¹¹ By forcing issuers to provide a registration statement, the Act allowed the public investors to know the issuer, hence, evaluate the value of their stocks.¹¹² This transparency reform echoed the 1912 Report and Brandeis' call for preventing the public from banks' unfair exploration via unveiling business connections between banks and their controlled entrepreneurs.¹¹³

It is important to note that unlike *Benedict v Ratner*, the Securities Act 1933 and the subsequent Securities Exchange Act 1934 led to the establishment of the US Securities and Exchange Commission (SEC), a specialised agency responsible for ensuring transparency.¹¹⁴ Thus, instead of turning transparency into a legal principle, the post-1929 reform established a comprehensive transparency mechanism in law in the US financial market.¹¹⁵ The modern UK financial regulatory system adopts this agency approach.¹¹⁶ Section 4 compares the common law and the regulatory agency approach in overseeing the financial market through a case study of the local authorities swaps case. This analysis shows that despite the agency risk criticised in Chapter 2, financial regulators are still in a better position to ensure transparency in the modern UK financial market than the courts. Sections 5 and 6 then explore blockchain technology's role in mitigating agency risk. Subsequently, Chapters 4 and 5 demonstrate how UK financial regulators could adopt moral transparency against real-world scenarios. Furthermore, this historical review also suggests that financial regulatory reforms only occur after something has gone wrong. Against the current crypto frenzy in the UK, Chapters 4 and 5

¹¹⁰ The public anger was also showed in movements like Occupy London and Occupy Wall Street.

¹¹¹ *ibid*

¹¹² Gordon (n 84)

¹¹³ See Section 2.2 and Section 2.3.

¹¹⁴ Marc Steigberg, 'The Disclosure Regimen of the Federal Securities Laws' in *Rethinking Securities Law* (Oxford Scholarship Online 2021)

¹¹⁵ *ibid*

¹¹⁶ As discussed in Chapter 1, Section 2.

call for UK financial regulators to take early actions, ease speculation in the market and aid meme investors, instead of waiting until it is too late.

Due to this historical background, transparency reforms are often criticised as a rushed populist response to public anger on the banking industry both in the aftermath of the Financial Crisis of 1929 and post-2008.¹¹⁷ Such critique was unfair as it ignored the intellectual grounds for increasing transparency in financial markets. As Radbruch argued, natural law is needed in abnormal times, in times of legal crisis.¹¹⁸ With inequality soaring to a dangerous level in the current UK society, the recognition of public morality in law is crucial. Section 6 further argues that, to engage with blockchain technology, regulators also need to respect the public morality and regain the public's trust. Such combination of morality and law in the UK financial regulatory system is a necessary comeback of natural law in time of social crises.

From an economic perspective, against the Financial Crisis of 1929 and the subsequent Great Depression, Keynes called for innovations in fiscal policies and advocated government spending to boost the economy.¹¹⁹ By highlighting that the government could and should play an active role in response to the depression, Keynes broke banks' monopoly in policing the industry, hence, provided the ground for public intervention in increasing transparency in the financial market.¹²⁰ The need for governmental intervention in the UK crypto market will be further demonstrated through Chapters 4 and 5's case studies.

¹¹⁷ Cynthia A. Williams, 'The Securities and Exchange Commission and Corporate Social Transparency' (1999) 112(6) *The Harvard Law Review* 1197

Greta R. Krippner, 'The Social Politics of U.S. Financial Deregulation' in *Capitalizing on Crisis* (Harvard University Press 2019)

Wulf A. Kaal and Dale A. Oesterle, 'Hedge Fund Regulation' in H. Kent Baker and Greg Filbeck (eds), *Hedge Funds: Structure, Strategies, and Performance* (OUP 2017)

¹¹⁸ Gustav Radbruch, Bonnie Litschewski Paulson and Stanley L. Paulson, 'Statutory Lawlessness and Supra-Statutory Law (1946)' (2022) 26(1) *Oxford Journal of Legal Studies* 1

Seow Hon Tan, 'Radbruch's Formula Revisited: The Lex Injusta Non Est Lex Maxim in Constitutional Democracies' (2021) 34(2) *Canadian Journal of Law and Jurisprudence* 461

¹¹⁹ John Maynard Keynes, 'The Principle of Effective Demand' in *The General Theory of Employment, Interest, and Money* (First edition 1936, Palgrave Macmillan 2017)

Jon D. Wisman, 'The Financial Crisis of 1929 Reexamined: The Role of Soaring Inequality' (2014) 26 *Review of Political Economy* 372

¹²⁰ *ibid*

Furthermore, Keynes also gave his insight on transparency, truth and market confidence. In *The Great Slump of 1930*, Keynes agreed the economy was not as sound as insiders assumed.¹²¹ When the Financial Crisis revealed this fact, the public would start to doubt the future. Such doubts and anxiety were reasonable. There was no need to deny the economic downturn. However, by waking up the public from the illusion, Keynes believed that the crisis was an opportunity to find the right way to build the economy.¹²² In this sense, the Financial Crisis of 1929 was a way of letting in the sunlight and revealing the truth. While brutal, the crisis was necessary for long-term financial stability. This open communication is consistent with Section 2's analysis on how distributed ledger gains the public's trust. This historical study further confirms that regulators need to openly communicate with various stakeholders to regain the public's trust.

Unfortunately, as the public's memories of the crises fade, banks have regained dominance in the power dynamic. The constant fight for and against transparency fits into what Cunha described as the regulatory circle in the US financial market.¹²³ How to sustain the force for transparency is essential for all transparency reforms. Willis suggested studies on the crisis should be presented in plain English.¹²⁴ In doing so, the public could understand and remember the causes of the crisis, hence learn lasting lessons.¹²⁵ Similarly, Chapter 5 also finds UK financial regulators are tempted to de-regulate the UK financial market and ease requirements imposed after the Financial Crisis of 2008. Against the systemic risks imposed by crypto derivatives, Chapter 5 urges UK financial regulators to embrace moral transparency, change the narrowed focus on efficiency, and communicate openly with various stakeholders.

3.3 The Difficulties to Keep the Public Inform and Unified

In *the Speculation Economy*, Mitchell argued that Brandeis's transparency marked the start of the speculation economy.¹²⁶ By uncovering the business connection between the issuer company and the banks to investors, Brandeis allowed small investors to guess price

¹²¹ John Maynard Keynes, 'The Great Slump of 1930' in *Essays in Persuasion*. (Palgrave Macmillan, 2010)

¹²² *ibid*

¹²³ Cunha (n 102)

¹²⁴ Willis (n 62)

¹²⁵ Robert Skidelsky, *Money and Government: A Challenge to Mainstream Economics* (Allen Lane 2018) 95-98

¹²⁶ Lawrence E. Mitchell, 'The End of Reform' in *the Speculation Economy: How Finance Triumphed over Industry* (Berrett-Koehler, 2007)

movements in the stock exchanges. Brandeis advocated the disclosure of the following information for investors:

Compel bankers when issuing securities to make public the commissions or profits they are receiving. Let every circular letter, prospectus or advertisement of a bond or stock show clearly what the banker received for his middleman-services, and what the bonds and stocks net the issuing corporation.¹²⁷

Before proper accounting standards were established, the documents Brandeis listed did not contain sufficient information for pricing financial products.¹²⁸ Therefore, if the circular letter suggested bankers acquired the stocks at a much lower price, then small investors would not buy at the advertised price but wait. The lack of demand would eventually lead to a price drop, which created a window for small investors to buy. Such information levelled the playing field between small investors and big banks in the Exchange. During this process, small investors purchased stock based on their belief that price would increase in short-term. Hence, small investors were turned into speculators. Against this backdrop, speculation was no longer a disruptive game, played by a few professionals but a genetic material of the American lifestyle.¹²⁹ Such excessive speculation further intensified social inequality as knowledge and investment channels were monopolised by big financial institutions. Chapters 4 and 5 highlight that, the same excessive speculative culture also exists in the UK crypto market. However, it is unfair to dismiss the value of transparency on this ground. Rather, the public's speculation mimics traditional investors' excessive risk-taking behaviour.¹³⁰ Thus, instead of blaming transparency and financial inclusion, regulators need to ease traditional investors' excessive risk-taking behaviour.

Furthermore, the relatively simplified information disclosed by Brandeis should be understood against the public education level in his time. Since less than 3% of the population were enrolled in higher education in the 1900s,¹³¹ even if Brandeis called for more comprehensive data to be disclosed to the public, the effect of such disclosure would be restricted by the lack of

¹²⁷ *ibid*

¹²⁸ This is before proper accounting standards were established. More discussions in Chapter 2 on how accounting standards remedy the issue.

¹²⁹ Mitchell (n 126)

¹³⁰ See Chapter 4's analysis on the GameStop frenzy.

¹³¹ Thomas Snyder, *120 Years of American Education: A Statistical Portrait* (National Centre for Education Statistics, 1993) 75

knowledge. Consequently, the more information disclosure, the more the public would rely on financial institutions to interpret such information. Subsequently, more wealth and power would be concentrated in financial institutions. This toxic circle echoes Chapter 2's emphasis on sharing knowledge with the public as a mean to increase transparency. Against this backdrop, Section 5 studies how blockchain innovation shares knowledge of open resource coding with the public, thus, breaking tech giants' dominance in the modern economy. Inspired by these discussions, Chapter 4 calls for regulators to level-up the playing field for meme investors via financial literacy.

Excessive social inequality caused the Financial Crisis of 1929 and the Financial Crisis of 2008. Against the soaring social inequality in the aftermath of the COVID-19 Pandemic, the thesis urges regulators to embrace moral transparency, step in and ease the dangerous social inequality. This moral transparency should be incorporated in law as a legal principle and implemented by financial regulators. Chapter 5 further supports this argument by including social inequality as a systemic risk in the UK financial market and explores financial regulation's role in easing inequality.

4. Litigation or Regulation?

While *Benedict v Ratner* represented a common law approach in implementing transparency, the *Securities Act 1933* represented a regulatory approach. This section compares the two options to find the suitable one for the contemporary UK financial market.

The common law approach contains three basic assumptions.¹³² Firstly, judges are motivated to understand the issues of the case.¹³³ Secondly, judges are knowledgeable enough to get to the bottom of the relevant issues.¹³⁴ Thirdly, judges are impartial.¹³⁵ Through a case study of *Hazell v Hammersmith and Fulham LBC* [1992], the section argues that modern financial transactions can be too complicated for judges to reach a consensus. Thus, despite the agency risks in the regulatory approach,¹³⁶ the thesis focuses on exploring the regulators' role in ensuring moral transparency in the UK financial market. Section 5 explores blockchain technology's role in reducing the agency risks, thus better facilitates the regulators in performing their duties.

Meanwhile, the following case study also unveils how complicated derivatives trading is, which further confirms Chapter 2's argument that for the public (outsiders) to be meaningfully involved in the UK derivatives market (as insiders), more knowledge should be shared with the public.

4.1 A Brief Introduction on the Local Councils Swaps Cases

Between December 1983 and February 1989, Hammersmith and Fulham Council entered into over 500 financial transactions with banks with a total notional principal of £6 billion.¹³⁷ The case was brought to court as the council was unable to afford enforcing the contracts. After over two years of litigation, the House of Lords eventually ruled the contracts void as entering into derivatives transactions was beyond the council's ability under Section 111 of the Local Government Act 1972.

¹³² Andrei Shleifer, 'The Enforcement Theory of Regulation' in *The Failure of Judges and the Rise of Regulators* (MIT Press 2012)

¹³³ *ibid*

¹³⁴ *ibid*

¹³⁵ *ibid*

¹³⁶ See Chapter 2.

Hazell v Hammersmith and Fulham LBC [1992] 2 AC 1

Several judges expressed their unique opinions on the legality of the contracts. The following analysis is not to say the judges had limited understandings on derivatives. Rather, through the analysis, it becomes clear that derivatives transactions are complex. In the absence of proper regulations, it is hard for judges to reach a consensus and provide adequate remedy to contractual parties. Against this backdrop, this thesis relies on UK financial regulators to ensure moral transparency in the UK financial market.

Meanwhile, analysis in Chapters 4 and 5 shows that, the public is increasingly involved in complex derivatives trading via unregulated digital trading platforms. The nature of the transactions was even too complicated for the courts to reach a consensus. Regulators need to better educate the public about the speculative nature of such trading to ease crypto derivatives-related systemic risks.¹³⁸

4.2 Contracts Valid If Used for Risk Management

Sir Stephen Brown in the Court of Appeal suggested that local authorities could enter into interest rate swap transactions without Parliament authorisation for risk management purpose.¹³⁹ He suggested that swap contracts enabled local authorities to take reasonable care to manage its borrowings and investments in the best interests of ratepayers in a timely manner.¹⁴⁰ Even though Lord Templeman agreed with Sir Stephen Brown that derivatives products can be used for interest rate risk management, he questioned the necessity of employing such tools as the council could borrow at a lower rate via the Public Works Loan Board (PWLB).¹⁴¹ This criticism was not fair. The PWLB failed to meet the local authorities' financial needs. Data suggested Hammersmith and Fulham's annual budget could only cover half of its expenditure.¹⁴² The council needed additional funding resources.

It is important to note that using derivatives for risk management purpose requires derivatives holders to have a pre-existing exposure to the underlying asset. Chapter 5 argues that, since the popular underlying assets, Bitcoin and Ethereum, are dominated by institutional investors, meme investors' involvement in the crypto derivatives market is largely speculative. At the first

¹³⁸ As will be showed in the courts' struggling to determine the nature of the transactions.

¹³⁹ *Hazell v Hammersmith and Fulham LBC* [1992] 2 AC 1 (1991)

¹⁴⁰ *ibid*

¹⁴¹ Bank of England, 'Local Authority Swaps' (25 April 1991)

<<https://www.bankofengland.co.uk/-/media/boe/files/quarterly-bulletin/1991/local-authority-swaps>> accessed 18 February 2024

¹⁴² Graham Roberts, *Law relating to International Banking* (Woodhead Publishing 1998) 149

glance, this market condition could justify the FCA's decision to ban meme investors from trading crypto derivatives. However, such restriction also deprives the public from opportunities, which enhances social inequality and the feeling of being left behind. Against this backdrop, Chapter 5 calls UK financial regulators to communicate their reasoning with the public and ease institutional investors' speculation in the derivatives market.

4.3 Contracts Were all Void, Because the Council Acted as Credit Intermediary

Woolf LJ believed that local authorities could not enter into such market without Parliament's authorisation because entering into swap transaction was not discharging or incidental to the discharge of local authorities' function.¹⁴³ This opinion contained no moral judgements. Rather, it merely confirmed the Parliament's authority in deciding the issue.¹⁴⁴ This restricted opinion confirms Chapter 2's argument that the courts and the regulators are hesitant to take any normative stands.

More importantly, Woolf LJ also speculated that 'if properly controlled, transactions could be used as capable tools for the council to reduce its financial burden'.¹⁴⁵ Woolf LJ did not explain the meaning of 'properly controlled'. One way to profit from derivatives trading was to work as a credit intermediary. In 42 of 114 interest rate swap transactions, Hammersmith and Fulham worked as a credit intermediary between banks and some rate-capped councils, which generated the Council a £1.5 million profit.¹⁴⁶ Acting as an intermediary meant that the Council had to bear the default risk of its clients. One potential argument is that the Council's clients' (other local authorities and banks) default risk was low. Thus, working as an intermediary did not actually add additional risk in the Council's portfolio. Meanwhile, it was within the local authority's power to facilitate the other councils to discharge their functions. Therefore, if the client councils were using the swaps for debt management purposes, Hammersmith and Fulham's acting as an intermediary might be legal.

Such a statement echoes the efficiency focused culture in the UK financial market. Previous analysis on financial crises confirms that market plays and market values' dominance in society problematic.¹⁴⁷ Thus, when discussing UK financial regulators' role in monitoring systemic

¹⁴³ *Hazell v Hammersmith and Fulham LBC* [1992] 2 AC 1 (1991)

¹⁴⁴ *ibid*

¹⁴⁵ *ibid*

¹⁴⁶ *ibid*

¹⁴⁷ See for instance, Chapter 2 Section 5.

risk in the UK derivatives market, Chapter 5 highlights the need to ease social inequality and level-up the playing field for meme investors.

4.4 Contracts Void, But Was Interest Rate Swaps a Loan?

Lord Ackner also ruled the transactions void. He believed that the ‘functions’ of a local council including the borrowing power, but interest rate swaps were not incidental to the power.¹⁴⁸ As discussed previously, some interest rate swaps worked as an alternative to borrowing. If Lord Ackner had acknowledged this economic substance, he might rule differently. Another problem of this approach is that politically, local authorities were setup for the single function/purpose of serving taxpayers and ratepayers. The law can help to specify the function by requiring local authorities to provide service to the public in education, housing, health care and public transport, etc.¹⁴⁹ Borrowing is a way to fund these activities, which is incidental to the discharge of local authorities’ function. If borrowing is incidental to the discharge of local authorities’ function, managing borrowing risk can only be incidental to an incidental function. Hence, entering derivatives transactions for managing borrowing risk was beyond the scope of s111 the 1972 Act, which would require Parliamentary authorisation. Therefore, local authorities could not enter the derivatives market without the authorisation of Parliament. Section 5 argues that, smart contracts could play a role in preventing unauthorised transaction. Such wider implication further highlights the need for financial market participants to study blockchain technology.

Ruling the derivatives transactions void had a far-reaching consequence in the derivatives market. Transactions entered into by other local authorities became invalid, which caused substantial losses for banks. Meanwhile, if a large number of transactions become disrupted, systemic risks in the derivatives market could increase drastically.¹⁵⁰ To avoid such a risk, it is understandable parties may be reluctant to go to the courts.

4.5 The Starting Point for Self-Regulations in the Derivatives Market

Ruling the derivatives transactions void had a far-reaching consequence in the derivatives market. Transactions entered into by other local authorities became invalid, which caused

¹⁴⁸ [1991] 1 ALL ER

¹⁴⁹ *ibid*

¹⁵⁰ See Chapter 6.

substantial losses for banks.¹⁵¹ To avoid future uncomfortable legal interventions, the derivatives market started its self-regulation process.¹⁵² A downside of self-regulating is that rule-making power was dominated by market participants. As later disputes tend to be settled through arbitration instead of being brought to the court,¹⁵³ regulators did not pay enough attention to monitoring the risk in the derivatives market. The market remained in shadow until triggering a systemic failure in 2008. Subsequently, increasing transparency in the derivatives market became a key issue during the post-2008 transparency reform.¹⁵⁴ While traditional derivatives products are now largely under supervision, crypto derivatives as the new market segment is expanding rapidly outside the regulators' radar.¹⁵⁵ Learning from the Financial Crisis of 2008, Chapter 5 calls for regulators to take a more active role in increasing transparency in the crypto derivatives market.

Nevertheless, the aforementioned analysis highlights that the courts fall short on providing an efficient remedy in complicated financial markets. Thus, the following chapters focus on exploring the regulators' role in implementing moral transparency.

¹⁵¹ John-Peter Castagnino, 'The judicial response to ultra vires derivative contracts' (2002) 8(3) *Derivatives Use, Trading & Regulation* 255

¹⁵² *ibid*

¹⁵³ *ibid*

¹⁵⁴ See Introduction Chapter's discussion on the de Larosi re Report.

¹⁵⁵ See Chapter 5.

5. Distributed Ledger and Re-defining Transparency

Inspired by the historical transparency reforms, the thesis develops the theoretical concept of moral transparency. Moral transparency emphasises easing social inequality as its purpose and financial regulators as its enforcers in the UK financial market. However, neither historical transparency reforms nor the post-2008 transparency reform addresses the agency risk. Through a literature review, Chapter 2 concluded that resolving agency risk requires sharing knowledge with the public. Following this conclusion, this section introduces distributed ledger innovation. In this de-centralised system, information is shared across the system in real-time and verified by users,¹⁵⁶ hence, overcoming agency risk in moral transparency. It is important to note that distributed ledger technology relies on cryptographic data which has no meaning to the public unless de-crypted. Therefore, the system contains its own pseudonymity. This risk is highlighted in Chapter 4's analysis of the SQUID scam, where Chapter 4 calls for smart contracts to be accommodated by traditional written contracts.

Nevertheless, the following analysis suggests that distributed ledger technology empowers the public by sharing information, decision-making power and knowledge.¹⁵⁷ Thus, even though the financial crises have been 'everything we've seen before',¹⁵⁸ distributed ledger brings a gleam of hope for easing the historical concentration of information, wealth, and power in society. However, in the absence of proper regulation, Bitcoin also re-enforces concentration of information, wealth and power. By analysing UK financial regulators' failure on overseeing

¹⁵⁶ To have a wholesome understand of crypto, see Jack Parkin, *Money Code Space: Hidden Power in Bitcoin, Blockchain, and Decentralisation* (OUP 2020)

¹⁵⁷ Elizabeth Fisher, 'Transparency and Administrative Law: A Critical Evaluation' (2010) 63(1) *Current Legal Problems* 272

Some may concern the rationale of adopting definitions from administrative law in a financial regulation thesis. However, administrative law plays a significant role in forming the regulatory system in the UK derivatives market. Meanwhile, *Hazel v Hammersmith and Fulham*, the first derivatives case where the English court discussed the nature of a derivatives contract, is an administrative law case. The derivatives contracts were ruled void based on s111, Local Government Act 1972. Furthermore, the relationship between the regulator and regulated, the regulator and the public are in the field of administrative law.

see Alastair Hudson, 'The Components of the Law of Finance' in *The Law of Finance* (Sweet & Maxwell 2009) [1990] 2 Q.B. 697 *Hazell v Hammersmith and Fulham*

Robert Baldwin, Martin Cave and Martin Lodge, *Understanding Regulation: Theory, Strategy, and Practice*. Vol. 2nd ed (OUP Oxford 2012) 26

¹⁵⁸ Krugman (n 7)

the crypto market, Chapters 4 and 5 urge regulators to embrace moral transparency in both traditional and crypto markets.

5.1 Sharing Decision-Making Power with the Public

The concept of Bitcoin was first revealed in late 2008¹⁵⁹ by an online figure under the name Satoshi Nakamoto, a Japanese equivalent of ‘John Smith’. The true identity of Satoshi Nakamoto remains unclear today.¹⁶⁰ The Financial Conduct Authority’s attempts to oversee bitcoin money laundering risk will be criticised in Chapter 4, which achieved nothing but intensifying the concentration of information, wealth, and power in financial intermediaries. This subsection focuses on explaining how Bitcoin shares decision-making power with the public via distributed ledger, which turns the public into financial market insiders and mitigates the agency risk. Inspired by this innovation, moral transparency emphasises the need for regulators to communicate their reasoning with the public. Meanwhile, the foundation laid out by Bitcoin is followed by other blockchain innovations.¹⁶¹ Thus, understanding Bitcoin is crucial for understanding distributed ledgers’ wider implications in Chapters 4 and 5.

Each Bitcoin is a chain of digital signatures.¹⁶² When transferring a Bitcoin to another user, the payer adds his/her unique signatures to the chain.¹⁶³ One CPU can add one block to verify a transaction.¹⁶⁴ This block is known as Proof-of-Work.¹⁶⁵ Once added to the Bitcoin, this block cannot be changed.¹⁶⁶ Since transactions are publicly announced, the longest chain is verified by the most Bitcoin users and assumed to be the first and valid transaction.¹⁶⁷ Therefore, instead of having one bank deciding the transaction’s validity, the power is given to the public.

¹⁵⁹ The timing hinted that Bitcoin was born as a re-think of traditional banking post-2008. The crypto morality, sharing information in public, as a mean to ease inequality, is discussed in later chapters.

¹⁶⁰ The problem was mentioned in *Wright v Ver* [2020] EWCA Civ 672.

¹⁶¹ Shi Chen, Cathy Yi-Hsuan Chen, Wolfgang Karl Härdle, T.M. Lee and Bobby Ong, ‘*Econometric Analysis of a Cryptocurrency Index for Portfolio Investment*’ in David Lee Kuo Chuen and Robert Deng (eds), *Handbook of Blockchain, Digital Finance, and Inclusion*, Vol 1 (1st ed, Elsevier Inc 2018)

¹⁶² Craig Wright, ‘Bitcoin: A Peer-to-Peer Electronic Cash System’ [2019] SSRN Electronic Journal <<https://ssrn.com/abstract=3440802>> accessed 18 February 2024

¹⁶³ *ibid*

¹⁶⁴ *ibid*

¹⁶⁵ *ibid*

¹⁶⁶ *ibid*

¹⁶⁷ *ibid*

Meanwhile, the first CPU to add the block is rewarded with a new Bitcoin for verifying the transaction.¹⁶⁸ This reward motivates more users to participate in the verification process, which subsequently makes the blockchain longer and Bitcoins safer. Thus, the Bitcoin payment system is a peer-to-peer support network, where everyone is involved in helping verify transactions and rewarded for their hard work. No intermediaries to take huge cuts.¹⁶⁹ Since other distributed ledger follow this mechanism,¹⁷⁰ understanding Bitcoin is crucial for later chapters' discussions on crypto-related default and systemic risks. As will be discussed in Section 6, while the concept of Proof-of-Work sounds fair, the process is extremely energy consuming. Furthermore, blockchain also risks re-enforcing the concentration of wealth as wealthy institutional investors have better access to computer power. These problems highlight the need for proper regulatory intervention in the UK crypto market.

5.1.1 Bitcoin Treats the Public as Insiders

Financial institutions record, verify, and execute payment information in the centralised payment system.¹⁷¹ In contrast, the Bitcoin system announces all transactions across the network in real-time.¹⁷² All users can verify transactions through an open-source code, which is a free software available for download from Bitcoin.org.¹⁷³ Thus, anyone with a computer and Internet access, can receive information and verify transactions. In this sense, distributed ledger turns the public into decision-makers in the payment system.¹⁷⁴

Furthermore, while the Bank of England controls banknote supplies and interest rates, financial institutions are included in the process as the Bank of England makes monetary policy based on information from financial institutions. Yet, the public is treated as outsiders and excluded

¹⁶⁸ *ibid*

¹⁶⁹ The cost of bank payment system is discussed in Michael Brindle and Raymond Cox, 'Encryption, Electronic SDignatures and 'Trusted Third Parties'' in *Law of Bank Payments* (Sweet & Maxwell 2017)

¹⁷⁰ Chen (n 161)

¹⁷¹ The agency approach in traditional payment system was demonstrated in Chapter 2.

¹⁷² *ibid* 170

¹⁷³ The software is available at <<https://bitcoin.org/en/download>>, accessed 04 December 2022

It supports all major operating system including Windows, Mac OSX, Linux, and ARM system. So, so long as someone has a computer and good internet connection.

¹⁷⁴ As illustrated in Occupy London, removing banks from the centre of the payment system echoes the public's anger towards the financial institutions post-2008.

from the conversation. In contrast, Bitcoin shares abundant information with the public regarding Bitcoin's supply.

To begin with, Bitcoin system is designed to accommodate a maximum of 21 million Bitcoins.¹⁷⁵ This limit is a crucial value shared by general equivalents like gold, silver, and sterling. Like these general equivalents, Bitcoin becomes a popular underlying asset in the derivatives market, the risks of which will be analysed in Chapter 5.

Meanwhile, new Bitcoins are created at a relatively fixed rate.¹⁷⁶ As more people join the network and mining Bitcoins, the difficulty to generate the Proof-of-Work increases.¹⁷⁷ Therefore, instead of having a central bank that can suddenly change currency supply to bailout banks, the number of Bitcoin is relatively transparent and predictable. The desire for Bitcoin and the increased difficulty for gaining it also led to a concentration of wealth in the Bitcoin market.¹⁷⁸

In 2021, El Salvador became the first country to officially adopt the Bitcoin payment system.¹⁷⁹ It is important to note that this adoption does not mean Bitcoin replaces El Salvador's currency as the sole payment method. Rather, El Salvador traditionally uses US dollars.¹⁸⁰ Thus, the previous discussion on how Bitcoin challenges central bank's control over monetary policy does not apply to El Salvador in the first place. The International Monetary Fund criticises El Salvador's adoption of Bitcoin as 'entailing large risks for financial and market integrity,

¹⁷⁵ Bitcoin.org, 'Frequently Asked Questions' <<https://bitcoin.org/en/faq#what-is-bitcoin> > accessed 04 December 2022.

¹⁷⁶ *ibid*

¹⁷⁷ *ibid*

¹⁷⁸ See Section 6.

¹⁷⁹ El Salvador is one of the most dependent economies across the globe. It's economy strongly relies on the US and uses US dollar as the legal tender. Meanwhile, only 30% of the population have bank accounts. This background could explain why El Salvador is the first to experiment Bitcoin.

Maksym Iavorskyi, 'A lightning disruption of remittance costs: a silver lining for entrepreneurship during a crisis?' (The World Bank Blogs, 26 October 2021) <<https://blogs.worldbank.org/peoplemove/lightning-disruption-remittance-costs-silver-lining-entrepreneurship-during-crisis> > accessed 18 February 2024

¹⁸⁰ OECD, Global Forum on Transparency and Exchange of Information for Tax Purposes: El Salvador 2022 (Second Round, Phase 1): Peer Review Report on the Exchange of Information on Request, Global Forum on Transparency and Exchange of Information for Tax Purposes, (OECD Publishing, 2022) <<https://doi.org/10.1787/44648523-en> > accessed 18 February 2024

financial stability, and consumer protection’.¹⁸¹ The following subsection associates this with several limitations of Bitcoin. Consequently, the thesis does not expect Bitcoin to act as a viable payment system in the UK, but an asset for speculation. However, as emphasised throughout the thesis, the crypto frenzy should be seen as an extension of the existing problematic speculation economy. The excessive speculative culture shows market value’s dominancy in society, which is consistent with the excessive concentration of information, wealth and power in financial intermediaries. Moral transparency tackles this excessive speculation culture by easing the concentration of power in financial institutions.

Meanwhile, when evaluating the potential application of distributed ledger in the OTC derivatives market, Paolini¹⁸² argues that such digital ledger provides a new method of recording detailed data on derivatives transactions. Subsequently, he proposes a blockchain-based smart market, which will allow investors to trace back the pool of mortgages that formed the derivatives and assess the risks of each loan.¹⁸³ It will also provide regulators with much needed information to tackle financial crimes.¹⁸⁴ This de-centralised clearing system will be further illustrated in Chapter 4. Meanwhile, although Paolini does not have an explicit definition of transparency, he nevertheless recognises a connection among transparency, information and distributed ledger technology.

Furthermore, one practice also worth-noticing is initial coin offering (ICO),¹⁸⁵ which means launching a blockchain based digital asset.¹⁸⁶ In 2021, the UK football club Arsenal launched its token, \$AFC. According to Arsenal, fans holding \$AFC enjoy various exclusive benefits including the right to vote on some club related issues.¹⁸⁷ The fans’ increased involvement in Arsenal’s affairs nevertheless suggests that blockchain could include the public in decision-making. Since the fans rely on social media information for investment decision-making,

¹⁸¹ IMF Press Release No. 22/13

¹⁸² Adolfo Paolini, ‘The Disruptive Effect of Distributed Ledger Technology and Blockchain in the over-the-Counter Derivatives Market’ (2020) 20 *Global Jurist* 1

¹⁸³ *ibid*

¹⁸⁴ *ibid*

¹⁸⁵ More details about ICO will be discussed in Chapter 3 to highlight the urgency for regulators to embrace moral transparency.

¹⁸⁶ FCA, ‘Initial Coin Offerings’ (FCA, 27 February 2019) <<https://www.fca.org.uk/news/statements/initial-coin-offerings>> accessed 18 February 2024

¹⁸⁷ Arim Park and Huan Li, ‘The Effect of Blockchain Technology on Supply Chain Sustainability Performances’ (2021) 13(4) *Sustainability* 1

Chapter 4 labels such investors as meme investors. Through another ICO example, the SQUID scam, Chapter 4 argues that meme investors are disproportionately affected by default risks in the UK crypto market. To ease social inequality and regain the public's trust, Chapter 4 calls for UK financial regulators to step in.

Outside the financial market, Park and Li also build a direct connection between distributed ledger technology and morality in studying global supply chain management.¹⁸⁸ Park and Li argue that digital ledger provides a reliable and traceable tool to store and share environmental and social impact issues related to economic activities, including how pollution generated during production flows into the environment and how the suppliers treat workers and local communities. In traditional contracts, information is exclusively for direct contract parties. Yet, distributed ledger allows environmental and social information to be shared with all participants in real-time, hence, allows the public to make conscious and informed decisions. Against this background, Park and Li suggest that distributed ledger can play a crucial role in achieving the United Nation's sustainable development goals.¹⁸⁹ Even though the study is from outside the financial market, distributed enables the disclosure of these environmental and social elements to wider economic participants. Access to such information is the premise for investors to include moral concerns in investments. Thus, the wider adoption of distributed ledger technology in supply chain management will eventually affect moral transparency in the financial market. All these potential applications empower the public in decision-making. This thesis mainly concerns distributed ledger's impact on the financial regulatory system.

These examples show a revolutionary level of inclusion, where the UK financial regulatory system can no longer regard the public as irrelevant outsiders. This changed power dynamic is crucial for incorporating moral transparency into the UK financial regulatory system. Inspired by this inclusion, moral transparency emphasises that UK financial regulators should respect public morality in decision-making and openly communicate with various stakeholders. In reviewing the GameStop frenzy, Chapter 4 argues that UK financial regulators cannot properly oversee meme-related systemic risks without respecting the public as insiders in the UK financial market.

¹⁸⁸ *ibid*

¹⁸⁹ *ibid*

5.1.2 A Critical Evaluation of the Bitcoin Payment System

In addition to inclusion, crypto also overcomes the centralised payment system's inefficiency in detecting errors.¹⁹⁰ In September 2018, Deliveroo, the online food delivery platform, experienced an error in its app.¹⁹¹ Even though Deliveroo was receiving and processing information as usual, the app wrongly informed the customers otherwise.¹⁹² Based on this incorrect information, some customers placed multiple orders.¹⁹³ This example suggests that centralised payment systems can be inefficient in detecting errors. Alternatively, in the Bitcoin payment system, transactions are announced publicly, where only the longest chain is accepted by all users as a valid transaction.¹⁹⁴ Therefore, parties to a transaction (customers and restaurants) could directly confirm the orders, hence, would not be vulnerable to intermediaries' errors. This is not to say crypto is an absolutely secured payment system. In 2016, a hack occurred in the Ethereum crypto payment system, resulting in an estimated \$60 million (£44 million) loss.¹⁹⁵ Such challenges highlight the need for technological innovations in banking in the digital era. Yet, as will be illustrated in Chapters 4 and 5, to engage with such technological innovations, regulators need to first change the excessive speculation culture in the UK financial market.

Furthermore, the Bitcoin payment system can be inefficient. The current daily transaction history of Bitcoin is low. Where a traditional payment system like Visa handles over 300 million transactions per day,¹⁹⁶ the Bitcoin system only has 300,000 transactions.¹⁹⁷ As all information is announced publicly and the valid transaction should contain the longest blockchain, the

¹⁹⁰ *ibid*

¹⁹¹ Helen Knapman, 'Not So Fast Deliveroo app Crash Leaves Customers Furious as Some Are Charged Seven Times' (The Sun, 18 September 2018) <<https://www.thesun.co.uk/money/7284287/deliveroo-app-crash-customers-furious-charged-seven-times/>> accessed 18 February 2024

¹⁹² *ibid*

¹⁹³ *ibid*

¹⁹⁴ Wright (n 162)

¹⁹⁵ Chen (n 161)

¹⁹⁶ Bitcoin.org, 'Frequently Asked Questions' <<https://bitcoin.org/en/faq#what-is-bitcoin>> accessed 04 December 2022.

¹⁹⁷ Statista, 'Number of Daily Bitcoin Transactions Worldwide from January 2017 to September 13, 2021' from October 2013 to October 19, 2021' <<https://www.statista.com/statistics/730806/daily-number-of-bitcoin-transactions/>> accessed 04 December 2022

Bitcoin system can take an average of 10 minutes to confirm a transaction.¹⁹⁸ The Bitcoin system is significantly slower than the traditional payment system. Therefore, even though transparency in the Bitcoin payment system can avoid centralised errors in the Deliveroo example, the Bitcoin payment system needs more than two days to confirm Deliveroo users' daily orders. In other words, users can only get their lunch tomorrow or after tomorrow. Thus, the Bitcoin payment system is inefficient to even support one takeaway food delivery firm. This inefficiency also means blockchain can be extremely energy consuming.¹⁹⁹ This environmental concern casts a shadow over the sustainability of blockchain innovation. Against this backdrop, Ethereum proposes to address the efficiency and environmental concern via Ethereum gas and the upcoming proof-of-state technology.²⁰⁰

In addition to the inefficiency, Bitcoin's price had extremely high volatility. Between October 2013 and October 2021, the price of Bitcoin rose from \$196 to \$41,412, which peaked at over \$60,000 in March 2021.²⁰¹ As illustrated earlier a currency should carry the function of a unit of account, which people can use to price items. For Bitcoin, as the price changes dramatically, it is irrational for ordinary people to use in normal transactions. The dramatic price changes reflect the speculative nature of the current UK crypto market.²⁰² Chapter 5 then further explains how Bitcoin price volatility affects systemic risks in the UK derivatives market. These case studies highlight the urgency for UK financial regulators to diversify centralised information disclosure in the UK derivatives market with moral transparency. These limitations suggest that distributed ledger cannot replace the traditional financial system but diversify payment options in the financial market. For the traditional financial system to work, UK financial regulators need to rebuild public's trust towards regulators and the market. Moral transparency is the means to rebuild trust, as moral transparency respects the public morality and communicates openly with the public. Against this backdrop, the thesis calls for regulators to embrace moral transparency both within and outside the UK crypto market.

¹⁹⁸ Jack Parkin, 'Pandora's Blocks' in *The Money Code Space: Hidden Power in Bitcoin, Blockchain, and Decentralisation* (OUP 2020)

¹⁹⁹ Mikhail Bondarev, 'Energy Consumption of Bitcoin Mining' (2020) 10 (4) *International Journal of Energy Economics and Policy* 516

²⁰⁰ See Section 5.2

²⁰¹ Statista, 'Bitcoin Price from October 2013 to October 19, 2021' <<https://www.statista.com/statistics/326707/bitcoin-price-index/>> accessed 04 December 2022

²⁰² See Chapter 5.

In addition to crypto, countries like China have also experimented with central bank digital currency (CBDC) as a secured payment method.²⁰³ However, it is important to note that the British public's distrust towards both banks and the government post-2008²⁰⁴ renders CBDC unlikely to replace crypto in the UK. Therefore, to adopt CBDC, the Bank of England needs to first embrace moral transparency and regain the public's trust. Via examples from the emerging UK crypto market, Chapters 4 and 5 then demonstrate how regulators could regain the public's trust by levelling the playing field for meme investors and easing speculation among traditional players.

5.2 Sharing Knowledge with the Public

Following the basic principle established by Satoshi Nakamoto, Ethereum further advances blockchain technology. The concept of Ethereum was first created in 2013 by Vitalik Buterin, a 19-year-old Russian-Canadian programmer.²⁰⁵ After the developers weakened Buterin's character in an online game,²⁰⁶ Buterin started asking the crucial question why should big tech companies control the Internet? The question resembled the 1912 Report's critique towards the banks' control over the economy in the 1900s, while expanding the conversation to a wider economy as Brandeis did in *Benedict v Ratner*. Therefore, unlike Bitcoin which focuses on the payment system, Ethereum challenges the current digital economy and the tech companies, which is crucial for easing social inequality in modern UK society.

In Dhillon, Metcalf and Hooper's words, Ethereum represents the transfer from Web 2.0 to Web 3.0.²⁰⁷ During Web 2.0, people's social interactions with each other on the Internet have

²⁰³ David Kuo Chuen Lee, Li Yan and Yu Wang, 'A Global Perspective on Central Bank Digital Currency' (2021) 14(1) *China Economic Journal* 52

This alternative payment method will be introduced in Section 5.3 as an example where regulators engage with blockchain to reduce the agency risk.

²⁰⁴ As discussed in Chapter 1.

²⁰⁵ The creator's young age also echoes Chapter 3's finding that meme investors are mainly between 18 to 30. The young age means that meme investors are also significantly less wealthy than traditional investors.

Robert Plummer and Natalie Sherman, 'GameStop: Meet the amateur traders fighting Wall Street' (BBC News, 29 January 2021) <<https://www.bbc.co.uk/news/business-55843829>> accessed 04 December 2022

²⁰⁶ TechCrunch, 'Fireside Chat with Vitalik Buterin' (YouTube, 6 July 2018) <<https://www.youtube.com/watch?v=OHMjbsKN1p4>> accessed 18 February 2024

²⁰⁷ Vikram Dhillon, David Metcalf and Max Hooper, 'Unpacking Ethereum' in *Blockchain Enabled Applications*. (Berkeley CA, 2021)

created huge commercial profits.²⁰⁸ Ethereum asks a crucial question about Web 2.0: why the big tech companies profit from other people's creative work? As social media users, most people barely get paid for the content they create. Most profits go to the platform. Ethereum believes that this distribution system is unfair.²⁰⁹ So long as people rely on the platforms as intermediaries, the unfair exploitations will continue.²¹⁰ This reliance on the subsequent concentration of wealth and power resembles Chapter 2's critique towards agency risk in the UK financial regulatory system. The shared problem suggests that moral transparency could have wider application outside the financial regulatory system.

Instead of simply sharing information with the public, Ethereum opens its code, hence, shares knowledge on blockchain design with the public.²¹¹ How this open resource coding could lead to a Web 3.0 revolution will be unveiled in the next paragraph. It is important to emphasise that this technological innovation echoes Chapter 2's conclusion that sharing knowledge is crucial for achieving transparency, as it closes the knowledge gap between insiders and outsiders. The following analysis on Web 3.0 highlights the impact of sharing knowledge with the public in changing the power dynamic between the public and sophisticated institutions, which

The current development of the Internet contains three stages. Web 1.0, where the Internet was like a digital magazine. People read the website like a magazine. The situation was changed by the emergence of social media platforms. Facebook and YouTube reduced the technology burden for people to publish their own work online. Now, over 6 million people in the UK publish their own short videos on TikTok, with more than 17 million people using Twitter. The Internet has become a place for social interactions. Along with the social interactions comes huge commercial profits.

Ora Lassila and James Hendler, 'Embracing "web 3.0"' (2007) 11(3) *IEEE Internet Computing* 90

Statista, 'Monthly active users of the TikTok app in the United Kingdom (UK) from January 2017 to May 2020' <<https://www.statista.com/statistics/1125306/tiktok-monthly-active-users-uk/>> accessed 04 December 2022

Statista, 'Leading countries based on number of Twitter users as of July 2021' <<https://www.statista.com/statistics/242606/number-of-active-twitter-users-in-selected-countries/>> accessed 04 December 2022

²⁰⁸ For instance, Twitter alone reported over \$3.7 billion in 2020.

Twitter, 'Twitter Announces Third Quarter 2021 Results' <https://s22.q4cdn.com/826641620/files/doc_financials/2021/q3/Final-Q3'21-earnings-release.pdf> accessed 04 December 2022

²⁰⁹ Lex Fridman, 'Vitalik Buterin: Ethereum 2.0' (YouTube, 3 June 2021) <<https://www.youtube.com/watch?v=XW0QZmtbjvs>> accessed 18 February 2024

²¹⁰ *ibid*

²¹¹ *ibid*

encourages closing the knowledge gap in the UK financial market. After further studying meme investors' excessive exposure to default risks and its impact on equality, Chapter 4 urges UK financial regulators to enhance financial literacy in the UK to level-up the playing field and regain the public's trust.

5.2.1 DApps, Smart Contracts and Web 3.0

Ethereum proposes a de-centralised solution, by opening its code and allowing the public to create their own de-centralised apps (DApps). Such DApps are created via smart contracts. A well-known analogy of smart contracts is a vending machine.²¹² Each vending machine stores products, such as bottled water or snacks. The machine is pre-programmed to give customers the selected product after payment is made. No agency is required to execute the transaction. Thus, no unfair exploitations from intermediaries.

The same automatic process applies to smart contracts.²¹³ Each smart contract is programmed to execute itself when a pre-determined condition is made.²¹⁴ Meanwhile, the codes of existing smart contracts are all open.²¹⁵ Thus, the technology barrier to creating a DApp is low. The public as content creators, can easily set up their own vending machine like DApp based on existing DApp's codes. The DApp can then automatically process viewers' requests. If the creator decides to charge for the content, the payment will directly go to the creator, instead of an intermediary. Ethereum's supporters believe this model is fair because content creators are rewarded for their creative work, instead of an intermediary. This technology provides a solution to the concentration of information, wealth and power.

More importantly, DApps have great potential to be implemented across wider areas in the public's life.²¹⁶ One restriction for smart contracts to be widely adopted in the real world is that smart contracts can only process digital codes.²¹⁷ Thus, if a smart contract states the insurance company should compensate farmers who suffered from extreme wealth, the contract still relies

²¹² TechCrunch, 'Decentralising Everything with Ethereum's Vitalik Buterin' (YouTube, 18 September 2017) <<https://www.youtube.com/watch?v=WSN5BaCzsbo&t=640s>> accessed 18 February 2024

²¹³ *ibid*

²¹⁴ *ibid*

²¹⁵ *ibid*

²¹⁶ Park (n 187)

²¹⁷ Chainlink, 'Decentralised Oracle Networks for Any Smart Contract' <<https://chain.link/use-cases>> accessed 18 February 2024

on someone (an oracle)²¹⁸ to translate the information into the digital code, before triggering the compensation. Then, the advantages of smart contracts like reducing human errors, counterparties default risk and even de-centralisation are diminished. Ethereum solves this problem via chainlinks.²¹⁹ Chainlinks can be perceived as a blockchain of oracles.²²⁰ When importing real-world information into the smart contract, the information will first be translated into codes.²²¹ Then, chainlinks will verify the information through distributed ledger.²²² Like in Bitcoin, the longest block is the only valid information. This information will then be passed on to the smart contract. Through this mechanism, smart contracts can bridge the digital world and the real world while maintaining de-centralisation. This innovation is the foundation of Web 3.0, a metaverse where people live in a mixture of the real-world and digital-world.²²³ Section 6 warns that both Bitcoin and Ethereum have turned into a tool for speculation by traditional financial investors. For society to truly benefit from distributed ledger innovation, UK financial regulators need to adapt moral transparency, ease speculation and ensure the public access to these innovations. Such movement meets Goal 9 Industry, Innovation and Infrastructure of the UN Sustainable Development Goals.

Meanwhile, for ordinary users, announcing real-world information publicly through blockchain could cause privacy concerns. In the science fiction *Snow Crash*, this privacy concern in the digital world is expressed when the main character, Y. T. was racing in the Metaverse:

It takes half a second. They are scanning the many bar codes mounted on her chest. They are finding out who she is. The Mafia now knows everything about Y.T.—where she lives, what she does, her eye colour, credit record, ancestry, and blood type.²²⁴

²¹⁸ *ibid*

²¹⁹ Lex Clips, ‘Ethereum and Chainlink are complimentary | Sergey Nazarov and Lex Fridman’ (YouTube) <<https://www.youtube.com/watch?v=vpO-KVjlgig>> accessed 18 February 2024

²²⁰ *ibid*

²²¹ *ibid*

²²² *ibid*

²²³ The concept will be further illustrated in Section 4.3 to understand the concentration of wealth in the digital economy.

²²⁴ Neal Stephenson, *Snow Crash* (First published 1992, Penguin 2011) 32

The metaverse imagined in this 1990s book now became a real thing in Facebook's Metaverse.²²⁵ How to protect users' privacy in the Metaverse will be an important topic for researchers and regulators in the coming decades.

5.2.2 How Does Knowledge Sharing Empower the Public?

The following paragraphs highlight the public's independence in the Ethereum eco-system through the example of Steem,²²⁶ which is inspiring for changing the power dynamic between the public and financial institutions. Subsequently, moral transparency calls for regulators to share financial knowledge with the public as a mean to level up the playing field. Launched in 2016, Steem is a distributed ledger alternative for social media platforms like YouTube.²²⁷ The network adopted the Proof-of-Stake verification method, over which the creator, Ned Scott, had significant voting rights.²²⁸ In February 2020, Scott decided to transfer his right to an investment firm, the Tron.²²⁹ The takeover was resisted by some Steem users.²³⁰ Eventually, the commercial takeover was complete. However, since all Steem's code was open resource, those against the takeover created a duplicate of Steem. Subsequently, users were able to move to new Hive at little cost.²³¹ Therefore, opening all codes on Ethereum empowers users and content creators. This example is consistent with Chapter 2's argument that closing the knowledge gap is crucial for the public to be meaningfully involved in the UK financial market. Nevertheless, the thesis recognises that even though in theory, everyone can learn coding, people's capacity to interpret the smart contracts and other cryptographic data still varies. This new knowledge gap is abused by some crypto developers to exploit novice meme investors.²³² It is important to note that smart contracts can be designed in a user-friendly way to

²²⁵ Meta, 'Connection Is Evolving and So Are We.' <<https://about.facebook.com/meta/>> accessed 04 December 2022

²²⁶ Stephen O'Neal, 'Steem Community Resists Takeover, Hard Fork Launches Hive Network' (Cointelegraph, 20 March 2020) <<https://cointelegraph.com/news/steem-community-resists-takeover-hard-fork-launches-hive-network>> accessed 18 February 2024

²²⁷ *ibid*

²²⁸ *ibid*

²²⁹ *ibid*

²³⁰ *ibid*

²³¹ *ibid*

²³² See for example in the SQUID scam, where transactions were conducted through smart contract codes, with no writing contracts explaining the rights of obligations to users.

accommodate people without much knowledge in computer science.²³³ Thus, scams like the SQUID Coin Scam are not resulted of flaws in distributed ledger technology. Rather, it is a modern repetition of the traditional attempt to exclude the public from meaningful conversations.²³⁴ To overcome this knowledge gap, Chapter 4 argues that smart contracts should be accommodated with traditional writing contracts to keep users informed. This example further highlights the need of proper regulation in the UK crypto market.

Overall, sharing knowledge with the public provides a mean to build a fairer economy in the digital era.²³⁵ This desire for social equality echoes Section 1 and Chapter 1's warning against excessive social inequality in the post-COVID UK society.

5.2.3 Potential Efficiency Concerns

Nevertheless, sharing knowledge with the public raises concern over market efficiency.²³⁶ In *the Economics of Inequality*, Piketty argues that public intervention in wealth distribution could be counterproductive.²³⁷ This is to say, allowing tech giants to exploit users may seem to be unfair to workers at first glance. But, with more capital, platforms would be able to expand their business, thus create more employment opportunities and better services. Therefore, Piketty perceives monopoly profit as a necessary evil.

Against such scepticism, Ravikant, the earliest venture capitalist who invested in Ethereum suggests that people should read the science fiction book, *Snow Crash*, to understand the rationale of Ethereum.²³⁸ The book tells a story about Hiro Protagonist, a hacker and pizza delivery boy, who lives in Los Angeles after a worldwide economic collapse. In this fantasy land, the real world and the digital world both exist. Hiro lives in a small cargo container in the real world, but thanks to his early involvement in the digital world, he owns a big house in the

²³³ Santiago Palladino, *Ethereum for Web Developers* (Apress 2019) 8

²³⁴ See Chapter 2, Section 2.

²³⁵ Tim Ferriss, 'Vitalik Buterin – Creator of Ethereum, Talking NFT & More Ft. Naval Ravikant' (YouTube, 11 March 2021) <<https://www.youtube.com/watch?v=42uhsP4vvCE&t=2422s>> accessed 18 February 2024

²³⁶ Zhenyu Li, Jing Bian, Ping Wu, 'Blockchain + Rule of Law' and Modernization of Social Governance' in Hong-Ning Dai, Xuanzhe Liu, Daniel Xiapu Luo, Jiang Xiao and Xiangping Chen (eds), *Blockchain and Trustworthy Systems* (Springer 2019)

²³⁷ Thomas Piketty, 'Capital-Labour Inequality' in *The Economics of Inequality* (Harvard University Press 2015)

²³⁸ The Tim Ferriss Show, 'Chris Dixon and Naval Ravikant – the Wonders of Web3' podcast available on Spotify. Accessed 16 November 2021.

digital Los Angeles. And this fictional world is believed to be what Web3.0 may look like.²³⁹ Hiro, the book's protagonist, argues that:

You don't work harder because you're competing against some identical operation down the street. You work harder because everything is on the line. Your name, your honor, your family, your life.²⁴⁰

Hiro's statement suggests that people are sentimental, instead of being driven solely by economic gains. In Ethereum, program developers continue to improve their codes for various reasons. Developers may just improve the code because they can improve it. Monopoly profit is not a necessary evil. This example echoes Chapter 2's critique towards information disclosure's narrowed focus on market efficiency. Chapter 4 also finds that meme investors engage with moral sentiments like supporting the environment and supporting jobs, in making investment decisions. Against the public's growing involvement in investment, regulators need to respect the public's sentiments and morality as a relevant factor in the financial market.

Furthermore, big tech giant companies' actual contributions to innovation are also questionable. As Hovenkamp recognised,²⁴¹ in recent years, there were several allegations against large digital platforms, like Amazon, Apple, Facebook, and Google. Such claims often involve large digital platforms stealing small developers' code into their own products, then remove small developers' products from the platforms.²⁴² Hovenkamp argues that even as these platforms are found liable, taking tough actions against platforms may injure the economy and consumers.²⁴³ This reliance on giant platforms is also shared by financial regulators when overseeing the financial market. Thus, it is not hard to imagine small developers' frustration towards the unfair system. In this sense, supporting the development of distributed ledger innovation contributes to the UN Sustainable Development Goal 10, Reduced Inequalities.

Similarly, Buterin argues that big tech companies keeping their codes secret is a waste of resource.²⁴⁴ Take two social media platforms, TikTok and Instagram as example. Instagram is

²³⁹ Ed Finn, 'What Is an Algorithm?' in *What Algorithms Want, Imagination in the Age of Computing* (The MIT Press, 2017)

²⁴⁰ Stephenson (n 224) 5

²⁴¹ Herbert Hovenkamp, 'Antitrust and Platform Monopoly' (2021) 130 *Yale Law Journal* 20

²⁴² *ibid*

²⁴³ *ibid*

²⁴⁴ *ibid*

a traditional social media platform where people enjoy posing their pictures.²⁴⁵ In recent years, Instagram's popularity has been challenged by TikTok.²⁴⁶ To catch up with TikTok, Instagram invested substantially to develop its own short video function.²⁴⁷ According to users' feedback, Instagram's short video function has yet to catch up with TikTok.²⁴⁸ For Ethereum's supporters, Instagram's catch-up investment is a wasteful repetition of TikTok's work. Users could benefit more if the two companies work together in improving TikTok's existing codes. In other words, Ethereum believes that Tech companies' exclusive control over their code creates unnecessary obstacles for people to enjoy the best technology and allows tech companies to unfairly exploit content creators.

In contrast, all codes on Ethereum are open-resourced. If someone creates a piece of code for efficiently solving a problem, this solution can be directly copied by the others.²⁴⁹ No resources will be wasted to repeat the work and the result will be enjoyed by all. The thesis recognises the need for further research on intellectual property protection in the market. However, as unveiled in the GameStop frenzy, sharing knowledge with the public empowers the public against the insiders of the UK financial market.²⁵⁰ Against this backdrop, Chapter 4 calls for UK financial regulators to provide financial literacy to the public to ease the concentration of information, wealth and power in society.

5.3 How Distributed Ledger Reduce Agency Risk

The above discussions show that distributed ledger enables sharing the decision-making power and knowledge with the public, which subsequently changes the power dynamic between the public and financial institutions. This subsection argues that regulators could also benefit from blockchain technology.

Under the traditional payment system, the Bank of England relies on financial institutions for information. Such reliance was one of the reasons for the Bank of England to bailout banks

²⁴⁵ Instagram, 'About Us' <<https://about.instagram.com/about-us>> accessed 17 November 2021

²⁴⁶ Patricia Untinen, 'TikTok vs Instagram: Who's Winning at Social Media' (Digital Agency Network, 25 February 2021) <<https://digitalagencynetwork.com/tiktok-vs-instagram-who-is-winning-at-social-media/>> accessed 18 February 2024

²⁴⁷ *ibid*

²⁴⁸ *ibid*

²⁴⁹ *ibid*

²⁵⁰ See Chapter 4.

during the Financial Crisis 2008. This subsection introduces CBDC, distributed ledger based central bank digital currency as a de-centralised solution against this information reliance.²⁵¹

Before CBDC, access to central bank was a privilege of commercial banks.²⁵² By directly connecting with individual users like crypto, CBDC creates a payment system without banks acting as intermediaries.²⁵³ Through CBDC, central banks can act as a trust-worthy deposit taker for ordinary depositors outside banks. Since banks rely on deposits for lending, Cecchetti and Schoenholtz²⁵⁴ are concerned that the competition pressure imposed by CBDC may affect financial stability by reducing available bank credit in society. Similar concerns also apply to crypto. If crypto attracts too much capital, traditional banks will face a drop in deposits, which will harm the public by reducing credit supply in society. Against this background, Geva argues that central bank digital currency is unlikely to pose a major threat to the traditional interbank settlement system.²⁵⁵ This concern is further refuted by Andolfatto,²⁵⁶ who argues that competition only reduces banks' monopoly profit. For wider society, financial innovation presents diverse methods for accessing the market, hence, increases the overall deposits available. Meanwhile, due to the increased competition pressure, banks are more likely to offer loans at a suitable rate to attract customers. Thus, the overall credit available in the market will stay unaffected if not increased. Therefore, the thesis welcomes CBDC as another meaningful innovation in the financial market.

²⁵¹ Jooyong Jun and Eunjung Yeo, 'Central Bank Digital Currency, Loan Supply, and Bank Failure Risk: A Microeconomic Approach' (2021) *Financial Innovation* <<https://doi.org/10.1186/s40854-021-00296-4>> accessed 18 February 2024

²⁵² Morgan Ricks, John Crawford and Lev Menand, 'A Public Option for Bank Accounts (or Central Banking for All)' (Harvard Law School Forum on Corporate Governance, 2018) <<https://corpgov.law.harvard.edu/2018/06/22/a-public-option-for-bank-accounts-or-central-banking-for-all/>> accessed 18 February 2024

²⁵³ *ibid*

²⁵⁴ Kim Schoenholtz and Stephen Cecchetti, 'Central Bank Digital Currency: The Battle for the Soul of the Financial System' (CEPR, 8 July 2021) <<https://cepr.org/voxeu/columns/central-bank-digital-currency-battle-soul-financial-system>> accessed 18 February 2024

²⁵⁵ Benjamin Geva, 'Banking in the Digital Age – Who Is Afraid of Payment Disintermediation? European Banking Institute Working Paper Series 2018 (no. 23)

²⁵⁶ David Andolfatto, 'Assessing the Impact of Central Bank Digital Currency on Private Banks' (2021) 131(634) *The Economic Journal* 525

However, if the Bank of England wishes to experiment with CBDC, the Bank of England needs to overcome several obstacles. Firstly, a crucial difference between CBDC and Bitcoin is that CBDC allows central banks to directly access account information.²⁵⁷ This direct involvement could ease the central bank's exposure to commercial banks' too big to fail risk. Thus, central banks are less likely to be forced to bailout banks during crises.²⁵⁸ However, as Athanassiou indicated, CBDC also puts users into the government's direct monitoring.²⁵⁹ Hence, CBDC is unlikely to appeal to users, who value anonymity. Meanwhile, the Bank of England traditionally operates under the agency approach and relies on financial institutions for information. Thus, the Bank of England needs to first develop its independent supervisory power to experiment with CBDC.

Secondly, CBDC requires the public's trust towards the central bank. The original paper on blockchain based payment system expressed a strong distrust towards traditional financial systems, where Wright began his proposal criticising the financial system as 'suffering from the inherent weaknesses of the trust-based model'.²⁶⁰ This distrust is shared by post-2008 movements like Occupy London. It is important to emphasise that this distrust targets both banks and regulators, where Wright emphasises that no central bank will control currency supply and interest rates in Bitcoin.²⁶¹ This distrust could affect the Bank of England's adoption of CBDC. While Wright dismisses the value of trust, what Bitcoin did is share information with the public, hence, gain the public's trust via transparency. Inspired by this practice, the thesis calls for regulators to embrace moral transparency to regain the public's trust.

Take China, the pioneer in CBDC²⁶² as an example. As Tooze demonstrated in the *Crashed: How a Decade of Financial Crises Changed the World*, the crisis witnessed the Chinese government's massive invest in health care, education, housing and infrastructure.²⁶³ Therefore,

²⁵⁷ *ibid*

²⁵⁸ Central banks' reliance on commercial banks for knowledge and information is discussed in Chapter 2.

²⁵⁹ Andolfatto (n 256)

²⁶⁰ Wright (n 162)

²⁶¹ *ibid*

²⁶² Krishna Srinivasan, 'Opening Remarks at Peer-Learning Series on Digital Money/Technology: Central Bank Digital Currency and the Case of China' (IMF, 7 July 2022) <<https://www.imf.org/en/News/Articles/2022/07/07/sp070722-central-bank-digital-currency-and-the-case-of-china>> accessed 18 February 2024

²⁶³ Adam Tooze, 'The Wind from the East: China' in *Crashed: How a Decade of Financial Crises Changed the World*. (Allen Lane 2018)

twelve years after 2008, the Chinese public has a strong confidence in the government, thus, are willing to back the CBDC. In contrast, as discussed in Occupy London, the public trust towards the UK government was severely damaged by the government's handling of the Financial Crisis of 2008.²⁶⁴

Even though the UK economy did not collapse like Greece,²⁶⁵ the government spent hundreds of billions of pounds bailing out the banks.²⁶⁶ This bailout helped banks out but increased public debt, hence, negatively affecting the currency price.²⁶⁷ Consequently, the public's frustration towards the governments accelerated. The anger can still be felt in Chapter 4's analysis on the GameStop frenzy. Against this background, the de-centralised blockchain payment system carries two functions, free from the banks and free from the government. In other words, the creation of the crypto market is a market response to the regulatory failure in 2008. Therefore, for UK financial regulators to engage with CBDC, the regulators need to first rebuild the public's trust. Moral transparency could facilitate the process as it echoes to the public's desire for equality and reduces systemic risks in the UK financial market.

It is also important to notice that Chinese regulators banned crypto.²⁶⁸ However, Chapter 4's analysis shows that crypto also contains the public's desire for financial inclusion, which is shared by the Chinese.²⁶⁹ In this sense, the UK regulators' adoption of moral transparency could

²⁶⁴ See Chapter 2, Section 5.

²⁶⁵ Christel Koop and Christine Reh, 'Europe's Bank and Europe's Citizens: Accountability, Transparency – Legitimacy?' (2019) 26(1) *Maastricht Journal of European and Comparative Law* 50

²⁶⁶ Pepper D. Culpepper and Raphael Reinke, 'Structural Power and Bank Bailouts in the United Kingdom and the United States' (2014) 42(4) *Politics and Society* 427

²⁶⁷ See Chapter 2, Section 4.

Also see Miao Han, 'Bank of England and the Global Financial Crisis' in *Central Bank Regulation and the Financial Crisis. A Comparative Analysis* (Palgrave Macmillan 2016)

²⁶⁸ The ban was implemented gradually, starting from banning any exchange or financing activities via crypto in 2017 to announcing all crypto transactions illegal in 2021.

Rain Xie, 'Why China Had to Ban Cryptocurrency but the U.S. Did Not: A Comparative Analysis of Regulations on Crypto-Markets between the U.S. and China' (2019)18(2) *Washington University Global Studies Law Review* 457

Chinese Central Government, Further Actions against Speculation in the Crypto Market (People's Bank of China, 2021 237) (Author translation.)

中华人民共和国中央人民政府, '关于进一步防范和处置虚拟货币交易炒作风险的通知' 银发〔2021〕237号, 2021年9月15日。

²⁶⁹ See examples like P2P lending in China.

impose wider cultural changes in other markets like China. Since the public's distrust was a side-effect of the Financial Crisis 2008, this example further highlights the need for UK financial regulators embrace moral transparency and ease social inequality.

The distributed ledger innovation in the aftermath of the Financial Crisis of 2008 is a valuable technology for overcoming agency risks in the UK financial market. On one hand, distributed ledger shares decision-making power and knowledge with the public, hence, changes the power dynamic between the public and financial institutions. On the other hand, distributed ledger could be used to reduce regulators' information reliance on financial institutions, which further eases the concentration of power in financial institutions. However, for the UK financial market to truly benefit from distributed ledger innovation, the regulators need to first regain the public's trust.

6. Speculation and Concentration of Wealth in Innovation

Before celebrating the power of distributed ledger, this section warns that distributed ledger could repeat the history of speculation and concentration of wealth. Thus, distributed ledger innovation represents both an opportunity to ease social inequality and a threat to further intensify social inequality. Chapters 3 and 4 then demonstrate information disclosure's incapacity to handle the complex reality in the UK crypto market, hence, highlights the need for regulators to embrace moral transparency.

6.1 Traditional Investors' Dominancy over Bitcoin and Ethereum

The Bitcoin system sounds equal, because, in theory everyone with a computer and access to the Internet can gain new Bitcoins by verifying transactions, which is known as mining. This entering requirement is significantly lower than the traditional investment market, which only open to institutional investors or wealth individuals.²⁷⁰ However, as Bondarev indicated, nowadays, mining without significant investment is impossible.²⁷¹ This is because, to maintain a stable supply of Bitcoin, the algorithm automatically increases the difficulty of generating a Proof-of-Work when more people join the network. Therefore, the one with the largest number of central processing units (CPUs) and the best hardware is more likely to get the reward. In other words, the wealthy and powerful ones. Thus, Bitcoin enforces the concentration of wealth.

The scope of investment required in Bitcoin mining is revealed in *Commercial Bank PrivatBank v Kolomoisky*,²⁷² where the bank accused a Ukraine oligarch, Igor Kolomoisky of fraud for his Bitcoin assets disclosure. Kolomoisky had a significant business interest in several Bitcoin mining companies across the world.²⁷³ In one Bitcoin investment in Georgia, Kolomoisky directly invested around \$50 million in a Bitcoin farm, another major shareholder of which was a company indirectly associated with him, Georgian Manganese LLC.²⁷⁴ Personally, Kolomoisky was expected to receive the lesser value of 50,000 Bitcoin or USD 1 billion in January 2021 from his direct investment.²⁷⁵ However, the farm was closed in September 2019,

²⁷⁰ Chapter 4, Section 2.

²⁷¹ Mikhail Bondarev, 'Energy Consumption of Bitcoin Mining' (2020) 10(4) *International Journal of Energy Economics and Policy* 516

²⁷² *JSC Commercial Bank Privatbank v Kolomoisky & Ors* [2021] EWHC 403 (Ch)

²⁷³ *ibid*

²⁷⁴ *ibid*

²⁷⁵ *ibid*

with a total of 3,533.3 Bitcoin mined,²⁷⁶ which according to today's price, is slightly short to break-even on Kolomoisky's original investment. The financial burden suggests that Bitcoin mining is no longer a utopia where ordinary people support each other. Rather, Bitcoin has become a playing field for the super-rich.

In addition to super-rich individuals like Kolomoisky, the main holders of Bitcoin and Ethereum also include financial institutions.²⁷⁷ As disclosed on the media, listed companies like Fintech Group, Square and MicroStrategy are using Bitcoin as their reserve assets, with expectations that the value of Bitcoin will go up.²⁷⁸ Meanwhile, Tesla, the electric car manufacturer accepted Bitcoin as a payment option shortly into 2020, which makes the company and its billionaire owner Musk big holders of Bitcoin.²⁷⁹ Thus, Bitcoin is no longer a peer support payment system. Rather, it is a financial bubble fuelled by the super-rich and institutions. Therefore, Chapter 4's discussion on crypto financial inclusion mainly concerns significantly cheaper cryptos like \$AFC and SQUID. Meanwhile, against this backdrop, El Salvador's adoption of Bitcoin cannot meet the public's need for a payment solution but risks being abused for corruption and money laundering, as the World Bank warned.

Thus, the established Bitcoin market is still dominated by super-rich individuals and institutions. This assumption is proven by the lack of publicly accessible information among the FCA-registered crypto firms, where only 3 out of 14 firms open their businesses to ordinary individuals.²⁸⁰ How the high barrier to enter the Bitcoin market affects Bitcoin derivatives and systemic risks in the UK derivatives market will be analysed in Chapter 5.

6.2 The Proof-of-Stake Update

ETH acts as the payment method for the smart contracts in the Ethereum system.²⁸¹ This payment system follows the principles laid out by Bitcoin, where transactions are announced

²⁷⁶ *ibid*

²⁷⁷ Statista, 'Coinbase IPO' <<https://www.statista.com/topics/7759/coinbase-ipo/>> accessed 04 December 2022

²⁷⁸ Dalmas Ngetich, 'London Stock Exchange-Listed Company Buys Bitcoin as Reserve Asset' (Crypto.news, 21 October 2020) <<https://btcmanager.com/london-stock-exchange-company-bitcoin-reserve-asset/>> accessed 18 February 2024

²⁷⁹ Jan Libich and Liam Lenten, 'Bitcoin, Tesla and Gamestop Bubbles as a Flight to Focal Points' (2021) 22 *World Economics* 83

²⁸⁰ See Chapter 4, Section 3.

²⁸¹ @selfagency., 'Gas and Fees' (Ethereum, 11 November 2021) <<https://ethereum.org/en/developers/docs/gas/>> accessed 04 December 2022

and verified publicly. However, several changes are made to increase efficiency, which echoes the public's raising consciousness towards the environment but re-enforces the concentration of wealth and power.

6.2.1 Ethereum Gas

Ethereum puts unverified transactions automatically in a pool.²⁸² Inside the pool, transactions are allocated into blocks. Instead of verifying each individual transaction ETH miners verify blocks.²⁸³ The blocks are connected as a chain. The change increases efficiency, thereby reducing energy consumption of crypto. The following analysis shows that technological innovations contain complex moral and social implications. Therefore, against such innovations, regulators need to embrace moral transparency, taking social inequality into consideration and communicating their reasoning with the public.

Like in Bitcoin payment system, transactions still take computer power to process. This leads to a crucial concept in Ethereum: gas.²⁸⁴ The term gas is an analogy. Just like the gas cars need for transferring goods, one needs Ethereum gas for digital transactions. In physical transactions, gas consumption is related to the speed of delivery and the weight of the goods. Similarly, the gas required for digital transactions is priced based on the speed of the transaction and the size of the smart contract.²⁸⁵ The Ethereum gas is paid in ETH. As of October 2021, one ETH costs about \$4500 (£3343).²⁸⁶ Gas prices are denoted in a much smaller unit gwei, 0.00000001 ETH.²⁸⁷ Thus, one unit of gas costs about £0.000003343. While the number may not sound huge, to transfer \$100 worth ETH on Ethereum could cost about \$25 at this moment.²⁸⁸ Therefore, like Bitcoin, ETH has yet to be widely used as a payment method by ordinary people. This is also consistent with Section 3.1's argument that crypto only diversifies payment options. Regulators still need to rebuild the public trust to experiment other payment methods. The fact that ETH is such an expensive unusual payment option also makes the relevant crypto

²⁸² @corwintines, 'Transactions' (Ethererum, 29 October 2021) <<https://ethereum.org/en/developers/docs/transactions/>> accessed 18 February 2024

²⁸³ *ibid*

²⁸⁴ @selfagency., (n 281)

²⁸⁵ *ibid*

²⁸⁶ *ibid*

²⁸⁷ *ibid*

²⁸⁸ *ibid*

derivatives highly speculative innovative products, which should not be mistaken with traditional foreign exchange swaps.²⁸⁹

Gas price is calculated automatically via ETH wallets based on supply and demand.²⁹⁰ In addition to the basic transaction fee, the overall cost also includes a burn down cost, a small number of ETH that is automatically removed from the system when the unit is mined.²⁹¹ The purpose of this charge is to avoid inflation in the ETH system. It is important to note that the ETH mechanism and reasonings behind the design are explained online to the public. Communicating the reasoning with the public helps Ethereum to gain public popularity, which is reflected on ETH's high price. Chapter 5 then warns that due to the high price, the ETH and Bitcoin are increasingly dominated by institutional investors, pushing less wealthy meme investors to highly speculative crypto derivatives market.

Interestingly, to get the transaction verified faster, parties to a transaction are also encouraged to add a tip for the miners.²⁹² To properly calculate the suitable tip, most wallets will add the tip automatically.²⁹³ This story resembles Sandel's discussion on the fast pass in New York City.²⁹⁴ Against heavy traffic, the New York City offers several fast passes.²⁹⁵ Originally, the fast passes were only open to buses. However, in recent years, one can buy the right to use the fast pass. Therefore, instead of waiting in the line for hours, those with more money can cut the journey short. Sandel criticises fast passes as they enhance money's dominance in the modern society.²⁹⁶ Essentially, fast passes undermine the value of equality in the traditional first-come-first-serve system.

By raising this point, the thesis highlights the moral complexity of distributed ledger innovation. Although Ethereum aims to build a fairer wealth distribution system in the digital era,²⁹⁷ it is nevertheless affected by the current society we live in. The thesis has no intension to simplify

²⁸⁹ See Chapter 5, Section 2.

²⁹⁰ *ibid*

²⁹¹ *ibid*

²⁹² *ibid*

²⁹³ *ibid*

²⁹⁴ Michael J. Sandel, 'Jumping the Queue' in *What Money Can't Buy: The Moral Limits of Markets* (Penguin, Allen Lane, 2012)

²⁹⁵ *ibid*

²⁹⁶ *ibid*

²⁹⁷ Ferriss (n 238)

the complex moral sentiments and moral dilemma involved in crypto innovation. However, this is important to emphasise that problems like speculative society and market society will not be solved automatically in the crypto world, nor were they created by distributed ledger innovation. Instead, crypto merely mimics existing inequality problems in society. Against this backdrop, moral transparency provides a starting point for regulators to communicate with various stakeholders in the UK crypto market.

6.2.2 From Proof-of-Work to Proof-of-Stake

Currently, Ethereum is gradually replacing the Proof-of-Work with the Proof-of-Stake.²⁹⁸ Instead of allowing everyone to mine ETH, Proof-of-Stake restricts miners' mining capacity based on the ETH they hold.²⁹⁹ The rationale of the decision is that, when more people try to mine, the difficulty of producing a Proof-of-Work is increased to avoid inflation. However, the increased difficulty also means more energy is consumed for verifying the transaction, which leads to serious environmental concerns. Ethereum tries to mitigate the environmental problem by restricting miners' mining capacity. In the Proof-of-Stake system, one miner can only mine a percentage of the transactions based on the ETH he holds. Therefore, the system is less likely to be overcrowded and forced to increase the difficulty. Thus, this technology could reduce energy consumption in crypto payment systems. Therefore, instead of focusing narrowly on efficiency, the Proof-of-Stake system also takes environmental factors into consideration. In this sense, crypto further distinguishes itself from the traditional efficiency-focused information disclosure in the UK financial market. The popularity of the blockchain sentiments is confirmed by Bitcoin and Ethereum's high price. To regain the public's trust, UK financial regulators need to learn from distributed ledger's transparency practices, respecting the public's morality and openly communicating their reasonings with the public.

But like jumping the queue, restricting people's access to information based on wealth is nevertheless morally controversial. The Proof-of-Work system follows the equality principle of one CPU one vote. Even though the rich could get more and better CPUs, the principles still exist. In contrast, Proof-of-Stakes expresses a clear message, one's capacity in society depends on one's wealth. Therefore, the Proof-of-Stake risks re-enforcing market society in the digital world. Furthermore, the Proof-of-Stake also enhances the concentration of wealth in the digital

²⁹⁸ @vluna, 'Proof-of-Stake' (Ethereum, 5 November 2021) <<https://ethereum.org/en/developers/docs/consensus-mechanisms/pos/#top> > accessed 04 December 2022

²⁹⁹ *ibid*

world. The more ETH one holds, the more ETH one will get in the future. As discussed in the previous paragraph, both problems are not unheard-of before the digital era. In this sense, under the technical terms, blockchain innovation challenges regulators and researchers in a similar way as traditional society. In an article analysing financial innovation's impact on the financial system, Omarova highlighted that crypto provides a clear example of algorithms increasingly replacing human judgement.³⁰⁰ However, the algorithms are still designed by human beings and contain the designers' moral judgements. Through algorithms, the judgement becomes more hidden. This moral dilemma further highlights the call for regulation in the crypto market.

Again, the distributed ledger innovation has complex moral aspects. The technology started from the public's distrust towards the traditional financial market and regulators; evolves to question the concentration of wealth in the society; responds to the public's environmental consciousness yet falls back into the old money talks. To avoid another systemic failure, parties need to navigate the technology with equality in mind. Since payment is deeply connected with the design of Web 3.0, financial regulators are the frontier in confronting the complex future-oriented moral question.

6.3 The Problems with Institutional Investors' Dominance

Ethereum further enforces the traditional investors' dominance in the market via Proof-of-Stake. As illustrated above, Proof-of-Stake limits people's mining power based on the Ethereum they hold. Thus, technology creates a circle where the more wealth one holds, the more one can mine. In this sense, the design and the extremely high value of Bitcoin/ETH created a barrier for people to enter this established crypto market. The rise of low-price meme crypto discussed in Chapter 4 is a market response to the barrier. But for Ethereum to achieve its de-centralised economy and even Web 3.0 ambition, it is crucial that people are involved.

In *Snow Crash*, the digital world was almost a rich-only playing field. Hiro was only able to have a place in the Metaverse New York, because as a hacker, he got to crypto early. The situation actually coincides with the development of Bitcoin, where it is now impossible for ordinary people to mine. The book describes the rich-only Metaverse New York as:

This is Downtown, the most heavily developed area. If you go a couple of hundred kilometres in either direction, the development will taper down to almost nothing, just a thin chain of streetlights casting white pools on the black velvet ground.

³⁰⁰ Omarova (n 13)

...

That's why the damn place is so overdeveloped. Put in a sign or a building on the Street and the hundred million richest, hippest, best-connected people on earth will see it every day of their lives.³⁰¹

In this sense, the story gives a warning against excluding the public from crypto and Web 3.0. Without the public, the Metaverse cannot reach its full potential in technological and social revolution. The digital world will not be fully built. The society will be even further divided, with the rich escaping to the digital world and the poor struggling in the physical world.

Even though one can create a DApp and sell their own work to earn Ethereum, they still need some initial ETH as gas to maintain the smart contract.³⁰² Similarly, before crypto completely replaces real-world currencies, there will be occasions one need to change crypto into real-world currencies for payment purposes. Thus, the traditional investors' dominance in Ethereum jeopardises Ethereum's core value, sharing knowledge and power with the public.

It is important to note that, while the distributed ledger is de-centralised in nature, the UK crypto market does rely on centralised intermediaries. In other words, crypto has become a new tool for the old financial speculation. Distributed ledger technology alone cannot alter the excessive concentration of information, wealth, and power in society. Rather, in the absence of proper regulation, the technology risks re-enforcing social inequality. Thus, the emergence of the UK crypto market further highlights the need for regulators to embrace moral transparency. For society to truly benefit from distributed ledger innovation, Chapters 4 and 5 then explore how moral transparency could facilitate regulators in overseeing both the UK crypto market and the traditional UK financial market.

³⁰¹ Stephenson (n 224) 25

³⁰² See Section 5.

7. Conclusion

In response to Chapter 2's criticism of information disclosure in the UK financial regulatory system, this chapter develops the theoretical concept of moral transparency. Moral transparency aims at easing social inequality, hence, responds to the public's sentimental critique towards the failure of the UK financial regulatory system in 2008. This emphasis on social equality is supported by historical transparency reforms and modern distributed ledger innovation.

Inspired by the 1912 Pujo Report, moral transparency requires UK financial regulators to openly communicate their reasoning with various stakeholders and respect the public's desire for social equality. Such openness is crucial for rebuilding the public's trust towards regulators in the complicated world. Transparency's criticsers argue that the public could be easily manipulated by misinformation.³⁰³ Thus, open communication with the public may not necessarily lead to the right decisions.³⁰⁴ Such criticism is wrong in two aspects. Firstly, as Abhijit Banerjee talked about in *Good Economic for Hard Time*, one reason the public believes fake economists more than real economists is that the real economists are not communicating/engaging with the public enough. Subsequently, the fake ones take over the stage. More importantly, shutting down communication yet rebuilding the public's trust requires decision-makers to make the right decisions. But against the complex world we are living in, both in terms of economics and technological developments, it is impossible to always make the correct decision. Therefore, moral transparency believes that communication is a better strategy.

Furthermore, against the unfair concentration of wealth in the 1900s US, Judge Brandeis turned transparency into a legal principle in *Benedict v Ratner*. Later, after the Financial Crisis of 1929, Brandeis' call for transparency was incorporated by the Securities Act 1933. Subsequently, the SEC was established as a specialised agency to ensure transparency in the US financial market. These historical transparency reforms provide a legal precedent for the thesis to include public morality into the UK financial regulatory system, which is also backed by Radbruch's Formula and Keynes' economic theory. It is important to note that historical transparency reforms took place via both common law and regulatory approaches. Against the complicity of modern financial products, moral transparency relies on UK financial regulators for implementation, instead of the England and Wales courts.

³⁰³ Onora O'Neill, *A Question of Trust* (Cambridge University Press, 2002) 79,80

³⁰⁴ *ibid*

Meanwhile, existing regulatory approach contains high agency risk, which both historical transparency reforms in the 1900s and the post-2008 transparency reform failed to overcome. However, distributed ledger innovation provides a useful tool for addressing this crucial flaw. On one hand, distributed ledger shares decision-making power and knowledge with the public. Such movements turn the public into insiders in the UK financial market, which makes it difficult for regulators to ignore the public's voice. On the other hand, regulators could also engage with distributed ledger technology to reduce their information reliance on traditional financial institutions. Such technological innovations change the power dynamic between the public and financial institutions, building a solid ground for moral transparency to be implemented in the UK financial market. However, technological innovations also contain complex moral and economic implications. Regulators need to embrace moral transparency, considering innovations' impact on social inequality and communicating their reasoning with the public.

It is also undeniable that the public's involvement in the financial market can be highly speculative, both in the 1900s US stock market and the contemporary UK financial market. While the distributed ledger is de-centralised in nature, the UK crypto market does rely on centralised intermediaries. In this sense, the technology innovation is being abused as a new tool for the old financial speculation. Such excessive speculation can prevent distributed ledger from fully achieving its Web 3.0 potential and trigger another wave of concentration of wealth in society. From case studies, Chapters 4 and 5 highlight that the public's speculation responds to and mimics traditional investors' speculation. Thus, the challenges the crypto market brings to the UK regulators highlight the urgency to embrace moral transparency and ease speculation in the traditional financial market.

To conclude, moral transparency is a legal principle enforced by financial regulators. It perceives easing social inequality as its purpose, which responds to the public's sentimental critique towards failures of the UK financial regulatory system and the causes of financial crises. Moral transparency balances the power dynamic between the public and traditional insiders of the financial market (regulators and market participants), by calling for regulators to communicate their reasonings, sharing knowledge with the public, and engaging with de-centralised technology. In doing so, moral transparency helps rebuilding the public's trust towards regulators, allowing regulators to engage with financial innovations and reduce information reliance on financial intermediaries.

Chapter 4. Meme Investors and Information Disclosure's Failure to Reach Them

1. Introduction

By comparing the Financial Crisis of 2008 with the Financial Crisis of 1929 and the contemporary distributed ledger innovation, Chapter 3 developed the theoretical concept of moral transparency. Moral transparency aims at easing social inequality, which responds to the public's sentimental critique towards the failure of the UK financial regulatory system. Chapters 4 and 5 highlight the urgency and method for UK financial regulators to embrace moral transparency through two contemporary case studies, namely the emergence of meme investors on digital trading platforms and the risks of clearing crypto derivatives.

In the aftermath of the Financial Crisis of 2008, MiFID II was introduced to keep investors better informed,¹ while the EMIR information disclosure system was implemented to monitor systemic risks.² This chapter argues that despite its merits, the financial intermediary-centralised MiFID II falls short against the emergence of meme investors.³ Unlike traditional players in the UK financial market, meme investors are a new group of investors who are significantly less wealthy, who enter the investment market based on social media information and trade via digital trading platforms.⁴ The independence from traditional financial intermediaries means meme investors are not covered by the MiFID II regulatory system. Against the emergence of the UK crypto market, the Treasury recognises the potential risk over 'financial stability and consumer risks', but emphasises a 'proportionate' approach 'avoiding

¹ Danny Busch, 'MiFID II and MiFIR: Stricter Rules for the EU Financial Markets' (2017) 11(2-3) *Law and Financial Markets Review* 126

Milena Migliavacca, 'Keep Your Customer Knowledgeable: Financial Advisors as Educators' (2020) 26(4-5) *European Journal of Finance* 402

Danielle Mensah, 'Dark Execution Strategies under MiFID II: A Few Shades Lighter?' (2017) 9(4) *Journal of Securities Operations & Custody* 329

² Max Maria von Weber, 'Central Counterparties in the OTC Derivatives Market from the Perspective of the Legal Theory of Finance, Financial Market Stability and the Public Good' (2016) 17(1-2) *European Business Organization Law Review* 71

More discussions on this topic see Chapter 4.

³ See Sections 2 and 3's analysis on meme investors' exposure to default risks.

⁴ See Section 2.

applying disproportionate or overly burdensome regulation to entities particularly where end users are aware of risks or the activities do not give rise to financial stability risks'.⁵ As meme investors have little access to traditional financial intermediaries for information, it is hard to say whether meme investors truly understand the risks involved. This chapter contributes to this ongoing regulatory debate and urges regulators to better protect meme investors by strengthening existing reporting requirements and promoting financial literacy in the UK.

Chapter 5 further points out that meme investors' failure will enhance social inequality, which is a systemic threat to the UK financial market. Moral transparency can mitigate these flaws by levelling the playing field for meme investors and easing excessive speculation in the UK financial market. Chapter 5, therefore, also recommends regulatory changes across financial services, including clarifying the standard of clearable derivatives contracts and experimenting with de-centralised clearing. As emphasised throughout the thesis, financial inclusion and innovation, while positive, merely amplify existing problems in the UK financial regulatory system.⁶ UK financial regulators need to reform the long-existing flaws in the traditional information disclosure regime with moral transparency.

It is important to highlight that the thesis recognises that in both scenarios, crypto largely acts as a financial product traded via centralised financial intermediaries, which distinguishes sharply from its de-centralised nature. Thus, the call for regulators to step in and protect meme investors is based on the FCA's duty over consumer protection and market integrity.⁷ Furthermore, the fact that distributed ledger as a meaningful innovation being abused for financial speculation confirms Chapter 2's argument that the UK financial regulatory system needs to change a radical theoretical change. Technological innovation alone cannot bring market stability.

This chapter supports this argument from four perspectives. Firstly, it defines 'meme investors', which is crucial for UK financial regulators to respond to the public's desire for inclusion in investment. It is important to note that the UK financial regulators recognise the fact that in it

⁵ HM Treasury, UK Regulatory Approach to Cryptoassets and Stablecoins: Consultation and Call for Evidence (January 2021)

⁶ For instance, Section 3 analyses meme investors' exposure to default risks via smart contracts. While decentralised smart contracts are innovative, meme investors' losses are caused by the lack of knowledge, a traditional problem identified in Chapter 1. Therefore, the thesis argues that it is necessary to address these long existing problems in the UK financial market, instead of focusing narrowly on innovation.

⁷ HM Treasury (n 5)

Cryptoassets Taskforce: Final Report, the UK financial regulators state that ‘dealing in paper-based or token-based bonds will not influence the regulatory status of a firm.’⁸ However, as the FCA confirms, the GameStop frenzy represents the rise of a new category of investors in both the UK and the US, with whom the regulators ‘are not used to engaging’.⁹ This is because, meme investors are significantly less wealthy than traditional investors.¹⁰ Due to this socio-economic background, meme investors trade through unregulated venues (the centralised digital exchange and de-centralised smart contracts) and rely on social media information. Against this backdrop, regulators cannot approach meme investors via the traditional agencies. In other words, regulators need to change its regulatory approaches. Chapter 5’s analysis on the FCA’s crypto derivatives ban further confirms this argument, while highlighting the systemic risks involved in this regulatory gap.

To properly define meme investors, this chapter brings together several meme events. These include the GameStop frenzy, the SQUID scam, and the London Capital and Finance mini-bonds. The analysis starts from the GameStop frenzy, which distinguishes meme investors from traditional investors. After analysing the GameStop frenzy, Sections 3 and 4 focus on the crypto segment. This is because crypto trading involves both centralised digital exchanges and de-centralised smart contracts, thus, presents a comprehensive picture of meme investors’ involvement in contemporary financial markets. Meanwhile, it is also important to emphasise that meme investors exist across different financial sectors,¹¹ thus, should not be considered as an isolated crypto problem. Moral transparency is not the panacea for all diseases. But it is the premise for UK financial regulators to engage with meme investors and properly regulate this emerging market segment.

Secondly, the chapter illustrates challenges meme investors face in the UK financial market. Meme investors suffer from lack of information, knowledge, and legal protection in both

⁸ HM Treasury, the UK Cryptoassets Taskforce Report (October 2018)

⁹ Nikhil Rath, ‘Transforming to a Forward-looking, Proactive Regulator’ (Speech delivered at the FCA’s Our Role and Business Plan Webinar, 15th July 2021)

¹⁰ Robert Jarrow and Siguan Li, ‘Media Trading Groups and Short Selling Manipulation’ (2021) (March 1, 2021) <<https://ssrn.com/abstract=3804130>> accessed 18 February 2024

¹¹ For instance, meme investors in the GameStop frenzy were trading stocks and stock derivatives, while meme investors in the London Capital and Finance scandal were trading mini-bonds. See Section 5. It is important to note that meme investors also trade crypto derivatives. But all crypto derivatives related events will be discussed together in Chapter 5.

centralised exchanges and de-centralised venues.¹² The findings confirm Chapter 2's critique that post-2008, information disclosure was enhanced to better support traditional investors (insiders) yet still fell short in meeting the public's (outsiders) desire for transparency.

Thirdly, the chapter builds the rationale for regulators to step in and aid meme investors under moral transparency. At the time of finishing this thesis, the Treasury Committee launched its inquiry into consumer protection in the crypto market in July 2022.¹³ In the oral evidence published in November 2022, the debate seems to be dominated by regulators and financial institutions.¹⁴ While the participants recognise the importance of consumer protection, they also highlight the needs for 'nuanced' regulatory framework to protect the diversity of the market. This situation resembles the financial institutions' dominance over rule-making in traditional financial market. This chapter's debate aims to empower the public in the conversation. The chapter recognises social media's role in keeping meme investors informed and unified.¹⁵ To begin with, the chapter finds the independence from traditional financial intermediaries allows meme investors to include their moral sentiments in making investment decisions.¹⁶ Thus, if well-regulated, meme investors represent an opportunity for easing the concentration of information, wealth and power in the UK financial market. Meanwhile, through a case study of the London Capital and Finance mini bond scandal, this chapter argues that the FCA has a duty to protect meme investors in the UK financial market. However, more needs to be done to level the playing field due to online misinformation, knowledge gap and the lack of legal protection. Chapter 5 further highlights that the failure of meme investors will intensify social inequality and the feeling of being left behind, which are systemic threats to the UK financial market. Against this backdrop, regulators need to step in and aid meme investors.

Fourthly, the chapter demonstrates a clear path for UK financial regulators to aid meme investors. On one hand, the FCA should enhance financial literacy in the UK, especially against excessive speculation. This movement echoes moral transparency as it represents an attempt to communicate the regulators' reasoning with the public and closing the knowledge gap for the

¹² See Sections 3 and 4.

¹³ UK Parliament, 'Treasury Committee Launches Inquiry into Crypto-Assets' (UK Parliament, 13 July 2022) <<https://committees.parliament.uk/work/6843/the-cryptoasset-industry/news/172052/treasury-committee-launches-inquiry-into-cryptoassets/>> accessed 06 January 2024

¹⁴ Treasury Committee Oral evidence: The crypto-asset industry, HC 615 (14 November 2022)

¹⁵ See Section 4's analysis over social media's role in exposing the SQUID scam.

¹⁶ See Section 2.

public. On the other hand, the FCA should strengthen reporting requirements among registered crypto firms to reduce meme investors' exposure to platform default risks. This proposal echoes moral transparency, as it eases inequality between meme investors and traditional investors. As illustrated in Chapter 3, blockchain technology could be adopted to reduce regulators' information reliance on financial intermediaries. But UK financial regulators need to first regain the public's trust, which requires the regulators to do the right thing (easing social inequality) and communicate their reasoning with the public.

Overall, Chapter 4 argues that the emergence of meme investors represents the public's desire for inclusion. However, meme investors also suffer from the historical lack of knowledge and legal protection in the UK financial regulatory system. In the absence of proper regulation, the public is highly unlikely to benefit from such investments and will suffer greater consequences for loss. Regulators need to level the playing field for meme investors to ease social inequality. In this sense, this chapter's analysis on protecting meme investors against excessive default risks is also part of Chapter 5's call for reducing systemic risks in the UK financial market.

2. The GameStop Frenzy

A decisive moment for meme investors to attract the UK regulators' attention was the GameStop frenzy in early 2021.¹⁷ Even though GameStop does not operate in the UK, both the UK traditional investors and meme investors participated in the event.¹⁸ Therefore, analysing the GameStop frenzy provides insight on UK meme investors. The following analysis shows that meme investors are a new group of investors who are significantly less wealthy than traditional investors, rely on social media information for decision-making and trade via digital trading platforms. After illustrating who meme investors are, the following sections then demonstrate the regulatory implications of meme investors and how UK financial regulators should approach meme investors.

By unveiling the tension between meme investors and traditional investors through the GameStop frenzy, this section captures the features of meme investors. It argues that meme investors are significantly less wealthy than traditional investors, whose emergence echoes the public's desire for inclusion. Due to this socio-economic background, meme investors trade outside regulated financial intermediaries and rely on simple online information.¹⁹ Despite meme investors' excessive exposure to default risks,²⁰ the independence from traditional financial intermediaries allows meme investors to include sentimental elements in making investment decisions,²¹ which addresses Chapter 1's critique towards market value's dominance in society.

The emergence of meme investors also confirms Chapter 3's argument that, post-2008, innovation blurs the boundary between insiders and outsiders in the UK financial market. Against this backdrop, UK financial regulators can no longer dismiss the public's moral sentiments as irrelevant. The Treasury Committee hosted four oral evidence sessions between November 2022 and February 2023.²² Among the fifteen people presented, four are from

¹⁷ Mark Steward, 'Locking Down Market Abuse' Public Speech on 25 February 2021 at the Expert Forum: Market Abuse 2021.

¹⁸ See Sections 2.2 and 2.3 respectively.

¹⁹ See Sections 3 and 4.

²⁰ *ibid*

²¹ For instance, the sense of fun and frustration towards traditional financial intermediaries. See Section 4.2 and Section 2.3.

²² UK Parliament, 'The Crypto-Asset Industry Inquiry' <<https://committees.parliament.uk/work/6843/the-cryptoasset-industry>> accessed 06 January 2024

dominant crypto institutions, one investigations writer, and the rest are representatives of the regulators. As Stirton and Lodge highlighted, the public needs to have their voice in this crucial debate to ensure a publicly accountable regulatory system.²³ This analysis contributes to it by highlighting challenges meme investors face,²⁴ hence, urging regulators to step in. Chapter 5 further supports the argument by including meme investors' failure as a systemic risk in the UK financial market.

2.1 Meme and Social Media

Before defining meme investors, it is necessary to first understand what memes are. According to the Oxford English Dictionary, the word meme originated from Richard Dawkins' book, *The Selfish Gene*.²⁵ In its original context, meme is a 'cultural element or behavioural trait whose transmission and consequent persistence in a population, as analogous to the inheritance of a gene.'²⁶ As an academic concept, Dawkins' meme was criticised for lacking in scientific rigour.²⁷ That is to say, meme captured the transmissive feature where ideas, behaviours or styles spread from person to person within a culture, without providing a scientific explanation to this phenomenon. In analysing meme events in the financial market, Section 4 shows social media creates a sense of fun and community among its users, which facilitates a meme's transmissive feature.

While the concept of meme was created in the field of biology, over time, memes have become a phenomenon on social media in popular culture.²⁸ Internet memes are mainly images, videos,

²³ Lindsay Stirton and Martin Lodge, 'Transparency Mechanisms: Building Publicness into Public Services' (2001) 4(28) *Journal of Law and Society* 471

²⁴ See Sections 3 and 4.

²⁵ Oxford English Dictionary, 'meme' <<https://www.oed.com/view/Entry/239909?redirectedFrom=meme#eid>> accessed 18 February 2024

²⁶ *ibid*

²⁷ Limor Shifman, 'Memes in a Digital World: Reconciling with a Conceptual Troublemaker' (2013) 18(3) *Journal of Computer-Mediated Communication* 362

²⁸ Jordan M, 'What Is Meme?' (Richard Dawkins Foundation for Reason & Science, 4 Feb 2014) <<https://richarddawkins.net/2014/02/whats-in-a-meme/>> accessed 18 February 2024

A simple google of the word, meme, shows over 4.7 billion results within less than half second, <<https://www.google.com/search?q=meme&oq=meme&aqs=chrome.69i59l2j35i39j0i20i263i433i512j46i433i512j69i60j69i61i2.1275j0j7&sourceid=chrome&ie=UTF-8>> accessed 04 December 2022

pieces of text, which are copied and spread rapidly by internet users with slight variations.²⁹ In other words, fragmented online information like a gene that passes among humans.³⁰ In early 2021, Vasile, Mototo and Chuchu found that due to its transmissive feature, memes are increasingly important as a powerful marketing tool.³¹ During the GameStop frenzy, Internet memes were spread to encourage meme investors to short-squeeze traditional financial institutions.³² Similarly, in the SQUID scam,³³ fragmented misleading online information about this combination of popular TV drama and crypto encouraged people to buy SQUID coin.³⁴ Meanwhile, in the London Capital and Finance mini-bond scandal, meme investors also used social media to get more information about the mini-bond products.³⁵ In these cases, having meme investors buy financial instruments is marketing. Based on these investors' reliance on fragmented social media information, the thesis labels this new group of investors, meme investors.

In studying social media memes, Mielczrek and Hopkins recognised that creators of memes almost always seize someone else's work, which could cause intellectual property disputes.³⁶ This situation resembled Chapter 3's discussion on open-source coding and intellectual property.³⁷ Like supporters of open-source coding, Mielczrek and Hopkins argued that meme's re-worked compositions compliment the original works, enhancing the original work's visibility and marketability.³⁸ This argument is consistent with Ethereum's call for internet companies to work together and improve the existing codes, instead of wasting resources on playing catch up against each other. Furthermore, Mielczrek and Hopkins also argued that the

Sorina Vasile, Lebogang Mototo and Tinashe Chuchu, 'Using "Memes" As a Marketing Communication Tool in Connecting with Consumers Within the Age of Digital Connectivity' (2021) 11(3) *International Review of Management and Marketing* 30

²⁹ Oxford English Dictionary (n 25)

³⁰ *ibid*

³¹ Vasile (n 28)

³² See Appendix A.

³³ Analysed in Section 4.

³⁴ *ibid*

³⁵ See Section 5. But again, the reliability of the online information was questionable and led to meme investors' losses.

³⁶ Natalia Mielczarek and W. Wat Hopkins, 'Copyright, Transformativeness, and Protection for Internet Memes' (2021) 98(1) *Journalism and Mass Communication Quarterly* 37

³⁷ Chapter 3.

³⁸ Mielczarek (n 36)

vast majority of internet memes that use copy-righted images are not created for monetary gain or to the economic detriment of original rights holders.³⁹ This value is consistent with *Snow Crash*'s description of metaverse philosophy. People do not act purely for economic purposes. In this sense, social media memes echo the culture of Web 3.0.

Section 4 further argues that social media plays a key role in keeping meme investors informed and unified. The role is significant because historical transparency reforms struggled to keep the public informed and unified in the long-term.⁴⁰ Therefore, meme investors and social media represent an opportunity for achieving moral transparency in the contemporary UK financial market. However, fragmented online information can also be misleading, and risks being hijacked by influential individuals. To keep meme investors' properly informed, UK financial regulators need to step in, providing both information and knowledge to the public.

2.2 Traditional UK Investors in the GameStop Frenzy and Their Narrowed Focus on Efficiency

GameStop is a US retailer, whose main business concerns selling video games and consoles.⁴¹ During its peak, GameStop had nearly 6,000 stores in the US, Canada, Australia, and Europe with over 64 million registered customers.⁴² In recent years, GameStop's business experienced severe challenges. GameStop attracted its loyal customers via its refurbishing and reselling programmes.⁴³ Stock-trading cannot alter GameStop's overall deteriorating business environment. Against this backdrop, this chapter concludes that, meme investors' participation in the GameStop frenzy is highly speculative, which echoes Chapter 2 Section 1's warning that the public's involvement in the financial market can be highly speculative. Yet, as will be demonstrated in this section, meme investors merely mimic existing speculative culture in the UK. Therefore, regulators should focus on changing this speculative culture, instead of restricting meme investors' access to investment.

³⁹ *ibid*

⁴⁰ See Chapter 3, Section 3.3.

⁴¹ The following information on GameStop's business are from the GameStop Annual Report 2020, 2019 and 2018.

⁴² *ibid*

⁴³ *ibid*

The business has been in decline, as fewer customers use physical copies nowadays. The situation further deteriorated during the COVID-19 Pandemic in 2020. Stores were forced to close in many countries during lockdowns, while customers were reluctant to go back to physical stores even after lockdowns were eased.

2.2.1 *The Narrowed Focus on Efficiency*

Against this deteriorating business environment, GameStop was expected to go bankrupt. Subsequently, hedge funds, including the UK-based ones,⁴⁴ tried to profit from GameStop's misfortune through old-fashioned derivatives trading.⁴⁵ While the shorting strategy used⁴⁶ was speculative, this discussion was nevertheless based on GameStop's business circumstances, hence, echoed Chapter 2's critique towards the efficiency focused culture in the UK financial market. In contrast, meme investors' decision to counter traditional investors was largely influenced by their distaste towards traditional investors' shorting GameStop.⁴⁷ In other words, meme investors do not share traditional investors' narrowed focus on efficiency.

2.2.2 *Traditionally, Investors Have to Be Wealthy*

Hedge funds are financial intermediaries who collect large pools of money from institutional investors and wealthy individuals, and then adopt various trading strategies to invest on behalf of these members.⁴⁸ Chapter 5 further argues that, even though meme investors' short squeeze triggered wider price changes in the UK and US financial market, it is nevertheless a response to traditional investors' short-selling. Thus, to reduce meme-related systemic risks, regulators need to change the excessive risk-taking culture among traditional investors.

The UK financial market is dominated by financial institutions like hedge funds. This is because access to the traditional financial market historically has been a privilege for institutional investors.⁴⁹ For stock trading, access to the London Stock Exchange (LSE) is exclusive for its members, for which only companies can apply.⁵⁰ Even though the EMIR emphasises on open

⁴⁴ White Square Capital, a London-based hedge fund reported to suffer catastrophic losses against GameStop, thus, shutting down their business in June 2021.

Millie Turner, 'London Hedge Fund White Square Capital Shuts After Swallowing Lofty GameStop Losses' (Cityam, 22 June 2021) <<https://www.cityam.com/london-hedge-fund-white-square-capital-shuts-after-swallowing-lofty-gamestop-losses/>> accessed 18 February 2024

⁴⁵ GameStop Financial Report 2020

⁴⁶ See Section 2.2.3.

⁴⁷ See Section 3.3

⁴⁸ Wulf A. Kaal and Dale A. Oesterle, 'Hedge Fund Regulation' in H. Kent Baker and Greg Filbeck (eds), *Hedge Funds: Structure, Strategies, and Performance* (OUP 2017)

⁴⁹ LSE, 'Membership' <<https://www.londonstockexchange.com/trade/membership?tab=how-to-join>> accessed 04 December 2022

⁵⁰ *ibid*

and non-discriminatory access to clearing in the derivatives market,⁵¹ small individual investors cannot meet the net capital requirements, nor have the willingness/ability to maintain a back desk for the central counterparties and have a suitable internal risk-management procedure in place.⁵² Thus, these key financial infrastructures are for big financial institutions. This financial intermediaries-centralised market structure fits the neo-liberalism's hypothesis of the informationally-rational investors,⁵³ which excluded the public from decision-making in the UK financial market.⁵⁴

2.2.3 Excessive Speculation among Traditional Investors

The financial institutions' derivatives trading is relevant to the thesis in two ways. To begin with, even though GameStop's shares are traded in the US stock market, UK financial institutions and retail investors participated in the frenzy through derivatives trading. Hence, it is reasonable to study the frenzy in the context of the UK derivatives market.⁵⁵ Most importantly, as suggested by Rathi,⁵⁶ the frenzy highlighted the same lack of transparency as the Financial Crisis 2008,⁵⁷ where US regulators allowed default risk to accumulate for market efficiency. Chapter 5 argues that if the UK were to de-regulate the derivatives market for highly speculative products like crypto derivatives, the UK financial market could risk a US style failure in the future.

As illustrated in previous chapters, derivatives are a bundle of financial instruments whose values derive from the prices of the underlying financial assets.⁵⁸ During the GameStop frenzy, the underlying assets were the company's shares and bonds. Between the two contractual parties, the one with the right to acquire the underlying asset is known as holding a long position, while

⁵¹ EMIR, Article 37

⁵² See Chapter 5, Section 5.

⁵³ Niamh Moloney, 'Reform or Revolution? The Financial Crisis, EU Financial Markets Law, and the European Securities and Markets Authority' (2011) 60(2) *International and Comparative Law Quarterly* 521

⁵⁴ As discussed in Chapter 2 Section 2.

⁵⁵ See Chapter 5, Section 2.

⁵⁶ Rathi (n 9)

⁵⁷ The option on excessive short selling is confirmed by the US congress's investigation on GameStop frenzy. Committee on Financial Services U.S. House of Representatives, Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part II (Virtual Hearing, Serial No, 117-10, 17 March 2021)

⁵⁸ Alastair Hudson, *Swaps, Restitution, and Trusts* (Sweet & Maxwell 1999) 21

the other one is known as holding a short position.⁵⁹ The short position can be used through two types of derivatives, which are options and credit default swaps.

As the seller expected GameStop to go bankrupt, the pre-determined price was lower than the stock's market price at the time when the stock option was sold. Option sellers would profit from the quantity of the sale. Since GameStop was assumed to become insolvent, option sellers did not expect buyers to trigger the option and buy the share in the future. Later, as the US regulators disclosed, over \$300 million (around £260 million) of GameStop shares failed to deliver or be covered.⁶⁰ This means, at the initial stage of the GameStop frenzy, there were more outstanding options on GameStop than the company's publicly available shares. This excessive speculative strategy is known as a 'naked short', where the option sellers promise to sell option holder the stock in the future but do not hold the underlying stock.⁶¹

Credit default swaps (CDSs) could also be used to short GameStop's bond. CDSs are credit swaps, securing the yield of an underlying corporate bond for the swap holder when the issuer of the corporate bond defaults.⁶² In theory, CDSs can reduce investors' risk exposure to an underlying financial institution, as CDSs offer alternative capital flows to compensate swap holders.⁶³ However, as early as in the local authority swaps case in the 1980s,⁶⁴ CDSs were abused as a tool for speculation on price movements. Traditional investors purchased CDSs without holding the underlying asset, hoping to profit from the bond issuer's default.⁶⁵ Furthermore, the lack of transparency impaired the financial supervisory authorities' capacity to monitor such systemic risk, as well as effectively react to it. Thus, CDSs created a closed network among traditional financial institutions across jurisdictions and business sectors, hence,

⁵⁹ *ibid*

⁶⁰ The option on excessive short selling is confirmed by the US congress's investigation on GameStop frenzy. Committee on Financial Services U.S. House of Representatives, *GameStopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part II* (Virtual Hearing, Serial No, 117-10, 17 March 2021)

⁶¹ See Chapter 2's discussion on excessive risks taking.

⁶² The product is discussed in Chapter 2.

⁶³ *ibid*

⁶⁴ See Chapter 2.

⁶⁵ *ibid*

amplifying price movements' impact on the global market.⁶⁶

2.2.4 Defects in Information Disclosure

As a public firm, GameStop was supposed to publish its annual report on 31st January 2021.⁶⁷ In the annual report, the Company is legally required to give a fair view of the Company's financial position and demonstrate its future business plans.⁶⁸ Information is disclosed to the public to allow investors to assess the firm's financial situation, which would then ensure public confidence on the firm's performance. However, such annual disclosure does not meet the derivatives market's daily turn-over needs.⁶⁹ Short selling of GameStop started at the beginning of January 2021,⁷⁰ before GameStop was due to publish its annual reports. Therefore, shorts can easily spread rumours on bond issuers' financial position, pushing issuers to default and profit from it.⁷¹ How social media mitigates the lack of timely information will be discussed in Section 4. The fact that existing information disclosure mechanisms failed to meet investors' needs to effectively assess the underlying companies enabled shorts to create turbulence in the market. Mandatory central clearing introduced in Chapter 5 is the major response to these problems in the post-2008 global financial market.⁷² However, central clearing increases systemic risks in the financial market by concentrating default risks in systematically important CCPs. The devastating impact of excessive risk taking in the UK financial market is discussed in Chapter 2. In this sense, the GameStop frenzy rings the alarm for UK regulators that the same excessive risk taking still exists post-2008, thus highlighting the need for regulators to embrace moral transparency and ease excessive speculation. In other words, information disclosure is insufficient against excessive speculation. Instead of waiting to respond to another systemic failure triggered by excessive speculation, moral transparency eases speculation in the first

⁶⁶ ISDA, 'ISDA International Swaps and Derivatives Association' (ISDA, 22 April 2010) <<https://www.isda.org/2010/04/22/isda-publishes-year-end-2009-market-survey-results/>> accessed 28 February 2020

⁶⁷ GameStop Annual Report 2020.

⁶⁸ Investor. Gov, 'Form 10-K' <<https://www.investor.gov/introduction-investing/investing-basics/glossary/form-10-k>> accessed 18 February 2024. Since GameStop is listed in the US Nasdaq exchange, the US law applies here. The UK law's requirement about true and fair financial reports are discussed in Chapter 1, Section 5.

⁶⁹ Andrew Ross Sorkin, *Too Big to Fail: Inside the Battle to Save Wall Street* (Penguin 2010) 209

⁷⁰ GameStop Annual Report 2020.

⁷¹ Sorkin (n 69) 105-106

⁷² More discussion in Chapter 5.

place.

The US Financial Industry Regulatory Authority (FINRA) only collects short position information twice a month.⁷³ Therefore, buyers gain a false sense of security believing the options are covered, while naked short positions go undetected. The existence of the excessive risky naked short positions suggests information disclosure's inefficiency. Moral transparency includes moral sentiments like the desire for equality into decision-making in the financial market; hence, addresses the problem by changing the excessive risk-taking culture in the financial market.

The UK derivatives market also suffered from naked short selling during the Financial Crisis 2008.⁷⁴ Consequently, post 2008, regulators require all short positions to be covered. Hence, excessive short selling should be unlikely to happen in the UK derivatives market.⁷⁵ However, among the shorts, a London-based hedge fund, White Square Capital, reportedly suffered catastrophic losses against GameStop,⁷⁶ thus, shutting down their business in June 2021. Since White Square Capital was in the UK and operated with the UK customers, its shutting down shows a direct connection between the GameStop frenzy and the UK derivatives market, hence, acting as a cautionary tale for regulators for future repeat events.

Similarly, Chapter 5 finds that PayPal Bitcoin futures are not regulated by the FCA. Neither PayPal nor the FCA discloses information on whether the position is covered. Thus, PayPal could face a similar naked position as the hedge funds during the GameStop frenzy. Under this scenario, if the Bitcoin price increased sharply, PayPal could default to its meme investors, which could have wider systemic impacts on the financial market. More UK examples are discussed in the following sections to highlight the need for the FCA to embrace moral transparency against meme investors' exposure to excessive default risks. Traditional investors' behaviour in the GameStop frenzy confirmed Chapter 2's critique that the UK financial market is dominated by financial institutions with a narrowed focus on efficiency and speculative trading strategies.

⁷³ *ibid* 72, 53

⁷⁴ See Chapter 2, Section 5.

⁷⁵ ESMA, Short Selling, <<https://www.esma.europa.eu/regulation/trading/short-selling>> accessed 04 December 2022

⁷⁶ Turner (n 44)

2.3 The UK Meme Investors in the GameStop Frenzy

It is important to highlight that the GameStop frenzy is more than just a simple repetition of the Financial Crisis of 2008. Unexpectedly, traditional investors' shorting was countered by meme investors, who were mainly active members of the social media group, wallstreetbets, on Reddit.com.⁷⁷ In the following days, meme investors were able to push GameStop's share price from a few dollars to nearly \$300.⁷⁸ Due to the increased costs, financial institutions who previously shorted GameStop were under extreme financial pressure to maintain their positions. This strategy is known as 'short squeezing'.⁷⁹ It is necessary to emphasise that short-squeezing is an excessive risk-taking strategy. Therefore, the emergence of meme investors also confirms Chapter 3's argument that the public's involvement in finance can be highly speculative. However, previous analysis on financial crises confirms that the public's speculation is influenced by the speculative culture in the overall society. Therefore, instead of blaming financial inclusion, more efforts should be made in changing the speculative culture. The GameStop frenzy further supports this argument because meme investors' speculation was a response to traditional investors' speculation. Therefore, instead of restricting meme investors' access to investments, Chapter 5 calls for UK financial regulators to ease speculation among traditional investors.

When option holders triggered the right to buy GameStop's shares at the pre-determined price, which was much lower than the share price during the frenzy, option sellers without sufficient shares needed to buy the shares themselves.⁸⁰ The demand then pushed GameStop's share price even higher, which further increased the financial pressure option sellers faced. On the other hand, even though some option holders did not trigger the right immediately, as the underlying share became more expensive, more collaterals were called.⁸¹ Subsequently, hedge funds like

⁷⁷ Tim Hasso, Daniel Müller, Matthias Pelster and Sonja Warkulat, 'Who Participated in the GameStop Frenzy? Evidence from Brokerage Accounts' (2022) 45 *Finance Research Letters* <<https://www.sciencedirect.com/science/article/pii/S154461232100221X?via%3DiHub>> accessed 18 February 2024

⁷⁸ GameStop Annual Report 2021

⁷⁹ Anirban Sen, Micket Nishant, Svea Herbst-Bayliss, 'Short-seller Citron Challenges Course, Adjusts to New Reality' (Reuters, 29 January 2021) <<https://www.reuters.com/article/us-retail-trading-citron-idUSKBN29Y1XR>> accessed 18 February 2024

⁸⁰ *ibid*

⁸¹ *ibid*

Melvin Capital were forced to close out their short positions.⁸² The meme related systemic risks will be further analysed in Chapter 5. The following analysis focuses on meme investors' unique social economic background.

2.3.1 Meme Investors and Financial Inclusion

As the head of the FCA Rathie confirms, the GameStop frenzy represents the rise of a new category of investors in both the UK and the US, whom the regulators 'are not used to engaging with'.⁸³ The FCA believes that the new customers are mainly 18 to 30-year-olds who were largely drawn in by social media.⁸⁴ This argument was confirmed in a BBC report investigating the UK GameStop participants, ranging from an 18 year-old student from Warwick University to a 28 year-old engineer in London.⁸⁵ Instead of focusing on meme investors' age, the following analysis argues that the key feature of meme investors is that meme investors are significantly less wealthy than traditional investors, which explains meme investors' other characteristics.⁸⁶

The BBC found meme investors could invest as little as £30,⁸⁷ which is significantly below the barrier to enter the traditional investment market. As demonstrated in Section 2.2, the UK financial market is traditionally dominated by institutional investors. For individuals to participate in the UK financial market and make informed rational investment decisions, the following two methods are traditionally used. Traditionally, individuals participate in the financial market as clients of financial institutions. Take the Royal Bank of Scotland as an example. One of the bank's services is providing financial advice to customers, which could mitigate the knowledge gap, hence, allow individual investors to make informed rational decisions in the financial market. Yet, this service is exclusively for customers with a minimum of £250,000 in savings and/or investments with the Royal Bank of Scotland;⁸⁸ or a total of £2

⁸² *ibid*

⁸³ Rathie (n 9)

⁸⁴ *ibid*

⁸⁵ Robert Plummer and Natalie Sherman, 'GameStop: Meet the amateur traders fighting Wall Street' (BBC News, 29 January 2021) <<https://www.bbc.co.uk/news/business-55843829>> accessed 18 February 2024

⁸⁶ *ibid*

⁸⁷ *ibid*

⁸⁸ Royal Bank of Scotland, 'Private Banking Service' <<https://www.bankofscotland.co.uk/privatebanking/services.html>> accessed 04 December 2022

million or more in savings and/or investments; or an annual income of £500,000 or more.⁸⁹ This high investment barrier traditionally excludes less wealthy people from accessing the financial market.

Even though the FCA is subject to the Equality Act 2010,⁹⁰ the regulator also emphasises that it ‘does not have a specific responsibility to ensure access for all customers’.⁹¹ It is important to note that the Royal Bank of Scotland’s service is already much more accessible than hedge funds. In the case of White Square Capital, the company did not disclose any contact information on its public website, nor specify its membership requirements. However, the Companies House’s report suggests that two individuals each controlled between 25% and 50% of the fund.⁹² Based on White Capital’s account in 2021, each of them contributed no less than £1 million in this single hedge fund.⁹³ That is to say, individuals must be wealthy to enter the traditional financial market. This investment scope distinguishes sharply from meme investors. In this sense, the emergence of meme investors represents an unprecedented degree of inclusion in the UK financial market. In other words, against the emergence of meme investors, regulators can no longer perceive the public as outsiders in the UK financial market.

Nevertheless, Lin argued that investors exist everywhere, in every form.⁹⁴ They reside in big cities and small towns, financiers and farmers, old retirees, and new workers.⁹⁵ A closer look suggests that these small, unsophisticated, and new workers traditionally are not directly involved in investment decision-making in the traditional market. Rather, such individuals are more likely to be involved via pension funds, who collect money from workers and employers and invest. During the process, an individual pension fund contributor has little control over pension funds not to mention the hedge funds. Take the dispute between the University and College Union (UCU) and Universities Superannuation Scheme (USS) as an example. In this case, the pension fund, USS, claimed to suffer heavy a heavy deficit in its recent investments

⁸⁹ *ibid*

⁹⁰ Equality Act 2010, Schedule 19, Part 1, F294.

⁹¹ FCA, ‘FCA Mission: Approach to Consumers’ <<https://www.fca.org.uk/publication/corporate/approach-to-consumers.pdf>> accessed 04 December 2022

⁹² Companies House, ‘White Square Limited’ <<https://find-and-update.company-information.service.gov.uk/company/05442252>> accessed 04 December 2022

⁹³ White Square Capital LLP, Report and Financial Statements, 31 March 2021.

⁹⁴ Tom C.W. Lin, ‘Reasonable Investor(s)’ (2015) 95(2) *Boston University Law Review* 461

⁹⁵ *ibid*

and managements.⁹⁶ As a result, USS has asked universities and individual lecturers to contribute more to the fund or risk pension cuts.⁹⁷ Even though UCU has organised several strikes against the pension arrangement, there is little individual contributors can do to change the fund's decision.⁹⁸ Thus, under the traditional arrangement, people are not directly involved in the financial market. Subsequently, their moral sentiments were ignored by the market. As Brandeis and the 1912 Pujo Report explained, pension funds are operating with other people's money. It is important to know, as well-educated university staffs, UCU members already enjoy more knowledge privileges than the general public. Yet even UCU members struggle to influence the pension fund's decisions. Against this backdrop, the thesis calls for pension fund contributors to be treated with dignity.

In contrast, Section 2.3.2 argues that meme investors enjoy the privilege to make investment decisions themselves. The freedom allows meme investors' morality to influence the financial market. In this sense, the emergence of meme investors challenges the efficiency focused culture and imbalanced bank-customer relationship in the UK financial market. However, since meme investors cannot invest via traditional financial intermediaries, Sections 3 and 4 find meme investors trade via digital trading platforms and de-centralised smart contracts. In these unregulated channels, meme investors are exposed to excessive platform default risk and underlying asset default risk. This chapter argues that the FCA has a duty to protect meme investors. Chapter 5 warns that meme investors' failure will further intensify social inequality, which is a systemic risk to the UK financial market.

2.3.2 Meme Investors and Moral Transparency

By studying meme investors' online posts during the GameStop frenzy, this subsection argues that unlike traditional investors, meme investors are more likely to include their moral sentiments in making investment decisions. In this sense, the emergence of meme investors represents an opportunity for changing the narrowed focus on efficiency in the UK financial market. The following examples show what meme investors want in their investments. It is important to note that these demands are posted via social media in a rather unofficial manner.

⁹⁶ John Morgan, 'UCU plans fresh strikes over USS' (Times Higher Education, 14 April 2011) <<https://www.proquest.com/trade-journals/ucu-plans-fresh-strikes-over-uss/docview/869769944/se-2> > accessed 18 February 2024

⁹⁷ *ibid*

⁹⁸ *ibid*

At the time of writing this thesis, there are limited research over meme investors. The analysis here provides a theoretical framework and starting point for understanding meme investors. To better understand meme investors' collectiveness and their intentions, it is necessary to conduct further empirical studies in the future. Against this background, Section 6.3 also calls for regulators and researchers to engage meme investors in quantitative studies to better understand meme investors' morality and meet meme investors' needs. This proposal is emphasised again at the end of the thesis, as a direction for future study.

In a post concerning GameStop investors' right to 'smash' short sellers in reddit, r/wallstreetbets, one user commented that,

... maybe short sellers should just target actual shitty companies instead of a fuckin EV (electric vehicle) company or a medicare company or a space American dream company... im not exactly gonna be throwing money at predatory lending companies or cigarettes or some shit.⁹⁹

That is to say, meme investors do not purely judge companies based on financial performance. Social values of the products are also considered. Similar concerns for social values can also be found in Section 4's analysis of the London Capital and Finance mini bond mis-selling, which promised opportunities to support local businesses and the environment. These diverse moral sentiments respond to Chapter 2's critique towards the efficiency-focused culture in the UK financial market. Against this backdrop, the thesis celebrates the emergence of meme investors as a potential force for embracing moral transparency in the UK financial market. In this sense, providing proper financial literacy and legal protection for meme investors is a means for UK financial regulators to support moral transparency.¹⁰⁰

Meanwhile, the GameStop frenzy was often reported as the ordinary people saving jobs and companies against the Wall Street.¹⁰¹ In a post on reddit, the founder of GameStop, Gary Kusin, thanked retail investors for saving the company. The most popular comment with 11,400 likes

⁹⁹ u/rebelo55, 'SEC Chair Gensler Defends Reddit, GameStop Investors' Right to 'Smash' Short Sellers' (r/wallstreetbets)

<https://www.reddit.com/r/wallstreetbets/comments/pp22yo/sec_chair_gensler_defends_reddit_gamestop/>
accessed 18 February 2024

¹⁰⁰ See Section 6's policy recommendation.

¹⁰¹ Plummer (n 85)

is ‘I hope he sends Melvin (the hedge fund shorting GameStop) a Get Fucked card.’¹⁰² This comment contains a direct outrage towards the unfair concentration of wealth in financial intermediaries in the aftermath of the Financial Crisis of 2008. As demonstrated in Chapter 3, this public’s outrage led to the creation of Bitcoin in 2009. The shared feeling could explain why the UK meme investors participated in GameStop, even though the company does not operate in the UK. Against this backdrop, the thesis perceives the emergence of meme investors as the Financial Crisis of 2008’s impact on the UK financial market. Therefore, to properly regulate meme investors, UK financial regulators need to address the cause of the Financial Crisis, social inequality.¹⁰³

The frenzy’s impact on the GameStop’s businesses is not straightforward. To begin with, the GameStop raised substantial amounts of capital in the subsequent months, which allowed the company to conduct a series of reforms to improve its business.¹⁰⁴ According to the company’s website, its new management team has a strong history in e-commerce, where both its CEO and CFO worked for Amazon with experiences in turning the GameStop’s business online.¹⁰⁵ In the 2021 Annual Report, managers believe GameStop offered a unique repairing service for customers, which could be a promising business in the coming years with consumers being increasingly aware of environmental issues.¹⁰⁶ However, it is also undeniable that the company closed 693 stores in 2020,¹⁰⁷ which indicated a tough time. Most importantly, the video game retail industry is highly competitive, which limits retailers’ profit margin.¹⁰⁸ Against the complex business environment, meme investors need more information and knowledge to be

¹⁰² u/makemerichwsbfam4lyf, ‘GameStop founder Gary Kusin Said It Was An ‘Honor’ Retail Investors Targeted the Company: ‘I Just Grabbed Some Popcorn’’ (r/wallstreetbets) <https://www.reddit.com/r/wallstreetbets/comments/l9ta9n/gamestop_founder_gary_kusin_said_it_was_an_honor/?sort=top> accessed 18 February 2024

¹⁰³ As demonstrated in Chapters 1 and 2, information disclosure narrowed focus on efficiency and over-reliance on financial intermediaries led to excessive social inequality, which then caused the Financial Crisis of 2008.

¹⁰⁴ See GameStop Annual Report 2021.

¹⁰⁵ GameStop, ‘Corporate Governance’ <<https://gamestop.gcs-web.com/corporate-governance>> accessed 04 December 2022

¹⁰⁶ GameStop Annual Report 2021.

¹⁰⁷ See GameStop Annual Report 2019, 2020.

¹⁰⁸ GameStop Annual Report 2021.

As a retailer in the gaming industry, GameStop directly competes with manufactures like Sony and Microsoft, as well as retail giants like Amazon and Walmart. Therefore, the market is highly competitive with limited profit margin.

meaningfully involved trading GameStop. Subsequently, Section 6 calls for regulators to enhance financial literacy in the UK to increase meme investors' awareness over risks involved in investments.

2.3.3 Meme Investors' Speculation and Excessive Concentration of Wealth

As mentioned in before, meme investors short squeezing traditional investors confirms Chapter 3's concern that the public's involvement in finance can be speculative. Against this backdrop, Hasso described the GameStop frenzy as the first predatory trading organised by meme investors.¹⁰⁹ Since the financial market is a complex, interdependent web of contractual obligations, linking market participants to one another,¹¹⁰ the hedge funds' default may have far-reaching impacts on third parties. Therefore, meme investors can trigger a systemic failure like 2008. As will be demonstrated in Chapter 5, the existing regulatory system in the UK is designed to monitor systemic risks within financial institutions via financial institutions (CCPs). As meme investors do not rely on traditional financial intermediaries to trade, the regulators could find it difficult to monitor meme-related systemic risks.

Nevertheless, it is unfair to blame meme investors for squeezing hedge funds or even forbid meme investors from trading crypto derivatives. As described by Tenev, the co-founder of Robinhood, an online trading platform for meme investors during the GameStop frenzy, many Americans feel that the system is stacked against them and no matter what, Wall Street always wins.¹¹¹ Excessive risks taking is a culture in the UK and US financial market. Meme investors are merely following this traditional excessive speculation. Financial regulators should focus on changing this culture, instead of punishing meme investors.

To conclude, meme investors are significantly less wealthy than traditional investors. Restricted by their wealth, meme investors have little access to traditional financial intermediaries. But thanks to this independence, meme investors also include diverse sentiments in investment decision makings. In this sense, the emergence of meme investors represents the public's desire for financial inclusion and equality. Against this backdrop, the chapter calls for UK financial regulators to protect meme investors to support moral transparency.

¹⁰⁹ Hasso (n 77)

¹¹⁰ Katharina Pistor, 'A Legal Theory of Finance' (2013) 41(2) *Journal of Comparative Economics* 315

¹¹¹ BBC, 'Robinhood Boss Says GameStop Episode "Unacceptable"' (BBC, 19 February 2021) <<https://www.bbc.co.uk/news/business-56116545>> accessed 18 February 2024

More discussion on digital trading platforms in Section 2.

3. Meme Investors and Digital Trading Platforms

It is important to note that Hasso, Muller, Pelster and Warkulat found that participants in the GameStop frenzy were also crypto traders, high-volatility traders and short sellers.¹¹² Section 12.3 has already shown that meme investors cannot invest as clients of traditional financial intermediaries nor as members of traditional exchanges. Therefore, how do meme investors access these investment opportunities? This chapter recognises two channels, centralised digital trading platforms and de-centralised smart contracts, both of which have high fraud risks.¹¹³ In analysing the GameStop frenzy, Section 1 mentioned a digital trading platform, Robinhood. By comparing digital trading platforms with traditional exchanges, this section argues that digital trading platforms respond to the public's desire for financial inclusion, but also expose meme investors to excessive platforms default risks. After demonstrating the FCA's duty to protect meme investors, Section 6 then calls for the FCA to better regulate digital trading platforms.

It is important to note that different digital trading platforms may offer different ranges of products. For instance, Robinhood offers the opportunity to trade stocks, cryptos and derivatives,¹¹⁴ whereas the UK platform Coinjar only deals with cryptos.¹¹⁵ In response to the FCA's attempt to register crypto firms in the UK,¹¹⁶ this section mainly uses the UK crypto digital trading platforms as examples. This crypto focus also echoes the thesis' emphasis on the challenges and opportunities blockchain brings to the UK financial market. But the following discussions on digital trading platforms' structures and meme investors' exposure to platforms default risks are applicable to non-crypto market segments.¹¹⁷

¹¹² Hasso (n 77)

Similarly, Libich and Lenten also confirm that meme investors in the GameStop Frenzy are the same group of investors as digital platform crypto derivatives traders. All crypto derivatives related issues will be discussed together in Chapter 4. Jan Libich and Liam Lenten, 'Bitcoin, Tesla and Gamestop Bubbles as a Flight to Focal Points' (2021) 22 *World Economics* 83

¹¹³ The two channels are analysed in Sections 2 and 3 respectively.

¹¹⁴ Robinhood, <<https://robinhood.com/us/en/about/crypto/>> accessed 04 December 2022

¹¹⁵ Coinjar, 'CoinJar Buy Bitcoin & Crypto' <<https://www.coinjar.com/uk/>> accessed 04 December 2022

¹¹⁶ The FCA, 'Registered Cryptoasset Firms' <<https://register.fca.org.uk/s/search?predefined=CA>> accessed 04 December 2022

¹¹⁷ To support this argument, Robinhood will be included in the conversation to highlight the similarities among digital trading platforms.

3.1 Exchanges and Information Disclosure

Hollywood movies often portray exchanges with a giant computer screen displaying stock prices.¹¹⁸ In front of the screen, a large crowd of traders stand in there, looking nervous and yelling prices. The physical attendance and the yelling have been replaced by digital forms, where traders connect their devices to the exchange's service, hence, receiving price information and placing orders via exchanges' online systems.¹¹⁹ Nevertheless, the movies capture a key feature of exchanges, a marketplace where prices are publicly displayed.¹²⁰ This information availability distinguishes exchanges from the over-the-counter (OTC) market, where no information is publicly displayed.¹²¹ Section 3.2 finds digital trading platforms offering similar price information to meme investors,¹²² which makes the two trading channels comparable.

A trader can place an offer publicly in the hope that someone would agree on the terms and trade with him. This is a simplified version of how an order-driven market, like the US New York Stock Exchange (NYSE) works.¹²³ Investors display their buy and sell orders in a public order book.¹²⁴ However, this method cannot guarantee if or when an investor can find a counterparty. To avoid the uncertainty, the trader can agree on an offer left by other traders in the market. Those who leave the offer in the market are called price makers. Price makers facilitate the functioning of markets, by matching buyers with sellers and determining the prices of assets.¹²⁵ On one hand, the existence of price makers increases trading opportunities by reducing the time cost and the uncertainty for other traders. On the other hand, by constantly displaying prices, price makers also enable the effective pricing of assets. In this sense, the term price maker is a synonym of market maker.¹²⁶ This quote-driven market, where market makers

¹¹⁸ See for example, the movie *The Big Short* and *The Wolf of Wall Street*.

¹¹⁹ See for example, Michael Lewis, *Flash Boys: Cracking the Money Code* (Penguin Books 2014)

¹²⁰ Giles Jewitt, 'Introduction to Foreign Exchange' in *FX Derivatives Trader School* (Wiley 2015)

¹²¹ This OTC market also exists in the crypto world but only opens its gate to super-rich individuals and institutions. In this sense, the establishment of digital trading platforms echoes the public's desire for financial inclusion. More discussion on this topic in Section 3.2.

¹²² Although in a less regulated environment, which jeopardises the credibility of the information disclosed.

¹²³ Yu Chuan Huang and Jian-Hsin Chou, 'Order Imbalance and Its Impact on Market Performance: Order-Driven vs. Quote-Driven Markets' (2007) 34(9-10) *Journal of Business Finance & Accounting* 1596

¹²⁴ *ibid*

¹²⁵ Michael Lewis, *Flash Boys: Cracking the Money Code* (Penguin Books 2014) 19

¹²⁶ *ibid*

display their bid and offer prices in public for investors, is the basic structure of the UK London Stock Exchange (LSE).¹²⁷ This market structure further confirms Chapter 2 Section 3's argument, the UK financial market relies on financial institutions as information producers.

As of August 2022, two crypto-related instruments are traded on the LSE.¹²⁸ The LSE closely monitors the instruments provider and discloses relevant information to facilitate transactions.¹²⁹ Such information includes the company providing these products, overall product trading volume and previous transaction details.¹³⁰ In comparison with digital trading platforms,¹³¹ the crypto products traded on the LSE are better regulated. Yet, this regulated market is only accessible to traditional investors. In other words, traditional investors have access to more information and better legal protection, leaving meme investors disproportionately affected by excessive default risks in the digital trading platforms. Again, in this scenario, crypto is not perceived as an innovative distributed ledger-based payment innovation, but merely speculative financial assets being trading in centralised intermediaries. This situation echoes Chapter 3, Section 6's warning that in the absence of proper regulatory intervention, technological innovation could be used to enhance existing social inequality. Against soaring inequality in the UK post-COVID, the government cannot risk letting inequality grow uncontrolled. UK financial regulators need to step in and tackle the inequality between meme investors and traditional investors.

3.2 The UK Crypto Digital Trading Platforms

Since January 2020, the FCA requires crypto firms to be registered under Money Laundering, Terrorist Financing and Transfer of Funds (Information on the Payer) Regulations 2017

¹²⁷ Jewitt (n 120)

¹²⁸ The products are DAPP VANECK UCITS ETFS PLC CANECK CRYPTO AND BLOCKCHAIN UCITS ETF and DAGB VANECK UCITS ETFS PLC CANECK CRYPTO AND BLOCKCHAIN UCITS ETF.

LSE, 'VanEck' <<https://www.londonstockexchange.com/stock/DAPP/van-eck-global/company-page>> accessed 04 December 2022. LSE, 'VanEck' <<https://www.londonstockexchange.com/stock/DAGB/van-eck-global/company-page>> accessed 05 August 2022

¹²⁹ LSE, 'Compare Markets for Listing Funds' <<https://www.londonstockexchange.com/raise-finance/investment-funds/compare-markets-listing-funds>> accessed 04 December 2022

¹³⁰ *ibid*

¹³¹ See Section 4.2.

(MLRs).¹³² By the end of October 2021, fourteen firms¹³³ are registered with the FCA under this new rule. This subsection finds three FCA registered firms acting as crypto exchanges for meme investors, whose structures are a vague mixture of the two traditional exchanges' structures with less credibility. The following paragraphs unveil meme investors' exposure to excessive platform default risks and conflicts of interest in digital trading platforms. As already illustrated in Chapter 3, the FCA cannot effectively oversee the de-centralised crypto transactions via centralised platforms. Yet, Section 6 finds the FCA may knowingly turn a blind eye to meme investors' risks exposures, which echoes Chapter 2's critique towards the efficiency-focused agency centralised information disclosure in the UK financial market. Against this backdrop, the chapter calls for the FCA to strengthen crypto firms' report duty to reduce platform default risks.

3.2.1 Structures of Digital Trading Platforms

Before demonstrating meme investors' exposure on digital trading platforms, it is necessary to first understand how the platforms operate. Gemini, one FCA registered crypto firm, states it only matches orders between buyers and sellers.¹³⁴ Unmatched orders rest on the user's order book waiting to be matched in the future or cancelled.¹³⁵ Thus, Gemini is a pure quote-driven market. It is important to note that Gemini does not have a minimum investment size for investors.¹³⁶ The existence of digital trading platforms provides a channel for less wealthy meme investors to access investments. It is also interesting to note that Gemini offers the

¹³² The FCA (n 116)

¹³³ The registered companies are: Archax Ltd, Ziglu Limited, Gemini Europe Ltd, Coinpass Limited, Gemini Europe Services Ltd, Commercial Rapid Payment Technologies Limited, Iconomi Ltd, Digivault Limited, Zodia Custody Limited, Bitpanda Custody Ltd, Wintermute Trading Ltd, CoinJoar Uk Limited, Ramp Swaps Limited, Fibermode Limited, Solidi Ltd. As will be illustrated later in this part, while the FCA lists 15 firms on its website, Gemini Europe Services Ltd is suspected to be a duplicate of Gemini Europe Ltd, as the two companies share the same website. After detecting this duplication, the thesis only recognises 14 FCA registered crypto firms.

¹³⁴ Gemini, 'User Agreement' (22 September 2021) <<https://www.gemini.com/legal/user-agreement#section-welcome-to-gemini>> accessed 17 November 2021

¹³⁵ *ibid*

¹³⁶ For transaction fees, Gemini has a category for order amount below \$10. That is to say, investors can place an order as small as below \$10.

Gemini, 'Mobile Fee Schedule' (Gemini, 12 August 2021) <<https://www.gemini.com/fees/mobile-fee-schedule>> accessed 05 August 2022

world's first stable coin, 'Gemini coin'.¹³⁷ Each issued Gemini coin is backed by one dollar via smart contracts to ensure the value of the coin.¹³⁸ Thus, in theory, the value of Gemini coin always equals one dollar. At the end of 2021, Gemini promised to pay Gemini coin users 8.05% interest under the Gemini Earn scheme.¹³⁹ At the time of writing, traditional banks like TSB have stopped paying interest to most current accounts.¹⁴⁰ Yet, the FCA's crypto survey in January 2021 suggests that stable coins are not popular among investors.¹⁴¹ Section 3.2.2 argues that high default risk on Gemini could be a reason why investors are reluctant to engage with this high return stable coin. Therefore, if the FCA could properly regulate the crypto firms' default risks in the future, stable coins and crypto digital platforms may become attractive investment alternatives to traditional bank deposits.

Another FCA registered crypto trading platform, Coinjar mainly operates as a matching book between buyers and sellers like Gemini.¹⁴² Orders are placed at the price nominated by traders themselves. The buyer and sellers are matched by the system based on price and time. However, Coinjar also allows itself to become the counterparty, hence, provides liquidity.¹⁴³ It is unclear if Coinjar will set its own bid/offer prices or take over as the counterparty for unmatched orders. If Coinjar does set its own prices, then the place carries a double role as an exchange and market maker.

Finally, the last FCA registered crypto trading platform, Ziglu, operates under a different structure. In its terms and conditions, Ziglu implies that the price information on its platform could come from 'third-party exchange(s) and/or information provider(s)'.¹⁴⁴ But the platform does not specify who these external information providers are, and whether the information providers also acted as the counter-parties in the transaction. It is important to note that it takes more than one market maker to properly price an asset, hence, to avoid single player

¹³⁷ Gemini, 'Gemini Dollar' <<https://www.gemini.com/dollar>> accessed 17 November 2021

¹³⁸ *ibid*

¹³⁹ Gemini, 'Gemini Earn' <<https://www.gemini.com/earn>> accessed 17 November 2021

¹⁴⁰ TSB, 'Rates and Charges' <<https://www.tsb.co.uk/help/rates-and-charges/current-accounts/>> accessed 17 November 2021

¹⁴¹ The FCA (n 116)

¹⁴² Coinjar, 'Legal' <<https://www.coinjar.com/legal>> accessed 04 December 2022

¹⁴³ *ibid*

¹⁴⁴ Ziglu, 'Customer Terms version 2.0.0' <<https://www.ziglu.io/customer-terms#Section-B:-Exchange-Transaction-Terms>> accessed 17 November 2021

manipulating prices.¹⁴⁵ Thus, it is alarming Ziglu uses the word ‘provider(s)’,¹⁴⁶ which cannot even guarantee the prices set by market makers are fair.

It is worth noting that Ziglu’s structure resembles Robinhood claiming that the price information disclosed on their website are from ‘securities exchanges and markets, third party information providers, and other third parties that distribute or transmit Market Data.’¹⁴⁷ Like Ziglu, Robinhood does not disclose the identities of the market makers. In the aftermath of the GameStop frenzy, the US Securities and Exchange Commission found that market makers outside the regulated exchanges manipulated retail prices, and profited from this conflicts of interest through Robinhood.¹⁴⁸ The following analysis warns against similar unfair exploitation in the UK digital trading platforms. Section 5 then argues that the FCA may turn a blind eye to the lack of transparency in Ziglu’s operation as a trade-off for information against crypto money laundering and terrorist financing. This approach follows the efficiency-focused agency approach traditional in the UK financial market. But it does not work in the de-centralised crypto market.¹⁴⁹

3.2.2 Market Makers on Digital Trading Platforms

Meanwhile, this subsection found one company, GSR, who claims to be a leading market maker in the crypto market for over sixty platforms.¹⁵⁰ No names of GSR’s service users are given. One possibility is that like the LSE, Ziglu is also a quote-driven market with market makers like GSR providing liquidity to Ziglu users.

According to Article 4.1(7) MiFID II ‘market maker’ means a person ‘who holds himself out on the financial markets on a continuous basis as being willing to deal on own account by buying and selling financial instruments against that person’s proprietary capital at prices defined by that person.’ Anyone conducting the market making business in transferable

¹⁴⁵ More discussions see Section 5.2.

¹⁴⁶ Coinjar (n 142)

¹⁴⁷ Robinhood, ‘Terms and Conditions’ <<https://cdn.robinhood.com/assets/robinhood/legal/Robinhood%20Terms%20and%20Conditions.pdf>> accessed 08 August 2022

¹⁴⁸ The US SEC, Staff Report on Equality and Options Market Structure Conditions in Early 2021 (14 October 2021)

More discussions on GameStop, see Section 4.2.

¹⁴⁹ See Section 5.

¹⁵⁰ GSR, ‘Crypto Market Making’ <<https://www.gsr.io/trading/market-making/>> accessed 18 February 2024

securities; money-market instruments; units in collective investment undertakings and securities, currencies, cash-settled and commodities related derivatives, are regulated by the FCA.¹⁵¹ Chapter 5 will further examine crypto derivatives' impact on systemic risks in the UK financial market. This Chapter focuses on digital trading platforms as the new trading venue and meme investors as the new players in the UK financial market.

Traditionally, market makers are strictly regulated to create an environment for fair trading both before¹⁵² and after 2008.¹⁵³ However, since crypto market makers are not trading in the regulated exchange and crypto a non-regulated financial asset, such strict regulations are not applicable to the crypto market makers. The FCA's registration requirement for crypto firms only concerns money laundering and counter-terrorist purposes.¹⁵⁴ Thus, neither the crypto exchange nor crypto market makers are regulated like the traditional players.

Furthermore, in the traditional markets, the exchange also carries the role of monitoring market makers.¹⁵⁵ For instance, the LSE has high standards in selecting market makers, restrictions on market makers' bid and offer margins and minimum market making sizes.¹⁵⁶ Yet, crypto exchanges do not give information on their market makers. Hence, it is unclear whether such market monitoring exists between crypto exchanges and crypto market makers. Against this background, crypto market makers risk abusing their market making power.

Going back to GSR, the company claims to be a leading market maker for crypto exchanges, while advertising its OTC serves as a channel for big crypto holders to trade in a better price.¹⁵⁷ These two businesses contain a conflict of interest, where GSR could keep prices high for retail customers to facilitate wholesale customers' transactions. As criticised by the 1912 Pujo Report and Judge Brandeis, such unfair price manipulation would further enhance the concentration of

¹⁵¹ The FCA Handbook, 'Market Making Activities' <<https://www.handbook.fca.org.uk/handbook/glossary/G2969.html>> accessed 04 December 2022

¹⁵² Andy Snella and Ian Tonks, 'Testing for Asymmetric Information and Inventory Control Effects in Market Maker Behaviour on the London Stock Exchange' (1998)5(1) *Journal of Empirical Finance* 1

¹⁵³ London Stock Exchange, 'Compliance and Enforce' in Rules of the London Stock Exchange (31 January 2022) <https://docs.londonstockexchange.com/sites/default/files/documents/rules_of_the_london_stock_exchange_effctive_31_january_2022_0.pdf> accessed 18 February 2024

¹⁵⁴ The FCA (n 116)

¹⁵⁵ See Section 5.2.

¹⁵⁶ More discussions on this issue see Chapter 5, Section 2.

¹⁵⁷ GSR (n 150)

wealth in society.¹⁵⁸ This situation also echoes Chapter 2's argument that information disclosure only concerns insiders in the UK financial market. The public's desire for financial inclusion and equality is overlooked. To ease social inequality and support financial inclusion, this chapter calls for regulators to embrace moral transparency and aid meme investors.

While crypto market makers are operating largely outside the spotlight, the US Securities and Exchange Commission found that market makers outside the regulated exchanges manipulated retail prices and profited from conflict of interests in the GameStop frenzy.¹⁵⁹ Thus, in the absence of proper regulatory intervention, crypto cannot achieve its valuable moral transparency in practice.

Furthermore, the LSE keeps a close eye on monitoring and controlling market makers' short positions to balance between market stability and liquidity, which is a crucial indicator of the counterparties' default risks in the exchange.¹⁶⁰ Neither Zugli nor GSR give any information on how such short positions and default risks are managed. Even though Moore, Christin and Szurdi did not distinguish exchanges' default from market makers, their study confirmed that among 80 Bitcoin exchanges established between 2010 and 2015, nearly half have since closed, with customers' accounts sometimes wiped out.¹⁶¹ Thus, by investigating the liquidity providers in the crypto exchanges, this section sheds light on where the default risk comes from, hence, gives direction for Chapter 4 to discuss retail investors' protection.

It is important to highlight that, in addition to market making, GSR also commits to connect buyers and sellers in the OTC crypto market, where GSR promises that contractual parties will benefit from better prices.¹⁶² Such VIP services may cause a conflict of interest with GSR's role as a market maker in crypto exchanges. By comparing prices displayed in different crypto exchanges, Kabašinskas and Šutienė confirmed substantial prices differences across platforms, which could contain opportunities for arbitrage, which allows one to profit from price

¹⁵⁸ See Chapter 3 Section 2.

¹⁵⁹ The US SEC (n 148)

More discussions on GameStop, see Section 4.2.

¹⁶⁰ See Section 5.2.

¹⁶¹ Tyler Moore, Nicolas Christin and Janos Szurdi, 'Revisiting the Risks of Bitcoin Currency Exchange Closure' (2018) 18(4) *ACM Transactions on Internet Technology* <<https://dl.acm.org/doi/10.1145/3155808>> accessed 04 December 2022

¹⁶² GSR (n 150)

differences across markets.¹⁶³ The substantial differences implied that crypto exchanges may not impose strict bid/offer spread restrictions or position restrictions on market makers. Thus, GSR could take advantage of the information it gains from the OTC market to manipulate prices in crypto exchanges. Regulators should investigate such crypto market makers to protect investors and market orders. Like in the bitcoin and Ethereum market, in the absence of proper regulation, technological innovation can be hijacked by traditional investors as a tool to re-enforce the concentration of information, wealth and power in society.

3.2.3 Excessive Default Risks on Digital Trading Platforms

In the UK, all types of companies must file accounts with the Registrar of Companies for information disclosure under the Companies Act 2006 (CA 2006).¹⁶⁴ The accounts include a balance sheet and a profit and loss account for the financial period and notes.¹⁶⁵ The information contained in the accounts would in theory be used by investors to measure the performance of the company, hence, decide which crypto exchange to trade on. By studying the FCA registered crypto firms' accounts, this subsection further argues that lack of transparency in crypto digital trading platforms disproportionately affects meme investors. This is because traditional investors can choose to deal with crypto firms with well-prepared accounts, while firms open to meme investors (Ziglu, Coinjar and Gemini) do not prepare their accounts in the same manner.

Section 6 then argues that the FCA may have turned a blind eye to the problematic accounting practises in these firms, in exchange for the firms keeping the FCA informed with crypto transactions. Yet, this agency approach cannot work in this de-centralised crypto market. To regain meme investors' trust, the FCA should embrace moral transparency and closely monitor the registered firms' accounts.

3.2.3.1 Gemini Barely Has an Account

Gemini only filed one account in December 2019, where the company's all registered assets was £1 cash in hand.¹⁶⁶ This poor capital structure is not suitable for Gemini's business purpose.

¹⁶³ Audrius Kabašinskas and Kristina Šutien, 'Key Roles of Crypto-Exchanges in Generating Arbitrage Opportunities' (2021) 23(4) *Entropy* 455

¹⁶⁴ Geoffrey Morse, *Palmer's Company Law* (25th ed, Sweet & Maxwell 2012) 9051
CA 2006, s 393

¹⁶⁵ Brenda Hannigan, *Company law* (4th ed, OUP 2016) 448, 449

¹⁶⁶ Gemini Annual Report 2019. (Companies House) <<https://find-and-update.company-information.service.gov.uk/company/11497305/filing-history>> accessed 24 October 2022

As demonstrated before, Gemini promised as high as over 8% interest rate to those who deposit their crypto with Gemini Earn. With only £1 capital, Gemini cannot pay this interest. If this account is true, then Gemini has an extremely high default risk. By listing Gemini as a FCA registered crypto firm, the FCA may face several challenges in fulfilling its duty to overseeing the UK financial market.

To begin with, the FCA may find itself liable in future for meme investors' losses over FCA registered crypto firms' collapses, where investors citing the LCF scandal and ask for the FSCA compensation. While the FCA may argue that Gemini's account is publicly available. Thus, in theory, any investors can and should do their own due diligence and check the account before investing on Gemini coin. Yet, if the FCA does not expect investors to use Gemini, then why bother to register the company for anti-money laundering and counter-terrorist concerns? The FCA cannot simply walk away without controversy in such a scenario. Finally, one explanation is that the account failed to reflect Gemini's real financial position. The company has more undisclosed assets and liabilities. Yet, this assumption cannot be further proved as Gemini has yet to file any accounts since then. Failing to disclose a true and fair picture of the company's financial situation not only raises transparency concern for investors, but also breaks Article 393 CA 2006. As will be demonstrated in Section 3.2.4, regulators may be reluctant to enforce the law as regulators still rely on Gemini for information.

3.2.3.2 Meme Investors and Traditional Investors' Different Access to Audited Accounts

In comparison with Gemini, Coinjar's balance sheet actually stated the company has over £1 million cash in hand and over £9 million of investments.¹⁶⁷ Thus, at least, Coinjar is much better capitalised than Gemini. Yet, two problems are worth noticing in this account. Firstly, Coinjar's balance sheet does not specify the composition of its investments. Thus, it is impossible to see if Coinjar actually has enough cryptos to cover its short positions as a market maker.

Secondly, Coinjar's account is not audited.¹⁶⁸ According to Section 393 CA 2006, directors and auditors are responsible for preparing a true and fair account. Directors shall only approve the accounts if they are satisfied that the accounts give a true and fair view of the assets, liabilities, financial position and profit or loss.¹⁶⁹ Auditors share this duty when preparing the auditors'

¹⁶⁷ CoinJar Annual 2020, (Companies House) <<https://find-and-update.company-information.service.gov.uk/company/08905988/filing-history>> accessed 18 February 2024

¹⁶⁸ *ibid*

¹⁶⁹ CA 2006, s 393 (1)

report.¹⁷⁰ Under this arrangement, directors represent the interest of the shareholders.¹⁷¹ The statutory audit, as an external professional intervention, provides assurance to the accounts.¹⁷² Therefore, investors can rely on the accounts to measure the efficiency and stability of the company and make the investments.¹⁷³

Yet, Coinjar is categorised as a small company under Section 382 Companies Act 2006.¹⁷⁴ Subsequently, Section 477 exempts Coinjar's account from audition. However, Coinjar may have cooked its corporate structure for this exemption. This is because, a company should satisfy two or more of the following requirements to be treated as a small company:¹⁷⁵

1. Turnover: not more than £10.2 million
2. Balance sheet total: not more than 5.1 million
3. Number of employees: not more than 50.

In its account, Coinjar has £10.368 million of assets, which is right over the legal limitation.¹⁷⁶ Yet, Coinjar claimed to have **zero** employee during the financial year 2020.¹⁷⁷ The statement is extremely suspicious as the company has a picture of over fifteen people as the CoinJar team on its website, and is advertising more positions right on the same page.¹⁷⁸ Furthermore, CoinJar gives no indication as to the company's annual turnover.¹⁷⁹ But on its website, CoinJar states that over £750 million traded via the platform,¹⁸⁰ without specifying the trading period. Considering the company was only established in 2013, it is mathematically impossible the company never had over £10.2 million annual turnover during the eight-year period. Even though the FCA emphasises that the registration is only for anti-money laundering and terrorist financing purposes, the FCA still has a duty to make sure CoinJar is operating within the existing legal framework. Therefore, it is fair to conclude, CoinJar filed false reports to avoid

¹⁷⁰ CA 2006, s 393 (2)

¹⁷¹ CA 2006, s 172

¹⁷² CA 2006, s 495 (3)

¹⁷³ Nandakumar Ankarath, Kalpesh J. Mehta, T. P. Ghosh and Yass A. Alkafaji, *Understanding IFRS fundamentals international financial reporting standard* (Hoboken, N.J.: Wiley, 2010) 12

¹⁷⁴ CoinJar Annual 2020

¹⁷⁵ CA 2006, s 382(3)

¹⁷⁶ *ibid*

¹⁷⁷ *ibid*

¹⁷⁸ CoinJar, 'CoinJar Careers' <<https://www.coinjar.com/careers>> accessed 04 December 2022

¹⁷⁹ CoinJar Annual 2020

¹⁸⁰ CoinJar, 'Who We Are' <<https://www.coinjar.com/uk/about-us>> accessed 04 December 2022

audits. Against this background, it is reasonable for anyone to question the merit of CoinJar's account all together.

The same strategy is used by Ziglu, the third FCA registered crypto exchange.¹⁸¹ Like CoinJar, Ziglu also claims to be a small company, hence, exempted from audit.¹⁸² Yet, while CoinJar is suspected to include its crypto asset as investments, Ziglu may categorise crypto as intangible assets of the firm.¹⁸³ The difference between the two is that CoinJar treated crypto investments as current assets, while Ziglu treats crypto as fixed assets.¹⁸⁴ This liquidity is crucial in assessing default risk, as companies with little current assets are more likely to run into illiquidity. Similar controversy happened in the derivatives market when deciding whether CDS should be recorded in its historical value or market-to-market price.¹⁸⁵ The accounting and reporting dispute accelerated the Financial Crisis of 2008.¹⁸⁶ As more non-crypto companies started holding crypto as assets, how to fairly disclose crypto in financial reports is also of systemic importance because of market contingency and social inequality. This question will be further analysed in Chapter 5.

In contrast, another registered firm who only deals with institutional investors, Archax has had its account audited.¹⁸⁷ Due to the excessive uncertainty involved in crypto prices, it is questionable whether a crypto's value can be properly reflected in the account. Nevertheless, it is unarguable that Archax's audited account is more trustworthy than Gemini, CoinJar and Ziglu. Even in the newly established crypto market, meme investors are already disproportionately exposed to excessive default risks than traditional investors. Regulators need to step in to ease this inequality. To level-up the playing field for meme investors, Section 6 calls for regulators to strengthen reporting requirements among the FCA registered digital trading platforms.

¹⁸¹ Ziglu Annual Report 2020, (Companies House) <<https://find-and-update.company-information.service.gov.uk/company/09204810>> accessed 04 December 2022

¹⁸² *ibid*

¹⁸³ *ibid*

¹⁸⁴ *ibid*

¹⁸⁵ See Chapter 5, Section 3.

¹⁸⁶ *ibid*

¹⁸⁷ Archax Annual Report 2020, (Companies House) <<https://find-and-update.company-information.service.gov.uk/company/11302455/filing-history?page=1>> accessed 18 February 2024

3.2.4 A Trade-Off that No Longer Works

Against these red flags, one may ask, how could the potential accounting frauds not raise the regulators' attention? On one hand, this could be because the overall meme market segment has yet to raise regulators' attention.¹⁸⁸ On the other hand, it is also possible that the FCA overlooked the accounting issues, as the FCA still relies on intermediaries for information over anti-money laundering and terrorist financing.¹⁸⁹ However, this agency approach cannot work effectively in the de-centralised crypto payment system. This is because, as indicated in Chapter 3, the de-centralised crypto payment system does not need a firm to operate as the intermediary. Crypto holders do not need to deposit their crypto in intermediaries, like traditional banks. Rather, crypto is stored in crypto wallets.¹⁹⁰ For storing large amounts of crypto, one can download the blockchain onto a special flash drive, the hardware wallet.¹⁹¹ So long as the hardware wallet is off-line, the crypto is secured as no one can copy the blockchain and add new blocks.¹⁹² If the holder wishes to transfer the Bitcoin, they can connect the wallet to the Internet or exchange the flash drive in person. No intermediaries like the FCA registered firms are needed for such transactions. Thus, even with fourteen registered firms, the FCA cannot effectively monitor money-laundering and terrorist financing issues in the crypto market. This focus on protecting meme investors and easing social inequality in the UK financial market. Providing a solution against crypto money-laundering risks is a crucial topic yet beyond the discussion of this thesis.

One drawback of a hardware wallet is it is relatively expensive.¹⁹³ Even so, small crypto holders can still store crypto in mobile-wallets.¹⁹⁴ Mobile wallets are single function apps, which allow users to receive, store, and send crypto payments.¹⁹⁵ Take Bitcoin wallet as an example. The app is free for download in Apple Store and Google Store.¹⁹⁶ However, unlike ordinary

¹⁸⁸ As demonstrated in Section 2.

¹⁸⁹ As stated in Section 3.2.

¹⁹⁰ Bitcoin.com, 'Choose Your Bitcoin Wallet' <<https://bitcoin.org/en/choose-your-wallet>> accessed 18 February 2024

¹⁹¹ *ibid*

¹⁹² *ibid*

¹⁹³ *ibid*

¹⁹⁴ *ibid*

¹⁹⁵ As will be illustrated in Section 3, these mobile crypto users are meme investors who have limited access to traditional financial institutions. In this sense, crypto represents a financial inclusion.

¹⁹⁶ *ibid*

apps, such wallets can be designed based on blockchain technology.¹⁹⁷ Hence, they are decentralised apps (DApps), where users do not need to go through any registration process to access them. For receiving crypto payments, the DApp produces a code and a QR code, which the other payment maker could scan.¹⁹⁸ Similarly, to make a payment, the DApp requires the user to first import their original blockchain, then send the payment to the receiver's address.¹⁹⁹ Some mobile wallets like the ETH Wallet even allow users to buy ETH in the DApp.²⁰⁰ Thus, if one intends to use crypto for illegal purposes, they can easily avoid the FCA's monitoring by using a DApp. The possibility of crypto being abused for money laundering is consistent with Chapter 3's discussions over crypto transparency controversy. As emphasised throughout the thesis, moral transparency is not the panacea to all diseases. Yet, the existence of decentralised wallets and DApps suggests that the FCA registered firms have little coverage over crypto transactions.

In this specific scenario, equality and efficiency are not competing interests, because FCA cannot effectively acquire information against crypto money laundering risks even if the regulator is willing to sacrifice meme investors' interest. Therefore, a better strategy for the FCA would be to strengthen the reporting requirements among registered crypto firms and protect meme investors against platforms' default risks.

Chirulli also suggests that FCA regulated crypto companies' poor accounting practices could be influenced by the FCA's attempt to encourage innovation and financial inclusion.²⁰¹ It is undeniable that keeping a blind eye on such accounting practice sharply reduces the crypto companies' operational costs, creating a more friendly environment for the companies to grow. Since the three registered firms (Ziglu, Coinjar and Gemini) mainly serve retail investors, they nevertheless represent an inclusion.²⁰² However, the problematic accounts could exposure meme investors to excessive platforms' default risks, hence, discourage crypto holders to use the FCA registered firms. This situation further confirms Fantazzini and Calabrese's study that

¹⁹⁷ Ethereum, 'Ethereum Wallets' <<https://ethereum.org/en/wallets/>> accessed 04 December 2022

¹⁹⁸ *ibid*

¹⁹⁹ *ibid*

²⁰⁰ *ibid*

²⁰¹ Paola Chirulli, 'FinTech, RegTech and SupTech: Institutional Challenges to the Supervisory Architecture of the Financial Markets' in Iris Chiu and Gudula Deipenbrock (eds), *Routledge Handbook of Financial Technology and Law* (Routledge 2021)

²⁰² See Section 2.

registration with the regulators does not reduce a crypto exchange's default risk.²⁰³ Rather, users are safer with an older exchange.²⁰⁴ Therefore, by choosing an FCA registered firm, over unregulated older crypto exchanges, investors give up their privacy to the regulators in return for nothing. Thus, investors are more likely to turn to unregistered firms or de-centralised wallets for crypto transactions. Against this background, the registered crypto firms are unlikely to bloom nor keep the FCA effectively informed. Thus, sacrificing transparency for innovation or inclusion cannot work.

To conclude, digital trading platforms significantly enriches less wealthy meme investors' financial investment options. Similar to traditional exchanges, digital trading platforms are also marketplaces where prices are displayed. However, digital trading platforms are less regulated, which exposes meme investors to market makers' conflicts of interest and platforms' default risks. In the absence of proper regulation, digital trading platforms risk intensify social inequality. The lack of regulatory intervention could be related to the regulators' information reliance on intermediaries or an attempt to encourage innovation. But to achieve these regulatory purposes, regulators cannot let platforms unfairly exploit meme investors. Section 6 then calls for strengthening the reporting requirements on digital trading platforms to reduce default risks and encourage transactions.

²⁰³ Dean Fantazzini and Raffaella Calabrese, 'Crypto Exchanges and Credit Risk: Modelling and Forecasting the Probability of Closure' (2021) 14(11) *Journal of Risk and Financial Management* 516

²⁰⁴ *ibid*

4. Meme Investors and Smart Contracts

Section 3's discussion unveils meme investors' risks exposure on centralised digital trading platforms. Through the example of SQUID scam, this section unveils meme investors' risks exposure on decentralised smart contracts. It is important to note that according to the Bank of England, there are thousands of different types of crypto in the market.²⁰⁵ While most people entering the crypto market with Bitcoin and Ethereum, they soon turn into trading other cryptos like SQUID.²⁰⁶ Thus, while SQUID does not have a potential macro-economic impact in the same manner as Bitcoin and Ethereum, this market segment is significant for meme investors.

In September 2021, Netflix launched the trilling drama series, *Squid Game*, a story about hundreds of cash-strapped people enrolled in deadly games.²⁰⁷ While failing the games would cost one's life, the final survivor takes home 45.6 million Korean Won (approximately £28.2 million).²⁰⁸ The drama became a worldwide sensation, with over 142 million household views globally.²⁰⁹ Inspired by this drama, in October 2021, a crypto, SQUID was launched, promising holders the opportunity to play the Squid Game online and profit.²¹⁰ Such launching is known as an initial coin offering (ICO).²¹¹ As the FCA recognised, ICO is highly risky, but if properly regulated, can be used as an alternative funding tool for new and innovative business models.²¹² The government knowledges the existing regulatory system may fall short in monitoring the de-centralised products. Against this background, the FCA is experimenting ICO regulation via its regulatory sandbox programme.²¹³ The following analysis contributes to the FCA's

²⁰⁵ BoE, 'What Are Cryptoassets (Cryptocurrencies)?' <<https://www.bankofengland.co.uk/knowledgebank/what-are-cryptocurrencies>> accessed 04 December 2022

²⁰⁶ The FCA, 'Initial Coin Offerings' (FCA, 27 February 2019) <<https://www.fca.org.uk/news/statements/initial-coin-offerings>> accessed 04 December 2022

²⁰⁷ Netflix, 'Squid Game' <<https://www.netflix.com/gb/title/81040344>> accessed 04 December 2022

²⁰⁸ *ibid*

²⁰⁹ Dominic Rushe, '142m households watched Squid Game, Netflix says as it adds 4.4m subscribers' (the Guardian, 19th October 2021) <<https://www.theguardian.com/media/2021/oct/19/netflix-quarterly-results-subscribers-squid-game>> accessed 18 February 2024

²¹⁰ BBC News (World), 'Squid Game Cryptocurrency Soars 23000% in First Few Days' (Twitter, 29 October 2021) <https://mobile.twitter.com/bbcworld/status/1454175979992199168?ref_src=twsrc%5Etfw> accessed 18 February 2024

²¹¹ The FCA (n 206)

²¹² *ibid*

²¹³ HM Treasury, UK regulatory Approach to Cryptoassets and Stablecoins: Consultation and Call for Evidence (January 2021)

emphasis on providing a legal definition of such de-centralised financial products, by highlighting the ambiguity within the contractual parties' rights and obligations.

Shortly after the ICO, SQUID price pumped from less than a cent to over £2000 per coin.²¹⁴ Later, as Bianca disclosed, all money from SQUID sale was transferred into a wallet called 'Squid Token Rug Pull 2.'²¹⁵ The name 'rug pull', is a scam in the crypto industry where crypto developers abandon a project and run away with investors' money.²¹⁶ Through SQUID, this section unveils meme investors' risks exposure during decentralised ICOs.

4.1 The Decentralised Market and Meme Investors

The following analysis shows that SQUID presents a decentralised market, which, in theory, should be hard to reach for novice meme investors. To purchase SQUID, investors had to be connected to a specific exchange known as PancakeSwap. Unlike the mainstream crypto exchanges introduced in Section 3, PancakeSwap is a less known de-centralised platform.²¹⁷ Neither offers nor payments go through a centralised market maker or matching book.²¹⁸ Rather, offers and payments are locked and executed by Binance smart contracts, where PancakeSwap only provides access to such smart contracts.²¹⁹ This design means there is no market maker in PancakeSwap, thus, liquidity in PancakeSwap should be low.

PancakeSwap does not require any registration. Users only need to connect the PancakeSwap DApp with a wallet that supports Binance Smart Chain.²²⁰ That is because, investors cannot buy crypto through real-world currencies on PancakeSwap. Instead, investors need to first acquire other crypto like Bitcoin and Ethereum. Then, investors need to transfer these crypto to the Binance system, a decentralised coding system resembling Ethereum, through Binance bridge.²²¹ Conducting transactions in Binance requires Binance's own crypto, BNB. Finally, to

²¹⁴ BBC News (n 210)

²¹⁵ Scaricity Studios, "'Squid game coin' steals millions from UK investors in latest crypto rug pull" (YouTube, 3 November 2021) <<https://www.youtube.com/watch?v=ed6akzzSubY>> accessed 18 February 2024

²¹⁶ Thus, the name of the pull itself already indicated the developers' illegitimate intention. Section 4.3 argues that if such information was disclosed to the investors during the initial coin offering, investors could have been warned of the default risks involved.

²¹⁷ PancakeSwap, 'Get Started' <<https://docs.pancakeswap.finance/get-started>> accessed 04 December 2022

²¹⁸ *ibid*

²¹⁹ *ibid*

²²⁰ *ibid*

²²¹ *ibid*

trade on PancakeSwap, BNB is turned into PancakeSwap's own coin, CAKE, a crypto developed based on BNB.²²² Therefore, transactions on PancakeSwap go through several decentralised layers, hence, are highly anonymous. Consequently, it is barely possible to know much about one's counterparties, which leads to Section 4.3's critique towards the lack of transparency in smart contracts. Nevertheless, this complex acquiring process should prevent investors without sufficient knowledge in blockchain from getting involved in SQUID. However, the popularity of the show and the reported speculative profits attracted novice meme investors into this highly sophisticated market.²²³

4.1.1 Meme Investors as SQUID Scam Victims

In the aftermath of the SQUID scam, users on Reddit commented that anything on Binance chain, including PancakeSwap, is 'basically a scam'.²²⁴ That is to say, experienced crypto users are aware of the risks involved in SQUID. The following analysis suggests that SQUID victims are mainly meme investors with little experience in crypto nor investment. It is important to note that the following analysis relies on media reports. Section 6.3 further argues that, traditional methods of collecting information via surveys could be slow in responding to meme events and too small to cover the large group of meme investors. Against this backdrop, Section 6.3 calls for regulators to use social media information to engage with meme investors. From a socio-legal perspective, this subsection unveils the SQUID scam's impact on social inequality and the feeling of being left behind among meme investors. Chapter 5 further emphasises that these elements are systemic risks that should be addressed by regulators.

As the Sun reported, '[o]ne of the victims who had bought 5,000 SQUID at \$1 apiece told the website: 'I lost all of what I have in this project.'²²⁵ That is to say, the victim's actual loss should be about \$5,000. Therefore, while the victim was devastated with losing all his savings, the loss

²²² *ibid*

²²³ See Section 4.2.

²²⁴ r/SHIBArmy, 'With Scamcoins like that Squid coin pulling rugs on people. More and more people will start trusting only the trusted scam-free coins like SHIBA. And this is good news for us.' <https://www.reddit.com/r/SHIBArmy/comments/qkqrh3/with_scamcoins_like_that_squid_coin_pulling_rugs/> accessed 18 February 2024

²²⁵ Aliki Kraterou, 'SQUID SCANDAL I lost my entire life savings on dodgy Squid Game cryptocurrency as scammers plundered \$2million from investors' (The Sun, 1 November 2021) <<https://www.thesun.co.uk/money/16600792/lost-life-savings-dodgy-squid-game-cryptocurrency/>> accessed 18 February 2024

is also small by the traditional financial market's standard. This confirms Sections 2 and 3's finding that meme investors are significantly less wealthy than traditional investors with small investment portfolios. In analysing meme investors' exposure to London Capital and Finance, Section 5 further confirms the portfolio size. However, that is not to say investors should be left alone with such losses. As another victim indicated:

I guess this will serve as a valuable lesson for me to not just jump into meme coins ...
I am not blaming anyone except myself, but I think there must be some mechanism to avoid this in the future, and for news outlets to stop giving attention to these scammer type tokens.²²⁶

Similar outcries for regulation can also be found in Redditt and under the BBC's Twitter.²²⁷ As discussed in Chapter 2, the Financial Crisis of 2008 created a sense of being left behind. This sentiment enhanced social division in the UK, causing social and economic problems. Regulators should not repeat the same mistake with meme investors. The FCA's duty to ensure transparency and protect investors will be further demonstrated in Section 5.

4.1.2 The Neo-Liberal Approach towards Meme Investors

As Scalia and Vacca argued, the derivatives market flourished when less pricing information was disclosed.²²⁸ In such a less transparent market, competent traders actively entered into transactions to acquire more information, while incapable ones would soon go out of business.²²⁹ By eliminating the incapable ones, the overall market became more efficient. This narrowed focus on efficiency intensified social inequality, which then triggered the Financial Crisis of 2008. To avoid the same tragedy, this thesis calls for regulators to step in and level up the playing field for meme investors.

²²⁶ Tom Hale, 'Squid Game Crypto Turns Out to Be A \$3 Million Scam' (IFLS, 2 November 2021) <<https://www.iflscience.com/technology/squid-game-crypto-turns-out-to-be-a-3-million-scam/>> accessed 18 February 2024

²²⁷ It is interesting to note that, in reporting the scam, the BBC also used images from the Squid Game, which links back to previous discussions on meme and intellectual property.

²²⁸ Antonio Scalia and Valerio Vacca, 'Does Market Transparency Matter? a Case Study' Temi di discussione (Economic working papers, 1999, no. 359) Bank of Italy, Economic Research and International Relations Area.

²²⁹ *ibid*

Nevertheless, in line with this efficiency-focused argument, in reviewing the event, Amy Lynch, a former regulator from the US SEC and the founder of Frontline Compliance, a private consultation firm that advises companies on how to comply with regulations, stated that:

We could have another 1929 event, but the question is, who is it going to affect? As long as the major financial players are actually not offering their own crypto exchanges and cryptocurrency trading platforms, then we are quote-unquote safe from the systemic risk.

Fast gaining cryptocurrency themed after the Netflix series Squid Game collapsed to zero this past week in an apparent swindle. Only its unlucky holders were harmed.²³⁰

The systemic risks imposed by crypto and crypto derivatives, ie, the increased market contingency and intensified inequality, will be further discussed in Chapter 4. This indifferent attitude could explain why social media played a key role in exposing the SQUID scam, instead of economists and regulators.²³¹ Against misinformation online, Chapter 3 then calls traditional players to step in, aid meme investors and regain the public's trust.

4.2 Popular Culture and Speculation in SQUID

It is important to note that, there are other playable cryptos available on PancakeSwap,²³² without triggering a frenzy among meme investors. Then what makes SQUID different?

In the five-page whitepaper, the developer claimed that SQUID will allow users to play thrilling games like the drama, although less deadly, and survivors will be rewarded with more SQUID.²³³ By associating itself with *Squid Game*, SQUID developers created a false sense of connection between the crypto and the drama. Take the BBC report as an example,

If you're a fan wanting to express your devotion to the hit Korean Netflix show Squid Game - well, there's a cryptocurrency for that.

²³⁰ Jack Hough, 'It's the Weirdest Time in History for Finance. What to Know About Bubbles in Cryptos, Meme Stocks, and NFTs.' (Barron's, 5 November 2021) <<https://www.barrons.com/articles/cryptos-nfts-meme-stocks-bubble-51636130958>> accessed 18 February 2024

²³¹ See Section 4.5.

²³² For instance, PancakeSwap has a Non-Fungible Token collection with story-lines for people to play, collect and sell. Some of the tokens are, Goodfellas Binions, Planet ZUUD: Tiger Warriors and Neural Pepe. See: PancakeSwap, 'Newest Collections' <<https://pancakeswap.finance/nfts>> accessed 04 December 2022

²³³ SGTOKEN, 'SQUID Game Token Witherpaper' <<https://www.tokensquidgame.com/whitepaperSGT.pdf>> accessed 04 December 2022

Gamers have created an online version of the programme, for which you need the Squid cryptocurrency to play.²³⁴

There is no indication that the game is not developed by Netflix. To make the situation even worse, while the report used the word ‘have created’,²³⁵ the online game was merely a proposal. No actual game was developed. Against this backdrop, even though social media played a role in exposing the SQUID scam,²³⁶ meme investors are also vulnerable against online misinformation. It is important to note that the thesis has no intention to criticise the media’s reports over SQUID. Rather, by analysing the event, the thesis demonstrates meme investors’ excessive risks exposure in the complicated de-centralised investment channels, and calls for proper regulatory intervention in the meme market.

In the absence of credible information sources, meme investors may wrongly believe that the crypto was associated with Netflix, hence, underestimate the risks that the developers could not or would not deliver the proposed online game. Traditionally, this misrepresentation is less likely to happen because contractual parties would need to identify each other.²³⁷ But, as illustrated before, PancakeSwap is a highly anonymous platform, where people do not necessarily know who they are contracting with. Consequently, it is difficult, if not impossible, to assess counterparty’s default risk without knowing who the counterparty is.

While there was little evidence to back these promises, the online reports highlighted a sense of fun in SQUID that was crucial for meme investors.²³⁸ Later, as Twitter users commented on the BBC’s further reports, the media coverage, including the BBC’s report, further fuelled meme investors’ enthusiasm over SQUID.²³⁹ Fun seekers’ involvement then pushed SQUID price up, which lure more speculators into the scam.²⁴⁰ This situation confirms Section 2’s

²³⁴ Katie Silver, ‘Squid Game Cryptocurrency Rockets in First Few Days of Trading’ (BBC, 29 October 2021) <<https://www.bbc.co.uk/news/business-59059097>> accessed 18 February 2024

²³⁵ *ibid*

²³⁶ As will be illustrated in Section 4.4.

²³⁷ See Section 4.3.

²³⁸ Virginia Heffernan, ‘Who Let the Doge Out? The Cryptocurrency Is as Nutty and Joyful as Ever.’ (WIRED, 4 April 2021) <<https://www.wired.com/story/dogecoin-bitcoin-influencers-nutty-cryptocurrency/>> accessed 18 February 2024

²³⁹ BBC News (World), ‘Squid Game Crypto Token Collapses in Apparent Scam’ (Twitter, 2 November 2021) <https://twitter.com/BBCWorld/status/1455411607824109575?ref_src=twsrc%5Etfw> accessed 18 February 2024

²⁴⁰ *ibid*

argument that meme investors rely on social media information and include their sentiments in investment decision-making. Thus, if properly supported, the emergence of meme investors could change the narrowed focus on efficiency in the UK financial market, as meme investors bring more diverse value to investment decision-making. Thus, against the emergence of meme investors, it is crucial that financial regulators embrace moral transparency and respect the public's moral sentiments.

4.3 Lack of Transparency in Smart Contracts

By connecting itself with *Squid Game*, SQUID created an illusion that the crypto is associated with the drama. Yet in fact, the crypto developers never received any authorisation from *Squid Game*. In addition to the unidentified counterparty, this subsection highlights that smart contracts were used in SQUID to conceal parties' true rights and obligations.

4.3.1 Smart Contracts in SQUID

The original SQUID Coin page is no longer available on PancakeSwap. The thesis includes the code from another play-to-earn crypto, Mines of Dalarinia (DAR) from the PancakeSwap in the Appendix to give some idea of how difficult it was for meme investors to interpret a smart contract code.²⁴¹

Instead of a traditional contract, DAR and SQUID (at least promised to) offer digital content (games) to consumers via smart contract codes. While the code uses English words, a more accurate description is that it is written in computer language. In contrast, when traders supply digital content to consumers, Article 68 of the Consumer Rights Act 2015 requires that,

- (1) A trader must ensure that a written term of a consumer contract, or a consumer notice in writing, is transparent.
- (2) A consumer notice is transparent for the purposes of subsection (1) if it is expressed in plain and intelligible language and it is legible.

A possible dispute in citing this article here is that whether meme investors are consumers under the Consumer Rights Act 2015. This problem was discussed by the courts in *Ramona ANG v Reliantco Investments Ltd*.²⁴²

In this case, Ms Ang claimed to suffer substantial financial losses when the digital trading platform, UFX, wrongly blocked, and terminated her account where she traded Bitcoin futures.

²⁴¹ See Appendix B for the smart code.

²⁴² *Ramona ANG v Reliantco Investments Ltd* [2019] EWHC 879 (Comm)

The main dispute of this case is whether Ms Ang, a housewife who invested with family savings, counted as a consumer of the digital trading platform or professional investors.²⁴³ The courts' decision to recognise Ms Ang as a customer is discussed in Section 5. It is important to highlight that UFX did not provide any opinion or advice to Ms Ang. Digital trading platforms allow people to trade derivatives. By downloading the app, one can access information on price movements and short introductions on the underlying companies.²⁴⁴ However, no information or advice is provided for evaluating the companies' financial situation,²⁴⁵ which is common among digital trading platforms as discussed in Section 3. The court emphasized that Ms Ang was a consumer of UFX by using the UFX's Reliantco trading platform, where Ms Ang was 'not dependent on trading or investment for an income or livelihood'.²⁴⁶ This part-time trading model is shared by meme investors in the GameStop frenzy.²⁴⁷ Thus, following the decision in *Ramona ANG v Reliantco Investments Ltd*, meme investors are customers of digital trading platforms under the Consumers Rights Act 2015, who are entitled to a contract written in plain English. In other words, smart contracts should be accommodated with traditional written contracts.

4.3.2 Missed Warning Against SQUID

In addition to the anonymous counterparty, a crucial component of counterparty's default risks involved in SQUID and covered by the smart contract is the fact that SQUID was not transferable.²⁴⁸ Yet the whole UK crypto market is highly speculative. Investors mostly buy a crypto in the hope of selling the crypto at a higher price later. Thus, transferability is crucial in the crypto market. Meanwhile, as will be illustrated in the London Capital and Finance mini-bond mis-selling,²⁴⁹ transferability is especially important for meme investors, who do not have much capital to hold a long-term position. Yet, as meme investors have little investment experience nor accessing to financial institutions for advice, it is likely non-transferable risky products are mis-sold to meme investors.

²⁴³ *ibid*

²⁴⁴ The UXF App.

²⁴⁵ *ibid*

²⁴⁶ [2019] EWHC 879 (Comm)

²⁴⁷ See Section 1.3's discussion on meme investors as university students.

²⁴⁸ BBC (n 239)

²⁴⁹ See Section 4.

In *J Spurling Ltd v Bradshaw*, Lord Denning ruled that:

I quite agree that the more unreasonable a clause is, the greater the notice which must be given of it. Some clauses which I have seen would need to be printed in red ink on the face of the document with a red hand pointing to it before the notice could be held to be sufficient.²⁵⁰

This ruling is 60 years old, but still relevant for discussing transparency in the modern UK crypto market, as it confirms Chapter 2's finding that transparency must be simple and comprehensible. In SQUID scam, the fact that the crypto was non-transferable was not clearly, if at all, stated. In fact, the non-transferability of SQUID is now widely reported by the media.²⁵¹ But there is still little explanation as to what caused this restriction, or how this restrictive term was embedded in the code.

As the FCA warned, the terms of ICOs may vary dramatically from crypto to crypto.²⁵² For instance, SQUID, if actually developed, would have given holders the right to play the exclusive online game. Yet, another smart contract backed crypto, Gemini Coin, promises to safeguard the value of the crypto with reserved US dollars.²⁵³ Some crypto investors argue that trying to do something different is essential for each new crypto, otherwise the new crypto would not attract investors.²⁵⁴ Therefore, against the diversity in the crypto market, it is crucial that buyers do understand their rights and obligations under smart contracts. Against this backdrop, the SQUID scam should not be easily dismissed as a single event, or an accident caused by social media. Instead, the scam should be studied as a wakeup call for financial regulators and legal researchers to address transparency in smart contracts.

In its original design, technology is a barrier to prevent novice investors from entering risky and complex ICOs. It is important to note that computer coding and complex mathematic algorithmic trading have been used by the financial industry prior to 2008.²⁵⁵ Therefore, traditional financial institutions are experienced and equipped to deal with smart contracts, which then allows the financial institutions to better advice their retail clients. Financial

²⁵⁰ *J Spurling Ltd v Bradshaw* [1956] EWCA Civ 3

²⁵¹ BBC (n 239)

²⁵² The FCA (n 206)

²⁵³ See Section 2.2's discussion on Gemini and stable coin.

²⁵⁴ Scarcity Studios, "'Squid game coin' Steals Millions from UK Investors in Latest Crypto Rug Pull' (YouTube, 3 November 2021) <<https://www.youtube.com/watch?v=ed6akzzSubY>> accessed 18 February 2024

²⁵⁵ The story is described in Michael Lewis's book, *Flash Boys*. (n 127)

institutions already stated that they do not recommend memes like SQUID to clients.²⁵⁶ Yet, meme investors are not clients of traditional financial institutions. Thus, the agency approach cannot reach meme investors. As will be discussed in Section 6.3, regulators can communicate with meme investors more effectively via social media. Through the direct communication, regulators can better understand meme investors' needs, hence, develop suitable approaches in handling meme investors. More importantly, since meme investors have limited access to the more established Bitcoin and Ethereum market, they are highly unlikely to benefit from their investments without additional information. Subsequently, Section 6.2 calls for regulators to share knowledge with meme investors by improving financial literacy in the UK.

4.3.3 Smart Contracts: New Tools for Concealing Information

This is not to say smart contracts should be replaced by traditional contracts. As Savelyev indicated, computer codes largely follow the pattern that if Y happens, Z follows, which is the same logic as a contract.²⁵⁷ Furthermore, as demonstrated in Chapter 3, smart contracts can reduce human errors by automatic executions; hence, can be increase certainty in contractual relationships. The problem here is the absence of a traditional contract hides crucial information through complex codes, which render investors unable to assess risks.²⁵⁸

Such a trick is no news in the financial market. Take the derivatives market as an example. As Thompson pointed out, even though people speak English trading derivatives, the conventional meaning of the words are changed dramatically as if it is a different language.²⁵⁹ Jargon hides and even misleads investors as to risks involved in derivatives products. Except in the crypto market, the jargon is computer codes.²⁶⁰ Thus, the lack of transparency in the UK crypto market is just a modern example of this historical problem.

In *the Age of Surveillance Capitalism*, Zuboff highlighted the difference between technology and surveillance capitalism through the example of Google search engines' retention of user's

²⁵⁶ see chapter 3.

²⁵⁷ Alexander Savelyev, 'Contract Law 2.0: "Smart" Contracts as the Beginning of the End of Classic Contract Law' (2017) 26(2) *Information and Communications Technology Law* 116

²⁵⁸ Some may also raise concerns over companies' data and intelligence to defence the hard to interpret smart contracts. Crypto's response to intellectual property rights and competitions are discussed in Chapter 2. This chapter mainly concerns smart contracts' impact on investors.

²⁵⁹ Venetia Thompson, *Gross Misconduct* (Pocket Books 2010) 215

²⁶⁰ See again, how restrictions were implemented in SQUID's smart code without giving sufficient notice to investors.

information.²⁶¹ In 2009, the public first became aware that Google collects and store users' search histories for an indefinite period.²⁶² When questioned about this practice, Google's CEO at that time, Eric Schmidt claimed that 'the reality is that search engines including Google do retain this information for some time.'²⁶³ The statement sounded as if retaining users' information was an inevitable natural result of technological innovation. In other words, the public was ignorant to even question such practices.

Yet, as Zuboff pointed out that retaining users' information is a deliberate decision of surveillance capitalism.²⁶⁴ By designing the search engines to retain users' information, Google acquires a database for studying users' behaviours, which then allows Google to influence users for commercial gain. The same logic applies to smart contracts. The lack of transparency in smart contracts is not an inevitable natural result of technology innovation. Rather, it is a strategy to render meme investors incapable of assessing risks involved in the transaction. This situation is consistent with Stiglitz's review of the Financial Crisis of 2008, where he argued that the sellers' strategy was making products too complicated to comprehend. Subsequently, even if the terms of the contracts were fully disclosed, assessing their risks was barely possible.²⁶⁵ This situation further confirms Chapter 2's argument that information disclosure along does not necessary lead to transparency. Information receivers need to have sufficient knowledge. Section 6 argues that regulators could provide more financial literacy to help meme investors understand the speculative nature of their behaviour and the danger involved in speculation. Therefore, aiding meme investors by easing speculation.

4.4 Social Media's Role in Exposing the SQUID Scam

In the absence of support from traditional financial intermediaries and regulators, this subsection argues that social media played a crucial role in exposing the SQUID scam, hence, aiding meme investors. As reported by WIRED, an online newsletter that focuses on technology and business, there were some since deleted early comments on SQUID Coin from crypto

²⁶¹ Shoshana Zuboff, 'Home or Exile in the Digital Future' in *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power* (Profile Books, 2019)

²⁶² *ibid*

²⁶³ *ibid*

²⁶⁴ *ibid*

²⁶⁵ Joseph Stiglitz, 'Where Modern Macroeconomics Went Wrong' (2018) 34(1-2) *Oxford Review of Economic Policy* 70

investors on a social media platform, BscScan.²⁶⁶ Such comments warned against SQUID as ‘coming from nowhere, it seemed too good to be true, and it was likely to infringe on trademarks and so could end up coming to nothing.’²⁶⁷ These comments covered the risks discussed above. However, it is also important to note that online misinformation also played a role in luring meme investors into the scam in the first place.²⁶⁸ Against this backdrop, Section 6 calls for UK financial regulators to step in and aid meme investors.

4.4.1 Social Media Keeping Meme Investors’ Informed

On the 31st October 2021, a Twitter user red flagged the counterparty’s default risks in SQUID and unveiled the developers’ intention to rug pull the scam, before mainstream media like the BBC started to report the scam.²⁶⁹ Unlike meme investors, this crypto user claimed to be the CEO of a crypto company, SolonDeFi, a market maker in the de-centralised crypto market.²⁷⁰ Due to the anonymous nature of the crypto market makers discussed in Section 3, this information is hard to confirm.

Nevertheless, the fact that while the SQUID smart contract code was available to all. The fact that only a few people managed to detect the red flag confirms Chapter 2’s argument that transparency requires information receivers to have sufficient knowledge. A few replies to the original Tweet are also worthy noticing. One user, @courtready, commented that ‘sad too bc [because] normies²⁷¹ wouldn’t know to read a smart contract.’²⁷² This conversation highlighted a crucial connection between transparency and knowledge. In the absence of traditional financial intermediaries, social media carries the function of sharing knowledge with meme investors.

²⁶⁶ Chris Stokel-Walker, ‘How a Squid Game Crypto Scam Got Away with Millions’ (WIRED, 2 November 2021) <<https://www.wired.co.uk/article/squid-game-crypto-scam>> accessed 18 February 2024

²⁶⁷ *ibid*

²⁶⁸ See the SQUID Whitepaper published online about playing SQUID game and earning a profit.

²⁶⁹ Crypto-Jesus-, ‘\$13 Million Scam’ (Twitter, 31 October 2021) <https://twitter.com/Crypto__Jesus_/status/1454636438520307713> accessed 18 February 2024

²⁷⁰ SolonDeFi, <<https://medium.com/@solondefi/a-quick-introduction-to-the-solon-ecosystem-85ccc65320e2>> accessed 20 December 2021

²⁷¹ An Internet slang for normal people.

²⁷² @courtready, (Twitter, 31 October 2021) <<https://twitter.com/courtready/status/1454639690821382144>> accessed 18 February 2024

Social media presents a peer support system, where people share and communicate their opinions, hence, eventually enable more people to understand information. For instance, one Twitter user, Shaqir Hussyin, commented under the original post ‘then you can probably help me - just got scammed for 33 eth / \$130k - send me a DM please.’²⁷³ While Hussyin did not get a response from the original poster, another Twitter user answered the question.²⁷⁴ Hence, even though the conversation was initiated by an expertise, it is still a peer-to-peer support system for the public to share and produce information. Therefore, social media mitigates the lack of knowledge among the public. The same can be found in Section 1’s analysis of Reddit’s role in the GameStop frenzy. More importantly, this sharing also creates a sense of community, which keeps meme investors unified.²⁷⁵ In reviewing Judge Brandeis’ historical transparency reforms, Chapter 2 emphasises the difficulties of keeping the public informed and unified. The rise of social media addresses these two major obstacles, hence, provides an opportunity to achieve moral transparency in modern financial markets.

4.4.2 Online Manipulation

Nevertheless, it is also true that some individuals will have a stronger influence over others. As Easterbrook and Fischel argued, information is costly, and the costs are borne in large part by investors.²⁷⁶ For those who are responsible for generating the information, the data needs to be recorded, organised and maintained before being distributed. Traditionally, this role of producing information is carried out by financial institutions, where in return, financial institutions charge clients for using the information. Like traditional investors, meme investors still need someone to initiate the process and keep them informed. In the absence of traditional financial institutions, the role is largely taken by social media. Against this backdrop, Kumar argues that meme investors are naïve and easy to manipulate.²⁷⁷ But this is just how information

²⁷³ @ShaqirHussyin, (Twitter, 31 October 2021) <<https://twitter.com/ShaqirHussyin/status/1455079756937015301>> accessed 04 December 2022

²⁷⁴ @jayjay_trx, (Twitter, 31 October 2021) <https://twitter.com/jayjay_trx/status/1455081544838701061> accessed 18 February 2024

²⁷⁵ Pearlie Koh, ‘Shareholder Empowerment in the Digital Age’ in Andrew Godwin, Pey W. Lee and Rosemary Teele Langford (eds), *Technology and Corporate Law How Innovation Shapes Corporate Activity* (Elgar Online 2021)

²⁷⁶ Frank H. Easterbrook and Daniel R. Fischel, *The Economic Structure of Corporate Law* (Harvard University Press, 1991) 66

²⁷⁷ Alok Kumar, ‘Who Gambles in the Stock Market’ (2009) 64(4) *The Journal of Finance* 1889

operates. There must be someone to start the conversation.

Meanwhile, even though the initiator profited from the event, they also invest time and energy communicating with other meme investors. The profit should be justified. More importantly, this initiator found a way to effectively communicate with other small shareholders. Before social media, similar attempts were merely possible because of the lack of communication channels. Now, potential investors and existing small shareholders can and will use searching engines and other platforms to acquire information.

Furthermore, a survey by Greenwich Association also confirmed that institutional investors are also influenced by social media information.²⁷⁸ However, social media information is more a trigger for institutional investors. After receiving such information online, institutional investors will conduct further investigations and additional research.²⁷⁹ The problem is, people do not have these resources to acquire further knowledge. For shareholders who are short-term investors who tend to be focused on financial returns in the nearer term, these costs will appear all the more unjustifiable when juxtaposed against the ease of exit.

Furthermore, merely sharing information will do little, unless recipients are able to process the information, appreciate its significance and then make an informed decision.²⁸⁰ This could be why the online information is simple. Memes are understandable and doable. The information receivers' preference for fragmented short information was part of the problem in SQUID. Even though the BBC's original report of SQUID spread a frenzy, the article actually warned against potential risks involved in SQUID.²⁸¹ Yet, such a long piece of warning was outshined by the eye-catching speculation opportunity.

The phenomenon also appeared to be troublesome for Banerjee and Duflo. In *Good Economics for Hard Times*, the two Nobel Prize winners expressed their frustration that the public are more likely to listen to 'fake economists' who represent corporate interests and often disregard facts. This is because, 'fake economists' are more likely to give simple and doable predictions. Regardless of the accuracy, such predictions are nevertheless comprehensible for the audience.

²⁷⁸ Daniel J. Connell, 'Institutional Investing: How Social Media Informs and Shapes the Investing Process' (Web Page, 16 April 2015) <<https://www.greenwich.com/asset-management/institutional-investing-how-social-media-informs-and-shapes-investing-process>> accessed 18 February 2024

²⁷⁹ *ibid*

²⁸⁰ Koh (n 275)

²⁸¹ BBC News (n 210)

Yet, instead of blaming novice investors for naively trusting ‘fake economists’, Banerjee and Duflo argued that academic economists need to reflect on their failure to approach the public and ‘actually take time to explain the complex reasoning behind their academic thinking.’²⁸² Thus, instead of simply warning against online mis-information and meme investments, economists and regulators should take social media as a platform to communicate their reasoning with people. In the long-term, these meaningful communications will enhance social media users’ knowledge and rebuild the public’s trust. Against this backdrop, Section 6 calls for UK financial regulators to communicate with meme investors via social media and enhance financial literacy in the UK, hence, help meme investors understand the risks of speculation.

To conclude, decentralised smart contracts are used in ICOs. The de-centralised technology involved should prevent people with little experience in blockchain from accessing this risky market. Yet, meme investors still participate in ICOs for entertainment and speculation. In this de-centralised market, meme investors face difficulties in identifying the contractual parties and the contractual rights. Social media plays a role in keeping meme investors informed and unified, but also risks being manipulated by a small group of individuals. Regulators need to enhance financial literacy and communicate with meme investors.

²⁸² Abhijit V. Banerjee and Esther Duflo, *Good Economics for Hard Times: Better Answers to Our Biggest Problems* (Allen Lane 2019) 6-7

5. The FCA's Regulatory Objectives

The above analysis unveils meme investors' excessive risks exposure. Through a case study of the London Capital and Finance mini-bond mis-selling, this section establishes the legal grounds for the FCA to step in and aid meme investors. Chapter 5 further emphasises the need to aid meme investors by including meme investors' failure as a systemic risk in the UK financial market.

5.1 Crypto Investors Are Customers

Under Part 1A, Chapter 1, Section 1C FSMA 2000, the FCA's consumer protection objective covers:

- (1)The consumer protection objective is: securing an appropriate degree of protection for consumers.
- (2)In considering what degree of protection for consumers may be appropriate, the FCA must have regard to—
 - (a)the differing degrees of risk involved in different kinds of investment or other transaction;
 - (b)the differing degrees of experience and expertise that different consumers may have;
 - (c)the needs that consumers may have for the timely provision of information and advice that is accurate and fit for purpose;
 - (d)the general principle that consumers should take responsibility for their decisions;
 - (e)the general principle that those providing regulated financial services should be expected to provide consumers with a level of care that is appropriate having regard to the degree of risk involved in relation to the investment or other transaction and the capabilities of the consumers in question;
 - (f)the differing expectations that consumers may have in relation to different kinds of investment or other transaction;

As for what is a financial consumer, the FCA states that:²⁸³

From bank accounts to mortgages, credit cards, loans, savings, pensions and *investments*, virtually *every adult in the UK* is a consumer of financial services. One of

²⁸³ The FCA, 'About Us' <<https://www.fca.org.uk/about>> accessed 04 December 2022

our objectives is to ensure an appropriate degree of protection for all these consumers.²⁸⁴

[Emphasis added]

Therefore, the FCA interprets the word *consumer* in quite a wide manner. It covers every adult in the UK, including meme investors and traditional investors. Even though the FCA keeps emphasising cryptos and crypto derivatives are not regulated by the FCA,²⁸⁵ the FCA does have a duty to protect customers (meme investors) in the UK financial market. Then why use the word *consumer*? Chapter 2 argued that, under the influence of legal positivism, regulators are hesitant to take normative stands in the financial market.²⁸⁶ Against this backdrop, it is understandable the FCA would choose the market term *consumer*.

As for how customers are protected, the FCA emphasises that the regulator must ‘protect people by helping them understanding some of the most common risks they might come across when using financial services.’²⁸⁷ In October 2020, the FCA banned financial institutions from selling crypto-derivatives to retail consumers.²⁸⁸ It argues that meme investors’ speculation only mimics traditional financial institutions. Banning retail investors without addressing this tradition only risks fuelling the public’s frustration towards the regulator.²⁸⁹

Furthermore, in addition to protecting the people, the FCA also carries the role of ensuring market integrity. Under Part 1D, Chapter 1, Section 1C FSMA 2000,

The integrity objective is: protecting and enhancing the integrity of the UK financial system.

(2)The “integrity” of the UK financial system includes—

(a)its soundness, **stability** and resilience,

(b)its not being used for a purpose connected with financial crime,

²⁸⁴ The FCA, ‘Protecting Consumers’ <<https://www.fca.org.uk/about/protecting-consumers>> accessed 04 December 2022

²⁸⁵ See Section 2. The crypto traded in the FCA registered firms is not FCA regulated.

²⁸⁶ See Chapter 2.

²⁸⁷ *ibid*

²⁸⁸ The FCA, ‘FCA Bans the Sale of Crypto-Derivatives to Retail Consumers’ (the FCA, 06 October 2020) <<https://www.fca.org.uk/news/press-releases/fca-bans-sale-crypto-derivatives-retail-consumers>> accessed 18 February 2024

²⁸⁹ See further in Chapter 5 where this oversimplified approach is criticised.

(c)its not being affected by [F2contraventions by persons of Article 14 (prohibition of insider dealing and of unlawful disclosure of inside information) or Article 15 (prohibition of market manipulation) of the market abuse regulation],

(d)the orderly operation of the financial markets, and

(e)the **transparency** of the price formation process in those markets. [Emphasis added]

Hence, imposing stricter reporting obligation on digital trading platforms can be seen as the FCA fulfilling this market integrity duty. Similar arguments were brought in by Reddit users when commenting on the SQUID scam, where one user, NoirMillion commented that,

We know it's gonna happen, they only made that crypto to scam people and when the rug gets pulled, 90% of their young investors will say "crypto bad" and will get scared away from it and that's the last time they'll talk about it. 8% will not learn their lesson and go for another pump and dump. 1% are the gamblers who looks for actual shitcoins like these to join the rug pull. And that last 1% is the media that did that so when the rug gets pulled, they have a reason to affirm and bitch in their respective publishing how cryptos are a scam and shit.²⁹⁰

As demonstrated in Chapter 3, the public's involvement is crucial for the long-term development of crypto and Web3.0. Therefore, regulating the crypto industry is also beneficial for the sustainability of the UK crypto industry.

5.2 Compensating Meme Investors?

Furthermore, this subsection argues that the FCA may be forced to compensate meme investors if a FCA registered crypto firm defaults and the FCA failed to ensure transparency to meme investors. This potential liability is demonstrated through a case study of the London Capital and Finance (LCF) mini-bonds scam. It is important to note that, this hypothetical scenario only applies to firms registered under the Financial Services Compensation Scheme (FSCS). Thus, the following discussion is more relevant for the FCA registered crypto firms and does not concern SQUID scam. Furthermore, the compensation is due to political pressure from the Parliament, instead of a legal obligation. However, such political pressure will affect the

²⁹⁰ r/SHIBArmy, 'With Scamcoins like that Squid coin pulling rugs on people. More and more people will start trusting only the trusted scam-free coins like SHIBA. And this is good news for us.' <https://www.reddit.com/r/SHIBArmy/comments/qkqrh3/with_scamcoins_like_that_squid_coin_pulling_rugs/> accessed 18 February 2024

Treasury Committee’s law-making decisions in the crypto industry, which would then affect the FCA’s future obligation.

5.2.1 Meme Investors in the LCF

LCF was an FCA authorised firm which issued mini-bonds, illiquid debt securities, to over 11,000 retail customers.²⁹¹ As LCH went into administration in January 2019, the retail customers faced a total of £237 million of losses.²⁹² The mini-bond buyers shared a great similarity with meme investors in the GameStop frenzy and SQUID scam. Firstly, on average, each customer invested around £21,000 into the scheme. The amount is bigger than individual meme investors’ exposure to SQUID, but similar to *Ramona ANG v Reliantco Investments Ltd*. However, it is significantly smaller in comparison with traditional investors’ portfolio size.²⁹³ Secondly, like the GameStop Frenzy participants and SQUID victims, LCH mini-bond buyers also used online information while making the investment decisions.²⁹⁴ Thirdly, LCF also claimed that the funds raised were used to support small and medium-sized enterprises to attract investors. Even though LCF was a scam, the advertisement nevertheless implied that mini-bond investors cared about supporting small businesses.²⁹⁵ In other words, mini-bond investors also involved morality in making investment decisions, like in the GameStop frenzy. Therefore, even though LCF, the GameStop frenzy and SQUID scam concern three different financial products, the investors involved are all meme investors. In this sense, LCF provides a precedent for the FCA to compensate meme investors.

5.2.2 The FCA and the LCF

The FCA’s handling of the LCF mini-bond investors was a failure.²⁹⁶ As disclosed by the Closter Report,²⁹⁷ the FCA was aware that the LCH was mis-using the FCA logo advertising its unauthorized mini-bonds to customers.²⁹⁸ The FCA/ FSCS logo implied the regulators’

²⁹¹ FCA, ‘London Capital and Finance plc’ (FCA, 13 April 2021) <<https://www.fca.org.uk/news/news-stories/london-capital-and-finance-plc>> accessed 20 October 2021.

²⁹² Dame Elizabeth Closter DBE, *Report of the Independent Investigation into the Financial Conduct Authority’s Regulation of London Capital & Finance plc*. 23 November 2020.

²⁹³ See Section 2.2.

²⁹⁴ Dame Elizabeth Closter DBE (n 292)

²⁹⁵ *ibid*

²⁹⁶ *ibid*

²⁹⁷ *ibid*

²⁹⁸ *ibid*

protection to retail customers, where if the investment defaulted, retail customers were entitled to financial compensation from the Financial Services Compensation Scheme.²⁹⁹ Therefore, products with the logo are believed to be safe for retail customers. The FCA was also aware that the LCH's mini-bonds were unsuitable for retail customers.³⁰⁰ Yet, the FCA gave no warning to retail customers regarding the situation.³⁰¹ Even though the regulators eventually compensated the investors under political pressure from the Parliament, the FCA insisted that investors should be responsible for investing in the unauthorised scheme.³⁰² The same situation could happen if the FCA registered crypto firms were to default. Take PayPal's crypto derivatives as an example. As will be discussed in Chapter 5, PayPal's advertisement only emphasises the risks involved with cryptoassets. The fact that buyers are affected by Paypal's default risk is downplayed, which is a significant part of the overall risks involved in the products. Since PayPal is authorised by the FCA, PayPal users could get the wrong impression that the product is safe.

It is never the FCA's responsibility to guarantee the economic outcome for investors. But the FCA should not ignore meme investors' lack of expertise and reliable information resource. In the GameStop frenzy, SQUID scam and the LCF mini-bonds mis-selling, meme investors were found seeking information from the Internet. This behaviour is consistent with Fung, Graham and Weil's prediction that the Internet era would enable a new mechanism of transparency.³⁰³ Previously, financial regulators and financial institutions carried the role as information producers in the financial market,³⁰⁴ where investors are on the receiving end of information.³⁰⁵ In the Internet era, individual investors can produce and share information themselves.³⁰⁶ By discussing their own opinions on the investments and their expectations on the companies'

²⁹⁹ *ibid*

³⁰⁰ *ibid*

³⁰¹ House of Commons, the Financial Conduct Authority's Regulation of London Capital & Finance plc. Forth Report of Session 2021-2022.

³⁰² *ibid*

³⁰³ Archon Fung, Mary Graham and David Weil, 'Toward Collaborative Transparency' in *Full Disclosure: The Perils and Promise of Transparency* (Cambridge University Press 2007)

³⁰⁴ See Section 2.

³⁰⁵ See Section 3.

³⁰⁶ see section 3.2.

performances, individual investors are breaking financial regulators and financial institutions' monopoly on information.

Nevertheless, online information sharing is far from perfect. Rather, meme investors in both SQUID and LCF suffered from online mis-information. As illustrated in Chapter 1, financial institutions and the regulators are the main information producers. However, meme investors are not wealthy enough to become clients of traditional financial institutions. Thus, it is impossible for meme investors to utilise financial institutions as information producers. As for getting information from regulators, the FCA only warns against investing on unauthorised products.³⁰⁷ Whereas in the LCF, the FCA even failed to give such a warning.³⁰⁸ The same is happening in PayPal crypto derivatives.³⁰⁹ In comparison with traditional investors, meme investors' lack of access to information is appalling.

In this sense, seeking information online is self-help. Yet, meme investors may not have the knowledge to navigate through the online information. On r/wallstreetbets, a user posted a 'Comprehensive Guide about BB (Blackberry, another meme stock traded at around \$10 in October 2021) to encourage people trading Blackberry.'³¹⁰ The post contains a simplified business report on Blackberry, arguing that the market is expecting a rising business. The following comment stood out as:

I didn't read it in the slightest, but I'm already buying BB. Nice to see dd [The author of the original poster, who provided the analysis on Blackberry.] on it though, means even the wrinkle-brained investors are interested, good sign.³¹¹

While it is reckless to buy a share without knowing the company, the comment also unveils the retail investors' struggle with interpreting online information. Similarly, all potential buyers can check the SQUID smart contracts. But not all meme investors have sufficient knowledge to interpret the code. This lack of knowledge represents an unfair disadvantage for meme investors against their counterparties, financial institutions. To ease social inequality, meme

³⁰⁷ For instance, against the WSC who collapsed after the GameStop Frenzy.

³⁰⁸ House of Commons, the Financial Conduct Authority's Regulation of London Capital & Finance plc. Forth Report of Session 2021-2022.

³⁰⁹ See Chapter 5, Section 2.

³¹⁰ u/whatisgf, 'Comprehensive Guide about BB and How It Shall Take off in Coming Years' <https://www.reddit.com/r/wallstreetbets/comments/le53ol/comprehensive_guide_about_bb_and_how_it_shall/>

Accessed 18 February 2024

³¹¹ ibid

investors should not be left alone against uninformed losses and risks. Subsequently, Section 6 demonstrates the path for regulators to mitigate this knowledge gap and aid meme investors.

Furthermore, as discussed in previous sections, the emerging investors have limited access to well-regulated investment channels and trust-worthy financial advice, which are exclusively for the super-rich, corporates and financial institutions. Therefore, so long as meme investors have this unfulfilled investment need, simply warning against the risks will not change the situation. Instead, the warning is more of an excuse for regulators to walk away when problems arise.³¹² In contrast, moral transparency emphasises the need to ease social inequality in the UK financial market, which requires regulators to take actions and aid meme investors.

Eventually, the situation will enhance social inequality and the feeling of being left behind. As Banerjee and Duflo argued, economists and regulators under their influences:

have a tendency to adopt of notion of well-being that is often too narrow, some version of income or material consumption. And yet all of us need much more than that to have a fulfilling life: the respect of the community, the comforts of family and friends, dignity, lightness, pleasure. ... A better conversation must start by acknowledging the deep human desire for dignity and human contact, and to treat it not as a distraction, but as a better way to understand each other, and to set ourselves free from what appear to be intractable oppositions. Restoring human dignity to its central place sets off a profound rethinking of economic priorities and the ways in which societies care for their members.³¹³

Regulators need to better communicate with meme investors. This communication protects meme investors' dignity and may help to ease the distrust towards regulators. Yet as disclosed in the LCF, retail investors reported the mini-bond to the FCA several months before the LCF went into administration.³¹⁴ The FCA did not know how to respond to information produced by ordinary individuals.³¹⁵ Eventually, considering the FCA's failure in handling the LCF, even

³¹² Harpal Hungin and Scott James, 'Central Bank Reform and the Politics of Blame Avoidance in the UK' (2019) 24(3) *New Political Economy* 334

³¹³ Banerjee (n 282) 8-9

³¹⁴ House of Commons (n 308)

³¹⁵ *ibid*

though the mini-bond was not covered by the FSCS, the FCA was forced to compensate 2,871 LCF victims an approximate £57,6 million by April 2021.³¹⁶

Overall, to achieve its consumer protection and market integrity objective, the FCA need to protect meme investors and maintain transparency in the crypto market to reduce social inequality. The LCF acts as a warm for the FCA against the potential risks of compensating meme investors under political pressure. To highlight the wider impacts of this hypothetical scenario, such firms include the FCA registered crypto firm listed in Section 2, as well as the FCA registered financial firms who are now dealing with cryptos like PayPal. The non-crypto firms' involvement will be further analysed in Chapter 5 to demonstrate how default in the crypto market could have a systemic impact on the UK financial market. To avoid such political drama, the following analysis suggests that the FCA should focus on strengthening its overseeing in the crypto market and promoting financial literacy in the UK.

³¹⁶ FSCS, 'London Capital and Finance plc (LCF)' (FRN: 722603) <<https://www.fscs.org.uk/making-a-claim/failed-firms/lcf/>> accessed 18 February 2024

6. Policy Recommendation: Levelling-Up the Playing for Meme Investors

The analysis above shows that meme investors are different from traditional investors, hence, cannot be reached via the traditional agency approach. Yet, meme investors are also exposed to excessive risks in centralised digital trading platforms and de-centralised smart contracts. The FCA has a duty to protect meme investors and maintain market transparency. This section provides three policy recommendations for the FCA to engage with meme investors and practice moral transparency.

6.1 Promoting Financial Literacy

The FCA should share knowledge with the public against the risks of speculating in the financial market. In the 2021 crypto survey, the FCA recognises that there is a risk that consumers may engage with crypto without a clear understanding of it.³¹⁷ But the FCA does not provide a solution to this problem, nor recognise meme investors' wider participation outside crypto.

Meanwhile, according to the Centre for Social Justice, nearly half of adults in the UK believed that they would be in a better financial position, if they received greater levels of financial education.³¹⁸ Yet, the availability of financial education is rather limited in the UK and largely relies on family education.³¹⁹ In other words, people from disadvantaged backgrounds are more likely to suffer from poor financial literacy. In this sense, educational inequality re-enforces financial inequality. Meme investors have no access to traditional financial institutions for advice and received little explanation from the regulators against risks involved. As unveiled in the GameStop Frenzy, meme investors also engage with derivatives trading. The complexity of such financial transactions was unveiled in *Hammersmith and Fulham*, where even the House of Lords judges could not reach a consensus as to the nature of the derivatives transactions.

This thesis' emphasis on financial literacy does not mean making everyone an expert in trading. Rather, it focuses on reasoning with the public against excessive speculation and making

³¹⁷ The FCA, Research Note: Cryptoasset Consumer Research 2021 (17 June 2021)

³¹⁸ Carolyn Griffith, 'CSJ Launches Inquiry into Financial Education' (the Centre for Social Justice, 19 January 2022) <<https://www.centreforsocialjustice.org.uk/newsroom/csj-launches-inquiry-into-financial-education>> accessed 18 February 2024

³¹⁹ Money and Pensions Service, 'The Children and Young People Financial Education Innovation and Evaluation Programme' (11 March 2022) <<https://www.moneyandpensionsservice.org.uk/2022/03/11/children-and-young-people-innovation-programme-evaluation/>> accessed 18 February 2024

content accessible. Regulators need to pass a clear message to the public that the regulators understand the public's desire for inclusion. But excessive speculation will cause financial suffering on individual meme investor³²⁰ and increase systemic risks in the UK financial market.³²¹

More reforms in the distribution and re-distribution of wealth in society will be needed to meet the public's desire for shared prosperity, which goes beyond a thesis in financial regulation. Yet, in 2021, the Bank of England launched a series of podcasts on social mobility,³²² communicating with experts on what employers can do in promoting social mobility. The thesis appreciates the Bank of England's commitment in promoting social mobility. However, the series is published on the Bank of England's own website. It is rather unusual for the public to regularly check the Bank of England website. Thus, the Bank of England's intention is not effectively communicated with the public. Instead, as demonstrated in this Chapter, meme investors rely on social media information for investments. Therefore, to make the series more accessible to the public and regain the public's trust, the financial regulators should post the series on more popular platforms like Twitter and Spotify.

Meanwhile, in its Approach to Consumers, the FCA mentioned providing financial education to the public,³²³ but failed to provide any explanation as to how such education would be delivered. Chapter 2 already demonstrated that, information disclosure under the existing UK financial regulatory system implies that information receivers have sufficient knowledge to interpret information. Assuming knowledge leads to two unpreferable scenarios. Firstly, unsophisticated investors need to rely on agencies for knowledge. Therefore, the concentration of knowledge causes the concentration of wealth and power in financial intermediaries. Secondly, those who cannot afford agencies are excluded from investments decision-makings. Again, power becomes concentrated in financial intermediaries. Therefore, if the FCA could provide financial literacy to the public, it would be a crucial step forward in levelling up the playing field for meme investors.

³²⁰ See Sections 3 and 4.

³²¹ Bank of England, 'News, Publications and Events' <<https://www.bankofengland.co.uk/news?NewsTypes=e170e31a926f48d1a863ad8161ea771c&Taxonomies=2f787eaf75a44127b7384d76fee6de10&InfiniteScrolling=False&Direction=Latest>> accessed 04 December 2022

³²² *ibid*

³²³ The FCA (n 91)

This Chapter argues that the FCA could work with the Money and Pension Service (MaPS) in making financial education more available to young people. In its current capacity, MaPS along only expects to help 2 million more people receive financial education in the next ten years.³²⁴ This agenda is too slow to catch up with the unprecedented financial inclusion and risks crypto brings to the public. Furthermore, MaPS focuses on delivering a Talk Learn Do program to parents of children aged from three to eleven, which supports the parents in talking to their children about money.³²⁵ That is to say, the 18 to 30 years old meme investors' demand for financial literacy is yet to be met. This thesis argues that, like the Bank of England, the FCA could also produce podcasts on financial literacy on social media platforms to help young adults understand the default risks and systemic risks involved in trading. This policy recommendation echoes Banerjee and Duflo's call for real economists to engage with the public to counter online mis-information. Thus, such social media engagement is crucial for levelling up the playing field for meme investors and rebuild the public's trust towards the regulators.

6.2 Strengthening Financial Reports in the FCA Registered Firms

Meanwhile, Section 3 also unveils excessive default risks in digital trading platforms. This subsection calls for strengthening the enforcement of the Companies Act 2006 as the means to reduce meme investors' exposure to platforms' default risks.

One may also argue that CoinJar's problematic practice suggests that mis-leading financial reports are not news in the UK financial market. In *Re Hoare & Co, Ltd – [1933]*, the fairness of a share transfer plan was questioned by the plaintiff as there was a substantial difference between a property's market price and its balance sheet price.³²⁶ The plaintiff represented 0.38 per cent of the total issued share capital, while the vast majority of shareholders (representing 99.62 per cent of the total issued share capital) had passed the plan.³²⁷ Maugham J ruled that the court should not set up its own view of fairness in opposition to a very large majority of insiders in the absence of very strong grounds,³²⁸ but admitted that 'from modern balance-

³²⁴ Money and Pensions Service, 'Talk Money Week 7-11 November 2022' <<https://www.moneyandpensionsservice.org.uk/2022/08/17/talk-learn-do-evaluations-of-recent-projects/>> accessed 18 February 2024

³²⁵ *ibid*

³²⁶ *Re Hoare & Co, Ltd* [1933] ALL ER Rep 105

³²⁷ *ibid*

³²⁸ *ibid*

sheets very little real information can be obtained as to the capital value of assets.’³²⁹ Similarly, in order to survive the Financial Crisis of 2008, HSBC raised approximately £12 billion by issuing new shares to the existing shareholders.³³⁰ The new shares were priced in Hong Kong dollars for Hong Kong shareholders. Under International Accounting Standards (IAS) 32, the capital raised in other currency than the bank’s functional currency (US dollars) shall be accounted as a derivative financial liability.³³¹ Yet, HSBC treated the money as shareholders’ equity to improve its capital structure and survive the Crisis.³³²

It is also important to highlight that while the Companies Act 2006 states that those accounts must give a true and fair view of the company, it gives no definition of true and fair. Thus, the fairness of the accounts is decided by the courts in a case-by-case basis based on whether sufficient reliable information is contained to satisfy the readers.³³³ Hence, as indicated in *Re Hoare & Co, Ltd*, it can be difficult for ordinary investors to challenge the fairness of the account in court. Nevertheless, the Companies Act 2006 is still a statutory duty. If the FCA believes some Fintech companies can be exempt from the law, such decisions can only be made by the Parliament. Before that, the regulators should enforce the Companies Act 2006 reporting requirements on registered crypto firms.

More importantly, the risks and the reasoning of giving such exemptions should be communicated honestly with the public. In this sense, strengthening the accounts of the registered firms is a gesture that the FCA is changing the traditional approach of sacrificing transparency for market values. Having a proper financial report can at least mitigate the lack of information in crypto exchanges, hence, could be a starting point to increase transparency in the UK crypto market. It is also worth noting that reducing platforms’ default risks can encourage transactions via registered crypto firms, which could facilitate the FCA’s monitoring crypto transactions against money laundering and terrorist financing risks.

³²⁹ *ibid*

³³⁰ Horace Ho, ‘A Case Study of True and Fair View Override in Financial Reporting’ (2016) 5(1) *Nang Yan Business Journal* 13

³³¹ *ibid*

³³² *ibid*

³³³ Leonard Hoffmann QC, Mary H Arden, *Legal Opinion Obtained by Accounting Standards Committee of True and Fair View, with Particular Reference to the Role of Accounting Standards* (ASC, 1983)

Overall, against meme investors' exposure to excessive default risks, regulators need to provide the public with financial literacy, communicate with meme investors via social media and enforce statutory reporting requirements among crypto firms.

7. Conclusion

The chapter studies a new group of investors in the UK financial market, the meme investors. Comparing with traditional investors, meme investors are significantly less wealthy, rely on social media information and trade outside traditional financial intermediaries. These features allow meme investors to include their moral sentiments in investment decision-making, while also expose meme investors to excessive risks. To ease social inequality and fulfil its duty, the FCA needs to aid meme investors.

The emergence of meme investors represents the public's desire for inclusion. Traditionally, the financial market is only accessible for institutions and wealthy individuals. Less wealthy people are involved as pension fund contributors and depositors. Yet, in these scenarios, people have little power in investment decision-making. In contrast, trading outside traditional intermediaries allows meme investors to express their frustration towards traditional financial institutions, willingness to support jobs and concerns over the environment. In this sense, meme investors are the implementor of moral transparency. However, like recognised in Chapter 3, the public's involvement in finance can be speculative. Yet, as demonstrated in the GameStop frenzy, this speculation largely mimics and responds to traditional investors' speculation. This chapter emphasises the need to educate meme investors against the danger of speculation, while Chapter 5 calls for easing speculation among traditional investors. The two work together in changing the speculative culture in the UK financial market.

Meme investors' access to finance is facilitated by two innovations. Firstly, the emergence of digital trading platforms. Secondly, the implementation of smart contracts. These new channels allow meme investors to access a wide range of financial products, including stocks, crypto, derivatives and bonds. But meme investors also suffer from lack of information, knowledge and legal protection. These unregulated investment channels provide little credible information for assessing default risks. Some lack of transparency, like replacing traditional contracts with smart contract codes, is covered by technology innovation. Whereas others, like the poor accounts, are caused by companies taking advantage of the Companies Act 2006's exemptions. In the absence of proper regulatory intervention, meme investors are highly unlikely to profit. Meme investors' failure will then intensify the social inequality and the feeling of being left behind in society. Against this backdrop, this chapter calls for the FCA to properly regulate the trading platforms, hence, reduce meme investors' risks exposure. Through the example of London Capital and Finance, this chapter highlight the need for the FCA to engage with meme investors. To fulfil its consumer protection and market integrity objectives, the FCA should

improve the public financial literacy and ensure the digital trading platforms operate in line with the Companies Act 2006. Chapter 4 further includes this social inequality as a meme-related systemic risk, hence, urges regulators to step in.

It is also important to note that social media plays a crucial role keeping meme investors informed and unified. On one hand, it allows people share information online, hence, breaks traditional financial intermediaries' dominance in producing and sharing information. On the other hand, the peer-support system creates a sense of community that unifies meme investors. These achievements are significant as historical transparency reforms struggled to keep the public informed and unified in long-term. However, it is also undeniable that meme investors suffer from online mis-information, which further highlights the need for proper regulatory intervention.

Due to meme investors' reliance on social media, this chapter calls for UK financial regulators to communicate with the public via social media platforms. Such communication includes podcasting the Bank of England's Social Mobility series on Spotify as a response to the public's desire for equality and rebuild the public's trust. Meanwhile, the FCA could also provide financial literacy against meme default risks and systemic risks on social media as a means to communicate with the public and counter online mis-information.

Chapter 5. The Old Habit and New Route. Crypto Derivatives' Impact on Systemic Risks.

1. Introduction

In analysing meme investors' portfolios, Chapter 4 warns that without proper legal protection and financial literacy, uninformed meme investors are exposed to excessive default risks. In response to this situation, Chapter 4 argues that the FCA has a duty to protect consumers in the UK financial market. To fulfil this duty, the FCA should improve financial literacy among meme investors and ensure digital exchange operating in compliance with existing rules. This chapter further argues that soaring inequality is a systemic risk that currently falls outside regulators' radar. Instead of simply monitoring systemic risks via the EMIR information disclosure mechanism, regulators need to reduce systemic risks via easing inequality.¹ Together, the two chapters use contemporary examples to highlight the urgency for UK financial regulators to embrace moral transparency as detailed in Chapter 3.

Previous analysis illustrates how excessive speculation intensified social inequality, which then led to the crises of 1929 and 2008. Nevertheless, financial crises are high impact low probability incidents.² As the full scope of the Cost-of-Living Crisis remains unknown, what makes this thesis' warning on another systemic failure different from fortune telling? This chapter emphasises that speculative products like crypto derivatives intensify the dilemma between monitoring systemic risks and reducing systemic risks, which could be the trigger of another systemic failure. This is because, clearing may help regulators better monitor the speculative crypto derivatives market. But it also concentrates excessive default risks in CCPs, which is a too big to fail systemic risk. The possibility of bailing out such financial infrastructure is a

¹ This is because, in addition to the traditional understanding of too-big-to-fall and market contingency, the thesis also recognises excessive social inequality as a systemic risk that caused the Financial Crisis of 2008. See Section 3.

² Sylvain Benoit, Jean-Edouard Colliard, Christophe Hurlin and Christophe Pérignon, 'Where the Risks Lie: A Survey on Systemic Risk' (2017) 21(1) *Review of Finance* 109

heavy burden on the public.³ Meanwhile, due to meme investors' lack of access to the regulated market,⁴ clearing further enhances inequality between meme investors and traditional investors. Therefore, instead of merely monitoring systemic risks via CCPs, this chapter calls for UK financial regulators to ease excessive speculation and inequality.

It is important to note that, as of the time of writing, crypto derivatives have yet to be cleared in the UK CCPs. Therefore, this chapter's discussion on crypto derivatives' impact on the UK CCPs is largely a vision of what could happen if no action is taken. In mid-2021, one German CCP, EUREX started to offer a Bitcoin ETN Futures clearing service to its members.⁵ In addition to business competition pressure,⁶ the name 'Futures' indicates that such crypto derivatives are standardised contracts that should be cleared under the G20 agreements.⁷ In other words, UK financial regulators will encounter cleared crypto derivatives sooner or later, in the absence of a legal definition for clearable derivatives contracts.

Against this backdrop, this chapter explores what clearing crypto derivatives means to the UK financial market under the EMIR. In the remaining part of the chapter, Section 2 first demonstrates the current situation of the UK crypto derivatives market. Section 3 then introduces the concept of systemic risks, which builds the rationale for the chapter's call for regulatory intervention in the UK crypto derivatives market. Following the EMIR regulatory system, Section 4 examines the possibility of clearing crypto derivatives. At the first glance, clearing crypto derivatives allows monitoring crypto derivatives systemic risks under the EMIR information disclosure system. Yet, Section 5 finds that clearing would also increase systemic risks in the UK financial market by increasing CCPs' default risks, market contingency and inequality between meme investors and traditional investors. Against this backdrop, Section 5 urges UK financial regulators to clarify the definition of clearable derivatives to prevent crypto derivatives from being cleared.

It is important to note that this chapter only uses crypto derivatives as a contemporary example of speculative products. The tension between monitoring systemic risks and reducing systemic

³ How public bail out during the Financial Crisis of 2008 intensified social inequality was demonstrated in Chapter 2, Section 5 and will be further analysed in Section 3.4.

⁴ As demonstrated in Chapter 4.

⁵ EUREX, 'Bitcoin ETN Futures (FBTX)' <<https://www.eurex.com/ex-en/markets/crypto/bitcoin-etn/Bitcoin-ETN-Futures-2774070>> accessed 04 December 2022

⁶ See Section 4.2.

⁷ G20 Declaration, (Pittsburgh 2009)

risks generally exists in the UK derivatives market under the EMIR information disclosure system.⁸ Thus, Section 5 also urges UK financial regulators to regulate CCPs' resolution plan to avoid future bailout controversy. It is also worth emphasising that blockchain innovation does not cause these problems.⁹ In contrast, Section 6 recognises that de-centralised smart contracts contain opportunities for easing the concentration of information in CCPs, hence, reducing the too big to fail risk in the UK financial market. However, to embrace this technology, UK financial regulators need to first change the excessive speculative culture, while easing inequality between meme investors and traditional investors in the UK financial market. This argument echoes Chapter 3's argument that UK financial regulators need to embrace moral transparency to engage with blockchain innovation. Against this backdrop, Chapter 5 calls on UK financial regulators to set up standards and prevent highly speculative products from being cleared, as well as regulate CCPs' resolution plan and avoid bailout controversy intensifying social inequality.

⁸ See Section 5's analysis on how defaults events are managed within CCPs.

⁹ As will be demonstrated in Section 43.2 via the example of Nasdaq Clearing AB, the tension exists also in commodity derivatives.

2. A Snapshot of the UK Crypto Derivatives Market

Before analysing how the EMIR information disclosure system falls short in monitoring crypto-related systemic risks, this section presents a snapshot of the current UK crypto derivatives market. It recognises meme investors as new players in the UK derivatives market, while emphasising that the current UK crypto derivatives market resembles the pre-2008 derivatives market, as it is highly speculative and lacks transparency.¹⁰

UK financial regulators' different approaches towards meme investors and traditional investors will be demonstrated in the following sections.¹¹ The differentiated approaches unfairly discriminate against meme investors,¹² which confirms Chapter 2's argument that information disclosure in the UK financial market fails to address the public even in the aftermath of the Financial Crisis of 2008. Subsequently, Section 5 concludes that crypto derivatives should not be cleared to avoid intensifying social inequality and the feeling of being left behind among meme investors.

2.1 Trading in the Pre 2008 Style

The crypto market, especially Bitcoin and Ethereum, is dominated by traditional investors,¹³ who have been long-involved in derivatives trading.¹⁴ Against high volatility in prices in the crypto market,¹⁵ it is natural these traditional investors are using derivatives to manage their risk exposure.¹⁶ However, it is important to note that even though the derivatives contracts are

¹⁰ See Section 2.1's analysis on the lack of trading information disclosed regarding the UK crypto derivatives market.

¹¹ As mentioned in Chapter 4, the FCA bans meme investors from derivatives trading. The FCA has yet to give a clear statement towards traditional investors' participation in the crypto derivatives market. But analysis in Section 3 shows that in theory, crypto derivatives could be central cleared, which is a regulated market exclusive for big players.

¹² As will be discussed in Section 2.2, meme investors' access to crypto derivatives is restricted by the FCA. Whereas Section 4 argues that traditional investors can trade crypto derivatives in the cleared market for better margin and legal certainty.

¹³ See Chapter 3.

¹⁴ See Chapter 2 and Chapter 4.

¹⁵ Bitcoin prices changed dramatically from its highest point of over £51,000 per bitcoin in November 2021, to around £16,000 in June 2022. See Section 4.1.

¹⁶ As will be demonstrated later in this section, since the Bitcoin market itself is speculative, using derivatives to manage Bitcoin exposure is speculative. Therefore, the chapter chooses not to use the word hedge in describing the business activity.

entered to manage crypto exposure, the underlying Bitcoin and Ethereum market itself is speculative.¹⁷ Therefore, in line with Chapter 3's analysis of the local authorities swaps cases, this chapter perceives traditional investors' crypto derivatives trading as speculative.

The Financial Crisis of 2008 unveils the danger of excessive speculation in the derivatives market. With the COVID-19 Pandemic and the Cost-of-Living Crisis further intensifying social inequality in the UK, this chapter argues that UK financial regulators cannot turn a blind eye to traditional investors' speculation in the crypto derivatives market. The post-2008 transparency reforms enhanced information disclosure in traditional derivatives market through central clearing.¹⁸ Following this logic, the chapter explores the possibility of monitoring the crypto derivatives market under the EMIR information disclosure system. Paradoxically, the following analysis finds that monitoring crypto derivatives-related systemic risk via CCPs increases overall systemic risks in the UK financial market. This dilemma corresponds with Chapter 2's criticism towards information disclosure's over-reliance on the agency approach¹⁹ and narrowed focus on market efficiency.²⁰

Smart contracts could be used to create a de-centralised clearing system in the future for monitoring the crypto-derivatives market.²¹ But UK financial regulators need to first ease speculation in the UK derivatives market.²² Meanwhile, meme investors' involvement in crypto derivatives is also highly speculative.²³ However, since meme investors' speculation mimics and responds to traditional investors' behaviour,²⁴ this chapter emphasises the need for regulators to ease speculation among traditional investors. Together, Chapters 4 and 5 call for changing the excessive speculative culture in the UK financial market as a means to ease social inequality and achieve moral transparency.

¹⁷ See Chapter 3.

¹⁸ As introduced in Chapter 2.

¹⁹ See Section 5's analysis on the concentration of systemic risks in CCPs.

²⁰ See Section 3's analysis on the regulators' limited understanding of systemic risks, which echoes Chapter 1's critique towards the efficiency focused culture in the UK financial market.

²¹ As will be demonstrated in Section 6.

²² As will be discussed in Section 6, distributed ledger could be slow and energy consuming in processing transactions. Therefore, it cannot cope with the high trading volume in the speculative market. More importantly, technology could create a false sense of security, which will further intensify margin shortage in the speculative market. Therefore, to engage with smart contracts, the UK derivatives market needs to be less speculative.

²³ See Section 3.2.

²⁴ See Chapter 4's analysis on the GameStop frenzy.

Furthermore, this traditional investors-dominated crypto derivatives market operates in the traditional bilateral fashion, where any information concerning derivative transactions is usually only available to the contracting parties.²⁵ Therefore, the exact size and the players in the UK crypto derivatives market are known. This situation resembles the CDSs market before the Financial Crisis of 2008, whose sudden collapse dragged AIG to near bankruptcy.²⁶ Due to the systemic importance of AIG, the US government was then forced into bailing out AIG.²⁷ However, it is still possible to provide a snapshot on traditional investors' involvement in crypto derivatives. This is because, in the OTC market, derivatives buyers and sellers are likely to be clients of a financial institution,²⁸ where the institution is responsible for organising the transactions.²⁹ One company providing such services in the UK crypto derivatives market is GSR.³⁰ According to GSR, the company tailors crypto options for institutions and high net-worth individuals, with a minimum trade value of \$250,000.³¹ The FCA banned financial institutions from providing crypto derivatives services to retail clients.³² Therefore, it is important to highlight, that the OTC derivatives buyers and sellers discussed here are not retail clients.

According to the FCA, a financial institution may have three different categories of clients based on the clients' expertise and balance sheet: retail client, professional clients and eligible counterparties.³³ As highlighted by GSR, the company only serves institutions and high net-worth individuals.³⁴ The institutions fall into the definition of professional clients,³⁵ hence, are

²⁵ See Chapter 2's discussion on derivatives trading before central clearing.

²⁶ See Chapter 2.

²⁷ *ibid*

²⁸ This is to overcome the difficulty of finding a credit-worthy counterparty in the OTC market, which will be explained in Section 4.2 and Section 5.2.

²⁹ For instances, the IMB and the World Bank currency swaps arrangement in 1981.

³⁰ The company is also mentioned in Chapter 3 as a market maker in the UK crypto market.

³¹ GSR, 'OTC Crypto Trading' <<https://www.gsr.io/trading/otc-trading/>> accessed 18 February 2024

Furthermore, the company also mainly trade popular crypto like Bitcoin and Ethereum, which is consistent with Chapter 3's finding that Bitcoin holders are mainly super-rich individuals, financial firms, and corporations.

³² Discussed in Section 3.2.

³³ See Chapter 3's discussion on meme investors' lack of access to financial institutions.

³⁴ GSR (n 31)

³⁵ Professional clients are FCA authorised financial institutions, large companies with a balance sheet of over € 20 million or net turnover of €40 million or own funds of € 2million; a notional or regional government or similar

not affected by the FCA retail crypto derivatives ban. Meanwhile, for individuals who hold a substantial amount of Bitcoin, the FCA allows such clients to waive their position as retail clients and become elective professional clients. The FCA requires elective professional clients to have a significant transaction size and a portfolio of over €500,000.³⁶ Thus, for traditional investors holding Bitcoin, it is still possible to manage their Bitcoin exposure via options, through financial institutions like GSR.

Therefore, traditional investors participate in the UK crypto derivatives market in a pre-2008 fashion, trading speculative products over-the-counter (OTC). Based on lessons learned from the Financial Crisis of 2008, the subsequent sections explore the possibility of clearing crypto derivatives via CCPs to monitor crypto derivatives-related systemic risk.

2.2 Digital Derivatives Trading Platforms for Meme Investors

In addition to traditional investors, the following analysis suggests that meme investors also participate in the UK crypto derivatives market. As a lesson learned from the local council swaps cases, trading derivatives without sufficient knowledge risks dragging un-sophisticated investors (like the local authorities and meme investors) into potential financial catastrophe.

2.2.1 Platform Default Risks

It is worth emphasising that, even though the local councils did not have sufficient knowledge in derivatives trading, the authorities nevertheless had more negotiation power and controversially, legal benefits to walk away from the contracts.³⁷ Yet, in *Ramona ANG v Reliantco Investments Ltd*,³⁸ when the price of Bitcoin rose dramatically in 2017, Reliantco just closed the meme investors' accounts. In this sense, meme investors are powerless in the crypto derivatives market which is consistent with Chapter 4's analysis on meme investors' excessive exposure to platform default risks. To protect meme investors, the FCA banned the sale of crypto derivatives to retail customers.³⁹ At the time of writing this chapter, UK users can still

international organisation; and another institutional investor whose main activity is to invest in financial instruments or designated investments.

³⁶ The FCA handbook, COBS 3.5.3

³⁷ See Chapter 3, Section 4.

³⁸ [2019] EWHC 879 (Comm)

³⁹ The FCA, 'FCA Bans the Sale of Crypto-Derivatives to Retail Consumers' (the FCA, 06 October 2020) <<https://www.fca.org.uk/news/press-releases/fca-bans-sale-crypto-derivatives-retail-consumers>> accessed 18 February 2024

download the UFX app. But the Bitcoin future considered in the case is no longer available on the platform. It is unclear how this absence is related to the FCA ban. This is because the company no longer has the FCA's authorisation, which means its whole operation is not under the FCA's supervision. The three FCA registered crypto exchanges discussed in Chapter 5 cannot provide such products to UK meme investors because the FCA already banned selling derivatives to retail investors. However, only a handful of crypto firms have registered with the FCA, while the crypto world is international by nature. Thus, despite the rules and litigation, UK meme investors can still trade crypto derivatives through unregulated platforms like Binance.⁴⁰ This crypto derivatives example further supports Chapter 4's call for the FCA to properly regulate digital trading platforms.

In addition to the general failure of the ban, this subsection pays extra attention on PayPal Bitcoin products.⁴¹ On one hand, PayPal users' exposure to crypto derivatives default risks largely overlap with Chapter 4's discussion on meme investments. On the other hand, this story also echoes Section 2.1's argument that financial institutions are involved in the UK crypto derivatives market, even though the technical name, crypto derivatives, is not stated. Instead, PayPal advertises the service as 'Buy, Hold and Sell Bitcoin with Us.'⁴² This advertisement is misleading, as users do not hold any real Bitcoin under this contract.⁴³

A more accurate expression would be the user entering a Bitcoin forward contract with PayPal. The contract gives PayPal users the rights against PayPal.⁴⁴ If a user invests £20 at the beginning of the contract, this money would worth a X% of one Bitcoin. When the user no

⁴⁰ The platform was discussed in Chapter 4 for its role in the SQUID Scam.

⁴¹ As introduced in Chapter 4, the GameStop frenzy, forwards and futures are derivatives contracts where both parties have the rights to trigger the contracts. When traded in a standardised form in an exchange, the contract is known as future. When traded OTC, the contract is known as forwards. As illustrated in Chapter 3, digital trading platforms do not provide the high standard information disclosure as in traditional exchange. Thus, this chapter uses the name forwards to describe derivatives contracts traded in the new digital platforms. Section 4 will further provide more examples on standardised crypto derivatives products to show that the contracts meme investors traded are not futures.

⁴² PayPal, 'Crypto with PayPal Is Here' <<https://www.paypal.com/uk/webapps/mpp/crypto>> accessed 04 December 2022

⁴³ PayPal, 'PayPal Cryptocurrency Terms and Conditions' <https://www.paypal.com/uk/webapps/mpp/ua/cryptocurrencies-tnc?locale.x=en_GB> accessed 04 December 2022

⁴⁴ *ibid*

longer wishes to hold, he/she can claim the monetary value of the X% of one Bitcoin from PayPal. Therefore, in addition to Bitcoin price changes, the user is also exposed to PayPal's default risk. More importantly, since PayPal does not deliver any physical Bitcoin,⁴⁵ the whole products could be a naked short selling position.⁴⁶ If PayPal expects the price of Bitcoin to drop in the following months, the company can capture a huge profit by selling the Bitcoin forward to users at the current price. In contrast, if the price of Bitcoin rises sharply in the future, PayPal can default.

While this subsection emphasises the default's impact on meme investors, Section 5 also recognises that financial institutions' default in the crypto derivatives could have a knock-on effect in the UK derivatives market.⁴⁷ This is because, the cleared derivatives market would treat the defaulting financial institution's derivatives position as a whole. Defaulting to meme investors in the crypto derivatives market would automatically affect the financial institution's other non-defaulting derivatives positions. In other words, what happens in the crypto derivatives market will not stay in the crypto derivatives market. In this hypothetical scenario, the UK CCPs could be caught unprepared against a meme-related systemic event. Therefore, regulators need to find a new way of monitoring systemic risks outside CCPs.

The story also confirms Chapter 2's argument that information disclosure is not the equivalent of transparency. As the mainstream notion of transparency, information disclosure has a narrowed focus on traditional market participants' concern of efficiency. But this notion fails to respond to the public's desire for equality and the public's growing involvement in finance. Although PayPal disclosed detailed information in the user agreement, users need to have sufficient knowledge in finance and law to understand the nature of this transaction. Those without such knowledge (like meme investors) are highly likely to be misled by the simplified advertising, hence, unknowingly exposed to the high counterparties default risks. Therefore, the story further supports Chapter 4's call on sharing knowledge with the public against platforms' default risks.

2.2.2 Limited Access to Cleared Products

It is also important to note that clearing only covers standardised contracts.⁴⁸ While the degree

⁴⁵ *ibid*

⁴⁶ The danger of naked short selling was illustrated in Chapter 4, GameStop frenzy.

⁴⁷ See Section 5.

⁴⁸ See Section 4.

of standardisation is open for interpretation, it is unviable that clearing will only cover a fragment of the UK crypto derivatives market. This assumption is consistent with findings from other derivatives market. For instance, data from the Bank of International Settlement (BIS) suggests that, almost 80% of interest rate derivatives and 50% of CDSs were centrally cleared globally in 2019, up from 33% and 10% respectively in 2009.⁴⁹ On one hand, this data shows a clear trend that more derivatives are cleared, hence, further confirms the possibilities of more cleared crypto derivatives emerging in the UK. On the other hand, the numbers also show that clearing will only cover a fragment of the crypto market. In addition to the EUREX, the Intercontinental Exchange group (ICE),⁵⁰ a well-established global financial infrastructure giant, who owns the New York Stock Exchange and one of the three UK CCPs, also provides two crypto futures through its ICE Futures Singapore exchange. The two crypto futures are Bakkt Bitcoin (USD) Monthly Futures (physically settled via Bitcoin) and Bakkt Bitcoin (USD) Cash Settled Monthly Futures.⁵¹ Therefore, all existing cleared products focus on the Bitcoin market.

This central clearing market's focus on Bitcoin is consistent with Section 3's argument that UK regulators tend to focus on too big to fail systemic risks. Therefore, as long as regulators are informed with big crypto and big investors, the market is considered transparent by insiders. This notion of transparency is labelled as information disclosure in the thesis. However, under information disclosure, outsiders' voices are ignored. This insufficient understanding of transparency and systemic risks fails to address the public's desire for equality, hence, cannot reach meme investors in the UK derivatives market. Therefore, before discussing clearing crypto derivatives' impact on EMIR's monitoring of systemic risks, Section 3 first redefines systemic risks. This new definition focuses on social inequality as the cause of financial crises, based on Chapters 2 and 3's analysis of the Financial Crisis of 2008 and Financial Crisis of 1929.

Furthermore, since the Bitcoin market is dominated by traditional investors, meme investors mainly invest on newly launched meme crypto for lower costs and greater speculation opportunities. Thus, even if the UK CCPs will clear crypto derivatives in the future, neither

⁴⁹ Umar Faruqi, Wenqian Huang and Előd Takáts, 'Clearing Risks in OTC Derivatives Markets: the CCP-Bank Nexus' BIS Quarterly Review, December 2018.

⁵⁰ More discussion on ICE in Section 4.

⁵¹ ICE, 'Products – Futures & Options' <<https://www.theice.com/products/Futures-Options/Digital-Assets/Bitcoin>> accessed 19 October 2021

memer investors, nor meme crypto derivatives will be covered by the EMIR. Therefore, the EMIR information disclosure system not only fails to monitor social inequality as a systemic risk, but also increases systemic risks by enhancing inequality between meme investors and traditional investors. For the stability of the UK financial market and society, regulators need to recognise inequality as a systemic risk and level the playing field for meme investors. Against this backdrop, even though clearing crypto derivatives may seem to be in line with the UK's commitment to the G20 group, Chapter 5 argues against clearing crypto derivatives. It is also important to emphasise that the legal ambiguity is caused by UK financial regulators' lack of clear definition of standardised derivatives contracts.⁵² Thus, UK financial regulators need to define standardised derivatives contracts to clarify the legal grounds.⁵³

2.2.3 Meme Investors and Other Derivatives Trading

In addition to crypto derivatives, meme investors can also trade traditional stock and bond derivatives like in the GameStop frenzy. As Hasso et al described the GameStop Frenzy was the first predatory trading organised by retail investors.⁵⁴ Since the financial market is a complex, interdependent web of contractual obligations, linking market participants to one another,⁵⁵ meme investors have the potential to generate wider market impact outside the meme sector. This expectation is confirmed by Steward, who found an overall reduction in the value of net short positions in the UK derivatives market during the GameStop Frenzy.⁵⁶ Similarly, in the US market, Libich and Lenten also warned that meme investors' distaste for short selling could trigger another systemic overvaluation of financial products.⁵⁷ Yet, Section 4 further argues that, the EMIR regulatory system is designed to monitor systemic risk via and within financial institutions. As meme investors do not rely on financial institutions' service, the regulators could find it difficult to monitor this new systemic threat imposed by meme investors.

⁵² See Section 4.1.

⁵³ See Section 6.

⁵⁴ Tim Hasso, Daniel Müller, Matthias Pelster and Sonja Warkulat, 'Who Participated in the GameStop Frenzy? Evidence from Brokerage Accounts' (2022) 45 *Finance Research Letters* <<https://www.sciencedirect.com/science/article/pii/S154461232100221X?via%3Dihub>> accessed 18 February 2024

⁵⁵ Katharina Pistor, 'A Legal Theory of Finance' (2013) 41 *Journal of Comparative Economics* 315

⁵⁶ Mark Steward, 'Locking Down Market Abuse' Public Speech on 25 February 2021 at the Expert Forum: Market Abuse 2021.

⁵⁷ Jan Libich and Liam Lenten, 'Bitcoin, Tesla and Gamestop Bubbles as a Flight to Focal Points' (2021) 22 *World Economics* 83

In other words, crypto derivatives do not cause the EMIR's failure in monitoring meme-related systemic risks. Rather, the financial innovations like crypto derivatives expose existing flaws within the information disclosure mechanism. Against this backdrop, Section 6 explores decentralised clearing's role in monitoring systemic risks in the derivatives market.

Meanwhile, it is unfair to blame meme investors from squeezing hedge funds or even to forbid meme investors from trading crypto derivatives. Meme investors are merely following the excessive risks taking culture in the UK and US financial market. UK financial regulators should focus on changing the excessive speculation culture, instead of picking up on meme investors by restricting meme investors' access to the regulated market.

Furthermore, as described by Tenev, the co-founder of Robinhood, an online trading platform for retail investors, exclusion enhances the feeling of being left behind among the public.⁵⁸ It is unfair that traditional investors have the privilege to hedge their exposures via cleared derivatives, while meme investors are left alone against excessive default risks.⁵⁹ Within the EMIR, Article 37 emphasises open and non-discriminatory access to clearing. Yet not every derivatives market participant can meet the net capital requirement, is capable of maintaining a back desk for the CCP and have a suitable internal risk-management procedure in place. To ensure smaller institutions' access to clearing services,⁶⁰ the LCH also accepts irrevocable letters of credit as an alternative funding recourse, where the net capital requirement is 'significantly greater than a Clearing Member's regulatory capital requirement'.⁶¹ Therefore, if

⁵⁸ BBC, 'Robinhood Boss Says GameStop Episode 'Unacceptable'' (BBC, 19 February 2021) <<https://www.bbc.co.uk/news/business-56116545>> accessed 18 February 2024

⁵⁹ As demonstrated in Chapter 4, these risks include platform default risks and sudden changes in crypto values.

⁶⁰ It is important to note that, Article 37 only concerns small institutional investors' access to clearing. This narrowed focus on institutional investors echoes Chapter 3 Section 1's analysis on traditional investors in the UK financial market. But the emergence of meme investors is not covered in the cleared market. As will be illustrated in Section 3.4, this narrowed focus on traditional investors enhances social inequality between meme investors and traditional investors, which is a systemic risk on its own.

⁶¹ Regulatory capital is another hotspot of post-crisis reform. Currently, in the UK financial market, the FCA has set the regulatory capital for UK financial firms in its handbook as part of a prudential standards. Meanwhile, a UK firm's regulatory capital is also legislated by the EU CRD IV and CRR.

Substantial research from both law and economic have been conducted in this area by researchers across the world. For more information in this topic, see for instance, David Murphy, *OTC Derivatives: Bilateral Trading and Central Clearing* (Basingstoke: Palgrave Macmillan 2013); Richard Haynes and Lihong McPhail, 'When Leverage Ratio Meets Derivatives: Running out of Options?' (2021) 30(5) *Financial Markets, Institutions &*

a hedge fund or pension fund is financially sound enough to acquire a suitable guarantee (irrevocable letters of credit)⁶² from a bank, the fund can still have direct access to clearing services. Subsequently, the derivatives trading activities of these smaller institutions will be reported to the financial supervisory authorities. Despite their relatively smaller capital size, these financial counterparties⁶³ have a substantial impact on the financial market. This includes that hedge funds' short-selling activities directly pushed Lehman Brothers to its bankruptcy, while pension funds are extremely important to public welfare. Therefore, the supervisors need to be informed with their positions.

A problem with such exemption is that a regulatory capital requirement only applies to financial institutions.⁶⁴ Therefore, meme investors are still excluded from the discussion. In fact, according to Article 4 of the EMIR, the clearing obligation concerns 'contracts concluded between two financial counterparties', which based on Article 2(8) of the EMIR, should mean investment firms, credit institutions, insurance undertaking entities, reinsurance and pension funds. Thus, non-financial institutions are not legislators' primary concern, not to mention meme investors.

One way for non-financial institutions to access clearing is by becoming a client of an existing clearing member.⁶⁵ It is also important to notice that most client information is not collected and reported via a CCP.⁶⁶ According to the European Securities and Markets Authority (ESMA), in comparison with financial institutions, non-financial institutions' hedging behaviours only represent a small proportion of derivatives trading in the EU market and concentrate in relatively less risky markets.⁶⁷ As non-financial institutions hedging position

Instruments 201; Samim Ghamami and Paul Glasserman, 'Does OTC derivatives reform incentivize central clearing?' (2017) 32(C) *Journal of Financial Intermediation* 76

⁶² Boris Kozolchyk, 'The Legal Nature of the Irrevocable Commercial Letter of Credit' (1965) 14(3) *The American Journal of Comparative Law* 395

⁶³ Article 4 of the EMIR illustrates that the clearing obligation applies to contracts concluded between two financial counterparties. The name 'financial counterparties' is defined in Article 2(8) as including investment firms, credit institutions, insurance undertaking entities, reinsurance, and pension funds...

⁶⁴ *ibid*

⁶⁵ ISDA, 'Dispelling Myths: End-user Activity in OTC Derivatives' (ISDA, August 2014) <<https://www.isda.org/a/WPDDE/isda-dispelling-myths-final.pdf>> accessed 04 December 2022

⁶⁶ *ibid*

⁶⁷ European Commission, Non-bank financial institutions: Assessment of their impact on the stability of the financial system, Economic Papers 472 | November 2012

hardly threatens market stability, regulators are willing to exclude them from costly position reporting obligations.⁶⁸ This reasoning confirms Chapter 2's argument that transparency is not a self-evident virtue in the financial market and can be compromised for market efficiency. Yet, meme investors do not have the privilege of becoming a client of a regulated financial institution. While Chapter 4 emphasises the lack of legal protection to meme investors, this chapter highlights that meme investors' derivatives trading activities are not monitored by the Bank of England. In return, the Bank of England is poorly informed about potential bubbles and uncertainties caused by meme investors. In this sense, the emergence of meme investors challenges UK financial regulators at both a micro and macro level. The situation confirms Chapter 3's argument that innovation blurs the barriers between insiders and outsiders in the UK financial market, where UK financial regulators can no longer dismiss the public's moral sentiments as irrelevant. Against this backdrop, the thesis calls for UK financial regulators to embrace moral transparency as a comprehensive culture change in response to the emergence of meme investors.

Therefore, crypto derivatives brought both new products and new players into the UK derivatives market. But the underlying inequality and speculative culture are historical. For both traditional players and meme investors, the current UK crypto derivatives market is a speculative segment operating outside the regulators' supervision. The FCA imposed some restrictions on meme investors' access to crypto-derivatives, which failed to address meme-related systemic risks and enhanced the feeling of being left behind in society. The following sections demonstrate such inequality as a systemic risk and call upon UK financial regulators to reduce systemic risks, instead of merely monitoring them via CCPs.

⁶⁸ *ibid*

3. Crypto Derivatives Failure and Systemic Risks

In reviewing the causes of the Financial Crisis of 2008, the de Larosière Report criticised the lack of transparency⁶⁹ in the derivatives market as:

Regulators and supervisors focused on the micro-prudential supervision of individual financial institutions and not sufficiently on the macro-systemic risks of a contagion of correlated horizontal shocks.⁷⁰

Chapter 2 already illustrated how derivatives trading increased the contagion of the financial market. But what exactly are systemic risks? How can no one see a systemic failure coming? This following analysis highlights three systemic risks, too big to fail,⁷¹ market contingency,⁷² and social inequality.⁷³ It argues that the post-2008 transparency reform covers the first two systemic risks but fails to address social inequality. Moral transparency addresses the loophole by levelling the playing field for meme investors and easing speculation in the traditional financial market.

When analysing the SQUID scam, Chapter 4 also came across the following statement from Amy Lynch, a former regulator from the US SEC, who now advises companies on how to comply with regulations:

We could have another 1929 event, but the question is, who is it going to affect? As long as the major financial players are actually not offering their own crypto exchanges and cryptocurrency trading platforms, then we are quote-unquote safe from the systemic risk.

Fast gaining cryptocurrency themed after the Netflix series Squid Game collapsed to zero this past week in an apparent swindle. Only its unlucky holders were harmed.⁷⁴

Lynch's statement echoes Chapter 2's argument that, transparency is not a self-evident overarching virtue in the financial market. Transparency's advocates need to justify choosing transparency over other competing values, including privacy, business secrets and efficiency.

⁶⁹ Or rather lack of information disclosure as analysed in Chapter 2.

⁷⁰ See the de Larosière Report.

⁷¹ See Section 3.2.

⁷² See Section 3.3.

⁷³ See Section 3.4.

⁷⁴ Jack Hough, 'It's the Weirdest Time in History for Finance. What to Know About Bubbles in Cryptos, Meme Stocks, and NFTs.' (Barron's, 5 November 2021) <<https://www.barrons.com/articles/cryptos-nfts-meme-stocks-bubble-51636130958>> accessed 18 February 2024

Lynch's indifference towards meme investors' suffering confirms Chapter 2's criticism towards the efficiency-focused culture in the UK financial market both before and after the Financial Crisis of 2008. To emphasise the need for moral transparency in the UK crypto market, Chapter 4 has illustrated the FCA has a duty to ensure transparency in the UK crypto market for consumer protection and market integrity. This section further argues that the too big to fail notion represents a limited understanding of systemic risks. For UK financial regulators to properly monitor the crypto derivatives related systemic risks, it is necessary to first renew the notion of systemic risks.

Through a literature review, this section defines systemic risks. This section focuses on how a lack of moral transparency allowed various systemic risks, including social inequality, to accumulate both before and after 2008. The analysis then builds the rationale for UK financial regulators to embrace moral transparency.

3.1 How Systemic Risks to Grow Undetected

Before 2008, systemic risks were rarely mentioned by UK regulators. In 2005, the Standing Committee on Financial Stability of the Tripartite⁷⁵ published its Financial Stability Review.⁷⁶ The report recognised several potential risks within the UK financial market, including excessive leveraged derivatives trading, and large complex financial institutions.⁷⁷ The problems, toxic CDSs trading,⁷⁸ and too big to fail,⁷⁹ were later classified as systemic risks in the EU de Larosi re Report in 2009. However, despite these red flags, the 2005 Report concluded that, overall, financial innovation put the UK market in a healthy position.⁸⁰ It is important to note that this limited understanding of systemic risks was shared by global regulators and mainstream economists.⁸¹ Therefore, the intention of this section is not to critique UK regulators for not foreseeing the Financial Crisis of 2008. Rather, it is to highlight a historical misunderstanding of systemic risks, especially the overlooking of social inequality's impact on financial markets.

⁷⁵ As introduced in Chapter 2.

⁷⁶ Bank of England, 'Financial Stability Review' (December 2005)

⁷⁷ *ibid*

⁷⁸ Bank of England (n 76)

⁷⁹ Andrew Ross Sorkin, *Too Big to Fail: Inside the Battle to Save Wall Street* (Penguin 2010) 91

⁸⁰ Bank of England (n 76)

⁸¹ See Chapter 2's discussion on how Topalova's paper was rejected and criticised before 2008.

UK regulators' positive overall assessment of the UK financial market was proven wrong by the Financial Crisis of 2008.⁸² While regulators later claimed that the lack of information rendered them unable to detect systemic risks,⁸³ by analysing the 1980s privatisation movement's impact on social inequality, Chapter 2 showed regulators' reluctance to communicate their reasoning openly and the narrowed focus on market efficiency were much deeper causes of the negligence as well as fraud in the financial market. The following analysis redefines systemic risks, hence, clarifies the scope of monitoring systemic risks. Furthermore, Section 4 finds the lack of communication before 2008 still troubling in the post-2008 UK derivatives market. Against this backdrop, Section 6 calls for regulators to embrace moral transparency, respect public morality and communicate their reasoning with various stakeholders regarding systemic risks.

3.2 Too Big to Fail

In 2009, the Financial Services Authority (succeeded by the FCA and PRA) published its *Turner Review a Regulatory Response to the Global Banking Crisis*.⁸⁴ The report argued that macro-prudential levers should be used to offset systemic risks.⁸⁵ Yet, in this report, there was no indication as to what systemic risks actually were, even though the UK just experienced a financial crisis.⁸⁶ Against such vagueness, it is hard to imagine UK regulators could take effective actions in tackling systemic risks.⁸⁷

A crucial factor contributing to the post-2008 reforms in the UK was the EU-wide reform, which was led by the de Larosière Report.⁸⁸ The de Larosière Report used word 'systemic risks' on five occasions and emphasised that systemic risks are associated with 'especially the large cross-border institutions, which pose systemic risks'.⁸⁹ This position was consistent with the UK regulators' actions during the Financial Crisis of 2008. As illustrated in Chapter 2, even

⁸² See Chapter 2.

⁸³ See Chapter 2's discussion on Royal Bank of Scotland and AIG.

⁸⁴ FSA, The Turner Review (March 2009)

⁸⁵ *ibid*

⁸⁶ The catastrophic impact of the Financial Crisis 2008 on the UK society was analysed in Chapter 2.

⁸⁷ Or as Omarova criticised, regulators response to macro-level changes continue to operate on the micro-level. Saule T Omarova, 'Technology v Technocracy: Fintech as a Regulatory Challenge' (2020) 6(1) *Journal of Financial Regulation* 75

⁸⁸ Guido Ferrarini and Filippo Chiodini, 'Regulating Cross-Border Banks in Europe: A Comment on the de Larosière Report and a Modest Proposal' (2009) 4(1) *Capital Markets Law Journal* S123

⁸⁹ *ibid*

after the nationalisation of Northern Rock, UK regulators still insisted that the UK financial market was sound. The turning point for the UK regulators was when one of the UK's biggest banks, the Royal Bank of Scotland (RBS), struggled with its exposure to CDSs. Subsequently, the UK government started to bail out banks,⁹⁰ using public money to pay for the banking industry's excessive risks-taking behaviour. While one may argue the initial statement was an attempt to maintain market confidence, hence, avoiding further impacts, such statements also jeopardise the public's trust.

As will be discussed in Section 3.3, the bailout sought to avoid the wider economic impact of the financial crisis. Yet, as of 31 March 2020, the UK still had £1,162 billion outstanding in bailing out top UK banks.⁹¹ To better understand this decade-old baggage, the UK government furlough scheme during the COVID-19 Pandemic cost around £70 billion to support around 9 million workers.⁹² Following the end of the furlough scheme, Cribb and Salisbury predicted, people would inevitably lose their jobs.⁹³ Thus, if the UK banks could pay for the Financial Crisis of 2008 themselves, more money could become available for supporting people through the Pandemic. Against this background, it is understandable that a growing number of people are feeling being left behind in the UK.⁹⁴ This sentiment, as analysed in Chapter 2, will further divide the country, bringing more social and economic uncertainties. Subsequently, Section 3.4 argues that social inequality is a systemic risk that deserves UK financial regulators' attention. Against such a fragile socio-economic environment, Section 6 recommends against clearing crypto derivatives to avoid further division between traditional and meme investors.

The focus on too big to fail financial institutions in these early reports shaped the UK regulatory system post-2008. In 2013, the Financial Policy Committee (FPC) was established as a subsidiary of the Bank of England, which is responsible for monitoring systemic risks in the

⁹⁰ See Chapter 2.

Both the Bank of England and the Treasury provided tens of billions of emergence loans to prevent RBS from immediate failure on 7 and 8 October 2008. More details on RBS bailout see Federico Mor, 'Royal Bank of Scotland Bailout: 10 Years and Counting' (House of Commons Library, Insights) 12 October 2018.

⁹¹ National Audit Office, 'Taxpayer Support for UK Banks: FAQs' (November 2020) <<https://www.nao.org.uk/taxpayer-support-for-uk-banks-faqs/>> accessed 04 December 2022

⁹² Jonathan Cribb and Adam Salisbury, 'Employment and the end of the furlough scheme' in *IFS Green Budget*: October 2021 (Institute for Fiscal Studies, 2021)

⁹³ *ibid*

⁹⁴ Richard Blundell, Monica Costa Dias, Robert Joyce and Xiaowei Xu, 'Covid-19 and Inequality' (2020) 41(2) *Fiscal Studies* 291

UK.⁹⁵ To address the excessive leverage indicted by the failure of Northern Rock and near failure of RBS, in 2014, the FPC imposed a systemic risks buffer (SRB) of 35% to ensure banks' capital adequacy.⁹⁶ As indicated in Chapter 2, the capital insufficiency was systemic among the UK financial institutions. Yet, the SRB only applies to ring-fenced banks and large building societies that hold more than £25 billion in deposits and shares.⁹⁷ In other words, the FPC focuses primarily on too big to fail institutions. Yet, such narrowed focus on systemically important or too big to fail financial institutions encouraged these institutions to grow even bigger. This is because users believe these institutions are routinely checked by the regulators, hence, should be safer. Consequently, when another default event happens, these institutions become even bigger to fail.

This focus on systemically important financial institutions also affects transparency in the UK crypto derivatives market. On one hand, the UK regulators rely on systemically important CCPs to manage default risks and keep the regulators informed with systemic risks in the UK derivatives market.⁹⁸ As will be discussed in Section 5, this reliance puts the regulators in a dilemma between being unable to monitor crypto derivatives and increasing default risks in the UK CCPs, both of which are systemic risks. On the other hand, UK regulators give exceptions to relatively small financial institutions, as these institutions are believed to have low systemic impacts.⁹⁹ Chapter 4 already criticised that exempting small crypto firms from auditing exposes meme investors to high counterparties default risks. Section 3.4 further argues that such inequality is a systemic risk that threatens the stability of the UK derivatives market. Therefore, it is fair to conclude, this narrowed focus on too big to fail financial institutions does not work in the UK crypto market. Section 6 highlights the possibility what a de-centralised derivatives market could do in reducing systemic risks in CCPs. However, like Chapter 3 argued, blockchain could be slow and energy consuming in verifying transactions. Thus, technology

⁹⁵ See Chapter 2.

⁹⁶ BoE, 'The Financial Policy Committee's Framework for the Systemic Risks Buffer' (May 2016) <<https://www.bankofengland.co.uk/-/media/boe/files/paper/2016/the-financial-policy-committees-framework-for-the-systemic-risk-buffer>> accessed 18 February 2024

⁹⁷ *ibid*

⁹⁸ See Chapter 2.

⁹⁹ See Section 6.

could only provide limited support in monitoring systemic risks. Regulators need to ease speculation and reduce systemic risks in the UK crypto-derivatives market.¹⁰⁰

3.3 Systemic Risks and the Chain of Actions

While the UK regulators followed the relatively vague and restricted notion of systemic risks, a more sophisticated definition of systemic risks was established based on the International Monetary Fund (IMF)’s research:

systemic risk is the risk of a financial system breakdown with (1) serious negative consequences for the real economy (IMF, 2011). Such a breakdown will often be associated with (2) the failure of one or more so-called ‘systemically important financial institutions’, with (3) contagion among institutions and markets, (4) a collapse in asset values and (5) positive feedback loops exacerbating problems across the system. To be systemic in scope, an event has to satisfy (1). To be systemic in character, it has to satisfy the majority of (2) – (5). So, for example, a single SIFI failing might not be a truly systemic event, but if it is combined with a secure collapse of a major class of assets (4) and significant consequences for the real economy (1), then it would be.¹⁰¹

This definition was adopted by international financial regulatory organisations, including the Financial Stability Board and the Bank for International Settlements in 2016.¹⁰² As will be further demonstrated in Section 5, the route described for systemic risks to transmit in the UK economy also applies to crypto derivatives. If cleared, crypto derivatives can increase the default risks of systemically important CCPs, with contagion among clearing members and a collapse in crypto values, and positive feedback loops among meme investors.¹⁰³ As illustrated in Chapter 4, meme investors’ participation in the GameStop triggered a wide drop of shorting position in both the UK and US market. Thus, the GameStop frenzy acts as an early warning on meme-related market contagion. Since meme investors are not monitored under the EMIR information disclosure mechanism, this market contagion currently falls outside the regulators’ radar. To mitigate this shortfall, Section 6 explores the possibility of de-centralised clearing.

¹⁰⁰ See Section 6.

¹⁰¹ Alan King, John C. Liechty, Clifford V. Rossi and Charles Taylor, ‘Frameworks for Systemic Risks Monitoring’ in Margarita S. Brose, Mark D. Flood, Dilip Krishna, Deloitte & Touche, LLP and Bill Nichols (eds), *Handbook of Financial Data and Risk Information 1* (Cambridge 2014)

¹⁰² IMF, FSB and BIS, ‘Elements of Effective Macprudential Policies. Lessons from International Experience’ (August 2016)

¹⁰³ See Section 5.

In comparison with the simplified too big to fail understanding of systemic risks, the IMF definition emphasises the wider economic impact as the core element of systemic risks, thus provides greater economic motivation for regulators to step in, monitor and reduce systemic risks. Using the example of credit default swaps (CDSs) short selling, this subsection demonstrates how contingency in the derivatives market directly contributed to the Financial Crisis of 2008. Section 5 then explains how cleared crypto derivatives could trigger a systemic failure as CCPs increase contingency in the UK derivatives market.

Traditionally, the overall risk in a financial system was seen as the summation of individual market participants' risk exposure.¹⁰⁴ But CDSs shorting revolutionised the banking industry. According to the International Swaps and Derivatives Association's (ISDA) market survey, by the end of 2008, the global outstanding notional amount of CDS reached US\$38.6 trillion, which created an interdependent network among financial institutions across the different sectors and jurisdictions.¹⁰⁵ For instance, when the sub-prime mortgage market failed, AIG suddenly realised it was exposed to \$2.7 trillion debt through 12,000 individual CDS contracts.¹⁰⁶ For the US, if AIG failed, millions of Americans would be left without health insurance,¹⁰⁷ and almost all major Wall Street financial institutions would be immediately affected.¹⁰⁸ Meanwhile, buyers of AIG's CDS products were from across the world. As stated by Ken Lewis, the Chief Executive Officer of Bank of America, 'I don't know of a major bank that doesn't have some significant exposure to AIG.'¹⁰⁹ Throughout the bailout procedure, AIG revealed that the Royal Bank of Scotland and Banco Santander both had substantial business

¹⁰⁴ *ibid*

¹⁰⁵ ISDA, 'ISDA Publishes Year-End 2009 Market Survey Results' (ISDA, 22 April 2010) <<https://www.isda.org/2010/04/22/isda-publishes-year-end-2009-market-survey-results/>> accessed 18 February 2024

¹⁰⁶ Sorkin (n 79) 239-240

¹⁰⁷ Sorkin (n 79) 229

¹⁰⁸ BBC, 'How banks depend on AIG' (Robert Peston, 16 September 2008) <https://www.bbc.co.uk/blogs/thereporters/robertpeston/2008/09/how_banks_depend_on_aig.html> accessed 18 February 2024

¹⁰⁹ *ibid*

exposure to AIG's swap book.¹¹⁰ Massive bailouts imposed a long-term financial burden on the UK.¹¹¹

In addition to this traditional contingency, the GameStop frenzy shows a new channel where traditional players can be exposed to meme investors' trading activities. Since meme investors trade outside regulated intermediaries, regulators cannot effectively monitor this contingency via the EMIR information disclosure system. However, as demonstrated in Section 2.2, meme investors' short squeezing mimics and responds to traditional investors' speculation. Therefore, easing speculation among traditional investors could ease this new contingency.

3.4 Social Inequality as a Long Overlooked Systemic Risk

More importantly, while the IMF's emphasis lies on contingency among traditional investors, it is also important to note excessive speculation played a key role in triggering the market failure. That is to say, even though the IMF's definition of systemic risks rightfully recognised the contingency in modern financial markets, this definition still has a narrowed focus on market efficiency. As demonstrated in Chapters 2 and 3, the Financial Crisis of 2008, like the Financial Crisis of 1929, was caused by excessive social inequality, while excessive speculation intensified social inequality. Without addressing these real causes, merely monitoring systemic risks cannot bring stability to the UK financial market. Against this backdrop, this chapter calls for UK financial regulators to ease speculation as the means to reduce systemic risks.

As Rouch recognised, the UK government's decision to bail out banks during 2008 was an attempt to support the wider economy owing to the importance of financial services in the society.¹¹² For instance, post 2008, the Bank of England cut interest rates to encourage investment, hence, supporting jobs and households.¹¹³ However, commercial banks did not cut their interest rates accordingly for borrowers.¹¹⁴ Consequently, banks were able to soon profit again post-2008, while the public struggled to access credit. Such events inevitably negatively

¹¹⁰ Congressional Oversight Panel, *June Oversight Report: The AIG Rescue, Its Impact on Markets, and the Government's Exist Strategy* (U.S. Government Printing Office, Washington 2010) 91

¹¹¹ The topic was discussed in Chapter 2.6. This analysis here focuses on revealing the contingency between the UK and the US financial markets.

¹¹² David Rouch, 'The Great Re-evaluation: Reading for an End' in *The Social Licence for Financial Markets* (Palgrave Macmillan 2020)

¹¹³ *ibid*

¹¹⁴ *ibid*

affect the economy and enhance the impression of ‘them vs us’ among the public.¹¹⁵ This feeling was behind the GameStop frenzy and Occupy London, which contained systemic risks threatening the stability of the UK financial market.¹¹⁶ To address the meme-related systemic risks, UK financial regulators need to respond to the public’s moral sentiments.

As for the regulators’ role in ensuring moral transparency, Tooze argued that regulators could impose stricter rules when bailing out banks, like capturing bankers’ remuneration or establishing a clear target for banks to support society.¹¹⁷ Yet, regulators let the banks walk away from the mess, in fear of further systemic impacts.¹¹⁸ The approach echoes Chapter 2’s criticism of UK financial regulators’ information over-reliance on financial institutions. Therefore, to hold banks accountable, it is necessary to ease the concentration of information, wealth, and power in financial intermediaries. Against this backdrop, Section 6 explores the possibility of de-centralised clearing in the UK derivatives market. Nevertheless, failure to hold banks accountable then re-enforced the public’s anger and distrust towards the government, which led to the invention of crypto.¹¹⁹ Innovative products like crypto derivatives then further challenges regulators’ oversight of systemic risks in the UK financial market.¹²⁰ Therefore, it is fair to say, excessive social inequality contributed to the feedback loops across the UK financial system. Whether the UK government should have bailed out the banks in 2008 is a complex topic beyond one single piece of research. What this chapter argues here is that UK financial regulators need to embrace moral transparency and ease social inequality, addressing the causes of the financial crisis, instead of playing catch-up against the symptoms. Following this argument, Section 6 then gives more detailed explanation as to how regulators should embrace moral transparency against systemic risks in the UK derivatives market.

In summary, systemic risks include too big to fail risk, market contingency and social inequality. The lack of moral transparency allows excessive speculation and inequality to grow in the UK financial market. Before the Financial Crisis of 2008, warnings against systemic risks were dismissed by regulators and mainstream economists. During the crisis, regulators still focused

¹¹⁵ As discussed in Chapter 4’s analysis of the GameStop frenzy.

¹¹⁶ See Section 6.

¹¹⁷ Edward Ashbee, ‘Fiscal Policy Responses to the Economic Crisis in the UK and the US’ in Terrence Casey (ed), *The Legacy of the Crash* (Palgrave Macmillan 2011)

¹¹⁸ *ibid*

¹¹⁹ See Chapter 2.

¹²⁰ See Section 5.

on rescuing big financial institutions. Even though the intention was to reduce a banking failure's impact on the wider economy, the lack of moral transparency nevertheless jeopardised the rescue, intensified inequality and enhanced the public's distrust towards regulators. This complex socio-economic background then led to the creation of the UK crypto market. In this sense, the challenges crypto brought to the UK financial market are a part of the long-term impact of the Financial Crisis of 2008 and excessive social inequality. To ensure the stability of the contemporary UK financial market, regulators should have a comprehensive overview of systemic risks, ease speculation and promote social equality.

4. Monitoring Crypto Derivatives Systemic Risks through CCPs

Even though the UK CCPs are yet to offer crypto derivatives clearing services, globally, some CCPs are exploring crypto derivatives clearing.¹²¹ This section demonstrates the legal ambiguity, economic and information disclosure grounds for the UK to clear crypto derivatives. By laying out the grounds, this section builds the rationale for the following sections to analyse clearing crypto derivatives' potential impact on systemic risks in the UK.

It is important to highlight that the legal ambiguity to clear crypto derivatives should not be perceived as a legal obligation to clear. Rather, this thesis argues against clearing crypto derivatives in the UK CCPs and urges UK financial regulators to set clean standards regarding clearable derivatives. Sections 2.2 and 3.4 already warned that clearing will intensify inequality between meme investors and traditional investors, which is a systemic risk. Section 5 further argues that clearing crypto derivatives will increase CCPs' default risks and market contingency. In other words, the existing information disclosure system puts the Bank of England in a dilemma between monitoring crypto derivatives and reducing systemic risks in the UK financial market. Based on these systemic concerns, Section 6 concludes that crypto derivatives should not be cleared, while UK regulators should explore de-centralised clearing.

Clearing enhances information disclosure in the UK derivatives market.¹²² In the UK, three CCPs are responsible for managing default risk for financial institutions, while keeping the Bank of England informed.¹²³ In return, the Bank of England is responsible for overseeing the UK CCPs, hence, monitoring systemic risk.¹²⁴ As the UK crypto derivatives market still operates largely outside the regulators' radar, this enhanced information disclosure could be an incentive for UK financial regulators to push for the clearing of crypto derivatives.

4.1 The Legal Ambiguity for Clearing Crypto Derivatives

Clearing crypto derivatives has a controversial legal foundation: As introduced in Chapter 2, in the aftermath of the Financial Crisis of 2008, the G20 leaders stated that 'all standardized OTC derivative contracts should be traded on exchanges or electronic trading platforms, where appropriate, and cleared through central counterparties by end-2012 at the latest.'¹²⁵ to rebuild

¹²¹ See EUREX, whose Bitcoin derivatives is introduced in later paragraph.

¹²² See Chapter 3.

¹²³ *ibid*

¹²⁴ *ibid*

¹²⁵ G20 Declaration, (Pittsburgh 2009)

market confidence. The EMIR is a correspondent EU regulation of this international movement, demonstrating requirements and rules of conduct for CCPs operating in the EU market.¹²⁶ This regulation started to be applicable in the UK financial market in 2012,¹²⁷ based on Article 288 of the Treaty on the Functioning of the European Union (TFEU). Thus, the UK CCPs have a legal obligation to clear OTC crypto derivatives if the contracts can be standardised.

Yet, the EMIR does not clarify what standardised derivatives contracts are. Thus, it is unclear what crypto derivatives are standardised, hence, should be cleared. However, as a potential example one German CCP, EUREX started to offer Bitcoin ETN Futures clearing service to its members in mid-2021.¹²⁸ The practice nevertheless indicates that market participants consider such crypto derivatives as standardised, the clearing of which is a legal obligation. The following analysis in Section 5 highlights that clearing crypto derivatives is highly speculative. This German example thus shows excessive speculation is not just a UK problem. Summarily, in the previously analysed AIG example, the US, UK and EU financial institutions were all exposed. Therefore, excessive speculation goes far beyond the UK financial market. So does the need to embrace moral transparency.

4.1.1 The Ambiguity regarding Standardised Contracts

Since the G20 Declaration, establishing comprehensive standards for determining clearable products has been a legislative target closely monitored by the Financial Stability Board in the OTC Derivatives Market Reforms Progress Reports.¹²⁹ According to the 2019 Progress Report, the EU has issued central clearing determinations on limited products, including certain interest rate swaps denominated in EUR, GBP, JPY, USD NOK, PLN and SEK; selected European (iTraxx) indices CDS. Such EU rules were adopted by the UK, when leaving the single market.¹³⁰ However, the scope of the mandatory CCP clearing obligation is still open for

¹²⁶ Paola Lucantoni, 'Central counterparties and trade repositories in post-trading infrastructure under EMIR Regulation on OTC derivatives' (2014) 29 *Journal of International Banking Law and Regulation* 681

¹²⁷ Treasury, *Financial services: EU supervision of UK-based central counterparties after Brexit (EMIR 2.2) Background and Committee's Conclusions* (2019 (a) (38840), 10363/17 + ADDs 1–3, COM(17) 331)

¹²⁸ EUREX, 'Bitcoin ETN Futures (FBTX)' <<https://www.eurex.com/ex-en/markets/crypto/bitcoin-etn/Bitcoin-ETN-Futures-2774070>> accessed 04 December 2022

¹²⁹ FSB, 'OTC Derivatives Market Reforms: 2019 Progress Report on Implementation' (15 October 2019) <<https://www.fsb.org/2019/10/otc-derivatives-market-reforms-2019-progress-report-on-implementation/>> accessed 18 February 2024

¹³⁰ *ibid*

interpretation. This legal ambiguity is demonstrated in the following paragraphs, which opens the door for highly speculative crypto derivatives to be cleared in the UK.

According to the ESMA, there are two possible processes for the identification of the eligible types of OTC derivatives: the ‘bottom-up’ approach explained in EMIR Article 5(2) and the ‘top-down’ approach defined in EMIR Article 5(3).¹³¹ Only a limited number of relevantly less complicated products are recognised in the EU ‘top-down’ classes list.¹³² For instance, even though CDSs are included, the list only covers index CDSs referring to the iTraxx Europe Main and iTraxx Europe Crossover. Single name CDSs are excluded.¹³³ Since the index reflects a wider aspect of the economy than a single firm, the pricing of an index CDS is also more stable than a single name CDS.

Furthermore, the ESMA also sets restrictions on the series of products as well as the length of time of the contracts.¹³⁴ Currently, the ESMA does not have such a ‘top-down’ list for crypto derivatives. Yet, EUREX’s offering Bitcoin ETN Futures clearing service¹³⁵ opens the door for other EU CCPS to offer cleared crypto derivatives via the ‘bottom-up’ approach. In other words, since the product is already traded in the EU, regulators should recognise Bitcoin derivatives as standardised. This example shows that the thesis’ discussions on excessive risk-taking culture,¹³⁶ and need for moral transparency in easing speculation and inequality, could have wider implications in other financial markets, beyond the UK. As the de Larosi re Report unveiled, excessive risks-taking is a shared problem across the EU financial market.¹³⁷ Citing this German example does not mean the thesis agrees with this approach. Rather, as will be

¹³¹ ESMA, ‘Clearing Obligation and Risk Mitigation Techniques under EMIR’ (ESMA)

<<https://www.esma.europa.eu/regulation/post-trading/otc-derivatives-and-clearing-obligation>> accessed 04 December 2022

¹³² *ibid*, the EU has issued central clearing determinations on limited products, including certain interest rate swaps denominated in EUR, GBP, JPY, USD NOK, PLN and SEK; selected European (iTraxx) indices CDS.

¹³³ ESMA, ‘Draft technical standards on the Clearing Obligation – Credit Derivatives, Final Report’ <https://www.esma.europa.eu/sites/default/files/library/2015/11/2015-1481_final_report_clearing_obligation_index_cds.pdf> accessed 04 December 2022

¹³⁴ *ibid*

¹³⁵ EUREX, ‘Bitcoin ETN Futures (FBTX)’ <<https://www.eurex.com/ex-en/markets/crypto/bitcoin-etn/Bitcoin-ETN-Futures-2774070>> accessed 04 December 2022

¹³⁶ See the de Larosi re Report.

¹³⁷ For instance, as disclosed in the AIG near failure, Germany banks had substantial exposure to the CDSs as the UK banks.

discussed in Section 5, this traditional centralised approach risks increasing systemic risks in the financial market. The fact that the risky product emerges in the EU market enhances the thesis' concern that UK financial regulators could rush into clearing crypto derivatives just to compete against other financial centres.

For UK investors, EUREX and its Bitcoin derivatives are accessible as EUREX is a foreign clearing house recognised by the Bank of England.¹³⁸ The FCA is responsible for EUREX's compliance with the Financial Services and Markets Act 2000, while the Bank of England monitors the systemic risks EUREX imposed to the UK financial market.¹³⁹ As already discussed in Chapter 2 through the example of the UK financial market exposure to Lehman Brothers, the cross-border nature of EUREX could make it difficult for UK regulators to detect and take effective actions if EUREX was in stress. Thus, the UK regulators could have an incentive to have crypto derivatives cleared in the UK CCPs.

4.1.2 Difficulties in Defining Standardised Contracts

In recent years, the UK has expressed a strong willingness to reform and further open the derivatives market.¹⁴⁰ According to the Financial Services Future Regulatory Framework Review published by the Treasury in March 2020, the reform aims to create a 'world-classes environment for doing business',¹⁴¹ supporting economic prosperity. To achieve this target, the Treasury advocates a 'proportional' approach in regulating the financial industry, where restrictions and public interventions will only be applied where necessary.¹⁴²

According to the now Prime Minister (at the time of finishing the thesis) and then UK Chancellor, Rishi Sunak, international standards will be followed to ensure a world-class

¹³⁸ Bank of England, List of Third-Country CCPs (Last Update 30 April 2021) <<https://www.bankofengland.co.uk/-/media/boe/files/financial-stability/financial-market-infrastructure-supervision/list-of-third-country-ccps.pdf?la=en&hash=8C96A829A5F570A235A4944912AFA278A8728399>> accessed 04 December 2022

¹³⁹ The relationship between UK financial regulators is introduced in Chapter 2.

¹⁴⁰ HM Treasury, Financial Services Future Regulatory Framework Review, Consultation outcome, published 19 July 2019.

¹⁴¹ *ibid*

¹⁴² Deirdre Ahern, 'Regulatory Lag, Regulatory Friction and Regulatory Transition as FinTech Disenablers: Calibrating an EU Response to the Regulatory Sandbox Phenomenon' (2021) 25 *European Business Organization Law Review* 395

business environment.¹⁴³ Such statements enhance the thesis' concern that the UK could rush into crypto derivatives clearing due to pressure from its German competitors. It is important to note that, there is no international standard governing clearable derivatives products. To prepare market participants for mandatory clearing, the International Swaps and Derivatives Associate (ISDA) issued a white paper '*Product Representation for Standardised Derivatives*' in 2011.¹⁴⁴ Nevertheless, the ISDA was also unable to explain what a standardised OTC derivative was in this document. Instead, it referred standardised OTC derivatives to 'broadly speaking those derivatives that will be centrally cleared or electronically executed.'¹⁴⁵ This definition provided little help clarifying the scope of the mandatory clearing obligation. Finally, in its 2020 report, the ISDA confirms standardisation as an impossible task.¹⁴⁶ Yet, with more crypto derivatives cleared in other jurisdictions, UK regulators could be tempted to encourage crypto derivatives clearing in the UK.

4.1.3 The Sandbox Approach

Currently, the FCA has a regulatory sandbox system in place to test innovative products in a small scale before making the products available to the wider market.¹⁴⁷ The idea is, through a regulatory sandbox, regulators could get first-hand experience on how the products and defaults would be managed.¹⁴⁸ However, such restricted small scope testing may not be able to unveil systemic risks,¹⁴⁹ including market contingency and social equality. This chapter unveils the complex systemic risks cleared crypto derivatives may impose on the UK, with an emphasis on the inequality between meme investors and traditional investors. With the Cost-of-Living Crisis pushing inequality to a dangerous level in the UK, regulators cannot risk clearing crypto derivatives.

Furthermore, the sandbox system may not be directly applicable to central clearing products,

¹⁴³ Rishi Sunak, Financial Services Update: Written statement – HCWS309, 23 June 2020.

¹⁴⁴ ISDA, 'Product Representation for Standardised Derivatives' white paper, April 2011

¹⁴⁵ *ibid*

¹⁴⁶ ISDA, 'ISDA Legal Guidelines for Smart Derivatives Contracts: Equity Derivatives' (2020) <<https://www.isda.org/a/CLXTE/ISDA-Legal-Guidelines-for-Smart-Derivatives-Contracts-Equities.pdf>> accessed 18 February 2024

¹⁴⁷ The FCA, 'Regulatory Sandbox' (FCA, updated 14 October 2022) <<https://www.fca.org.uk/firms/innovation/regulatory-sandbox>> accessed 04 December 2022

¹⁴⁸ Ahern (n 142)

¹⁴⁹ Hilary J. Allen, 'Regulatory Sandboxes' (2019) 87 *George Washington Law Review* 579

as CCPs are supervised by the Bank of England instead of the FCA. Against such legal ambiguity, the Bank of England has great discretion in authorising clearable products. The following subsection then illustrates the economic incentive for crypto derivatives to be cleared. It is important to note that this ambiguity regarding standardised contracts concerns all derivatives products. Therefore, while this chapter uses crypto derivatives as examples, the discussion applies to a wide range of risky product the UK derivatives market may encounter in the future. The thesis does not intend to blame innovation. Rather, it calls for changing the excessive risk-taking culture in the UK financial market by embracing moral transparency.

Furthermore, by arguing against clearing crypto derivatives, the thesis does not intend to discourage UK regulators from fulfilling its commitment to the G20. Instead, the lack of clear definition of standardised contracts puts UK financial regulators in an awkward position and prevents the UK from fulfilling its commitment to the G20. Against this backdrop, UK regulators need to provide a clear definition of clearable products.

4.2 The Economic Ground for Clearing Crypto Derivatives

Despite the ambiguous legal grounds, the following analysis shows that the UK derivatives market participants have strong economic incentives to push the clearing of crypto derivatives. The economic incentives could explain why German CCPs rushed into crypto derivatives clearing, making Section 5's concerns over crypto derivatives-related systemic risks in the UK financial market realistic.

4.2.1 Lowering Margin Cost

Prior to the Financial Crisis of 2008, the OTC derivatives market was not subject to regulations requiring the exchange of margin between counterparties.¹⁵⁰ Trades required no initial collateral.¹⁵¹ Contracts could contain a variation margin provision, where parties agreed on a threshold, a level of market value change required to trigger the collateral payment.¹⁵² However, even when collateral was required, trades could continue despite the gap between the required collateral and the amount actually paid.¹⁵³ Hence, market giants could enter into derivatives

¹⁵⁰ Rajna Gibson and Carsten Murawski, 'The Price of Protection: Derivatives, Default Risk, and Margining' (October 2008). 20th Australasian Finance & Banking Conference 2007 Paper <<https://ssrn.com/abstract=1009527>> accessed 18 February 2024

¹⁵¹ *ibid*

¹⁵² Robert McDonald and Anna Paulson, 'AIG in Hindsight' (Federal Reserve Bank of Chicago, WP 2014-07)

¹⁵³ *ibid*

contracts without any capital cushion. One explanation for the absence of margin requirements is that before the collapse of Lehman Brothers and near collapse of AIG, counterparty risk in the OTC market was minimal as ‘too big to fail’ banks were assumed to get government bailout.¹⁵⁴ In fact, AIG did get bailed out by the US government, while the Royal Bank of Scotland was bailed out by the UK government.¹⁵⁵ Therefore, the absence of a margin requirement not only affected the contract parties’ financial situation, but also had a far-reaching effect on society. While the history lesson has been illustrated in Chapter 1, the following analysis finds that central counterparties give clearing members margin discounts, which could severely challenge capital adequacy in the post-2008 derivatives market.

Post-2008, mandatory margin requirements have been introduced in the derivatives market to proactively prepare financial institutions against potential default events.¹⁵⁶ Such margin requirements not only reduce counterparty credit risk in the bilateral market, but also promote central clearing by closing the gap between central clearing costs and bilateral clearing costs.¹⁵⁷ In this sense, clearing drastically reduces counterparties default risks, without being more costly than OTC crypto derivatives.

Nevertheless, a mandatory margin requirement does not come without controversy. A widely referred to estimate is that mandatory central clearing will demand an additional £1.6 trillion high-quality margin in the global derivatives market.¹⁵⁸ As Harrison, head of rates trading at Barclays in New York suggested, the banking industry is conscious of the cost.¹⁵⁹ To attract customers and success their businesses, CCPs grant margin discounts to their

For instance, Goldman Sachs, Societe Generale, Merrill, UBS, DZ Bank, and Rabobank—had a difference between called collateral and posted collateral exceeding \$500 million.

¹⁵⁴ See Chapter 1’s discussion on bailout.

¹⁵⁵ *ibid*

¹⁵⁶ As discussed in a joint report by the Basel Committee on Banking Supervision and the International Organization of Securities Commissions (BCBS and IOSCO, 2015), margin requirements for non-centrally cleared derivatives serve two objectives: to reduce counterparty credit risk in the bilateral market, and to promote central clearing.

¹⁵⁷ See the following example of Nasdaq Clearing AB.

¹⁵⁸ Che Sidanius and Filip Zikes, ‘OTC derivatives reform and collateral demand impact’ (Financial Stability Paper No. 18 – October 2012)

¹⁵⁹ Michael Mackenzie, “The Rapid Rise of the ‘Structurer’” (FT, 9 July 2007) <<https://www.ft.com/content/cbd369de-a00e-11db-9059-0000779e2340>> accessed 18 February 2024

counterparties/clients.¹⁶⁰ Against this background, crypto derivative buyers have a strong economic incentive to push cleared products, hence, reduce the margin costs.

Margin discount further incentivises crypto derivatives traders to clearing, while severely damaging the CCPs' ability against contract default risk. On 10 September 2018, Einar Aas, a Norwegian trader, failed to pay a margin call¹⁶¹ to the clearing house Nasdaq Clearing AB in Sweden.¹⁶² This single default event not only exhausted Einar Aas' collateral, but also cost the Nasdaq Clearing AB Sweden an additional £100 million to close the position, pushing the clearing house to the edge of failure.¹⁶³ The margin shortage was related to the fact that Nasdaq allowed Aas to offset 50% of its margin requirements.¹⁶⁴ The discount was given under the assumption that Aas' portfolios were hedged as long as German and Nordic electricity prices continued to move in parallel.¹⁶⁵ Unfortunately, the balance was broken by a sudden change of carbon emission policies in Germany. When the value of Aas' position dropped sharply,¹⁶⁶ Aas was unable to provide more collateral in time, hence, went into default. Meanwhile, the margin collected by Nasdaq was insufficient to absorb the loss. Even though the story happened in the EU market, it is relevant to the UK, because the UK CCPs were established under the same EMIR structure. Thus, a similar event could occur in the UK. Meanwhile, such situation is unlikely to change dramatically as CCPs are complex international financial infrastructures that cannot be reshaped overnight.¹⁶⁷

¹⁶⁰ See the following example of Nasdaq Clearing AB.

¹⁶¹ As illustrated in Chapter 1 via the example of LCH handbook, CCPs have the right to call for more collaterals if they believe the counterparty's financial institution deteriorates.

¹⁶² Faruqi (n 49)

¹⁶³ Vincent Bignon and Guillaume Vuillemeys, 'The Failure of a Clearinghouse: Empirical Evidence.' IDEAS Working Paper Series from RePEc (2017)

¹⁶⁴ *ibid*

¹⁶⁵ *ibid*

¹⁶⁶ *ibid*

¹⁶⁷ As the Bank of England recognised, CCPs are financial infrastructure just like payment system. So, this is not something that can be simply changed overnight. Meanwhile, as this chapter's analysis suggests, derivatives trading is an international business, where the near failure of AIG put both UK and Germany financial market in jeopardy. Thus, due to the complex international nature of the market, Brexit cannot change the fundamental market structure overnight.

Bank of England. 'Financial Market Infrastructure Supervision' <<https://www.bankofengland.co.uk/financial-stability/financial-market-infrastructure-supervision>> accessed 04 December 2022

This example is inspiring for studying crypto derivatives because crypto has even higher price volatility due to speculative nature of the underlying assets. Take Bitcoin, the most popular underlying crypto in the crypto derivatives market, as an example. Between 2021 and 2022, Bitcoin prices changed dramatically from its highest point of over £51,000 per bitcoin in November 2021, to around £16,000 in June 2022.¹⁶⁸ Section 5 argues that cleared crypto derivatives will dramatically increase the default risks in the UK CCPs. Again, crypto derivatives do not create the lack of margin in the derivatives market. Rather, it is the weak foundation of the current central clearing market that prevents crypto derivatives from being cleared. While smart contracts could be used to ensure margin collections, Section 6 also warns against blockchain technology creating a false sense of security among derivatives traders, hence, causing further margin shortage. In this sense, studying crypto derivatives confirms the thesis' critique towards the culture of excessive speculation in the UK financial market.

Nevertheless, clearing reduces counterparties default risks without dramatically increasing transaction costs. Therefore, it is likely that individual traders would be willing to have crypto derivatives cleared and reduce margin costs. But such narrowed focus on efficiency risks significantly increasing systemic risks in the UK CCPs. Against this backdrop, this chapter argues against clearing crypto derivatives.

4.2.2 Increasing Liquidity in the Derivatives Market

Furthermore, central clearing also allows multiple contract parties to offset payment obligations between each other.¹⁶⁹ This mechanism is known as netting.¹⁷⁰ Netting significantly reduces relevant contract parties' financial burden, hence lowering the contract default risk within the derivatives market.¹⁷¹

For example, assume Party A owes the payment obligation of £100 to Party B, Party B owes £100 to Party C and Party C owes £100 to Party A under three separate derivatives contracts. The payments are due on the same date and delivered in the same method. To settle these

¹⁶⁸ Coinbase, 'Bitcoin Price' <<https://www.coinbase.com/price/bitcoin>> accessed 04 December 2022

¹⁶⁹ Jon Gregory, *Central Counterparties: Mandatory Clearing and Bilateral Margin Requirements for OTC Derivatives* (Wiley 2014) 59

Iñaki Aldasoro and Torsten Ehlers, 'The Credit Default Swap Market: What a Difference a Decade Makes' BIS Quarterly Review (June 2019)

¹⁷⁰ *ibid*

¹⁷¹ *ibid*

contractual relationships, each party will need to have £100 in cash, even though at the end, their net assets will not change. Alternatively, a CCP can be introduced to off-set all payments. In this case, payment obligations are settled without cash flow required. As less money is needed during the transaction, the CCP and the original contract parties are less likely to run into illiquidity. In other words, contracts are less likely to default. However, as will be discussed in Section 5, netting exposes CCPs to every contract party's default risks. Therefore, even though individual contract default risk is lower, CCPs concentrate a huge number of contracts, hence becomes even riskier.¹⁷²

Therefore, derivatives market participants have a strong incentive to push cleared crypto derivatives in the UK. On one hand, in the post-2008 market, clearing could reduce margin cost for individual traders comparing with in the OTC market. On the other hand, at the macro-economic level, clearing allows netting among derivatives traders, hence, reduces the overall capital requirements in the overall derivatives market. This reduced margin cost echoes Chapter 2's argument that the post-2008 transparency reform does not change the efficiency-focused culture in the UK financial market. Due to the extreme price volatility involved in crypto derivatives, Section 5 warns against crypto derivatives related systemic risks. This story confirms the thesis' overall argument that crypto merely amplifies existing flaws in the information disclosure system in the UK financial market. The needs to embrace moral transparency and ease speculation pre-date the current crypto frenzy.

In summary, under the current regulatory framework in the UK, the UK CCPs have the legal, economic and information disclosure incentives to clear crypto derivatives. It is important to highlight that the legal ground for clearing crypto derivatives is ambiguous, while the economic incentives are solid. The story confirms Chapter 2's critique that information disclosure in the UK financial market has a narrowed focus on market efficiency, which risks encouraging excessive risks-taking behaviour. More importantly, these incentives mainly concern traditional players in the UK derivatives market. The public's desire for transparency and equality are left untouched.

¹⁷² Charles Boissel, François Derrien, Evren Örs and David Thesmar, 'Systemic Risk in Clearing Houses: Evidence from the European Repo Market' (2017) 125(3) *Journal of Financial Economics* 511

Meanwhile, it is also worth noticing that netting among derivatives traders and the occupation of margins distort the existing seniority in a bankruptcy process. The redistribution of the illiquid party's remaining asset is unfair to other debtors. Therefore, traders' derivatives exposures should be disclosed to their stakeholders.

The legal ambiguity also allows regulators to step in and clarify the definition of standardised contracts if the regulators are willing to do so. Therefore, embracing moral transparency emphasises changing the regulators' mind. As demonstrated in Section 3's analysis of systemic risks, regulators need to first recognise excessive speculation and social inequality as systemic risks, then take actions accordingly.¹⁷³

¹⁷³ How to embrace moral transparency against crypto derivatives related systemic risks will be analysed in Section 5.

5. Systemic Risks related to Cleared Crypto Derivatives

Gregory warned that products can only be cleared where they can be accurately valued to support variation margin calculation.¹⁷⁴ In addition to the complexity of derivatives pricing itself,¹⁷⁵ crypto as the underlying asset is also highly volatile.¹⁷⁶ Therefore, crypto derivatives pricing is a challenging task, if not impossible. Subsequently, cleared crypto derivatives will increase systemic risks in the central clearing market, by increasing the systemically important CCPs' default risks and intensifying social inequality between meme investors and traditional investors. Furthermore, as demonstrated in Section 2.2, clearing increases inequality between meme investors and traditional investors, which is another systemic risk that falls outside of CCPs' radar. Thus, despite the legal ambiguity on whether crypto derivatives should be cleared, economic and information disclosure benefits on clearing crypto derivatives, this section argues that crypto derivatives should not be cleared. Instead, the chapter argues that UK regulators should clarify the definition of clearable derivatives products, ease speculation in the UK derivatives market and explore de-centralised clearing methods to reduce systemic risks in the UK financial market.

5.1 Crypto Derivatives Default's Impact on Non-Crypto Derivatives

Under the central clearing arrangement, the original contract is replaced by two contracts on the same economic terms as the original one, as well as standard CCP terms (contained in the CCP rulebook) between the CCP and each party.¹⁷⁷ Therefore, the original contract parties can still achieve their planned economic targets, while being exposed to lower contract default risk due to the high creditworthiness of the CCP.

However, clearing nevertheless exposes CCPs to every contract party's default risks. Therefore, even if an individual contract default risk is lower, CCPs concentrate a huge number of contracts with cumulative effect.¹⁷⁸ If one crypto derivative contract defaults, an event of default could

¹⁷⁴ Gregory (n 169) 32

¹⁷⁵ As demonstrated through the failure of the CDS market. See Chapter 1 Section 2's analysis on derivatives credit rating.

¹⁷⁶ See Chapters 3 and 4.

¹⁷⁷ Khader Shaik, *Managing Derivatives Contracts: A Guide to Derivatives Market Structure, Contract Life Cycle, Operations, and Systems* (Berkeley, CA: Apress 2014) 92

¹⁷⁸ Boissel (n 172)

be declared by CCPs. This declaration will trigger CCPs' default management process, with a significant impact on the whole financial market.¹⁷⁹ To begin with, once a default event is declared, the CCP gains significant control over the defaulting member's derivatives portfolio.¹⁸⁰ It is also worth noticing that, if one contract defaults, the CCP will cease all contract relationships with the default member.¹⁸¹ Therefore, the event can have a far-reaching effect on multiple traders and various transactions. Hence, if a CCP member's cleared crypto derivative defaults, all this members' cleared derivatives default. LCH requires applicants for clearing memberships to have a swaps portfolio bigger than \$1 trillion.¹⁸² Such a barrier denies meme investors' access to clearing services, which goes against Article 37 of EMIR open and non-discriminatory access to clearing. As demonstrated in Chapter 4 Section 2 and Chapter 5 Section 2.2, the emergence of meme investors in the investment market, especially the derivatives market, is a new phenomenon. Thus, by setting up the non-discriminatory requirements, the EMIR was more concerned about traditional non-financial investors, instead of meme investors. These non-finance investors can still access the cleared market as clients of traditional financial institutions. But meme investors do not enjoy such privilege as they trade independently via digital trading platforms.

Against this background, Article 48 of EMIR requires a CCP to ensure that it has solid legal grounds to liquidate the proprietary positions of a defaulting clearing member and to transfer or liquidate the clients' positions of the defaulting clearing member.¹⁸³ While certain default events are defined by statutes,¹⁸⁴ the following analysis shows that common law still interferes

Meanwhile, it is also worth noticing that netting among derivatives traders and the occupation of margins distort the existing seniority in a bankruptcy process. The redistribution of the illiquid party's remaining asset is unfair to other debtors. Therefore, traders' derivatives exposures should be disclosed to their stakeholders.

¹⁷⁹ Gemma Varriale, '2011 GMRA harmonises with ISDA Master Agreement' (2011) *International Financial Law Review* <<https://www.proquest.com/docview/869123396>> accessed 18 February 2024

¹⁸⁰ EMIR, Article 48

¹⁸¹ ISDA, 'Legal Guidelines for Smart Derivatives Contracts: The ISDA Master Agreement' (February 2019) <<https://www.isda.org/a/23iME/Legal-Guidelines-for-Smart-Derivatives-Contracts-ISDA-Master-Agreement.pdf>> accessed 18 February 2024

¹⁸² LCH, Clearing Member and Dealer Status, Article 1.7.2 Net Capital Requirements. <https://www.lch.com/system/files/media_root/200323_Procedures%20Section%201.pdf> accessed 04 December 2022

¹⁸³ EMIR, Article 48

¹⁸⁴ For instance, the law of bankruptcy.

with the termination of the contracts out of fairness.¹⁸⁵ Take *Sucden Financial Limited v Fluxo-Cane Overseas Limited*¹⁸⁶ as an example. Sucden was a derivatives broker on London's London International Financial Futures and Options Exchange, while Fluxo-Cane was Sucden's client.¹⁸⁷ The broker-client arrangement allowed Sucden to close out, replace or reverse any transaction to cover Sucden's losses in the event of Fluxo defaulting.¹⁸⁸ On 17th January 2008, Fluxo failed to meet Sucden's margin call.¹⁸⁹ In the following days, Sucden noticed that Fluxo could not (or certainly would not) meet the margin requirements.¹⁹⁰ To limit its losses, Sucden started to close out its transactions with Fluxo's on 22^{ed} January, which resulted a £4.5 million loss on Sucden's account.¹⁹¹ Sucden subsequently sued Fluxo for the loss. However, Fluxo argued that the default of margin payment was not covered by the definition of default in their contract, hence refused to compensate.¹⁹² After examining the contracts, Blair J ruled that even though the non-payment of margin did not constitute an event of default at the time, the situation had demanded Sucden to liquidate Fluxo's account to protect itself.¹⁹³ With crypto's value changing dramatically throughout the last thirteen years, clearing crypto derivatives will dramatically increase such default events in the UK derivatives market.

Furthermore, timing is crucial for the effective handling of a default event. Take the Bank of China (BoC) 'Crude Oil Treasure' case as an example.¹⁹⁴ Crude Oil Treasure is a wealth management product offered by the BoC.¹⁹⁵ The product allowed the BoC to raise capital from

¹⁸⁵ Meanwhile, Chapter 3's discussion on *Hammersmith and Fulham* can also be a case where the courts interfere with the effectiveness of derivatives contracts.

¹⁸⁶ [2010] EWHC 2133

¹⁸⁷ *ibid*

¹⁸⁸ *ibid*

¹⁸⁹ *ibid*

¹⁹⁰ *ibid*

¹⁹¹ *ibid*

¹⁹² *ibid*

¹⁹³ *ibid*

¹⁹⁴ Bank of China, 'Bank of China's Explanation over Crude Oil Treasure' (Author translated.) 中国银行, '中国银行关于“原油宝”产品情况的说明' (24 April 2020) <https://www.boc.cn/custserv/bi2/202004/t20200424_17793210.html> accessed 15 July 2020

¹⁹⁵ *ibid*

its customers and invest the fund on Oil forwards.¹⁹⁶ Due to the COVID-19 pandemic, oil prices dropped dramatically between March and April 2020.¹⁹⁷ When the BoC closed its position on 20th April 2020, the options went to a historical low of negative £30.¹⁹⁸ Investors not only lost all their investment but ended up in debt. Even though the exact size of losses was not disclosed to the public, reports suggested that the investors of the fund may have suffered £1 billion loss closing the transactions.¹⁹⁹ Investors criticised the BoC for waiting until very late in a contract's life. The BoC had been informing investors about the unusual risks involved in the transactions since 6th April but failed to close the position until the expiry date.²⁰⁰

This BoC example suggests that prices in the derivatives market can change fast and significantly. Therefore, CCPs need to react fast in the derivatives market to protect itself and clearing members. But CCPs may not be able to react fast in crypto. As illustrated in Chapter 2, the Bitcoin payment system is inefficient and can only process a handful of transactions per second. Therefore, if a Bitcoin derivative defaults and the CCP needs to close the position, the management process cannot go as fast as it is in the traditional banking system. Consequently, the CCP and its clearing members will suffer greater losses and close more non-crypto positions, which leads to the next subsection's discussion on CCPs default waterfall. As recognised in the Conclusion Chapter, this thesis only starts unveiling the challenges and opportunities blockchain brought to the UK financial market. More research over CCPs' resolution plans will be needed in the future.

5.2 Knock-On Effects on Non-Defaulting Members

Central clearing replaces the original derivatives contract between buyers and sellers with two parallel contracts between a CCP and the two original contract parties.²⁰¹ Therefore, even when one original contract party defaults, the CCP is obliged to continue its parallel transaction with the non-defaulting party. This payment obligation should be covered by margin collected from

¹⁹⁶ The suitability of selling commodity derivatives to retail investors is beyond the discussion of the thesis, which only focuses on the whole sell market.

¹⁹⁷ *ibid*

¹⁹⁸ MoF, "Five Questions over Crude Oil Treasure. Who to Blame and Who Will Pay for It?" (STCN, 06 May 2022) (author translated) 莫飞, '中行原油宝"五大悬疑"! 谁的责任? 谁买单?' (证券时报网-中国) <https://news.stcn.com/sd/202005/t20200506_1739812.html> accessed 18 February 2024

¹⁹⁹ *ibid*

²⁰⁰ *ibid*

²⁰¹ See Chapter 2.

the default member.²⁰² The EMIR Chapter 3 Prudential Requirements stated that a CCP shall measure its exposure to each clearing member on a real-time basis (Article 40); then, based on this accurate assessment, a CCP shall call and collect sufficient margins from the clearing member (Article 41). These requirements provided the legal grounds for Nasdaq Clearing AB to call more margin from Einar Aas. Yet, as illustrated in Section 4, some clearing members do not have a big enough margin to cover their own losses. To further limit a CCP's exposure, the CCP shall maintain a pre-funded default fund to cover losses that exceed the losses to be covered by the margin requirements, arising from the default (Article 42). As Article 48 Default Procedures requires, a CCP shall have detailed procedures in place to ensure that the CCP has the legal power to liquidate the defaulting member's position.²⁰³ Therefore, the idea is to resolve a default via the defaulting member's own capital without disturbing third parties. However, as illustrated through the example of Einar Aas, the CCP can be under-prepared in margins. This situation could further deteriorate with crypto derivatives, whose underlying assets are highly speculative.²⁰⁴

Where the subsequent losses from an event of default cannot be absorbed by the defaulting member's collateral and contribution, the remaining costs need to be shared between a CCP and its clearing members. As will be illustrated in the following paragraphs, this sharing includes both financial support and taking over the defaulting member's portfolio. Otherwise, the CCP would not be able to continue providing clearing services to non-defaulting members. Subsequently, non-defaulting members will be called upon to rescue the CCP.²⁰⁵ Therefore, it is inevitable that non-defaulting members will be exposed to financial risks during a CCP's management of a default event. This wider impact meets the IMF's definition of market contingency as a systemic risk. In other words, cleared crypto derivatives have high default risks with far-reaching impacts on the UK derivatives market participants. Against this backdrop, this chapter argues crypto derivatives should not be cleared. It is important to note that such risks apply to all derivatives products. In other words, this chapter only uses crypto derivatives as an eye-catching example to emphasise the paradox between monitoring and controlling systemic risks under the EMIR information disclosure system. This paradox

²⁰² Gregory (n 169) 75

²⁰³ Article 48 (2)(3)

²⁰⁴ See Section 4.

²⁰⁵ Jo Braithwaite and David Murphy, 'Got to be certain: The legal framework for CCP default management processes' (2016) Bank of England Financial Stability Papers 37

confirms Chapter 2's critique towards regulators' information over-reliance on financial intermediaries. Against this backdrop, Section 6 introduces smart contracts' potential in decentralised clearing. However, as discussed in Chapter 3, blockchain could be slow and energy consuming in verifying transactions, thus cannot provide an immediate solution to speculative derivatives trading. Against this backdrop, Section 6 calls for UK financial regulators to ease speculation in the UK derivatives market as a means to reduce crypto derivatives-related systemic risks.

5.2.1 Loss Sharing Through Auctions and Pressure on Clearing Members

Article 43(3) EMIR suggests that 'a CCP may require non-defaulting clearing members to provide additional funds in the event of default of another clearing member'. However, the Article does not specify the conditions under which such extra funds can be called, nor the non-defaulting members' rights in such procedures. In practice, non-defaulting members do not simply act as additional funding resources in an event of default. Strategically, a CCP needs non-defaulting members to participate in auctions to return to a matched book.

As the buyer to every seller and seller to every buyer, each transaction within a CCP's portfolio has a corresponding transaction. Ceasing the contractual relationship with a default party automatically distorts the matched positions of the CCP's balance sheets. As introduced previously, despite its legal form, economically, a CCP serves as a credit intermediary, clearing contracts for the original parties. Therefore, to maintain its neutral position as an intermediary, CCPs need to replace the default contracts or close out the parallel contracts.²⁰⁶

Conventionally, CCPs can go to the OTC market and try to find traders to take-over the default party's position.²⁰⁷ However, as previously mentioned, the declaration of default is a major credit event in the derivatives market, resulting to the termination of the default party's whole derivatives portfolio and having a far-reaching impact on multiple stakeholders. In other words, the need for the replacements is tremendous, while the market is stressed. As there is no market maker committed to trade in the OTC market, it is possible that no trader wants to work as the counterparty of the replacement contract. Where supply declines sharply and demand increases, the price of replacing the transaction soars.²⁰⁸ Hence, the cost for a non-defaulting party to

²⁰⁶ *ibid*

²⁰⁷ *ibid*

²⁰⁸ Craig Pirrong, 'The Inefficiency of Clearing Mandates' Cato Institute (Policy Analysis No.665) 21 July 2010.

replace its transaction under such market conditions could be devastating.²⁰⁹ Thus, if a cleared crypto derivative defaults, it would not be realistic to replace the defaulting member's whole portfolio, including the crypto derivatives, in the OTC market.

Against this background, non-defaulting members are the most promising buyers. On one hand, these non-defaulting members are existing traders in the relevant market who already meet the CCP's membership criteria. On the other hand, these non-defaulting members have a strong motivation to participate to avoid more transactions being closed or the CCP being pushed off-business. Therefore, non-defaulting members' participants are essential for a CCP's recovery from an event of default. However, further exposing non-defaulting members to the default event will nevertheless increase contingency in the derivatives market, which is a systemic risk.²¹⁰

5.2.1.1 The EMIR Requirements

This vital function of non-defaulting members is barely touched upon by the EMIR. The major mechanism for non-defaulting members to take over defaulted contracts is via auction.²¹¹ The concept, auction, is only mentioned in Article 37, where the law suggests that 'a CCP may impose specific additional obligations on clearing members, such as the participation in auctions'. Article 37 states that such additional obligations shall be proportional to the risk brought by the clearing members. However, it does not set up a clear standard for deciding the proportionality. The issue is addressed in CCP rulebooks, which is discussed in later paragraphs. Meanwhile, to reduce the default event's impact on clients, Article 48(6) recognises that non-defaulting members can take over the defaulting member's clients' transactions. However, non-defaulting members are only obligated to take over the defaulting where the clients and the non-defaulting member have a pre-existing arrangement. Non-defaulting members are not legally obliged to participant in closing out the defaulting member's portfolio. Therefore, no information disclosure requirement is established in the EMIR as to how to support non-defaulting members in auctions.

²⁰⁹ Dermot Turing, *Clearing and Settlement* (Bloomsbury Professional 2016) 234

²¹⁰ See Section 3.

²¹¹ Nahomy Alvarez, 'Managing Risk in Global Financial Markets: CCP Governance, Supervisory Stress Testing, and Default Management Auctions' (2018) 408 *Chicago Fed Letter* 1

It is possible that legislators were optimistic that with the prudential requirements in place,²¹² a CCP should have the capacity to manage a default without disturbing non-defaulting members. Meanwhile, legislators might want to attract more financial institutions to clear their derivative transactions, hence, reluctant to impose too much of a burden on clearing members. The EMIR has always been accused of adding extra financial burdens on derivatives traders for its enhanced margin requirements. Sidaunius estimated that mandatory central clearing demands additional £1.6 trillion high-quality margin in the global derivatives market.²¹³ As Harrison, head of rates trading at Barclays in New York suggested, the banking industry is conscious of the cost.²¹⁴ Therefore, to attract participants, central clearing cannot be too expensive. Against this background, legislators could have faced more backlash from the industry if non-defaulting members were obliged to participate in closing out a defaulting member's portfolio.

Therefore, the EMIR aims at protecting the financial positions of non-defaulting members in an event of default. However, it is also inevitable that non-defaulting members are exposed to risks since the EMIR allows a CCP to call extra funds from non-defaulting members and use non-defaulting members to replace defaulted transactions. These arrangements reduce CCPs' default risks but increase the contingency of the derivatives market. In other words, a trade-off between too-big-to-fail systemic risk and market contingency systemic risk. Unfortunately, since the EMIR does not set up the legal framework as to how the two issues should be addressed, no relevant information is required by the EMIR to share with non-defaulting members. This lack of transparency (communicating one's reasoning) could affect non-defaulting members' willingness and capacity to participate in the resolution, which then increases CCPs' default risk in the UK derivatives market. As will be discussed in the Conclusion, this thesis calls for UK financial regulators to embrace moral transparency and communicate their reasoning with stakeholders (e.g., clarify the criteria for clearable derivatives contracts and set up clear CCPs resolution plan). This is because regulators need to first change their own mind to implement moral transparency in the UK financial market. Eventually, traditional financial institutions also need to embrace moral transparency in communicating with stakeholders and rebuilding trust. But the standard has to come from the top.

²¹² Introduced at the beginning of Section 5.2.

²¹³ Sidanius (n 158)

²¹⁴ Mackenzie (n 159)

5.2.1.2 The CCPs' Handbooks

Article 48(2) of EMIR states that in an event of default, non-defaulting members should not be exposed to losses that they cannot anticipate or control. In response to this Article, non-defaulting members' involvement in replacing the defaulted transactions are covered in CCP rulebooks. Hence, before entering into a clearing agreement with a CCP, traders can assess (although not fully) the risks involved in the auction process and decide whether to join the CCP or not. In this sense, the rulebooks inform non-defaulting members of their auction obligations, which addresses the transparency gap. Currently, the UK central clearing market is dominated by three CCPs,²¹⁵ while each of them has its own auction arrangement. The different arrangements could be related to the CCP's specialist: ICE Clear Europe's business mainly concerns Credit Default Swaps;²¹⁶ LME Clear deals with metals contracts;²¹⁷ LCH specialises in repossessions and securities.²¹⁸ Liquidities and market participants in these three markets are different which requires different auction arrangements. However, a closer look at the rulebooks suggests the following auction arrangements may be in conflict with law.

For ICE Clearing Europe, clearing members will be notified electronically through its internal system on the upcoming auctions.²¹⁹ ICE will split the default member's portfolio into several auction lots. All members are required to bid for a minimum of defaulted contracts in each auction lot, where failure to participate will result a penalty.²²⁰ To echo the proportionality requirement under Article 38(6), ICE committed to calculate the minimum bid threshold based

²¹⁵ Bank of England, 'The Bank of England's Supervision of Financial Market Infrastructures — Annual Report (For the period 21 February 2018 — 14 February 2019)' 14 February 2019

²¹⁶ *ibid*

²¹⁷ *ibid*

²¹⁸ *ibid*

²¹⁹ ICE, 'Auction Terms for F&O Default Auctions' <https://www.theice.com/publicdocs/clear_europe/rulebooks/procedures/Auction_Terms_FandO_Default_Auctions.pdf> accessed 04 December 2022

ICE, 'Auction Terms for FX Default Auctions - 7 October 2014' <https://www.theice.com/publicdocs/clear_europe/rulebooks/procedures/Auction_Terms_FX_Default_Auctions.pdf> accessed 04 December 2022

ICE, 'Auctions Terms for CDS Default Auctions - 30 June 2020' <https://www.theice.com/publicdocs/clear_europe/rulebooks/procedures/Auction_Terms_for_CDS_Default_Auctions.pdf> accessed 04 December 2022

²²⁰ *ibid*

on clearing members' original margin requirements. Meanwhile, despite the mandatory participating requirements, auctions are still recognised as a voluntary method, as bidders still have the ability to decide the price.²²¹

Even if the defaulting member has a diverse portfolio, forcing non-defaulting members to bid in every lot can still expose non-defaulting members to products beyond their control, which contradicts Article 48(2). For example, assume a clearing member is an airline company who trades oil options to hedge its own exposure to oil price movements. When a clearing member defaults with a large CDS portfolio, forcing the airline company to bid could endanger the airline company's financial position. One may argue that end-users tend to become clients of clearing members, instead of pursuing CCP memberships themselves. Therefore, such a scenario is unlikely to happen in reality. Nevertheless, the method may not work in crypto derivatives, since crypto is not a common asset in the current financial market. Forcing a non-defaulting member with no experience in crypto to take on crypto derivatives will damage this member's financial situation. In other words, auctioning crypto derivatives can create a knock-down effect on non-defaulting members. Yet, as introduced in Section 4.1, the ICE group has been a pioneer in crypto derivatives market. Therefore, even though the auction method may put non-default member in distress, it is likely the ICE Clearing Europe will be the first one to offer crypto derivatives among the three UK CCPs.

Furthermore, both the LME and the LCH have discretion as to who can join the auctions, which is not consistent with Article 37(6) regarding discriminated participation restriction against certain categories of clearing members. All members of LME meeting the CCP's bidding criteria are required to bid.²²² For the LCH, only up to 15 bidders who are invited by the LCH and decide to participant, can join the LCH's auctions, where the bidders can choose to take on

²²¹ BIS, Recovery of Financial Market Infrastructures October 2014 (Revised July 2017) <<https://www.bis.org/cpmi/publ/d162.htm>> accessed 18 February 2024

²²² LME, 'Rules and Procedures' <<file:///C:/Users/zyang/Downloads/LME%20Clear%20rules%20and%20procedures%20July%202021.pdf>> accessed 04 December 2022. C:6.4

a specified percentage of the Auction Portfolio.²²³ Thus, if a crypto derivative defaults happens in LCH and LCH, only those with experience in crypto derivatives will be invited to the auction.

Additionally, each of the CCPs retains great discretion as to whether the auction processes will be triggered, how the auctions will be arranged and how the default member's portfolio will be split.²²⁴ As recognised by Ferrara et al, such discretion creates a power imbalance between the CCP and non-defaulting members, exposing the latter to potential financial burdens.²²⁵ Therefore, despite the clarification on auction models, clearing members are still unable to evaluate their exposure in advance. This chapter does not aim to provide a one size auction design. Rather, it argues that if such a default auction happens, CCPs need to be morally transparent with clearing members, communicating each other's reasoning and concerns.

CCP rulebooks contain private arrangements over the auction procedure. However, such arrangements give CCPs excessive discretion. On the one hand, some terms are in conflict with law. Hence, the legality of the arrangements is questionable. On the other hand, information confirmed in the rulebooks is insufficient for clearing members to make an informed decision. The EMIR should not leave such an important issue to CCPs to define. In this sense, the possibility of cleared crypto derivatives amplifies existing limitations in the EMIR system. The author will continue following the developments of the UK CCPs resolution plan for long-term research.

5.2.2 Absorbing Losses via Default Waterfall

If the auction is still not sufficient to cover the cost of the default event, the remaining cost will be absorbed through a default waterfall.²²⁶ Within a default waterfall, the default member's variation margin, initial margin and its default fund contribution are the first three elements called to mitigate the loss.²²⁷ If insufficient, the CCP's own equity will be allocated. Article

²²³ LCH, 'LCH Default Rules' <https://www.lch.com/system/files/media_root/220920%20-%20Default%20Rules%20-%20DMA%20fix.pdf> accessed 04 December 2022. Schedule 4, 2.3.

²²⁴ *ibid*

²²⁵ Gerardo Ferrara, Xin Li and Daniel Marszalec, 'Central Counterparty Auction Design' (2019) 8(2) *Journal of Financial Market Infrastructures* 47

²²⁶ The principal default waterfall structure is demonstrated in Article 45 of EMIR.

²²⁷ David Murphy, *OTC Derivatives: Bilateral Trading and Central Clearing. An Introduction to Regulatory Policy, Market Impact and Systemic Risk* (Palgrave Macmillan 2013) 149

45(4) emphasises that non-defaulting members' margins cannot be used to cover the losses resulting from the default of another clearing member.

However, according to CCPs' rulebook, if the aforementioned resources are insufficient to absorb the loss, non-defaulting members' default fund contributions will be used. Furthermore, CCPs can also call for more capital from non-defaulting members. With these potential obligations in mind, non-defaulting members are expected to bid more competitively in the auctions. Eventually, if these actions all failed, the rest of CCP equity²²⁸ will be the last resource for the default event.²²⁹ As illustrated in the aforementioned analysis over the three UK CCPs' rulebooks, leaving such crucial questions undefined in law echoes Chapter 2's critique towards UK financial regulators' traditional arm's length approach in over-seeing the financial market.²³⁰ Yet, in the absence of clear guidance, market participants are unlikely to reach transparency automatically and coherently.²³¹ Therefore, regulators must step in and provide legal certainty for the resolution process.

If a default event fails to be contained within the EMIR's official default waterfall, the CCPs' rulebooks arrangement will expose non-defaulting members to huge financial pressure. To avoid possible systemic failure, three elements are essential: firstly, sufficient margin; secondly, successful auctions; thirdly, adequate CCPs equity. Since the first two elements were analysed in previous sections, this section focuses on CCPs equity.

Article 45(5) EMIR suggests that for the fairness of the default waterfall arrangement, CCPs need to contribute a compatible amount of equity to the waterfall. The process shall be overseen by the ESMA, who is responsible for developing appropriate standards for calculating and maintaining CCPs' own contribution. The corresponding ESMA Regulation, Commission Delegated Regulation (EU) No 153/2013, was published in February 2013. One merit of this Regulation is that it requires the default management process to be assessed by an independent

²²⁸ For example, if a CCP segregates transactions into different classes under Article 35 of EMIR, correspondently, it can have more than one default funds. A minimum amount of CCP equity will be allocated to each fund, leaving additional equity prepared to be used in case the fund run out.

ESMA, Questions and Answers, Implementation of the Regulation (EU) No 648/2012 on OTC derivatives, central counterparties, and trade repositories (EMIR) 08 July 2020| ESMA70-1861941480-52

²²⁹ *ibid*

²³⁰ See Chapter 2's discussion on the UK legislators' reluctant to define transparency.

²³¹ *ibid*.

third party.²³² But the third party's assessment result is for consultation, hence not enforceable. Furthermore, CCPs are also required to record the rules, procedures and contractual arrangements accurately.²³³ Unfortunately, Article 5(2) also allows CCPs to only share the information to the client based on the CCPs' own discretion. Later paragraphs argue that this lack of moral transparency could also discourage clearing members' willingness to rescue CCPs, causing systemically important CCPs to default. This situation confirms Chapter 2's argument that information disclosure only addresses insiders' concerns over market efficiency. The public's desire for equality is ignored. Since CCPs' default will have a systemic impact on the UK financial market and society, it is unfair that the public is left in the dark.

According to ESMA, most EU CCPs perform fire drills to test the strength of CCPs default management process against major clearing member default.²³⁴ Such practice is informative for clearing members to understand their potential risk exposure. However, CCPs still contain huge flexibility in terms of the exact measures, which will be taken in an actual default event.²³⁵ As Goff LJ suggested in the case of *Scandinavian Trading Tanker Co AB v Flota Petrolera Ecuatoriana*, it is of the utmost importance in commercial transactions that, if any particular event occurs which may affect the parties' respective rights under a commercial contract, they should know where they stand.²³⁶ Where the EMIR and CCP rulebooks fail to inform clearing members about their potential risk exposure, it could be unfair (if not impossible) for a non-defaulting member to be forced to absorb the losses.

According to R9(b) of the LCH Default Rules, additional funds are voluntary payments which no clearing member shall be obliged to make. So, if the arrangement is not fair enough, e.g. where clearing members feel the CCP has not put sufficient capital from its own account before calling for additional funds, the clearing members have full discretion not to participate. Then, it's more a public interest issue. If no one is contributing, eventually, it will be taxpayers bailing out the CCP. As a lesson learned from the Financial Crisis of 2008, bailing out such a financial giant is a costly event with lasting impact on the economy and society. Thus, it is important

²³² (EU) No 153/2013 (Recital 51)

²³³ (EU) No 153/2013, Article 5(2)

²³⁴ ESMA, 'CCPs' Membership Criteria and Due Diligence, Financial Report' (ESMA70-151-2869) 7 January 2020.

²³⁵ ESMA, 'Annual peer review of EU CCP supervision Supervisory activities on CCPs' Default Management Procedures' (ESMA70-151-812) 21 December 2017

²³⁶ *Scandinavian Trading Tanker Co AB v Flota Petrolera Ecuatoriana* [1983] QB 529

CCPs discuss their default waterfall with clearing members openly and fairly. Against this backdrop, Section 6 calls for UK financial regulators to embrace moral transparency, communicate openly with various stakeholders and respect the public's morality.

Thus, despite its significance, the default waterfall is not transparent enough for clearing members in terms of the members' potential risk exposure. Such lack of transparency²³⁷ may render non-defaulting parties unable or unwilling to absorb the losses.

5.3 CCPs Failure as Systemic Risks

As an essential financial service provider, CCP's failure would threaten the stability of the UK financial market,²³⁸ and would represent an event potentially worse than the failure of Lehman Brothers.²³⁹ If a CCP fails, traders will need to find another service provider to clear their standardised derivative contracts. However, currently, the UK clearing business is dominated by three clearing houses, while each of them specialises in one different market segment.²⁴⁰ If one of them fails, the other two clearing houses cannot provide a suitable replacement of the services. Therefore, the UK derivatives market will face a shortage of essential clearing services.

As of the time of this writing, the UK has yet to draft any legislation regarding CCP resolution. In contrast, in recognition of CCPs' systemic importance, the EU proposed a CCP resolution plan in 2016.²⁴¹ According to the EU Commission, a resolution plan should focus on ensuring the continuity/availability of clearing services in the EU market.²⁴² This focus is consistent with the aforementioned discussion that CCPs are crucial infrastructures in the UK financial market, whose sudden failure will cause systemic risks. However, such emphasis on

²³⁷ Both in terms of lack of information and the lack of open communication, which resembled the lack of transparency in the traditional UK derivatives market before the Financial Crisis 2008. See Chapter 1, Section 1.

²³⁸ Paul Tucker, *The Design and Governance of Financial Stability Regimes*. CIGI, Essays on International Finance, September 2016.

²³⁹ Paolo Saguato and Guido Ferrarini, 'Clearinghouses and Systemic Risk' (2019) George Mason Law & Economics Research Paper No. 21-43

²⁴⁰ Bank of England (n 215)

²⁴¹ European Commission, 'Proposal for a Regulation on a framework for the recovery and resolution of central counterparties and amending Regulations (EU) No 1095/2010, (EU) No 648/2012, and (EU) 2015/2365' COM(2016) 856 final, Brussels, 28.11.2016

However, it is important to note that the EU Commission generally believes that the current EMIR regulatory framework is sound enough to prevent a CCP failure. This general belief could explain why the UK does not have a drafted CCPs resolution plan and the EU resolution plan merely gives any practical guidance.

²⁴² *ibid*

markets nevertheless confirms Chapter 2's argument that information disclosure has a narrowed focus on market efficiency. In order to maintain such efficiency, regulators are willing to compromise other principles (values) including transparency. A short example would be that the 2016 CCP resolution proposal recognises that explicitly requirement for public intervention can boost transparency.²⁴³ However, the regulators believe that such transparency is counterproductive, as an explicit requirement will reduce flexibility.²⁴⁴ The compromise of transparency is pushed further by the EU Parliament, who suggested that given the sensitivity of the information contained in the recovery and resolution plans, those plans should be subject to appropriate confidentiality provisions.²⁴⁵ This situation echoes Chapter 2's critique that the post-2008 transparency reforms merely enhance information disclosure with the narrowed focus on insiders and over-reliance on financial intermediaries. In response to this too big to fail risk, Section 6 explores blockchain technology's potential implication in building a decentralised clearing system. However, as illustrated in Chapter 3, blockchain could be slow and energy consuming in verifying transactions. In contrast, the current UK crypto derivatives market is highly speculative and involved with high frequency trading.²⁴⁶ Thus, for the decentralised clearing system to work, UK financial regulators need to first ease speculation in the market.

Furthermore, the EU CCP resolution proposal just passed its first public hearing in the EU Parliament in 2019.²⁴⁷ In December 2020, the EU launched its Regulation (EU) No 2021/2023 on a framework for the recovery and resolution of central counterparties (CCP recovery and resolution) as an attempt to address the issue.²⁴⁸ Due to Brexit, the upcoming EU legislation will no longer be applicable to the UK market. The UK needs to take actions in CCPs resolution

²⁴³ *ibid*

²⁴⁴ *ibid*

²⁴⁵ Regulation (EU) 2021/23 OF the European Parliament and of the Council of 16 December 2020 on a framework for the recovery and resolution of central counterparties and amending Regulations (EU) No 1095/2010, (EU) No 648/2012, (EU) No 600/2014, (EU) No 806/2014 and (EU) 2015/2365 and Directives 2002/47/EC, 2004/25/EC, 2007/36/EC, 2014/59/EU and (EU) 2017/1132

²⁴⁶ See Chapter 3's analysis over meme investors' portfolios.

²⁴⁷ Eur-Lex, 'Procedure 2016/0365/COD' <https://eur-lex.europa.eu/procedure/EN/2016_365> accessed 18 February 2024

²⁴⁸ *ibid* 242

regime sooner rather than later.²⁴⁹ Therefore, both the EU Commission and the Bank of England agree that even for CCPs that are on the edge of bankruptcy, the resolution plan should still focus on ensuring the continuity of clearing services in the market.²⁵⁰ In fact, the Bank of England believes that clearing members are the first line of defence against default risk in a CCP's portfolio.²⁵¹ Ensuring that members continue to meet their obligations to the CCP is essential for the stability of the UK central clearing market.

Jon Cunliffe, Deputy Governor Financial Stability in the Bank of England, committed that in managing a default event, non-defaulting members are clearly the first line of defence.²⁵² However, to reassure clearing members, the Bank of England also claims that even in the worst scenario, no clearing members will be worse-off,²⁵³ without specifying how this would be achieved. Similarly, the former Governor of the Bank of England, Mervyn King, suggested that in exceptional conditions, central banks could stand ready to provide extraordinary amounts of liquidity.²⁵⁴ Such bailout promises could be dangerous as Gregory warned that a bailout of a CCP could be a more complex and sizable task than the bailout of AIG.²⁵⁵ The 2007/08 bailouts' impacts on the public debt and social inequality were criticised in Chapter 2. This thesis has no intention to reach a simple conclusion on the complex issue regarding CCPs bailout. However, the thesis emphasises that the decision should be communicated openly with the public, which is crucial for rebuilding the public's trust.

²⁴⁹ The Banking Act 2009 was extended in 2014 to provide a framework for the issue. However, in comparison with the EU's attempt to establish a specific law in CCP resolution regime, the BA 2009 framework is not adequate.

²⁵⁰ ESMA, Opinion on EC's Proposal for Eu Regulation on CCP recovery and Resolution (05 April 2017) ESMA70-151-222

²⁵¹ Sir Jon Cunliffe, 'Central Clearing and Resolution – learning some of the lessons of Lehman's' (BoE) <<https://www.bankofengland.co.uk/-/media/boe/files/speech/2018/central-clearing-and-resolution-learning-some-of-the-lessons-of-lehmans-speech-by-jon-cunliffe.pdf>> accessed 04 December 2022

²⁵² *ibid*

²⁵³ Bank of England, *The Bank of England's Approach to Resolution* (October 2017) <<https://www.bankofengland.co.uk/-/media/boe/files/news/2017/october/the-bank-of-england-approach-to-resolution>> accessed 04 December 2022

²⁵⁴ Bank of England, 'Governor's Speech at Mansion House' (BoE, 14 June 2012) <<https://www.bankofengland.co.uk/speech/2012/mansion-house>> accessed 04 December 2022

²⁵⁵ Gregory (n 169) 35

As Stiglitz suggested, derivatives traders are motivated to make products too complicated to comprehend in order to manipulate the market.²⁵⁶ For buyers, such complicated products are difficult to manage, hence can generate a substantial loss. Against this backdrop, buyers are likely to default questioning the unfairness contractual arrangements or simply could not afford honouring the contracts.²⁵⁷ Awkwardly, CCPs act as the sellers for all buyers and buyers for all sellers, hence, exposed to both risks. Subsequently, opening the CCPs to more innovative products like crypto derivatives may jeopardise transparency and the stability of a UK derivatives market.²⁵⁸ Stiglitz's concern over financial innovation is also supported by Krugman. When evaluating the impact of financial innovation and deregulation, Krugman argues that the US's economic growth during the deregulation era of the 1980s was actually slower than in the preceding decades.²⁵⁹ Society as a whole did not benefit from financial innovation. Instead, as deregulation allowed financial institutions to accumulate excessive profits, inequality deepened in the society.

The situation resembles Chapter 2's critique that information disclosure only concerns insiders of the UK financial market. The public's desire for transparency is ignored, which severely divided UK society. Furthermore, as demonstrated in Section 2.2, clearing only covers traditional investors' exposure to crypto derivatives, while meme investors are left behind. In other words, the public is denied benefits, but expected to share the costs. Such unfair design will enhance the feeling of being left behind and social inequality in the UK. In the aftermath of the Financial Crisis of 2008 and the COVID-19 Pandemic, the UK government cannot risk CCPs bailout further dividing the society. Therefore, crypto derivatives should not be cleared in spite of current legal ambiguity. However, this does not mean UK financial regulators should do nothing. As a lesson learned from the Financial Crisis of 2008, leaving such a highly speculative market in dark could be dangerous. Against this backdrop, this section concludes that crypto derivatives should not be cleared. UK financial regulators need to set up clear definition regarding clearable derivatives contracts to prevent highly speculative products like crypto derivatives from being cleared. Meanwhile, UK financial regulators also need to legislate CCPs' resolution plan to avoid another public bailout intensifying social inequality.

²⁵⁶ Joseph Eugene Stiglitz, 'The Current Economic Crisis and Lessons for Economic Theory Presidential Lecture to the Eastern Economic Association' (2009) 35 *Eastern Economic Journal* 281

²⁵⁷ *JP Morgan Chase Bank and others v Springwell Navigation Corp* [2008] All ER (D) 167

²⁵⁸ Joanna Benjamin, 'The Narratives of Financial Law' (2010)20(4) *Oxford Journal of Legal Studies* 787

²⁵⁹ Paul Krugman, 'Bankers Gone Wild' in *End This Depression Now!* (W. W. Norton & Company First ed. 2012)

6. Policy Recommendation: Exploring De-Centralisation

The above discussion on crypto derivatives-related systemic risks unveils how crypto as a new underlying asset could amplify existing problems in the UK derivatives market. Due to systemic concerns, Section 5 called for regulators to clarify the definition of clearable derivatives and legislation regarding CCPs' resolution plan to reduce systemic risks in the UK financial market.

This does not mean crypto derivatives should just be left in the dark. This section explores the possibility of clearing crypto derivatives via de-centralized smart contracts. The following analysis shows that, in theory, this decentralized clearing could help monitor crypto derivatives without increasing systemic risks in CCPs. This meets Goal 9 Industry Innovation and Infrastructure of the UN Sustainable Development Goals. However, distributed ledger technology could be slow and energy consuming in verify transactions, hence, cannot cope with a speculative market. Thus, for blockchain technology to ease systemic risks in the UK derivatives market, regulators should ease speculation. Meanwhile, reducing speculation would also ease CCPs' exposure to default risks, hence, further reduce systemic risks in the UK derivatives market.

In 2020, Priem proposed that smart contracts could be used in margin calculation.²⁶⁰ As demonstrated in Chapter 3, smart contracts can reduce human errors in executing transactions. Thus, Priem believes that using smart contracts in margin calculation could increase efficiency in margin calculation and collection.²⁶¹ However, market participants have a strong economic incentive in reducing margin costs, which is a business decision, instead of human errors. Therefore, simply introducing smart contracts will not change the margin shortage in the derivatives market. Furthermore, clearing enhances market participants' confidence in the security of transactions, which further encourages market participants' pursuit of margin discounts. The implementation of smart contracts could result in the same false sense of security, which leads to further margin shortage in the derivatives market. In 2017, the Bank for International Settlements (BIS) highlighted that using blockchain technology could increase efficiency in clearing but warned that a clear governance arrangement should be in place

²⁶⁰ Randy Priem, 'Distributed Ledger Technology for Securities Clearing and Settlement: Benefits, Risks, and Regulatory Implications' (2020) 6 *Financial Innovation* <<https://doi.org/10.1186/s40854-019-0169-6>> accessed 18 February 2024

²⁶¹ *ibid*

providing legal certainty against potential disputes.²⁶² However, the BIS did not give any indication as to what the legal framework would look like. This section does not intend to provide a simple answer to this complex legal, technological, and business movement. Instead, it emphasises that the design of smart contracts must be morally transparent. On one hand, market participants should change the narrowed focus on efficiency and impose sufficient margin requirements either via innovative smart contracts or traditional calculation and collection. On the other hand, the design of smart contracts should be openly communicated among various stakeholders to ensure the fairness and safety of the network.²⁶³

While Priem's proposal focuses on margin collection, Cucculeli and Recanatini explore the possibilities of using distributed ledger technology to verify derivative transactions, instead of having CCPs acting as intermediaries.²⁶⁴ Cucculeli and Recanatini highlight several potential benefits of blockchain clearing, including increasing capital availability, reducing information asymmetries, reducing processing time and costs.²⁶⁵ By analysing each benefit, the following paragraphs further highlight the need for moral transparency in using blockchain technology in clearing. This is consistent with Chapter 3's argument that blockchain shares information across the network, a smart contract-based clearing system also could reduce information asymmetry in the clearing market. Clearing members could have limited access to key information like the auction procedure, which could affect the fairness and efficiency of CCPs' default management. Thus, by making information available, distributed ledger technology could help ensure fairness and efficiency in clearing. However, other benefits Cucculeli and Recanatini recognised could be more controversial.

Distributed ledger technology could increase capital availability in the derivatives market by reducing counterparty default risks. This benefit echoes the last paragraph's concern that market participants' trust over smart contracts could lead to a false sense of security, which leads to further margin shortage in the derivatives market. As a lesson learned from financial crises, margin shortage encourages speculation in the financial market, which then enhances social

²⁶² BIS Committee on Payments and Market Infrastructure, *Distributed Ledger Technology in Payment, Clearing and Settlement. An Analytical Framework*. February 2017.

²⁶³ This is based on Chapter 3's analysis over how smart contracts were used to deceive meme investors during the SQUID scam.

²⁶⁴ Marco Cucculelli and Martino Recanatini, 'Distributed Ledger Technology Systems in Securities Post-Trading Services. Evidence from European Global Systemic Banks' (2022) 28(2) *European Journal of Finance* 195

²⁶⁵ *ibid*

inequality in society. Against the soaring inequality post-COVID, UK financial regulators cannot risk more speculation in the derivatives market. It is important to emphasise that the thesis does not argue against blockchain innovation. Rather, the thesis recognises the potential benefits technology brought us, but warns against market participants abusing blockchain technology for speculation. To ease speculation, regulators need to embrace moral transparency and change the efficiency-focused culture in the UK financial market.

Furthermore, Cucculeli and Recanatini argued that blockchain could reduce costly paperwork in derivatives clearing. While it is true that transferring information in the electronic form does not involve paper, maintaining the blockchain itself is nevertheless costly and extremely energy consuming.²⁶⁶ Thus, the blockchain paper-free approach may not be cheaper or environmentally friendlier than the traditional clearing market. More importantly, while Cucculeli and Recanatini have argued that blockchain technology has the potential to reduce process time in the derivatives market, the current blockchain systems are not. The most established Bitcoin system needs over 10 minutes to confirm one transaction. Therefore, for blockchain clearing to work, UK financial regulators need to first curb the speculative high-frequency trading in the derivatives market by imposing stricter margin requirement.

To conclude, a blockchain based clearing market could be a useful tool for easing the concentration of information and risks in CCPs. But the establishment of such a de-centralised system will involve significant research and collaboration among legal, computer scientists and economists. More importantly, to engage with blockchain technology, UK financial regulators need to impose stricter margin requirements in the UK derivatives market to ease speculation. This policy recommendation echoes Chapter 2's call for changing the efficiency-focused culture in the UK financial market.

²⁶⁶ See Chapter 3.

7. Conclusion

Through the example of cleared crypto derivatives, this chapter illustrates the new players (meme investors), new products (crypto derivatives) and new opportunities (smart contracts and de-centralised clearing) in the UK derivatives market. Yet, all the new developments are affected by the same old problems, the narrowed focus on efficiency and the over-reliance on intermediaries.²⁶⁷ Thus, against the challenges and opportunities crypto derivatives brought to the UK financial market, the chapter calls for the regulators to embrace moral transparency, ease speculation and promote equality.

Since the whole underlying crypto market is highly speculative, both meme investors and traditional investors trading crypto derivatives are speculators. In this sense, the current UK crypto derivatives market is a speculative segment operating outside supervision. In the aftermath of the Financial Crisis of 2008, global regulators believed that clearing could bring transparency, hence, ensure the stability of the derivatives market. Following this logic, this chapter explores what clearing crypto derivatives means to the UK derivatives market.

It is important to note that clearing affects meme investors and traditional investors differently. Among traditional investors, the UK CCPs also have legal grounds and strong economic incentives to clear crypto derivative products. However, a closer look at the legal and operational structures of the UK CCPs unveils a paradox between monitoring systemic risks and reducing systemic risks the UK crypto derivatives. Even though clearing can keep regulators better informed with crypto derivatives, it also poses high default risks to non-crypto derivatives, CCPs' members and the CCPs themselves.

For meme investors, clearing intensifies inequality. On one hand, meme investors have no access to cleared derivatives market. Thus, like Chapter 4's critique towards the MiFID II's information disclosure system, clearing would also leave meme investors disproportionately affected by platforms' default risks. On the other hand, clearing will increase CCPs' default risk. The possible public bailout would put a heavy burden on the public and further divide society. Therefore, it is fair to say, the public will be worse off if speculative products like crypto derivatives are cleared.

The EMIR information disclosure system's failure in monitoring systemic risks related to crypto derivatives confirms Chapter 2's critique towards information disclosure's narrowed

²⁶⁷ See Chapter 2's analysis on information disclosure's limitations.

focus on market efficiency and over-reliance on financial intermediaries. Instead of merely monitoring risks, this chapter calls for the regulators to step in and actively reduce systemic risks. The measures include setting up clear definition of clearable derivatives, hence, preventing highly speculative products from entering the market (beyond regulatory sandbox); and legislating CCPs' resolution plan, hence, reducing the public's exposure to CCP bailout.

It is important to emphasise that blockchain innovation does not create the problems discussed in this chapter. Rather, smart contracts have potential to build a de-centralised derivatives market, hence, ease the concentration of risks in CCPs. However, UK financial regulators need to change the narrowed focus on market efficiency and impose stricter margin requirements to prevent blockchain from being abused by speculators.

Chapter 6. Conclusion

1. Introduction

Against soaring inequality in society and turbulences in the financial markets, this thesis demonstrates what went wrong with the post-2008 transparency reform and answers what transparency ought to be in the UK financial regulatory system.

The analysis in Chapter 2 suggests that financial regulators jumped into a transparency reform without answering the crucial questions, transparency to whom, by how and for what? Against this conceptual ambiguity, the UK financial market has been hijacked by information disclosure, which has a narrowed focus on traditional market participants' concern over efficiency.¹ In reviewing historical financial crises and current events in the UK financial market, this thesis develops the original theoretical concept of moral transparency. Moral transparency eases social inequality by sharing knowledge and communicating reasoning with the public, which responds to the public's sentimental critiques towards failures of the UK financial regulatory system. It is important to note that transparency is not the panacea for all disease, nor could moral transparency alone achieve social equality. However, moral transparency includes the public into the crucial conversation to make the financial regulatory system safer and fairer, which is the starting point for rebuilding the public's trust and forming a sustainable financial system.

At the end of this lengthy debate over the running battle between efficiency and equality, this Conclusion Chapter highlights two key contributions of the thesis for the reader to bring home. Firstly, this Conclusion re-iterates the definition of moral transparency, emphasising the need for UK financial regulators to ease social inequality, share knowledge and communicate their reasoning with the public. Secondly, this Conclusion brings together policy recommendations for UK financial regulators to implementing moral transparency.

¹ See Chapter 2, Section 2.

2. The Theoretical Concept of Moral Transparency

The main contribution of this thesis is developing the theoretical concept of moral transparency. Moral transparency is a legal principle enforced by financial regulators. It perceives easing social inequality as its purpose, which responds to the public's sentimental critique towards failures of the UK financial regulatory system and the causes of financial crises. Moral transparency balances the power dynamic between the public and traditional insiders of the financial market (regulators and market participants), by calling for regulators to communicate their reasonings and share knowledge with the public. In doing so, moral transparency help rebuilding the public's trust towards regulators, allowing regulators to engage with financial innovations and reduce information reliance on financial intermediaries.

This working definition of moral transparency is formed in the first two chapters of the thesis. Chapter 2 reviews the post-2008 transparency reform, which provides the rationale and directions for re-defining transparency in the UK financial regulatory system. Chapter 3 then materialises moral transparency based on historical transparency theories and modern blockchain innovation.

This section re-visits moral transparency via three small questions, what should be disclosed, from whom to whom, and why? The next section illustrates how moral transparency should be enforced.

2.1 From Regulators to the Public

Chapter 1 started the review by distinguishing transparency from information disclosure.² While the two words are often used as synonyms, information disclosure is a technical term, addressing traditional investors and regulators' concern over market efficiency.³ In contrast, transparency as a sentimental word is used to express the public's frustration towards failures of the UK financial regulatory system.⁴ Influenced by neo-liberalism and legal positivism, the public's sentimental critiques are traditionally overlooked by the UK regulators.⁵ Subsequently, the UK financial market is dominated by an efficiency-focused financial intermediaries, which leads to excessive speculation and concentration of wealth.⁶

² See Chapter 1, Section 3.

³ *ibid*

⁴ *ibid*

⁵ See Chapter 2, Section 2.

⁶ See Chapter 2, Section 4.

In the aftermath of the Financial Crisis of 2008, UK financial regulators started including transparency as a regulatory objective.⁷ This movement is an ambitious step forward as it broke the traditional exclusion of morality (as transparency was considered as an ethical issue in the UK financial market) under legal positivism. However, a closer look at the post-2008 transparency reform suggests that the reform only made more information available to regulators and market participants.⁸ Thus, the reform only enhanced information disclosure, without addressing the public's desire for transparency. Due to the public's exclusion from transparency discussions in the UK financial market, Chapter 2 argues that the UK financial market is separated into two tribes, financial institutions and regulators as the insiders, the public as the outsiders. This separation is problematic, as it leads to a concentration of wealth and power in financial intermediaries in society and encourages an efficiency focused speculative culture in society. In reviewing the Financial Crisis of 2008, Chapter 2 finds the former caused the Financial Crisis, while the latter triggered the Financial Crisis.⁹ Moral transparency's aim at easing social inequality will be further emphasised in Section 2.3 in this Conclusion. To achieve this target, it is necessary to include the public as stakeholders in the UK financial market.

Chapter 3 further argues that the emergence of distributed ledger technology blurs the boundary between insiders and outsiders in the UK financial market.¹⁰ This argument is further supported by Chapters 4 and 5's findings that meme investors participation in wider financial sectors, including crypto, stock, bond, and derivatives. Against this background, UK financial regulators need to redefine transparency and respect the public as an insider of the UK financial market.

2.2 Sharing Knowledge and Reasoning

Chapter 2 then identifies two reasons for the problem, which provides guidance for re-defining transparency in the UK financial market. Firstly, information disclosure has dominated the UK financial regulatory system for too long.¹¹ It is hard to imagine transparency outside the efficiency-focused agency-centralised information disclosure. To overcome this obstacle, Chapter 3 eventually goes back to the 1900s US market for a different notion of transparency,

⁷ See Chapter 2, Section 5.

⁸ *ibid*

⁹ See Chapter 2, Section 5.

¹⁰ See Chapter 3, Section 5.

¹¹ See Chapter 2, Section 2.

which serves fairness. Secondly, due to the knowledge gap between insiders and outsiders in the UK financial market, merely disclosing more information to the public would only enhance the outsiders' reliance on financial intermediaries.¹² Judge Brandis attempted to resolve the paradox by making information disclosure simple.¹³ But the simplified information only fed speculation.¹⁴ Inspired by blockchain innovation, Chapter 3 addresses this issue by sharing knowledge, decision-making power and access to investment to the public.

Meanwhile, the Pujo Report 1912 represents a comprehensive communication with the public and inspired a generation of studies in the US financial market.¹⁵ Against this backdrop, moral transparency calls for both sharing knowledge and communicating the regulators' reasoning with the public. This emphasis on the need for the regulators to communicate their reasoning with the public can also be found in Chapter 2. Due to the complex nature of modern financial markets, regulators could find themselves making controversial decisions like bailing out banks in 2008.¹⁶ The thesis does not attempt to provide a simple judgment over the bailout decision. But the decision could be communicated better with the public to avoid public backlash. Failure to do so severely damaged the public's trust towards regulators and the regulated financial market. This distrust is at the heart of the distributed ledger technology-based payment system innovation.¹⁷ Thus, rebuilding the public's trust via communication is crucial for restoring order in the UK financial market. Like the financial market, distributed ledger technology innovation also has a complex nature, containing both opportunity for easing social inequality and risks for enhancing inequality.¹⁸ For distributed ledger technology and Web3.0 to achieve its full potential and benefit the public, society needs to have an open conversation as to how decisions are made and how the future should look like.

2.3 Easing Social Inequality

Most importantly, moral transparency aims to ease social inequality, instead of focusing narrowly on efficiency. To highlight this emphasis on social equality, this thesis uses the terminology moral transparency, instead of transparency to the public. By studying the

¹² See Chapter 2, Section 4.

¹³ See Chapter 3, Section 3.

¹⁴ *ibid*

¹⁵ See Chapter 3, Section 2.

¹⁶ See Chapter 2, Section 3.

¹⁷ See Chapter 3, Section 5.

¹⁸ See Chapter 3, Section 6.

Financial Crisis of 2008 and the Financial Crisis of 1929, Chapters 2 and 3 argues that social inequality is the cause of financial crises and also a consequence of financial crises. Information disclosure intensifies social inequality in two ways. Firstly, information disclosure's over-reliance on the agency approach intensifies the concentration of information, wealth, and power in society.¹⁹ Secondly, information disclosure's narrowed focus on efficiency encourages excessive speculation among financial institutions, which triggered the Financial Crisis of 2008.²⁰ Due to the financial intermediaries' central position in the economy, regulators were forced to them bailout in 2008, which further intensified social inequality and the feeling of being left behind. With the COVID-19 Pandemic pushing inequality to a dangerous level, UK financial regulators cannot risk repeating the same mistake.²¹ Against this backdrop, Chapter 5 includes social inequality as a systemic risk in the UK financial market, urging regulators to ease inequality and speculation.

Transparency reforms in the early 1900s US also aimed at easing inequality, yet struggled to keep the public informed and unified in the long-term.²² Distributed ledger technology overcomes these obstacles as a decentralised system sharing knowledge, decision-making power, and access to finance to the public.²³ Following the same peer support spirits, social media also allows people to produce and share information online, hence, keeps people informed and unified.²⁴ These innovations provide the technological foundations for moral transparency in contemporary UK financial market. This emphasis on reducing equality contributes to the UK's commitment to achieving the UN Sustainable Development Goals.²⁵

To conclude, the major contribution of the thesis is the working definition of moral transparency, which advocates sharing knowledge and reasoning with the public to ease social inequality. This definition breaks the traditional exclusion of public morality in information disclosure, addresses the causes of financial crises, combines legal history with technology innovation. It also follows the law and economic tradition in the UK financial market, while renewing the definition of systemic risks to include excessive social inequality.

¹⁹ See Chapter 2, Sections 3 and 4.

²⁰ See Chapter 2, Section 5.

²¹ See Chapter 1, Section 1.

²² See Chapter 3's discussion over the Pujo Report 1929 and *Benedict v Ratner*.

²³ See Chapter 3 Section 5.

²⁴ See Chapter 4 Section 2.1.

²⁵ Goal 10 Reduced Inequalities

3. Enforcing Moral Transparency in Contemporary UK Financial Market

In reviewing notions of transparency in the UK financial market, Chapter 2 warns that figurative transparency could be abused as a political buzzword. To avoid this situation, it is necessary to combine figurative transparency and tangible disclosure. Against this backdrop, Chapters 4 and 5 put moral transparency in two contemporary scenarios to showcase its implementation in contemporary UK financial market. This section summaries the guidance into two layers: (1) what regulators could do within the regulatory framework now and (2) how could RegTech facilitate future reforms. In short, within the current regulatory framework, regulators need to level the playing field for meme investors, by providing financial literacy²⁶ and legal certainty to the public.²⁷ These measures would then ease inequality and excessive speculation in the UK financial market, which are crucial for rebuilding public's trust. For the future, regulators also need to engage with RegTech like CBDC²⁸ and de-centralised clearing²⁹ to ease the concentration of information, wealth and power in society. It is important to note that, due to the de-centralised nature of distributed ledger technology, regulators need to first ease excessive speculation and rebuild the public's trust to engage with RegTech. Therefore, regulators need to fulfil the first layer to enter the second layer.

3.1 The First Layer: within the Current Regulatory Framework

Through a case study of the GameStop frenzy, Chapter 4 identifies a new group of investors, meme investors. Meme investors are significantly less wealthy than traditional investors, and therefore access information in a different manner.³⁰ Due to this socio-economic background, meme investors have no access to traditional financial intermediaries, hence, trade via unregulated digital trading platforms and smart contracts.³¹ The emergence of meme investors represents the public's desire for financial inclusion in investments. More importantly, the independence from traditional financial intermediaries also allows meme investors to include their moralities in investment decision-making.³² Thus, meme investors are natural supporters

²⁶ See Chapter 4 Section 6.1.

²⁷ See Chapter 4, Section 6.2 and Chapter 5, Section 5.

²⁸ See Chapter 3, Section 5.

²⁹ See Chapter 5, Section 6.

³⁰ See Chapter 4's discussions over the GameStop frenzy.

³¹ See Chapter 4, Sections 2 and 3.

³² For instance, the sense of fun, the willingness to support jobs and the frustration towards traditional financial institutions. See Chapter 4.

of moral transparency. In the absence of traditional intermediaries, information disclosure cannot reach meme investors.

Chapter 4 investigates meme investors' exposure to default risks. It argues that meme investors suffer from a lack of knowledge, and legal protection in investments.³³ Regulators should not turn a blind eye to meme investors' suffering because of the FCA's duty to protect financial customers,³⁴ the need to rebuild the public's trust³⁵ and ease social inequality.³⁶ A closer look at the UK meme market suggests that even the FCA registered crypto platforms failed to disclose a true and fair view of their accounts. To reduce meme investors' exposure to platform default risks and prevent registered platforms' failure further damaging the public's trust towards the regulators, Chapter 4 urges UK financial regulators to strengthen information disclosure requirements in digital trading platforms. It is important to note that, this policy recommendation is not imposing new requirements on digital trading platforms, but merely enforcing existing Companies Act 2006 rules.

Meanwhile, to mitigate meme investors' knowledge gap, Chapter 4 also calls for sharing knowledge with the public via social media podcasts and engagement. Currently, the MaP is working on providing financial literacy to the public. But due to limited resources, the MaP can currently only focus on school children under 11. The FCA could step in and aid young adults, the meme investors, and soon to be meme investors. It is also important to note that the Bank of England already uses podcast as a way to communicate its concern over social immobility with the public. This thesis recognises podcasts as the way to communicate knowledge and reasoning with the public. But to reach out to the public, such podcasts to be put on social media platforms like YouTube and Spotify, instead of just on regulators' own websites.

Chapter 5 further demonstrates crypto and meme investors' impact on systemic risks in the UK financial market. It is important to note that neither crypto nor meme investors fit in the traditional too-big-to-fail notion of systemic risk.³⁷ This is because, the traditional notion of systemic risk has a narrowed focus on market efficiency, while overlooking social inequality as the cause of financial crises.³⁸ This is consistent with information disclosure's narrowed

³³ See Chapter 4, Sections 2, 3 and 4.

³⁴ See Chapter 4, Section 5.

³⁵ See Chapter 4, Section 6.

³⁶ See Chapter 5, Section 3.

³⁷ See Chapter 5, Section 3.

³⁸ *ibid*

focus on market participants' concern over efficiency.³⁹ Thus, re-defining transparency coincides with re-defining systemic risks. Against this backdrop, Chapter 5 re-defines systemic risks to include social inequality. Subsequently, through the example of clearing crypto derivatives, Chapter 5 unveils shortfalls within the EMIR information disclosure regime. It argues that information disclosure presents a paradox between monitoring crypto derivatives-related systemic risks and reducing crypto derivatives-related systemic risks.⁴⁰ That is to say, clearing crypto derivatives could provide market participants and regulators more information regarding the crypto derivatives market, which could help detecting market contingency systemic risk. But clearing would also increase CCPs' default risks and intensify inequality between meme investors who have no access to the cleared market and traditional investors who benefit from the extra information and protection.

This paradox also brings back the old debate between financial innovation, financial inclusion, and speculation. It is undeniable that innovations like crypto and crypto derivatives challenge information disclosure in areas like anti-money laundering,⁴¹ consumer protection⁴² and systemic risk monitoring.⁴³ However, as highlighted throughout the thesis, innovation and inclusion merely amplify flaws in existing information disclosure regimes. Meanwhile, even though meme investors' involvement in investment can be highly speculative,⁴⁴ such speculation only mimics excessive speculation in the traditional market. Thus, to ease meme-related systemic risks, Chapter 5 argues that UK financial regulators should level the playing field and ease speculation in the traditional market. To do so, Chapter 5 calls for UK financial regulators to clarify two things. Firstly, UK financial regulators need to give a clear definition for clearable derivatives products to prevent risky speculative products like crypto derivatives from entering the market. Secondly, to further ease traditional investors' speculation, UK financial regulators need to legislate CCPs' resolution plan in the UK. Clarifying market participants' rights and responsibilities in the event of a CCPs' failure, would force market participants to act responsively and reduce the public's exposure to CCPs bailout risks.

³⁹ See Chapter 2, Section 2.

⁴⁰ See Chapter 5, Sections 4 and 5.

⁴¹ See Chapter 3, Sections 5 and 6.

⁴² See Chapter 4, Section 5.

⁴³ See Chapter 5, Section 5.

⁴⁴ See Chapter 4, Section 2; Chapter 5, Section 2.

3.2 Second Layer: Engaging with RegTech in the Future

While crypto is currently used as a tool for speculation in the UK financial market, the thesis does recognise that distributed ledger technology can be used to ease the concentration of information, wealth, and power in society.⁴⁵

Two potentials are emphasised in the thesis. Firstly, CBDC can be used to ease traditional banks' control over information, wealth and power in the payment system.⁴⁶ Secondly, de-centralised smart contracts could be used to clear derivatives without increasing the CCPs' default risks.⁴⁷ Such implementations are unlikely to be put into immediate practice in the UK financial market for two reasons. On one hand, distributed ledger technology is slow in processing data.⁴⁸ That means, in the payment system, crypto is highly unlikely to replace traditional banks. In the clearing market, de-centralised clearing can only work outside high frequency speculative trading. On the other hand, people's involvement is crucial in the peer-support distributed ledger-based system. For people to participate in CBDC, the Bank of England needs to first regain people's trust. Since engaging with RegTech requires regaining public's trust and easing speculation, the second layer is only possible after UK financial regulators fulfilling the first layer of implementation. This emphasis on engaging with innovative technology contributes to the UK's commitment to achieving the UN Sustainable Development Goals.⁴⁹

4. Conclusion

As Sandel emphasised, the COVID-19 Pandemic unveils an unbearable level of inequality in society.⁵⁰ Now it is the time to rethink market values' dominance in the society before it is too late.⁵¹ Moral transparency represents a debate between efficiency and equality, hence contribute to this urgent social issue. This thesis studies moral transparency with a focus on the UK financial market. Moral transparency in the financial market alone cannot resolve social inequality. Yet, failure in the financial market acted as the trigger of previous social economic crises. Meanwhile, against the public's growing involvement in finance, UK financial regulators are on the front-line for easing speculation among traditional investors and levelling

⁴⁵ See Chapter 3's discussion over CBDC and Chapter 5's discussion over clearing via smart contracts.

⁴⁶ See Chapter 3, Section 5.

⁴⁷ See Chapter 5, Section 6.

⁴⁸ See Chapter 3, Section 6.

⁴⁹ Goal 9 Industry, Innovation and Infrastructure

⁵⁰ Michael J. Sandel, *The Tyranny of Merit. What's Become of the Common Good?* (Penguin 2020) 5

⁵¹ *ibid*

the playing field for meme investors. Thus, this thesis chooses to focus on exploring the running battle between transparency and inequality in the context of the UK financial market, while exploring what blockchain technology brings to it. Nevertheless, the problem with excessive inequality and narrowed focus on efficiency goes beyond the UK financial market. The author looks forward in exploring moral transparency's wider implementation in financial markets and for understanding other socio-legal issues.

Appendix

Appendix A: Examples of Internet Memes during the GameStop Frenzy.

Joshua St. Clair, '22 GameStop Stock Memes Absolutely Roasting WallStreet' (Men'sHealth, 28 January 2021) < <https://www.menshealth.com/entertainment/a35354744/gamestop-stock-memes/> accessed 18 December 2022



Picture 1. A meme used to describe meme investors' short squeezing.



Picture 2. A meme recognises meme investors' short squeezing as a mimic of traditional financial institutions' speculative culture.

Appendix B: Examples of Smart Contract Codes from Mines of Dalarinia)

The contract is 99 pages long. This Appendix only provide the first two pages to give a taste of the smart contract. For the whole contract, visit <>

```
/**
```

```
*Submitted for verification at BscScan.com on 2021-10-26
```

```
*/
```

```
// File: @openzeppelin/contracts/utils/Context.sol
```

```
// SPDX-License-Identifier: MIT
```

```
pragma solidity >=0.6.0 <0.8.0;
```

```
/*
```

```
* @dev Provides information about the current execution context, including the
```

```
* sender of the transaction and its data. While these are generally available
```

```
* via msg.sender and msg.data, they should not be accessed in such a direct
```

```
* manner, since when dealing with GSN meta-transactions the account sending and
```

```
* paying for execution may not be the actual sender (as far as an application
```

```
* is concerned).
```

```
*
```

```
* This contract is only required for intermediate, library-like contracts.
```

```
*/
```

```
abstract contract Context {
```

```
    function _msgSender() internal view virtual returns (address payable) {
```

```

        return msg.sender;
    }

    function _msgData() internal view virtual returns (bytes memory) {
        this; // silence state mutability warning without generating bytecode - see
https://github.com/ethereum/solidity/issues/2691
        return msg.data;
    }
}

// File: @openzeppelin/contracts/access/Ownable.sol

pragma solidity >=0.6.0 <0.8.0;

/**
 * @dev Contract module which provides a basic access control mechanism, where
 * there is an account (an owner) that can be granted exclusive access to
 * specific functions.
 *
 * By default, the owner account will be the one that deploys the contract. This
 * can later be changed with {transferOwnership}.
 *
 * This module is used through inheritance. It will make available the modifier
 * `onlyOwner`, which can be applied to your functions to restrict their use to
 * the owner.
 */

```



```

abstract contract Ownable is Context {

    address private _owner;

    event OwnershipTransferred(address indexed previousOwner, address indexed newOwner);

    /**
     * @dev Initializes the contract setting the deployer as the initial owner.
     */
    constructor() internal {
        address msgSender = _msgSender();
        _owner = msgSender;
        emit OwnershipTransferred(address(0), msgSender);
    }

    /**
     * @dev Returns the address of the current owner.
     */
    function owner() public view virtual returns (address) {
        return _owner;
    }

    /**
     * @dev Throws if called by any account other than the owner.
     */
    modifier onlyOwner() {
        require(owner() == _msgSender(), "Ownable: caller is not the owner");
    }
}

```

```

    _;
}

/**
 * @dev Leaves the contract without owner. It will not be possible to call
 * `onlyOwner` functions anymore. Can only be called by the current owner.
 *
 * NOTE: Renouncing ownership will leave the contract without an owner,
 * thereby removing any functionality that is only available to the owner.
 */
function renounceOwnership() public virtual onlyOwner {
    emit OwnershipTransferred(_owner, address(0));
    _owner = address(0);
}

/**
 * @dev Transfers ownership of the contract to a new account (`newOwner`).
 * Can only be called by the current owner.
 */
function transferOwnership(address newOwner) public virtual onlyOwner {
    require(newOwner != address(0), "Ownable: new owner is the zero address");
    emit OwnershipTransferred(_owner, newOwner);
    _owner = newOwner;
}
}

```

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