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What kind of thing is a Central Counterparty? The Role of Clearing Houses as a Source of Policy Controversy

Rebecca Lewis and David Murphy *

Abstract: Public policy surrounding central counterparties (“CCPs”) is beset by conflicts between stakeholders. These turn on who bears which risks, who profits from clearing, and who has what say in CCP governance. They involve CCP equity holders, clearing members, clients, regulators, and taxpayers, among others. In order to probe them, three stylized edge case models of the role of the CCP are introduced: utilities, for-profit corporations under shareholder primacy, and clubs. The governance of each edge case is discussed and compared to the current situation in clearing and its framing in regulatory requirements. The risks in central clearing, who bears them, and the policies surrounding them, are surveyed. The paper argues that stakeholder risk-bearing affects CCP governance because risk bearing should, in equity, be accompanied by governance rights. Each edge case model suggests a different resolution to the key conflicts but none of the models are sufficient to explain existing CCP practice, and the resolutions suggested are unsatisfactory. This insufficiency suggests that the current policy conflicts are rooted in fundamental disagreements about the role of the CCP and thus in whose interests the CCP should act. Stakeholder theory is presented as a model which explains the nature of these conflicts and their persistent character, and which can provide an equitable setting for their continuing re-negotiation.

Keywords: CCP, CCP Governance, CCP Loss Allocation, Central Clearing, Skin in the game, Stakeholder governance

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1. INTRODUCTION

This paper considers the related topics of central counterparty (also known as a CCP or clearing house) risks; the mitigation of those risks; the parties who stand to profit from risk taking in clearing; and CCP governance. These topics are linked through the idea that those responsible for bearing a risk, and those who could profit from taking it, should in equity have some say in how that risk is taken and managed.

In the prototypical for-profit corporation, shareholders support the corporation's risk taking through their provision of equity capital, which provides both funding and loss-absorption. Shareholders, as the beneficiaries of corporate success and bearers of the risk of corporate failure, have a good claim to a significant say over the operations of the corporation.¹ They are, in this model, the corporation's *principals*, and the corporation's governance exists to protect their interests.

CCPs differ in some important ways from this model. The central purpose of a clearing house is to stand between counterparties to cleared transactions, acting as a shock absorber if one of the parties fails. Thus, *taking and mitigating counterparty credit risk* is a core function of a CCP. One key feature in central clearing is the use of a *default waterfall* to manage this counterparty credit risk. Any loss created for a CCP by the default of one of its direct or *clearing members* is mitigated first through resources provided by the defaulter, then – if any loss remains – through a layer of CCP capital, then through resources provided collectively by the other clearing members.

Other risks are handled differently in clearing. *Non-default* risks may either be taken by the CCP's shareholders, allocated to members, or perhaps mitigated by third parties.

CCPs generate profits through charging clearing fees (among other things), and these are often disbursed to shareholders. Clearing houses also create both positive and negative externalities for their clearing members and for the wider financial system.² Diverse benefits for financial markets and for individual market participants arise from CCP activities.

CCP loss allocation creates controversy, both over risk-bearing itself, and over which parties should have influence over different aspects of CCP governance in recognition of their risk-bearing. This paper maps these disagreements, explaining

¹ Corporations often hedge their risks, for instance through derivatives or insurance. The parties providing these risk transfer contracts often negotiate conditions which bind their counterparties: the terms of an insurance policy are an example of this. Thus, the risk bearer often imposes terms on the risk taker as a condition of the transfer.

² The positive externalities include multilateral netting benefits, an increase in confidence caused by the transparent and consistent pricing and margining of positions, and by known default management practices, decreased cost of counterparty due diligence, and the increased likelihood of trade continuity despite the default of other clearing members. Negative externalities include the liquidity risk created by margin and the risk of CCP stress leading to losses for its clearing members and, possibly, the wider financial system.

how they arise from different conceptions of the role of CCPs and the identity of its key stakeholders. Different classes of stakeholder have diverse claims to a say over particular aspects of CCP operations and risk taking. Many of these claims are at least partially accepted by other classes of stakeholder. As a result, there is no single class of principals of a clearing house whose status justifies their complete control over the operations of the CCP. Rather, as we shall see, CCPs are a type of hybrid entity which balance, often imperfectly, different stakeholder interests in different situations. This balancing lies at the heart of many of the features of modern central clearing and explains the intractable nature of the key policy conflicts in it.

The remainder of the paper is structured as follows. Our central claim is that disagreement about the nature of CCPs lies at the heart of many important conflicts in contemporary CCP policy, so Section 2 presents three candidate models of the role of a clearing house. Whose interests an should entity serve – the entity’s principals – and how these interests should be protected, are two key questions that motivate and shape the governance of an entity. Section 3 discusses the governance approaches commonly found in each of our three models in order to throw light on these questions.

Section 4 turns to the risks in central clearing and who bears them, introducing the various stakeholders in CCP operations and the EU regulatory requirements for CCP robustness.³ Section 5 outlines the claim that each class of stakeholder has to a say in CCP governance, based on the risks they face, while Section 6 discusses both key regulatory requirements for CCPs’ treatment of stakeholders and CCP practice in this area.

The claims of different classes of stakeholder are irreconcilable: they cannot be simultaneously satisfied. As a result, disagreement arises. Section 7 sets out five important examples of stakeholder conflicts in contemporary CCP policy. Sections 8 and 9 synthesise what has come before, looking first at the evidence for each candidate model of the CCP from practice and from regulatory requirements, and then at the consequences of taking each model seriously. The failure of any of the models to satisfactorily explain the main features of clearing houses suggests a synthesis whereby CCPs should be viewed as examples of stakeholder governance. Section 10 concludes with a summary and consideration of the implications of this proposal.

³ EU regulation is used as a baseline both because the EU is an important jurisdiction and because UK regulation after Brexit is based on it. See, however, the (at the time of writing, open) HMT consultation on *The Future Regulatory Framework for Central Counterparties and Central Securities Depositories*, 2022, available at <https://www.gov.uk/government/consultations/future-regulatory-framework-review-central-counterparties-and-central-securities-depositories>.

2. POTENTIAL ROLES FOR CLEARING HOUSES

Various accounts of central clearing present three stylized models for the CCP, each capturing key aspects of their nature.⁴ None perfectly captures what a contemporary CCP is, but they are useful edge cases for delimiting its character. These models are:

1. public *utilities*;
2. shareholder-owned *for-profit corporations* under *shareholder primacy*; and
3. member *clubs*.

2.1 CCPS AS UTILITIES

The purpose of a public utility is to meet a general need or needs. Often these are needs that private providers are unlikely to meet in a manner or at a price that is acceptable, given public policy goals. Thus, in many countries, utilities provide essential services such as water, power, or postal services. Utilities are often either government owned, or privately owned but heavily regulated, not just for safety (as is the case for banks, say) but also often for price, non-discriminatory access,⁵ and standards of service provision.⁶ Utilities are often monopolies for a large part or all of their activities.

In the utility model of clearing, a CCP is seen as an essential component of financial markets. The public provision of clearing – or intense regulation of its private provision – is justified by market structure and by CCPs’ central role. CCPs are natural monopolies,⁷ which may create the potential for the abuse of market power. CCPs also have to be as robust as possible,⁸ not least because their use is mandated, and because the consequences of their failure would likely be very severe for confidence and financial stability. Finally, CCP actions can affect financial stability for good and ill. All of this recommends a utility model of clearing. The phrase ‘CCP as systemic risk manager’ has sometimes been used in this context.⁹

⁴ For a further discussion of the nature of CCPs and potential alternative designs, see Cerezetti, F., Cruz Lopez, J., Manning, M., and Murphy, D., *Who pays? Who gains? Central Counterparty Resource Provision in the post-Pittsburgh World*, *Journal of Financial Market Infrastructures*, Vol. 7, No. 3, pp. 21-44, 2019, henceforth Cerezetti et al. (2019), and Cox, R., and Steigerwald, R., *A CCP is a CCP is a CCP*, Federal Reserve Bank of Chicago, Policy Discussion Paper No. 2017-01, 2017, henceforth Cox & Steigerwald (2017).

⁵ See EMIR Article 7 and the EMIR Refit, as *Regulation 2019/834 of the European Parliament and of the Council of 20 May 2019 amending Regulation (EU) No 648/2012* is known for access requirements.

⁶ See EMIR Article 34 and the EMIR RTS Articles 17-21.

⁷ See, e.g., Chang, F., *The Systemic Risk Paradox: Banks and Clearinghouses Under Regulation*, *Columbia Business Law Review*, No. 3, 2014.

⁸ Robustness here means not just low probability of failure, but also highly robust service provision. As Baker suggests in Baker, C., *Incomplete Clearinghouse Mandates*, *American Business Law Journal*, Vol. 56, No. 3, 2019 at 507, ‘the lights at the financial market infrastructures known as clearinghouses must always be on’.

⁹ *Ibid.* and Tucker, P., *Clearing houses as System Risk Managers*, speech at the Depository Trust & Clearing Corporation (DTCC)-Centre for the Study of Financial Innovation (CSFI) Post Trade Fellowship Launch, London, 1 June 2011, henceforth Tucker (2011).

2.2 CCPs AS FOR-PROFIT CORPORATIONS

The for-profit model sees a CCP as a financial services provider like most banks, insurance companies, or asset managers. We assume in this case that the CCP is owned and controlled by shareholders for their benefit: in other words, for the purposes of this edge case, we assume *shareholder primacy* (discussed further in the next section). Here, the purpose of the CCP is to make a profit by providing clearing (and related) services.¹⁰ The clearing house may be regulated, as many other financial institutions are, but this regulation would be aimed at mitigating the externalities of the CCP's failure rather than controlling what it does, who it does it for, and what it charges for its services.

2.3 CCPs AS CLUBS

Early CCPs (discussed further below in Section 4.3) grew up under neither of these models. Rather, they were closer to clubs, set up by a group of financial institutions for their mutual benefit. These prototypical CCPs had membership requirements, rule books to define the behaviour expected from members, and governance committees made up of members. The focus of these CCPs was to serve the needs of members, and not on the benefits or costs of clearing for the wider financial system.¹¹

3. THE GOVERNANCE OF DIFFERENT TYPES OF ENTITY

A stylized theory of entity governance is that governance arrangements exist to solve a principal-agent problem.¹² The managers of an entity determine its day-to-day operations. These operations are generally aimed at the interests of some other set of individuals. This separation of control – vested in management – from the right to have the entity governed in one's interests – vested in parties such as shareholders or workers – creates a potential problem. If the interests of the management and

¹⁰ A CCP may also be necessary to support other profit-making activities: for instance, nearly all derivatives exchanges have an associated CCP.

¹¹ An early conflict between the Liverpool cotton brokers and cotton spinners over access and risk management arrangements for futures are a good example of this. The spinners, as end-users, wanted access to the exchange. The brokers, who profited from intermediating trades, did not want them to have it. The spinners also supported margin arrangements to reduce leverage and decrease speculation, while the brokers, who were typically poorly capitalized and without easy access to the substantial amounts of cash needed to pay margin, opposed them. The brokers controlled the infrastructure, so they refused to agree to the spinners' demands until the latter threatened to set up a rival exchange. See Hall, N., *The Liverpool Cotton Market: Britain's First Futures Market*, *Transactions of the Historical Society of Lancashire and Cheshire*, Vol. 149, 2000 at 112-114.

¹² See, e.g., Jensen, M., and Meckling, W., *Theory of the Firm*, *Journal of Financial Economics*, Vol. 3, No. 4, 1976, henceforth Jensen & Meckling (1976).

the parties with the right to have the entity act on their behalf diverge, the latter should prevail, but the former have control. Hence, the need for governance.

In order to be effective and equitable, the nature of the governance arrangements should reflect the nature of the entity being governed. In this section, we discuss the general issue in more detail, then turn to governance for each of the three stylized models of clearing houses discussed in Section 2.

3.1 THE ENTITY GOVERNANCE PROBLEM

There are many reasons to think that the interests of an entity's managers and its principals will, in practice, diverge. Managers may seek to expand the entity for the sake of increasing their personal power; they may seek to maximize their convenience or leisure; they may simply have personal preferences or values that they seek to satisfy as they run the corporation. Depending on the type of entity and its stakeholders, these interests may stand in contrast to those of other parties. Shareholders, if present, are often thought (at least in the strong form of the Anglophone tradition of capitalism) to desire that the entity maximizes profits; in contrast, employees of an entity may be most interested in the entity's stability and longevity; while members of a club may desire the provision of services at the lowest possible cost.

A question therefore arises: how do the parties with the right to have an entity managed in their interests ensure the actions of an entity's management are, at least broadly constrained by their wishes? Systems of entity or corporate *governance* exist to do just that.

The key questions for a governance system in this setting are:

- 1) for whose interests will the entity operate, and
- 2) how will those interests be protected?

Different jurisdictions have different answers to these questions depending on the type of entity concerned.¹³ We will examine three different models matching the three edge cases introduced in the previous section. These are the governance of utilities; the governance of corporations under shareholder primacy; and the governance of clubs.

3.2 GOVERNING UTILITIES

As noted in section 2, utilities exist to serve a public purpose where the private market is unable to do so. This purpose provides a framing for the governance arrangements of utilities. A utility could be broadly based, as in the case of a postal

¹³ The literature in this area is vast: see, for instance, Becht, M., Bolton, P., Röell, A., *Corporate Governance and Control*, in Constantinides, G., Harris M., and R., Stulz (eds.), *Handbook of the Economics of Finance*, Elsevier, 2005; Fligstein, N., and Choo, J., *Law and Corporate Governance*, Annual Review of Law and Social Science, Vol. 1, 2005, henceforth Fligstein & Choo (2005); Hart, O., *Corporate Governance: Some Theory and Implications*, The Economic Journal, Vol. 105, No. 430, 1995; or Shleifer, A., and Vishny, R., *A Survey of Corporate Governance*, Journal of Finance, Vol. 52, No. 2, 2012.

service which exists to directly serve all the residents of a country. Or it could be more narrowly tailored, as in the case of a utility CCP serving a particular financial market and aiming at enhancing financial stability and confidence in financial markets.

The different ways in which the public interest can be construed suggests that the specific ways in which a particular utility is to act in the service of its purpose should be made clear both to the public and to those in charge of operating the utility.¹⁴ This will provide clarity to management: it is also a necessary element in their accountability. Thus, the utility's charter or other founding documents might, for instance, establish the robust provision of particular services at a uniform cost to all who want them as the central purpose of the utility.

The OECD's 2021 comprehensive review of national practices regarding the governance of state-owned enterprises proposes several additional mechanisms for ensuring that utility governance is carried out in a manner consistent with the utility's specified public purpose.¹⁵ It suggests that there should be a single state entity tasked with the ownership of a given enterprise and that the entity must have 'the capacity and competencies to effectively carry out its duties.' Utilities can be organized similarly to shareholder-owned corporations: indeed, the OECD suggest the need for a board to act as 'an intermediary between the state as a shareholder, and the company and its executive management.' In this arrangement, ensuring that the board has members with the expertise and competence necessary to govern the enterprise is essential.¹⁶

3.3 GOVERNING FOR-PROFIT SHAREHOLDER-OWNED CORPORATIONS UNDER THE SHAREHOLDER PRIMACY MODEL

One of the most prominent governance models of for-profit shareholder-owned corporations is shareholder primacy. This model has historically been dominant in what we will loosely call the Anglophone tradition, although it is also prominent elsewhere. It recognizes shareholders as the corporation's principals and thus requires that corporations be governed in the interests of those shareholders. In the past 50 years, the main interest of shareholders has generally been assumed to be profit maximization.¹⁷ A board of directors protects shareholder interests by overseeing the corporation's executives on behalf of the shareholders. Shareholders

¹⁴ For a discussion, see Baumfield, V., *The Governance of Monopolistic Government-Owned Businesses Supplying Necessary Goods: Lessons from Stakeholder Theory*, 2016 at 27, available at <https://www.business.unsw.edu.au/About-Site/Schools-Site/Taxation-Business-Law-Site/Documents/V-Baumfield-CLTA-2016-The-Governance-of-Monopolistic-GOBS-and-Stakeholder-Theory-Final.pdf>.

¹⁵ See OECD, *Ownership and Governance of State-Owned Enterprises: A Compendium of National Practices 2021*, at 7, available at <https://www.oecd.org/corporate/Ownership-and-Governance-of-State-Owned-Enterprises-A-Compendium-of-National-Practices-2021.pdf>, hereafter OECD (2021).

¹⁶ See OECD (2021), at 10.

¹⁷ See, for instance, Gordon Smith, D., *The Shareholder Primacy Norm*, *Journal of Corporation Law*, Vol. 23, No. 2, 1998.

elect the members of the board, and board members are subject to legal duties to act to diligently further the shareholders' interests.

A good example can be found in Delaware, the most prominent corporate law jurisdiction in the United States. Delaware corporate law requires that 'within the limits of their discretion, directors must make stockholder welfare their sole end, and ... other interests may be taken into consideration only as a means of promoting stockholder welfare.'¹⁸

A shareholder-primacy approach has been justified in several ways. Some commentators have treated shareholders as the 'owners' of the corporation.¹⁹ An essential right of ownership is the right to determine what to do with one's property. Others argue that shareholder primacy is the best way to ensure that the company is run as well as possible: the interest upon which the shareholders can agree is to maximize the return on their investment, which means maximizing corporate profits. The suggestion is that in a well-functioning market economy, maximizing corporate profits will occur when the corporation is run in the manner that most efficiently satisfies the demand from its customers or users.²⁰ A third justification for shareholder primacy arises from the difficulty of adjudicating between competing interests. This argument holds that if a governance system is to protect shareholder interests at all, they must be protected to the exclusion of other interests because a board of directors is ill-placed to judge between competing claims.²¹

3.4 GOVERNING CLUBS

A club exists to serve the needs and interests of its members. Thus, the club CCP provides clearing for the benefit of clearing members. A club's broader impact depends on the effect of that provision: for instance, a CCP may allow members to profit from providing client clearing, or to reduce their exposure to each other, or both.

Many of the institutions essential to modern financial markets, such as stock exchanges, began as clubs. Traditionally, a club's members exercise control over its operations through voting rights granted to each member. For example, when they operated as mutualized clubs, exchanges would give a 'seat' to each member: 'a seat

¹⁸ See Strine, L., *The Dangers of Denial: The Need for a Clear-Eyed Understanding of the Power and Accountability Structure Established by the Delaware General Corporation Law*, 50 Wake Forest L. Rev. 761, 769 (2015). There is, of course, the question of whether stockholder welfare should be identified with profit maximization.

¹⁹ See Jensen & Meckling (1976) at 312, but cf. Stout, L., *The Shareholder Value Myth*, Cornell Law Faculty Publications, Paper 771, 2013, available at <https://scholarship.law.cornell.edu/cgi/viewcontent.cgi?referer=&httpsredir=1&article=2311&context=facpub> at 3 (arguing that 'corporations are legal entities that own themselves ... What shareholders own are shares, a type of contract between the shareholder and the legal entity that gives shareholders limited legal rights').

²⁰ The 'intellectual foundation for the "shareholder value" revolution', as Hart and Zingales call it, was provided by Milton Friedman in a 1970 essay: see Friedman, M., *The Social Responsibility of Business is to Increase its Profits*, NY Times Magazine, 1970 and Hart, O., and Zingales, L., *Companies Should Maximize Shareholder Welfare Not Market Value*, Journal of Law, Finance, and Accounting, Vol. 2, 2017.

²¹ See Brandt, F., and Georgiou, K., *Shareholders vs Stakeholders Capitalism*, Comparative Corporate Governance and Financial Regulation, Vol. 27, 2016, at 36-37, henceforth Brandt & Georgiou (2016).

entitled the owner to trade on the floor of the exchange ... and each seat holder had an equal vote on the exchange's affairs.²²

Given the voting power assigned to members, clubs maintain conditions for entry that ensure that only candidates whose interests and standing are thought to be consistent with the interests of the existing members are allowed to join.²³ As previously noted, expectations of member behaviour consistent with the joint interest are often codified in club rule books. Moreover, clubs often maintain disciplinary mechanisms to incentivise members to adhere to these rules.²⁴

3.5 APPROACHING GOVERNANCE AT CCPs

As discussed above, a model of entity governance seeks to provide fair and broadly acceptable answers to two difficult questions:

- 1) in whose interests will an entity operate, and
- 2) how will those interests be protected?

It is difficult to provide solutions to these problems in the context of a generic class of entity, as the governance literature and this section's brief discussions demonstrate. The unique nature of CCPs and their central position in the financial system makes agreeing upon answers for CCPs even more delicate: CCP governance is controversial. In order to map this controversy and the possible responses to it, we must first address the structure of CCPs, their stakeholders, and the risks borne by those stakeholders, so we turn to these questions next.

4. CCP RISKS AND THEIR MITIGATION

There is a simple account of the parties responsible for bearing risks in each of the three edge cases discussed in the previous two sections. In a utility, the state is responsible. In a for-profit corporation, shareholders are. In a club, the members are. For a CCP, the situation is more complicated. Clearing houses have a variety of different techniques for mitigating the impact of different risks. As a result, different parties will suffer losses depending on how the loss arises and how big it is. Together, these different techniques should be comprehensive,²⁵ but they form something of a bricolage, with no single ultimate risk taker. Moreover, approaches

²² See Elliott, J., *Demutualization of Securities Exchanges: A Regulatory Perspective*, IMF Working Paper (2002), at 4, available at <https://www.imf.org/external/pubs/ft/wp/2002/wp02119.pdf>, henceforth Elliott (2002).

²³ See Elliott (2002) at 4.

²⁴ See Cranston, R., *Law in practice: London and Liverpool Commodity Markets c.1820–1975*, LSE Law, Society and Economy Working Papers 14/2007, henceforth Cranston (2007), at 5-8 for examples in the early history of clearing.

²⁵ The CCP recovery and resolution regulation in Article 9 requires that CCPs have a recovery plan which details the 'measures to be taken in the case of both default and non-default events and combinations of both, in order to restore their financial soundness, without any extraordinary public financial support'. These measures must 'comprehensively and effectively address all the risks identified in the different scenarios'.

differ from CCP to CCP.²⁶ In this section, this patchwork is examined. We consider the risks created by central clearing and the parties who suffer losses if they crystallise.

4.1 THE RISKS IN CENTRAL CLEARING

The central purpose of a clearing house is to stand between counterparties to cleared transactions, acting as a shock absorber if one of the parties fails. Thus, *taking and mitigating counterparty credit risk* is a core function of a CCP.²⁷ This means that CCPs must have highly robust arrangements for absorbing any losses that might arise from the default of one of their clearing members.

Other risks naturally arise in the course of central clearing. The relationships between a CCP and its clearing members are defined contractually, largely through the CCP's rulebook. CCPs take margin, either in the form of securities or cash. Securities are typically held by *custodians*, and cash is invested. CCPs also make and take payments relating to cleared contracts and margin, among other things, and they generally use settlement banks for these activities. These activities are also governed by contractual arrangements. It is vital that all of these contractual arrangements are robust and enforceable.²⁸ Thus, *legal risk* is central to CCP operations.

CCPs make many payments: there are cashflows on cleared contracts, on margin, and on CCP investments. Default management may involve significant cash movements as the defaulter's portfolio is liquidated. For all these reasons, central clearing involves *liquidity risk*: CCPs need to have sufficient cash to make both expected and unexpected payments as they come due.

The successful operation of a clearing house is a highly active operation: the cleared portfolios of the most active CCP users change often; margin moves at least every day on most cleared accounts, and often more frequently; cash margin is invested. In addition, default management can involve a great deal of activity on a very compressed timetable. All of these activities generate *operational risk*.

Finally, many CCPs are businesses. As such, they generate *business risk*. A CCP can fail slowly, by failing to gain or losing the confidence of current and potential clearing members, or simply by not charging enough for its services to cover its costs.

The next three subsections explore the mitigation of these risks in more detail: the first two focus on the mitigation of counterparty credit risk, while the following

²⁶ Notably over which non-default losses are allocated, and how, as discussed further below.

²⁷ For a detailed description of CCPs, their place in the financial system, and their regulation see Murphy, D., *Derivatives Regulation: Rules and Reasoning from Lehman to Covid*, Oxford University Press, 2022.

²⁸ The key regulatory source is the 'PFMP', or Committee on Payments and Market Infrastructures, Board of the International Organization of Securities Commissions, *Principles for financial market infrastructures*, 2012. Legal risk is addressed in Principle 1. For an account of the legal risks in central clearing under English law, see Braithwaite, J., and Murphy, D., *Central counterparties and the law of default management*, *Journal of Corporate Law Studies*, Vol. 17, No. 2, 2017, henceforth Braithwaite & Murphy (2017a).

one considers other risks CCPs face. In each case, the minimum regulatory standards for risk mitigation are also discussed.²⁹

4.2 THE DEFAULT WATERFALL

Any loss due to the default of a clearing member crystallizes during the CCP's default management process.³⁰ For our purposes, we assume that the size of the loss (if any) after a default is known, and discuss how it is absorbed. CCPs have a series of resources which are used sequentially for this. Collectively, they are known as the CCPs' *default waterfall*.

An important element of the waterfall is a fund of mutualized resources provided jointly by clearing members. This is known as the *default fund*. The typical structure of the default waterfall is:

- 1) first, margin provided by the defaulter is used;
- 2) then the defaulter's default fund contribution;
- 3) then a tranche of capital contributed by the CCP³¹ known as its *skin-in-the-game*;
- 4) after this, the rest of the default fund is available.

There may be additional loss absorption available too. For instance, some CCPs have a second layer of skin-in-the-game at this point, and many have the right to call for additional default fund contributions from clearing members if the default fund is depleted.³² CCPs may also have the right to reduce variation margin payments if default losses are sufficiently large.

4.3 THE SIZE AND SOURCE OF CONTRIBUTIONS TO THE DEFAULT WATERFALL

In order to understand stakeholders' relative contributions to loss absorption in the default waterfall, it is necessary to consider how the various elements are sized.

Variation margin is called each day – and sometimes intraday – based on the current mark to market value of each cleared account.

²⁹ The key sources in European regulation are the regulation known as EMIR, *Regulation (EU) No 648/2012 of 4 July 2012 on OTC derivatives, central counterparties and trade repositories*, OJ L 201 and the EMIR regulatory technical standards, or RTS, in *Commission Delegated Regulation (EU) No 153/2013 of 19 December 2012*, OJ L 52. Regulators review CCP compliance with the relevant regulations through various means including on-site visits, analysis of CCP returns and reporting, and market intelligence: see EMIR Article 21.

³⁰ See Braithwaite & Murphy (2017a) for more details of CCP default management.

³¹ CCPs are required to have minimum amounts of capital: these are defined in EMIR Article 16 and elaborated in *Commission Delegated Regulation (EU) No 152/2013 of 19 December 2012*. This minimum capital is set as six months gross operational expenses plus various other elements for operational, legal, business and other risks which are, for large CCPs, usually small.

³² The CCP recovery and resolution regulation, *Regulation (EU) 2021/23 of 16 December 2020*, OJ L 22, requires that CCPs 'should use a portion of its pre-funded dedicated own resources ...' as a recovery measure before resorting to other recovery measures requiring financial contributions from clearing members' and that these should 'not be lower than 10 % nor higher than 25 %' of the capital required by EMIR Article 16. See also EMIR Article 43 for regulatory requirements on other CCP financial resources, and Binder, J-H., *Central Counterparties' Insolvency and Resolution – The New EU Regulation on CCP Recovery and Resolution*, European Banking Institute Working Paper No. 82, 2021 for a further discussion.

Initial margin, or ‘IM’ is calculated using a *margin model*. This model is based on the idea that in a default, a cleared portfolio will be liquidated over a fixed period, known as the *margin period of risk* or ‘MPOR’. Over this period, the potential changes in value of a given portfolio form a distribution: typically, relatively small changes in value are relatively likely, and larger ones are less likely. The shape of this distribution depends on the risk factors the portfolio is exposed to, their volatility, and how they move together. A margin model typically estimates IM for a cleared portfolio as its potential fall in value over an MPOR to some degree of confidence.

Thus, a margin model might, for instance, *target* the 99th percentile of potential falls in value over a five day MPOR. This would aim to ensure that initial margin is sufficient to absorb the loss on liquidating the portfolio over five days 99% of the time. Regulation constrains the choices here, setting minimum standards for initial margin model targets and MPORs.³³ It also requires that margin models are independently validated, regularly tested, and annually recalibrated.³⁴

Skin-in-the-game is a layer of resources provided by the CCP. In most clearing houses, it is small compared to both total IM and the default fund, and European regulation does not require it to be larger;³⁵ but it does require that it is used before non-defaulters’ default fund contributions.³⁶

CCP skin-in-the-game provides an incentive for CCPs to ensure that initial margin (together with the – usually much smaller – defaulter’s default fund contribution) is sufficient to cover to nearly all default losses, even absent regulatory requirements. Clearing members are incentivized to prefer CCPs whose margin models are prudent, too, as they are responsible for managing client defaults, and margin is typically the main resource they have available to absorb any losses created by the failure of a client to perform.³⁷ Thus, there are incentives for various parties to ensure that the resources provided by the defaulter are sufficient to absorb most losses caused by counterparty default.

The default fund is sized based on the observation that the losses in excess of the target percentile of margin are possible, and could, for some portfolios in some situations, be large. Thus, CCPs *stress test* cleared portfolios, examining the loss in excess of initial margin under various scenarios of *extreme but plausible* market events. Both historical and hypothetical scenarios must be included.³⁸ These losses are then

³³ EMIR in Article 41 requires that initial margin ‘shall also be sufficient to cover losses that result from at least 99 % of the exposure movements’. The EMIR RTS in Article 24 adds additional requirements, setting the target at 99% for financial instruments other than OTC derivatives and 99.5% for OTC derivatives, and, in Article 26, setting the minimum MPOR at five business days for OTC derivatives and two business days for other financial instruments. This ‘two business day’ standard was reduced to one day for client accounts in 2016: see ESMA, *Review of Article 26 of RTS No 153/2013 with respect to MPOR for client accounts*, 2016.

³⁴ See the EMIR RTS Articles 24–28, 47–52 and 59–60 for more on regulatory requirements for CCP models and model testing and validation.

³⁵ See the EMIR RTS, Article 35, which sets it at 25% of the CCPs’ minimum capital.

³⁶ See EMIR, Article 45(4).

³⁷ Clearing members can impose higher margin on client accounts than CCPs require, but there is significant commercial pressure not to do so.

³⁸ The EMIR RTS Article 30 requires ‘a range of historical scenarios, including periods of extreme market movements observed over the past 30 years, or as long as reliable data have been available, that would have

aggregated to determine the loss caused by the default of a clearing member in the worst ‘extreme but plausible’ scenario.³⁹

The default fund is sized to ensure that total financial resources are sufficient to *cover* the potential loss caused by default of the two largest clearing members in the worst extreme-but-plausible scenario.⁴⁰ For large CCPs, this typically results in a default fund that is substantially smaller than the total amount of initial margin held, but still large in absolute terms.⁴¹

All clearing members jointly contribute to the default fund. Once its total size has been established by the stress testing process discussed above,⁴² member contributions are calculated. This is usually based on risk, so that a clearing member’s contribution to the default fund might be the same fraction of the total fund that its initial margin is to the total IM.

Central clearing grew up over an extended period of time. For example, something recognizable as a CCP was present in both Chicago and Liverpool commodity markets in the late 19th century, and these early clearing houses, and others, have continued to improve their arrangements and adapt to market developments regularly since then.⁴³ The default waterfall described above is a result of these evolutionary developments: margin limits the leverage that market participants can take on and ensures that a participant is the first to bear any loss that arises from its own non-performance. However, it is inefficient to provide sufficient resources to protect the CCP through margin alone, and it is helpful to have an incentive for CCPs to design robust margin arrangements and for clearing members to contribute towards CCP governance and risk management. Skin-in-the-game and the default fund arose to provide these incentives.

The incentive created by the default fund⁴⁴ is sharpened by default fund *juniorization*. This is an approach, codified in the CCP’s rule book, where the default fund contributions of clearing members who do not provide good bids in a default management auction are used before those of clearing members who do bid well. It is a common but not mandatory feature of clearing.

exposed the CCP to greatest financial risk’ and ‘a range of potential future scenarios ... drawing on both quantitative and qualitative assessments of potential market conditions’.

³⁹ House and client accounts are aggregated: losses on client accounts in a given scenario can be offset by gains on the house account, but not vice versa.

⁴⁰ See EMIR RTS, Article 53: this requires that the CCPs’ initial margin, skin-in-the-game and default fund are ‘sufficient to cover the default of at least the two clearing members to which it has the largest exposures under extreme but plausible market conditions’.

⁴¹ Details on CCPs’ financial resource levels can be found in the disclosures mandated by regulators discussed further below.

⁴² This process is carried out regularly to ensure that the default fund remains adequate for current risk levels in cleared portfolios: monthly review is commonplace. See EMIR Article 42 and the EMIR RTS Articles 29-31 for further details of regulatory requirements for CCP default funds.

⁴³ For more on the history of clearing houses, see Moser, J., *Origins of the Modern Exchange Clearinghouse: A History of Early Clearing*, Federal Reserve Bank of Chicago Working Paper WP-94-3, 1994 at 38-46 and Cranston (2007) at 15-26.

⁴⁴ The incentives created by the default waterfall are discussed in Capponi, A., Cheng, W., and Sethuraman, J., *Incentives Behind Clearinghouse Default Waterfalls*, 2017 and Lewis, R., and McPartland, J., *The Goldilocks problem: How to get incentives and default waterfalls “just right”*, Federal Reserve Bank of Chicago Economic Perspectives, Vol 1, 2017 at 5-7.

Table 1 summarizes these layers of funded resources in the default waterfall. The size estimates in the table make it clear that large derivatives CCPs have very substantial amounts of resources available to absorb any losses caused by clearing member default.

Resource	Provided by	Sized to	Approximate size for a large European derivatives CCP
Margin	Defaulter on each cleared account	Mark-to-market (VM) Initial margin model (IM)	€10-200B
Skin-in-the-game	CCP	Operating expenses	€20-120M
Default fund	Clearing members	Cover largest two stressed losses over IM	€1-10B

Table 1: Key funded elements of the default waterfall

It is important – and difficult – to determine whether a CCP has sufficient resources, not least because there have been episodes of CCP stress in the past where the resources available proved inadequate for the situation.⁴⁵ A key element of a sufficiency analysis is to determine whether a given default waterfall is deep enough to cover the loss that might plausibly arise on the liquidation of any collection of cleared portfolios associated with two defaulting clearing members.⁴⁶

A particular challenge in the design of margin models comes from large or *concentrated* positions.⁴⁷ Liquidating concentrated positions will probably move the market, but the extent of this movement is difficult to estimate as it depends on the extent to which market participants will provide bids close to market values for large portfolios cleared by defaulters. CCPs often charge additional or *concentration* margin for this class of position to address this risk, sometimes by polling their members on the extra compensation they would require to take on a large position.

A recent episode of CCP stress provides some useful insights into the design of margin models, their safe operation, incentives for robust CCP risk management, and the problems created by concentrated cleared positions. This was the default of Einar Aas at Nasdaq Clearing in 2018: it is discussed in Box 1.

⁴⁵ See Cox, R., Murphy, D., and Budding, E., *Central counterparties in crisis: the International Commodities Clearing House, the New Zealand Futures and Options Exchange and the Stephen Francis Affair*, Journal of Financial Market Infrastructure, Vol. 4, No. 3, 2016 and Cox, R., *Central counterparties in crisis: the Hong Kong Futures Exchange in the crash of 1987*, Journal of Financial Market Infrastructures, Vol. 4, No. 2, 2015 for two of these episodes.

⁴⁶ ‘Two’ because the minimum standard is ‘cover 2’, and ‘collection’ because the assumption is that both house and client cleared portfolios are liquidated.

⁴⁷ Such positions have been central to a number of episodes of CCP stress, such as the one described in Cox, R., Murphy, D., and Budding, E., *Central counterparties in crisis: the International Commodities Clearing House, the New Zealand Futures and Options Exchange and the Stephen Francis Affair*, Journal of Financial Market Infrastructure, Vol. 4, No. 3, 2016, as well as the Aas default, so this additional margin is important.

Box 1 – The Default of Einar Aas at Nasdaq Clearing

Einar Aas was an individual trader who had been very successful in the European energy and energy derivatives markets. His net worth in 2018 exceeded €1B, and he was one of Norway's largest individual taxpayers in that year.

Aas was a self-clearing member of the commodity clearing service at Nasdaq Clearing Aktiebolag, a Swedish CCP which was part of the Nasdaq, Inc., group. In September 2018 he had a large position which depended in large part on the difference, or spread, between the price of German power futures and Norwegian ones.

German power at that time was largely fossil-fuel generated, and hence its price depended on the price of carbon credits. Norwegian power was largely hydroelectric. This meant that power prices fell after heavy rain. In a short period in the autumn of 2018, European carbon credit prices rose, and it rained a lot in Norway. This caused a large move in the spread between German and Norwegian power futures which caused substantial losses for Mr. Aas.

Nasdaq Clearing issued a margin call, which the trader was unable to meet. He was declared in default on the morning of 11th September 2018. The CCP began to default manage the position, holding an auction which hedged most of the risk in the position on 12th.^{*} This resulted in a loss that exceeded the margin available on the position by €114M. The skin-in-the-game available was €7M, so there was a loss to the default fund of €107M, out of a total of €166M available. The CCP called for additional default fund contributions from clearing members to replenish the default fund, and the CCP's parent injected additional capital into the CCP.

This episode caused significant disquiet amongst many clearing members and the wider community of stakeholders. Among the concerns raised immediately after the event and subsequently, as more information became available, were ones concerning the design and operation of the CCP's margin model, the selection of default fund sizing scenarios, and the size of the CCP's skin-in-the game.

For our purpose here – considering the sizing of CCP financial resources – this raises three issues. First, how to margin a position like Aas'; second, how to handle the residual risks after margin; and third, whether the relatively small skin-in-the-game of €7M was sufficient incentive for the CCP to arrange its affairs prudently. We consider the first two of these below and the third in Section 7.1.

Criticism has been levelled at Nasdaq's margin model for, amongst other things, failing to impose concentration margin on Aas' position despite it being large enough that it proved difficult to successfully auction, and failing to account for the possibility that Norwegian and German power prices would move significantly in opposite directions at the same time. The reason this is important is that spread positions such as Aas' can have a relatively low margin requirement if the probability of a large move in the spread is estimated by the model to be beyond its target – but the loss, should this situation materialize, can be very high. Essentially, the tails of the return distribution for a spread position are very fat. The question then arises whether ignoring all of the risk beyond the target percentile of margin is prudent.

It is generally accepted among CCP risk professionals that if plausible and material market risk is not handled in the margin model then it should be handled in default fund sizing scenarios. Nasdaq's scenarios did not include a scenario examining decoupling of the German and Norwegian power markets to the extent experienced in September 2018, and Aas's portfolio was not one of the ones which determined 'Cover 2'. There was thus a meaningful market risk which was not captured in either margin or the default fund.

* For further details into Nasdaq Clearing's management of the Aas default and the events around it, see the *Warning and administrative fine* issued by their regulator, Finansinspektionen, in 2021

4.4 NON-DEFAULT LOSSES AND THEIR MITIGATION

There is a linear order of loss absorption for default risk: first, margin; then skin-in-the-game; then the default fund. For *non-default losses*, the situation is more complex. The resources used to mitigate non-default losses depends on their nature⁴⁸ and the contractual arrangements in place.

There are three main approaches:

- 1) losses can be allocated to clearing members; or
- 2) they can be absorbed by third parties under risk transfer contracts such as insurance; or
- 3) if nothing else is in place, they are absorbed by CCP capital.

In order to understand the rationale behind loss allocation, it is helpful to consider how certain risks arise at the CCP. An important example is *investment risk*. This arises through the payment of cash margin. CCPs typically take both cash and securities as margin.⁴⁹ They typically pay (or, if the rate is negative, receive) interest on the former to the poster. For initial margin, this interest is generated by an *investment strategy*. This strategy requires that cash margin is invested: the CCP's *treasury* is responsible for this. The intent is typically that these investments should be very safe, so common choices are posting the cash at a central bank, buying government bonds, or investing in the government bond repo market.⁵⁰

Three main risks arise in this process: the risk of loss due to a default on an investment; the risk of loss due to failure of repo counterparty; and the risk of loss caused by duration mismatch, so that cash is not available when required at the anticipated cost.⁵¹ Finally, there are risks which arise both for margin posted in the form of securities and cash invested in securities: that of the failure of a custodian or sub-custodian, or of a deposit-taking bank involved in CCP payment flows.⁵²

CCPs often argue that these risks arise due to clearing member or client choices: these parties decide on the form of margin, subject to the constraints of the CCP rule book; they participate in CCP risk governance (as described further below), and thus oversee the CCP's investment strategy; and they choose or at least have a say in the choice of custodian. Thus, supporters of non-default loss allocation suggest, it is reasonable for any losses that arise in the investment of margin to be shared by clearing members, as financial responsibility for a loss 'should be shared

⁴⁸ Our discussion previously has assumed that a loss can be unambiguously classified as a default or non-default loss. This may not be true, especially if a defaulter has a number of relationships with the CCP such as clearing member and settlement bank and investment counterparty. The situation becomes even more complex when distinctions are introduced between different classes of non-default loss.

⁴⁹ See Anderson, R., and Karin Jøeveer, K., *The Economics of Collateral*, Financial Market Group Discussion Papers No. 732, London School of Economics, 2014.

⁵⁰ The EMIR RTS, Article 45, require that 95% of CCP's cash investments are secured. See the EMIR Article 47 and the EMIR RTS, Articles 43-45 for further rules relating to CCP investments.

⁵¹ EMIR Article 44 addresses CCP liquidity risk, requiring that CCPs 'at all times have access to adequate liquidity to perform its services and activities'. See also the EMIR RTS, Article 32-34.

⁵² These flows can arise from cleared contracts, from margin, from CCP investment activity, and/or from other forms of clearing house activity.

among the parties whose decisions contributed to the loss'.⁵³ CCPs' rules differ on the details of loss allocation, with a common strategy being the requirement that, if there is a meaningful treasury loss, clearing members promptly compensate the CCP for their share of this loss after some initial deductible.⁵⁴

Clearing members of some CCPs have (sometimes reluctantly) accepted allocation of some non-default risks that they have some control over. They are, however, unwilling to accept allocation of all of the risks of clearing, especially when the CCP has shareholders who profit from clearing.⁵⁵

CCPs can transfer losses to third parties by the same means as any other entity: they can purchase insurance,⁵⁶ or issue securities which can be written down if a pre-specified risk crystalizes.⁵⁷ This gives them a range of techniques to hedge risks which they do not wish to bear and cannot allocate to members.

Finally, there are risks which are difficult or expensive to transfer to members or third parties, and hence which are usually born by the CCP. These typically include legal, cyber, and general business risk. Here, CCP equity is often the only loss absorbing resource.

5. STAKEHOLDER RIGHTS IN THE GOVERNANCE OF CCPs

CCPs' propensity to allocate losses away from their shareholders generates controversy over who should bear which risks and how much control risk bearers should have over the CCP as a consequence of their provision of loss absorption.⁵⁸ Therefore, determining the appropriate governance structure for a CCP requires understanding not only what sort of entity a CCP is, as discussed in Sections 2 and 3, but also what risks surround a CCP and who bears those risks, as discussed in Section 4.

⁵³ This principle is articulated in Lewis, R., and McPartland, J., *Non-default loss allocation at CCPs*, Federal Reserve Bank of Chicago Working Paper PDP, 2017-02 at 1.

⁵⁴ For an example, see *General Regulations of LCH Limited*, October 2021, Regulation 46A. Here the deductible, analogous to skin-in-the-game in the default waterfall, is €15M, and clearing members are allocated a pro rata share of any 'Solvency Threatening Treasury Default Loss' which must be paid within one hour. The pro rata allocation is determined by the clearing member's share of total initial margin. Relatedly, CCPs often disclaim liability for third-party custodial and banking risk. For an argument in support of this practice, see WFE, *Guidance on non-default loss*, 2020.

⁵⁵ See FIA and ISDA, *CCP Non-Default Losses*, 2021 for a summary of clearing member objections to comprehensive allocation of CCP non-default losses.

⁵⁶ Insurance has also been used as a layer in CCP default waterfalls in the past. It was, for instance, present in the CCP involved in the Stephen Francis affair described in Cox, R., Murphy, D., and Budding, E., *Central Counterparties in Crisis: the International Commodities Clearing House, the New Zealand Futures and Options Exchange and the Stephen Francis Affair*, *Journal of Financial Market Infrastructure*, Vol. 4, No. 3, 2016 at 67. It has fallen out of use for this purpose since the PFMI were issued, as these standards require that risk out to 'extreme but plausible' default losses is covered by funded resources.

⁵⁷ There has been continued interest in the possibility of CCPs issuing convertible securities either to absorb non-allocatable non-default losses or to recapitalize the CCP before resolution, so there may be further developments in this area of CCP loss absorption technology.

⁵⁸ See footnotes 46-48 for perspectives on non-default loss absorption and section 7.1 below for controversy over the size of CCP skin-in-the-game.

Risk taking, together with the clearing mandate,⁵⁹ gives four parties a strong claim to some say in CCP governance: shareholders; clearing members; clients; and regulators. The interests of these four parties cannot be fully reconciled, requiring some means of balancing or ranking their interests.⁶⁰ Understanding how to do so equitably requires first understanding what undergirds each group's claim: that is the subject of this section.

5.1 SHAREHOLDER GOVERNANCE RIGHTS

At shareholder-owned entities, shareholders generally have governance rights. This can be justified on both fairness and efficiency grounds. Shareholders are investors in a corporation; their investment is at risk if the corporation is managed poorly. Therefore, in exchange for granting the corporation the use of their capital, the shareholders demand oversight over how that capital is used. In the absence of such oversight power, investors may go elsewhere with their capital; this is particularly likely in the often low-margin business of clearing.⁶¹ Another justification for shareholder rights is efficiency.⁶² This argument suggests that for-profit corporations in capitalist economies are most likely to make a profit when they are serving some societal need. Shareholders, as the parties ultimately entitled to corporate profits, are the parties most likely to demand that the corporation is run in a profit-maximizing manner and, therefore, are the parties that will best ensure that the corporation maximises social welfare.

This argument can easily be taken too far; there are numerous examples of companies making a profit over long periods of time in a manner inconsistent with broader social welfare.⁶³ Nevertheless, *if* one accepts that there is some positive relationship between corporate profits and the corporation's contribution to social welfare, then it follows that empowering the group most active in the pursuit of profit can help to secure social benefits as a by-product of their activity.

⁵⁹ This is the requirement, first articulated by the G-20 in their Pittsburgh summit communique in 2009, that all standardized OTC derivative contracts should be cleared through central counterparties, and subsequently implemented in the EMIR Article 4.

⁶⁰ See Saguato, P., *Financial Regulation, Corporate Governance, and the Hidden Costs of Clearinghouses*, Ohio State Law Journal, Vol. 82, 2021 for an alternative discussion of CCP governance and governance policy.

⁶¹ CCP legal entities typically have relatively small returns in absolute terms: over €1B in annual net revenue from clearing would be very unusual. However, they are typically relatively poorly capitalized entities, so their returns on shareholders' funds can be attractive, and clearing is necessary to support other, often more profitable parts of the business of financial market infrastructures, such as running a futures and options exchange. The low absolute return of CCPs, a fact which is often omitted from discussions about the economics of clearing, helps to explain CCP shareholder's reluctance to see higher capital requirements for clearing houses.

⁶² As Fligstein & Choo (2005) put it 'at the heart of the literature on law and corporate governance is the question of whether or not some set of rules promotes economic efficiency more than others'.

⁶³ Consider, for example, a company that produces a significant amount of pollution. If the company is not charged for the social cost of pollution, as is often the case, it may make significant profits while having a net negative effect on social welfare.

5.2 CLEARING MEMBER GOVERNANCE RIGHTS

The governance rights of clearing members find their justification in the importance of clearing members to the safe and effective operations of a CCP as well as in the danger of moral hazard. A core function of a CCP is to effectively manage defaults, and to ensure that, should a default occur, the CCP's book is rematched at a loss small enough that the defaulter's resources will cover it. As discussed in Section 2, clearing members bear the majority of any default loss that exceeds the defaulter's resources. Therefore, if they are given a role in CCP governance, clearing members are incentivised to advocate for policies that reduce the risk of large losses in default.

Moreover, because clearing members bear substantial default risk, only vesting governance rights in shareholders risks excessive risk taking. Decisions that increase profits, but which also increase risk, would likely be attractive to shareholders since they would gain all of the potential profits but only face a portion of the potential costs.

The key role clearing members play in meeting public policy goals provides a further justification for assigning governance rights to them. The clearing mandate reflects the belief of policy makers that clearing increases the stability of the financial system. Clearing is only accessible to clients through clearing members. Thus, the ability of smaller parties to access CCPs on fair terms, and the ability of a CCP to manage its portfolio during a crisis, both depend upon the presence of a number of clearing members willing to take parties on as clients and to bid on the positions of a defaulter. If clearing members must take on significant financial risk and have little control over the decisions influencing the size and scope of that risk, the willingness of financial intermediaries to play that role will diminish.⁶⁴

5.3 CLIENT GOVERNANCE RIGHTS

The case for granting clients governance rights relies on the difficulty they face in transferring risk without using a CCP. The clearing mandate forces clients to centrally clear, rather than trade bilaterally.⁶⁵ This, combined with regulatory incentives to clear unmandated transactions,⁶⁶ provides a justification for granting clients input into CCPs' governance processes.

In this context, it should be noted that a single CCP often dominates a given asset class, at least in OTC derivatives.⁶⁷ Therefore, the clearing mandate effectively

⁶⁴ In fact, there is already significant concentration of clearing activity among a diminishing number of clearing members: see Derivatives Assessment Team, *Incentives to centrally clear over-the-counter (OTC) derivatives*, 2018, henceforth DAT (2018) at 21-24 and 53-57.

⁶⁵ Article 10(3) of EMIR does exempt the hedging activity of non-financial counterparties from the mandate.

⁶⁶ These incentives include capital and margin requirements which preference cleared over bilateral trades: see DAT (2018) for an extensive discussion.

⁶⁷ See BCBS, CPMI, FSB and IOSCO, *Analysis of Central Clearing Interdependencies*, 2018 and DAT (2018) for a discussion of this and other features of CCP, clearing member and client clearing service provider concentration.

forces clients to clear through a particular CCP, giving that CCP significant market power.⁶⁸ Many clients cannot become clearing members themselves, either due to regulatory constraints or because the cost of becoming a direct member of the CCP is prohibitive.⁶⁹ The clearing mandate thus forces clients to work with one of the limited number of clearing members at a single CCP, giving those clearing members substantial market power over clients. A governance role for clients, particularly regarding policies that affect the costs they face or the market power of clearing members, can help address these imbalances.

5.4 PUBLIC INTEREST AND GOVERNANCE RIGHTS

The public interest in the stability of CCPs arises from their central-by-design role in the financial system. The failure of a systemically important CCP could lead to a financial crisis. Such a crisis would likely have significant negative effects on the broader economy. There is some risk that taxpayers might incur costs in CCP failure, either in resolving the CCP, or in mitigating the effects of its distress on the wider economy.⁷⁰

An additional public interest arises from the clearing mandate, which enlisted clearing houses as policy tools for ensuring the stability of the broader financial system. Given this public role, and the regulatory bodies that exist to protect it, CCP governance policies must be consistent with the public interest. This does not necessarily mean that regulators should have a direct role in CCP governance, but rather that the effect of CCP arrangements on the public interest, as understood by regulators, cannot be ignored.⁷¹

⁶⁸ In Europe, clients generally have a ‘principal to principal’ relationship with clearing members and do not directly interact with the CCP: see Braithwaite, J., *The Dilemma of Client Clearing in the OTC Derivatives Markets*, *European Business Organization Law Review*, Vol. 17, 2016, henceforth Braithwaite (2016), at 364. Nevertheless, a CCP’s market power will allow it to dictate terms to clearing members which will, in turn, affect the terms that clearing members are willing to offer clients.

⁶⁹ This is discussed further in Part F of DAT (2018).

⁷⁰ The CCP recovery and resolution regulation at (54) sets out the aim of resolution as being to ‘minimize the costs of the resolution of a failing CCP borne by the taxpayers’ rather than to ‘eliminate the risk of any cost being borne by taxpayers’. Further, Articles 45-47 contemplate ‘government financial stabilisation’ and ‘public equity support’ and ‘temporary public ownership’: the taxpayer is not off the hook, and thus has an interest in CCP robustness.

⁷¹ Thus, EMIR Article 49, as amended by EMIR 2.2, requires that when a CCP ‘intends to adopt any significant change to its models and parameters ... it shall apply to the competent authority and ESMA for validation of that change’. This gives regulators in the EU right of veto over significant changes to CCP models or business, as incorporating a new product into the CCP’s margin model – which is necessary to clear it – often counts as a significant change.

6. CCP GOVERNANCE, DISCLOSURE, AND ACCESS: REGULATORY REQUIREMENTS AND CURRENT PRACTICE

This section summarizes the regulatory requirements relating to CCP governance and public disclosure. It also considers requirements for access to clearing. These topics are important in and of themselves and also because they shed additional light on where to place CCPs between the three possible edge case roles of clearing houses discussed in Section 2.

6.1 THE REGULATION OF CCP GOVERNANCE

EMIR requires that a CCP ‘shall have robust governance arrangements’.⁷² It must have a *board* including independent members with ‘adequate expertise in financial services, risk management and clearing services’.⁷³

A key governance mechanism by which CCP stakeholders influence its operations is the *risk committee*. This committee is composed of representatives of the CCP’s clearing members, independent members of the board, and representatives of its clients, with none of these three classes of stakeholder having a majority. Its presence and composition are mandated by regulation, and regulators may request to attend the committee’s meetings and be informed of its activities and decisions.⁷⁴

The board is responsible for the CCP. This includes responsibility for risk management, for the availability of sufficient loss absorbing resources, and for stakeholder disclosure.⁷⁵ The role of the risk committee is to ‘advise the board on any arrangements that may impact the risk management of the CCP, such as a significant change in its risk model, the default procedures, the criteria for accepting clearing members, the clearing of new classes of instruments, or the outsourcing of functions’.⁷⁶ It is therefore the principal mechanism by which stakeholders can influence the CCP’s choice of membership criteria, margin model, default fund sizing procedures, and other loss allocation mechanisms.⁷⁷

⁷² See EMIR Article 26.

⁷³ See EMIR Article 27.

⁷⁴ See EMIR Article 28 and the EMIR RTS Article 3. See also EMIR RTS Article 7 for various requirements on segregation of duties and CCP organizational structure.

⁷⁵ The CPMI IOSCO *Resilience of central counterparties (CCPs): Further guidance on the PFMI*, 2017, state in section 2.2.1 that ‘The board has ultimate responsibility for establishing a risk-management framework and for the effectiveness of its implementation’ and, in section 2.2.8, for ‘ensuring that the CCP maintains the required levels of financial resources on an ongoing basis’. Section 2.2.18 requires the board to establish ‘a comprehensive disclosure and feedback mechanism for soliciting views from direct participants, indirect participants and other relevant stakeholders to inform the board’s decision-making regarding the CCP’s risk-management framework’.

⁷⁶ While the risk committee’s role is advisory, EMIR Article 28 requires that CCP promptly inform its regulator ‘of any decision in which the board decides not to follow the advice of the risk committee’.

⁷⁷ Of course, this mechanism only works if stakeholders do actually participate in CCP governance. The burden of so doing can be large: detailed scrutiny of a new CCP initial margin model, for instance, requires substantial expertise. However, given that exposures to large CCPs are amongst some banks’ largest, it is appropriate that they carefully scrutinize CCP risk management and financial resources.

6.2 CCP GOVERNANCE IN PRACTICE

Current governance practice at CCPs imperfectly reflects a delicate balancing of interests that prioritizes parties based upon the risk they bear in a particular situation. As discussed in Section 5.1, shareholder-owned CCPs are generally run by executives who report to a board of directors. Insofar as shareholders can vote for board resolutions, including those relating to board composition, they have their financial interests protected. However, decisions at CCPs are not made in the interests of shareholders alone: CCPs risk committees input into key risk management decisions. This subsection summarises the risk committee structures at four leading CCPs: ICE Clear Europe, LCH Limited, Eurex Clearing, and CME Clearing.

At ICE Clear Europe, the clearing house-level Risk Committees play an ‘advisory role to the president’ and work to protect the default fund, manage credit and market risk, consider membership applications, and review new cleared products. These Risk Committees include clearing member representatives, clearing house officers, and a non-executive director of ICE Clear Europe. ICE Clear Europe also maintains a Client Risk Committee with both clearing member and customer representation.⁷⁸

LCH Limited maintains a Risk Committee composed of independent directors, clearing members, and clients. The Committee is tasked with considering and commenting on ‘aspects of the Company’s risk appetite, tolerance and strategy’.⁷⁹ Meanwhile, at Eurex Clearing, the Risk Committee is composed of members of the Supervisory Board, clearing members, and clients.⁸⁰ The Eurex Risk Committee advises the Supervisory Board on matters including significant changes to the risk model, changes to default procedures, changes to clearing membership requirements, and the introduction of new cleared products.⁸¹ Finally, at CME Clearing, a Board Risk Committee composed of members of the CME Group Board oversees ‘the operational risk posed by the Clearing House to CME Group on an enterprise-level basis.’ Clearing House Risk Committees include members of the board as well as representatives from market participants. These Committees review and approve changes to the default fund, review substantive changes to membership requirements, and review ‘matters that would have a significant impact on the risk profile of the Clearing House’.⁸² Thus, while practices across large CCPs differ in

⁷⁸ *Risk Management*, ICE Clear Europe, available at <https://www.theice.com/clear-europe/risk-management>.

⁷⁹ See LCH Limited, *Terms of Reference of the Risk Committee of the Board of Directors*, Sept. 9, 2020, available at https://www.lch.com/system/files/media_root/LCH%20Limited%20-%20RiskCo%20ToRs.pdf.

⁸⁰ See Eurex, *EMIR Risk Committee*, available at <https://www.eurex.com/ec-en/find/corporate-overview/emir-risk-committee>.

⁸¹ See Eurex, *Statutes for the EMIR Risk Committee*, Sept. 20, 2021, available at https://www.eurex.com/resource/blob/253914/530cc1fc79a7eb3e63db639e50ec7855/data/04_01_statutes-emir-risk-committee-en-2021-09-20.pdf.

⁸² See CME Group, *Governance*, July 16, 2020, available at <https://www.cmegroup.com/education/articles-and-reports/governance.html#>.

detail, they all include a measure of user representation, but none give users a final in clearing house decision making.

6.3 CCP DISCLOSURES

Effective governance of a complex organisation is very difficult without information. *Disclosures* allow stakeholders (including CCP participants, equity holders, and the wider market) to:

- 1) 'compare different CCPs' risk controls, including their financial condition and financial resources';
- 2) develop an 'understanding of the risks associated' with a particular CCP and with participating in it; and
- 3) understand its systemic importance.

In order to facilitate this, regulators have set standards for CCP public quantitative and qualitative disclosures.⁸³

6.4 ACCESS TO CLEARING

The issue of access to clearing is a nuanced one. On the one hand, it is important that clearing members have the resources and operational capacity to carry out their functions. But on the other, access to clearing could be used to defend an oligopoly in derivatives trading. European regulation addresses this by allowing clearing houses to establish criteria for clearing members, but requiring that they are non-discriminatory, transparent and objective, and that they are 'permitted only to the extent that their objective is to control the risk for the CCP'.⁸⁴

Access to client clearing is also required on fair, reasonable, non-discriminatory and transparent commercial terms.⁸⁵ This helps with access, but it does not address the problem that the fixed costs of client clearing are high, both in terms of fees and the infrastructure required. A substantial number of clients have experienced issues in finding a client clearing service provider, and those that do clear are often subject to caps on total margin or outstanding notional.⁸⁶ Derivatives clearing, in other words, is not provided on the open access, uniform cost basis typical of many utilities.

⁸³ See CPMI IOSCO *Public quantitative disclosure standards for central counterparties*, 2015 for details. The quotes in the list above come from this document.

⁸⁴ See EMIR Article 37.

⁸⁵ See the EMIR Refit amendments to Article 4 of EMIR. These are discussed in Braithwaite J. and Murphy, D., *Take on me: OTC derivatives client clearing in the EU*, in Saguato, P., and Binder, J-H., (eds.) *Financial Market Infrastructure: Law and Regulation*, Oxford University Press, 2022.

⁸⁶ See Part E of DAT (2018) for more details on these issues in client clearing service provision.

7. CONFLICTS IN CENTRAL CLEARING

Four parties – shareholders, clearing members, clients, and regulators – have a claim to influence over CCP governance. The interests of these four parties cannot be fully reconciled.⁸⁷ This makes it difficult to design a governance system that appropriately and effectively empowers each group. We discuss these challenges further below. Before doing so, it is useful to consider some specific clashes between the different parties as this illustrates the challenge of reconciling the competing interests. We therefore now turn to a discussion of some of the most prominent issues in CCP policy.

This discussion is informed by interviews with a variety of stakeholders carried out by one of us in 2020 and 2021.⁸⁸ The interviews were anonymized and so participants are cited by their role in the clearing industry and the date of the interview.

7.1 SKIN-IN-THE-GAME: SHAREHOLDERS VS. CLEARING MEMBERS

As discussed in Section 2, CCP skin-in-the-game sits before the default fund contributions of non-defaulting clearing members in the default waterfall. CCP owners generally seek a lower level of skin-in-the-game, as it represents capital that cannot be deployed elsewhere, and it is at risk from defaults. In contrast, clearing members generally seek higher levels of skin-in-the-game, – and sometime much higher. They argue that skin-in-the-game provides incentives for for-profit CCPs to prudently manage their business.⁸⁹ The Einar Aas incident, discussed in Box 1, is sometimes used as evidence that current levels of skin-in-the-game have not provided sufficient incentives. Increased skin-in-the-game would also provide a larger buffer above clearing member capital at risk during a default, something that advocates suggest would be more equitable than the current arrangement. This conflict therefore turns on who should bear counterparty credit risk once the defaulter’s resources are exhausted and in what quantum.

⁸⁷ See Cerezetti et al. (2019) for a further discussion of the conflicts in central clearing and a discussion of how they arise a result of a lack of clarity over the nature of CCPs.

⁸⁸ The first author carried out a series of 20 interviews on CCP governance during her J.D. studies at Yale Law School. The full methodology and results can be found in “Public Purpose at For-Profit Corporations: A CCP Case Study,” on file with the first author. Interview subjects included 5 regulators, 7 CCP representatives, 4 clearing member representatives, 2 client representatives, 2 industry lawyers (participating together in a single interview), and 1 academic. The author conducted 17 interviews as video conferences and 3 over the phone. Interviews lasted between 30 and 60 minutes and were semi-structured: each interview began with the same set of topics and a general list of questions, but then developed in its own way, depending on the interests and knowledge of each subject.

⁸⁹ For a flavour of the disagreements, see Albuquerque, V., & Perkins, C., *Central counterparties need thicker skins*, *Journal of Financial Market Infrastructures*, 4, 2016 and McLaughlin, D., *Skin in the game*, *Journal of Financial Market Infrastructures*, Vol. 7, No. 1, 2018. Berndsen identifies the size of skin-in-the-game as one of the five fundamental contemporary questions about CCPs: see Berndsen, R. (2020), *Five Fundamental Questions on Central Counterparties*, CentER Discussion Paper; Vol. 2020-028.

7.2 TREATMENT OF CCP EQUITY IN RESOLUTION: SHAREHOLDERS VS. CLEARING MEMBERS

Resolution powers enable public authorities, subject to legal constraints, to step in if they determine that a CCP is failing or likely to fail. Public intervention can help ensure that a CCP's critical functions are preserved, while maintaining financial stability. It may also help to avoid the costs associated with the CCP's failure and potential restructuring from falling on taxpayers.

A key issue in resolution is the treatment of CCP equity. Should it absorb losses, as it does in ordinary corporate bankruptcy and in the resolution regime for banks?⁹⁰ Clearing members and CCP shareholders disagree over this. Clearing members argue that concentrating losses on market participants and sparing CCP shareholders will result in misaligning incentives and in moral hazard.⁹¹ It is, they suggest, fundamentally unfair for clearing members to backstop the recapitalization of a clearing house when they do not own it. In contrast, CCPs argue that exposing CCP equity to losses in resolution could affect market participants' incentives to actively participate in recovering the CCP, and that resolution should not subvert the CCP's contractual loss allocation provisions.⁹² This conflict therefore turns on the allocation of the risks and rewards of operating a CCP.

7.3 MEMBERSHIP REQUIREMENTS: SHAREHOLDERS, CLEARING MEMBERS, REGULATORS VS. CLIENTS, POTENTIAL CLEARING MEMBERS, REGULATORS

CCPs impose obligations on their clearing members. Some of these requirements are crucial to the CCP's stability: when one clearing member defaults, non-defaulting clearing members are obliged to help rebalance the CCP's book and, if necessary, to contribute resources to cover any shortfall beyond the defaulter's resources and skin-in-the-game. It is important that members have the operational capacity and financial strength to do this. Thus, as previously noted, CCPs set minimum membership standards.

CCP owners and CCP regulators generally will prefer more stringent requirements, as these make it more likely that clearing members will perform when required to do so.⁹³ However, such requirements can also act as barriers to entry that can protect the current members' market share. Market and financial stability regulators may be more concerned with the accessibility of clearing and the dangers

⁹⁰ See Braithwaite, J., and Murphy, D., *Get the Balance Right: Private Rights and Public Policy in the Post-Crisis Regime for OTC Derivatives*, Capital Markets Law Journal, Vol. 12, No. 4, 2017, henceforth Braithwaite & Murphy (2017b), for a further discussion of this question and Financial Stability Board, *Guidance on Financial Resources to Support CCP Resolution and on the Treatment of CCP Equity in Resolution*, 2020 for the authority view. Because the outcome in bankruptcy is a statutory safeguard to arbitrary authority action in resolution, the question of what would happen in a CCP bankruptcy is highly relevant to clearing house resolution.

⁹¹ See, for instance, FIA, IIF and ISDA, *Response to the FSB Consultation Paper "Financial resources to support CCP resolution and the treatment of CCP equity in resolution"*, 2020.

⁹² See, for instance, CCP12, *Response to FSB consultative document entitled "Guidance on financial resources to support CCP resolution and on the treatment of CCP equity in resolution"*, 2020.

⁹³ See Braithwaite (2016) at 362.

of CCP or clearing member concentration.⁹⁴ For clients, more competition among clearing members for their business would decrease the ability of clearing members to raise fees or dictate unfavourable terms. These concerns tend to create a preference among some regulators and clients for less stringent requirements that allow for more clearing members to enter the market.⁹⁵ The tension is thus between highly robust CCPs and CCPs for, if not all, at least as many as possible.

7.4 THE PURSUIT OF PROFIT: SHAREHOLDERS VS. CLEARING MEMBERS

Many CCPs are for-profit corporations. This creates a tension, if not an outright conflict, between two parties. The shareholders of the CCP generally will want to maximize the CCP's profits. Clearing members want to minimize the chance that instability at the CCP endangers their default fund contributions or otherwise exposes them to risk. Clearing members often argue that the desire to maximize profits can endanger a CCP's stability, for example by leading the CCP to introduce new products that are ill-suited for clearing.⁹⁶ CCP owners, in contrast, argue that the long-term profitability of a CCP depends upon its ability to prudently manage risk and so there is no incentive to pursue profit at the expense of risk management,⁹⁷ and that CCPs should be free to innovate. This conflict therefore turns on who should have a say in CCP business strategy.

7.5 THE RESPONSIBILITY FOR SYSTEMIC LIQUIDITY RISK: SHAREHOLDERS AND CLEARING MEMBERS VS. REGULATORS AND CLIENTS

At least once a day, CCPs make margin calls on clearing members. It is essential for the CCP's risk management that clearing members meet these capital calls promptly. However, in times of stress, the size of these calls often increases – requiring clearing members to pay more to the CCP when it is most difficult for them to raise funds, a phenomenon known as the *procyclicality of margin*. This creates a systemic liquidity risk that concerns financial regulators.⁹⁸ Some regulators have sought to address procyclicality by mandating that CCPs 'adopt measures to prevent and control possible procyclical effects' of their risk management practices.⁹⁹ Such efforts may

⁹⁴ For a further discussion see Murphy, D., *Too much, too young: improving the client clearing mandate*, Journal of Financial Market Infrastructure Volume 8, Number 3, 2020 at 7-15 and Alvarez, N. and McPartland, J., *The Concentration of Cleared Derivatives*, Journal of Financial Market Infrastructures, Vol. 8, No. 3, 2020 at 15.

⁹⁵ See Braithwaite (2016) at 362-63.

⁹⁶ Video interview with clearing house representative (Oct. 27, 2020); phone interview with clearing member representative (Nov. 17, 2020); video interview with clearing member representative (Oct. 22, 2020); phone interview with clearing member representative (Nov. 20, 2020).

⁹⁷ Video interview with clearing house representative (Oct. 27, 2020); video interview with clearing house representative (Nov. 6, 2020); video interview with clearing house representative (Nov. 17, 2020); video interview with regulator (Oct. 20, 2020); video interview with regulator (Nov. 23, 2020).

⁹⁸ See BCBS, CPMI, IOSCO, *Review of margining practices*, 2021 for a discussion of authority concerns.

⁹⁹ See ESMA, *Guidelines on EMIR Anti-Procyclicality Margin Measures for Central Counterparties*, Final Report, 2018 available at https://www.esma.europa.eu/sites/default/files/library/esma70-151-1293_final_report_on_guidelines_on_ccp_apc_margin_measures.pdf at 3.

increase the stability of margin payers in times of systemic stress – but they do so at the expense of the ability of CCPs to fully control the behaviour of their margin models.¹⁰⁰

Another issue relating to margin is its overall level. Clearing members generally prefer higher initial margin levels since initial margin protects their default fund contribution if another clearing member defaults, and because margin protects them from the risk of default of their clients. Clients, in contrast, benefit from lower initial margin levels – initial margin increases the cost of holding a position, clients do not have any default fund contributions to protect, and the cost of funding margin is typically higher for clients than for clearing members.¹⁰¹ Therefore, even absent procyclicality, clients and clearing members have different views on the optimal level of CCP margin.

7.6 THE PERSISTENCE OF STAKEHOLDER CONFLICTS

The conflicts described above are profound and on-going. For instance, clearing members have argued for higher levels of skin-in-the-game for at least seven years. They continue to raise questions about the effect of the profit motive on the quality of risk management at for-profit CCPs. CCPs meanwhile argue that they should be free to allocate losses as they choose; that skin-in-the-game should not be used to absorb default losses; and that higher levels of CCP capital should not be required.¹⁰² These arguments, in turn, are used to advocate for or oppose policy change. Indeed, clearing member advocacy contributed to a December 2020 revision to EU regulations to increase skin-in-the-game requirements.¹⁰³ This change, however, did not create a new, stable equilibrium; after the change was announced, a market participant was still calling ‘for SITG to be calculated using members’ default fund contributions as the starting point, rather than existing CCP capital.’¹⁰⁴

The procyclicality debate also continues. In January 2022, ESMA launched a consultation to review EMIR’s anti-procyclicality requirements, noting that while EU CCPs generally ‘performed well during the early stages of the COVID-19 crisis, the surge in initial margin has raised questions as to whether some of these increases acted in a procyclical manner, potentially causing, or even, amplifying liquidity stress in other parts of the financial system.’¹⁰⁵

¹⁰⁰ CCP margin procyclicality and the trade-offs involved in its mitigation are further discussed in Murphy, D., and Vause, N., *A cost-benefit analysis of anti-procyclicality: analyzing approaches to procyclicality reduction in central counterparty initial margin models*, Journal of Financial Market Infrastructure Volume 9, Number 4, 2021.

¹⁰¹ See Murphy, D., *I’ve got you under my skin: large central counterparty financial resources and the incentives they create*, Journal of Financial Market Infrastructures, Vol. 5, No. 3, 2017 at 12-14.

¹⁰² See, e.g. Kristofersson, A., *These are both sides in the CCP “skin” controversy*, PostTrade360 (April 9, 2021), available at <https://posttrade360.com/news/infrastructure/these-are-both-sides-in-the-ccp-skin-controversy/>; Reeves, J., *FCMs, CCPs debate ‘skin in the game’ and consolidation concerns* (October 30, 2019), available at <https://www.fia.org/marketvoice/articles/fcms-ccps-debate-skin-game-and-consolidation-concerns>.

¹⁰³ See Article 9(14) of the CCP recovery and resolution regulation.

¹⁰⁴ See Wilkes, S., *EU hands CCP members a narrow win on skin in the game* (August 19, 2020), available at <https://www.risk.net/regulation/7663321/eu-hands-ccp-members-a-narrow-win-on-skin-in-the-game>.

¹⁰⁵ See ESMA, *Consultation Paper, Review of RTS No 153/2013 with respect to procyclicality of margin*, 2022.

In contrast, CCP representatives maintain the position that a CCP ‘cannot do something different from what it’s designed to be doing. The design of the CCP is to manage the risk of the clearing members that are directly related to it, not to manage systemic risk.’¹⁰⁶ One CCP representative has described a ‘gradual mission creep’ in which policymakers ‘have tried to recharacterize CCPs’ as systemic risk managers, a change that the interviewee characterised as ‘extremely unhelpful.’¹⁰⁷

This conflict stems, in part, from a disagreement about the role of CCPs. If clearing houses are utility-like systemic risk managers, it is evident that they should not create burdensome liquidity drawdowns, and thus should mutualize more default risk in stressed conditions. But clearing members are profoundly opposed to this solution: a CCP-as-clearing-member-club would be highly unlikely to act this way.

These ongoing debates illustrate that, while the stakeholders negotiate their conflicts within the existing governance and regulatory framework, the status quo remains contested. A compromise satisfactory to most stakeholders is unlikely, and so disagreements are likely to persist.

8. THE ROLES OF CLEARING HOUSES

We have seen that a number of stakeholders, including clearing members, clients, market participants, and various types of regulator, have strong claims to a right to have their interests taken into account in CCP decision making. These claims provide some evidence in support of each stylized model of CCP introduced in Section 2, albeit that none are conclusive.

8.1 EVIDENCE FROM THE PURPOSES OF CCPs

Modern CCPs serve a public policy purpose: clearing some products is mandatory. Partly as a result, some CCPs are systemically important to the financial system and, therefore, to the broader economy, and elements of the CCP regulatory framework reflect this. These features weigh in favour of the utility model of the CCP.

¹⁰⁶ Video interview with clearing house representative (Nov. 6, 2020); video interview with clearing member representative (Oct. 22, 2020).

¹⁰⁷ Video interview with clearing house representative (Nov. 17, 2020). Cf. Tucker (2011) at 2.

8.2 EVIDENCE FROM CCP GOVERNANCE, DISCLOSURE AND ACCESS REQUIREMENTS

The regulation of CCP governance discussed in Section 6 does not unequivocally support any of the ‘edge case’ models of clearing.¹⁰⁸ The requirement to include a range of stakeholders in governance suggests that CCPs should not be thought of as pure for-profit corporations, but the ultimate responsibility of the CCP’s board hints that they are somewhat like them. Both disclosure and access requirements suggest that CCPs are somewhat utility-like, but the absence of price regulation means that it is hard to make the case that they are pure utilities. The obligation to have a default fund and a risk committee – and the use of self-policed membership requirements – underline the club-like nature of CCPs.

8.3 EVIDENCE FROM CCP RISK TAKING

Clearing members play a vital role in sustaining CCP operations. In particular, they are central to CCP default management, both assisting the CCP in managing defaulter’s portfolios and in absorbing the vast majority of any losses over IM created in that process. CCP equity does not backstop much of this risk, and clearing members often take substantial amounts of non-default risk, too. Moreover, CCP governance arrangements must give users a significant say, as we have seen. These features argue instead in favour of the club model of clearing houses.

8.4 EVIDENCE FROM CCP OWNERSHIP AND PROFIT TAKING

Most globally systemic CCPs are for-profit, shareholder-owned corporations,¹⁰⁹ and the profits from clearing accrue to shareholders. Moreover, it could be suggested that many of the club-like features of CCPs are remnants of an earlier era, given that many large CCPs acquired their current status because they demutualized.¹¹⁰ The fact that many CCPs are for-profit corporations suggests that this element of their nature cannot be ignored.

¹⁰⁸ It has been argued that CCPs are unique, and hence that care is needed in translating structures which work for other entities to clearing houses: see Cox & Steigerwald (2017). The discussion here supports that view.

¹⁰⁹ A counterexample is the Depository Trust & Clearing Corporation, which is closer to a user-owned club.

¹¹⁰ Cox & Steigerwald (2017) insightfully suggest that ‘incomplete’ demutualization, ‘wherein the benefit of ownership, but not the risk, was demutualized’ is at the heart of much of the current tension between CCPs, clearing members, clients and regulators. See Cox, R., and Steigerwald, R., *‘Incomplete demutualization’ and financial market infrastructure: central counterparty ownership and governance after the crisis of 2008-9*, *Journal of Financial Market Infrastructures*, Vol. 4, No. 3, 2016, henceforth Cox & Steigerwald (2016), at 36.

9. TAKING ROLE SERIOUSLY

Each of the three edge models of a CCP suggest an allocation of the benefits and costs of clearing. In this section, we consider the consequences of taking each edge case seriously. This analysis suggests that no edge case would equitably allocate rights and responsibilities. Instead, a stakeholder model best explains current CCP governance and operations.

9.1 THE CCP AS A PURE UTILITY

The central focus of the CCP-as-utility model in its purest form is the provision of clearing as a general good. This suggests that taxpayers should profit from the provision of clearing ordinarily, and the taxpayer should backstop the CCP against extraordinary losses.¹¹¹ This model suggests a taxpayer backstop that is explicit, in contrast to the (not widely viewed as wholly credible) official sector assurances that bailouts of financial firms are a thing of the past. For a utility CCP, skin-in-the-game would simply be an incentive for CCP managers to perform well:¹¹² there would be no shareholders, and hence no conflict between shareholder interests and clearing member interests. Similarly, the case for the default fund would rest on the need for an incentive for clearing members to assist in default management rather than on absorbing all extreme but plausible losses. Finally, the utility CCP would be run by the state, for the public good, so its primary purpose would be systemic risk reduction.¹¹³

9.2 THE CCP AS A PURE FOR-PROFIT CORPORATION UNDER SHAREHOLDER-PRIMACY

The purely-for-profit model of clearing would suggest following the usual Anglophone corporate model of operating the CCP for shareholders, and shareholders being the providers of risk capital, with third party risk mitigation purchased as decided by the corporation's management. After all, it would be unusual to hear that diners 'bring risk' to a privately-owned restaurant by eating there, even though more diners mean more ingredients and more preparation and hence, all other things being equal, a bigger risk of food poisoning. Certainly, diners are not usually asked to bear the restaurant's financial loss if closure is necessary

¹¹¹ A case could also be made for the CCP providing clearing services at cost and allocating any losses back to the clearing member contractually, or to the wider market via transaction taxes or other fees.

¹¹² Regardless of how and by who CCPs are owned, there is a case for CCP managers to receive some of their compensation in a form which can be written down or clawed back in the event of CCP stress or failure.

¹¹³ Relatedly, see Griffith, S., *Governing systemic risk: Towards a governance structure for derivatives clearinghouses*, Emory Law Journal, Vol. 61, 2012 for a discussion of how the model whereby 'CCPs are systemic risk managers' leads to implications for CCP loss allocation and governance.

after a food hygiene violation (or if the restaurant's cash register is robbed¹¹⁴). The norm is that diners should not have to assess the food safety risk of a restaurant: rather, there is regulation of hygiene standards (and, often, disclosure of hygiene ratings). In the shareholder primacy model, then, the CCP's shareholders are the primary providers of risk capital and the primary beneficiaries of CCP risk taking. Skin-in-the-game and the default fund would both change in size under this model, with the former becoming the predominant source of loss absorption, and the latter merely providing an incentive for auction participation. The case for non-default loss allocation in this model is weak.

9.3 THE CCP AS A PURE CLUB

In the club model of clearing, the CCP is operated by the club of members, for their benefit, so it is natural that the members bear the risks of CCP operations and profit from them. There would be no need for skin-in-the-game (except perhaps as means of incentivising clearing house management). There would be no shareholders; clearing members would provide the capital not just for loss absorption, but also for the CCP's ongoing operations. The members of the clearing club would jointly determine the CCP's arrangements based on their mutual interests.

9.4 WHY THE QUESTION ABOUT THE ROLE OF THE CCP IS IMPORTANT

Much of the difficulty with finding an allocation of the costs and benefits of clearing that is acceptable to all parties is that each of these models apply to central clearing to some degree, but, as noted above, they suggest quite different answers to loss allocation and governance. Wide agreement on the role of the CCP would also greatly assist the resolution of the conflicts described in Section 7.

Unfortunately, none of the edge cases is persuasive, as their consequences clearly disenfranchise one or more classes of stakeholder. So long as shareholders do, in fact, own CCPs, the utility and club models are impossible to fully adopt. But the public importance of CCPs and the prominent role of clearing members makes pure shareholder primacy untenable. A synthesis is necessary. CCPs are part mutualized club, part for-profit company, and part quasi-public actor. This means that CCP policy requires a delicate balancing of interests that prioritises different stakeholder interests in different situations. The next subsection considers a model which supports this balancing.

¹¹⁴ It is however common for securities custodians to disclaim liability for their use of third-party sub-custodians, and not even to disclose the contracts in place with such entities. For a further discussion, see Micheler, E., *Intermediated securities from the perspective of investors: problems, quick fixes and long-term solutions*, in Gullifer, L. and Payne, J., *Intermediation and Beyond*, Hart Publishing, 2019.

9.5 THE STAKEHOLDER MODEL

Shareholder primacy is not the only model of the for-profit corporation.¹¹⁵ Another prominent approach, *stakeholder governance*, considers interests beyond those of the corporation's shareholders. Under a stakeholder-oriented model, 'the goal of corporate activity should be to increase the welfare of all [or key] groups that closely interact with the firm and have an interest in its continuous well-being.'¹¹⁶

Germany provides one of the most prominent long-standing examples of a stakeholder-oriented corporate governance system.¹¹⁷ In this system, governance policies protect a variety of interests. German companies have a two-tiered board structure: a management board that oversees the day to day operations of the corporation and a supervisory board that oversees the management board and approves significant decisions such as a major merger. Under what is known as codetermination, German companies with more than 500 employees must allow employee representation on the supervisory board. For companies with over 2000 employees, workers and shareholders each elect half of the supervisory board.¹¹⁸

In recent years, there has been considerable interest in the stakeholder model across the political spectrum in jurisdictions which had hitherto been more supportive of shareholder primacy. For instance, in the United States, Senator Elizabeth Warren has argued that the shareholder primacy model has led to significant corporate profits but stagnant wages for workers, and she has proposed a bill that would require large U.S. corporations to allow employees to elect at least 40% of board members, among other reforms,¹¹⁹ while the Business Roundtable – an influential association of corporate chief executive officers – announced a revision of its conception of corporate purpose which included stakeholder concerns.¹²⁰ Subsequently, the World Economic Forum urged for-profit corporations to move away from shareholder primacy to a stakeholder model.¹²¹

¹¹⁵ As Kershaw and Schuster point out in Kershaw, D., and Schuster, E., *The Purposive Transformation of Corporate Law*, American Journal of Comparative Law, forthcoming, 2022, a prior question to 'whose interests should the corporation act for?' is 'what is the purpose of the corporation?'. They suggest that an agreed purpose for an entity 'has the capacity to bond internal and external stakeholders': the flipside of this is that disagreement over an entity's purpose has the capacity to generate substantial inter-stakeholder conflict.

¹¹⁶ See Gelter, M., *Taming or Protecting the Modern Corporation*, GeNYU Journal of Law & Business, Vol. 7, No. 2, 2011, at 5.

¹¹⁷ See Brandt & Georgiou (2016) at 12.

¹¹⁸ See Brandt & Georgiou (2016) at 16 and, for co-determination more broadly, Fulton, L., *Codetermination in Germany: A beginner's guide*, Mitbestimmungspraxis No. 32, Hans-Böckler-Stiftung, Institut für Mitbestimmung und Unternehmensführung, 2020.

¹¹⁹ Warren, E., *Accountable Capitalism Act*, S.3348, 115th Congress, 2017-2018.

¹²⁰ Business Roundtable, *Statement on the Purpose of a Corporation*, 2019, available at <https://www.businessroundtable.org/business-roundtable-redefines-the-purpose-of-a-corporation-to-promote-an-economy-that-serves-all-americans>. A key passage is: '[W]e share a fundamental commitment to all of our stakeholders ... Each of our stakeholders is essential. We commit to deliver value to all of them, for the future success of our companies, our communities and our country.'

¹²¹ See World Economic Forum, *Davos Manifesto 2020: The Universal Purpose of a Company in the Fourth Industrial Revolution*, 2019, available at <https://www.weforum.org/agenda/2019/12/davos-manifesto-2020-the-universal-purpose-of-a-company-in-the-fourth-industrial-revolution/>.

Regardless of the merits of the stakeholder model generally,¹²² it provides a compelling model for clearing houses, particularly systemically important ones where the public interest in CCP robustness is strongest. Existing regulation and current CCP practice are only fully explicable in the context of multi-stakeholder governance¹²³ where no single interest dominates, and where we speak of the purposes of the clearing house.

In this view, conflicts will persist. There is no single argument that resolves them in a compelling fashion. These conflicts are intensified by the clearing mandate, which focusses attention on the acceptability of CCP arrangements for the parties who are mandated to use them, given that CCP shareholders extract profits arising partly from a public policy choice.¹²⁴

10. CONCLUSIONS

This paper has made the case that a disagreement about the nature of CCPs lies at the heart of many important conflicts in contemporary CCP policy. The controversy has been illustrated through the use of three stylised models of clearing houses: utilities; for-profit corporations under shareholder primacy; and clubs. These models encapsulate different notions of whose interests a CCP should serve and, as a result, they have different governance arrangements.

Central clearing involves taking risk, so fulfilling the purpose of a CCP requires some party or parties to provide loss absorption. The various risks of central clearing and the mechanisms for absorbing them in both the default waterfall and in non-default loss allocation have been set out. These mechanisms provide very substantial loss absorption capacity, and this often comes largely from clearing members.

The idea that risk bearing should, in equity, imply some say in how that risk is taken and managed has been used to shed light on the claims of various parties for participation in CCP governance, and on their current governance rights. It was seen that CCP loss allocation is complex, and there is no simple read-across from a party bearing a risk to that party having a say in clearing house governance when decisions about that risk are being taken. Rather, there is a general tendency for risk-bearing to be associated with a role in governance. Regulatory standards for governance, access, and disclosure, which support and frame the rights of various stakeholders, were discussed along with existing governance practices.

¹²² See Bebchuk, L., and Tallarita, R., *The Illusory Promise of Stakeholder Governance*, Cornell Law Review, Volume 106, 2020, for the case against stakeholder governance and Mayer, C., *Shareholderism versus Stakeholderism – A Misconceived Contradiction*, ECGI Working Paper No. 522, 2022 for a response to Bebchuk & Tallarita.

¹²³ See Johnson, K., *Governing Financial Markets: Regulating Conflicts*, Washington Law Review, Vol. 88, No. 1, 2013 at 239 for a related discussion of stakeholder representation in CCP governance.

¹²⁴ For a further discussion of the choice to use largely private CCPs for public policy purposes, see Braithwaite & Murphy (2017b).

Notwithstanding regulation and arrangements that enfranchise key stakeholders, the diverse community of CCP stakeholders remain in conflict over fundamental aspects of CCP policy. Some of the key conflicts within the stakeholder community were outlined: this illustrated their persistent and intractable character.

The evidence for each of the stylised models of a clearing house has been considered. None of the three edges cases was found to be satisfactory or determinative. In particular, the resolution of the policy conflicts by choosing any of the models would entail an inequitable discrimination against one or more class of stakeholder.

Conflict in clearing policy has been seen to arise through the choice to use largely private entities – CCPs – to meet a public policy purpose – that derivatives be cleared. The evidence from CCP loss allocation, governance, and from an analysis of those who benefit from clearing, suggests that CCPs must – and generally do – balance the rights and interests of stakeholders including their owners, clearing members, clients, the wider financial system, and the public. This suggests that a stakeholder model best explains governance at CCPs, with all the potential for difficult trade-offs and dissatisfied parties that entails.

The picture that emerges is one of CCPs as hybrid entities, dynamically balancing competing interests within a slowly-changing policy framework. Their bespoke arrangements reflect the complexity of this balancing act. Meanwhile, various stakeholders attempt to advance their interests at the CCP, in the community of stakeholders, and with policy makers. Thus, central clearing will remain a contested area where disputes will be resolved – perhaps only provisionally and temporarily – by negotiation, power, evidence, or advocacy rather than one where general agreement about role of the CCP acts a lodestar leading to a stable compromise.