Chapter 24
Ownership, Incentives and Regulation of CCP Risks

Louise Carter
Reserve Bank of Australia, Australia

Jennifer Hancock
Reserve Bank of Australia, Australia

Mark Manning
Reserve Bank of Australia, Australia

ABSTRACT

This chapter develops a framework to analyse the factors influencing central counterparties' (CCPs') risk controls and the role of regulation. The framework illustrates the importance of sound regulation of CCPs and helps to explain why different CCPs may make different risk management choices. Key factors include ownership, governance and the profile and preferences of participants. International standards for the design and operation of CCPs and other financial market infrastructures (FMIs) are reflected in the Principles for Financial Market Infrastructures (PFMIs). Modelling key elements of these standards, the chapter demonstrates the importance of a flexible regulatory framework that achieves the desired level of stability while allowing the mix of risk controls applied by each CCP to vary according to its particular incentives and operating environment. The chapter goes on to discuss the emerging trends towards competition and interoperability between CCPs and cross-border provision of clearing services, and consider the implications for CCPs' risk management choices.

1. INTRODUCTION

The financial strains of 2008 underscore the important role played by CCPs in the financial system. Indeed, in September 2008, the successful unwinding of Lehman Brothers positions across several CCPs worldwide illustrated the potential benefit of centralised risk management and a centralised default-management process (Gregory, 2014; Norman 2011). Furthermore, while liquidity and trading activity in many over-the-counter (OTC) markets was constrained during this period by tight counterparty limits,

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markets served by CCPs experienced less disruption. This would seem to reflect market participants' confidence in the capacity of CCPs to adequately manage risks associated with trading in financial markets. In light of this experience, the G20 has committed to regulatory reform to provide for central clearing of all standardised OTC derivatives (G20, 2009).

While greater use of CCPs may address some important issues, the market structure of clearing and the robustness of CCP risk management will determine the extent to which increased central clearing contributes to greater financial stability. The question has been raised, for instance, as to whether CCPs should be permitted to have a profit orientation and whether they should instead be regarded purely as utilities (Tucker, 2013). While a number of studies have demonstrated the benefits of central clearing for netting efficiency – at least when clearing of a single or related products is not fragmented across multiple CCPs (Jackson and Manning, 2007; Duffie and Zhu, 2011; Heath, Kelly and Manning, 2013; Duffie et al., 2014) – the potential concentration of risk in CCPs is also widely recognised (Renault, 2010; Tucker, 2013; Anderson and Joeveer, 2014; Powell 2014). More generally, on the policy drive towards central clearing, Pirrong (2011) argues 'although [the rules] may reduce some risks, they will simply relocate others, while creating some new ones'.

Our principal focus in this chapter is on the risk management choices made by CCPs and how these decisions can be influenced by regulation and other features of the operating environment. We develop a model to examine the coverage and reliability of CCPs' financial resources. Our model builds on the optimal margining approach of a user-owned CCP developed by Baer *et al* (2004). A similar approach has been used by Haene and Sturm (2009) to examine the optimal balance of margin and pooled financial resources for a user-owned CCP that faces regulatory requirements on the coverage of its financial resources.

Considering first an operating environment with no regulation, we find that, other things being equal, a for-profit CCP that relies on its own capital to fund any shortfall above a defaulted participant's initial margin will seek to minimise the potential call on its own resources by increasing margin requirements to the maximum level consistent with its clearing participants' continued willingness to trade. If, on the other hand, any shortfall is funded by *ex post* loss allocation to participants, this contingent obligation will be taken into account in participants' trading decisions. Margin requirements are then likely to be correspondingly lower. If a CCP is user owned, it will similarly take into account the opportunity cost to participants of posting initial margin and meeting any shortfalls, and hence will generally prefer to set margin requirements at a lower level, relying more on *ex post* loss allocation to participants.

We also demonstrate that an unregulated CCP relying only on *ex post* funding to meet a shortfall has a strategic option to wind down rather than meet its obligations. Furthermore, if a CCP anticipates public support in the event that it faces a shortfall, its privately optimal strategy may be to set margin requirements lower than it otherwise would. This could impose significant social costs, underscoring the important role for regulation in influencing the coverage and reliability of a CCP's financial resources.

We therefore model the implications of regulation, focusing principally on two core elements of the internationally-agreed *Principles for Financial Market Infrastructures* which were published by the Committee on Payment and Settlement Systems (CPSS) – now the Committee on Payments and Market Infrastructures (CPMI) – and the International Organization of Securities Commissions (IOSCO) in 2012 (PFMIs; CPSS-IOSCO, 2012): pre-funded financial resources, sufficient to cover losses arising in the

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