

# Public policy and central counterparty clearing

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Good afternoon and thank you for joining us today to discuss some important issues related to central counterparty clearing. On behalf of the Federal Reserve Bank of Chicago (Chicago Fed), I want to thank our host and cosponsor of this conference, the European Central Bank (ECB). This has been a wonderful opportunity for us to discuss these issues with experts from around the world, and I hope that the participants here today have found these discussions helpful. The ECB and the Chicago Fed have worked together closely to plan the conference and agenda, and it has been a very good partnership.

Today, I'd like to share with you my thoughts about the important role that clearing and settlement institutions play in supporting financial markets. In particular, my remarks today will revolve around four key questions related to central counterparty clearing. First, what economic functions do central counterparties, or CCPs, perform in the clearing and settlement of financial transactions? Second, what alternative institutions can perform the same or economically equivalent functions? Third, what are the costs and benefits of using CCPs as compared with alternative clearing institutions? And fourth, what do these costs and benefits tell us about public policy decisions that should be made concerning CCPs and alternative institutions?

I do not expect to give definitive answers to these questions today. We just don't know enough to provide such answers. But I think that careful consideration of these issues is essential to formulating good public policy. The wide variation in financial market structures and the fast pace of financial and technical innovation mean there may not be a single, "first-best" clearing solution that meets the needs of all markets. So, as a practical matter, it is not possible to formulate public policy without facing fundamental and unavoidable tradeoffs when comparing alternative structures for the

clearing and settlement of financial transactions. I'll elaborate on this theme in the course of my discussion.

Post-trade clearing and settlement are sometimes referred to as the "plumbing" of the financial system. This term may suggest that clearing and settlement systems are of secondary importance. In fact, however, they are more like the "central nervous system" of the financial system.<sup>1</sup> Clearing and settlement systems provide vital linkages among components of the system, enabling them to work together smoothly. As such, clearing and settlement systems are critical for the performance of the economy. A key role then for public policy is to ensure that these systems function well when confronted by a variety of stresses.

Centralized clearing arrangements utilizing CCPs have become more widespread in recent years, both for exchange-traded and over-the-counter (OTC) markets. This is no surprise, since they are extraordinarily good at what they do. As a consequence of this growth in CCP usage, central banks, securities regulators, and other financial market policymakers have cooperated in recent years to establish appropriate standards for the design, operation, and oversight of CCPs. This effort recently culminated in the Group of Ten (G-10) and International Organization of Securities Commissions' *Recommendations for Central Counterparties*.<sup>2</sup> The Federal Reserve Bank of Chicago actively participated in the consultative process leading to the adoption of the recommendations and related financial stability initiatives.<sup>3</sup>

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In the U.S., the regulatory structure has evolved toward supporting a “hybrid” system of clearing and settlement. For securities transactions, Congress has mandated a “national market system,” and the Securities and Exchange Commission has favored centralized clearing and settlement arrangements. But there is no such policy mandate for the derivatives industry. The U.S. thus provides a mixed example of the policy approach that I plan to focus on today.

Central counterparty clearing issues also are of keen interest to public policymakers here in Europe, particularly because of the ongoing European financial and economic integration. So the issues being discussed at this conference are both timely and of first-order importance.

As you undoubtedly know, Chicago is home to some of the world’s most active exchanges. Chicago is also home to three major clearinghouses: the Clearing House Division of the Chicago Mercantile Exchange, or CME; the Clearing Corporation, which you may recognize under its former name, the Board of Trade Clearing Corporation, or BOTCC; and the Options Clearing Corporation. Together these institutions represent what is sometimes called the “Chicago model” of centralized clearing and settlement. This model is characterized by counterparty substitution. That is, the clearinghouse becomes the legally substituted buyer to all sellers and the seller to all buyers in the markets they serve. This typically occurs through a legal process known as “novation.” Over the past few decades, this model has been extended to securities markets around the world. The fact that the Chicago model has been so widely emulated is evidence that it is a robust and effective way to operate a clearing and settlement system.

However, this model was not developed in a monolithic way, which is not surprising when you think about the historical development of CCPs. This history demonstrates that risk management is not the only factor motivating the development of clearing structures.<sup>4</sup> In fact, the first Chicago clearinghouse, BOTCC, was founded after the enactment of the Grain Futures Act of 1922. With the passage of this law, Chicago Board of Trade members faced a choice of alternatives for keeping trading records, reporting open positions to federal regulators, and paying stamp taxes. They could remain in a principal-to-principal relationship with their counterparties and thus keep their records, make their reports, and pay stamp taxes on their gross transactions. Or, they could clear their transactions through the clearinghouse and perform those functions on a multilateral net basis. Clearly, the multilateral approach saved both recordkeeping costs and taxes.

There are additional lessons to learn from the evolution of the Chicago markets. Early on, each Chicago clearinghouse was associated with a single exchange. While BOTCC was formed as a separate legal entity, it only cleared trades from the Board of Trade. The clearinghouse of the Chicago Mercantile Exchange was and continues to be a division of its parent exchange. Both clearinghouses, however, functioned effectively as CCPs. This one-to-one association of clearinghouse with exchange changed with the advent of exchange demutualization. This forced exchanges to decide whether they wished to be in the trade intermediation business, the clearing and settlement business, or both. Indeed, the separation of ownership and governance of BOTCC from that of the Board of Trade led, in recent years, to a situation where these two institutions pursued somewhat different business objectives. Ultimately, this led to the termination of the longstanding relationship between the two. The Board of Trade then took the remarkable step of outsourcing its clearing operations to its crosstown rival, the Chicago Mercantile Exchange!

Another historical example that illustrates the possibility of de-linking the clearinghouse from the exchange comes from the rice futures market of Osaka, Japan, in the eighteenth and nineteenth centuries. There were many different institutions serving that market that we might recognize today as clearinghouses, perhaps as many as 60 at one point.<sup>5</sup> This allowed for trader choice in the selection of a clearinghouse and, presumably, competition among clearinghouses.

These examples also demonstrate a more fundamental point: Exchanges and clearinghouses are in very different, but interrelated, lines of business and serve very different economic functions. To see this, let’s look at the core functions performed by CCPs. I think most analysts would include at least five core functions. All play a role in managing risk in the markets served by the CCP. The first core function is multilateral netting of open positions and payments. The second is calculation, collection, and custodial management of margin and collateral payments. The third is the adoption of procedures, such as “delivery versus payment,” that mitigate settlement risk. The fourth is mutualization of all or part of the risk of default. And finally, the fifth core function is to respond to crisis situations in the interest of the entire community of participants in the clearinghouse, not just the interest of a single trader. While other features can be identified, I believe these five adequately describe the core economic functions CCPs typically perform. Let’s consider each of these functions to see whether

the use of a CCP is necessary to perform them, starting with netting. Following counterparty substitution in a CCP arrangement, a single multilaterally netted position exists between the clearinghouse and each market participant. Thus, a “many-to-many” chain of credit is replaced by a “one-to-many” arrangement, with the CCP at the center of the arrangement. The gross obligations of the initial counterparties are, as a result, converted to net obligations with respect to a single, substituted counterparty, the CCP. This has the potential to reduce counterparty risk exposures dramatically and reduce operational costs.

Multilateral netting of obligations is, by definition, one of the results of counterparty substitution. Thus, CCPs are a convenient mechanism for obtaining the risk-management and operational benefits of netting. But is this the only institutional arrangement that can support netting? The answer is no. First, take the case of payment netting. Clearing House Interbank Payments System (CHIPS), the privately owned and operated U.S. dollar payment system based in New York, conducts continuous netting of dollar payments on both a bilateral and multilateral basis without becoming the substituted counterparty to the underlying payment obligations. Similarly, the CLS (Continuous Linked Settlement) Bank provides a hybrid clearing arrangement for foreign exchange transactions, which results in multilateral netting of the funding requirements of settlement members. At no point does the CLS Bank become a substituted counterparty to the underlying payment transactions.

What about netting of open positions? This is a more complex case than simple payment netting, because open positions involve forward obligations that may be discharged at a future date. Is counterparty substitution necessary for multilateral netting of these types of obligations? Here again, the answer is no, at least under U.S. law. The calculation of a multilateral net amount is simple arithmetic. As long as the participants in a financial market agree to conduct transactions or make payments on a multilateral net basis, and that contract is enforceable under applicable law, counterparty substitution is not necessary.

Now let’s consider the second role CCPs typically perform, the management of margin and collateral requirements, such as “mark-to-market” payments. Derivatives transactions, such as swaps, futures, and short options, require discharge of the underlying obligations at some time in the future. Because of the potential for price fluctuations between the time derivatives obligations are undertaken and the time they are discharged, participants face exposure to forward or “replacement cost” risk. To mitigate that risk,

clearing arrangements for forward transactions typically impose “variation margin” requirements on their clearing members. These payments are based upon a daily or even more frequent marking to market. As a result, traders are forced to realize their net profits and losses on a regular basis.

Is counterparty substitution necessary to mitigate replacement cost risk? The answer is no, again under U.S. law. For example, participants in the OTC swaps market often collateralize their bilateral net mark-to-market exposures without the substitution of a central counterparty. Such collateral requirements, however, can be multilaterally netted without counterparty substitution. In fact, in the 1990s, the Chicago Mercantile Exchange proposed to establish a facility to do precisely this. That proposal did not involve the legal substitution of the CME Clearing House or any other CCP as counterparty to the underlying swaps transactions. As it happens, that facility never went into operation, but that was for reasons other than its ability to perform this underlying economic function.

Now let’s consider the last three roles of CCPs: the adoption of procedures to mitigate settlement risk (such as delivery versus payment), loss mutualization, and centralized crisis management procedures.

Delivery versus payment, or DVP, is a means of assuring that related transactions, such as the delivery of securities and the corresponding payment, are coordinated and that neither party is exposed to settlement risk. Counterparty substitution is not necessary to the implementation of such procedures, which are common in payment and securities settlement systems. For example, the Federal Reserve’s own system for transferring U.S. government securities operates on a DVP basis. Yet at no time does the Fed become a substituted counterparty to the transaction. Similarly, the CLS Bank operates on a payment versus payment, or PVP, basis, again without counterparty substitution. Regardless of whether you call these processes DVP or PVP, the result is the same: settlement risk mitigation without the use of a CCP.

Loss mutualization has the effect of spreading losses across some or all nondefaulting traders. This frequently was a feature of clearinghouses for exchanges that were owned by their members. Today, however, participants in a market who wish to spread the risk of loss resulting from default can purchase insurance or equivalent risk-shifting protection. As long as they agree to purchase insurance or otherwise spread the risk of loss, there is no need for counterparty substitution. Nor is there any need for counterparty substitution for a centralized institution, such as a clearinghouse, to be given authority to respond to market crises.

Bank clearinghouses, for example, have historically exercised such power on behalf of their members.

So, it is clear that the core economic functions performed by CCPs can be provided by a variety of alternative institutions. How should public policy respond to this multiplicity of possible clearing arrangements? Even though other institutions can perform these functions, it may be the case that CCPs dominate other clearing arrangements from a social welfare perspective. If so, then there would be an argument for public policy to explicitly encourage or even mandate CCPs for all markets. It might also make sense to consolidate CCPs from different markets into a common institution. But if CCPs or consolidation do not dominate on a cost-benefit basis, then public policy should accommodate a wide range of clearing arrangements.

Like all the institutional arrangements I've discussed, centralized clearing arrangements have both costs and benefits. On the benefit side, it has been widely noted that CCPs can reduce significantly the risks to market participants and enhance the liquidity of the market.<sup>6</sup> This is because CCPs benefit from economies of scale and scope, compared with more decentralized arrangements. On the cost side, a CCP also concentrates risks and responsibility for risk management,<sup>7</sup> making it a potential single point of failure. Concentration carries with it systemic implications, since the failure of a CCP would be, by definition, a major systemic event.<sup>8</sup> This potential risk would only be exacerbated by a policy that mandated the consolidation of all CCPs into a single institution. A more decentralized clearing arrangement would disperse responsibilities for risk management across multiple institutions. This would serve to reduce the possibility that a single institution's failure might have a catastrophic impact.

But this discussion omits perhaps the most important advantage from allowing a broader array of clearing and settlement arrangements: the benefits of competition. Indeed, it is the competition for better ideas, superior risk-management procedures, and new products that best leads to market innovation in these areas. The welfare implications of such innovations can be very large. If CCPs were to be mandated as the only acceptable clearing and settlement arrangement, I fear that a good deal of financial market innovation would be stifled, with corresponding losses in economic welfare.

Take, for example, the market for credit derivatives.<sup>9</sup> I think most people would agree that there are real economic benefits generated by these instruments. At present, credit derivatives are not centrally cleared. This market may not have developed as rapidly as it

has if it had been required to utilize a central counterparty arrangement. Alternatively, the imposition of centralized clearing might have caused the market to develop in a different form, perhaps in "offshore" jurisdictions, outside the reach of regulations mandating the adoption of a CCP. This is not merely a speculative concern. When interest rate swaps were evolving in the 1980s, U.S. law required "futures" to be traded on exchanges and, by implication, centrally cleared. As a result of this requirement, the interest rate swaps market largely moved offshore. The U.S. swaps market only recovered when the so-called swaps exemption freed this market to develop its own trading and clearing arrangements. More generally, the imposition of constraints or restrictions on markets can have a significant effect on firm behavior, again with corresponding welfare implications.

Of course, customized financial instruments, such as credit derivatives, often become more standardized over time, lending themselves more easily to centralized clearing and settlement facilities. We may have reached that point with respect to credit derivatives, and I am aware of some efforts in this direction. It seems to me that the best policy prescription is to allow the market to adopt whatever clearing arrangement meets its own idiosyncratic needs while still satisfying public policy objectives.

New clearing arrangements are emerging all the time. Such arrangements may provide a wide range of risk-management and operational functions, either with or without counterparty substitution.<sup>10</sup> I expect that such arrangements will continue to evolve as financial innovation, supported by advances in computing and communications technology, continues unabated. I view these developments favorably, as they have the potential to create even greater efficiency in the clearing and settlement of financial transactions. I remain a bit wary, however, that efforts to make CCPs the preferred clearing and settlement mechanism or to force different markets to share the same CCP may suppress a good deal of this beneficial development.

As a longtime Chicagoan, I certainly would not want to imply any general criticism of CCPs. Properly structured, they do an excellent job of executing critical risk-management imperatives. I do see value, however, in policy environments that allow multiple clearing and settlement arrangements to emerge. And in that context, regulation should be flexible, nonprescriptive, and risk based to avoid thwarting market innovation. Indeed, that is precisely what the Federal Reserve Bank of Chicago recommended to the Bank for International Settlements' Committee on Payment and Settlement

Systems and the International Organization of Securities Commissions in the formulation of prudential standards for centralized clearing arrangements.

Once again, thank you for joining us at this conference, and we look forward to your continued involvement in these important policy issues.

## NOTES

<sup>1</sup>Robert E. Litan, 1998, "Institutions and policies for maintaining financial stability," in *Maintaining Financial Stability in a Global Economy*, Federal Reserve Bank of Kansas City, p. 283.

<sup>2</sup>Bank for International Settlements, Committee on Payment and Settlement Systems (CPSS) and Technical Committee of the International Organization of Securities Commissions (IOSCO), 2004, *Recommendations for Central Counterparties*, Basel, Switzerland, March.

<sup>3</sup>The Federal Reserve Bank of Chicago also participated in the consultative process leading to the adoption of the CPSS-IOSCO's *Recommendations for Securities Settlement Systems* (2001), as well as the CPSS's *Core Principles for Systemically Important Payment Systems* (2001).

<sup>4</sup>See, for example, James Moser, 1994, "Origins of the modern exchange clearinghouse: A history of early clearing and settlement methods at futures exchanges," Federal Reserve Bank of Chicago, working paper, No. WP-94-3, p. 43.

<sup>5</sup>Ulrike Schaede, 1991, "The development of organized futures trading: The Osaka rice bill market of 1730," in *Japanese Financial Market Research*, William T. Ziemba, Warren Bailey, and Yasushi Hamao (eds.), Amsterdam: North Holland Publishing.

<sup>6</sup>See, for example, CPSS-IOSCO (2004), at sec. 1.2.

<sup>7</sup>CPSS-IOSCO (2004), at sec. 1.2.

<sup>8</sup>As a result, public oversight of CCPs and economically equivalent clearing arrangements is justified.

<sup>9</sup>See Hamish Risk, 2006, "Credit derivatives market expands to \$17.3 trillion," Bloomberg.com, newswire, March 15. Risk states: "Credit derivatives are the fastest-growing part of the \$270 trillion market for derivatives, obligations based on interest rates, events or underlying assets, according to figures from the Bank for International Settlements. The market expanded more than fivefold in two years, according to ISDA [International Swaps and Derivatives Association]."

<sup>10</sup>For example, the Virtual Markets Assurance Corporation (VMAC) is a relatively new clearing arrangement. The VMAC functions as a provider of a "suite" of risk mitigation services that, according to VMAC's marketing materials, "allows participants to settle all mark-to-market amounts with a single hedge counterparty, resulting in a reduction of up to 90% in the amount of capital required...." See VMAC's website, [www.vmac.com](http://www.vmac.com). However, because VMAC provides clearing services to some, but not necessarily all, of the participants in the markets it serves, it does not appear that either VMAC or any other entity becomes the buyer to every seller and the seller to every buyer, and thus does not technically qualify as a CCP.