CLEARING AND SETTLEMENT ANNOTATED BIBLIOGRAPHY

Prepared by Yuliya Guseva
Post-Doctorial Research Fellow
Columbia Law School/Business School Program in the Law and Economics of Capital Markets
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<tr>
<td>BD</td>
<td>Broker-Dealer</td>
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<tr>
<td>BHC</td>
<td>Bank Holding Company</td>
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<td>BIS</td>
<td>Bank for International Settlements</td>
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<td>C&amp;S</td>
<td>Clearance and Settlement</td>
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<td>CCP</td>
<td>Central Counterparty</td>
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<td>CDS</td>
<td>Credit Default Swap</td>
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<td>CEA</td>
<td>Commodity Exchange Act</td>
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<td>CESAME</td>
<td>EC Clearing and Settlement Advisory and Monitoring Expert Group</td>
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<td>CFTC</td>
<td>Commodity Futures Trading Commission</td>
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<td>CH</td>
<td>Clearinghouse</td>
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<td>CNS</td>
<td>Continuous Net Settlement</td>
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<td>COGESI</td>
<td>Contact Group on Euro Securities Infrastructures</td>
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<td>CPSS</td>
<td>Committee on Payment and Settlement Systems</td>
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<td>CSD</td>
<td>Central Securities Depository</td>
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Clearing and Settlement (C&S): Structure and Studies

   a. Prior to the “back office” crisis, C&S was left to state law. By amending the Securities Exchange Act (hereinafter “SEA”), Section 11A, Congress intended “to facilitate the establishment of a national market system.” Accordingly, Section 17A on C&S directs the SEC to “facilitate the establishment of a national system for the prompt and accurate clearance and settlement of transactions in securities (other than exempt securities).”
   b. Clearing entities are self-regulatory organizations (hereinafter “SRO”). “Because so many
transfer agents and clearing agencies are banks, a political compromise (reminiscent of the 1964 adoption of §12(i) with respect to the registration of bank securities) split jurisdiction between the SEC and the federal bank regulators (the Comptroller of the Currency for national and District of Columbia banks, the Board of Governors of the Federal Reserve System for savings associations and state member banks, and the Federal Deposit Insurance Corporation for savings associations and nonmember banks that it insures) with respect to transfer agents and clearing agencies that are banks” (id. at 803). However, the SEC has a broad rulemaking authority. Also, the SEC and bank regulators “are enjoined to cooperate with each other as well as with state banking authorities” (id.). Bank regulators have the primary responsibility with respect to inspections and enforcement, registration, rule changes and disciplinary proceedings.

c. The 1990 Market Reform Act expanded the SEC’s authority by directing it (in coordination with the CFTC and the Fed) to promote linked facilities for C&S of securities, securities options, futures, and commodity options; and to ensure equal regulation of clearing agencies and transfer agents. Section 17A(f) also authorizes the SEC to promulgate rules on transfers of securities and limited interests, and rights and obligations of parties to transactions and financial intermediaries involved.

d. Immobilization of securities was also expedited by the 1975 Amendments. Also, the 1994 amendments to Art. 8 UCC provided for “a ‘neutral approach’ between the uncertificated securities system envisioned by the 1978 amendments to this Article and indirect holding systems such as that conducted by the Depository Trust Company (DTC)” (id. at 805) and the NSCC. In 1998, the SEC approved rule changes conforming to the Revised Art. 8.


   a. The Report analyzes market infrastructure, including exchanges (as institutions operating trading systems and through that providing a market and performing two functions: order execution and data dissemination), central counterparties (hereinafter “CCP”) (“an entity that interposes itself between counterparties to contracts in one or more financial markets, becoming the seller to every buyer and the buyer to every seller”) and central securities depositories (hereinafter “CSD”) (“an entity that holds securities centrally either in certificated or dematerialized form” and that “enables the central transfer of ownership of securities, typically by means of book entry transfer…”).

   b. The primary paradigms of the research are the analysis of the market power and competition, regulatory schemes and internal governance of the aforesaid entities. Among competition-
related variables are network and liquidity externalities, economies of scale, switching costs, legal restrictions, market practices, on the one hand; and factors diminishing the anticompetitive pressures, such as interoperability, harmonization of market rules, standardized connection protocols, more liberal legal provisions, on the other. The Report analyzes related literature on competition and instances where a vertical silo is created (see Pirrong, Pagano and Padilla, etc.)

c. The Report analyzes regulatory provisions of various jurisdictions and relies on the data and reports of the World Federation of Exchanges, the European Central Bank (ECB) Contact Group on Euro Securities Infrastructures (COGESI), CPSS/BIS/IOSCO, the EC Clearing and Settlement Advisory and Monitoring Expert Group (CESAME), Giovannini Group (Report 2003) [see Section VII, infra], and industry studies.

d. In a nutshell, clearing entities are owned by exchanges, users, independent entities or governments. CSDs are mainly user-owned, although about a quarter are controlled by exchanges or governments. The majority of listed exchanges are integrated, while the major equity turnover (85%) is channeled through non-integrated US, Tokyo and London exchanges, and C&S entities.

e. The Report makes several propositions as to (1) the most efficient governance model, including for-profit structures v. nonprofit and cooperative models, which “allow users to stop themselves being exploited by a market infrastructure institution with market power”; and (2) regulatory regimes, including SROs, independent boards of directors and public authorities.

f. The Report analyzes the history of CCPs, bilateral C&S, typical CSD structures with tiered book-entry systems and omnibus accounts, the international central securities depositories (hereinafter “ICSD”) (Clearstream and Euroclear). Post-trade processes (such as confirmation of the terms of a trade, interposition of a CCP, calculation of obligations, netting, communication of settlement instructions, transfer of securities, etc.) are also described in detail.

g. Also, the authors cover the history of CCPs, factors amplifying their market power, network externalities (the more traders use a CCP – the more netting is likely to reduce the number of trades to be settled; the more assets “are cleared through a single CCP, and the more this CCP is able to offset margin requirements in one type of asset against positions in other types of assets… the lower the total amount of collateral… required”), economies of scale,
monitoring and switching costs, etc. The nature of potential competition of and in the market is also examined.

h. Finally, the industry structure is dissected. There is generally a single provider of clearing services or several CCPs for different asset classes in each jurisdiction. There are some instances of interoperability arrangements among CCPs. Examples include the 1984 Mutual Offset System, 2003 Virt-x arrangement for LCH.Clearnet and SIS x-clear. The EU provides unique settings for competition for and in the market for clearing (e.g., EuroCCP (a DTCC subsidiary) has entered into the European market and is currently competing with Eurex Clearing, LCH.Clearnet and SIS x-clear). Bilateral agreements on interoperability are also common. As a result of the agreements and competition, European CCPs have substantially lowered their fees in recent years. By analogy, in the US the most decisive factor was the establishment of NMS, leading to the creation and expansion of DTCC. [Comment: for more information on the structural organization of European C&S, see Section VII]

i. For CSDs, the factors amplifying their market power are principally analogous. Also, network effect requires more complicated assessments than in the case of CCPs, because CSDs seek to minimize three sources of risks and costs: credit risk exposure, liquidity consumption by market participants, and settlement delays. The Report refers to a number of studies (by Schmeidel, Malkamaki and Tarkka; and Van Cayseele and Wuyts) on the economies scale enjoyed by CDSs. Both studies found that the economies differ both by the size of CSDs and by region. The authors also pointed out that switching costs could be prohibitive and that international cooperation between CSDs and cross-border recognition were complicated. For the effective competition in the market, the following factors are crucial: interoperability between CSDs, and structures with a single point of entry where customers could hold securities into any other CSD while maintaining membership in one CSD only. The pertinent problems are that such cross-links are expensive, agreements on standards and communication protocols are needed, delivery versus payment (DVP) may require expensive access to intraday liquidity through, e.g., national central banks, custody exposure increases, risk monitoring procedures should be introduced, etc. Internalization of settlement through a single financial intermediary holding an omnibus account at a CSD is a way to avoid the need for a CSD in every single transaction. This method is more prevalent when clients are international companies. OTC trades are more likely to be internalized than on-exchange transactions. At the same time, “a CSD threatened by internalization could replace lost revenues by increasing safekeeping fees” (at 70).
j. The authors provide an overview of the history of the industry, including the paper-based transfers of certificates, the DVP settlement, the T+3 rule, the development of the Euroclear and Clearstream International as ICSDs (common depositaries are appointed jointly by the ICSDs as supra-central registers), etc.

k. In terms of competition, several points should be emphasized. First, CEBS has found that internalization is not widespread across custodian banks. Secondly, CPSS and IOSCO Reports 2001 argued that the economies of scales of C&S organizations could impair competition. Thirdly, in 2006, the Directorate General for Competition of the EC concluded that the EU had very limited competition. Yet the latest reports by ESCDA and Euroclear contradicted those findings and contended that there was competition of various degrees among European C&S entities.

l. Finally, the Report provides reviews of major exchanges and C&S organizations, including DTCC, Deutsche Borse, Euroclear, Hong Kong Exchanges & Clearing, LCH.Clearnet, London Stock Exchange, NASDAQ OMX, NYSE Euronext and Osaka Securities Exchange.

   a. The author describes two types of clearing agencies in the US: depositories (organized as limited purpose trust companies) and clearing corporations (in a non-trust form). Both are registered with the SEC.
      i. Clearing companies match and record trades. They also account for and net them, settle security and payment obligations, serve as counterparties to all transactions and guarantee them.
      ii. Depositories are custodians performing security and payment settlement. Their sole guarantee is that “if on a settlement day a non-netted contra party becomes insolvent and securities have been delivered to such bankrupt counterparty that day, the deliverer will either be paid the settlement amount or will receive back the securities.” (id. at 249).
   b. The author briefly describes the history of DTC (which is the major depository and leading processor of institutional trades), NSCC (the major CCP) and DTCC (organized in 1999).
   c. Participants in the NSCC and DTC systems are broker-dealers, banks, mutual funds, insurance companies and financial intermediaries.
d. DTC embarked on a number of international programs, including well-tested links with the UK and French institutions and the establishment of links with the Canadian Depository for Securities Ltd. and Deutsche Borse Clearing AG in 1998.

e. The two major European clearing agencies are Euroclear (founded in 1968 and merged with a number of agencies) and Clearstream (founded in 1970) providing C&S services, depository services, securities administration, and securities lending and borrowing. Both are compatible with each other allowing transacting buyers and sellers to maintain membership with one of them.

f. The C&S cycle starts on T, when all trade information (importantly, most trades are already matched locked-in transactions) is transmitted to a clearing agency, which nets transactions and guarantees settlement. On T+1, a CCP (such as the OCC) sends participants T contracts. On T+2, it summarizes settlement information on matched trades, and sends net settlement information to participants. T+3 is when securities are delivered and payments are made. A CSD (e.g., DTC) tracks the transfers of ownership through its book-entry system.

g. Securities offered in international offerings may settle through US and European systems. If the two aforesaid European ICSD clear and settle trades regarding the same issue, they select a common depository, which takes the securities at closing. The same book-entry format is used as in the US. In public offerings of common shares, settlement is usually done through domestic organizations. In ADR and GDR issuances, settlement of Regulation S GDRs is made through Euroclear and Clearstream, while settlement of Rule 144A ADRs – through DTC (which monitors QIB-related restrictions). Yankee bonds and US directed offerings, whether registered or not, settle through DTC and the ICSDs. Namely, a global note is registered in the name of Cede & Co. (DTC’s nominee); Euroclear and Clearstream settle in DTC through its participants. If Reg S securities do not have a US tranche, they settle through the European CSDs. In offerings with 144A tranches, US dollar denominated debt securities settle through DTC for US investors and through ICSDs for European investors. The Rule 144A global note is held by DTC; and the Regulation S global security is deposited with a common depository for the ICSDs.


   a. It is a most comprehensive guide to C&S, private placements under Rule 144A, GDRs, etc. See §§ 4.05 (C&S for private offerings); 4.01; 6:02 (global debt offerings); 13.09(2) (US
securities activities for non-US banks); 13.10(5) (derivatives activities of non-US banks and bank subsidiaries); 14.09(6) (derivatives, OTC derivatives, exemptions from CEA and clearing).


a. The study focuses on equity transactions in the specific jurisdictions within the EU and in the U.S. The study confirms lower direct costs [the research ignores indirect costs] of C&S in the U.S. (in the U.S., the cost was around €0.10; in major European markets - from €0.35 to €0.80). In part, it is due to the economies of scale.

b. In non-domestic trades in Europe, transaction costs vary significantly. The majority is settled at a high cost (the International Central Securities Depositories (ICSD) are among exceptions). There are significant problems with interoperability and indirect linkages among European systems. Therefore, the study proposes greater horizontal integration or investments in links among systems. Overall, the industry is highly fragmented. There are also regulatory barriers to cross-border settlement (even in ICSD C&S).

c. The study found the following reasons for high C&S costs in Europe: (1) lower volumes compared to the US market (which, thus, enjoys greater economies of scale and scope); (2) legal restrictions to non-domestic C&S; (3) the not-for-profit structure of C&S in the US and the member-owned DTCC as opposed to for-profit corporate ownership of C&S organizations in Europe. Thus, there is a question of natural monopoly of C&S providers.

d. The study mentions that industry participants (such as Deutsche Börse) attempted to improve efficiency of inter-European C&S via, e.g., vertically integrated entities. Euronext and Virt-x became the first inter-European exchanges providing C&S through existing CH and CSDs.

e. The analysis is premised on tariff schedules of C&S organizations and related surveys.

f. The study acknowledges that on-exchange transactions in the US enjoy greater economies of scale and that in non-exchange transactions the gap in costs could be less significant. Another caveat is that most trades in the U.S. are pre-matched and the estimates exclude a matching fee in contrast to European data. There is also a different degree of interoperability between various European systems. In case there is a direct link, the costs of even non-domestic C&S is low. Yet the industry is very fragmented.

g. In a nutshell, the reasons for higher C&S costs in Europe are as follows:
i. Lower volumes;

ii. Legal barriers (“Nonetheless, in our view Europe cannot expect to achieve a single market comparable to the US over the short to medium term. Without a consolidated model for clearing and settlement provision, there will almost inevitably be a gap between service provision in Europe and in the US. This reflects the benefits the US market gains from consolidation of transaction flows through a single platform. Nonetheless, sections of the European market are now approaching a par with the US system in terms of providing a comparable service for some transaction types.”);

iii. Market structure;

iv. Pricing behavior, which differs “particularly with respect to the way in which the fixed costs of the system are allocated between system users.” (“For example, European providers use both volume discounts and standing charges to reward large volume users, whereas the US applies an ex-post rebate based on volumes.”).

h. Notably, the study did not control for a number of factors, such as indirect costs, opportunity costs, the quality of services and others, and focused on direct costs of C&S only.

6. Charles W. Mooney, Beyond Negotiability: A New Model for Transfer and Pledge of Interests in Securities Controlled by Intermediaries, 12 CARDOZO L. REV. 305 (1990)
   a. The article focuses on UCC Art. 8 and transfers of fungible securities held by intermediaries.
   b. C&S are described as the process that occurs ex post trade. “‘Clearing’ is the process whereby the trades are compared, matched, and confirmed. ‘Settlement’ is the process whereby parties to trades fulfill their obligations thereunder —generally a “delivery” of the securities by the seller and payment of the agreed price by the buyer.” (id. at 317).
   c. The two principal systems for C&S is FICC and the DTC-NSCC System. Most corporate equity and debt securities trades, whether exchange-based or OTC, are cleared through these Corporations. Only trades eligible for deposit with DTC can be cleared and settled in the NSCC’s CNS (Continuous Net Settlement) system.
   d. On the settlement date, all securities to be delivered must be on deposit with DTC. Before that, the trades are matched and netted; and NSCC becomes obligated to transfer and to receive the netted amounts from participants. Payment amounts are also netted; and NSCC participates in the payment to and from each participant. All payments are received by a participant through his single account. “In sum, on each settlement date, each NSCC participant pays to or receives one sum of money from NSCC and each NSCC participant
transfers to or receives from NSCC, by book entry on the books of DTC, a single quantity of each security issue involved.” (id. at 319).

e. Institutional investors often employ a DTC participant custodian bank in the name of a nominee, “although in theory the investors could request their DTC member-intermediary to withdraw and hold them or request that certificates be issued in the investors' own names.” (id. at 320). Thus, often beneficial owners have no direct relationship with issuers.

f. The depository system immobilized securities and improved efficiency of market operations.

g. The volume of DTC and NSCC custody and C&S shows “[t]he propensity of investors to allow intermediaries to control their securities” (id. at 324).


   a. The article focuses on the SEC and NASD reforms, starting from the 1963 Special Study of Securities Markets by Congress.

   b. The OTC market was changed by the National Market System program. Simultaneously, the OTC developed as an alternative to exchanges, which improved market competition. The article recommends some improvements to the OTC market, including better order execution.

   c. As opposed to exchanges, which had long been using automation and consolidation of last-sale reports and quotations, the OTS markets were not technologically advanced (with the exception of C&S). Later, NASDAQ developed CAES “designed for use in trading both listed securities through the ITS link and NMS securities, thus providing the first automated execution mechanism for OTC orders.” (Id. at 73-74).

   d. In 1963, OTC broker-dealers (hereinafter “BD”) compared (i.e., confirmed), cleared (to wit, determined payment and settlement obligations), and settled (delivered funds and securities) trades directly with other broker-dealers. All related documents, including securities and confirmations, were mailed between firms, slowing down the process and resulting in uncompared trades. In 1961, the NASD created the National OTC Clearing Corporation. NOTC improved C&S, but did not eliminate physical deliveries. This problem contributed to the paperwork crisis. See SEC, STUDY OF UNSAFE AND UNSOUND PRACTICES OF BROKERS AND DEALERS, H.R. DOC. NO. 231, 92d Cong., 1st Sess. 14-15, 34 (1971).

e. Advances in automation and order processing increased efficiency of C&S. However, disagreements over the terms of trade and settlement were numerous. To reduce the numbers of uncompare trades, the NASD developed a Trade Acceptance and Reconciliation Service (*id.* at 88-89)


   a. The article provides a historical analysis of the changing role of specialists and mentions several implications for the clearing and settlement system (*id.* at 302-320).

   b. 1968 saw record numbers of failed settlements of transactions. In addition to operational problems, stock prices fell in 1969, reducing the value of BD inventory.


   d. Two other reports followed (SUBCOMMITTEE ON COMMERCE AND FINANCE OF THE HOUSE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE, SECURITIES INDUSTRY STUDY (Comm. Print 1972); SUBCOMMITTEE ON SECURITIES, SENATE COMMITTEE ON BANKING, HOUSING AND URBAN AFFAIRS, SECURITIES INDUSTRY STUDY (1st Sess. 1973))

a. The author opposes the critics of the NMS reforms and emphasizes the achievements of the SEC and the industry. He argues that NMS has evolved in line with the Congressional intent and resulted in improvements in trading. The author opposes the statements that NMS was unnecessary or that Congress should not have intervened into the market structure (id. at 807-808).

b. In 1976, the NYSE, NASD and Amex were able to centralize clearing through NSCC. “NSCC was conceived as the central element in an integrated nationwide effort to eliminate unnecessary duplication of post-trade activities and to permit single-account clearing and settlement for broker-dealers in the clearing organization of their choice. Due to litigation that challenged the SEC's authority to register the new entity, however, it did not begin functioning as a full national market system component until the fall of 1978.” (Id. at 800).

c. Mechanisms like a national C&S system “benefit both investors and the securities industry.” (id. at 808). These and similar changes were prompted by Congress and the SEC and resulted in the technological revolution on Wall Street (id. at 808).


a. The authors start with the exponential growth of derivatives markets and the development of new instruments, the processes that have underscored the need for analysis of post-trade services, such as C&S.

b. Clearing involves post-trade operations (matching, confirmation, registration, risk-management, including netting, collateralization, margins, etc.) Settlement is simply an exchange of money or assets in performance of obligations.

c. The article contrasts C&S of derivatives and securities. While the nature of risks, such as counterparty risk, and the general procedures might be similar, securities trades are settled much faster based on DVP or PVP and the process involves custodians, transfer agents and other parties that are not common in derivatives trades. In derivatives, reciprocal obligations of counterparties are extended over a long period of time when the price of an asset and the creditworthiness of the parties may change.

d. Two systems of C&S exist: bilateral clearing (common for OTC derivatives) and CCPs (mostly for exchange-traded derivatives). The authors argue that in essence the C&S process is generally similar in both systems. The analogous functions include: (1) credit-risk management, such as netting, collateralization, etc.; (2) market access restrictions and
monitoring; (3) crisis management and default administration; (4) loss mutualization and insurance; and (5) information exchange.

e. The authors describe the functions of CCPs, which stand between market buyers and sellers. A CCP undertakes no market risk exposure, which remains with the original counterparties, but bears credit risk. CCPs mitigate credit risk through access restrictions, risk-management and loss mutualization. They, in essence, homogenize credit risk for clearing members who should meet similar credit requirements. In bilateral arrangements, individual parties make their own risk assessments and define collateral.

f. Some differences between the CCPs and bilateral systems have become blurred. For instance, CCP’s rules include automatic netting and cancellation of offsetting contracts. The ISDA rules also provide for netting and collateral requirements under covered master agreements, which are applicable with respect to a counterparty to a bilateral agreement. Derivatives traded through both systems become standardized and highly liquid through the growing influence of CCPs and the efforts of industry organizations.

g. The authors believe that the market is capable of developing an efficient system and that, potentially, CCPs are preferable if there is certain market depth that necessitates homogeneity and netting.


a. The article focuses on the clearing arrangements and clearing v. introducing brokers (which comprise about 90% of all registered brokers and dealers (“BD”) and represent a significant percentage of daily volume).

b. The increase in numbers of introducing BDs is partially explained by the paperwork crisis and the impetus given to C&S reforms by the SEC.

c. The article discusses regulation of clearing brokers, reforms, structure of the C&S arrangements, penny stock fraud reforms, the Uniform Securities Act of 2002, and other issues.

d. The author describes the respective roles of clearing and introducing firms based on major functions and S&C of transactions (Those functions were “1. opening, approving, and monitoring customer accounts; 2. providing investment recommendations or accepting customer orders; 3. executing customer orders; 4. extending credit in margin accounts; 5. providing written confirmations of executed orders to customers; 6. receiving or delivering
funds or securities from or to customers; 7. maintaining books and records that reflect transactions, including rendering monthly or periodic statements of account to customers; 8. providing custody of funds and securities in customer accounts; and 9. clearing and settling transactions effected in customer accounts.” (Id. at 918-919).

e. Smaller firms outsource clearing operations to larger, often self-clearing, BDs. “Contracting out for clearance and settlement services enables introducing firms to pay for such services out of current revenues, thus modulating their costs to reflect current business conditions and avoiding the fixed overhead expenses associated with back office technology and infrastructure.” (Id. at 919)

f. The author also describes major types of clearing agreements, such as fully disclosed and omnibus agreements, which both should be filed with and approved by the exchanges (Id. at 920-921).

g. The article discusses the regulatory framework that resulted from the paperwork crisis and the 1975 Amendments to the SEA. The author sees the development of clearing firms as “inseparably linked” to the creation of NSCC and DTC. He also describes the evolution of both entities, which solved two problems: immobilization of securities and book-entry records; and multilateral netting within the CNS (Continuous Net Settlement) system. [Reference: How We Serve the Financial Services Industry, THE DEPOSITORY TR. & CLEARING CORP. CAPABILITIES BROCHURE (DTCC, New York, N.Y.), 2000, at 6-9.]

h. Overall, the C&S system, has “been shaped by federal regulatory actions and policies that have encouraged the non-duplicative allocation of operational and regulatory responsibilities for the ultimate benefit of investors. Such benefits have included lower commissions, fast and reliable clearance and settlement services, accurate and timely records of transactions, and secure custody of assets with well-capitalized clearing brokers.” (Id. at 958).

i. The author also mentions federal preemption issues and that courts recognize the federal structure governing clearing brokers for the purposes of determining their civil liability standards. (Id. at 959).


a. The author discusses the history of utilizing new technologies at the NYSE during the period of time from 1869 to the 1970s (Id. at 1239 -1240)
b. The article illustrates that the markets were affected by the size of institutional trades and the flow of small orders from individuals. OTC trading grew rapidly in the 1950s. Plans for better execution of large orders proved inadequate. “Matching” was among the problems with large orders and changed order execution. (id. at 1256-1258).

c. The pre-1975 analysis by the SEC focused, inter alia, on the reduction of barriers to market access, which could restrain competition. (id. at 1272-1273).

d. The author examines the benefits of the NMS for investors and markets. “These benefits will flow from the new market system in which investors will be assured best execution by a composite tape, composite quotations system, and two trading rules giving priority to public orders through the system.” (id. at 1273).


a. The article criticizes the SEC and the 1975 Amendments. Namely, it states that the SEC did not solve problems, but shifted them to SROs, and that changes in the market did not require the SEC to be granted more powers. Instead, elimination of anticompetitive restraints would be sufficient. The SEC had already “exercised that authority to make commission rates competitive, to end discriminatory barriers to institutional membership on exchanges, to level barriers between markets, and to prod the markets and industry to work toward development of a composite tape, composite quotation system, and a central clearing system.” (id. at 778).


a. The SEC announced that it would continue improving the national system for C&S. Among the most important aspects facilitating NMS was “one-account processing”, which would enable “a participant to compare, clear and settle, through single accounts with a clearing
agency and with a depository, all trades in securities included in the system regardless of the location of the other party to the trade or the market in which the trade is executed.”

b. This would, *inter alia*, enable BDs (brokers and dealers) to choose best prices without regard to disparate C&S costs in different trading venues.

c. New interfaces, including OTC transactions regional interfaces, made the foregoing processing more available. The SEC’s objective was to make one-account processing available to all BDs.

d. The three other avenues for future reforms were as follows:

   a. “Branch Offices and Remote Terminals Clearing agency branch offices or remote terminals provide broker-dealers throughout the country with access to the national clearance and settlement system without the necessity of physical presence in the principal clearing centers.” Thus, any participant in the national C&S system would be able to select any clearing agency, and clear and settle transactions from any market center.

   b. Pricing of Services: the SEC was about to explore interface fees and charges; the US Court of Appeals for the District of Columbia Circuit remanded to the SEC price mutualization policies of NSCC. “This pricing mechanism, which enables NSCC to provide services to all its participants at an equal price regardless of geographic location, was deemed by the Commission to have an important impact on competition among broker-dealers and, pursuant to the discussion of the Court of Appeals, must be reconsidered during the coming year.”

   c. Expansion of the System: all securities must be included into the national C&S system. BDs and institutions should be encouraged to participate in the national system and reduce the physical movement of securities.


   a. The absence of an identifiable cause of the 1987 crisis motivated multiple analyses of market mechanisms, such as trading strategies, technologies of transmission, specialists, etc. Among those issues were C&S, often ignored before the crisis. The crisis was thought to have revealed structural problems with C&S. Brady Report (1988) and other studies called for reforms, including a unified settlement system. Overall, the article focuses on the futures market.
b. Clearinghouses (hereinafter “CH”) are financial intermediaries, which function in a way similar to other intermediaries, such as banks or insurance companies.

c. Two institutions responsible for C&S are the exchange and the CH.

d. CHs are associations of clearing members (and futures commission merchants). They are either parts of exchanges or nonprofit corporations. Nine CH serve 13 futures exchanges; 1 serves five exchanges in options, three – six exchanges and the NASD in equity markets. [For an updated market structure, see Section VII] The general functions of a CH are trade entry/capture (to one central location); matching/comparison (as to orders price and quantity); registration/clearance (including netting out of positions held by clearing members, becoming a counterparty to every trade, thus guaranteeing the execution of each trade and offsetting trades); settlement and its financial component.

e. The financial responsibilities of a CH are supported by capital requirements, margin payments and other membership requirements; monitoring portfolio and financial strength of member firms; CH’s guarantee funds, etc. In the stock markets, margin functions as a downpayment, while in the futures market, it is a performance bond. Initial margins are set either based on each contract or an entire portfolio held by an investor. Positions are marked to market on a daily basis entailing payments of variation margins.

f. The author describes the margin collection “pyramid” illustrated by Edwards [see Edwards, 1984, infra] and the procedures for margin calls. If losses per contract exceed posted margins, a CH may have to make good on nonperforming contracts. CH’s guarantees differ in gross and net margin systems. In the latter, margin requirements may simply protect members from default by others. At the same time, some sources, like the Brady Report, mentioned a trust fund of the CME that could be used “to help customers of a failing member” (id. at 138). This increases market incentives for monitoring financial conditions of FCMs.

g. CHs are interlinked with the banking system and clearing banks, which facilitate settlement of accounts and margin calls. Also, banks are a source of credit to FCMs, CHs and FCMs’ customers. Similarly, in equity markets, banks are often the source of credit for purchases of securities.

h. The author describes economic functions of the futures markets (such as hedging of price risk, information gathering, lowering transaction costs, etc.) in light of liquidity. CHs create institutional settings for greater liquidity by reducing transaction costs and facilitating homogeneity of products. In the first sense, a CH is like a bank facilitating completion of
trades, payments, verification of information and delivery, and performing accounting functions and oversight of banks transferring funds. With respect to trade completion, the article touches upon technological and financial problems. In the second sense, a CH acts as an insurance company. By way of example, as liquidity depends on standardization, fungibility and anonymity, CHs standardize futures contracts by guaranteeing performance. This guarantee makes a CH similar to insurance companies.

i. With respect to such “insurance”, the author scrutinizes idiosyncratic and systemic market risks. The insured’s risk is prone to adverse selection and moral hazard absent proper control mechanisms. For a CH, margins serve as a protection against normal price changes, but they do not cover abnormal circumstances. Neither do margins fully protect against adverse selection and moral hazard. Elaborate system of monitoring supplements margin requirements. FCMs, in turn, have incentives to monitor CHs as they are afraid of a “run” on margin accounts. Banks are similarly motivated to monitor CHs.

j. The author pays special attention to systematic risk. Insurance arrangements are unable to cope with systematic risk (id. at 143). A large shock can “exhaust the clearinghouse’s capital and assessment powers [and] would have a serious prospective effect on the ability of the clearinghouse and thus of the futures market itself to function” (id. at 144). By analogy with insurance, some limitations on CH exposure should be imposed. A difficulty of dealing with systematic shocks is that other asset markets are often also affected making ex ante analysis too complex. Also, actions of a CH are not exogenous to financial markets in a way insurance companies are to insured events. Another problem is bundling of services, which affects all financial markets.

k. During the 1987 crash, both the banking and insurance sides of CH activities suffered. The volume of trades clogged the system, communication problems occurred with money transfers and margin calls (e.g., Goldman-Sachs experienced problems, Fedwire shut down, etc.), fund transfers to traders of dubious solvency slowed down, margin calls by CHs drained liquidity from the system; some OCC members had inadequate funds to meet OCC debit instructions; etc. The Fed reacted very efficiently by reversing its tight monetary policy, persuading banks to continue lending, and monitoring CHs (e.g., First Options of Chicago). As a result of the crisis, three clearing members withdrew, about 50 introducing brokers failed.

l. Overall, the author believes that, if combined with the Fed’s efforts, the clearing system performed well during the crash, although there was a possibility of greater problems.

   a. B. Bernanke outlined the strategy for devising regulations that would proactively address major risks to the financial system and cover it “as a whole”. Among the key four elements were strengthening the financial infrastructure, *i.e.*, “the systems, rules, and conventions that govern trading, payment, clearing, and settlement in financial markets - to ensure that it will perform well under stress.”

   b. This component included monitoring systemically important institutions and the institutions that support trading, payments and C&S. The overarching objectives of the reforms were to strengthen the financial system in light of future shocks and to mitigate the moral hazard problem.

   c. Since 2005, the NY FRB “has been leading a major joint initiative by the public and private sectors to improve arrangements for clearing and settling credit default swaps (CDS) and other over-the-counter (OTC) derivatives.” Although the accuracy of trade information has improved as a result of the initiative, it is weaker than in, *e.g.*, equity markets. Regulators encourage a CCP for OTC trades and CDS transactions. Another area of interest is the triparty repurchase agreement market, where participants are working on the development of mechanisms to withstand “a loss of confidence” in the clearing banks. “The Federal Reserve's Primary Dealer Credit Facility, launched in the wake of the Bear Stearns collapse and expanded in the aftermath of the Lehman Brothers bankruptcy, has stabilized this critical market.” Yet more permanent reforms are needed and the Fed needs the oversight authority for systemically important C&S systems.


   a. Credit derivatives contributed to the recession.

   b. Despite such benefit as the flexibility of bilateral contractual terms, the OTC trades in credit derivatives are tainted with the counterparty risk and operational risk (*i.e.*, “whether OTC trades will be cleared and settled in an orderly manner”, *id*. at 252), depending on the quality of the C&S infrastructure, and the lack of transparency. There is no centralized platform for
clearing and information on prices and volume is limited. Also, there is no centralized database that would assess the total amount of outstanding derivatives. Collateral and margin requirements are set bilaterally and often ignore the risks that a trade poses for the rest of the system. All in all, this is detrimental to the stability of the financial system.

c. DTCC has begun publishing aggregate data on CDS, thus introducing some transparency. Yet it has been insufficient to date [See section VII, infra].

d. “The outstanding notional principal is estimated from surveys of dealers.” This introduces uncertainty. For example in Lehman’s bankruptcy, the final notional amount outstanding was $6 billion instead of $400 billion. “The substantial uncertainty about the net figure that would have to change hands in Lehman Brothers’ bankruptcy, and whether this would lead to counterparty losses for other banks, contributed to the paralysis in interbank lending markets.” (id. at 253).

e. There are certain weaknesses in the CDS market. For example, the spread widens during a crisis. Also, the valuation of large financial firms changes in unison. Institutions are interlinked through OTC derivatives contracts. Therefore, “that the failure of one institution can substantially raise CDS spreads on other institutions, making it difficult for investors to separate the credit risk of the obligor from CDS counterparty risk.” (id. at 256). An example of such systemic interconnectedness was Bear Stearns’ failure and its effect on the rising spreads. Another example was AIG, whose originally impeccable credit rating made collateral unnecessary.

f. The authors believe that regulatory solutions are needed in the CDS markets. First, collateral and margin requirements, even though daily marked to market, are non-uniform across CDS agreements and tied to imprecise credit ratings. Futures and options exchanges’ and clearing houses’ position limits differ in this respect. There is transparency and early identification of exposure. Large players in the OTC market benefit from limited transparency, can trade without impacting the market and disguise their positions.

g. The authors propose several solutions: a clearing facility registering bilateral transactions, netting transactions, holding collateral and performing other functions (DTCC performs some of these functions for CDS); a clearinghouse acting as a CCP, setting uniform margin requirements and netting identical offsetting contracts; and an exchange eliminating the bilateral nature of CDS, setting margin requirements, having enforcement rules and providing information on prices, volumes, and open interest (“One important benefit of this structure would be that the CDS market-making function—which currently sits under the
universal banking structure that is subsidized by government guarantees—would be spun off and separately capitalized, reducing significantly the likelihood of systemic spillovers”, id. at 262). Among the three scenarios, standardization is an attribute of exchanges. However, as opposed to CDOs, CDSs are comparatively standardized based on the International Swaps and Derivatives Association (ISDA) agreement.

h. In CDS, a danger is that in certain cases only 100% margin requirements “can provide full protection against the counterparty risk borne by the clearinghouse” (id. at 264). This is clearly not feasible. Also, “if the clearinghouse is exposed to a significant default risk whenever a CDS protection seller has to pay off, its guarantee loses effectiveness.” (id.). Correspondingly, the authors offer establishing high initial margins or “100 percent margin for a protection seller’s largest position across different reference entities …with substantially lower amounts for additional positions” (id.).

i. The authors emphasize the need for some transparency in the OTC market and necessary regulations that should be drafted carefully, in a way not foreclosing innovations.


a. Through its regulations and credit monitoring, CH Corporations facilitate maintaining financial integrity of the futures industry and their members by providing guarantees and establishing self-regulatory mechanisms. They also increase liquidity of the trades. Their second function is offsetting contracts and facilitating settlement.

b. In the past, all futures exchanges had an affiliated CH. Some CHs were organized as separate corporations with somewhat independent directors and officers. Requirements applied to members of CH were more stringent than exchange rules.

c. The author describes in detail communications and links between clearing and non-clearing FCMs and customers, including collections of initial margin deposits and variation margin. A CH collects margin deposits on a net basis. FCMs – on a gross basis (where both longs and shorts post margin). The profits of shorts and longs are guaranteed up to the amount of the margin. The CH guarantee extends only to clearing members and mostly on the net basis. “If clearing associations were to guarantee all futures contracts, and not only the net open positions of their clearing members, there would no longer be a market incentive for customers to evaluate the financial integrity of the FCMs they choose to deal with. Indeed, customers would probably look only for the “cheapest” FCM, and not worry about the ability
of the FCM to meet its financial obligations, since they could rely on the Clearing Association guarantee.” (id. at 375).

d. The margin requirements may in some cases fail to adequately protect customers and customer default losses may exceed margin deposits if they do not cover price fluctuations. Self-insurance devices (such as guarantee funds and coverage of obligations of defaulting parties by solvent members), minimum capital requirements, reporting requirements and position limits assure performance.

e. The author compares seven major clearing associations (six in the US and one in London). As opposed to US CHs, the British ICCH was owned by six major British banks, which were not members of any futures exchanges.

f. There are differences in the margin systems among CHs (id. at 381). That concerns initial margins paid on the net or gross basis, automatic or nonautomatic withdrawals of excess margins, etc. “If all clearing members properly segregate customer funds (as required by law) and collect variation margins in a timely fashion (as required by exchange rules), there is no meaningful difference between a gross and net system, at least with respect to the security provided by customer margin deposits. An argument that clearing associations should collect margin funds on a gross basis, therefore, is essentially an argument that clearing members cannot be fully relied on to collect and safeguard customers' funds. This seems susceptible to empirical examination” (id. at 382). The author finds that gross margining is not crucial to assure solvency of CH members and may reduce the earnings of member firms.

g. The author also considers the use of letters of credit as initial margins. That would require assessment of the creditworthiness of a bank.

h. Other solvency regulations include: minimum capital requirements restricting membership to healthier firms; position limits reducing risks of a single member through diversification (the author believes that “[w]hile there is no hard evidence on these issues, it is likely that the risk-reduction benefits of position limits outweigh the costs associated with their possible liquidity effects,” id. at 383); futures exchange regulations, daily price limits and minimum customer margin requirements.

i. The author also mentions the impact of economies of scale in operations of CHs.

j. He also poses the question whether profit-making (like, e.g., the British ICCH) versus not-for-profit U.S. corporations impose higher transaction costs on users. In his opinion, it does not matter. (“If the amount of invested capital is the same for both a not-for-profit and profit-making clearing association, transaction costs should be the same, everything else equal,” id. 22
Comment: A study by the Bank of England suggests otherwise (see Section VIII, infra).

k. Although some futures exchanges successfully existed without CHs, they could not perform settlement by offset, which is critical in the futures markets. The author sidesteps the issue whether CHs are the most efficient C&S system for the futures industry.

l. Finally, he reviews such trends as consolidation in the futures industry and warns that despite its benefits (like economies of scale or better information about the industry members), consolidation “may arguably make the entire futures industry vulnerable to a catastrophic event in a single commodity” (id. at 388). Hence, the author surmises that an oligopoly solution may be preferable instead of a complete consolidation of C&S in one single entity.

m. He cautions against limiting member liability as it is important to maintain economic incentives “for members to monitor, police, and enforce their own rules and regulations” (id. at 90). Overall, all FCMs benefit from public confidence in the integrity of futures markets.

n. Finally, the author considers the need for explicit regulation versus discretionary rules and mentions that excessive government regulation of the C&S industry is not warranted.


Comment: The book provides a short and descriptive review of the history of the derivatives market and C&S.

a. The author reviews the history of derivatives trade, including the futures trade, creation of the CBOT, CME and other exchanges, the Bretton Woods Agreement, etc. The author briefly mentions such landmarks as the establishment of the International Monetary Market (a 1972 CME division designed to trade in futures based on foreign currencies); the first 1975 futures contracts based on a financial instrument (the Ginnie Mae Bond Future) launched by the CBOT; the emergence of Euronext, as a combined derivatives and equities exchange, LIFFE, the birth of the CBOE in 1973, the growing markets for financial futures, the competition between the US markets and other venues, such as Eurex U.S., Euronext Liffe and others, the rise of electronic trading in the options industry, and other events.

b. The author compares, e.g., bond and equity futures. There is a profound difference between standardized products developed by exchanges and OTC derivatives developed by firms to meet in certain cases the needs of a single client. Settlement procedures and risks are also
diverse. In the first case, it is done through clearinghouses associated with or integrated within exchanges. In the second, settlement becomes more a contractual matter negotiated together with other terms of an agreement. In an OTC interest rate swap, e.g., settlement occurs according to confirmed rates, and rate resets take place based on a pre-agreed upon schedule. The book gives a detailed overview of settlement of OTC products.

c. The author describes in detail options and futures processing. He reviews vanilla products, such as forwards, traded options, futures, interest rate swaps, currency swaps, call and put options, and more exotic derivatives, such as forward swaps. Despite their greater complexity, payment and settlement mechanisms for exotic derivatives are similar to the vanilla products.

d. The author describes the mechanisms of clearing, the role of the OCC and LCH Clearnet. A particular emphasis is made on risk management, collateral requirements margin methods and offsets, operational risk and others.


Comment: This book gives a short and descriptive review of the C&S process.

a. The term “clearing” is defined as “[t]he preparation through matching, recording and processing instructions of a transaction for settlement,” which is “[t]he exchange of cash or assets in return for other assets or cash and transference of the ownership of those assets and cash” (id. at 2).

b. The author analyzes the future trends and developments in the industry worldwide. He also refers to, e.g., the G30 recommendations [discussed in Section VI, infra], including netting and stock lending, delivery versus payment mechanisms, dematerialization of settlement, etc.

c. The author analyzes the functions of clearinghouses. Often, but not always, the clearing houses are somewhat independent of exchanges.

d. The authors reviews CCPs and emphasizes the merger of such functions as clearing, custody and depository services. Examples are Clearstream and Euroclear.

e. The author describes in detail various types of clearing and settlement based on different instruments, such as bonds (international vis-à-vis domestic), equities and derivatives.
f. Throughout the book, the author provides comparative analyses of the clearing and settlement mechanisms in Europe, the U.K. (including Euroclear running the CREST system (CREST provides a matching and settlement facility), the joined equity clearing system, the London Clearing House (a CCP for derivatives and CREST securities), etc.) and the U.S.


a. Futures CHs are intermediaries making trading between anonymous parties and guaranteeing performance on all trades, thus, making futures liquid and eliminating individual counterparty default risk.

b. Margin collection and administration are in a pyramid structure: initial margin/performance bond; and marked-to-market variation margin. Also, clearing members - futures commission merchants - collect margins from nonclearing merchants. Finally, all FCMs collect margin from and distribute gains to customers.

c. The importance of margin policies was evident during the 1987 crash, when many FCMs were undersegregated or undercapitalized. Defaults by large customers could have produced a contagion effect. Margin requirements were repeatedly raised.

d. Exposure of a CH depends on the changes in the futures prices above the margin, and the expected value of additional funds ensuring performance of contracts. “[T]he probability that the absolute change in the futures prices exceeds the margin is the probability that additional funds will be required” *(id. at 264).*

e. During the crash, there were only two CHs, including the CME, that used a gross margining system requiring margins for each contract. Later, the CME changed to the system of margins against a portfolio. The authors’ analysis is valid for both systems.

f. The authors evaluate the CH exposure *vis-à-vis* margin requirements, and outline a model and parameters for option prices and estimates of the conditional distribution of the price of S&P500 futures contracts (high-volume contracts popular with arbitragers and portfolio insurers).

g. The analyses of the probability that margin will be exceeded by price moves may produce misleading assessment of a CH’s exposure. Even if margin requirement increases and reduces tail probabilities to pre-crisis level, exposure of CH in 1987 remained higher than prior to the crash. It is, therefore, necessary to evaluate the amount of additional funds conditional on large price fluctuations.

a. The paper is focused on futures trading before 1926, *i.e.*, before the date when the Chicago Board of Trade Clearing Corporation started intermediating futures contracts.

b. The author analyzes three methods, such as direct settlement (which is “a bilateral reconciliation of contractual commitments obtained through delivery or by offset between original counterparties”, *id.* at 8; it is limited to the original counterparties), clearing through rings (which “are relatively informal arrangements between three or more counterparties with interests to settle”, *id.* at 15; ring participants accept substitutes for their original counterparties), and complete clearing (which “interposes the clearinghouse as counterparty to each side of exchange-traded contracts”, *id.* at 31). Notably, the complete clearing systems originated in Europe (*id.* at 37).

c. The terms of agreements transformed according to the new clearing practices: from bilaterally negotiated contracts to standardized agreements. It was the complete clearing that “established contracts as completely fungible” (*id.* at 41).

d. The author analyzes new definitions for futures contracts, including the need to account for nonperformance, loss-sharing agreements and innovations in contractual terms. Exchanges with CH internalize nonperformance losses and are thus incentivized to innovate in order to reduce their risk exposure. The author defines “futures contracts as enforceable substitutes for transactions in cash commodities or assets” (*id.* at 2).

e. The author compares the modern C&S with the historic prototypes and defines clearing as “the process of reconciling and resolving obligations between counterparties” (*id.* at 4).

f. He analyzes clearing absent default and nonperformance problems. The normal process involves (1) registration of traded contracts (notably, nonmember futures commission merchants "give up" their trades to member FCMs), (2) registration that enables offsetting (“the aggregated claims against any member are netted against the aggregate of the member's claims against all other members”), (3) settlement (notably, “cleared futures contracts generally remain outstanding following a settlement” and the credit risk remains). There are several differences between bank CH and futures CH. For example, “[b]ank clearinghouses settle by netting payments between members, collecting payments, then crediting or debiting member accounts. They are obligated only to the extent of a member's account balance.
Futures clearinghouses guarantee performance of cleared contracts. They extinguish current liabilities and take steps to lessen exposure to future defaults, but performance guarantees imply that some residual exposure remains” (*id.* at 7).


a. The author analyzes C&S in international trade. C&S may pose financial risk for investors in cases where there are errors or delays. Conflicting rules on C&S in different jurisdictions and problems with enforcement are the other risk factors. About 50% of international trades in some markets did not settle in time. The author analyzes the clearing systems in the U.S. and U.K. markets in light of the two solutions to the C&S related problems: creating an international organization and improving linkages among national markets.

b. The author considers the history of C&S (such as physical delivery of securities, which was required until the early 1960s; the “paper crunch crisis”, *etc.*), the book-entry system, amendments to the UCC, DTC, NSCC, Continuous Net Settlement system, *etc.* For the international markets, NSCC’s subsidiary, International Securities Clearing Corporation, provided clearing for LSE trading, DTC cleared trades through the Institutional Delivery system for institutional investors for trading in the U.S. and Canada. The author describes the ISCC activities, changes in the settlement regulations approved by the Fed with respect to international clearing and settlement, *etc.* For the international market, the book-entry system and global certificates are useful.

c. In 1986, the LSE changed operating rules to improve the efficiency of the market and “enhance reciprocity of trading”. Broker-dealers activities were deregulated; the traditional separation between brokers and jobbers was dropped; TALISMAN, an intermediary for centralized settlement for the LSE, was created in 1979 [*Comment: in 1997, it was replaced by CREST*]; the 1986 Financial Service Act facilitated SROs, *etc.* The system was controlled by the LSE. Most international trades between the U.S. and Britain were cleared through the ISCC and TALISMAN. Euroclear and other similar system were just developing at the time. The October 1986 “Big Bang” resulted in a significant increase in the trading volume on the LSE. The U.S.-U.K. model may be transplanted to other markets.

*Comment:* The paper presents a short, descriptive and informative overview of C&S.

   a. C&S involves, first of all, capturing trade data and matching trades. Thereafter, by novation, a CCP replaces the original parties to transactions. Hence, it becomes exposed to the risk of default, including, *e.g.*, a short fail (failure to deliver) and a long fail (nonpayment).

   b. C&S in the securities markets differ from C&S in the derivatives trades. First, in the equity market, it is fully automated, based on electronic book-entries made in a few depositories. Secondly, settlement does not take long. Under international guidelines, the transfer of ownership is conditioned on the simultaneous payment (DVP). Trades are netted down to a single payment. Once title is transferred, CSD performs simple custody functions. (“Most transactions involving bank certificates of deposit and commercial paper settle “for cash,” i.e., on the same business day. Most U.S. Treasury securities settle “for regular,” i.e., the next business day. Most foreign exchange transactions settle “for spot” or two business days after the trade date (T+2). Most U.S. equity and municipal bond trades settle on a T+3 basis or three business days after the trade is executed.”)

   c. In the derivatives market, contracts remain outstanding for long periods of time, representing obligations to buy/sell instruments in the future. That augments the risks of a CCP, which guarantees trades and acts as a counterparty (again, by novation which allows market participants to enter and leave the market and keeps the number of buyers and sellers equal). Derivatives are, therefore, revalued daily until a contract is liquidated, exercised or matures. “Market participants with unrealized incremental losses must pay such losses in same-day funds (for futures) or post additional performance collateral (for options) with the CCP, which remits the funds (or a margin credit) to market participants with unrealized profits…” Settlement variation/variation margin prevents accumulation of losses with the C&S system. Notably, CCPs determine mark-to-market settlements based on one origin/account of a participant, which serves as an intermediary for his clients.

a. Vertically integrated exchange and clearing facilities can deny access to C&S to products and participants not trading on an exchange. At the same time, vertical integration organizes transactions efficiently, eliminates double marginalization, and provides incentives to invest in certain assets.

b. The article analyzes (1) the economies of scale in trade execution, C&S, and finds that C&S have monopoly tendencies; (2) integration of the aforesaid functions mitigates double marginalization, but does not bring about best outcomes; (3) vertical integration is more efficient than other third-party models; (4) cooperative ownership mitigates multiple-marginalization if cooperatives admit all qualified members and evenly distribute surpluses; (5) C&S show economies of scope; (6) there is a difference in the scope economies in trade execution and C&S; (7) an integrated exchange may have no incentive to foreclose entry into execution if execution is competitive and vice versa; (8) derivatives exchanges often have integrated C&S systems or hold a stake in such entities; (10) vertical integration dominates equity and derivatives markets; (11) C&S add additional sources of scale and scope economies, while negatively affecting market competition.

c. The author analyzes trade execution (i.e., “the consummation of an agreement between a buyer and a seller,” id. at 6) in securities and derivatives markets, and C&S. Clearing occurs in most centralized systems through CCPs, which “engage in a variety of activities, including: calculation and collection of collateral (margin); determination of settlement obligations (that is, the determination of what each party owes or is owed in money and delivery obligations); determination of default; collection from defaulting parties; and remuneration of participants in the event of a default” (id.), and netting. Clearers also service financial intermediaries, such as BDs. Settlement is “the process whereby parties discharge their contractual obligations to pay cash or deliver securities” (id. at 8).

d. The execution of transactions is subject to economies of scale due to “the nature of liquidity” and trading gravitates to a single exchange that has larger numbers of participants and lower costs. The author analyzes the barriers and costs of entry for new exchanges.

e. There are network effects in clearing: the more customers join, the lower the costs. Other savings come from IT, infrastructure, no need for linkages among exchanges and CHs, etc. “[I]f clearing, settlement, and trade execution are supplied by firms that specialize in a single function, the strong scale economies in each tend to result in the survival of a single firm in each function, each of which has some market power” (id. at 18). The tri-lateral monopoly problem may arise, leading to inefficiencies.
f. Cooperatives tap into some of the benefits of integration, such as eliminating double marginalization, but cannot internalize the same amount of benefits of improved productivity and service quality as a monopoly exchange. Also, separation “of trade execution and post-trade services can impede coordination” (id. at 25). A cooperative does not eliminate the liquidity power of a trade execution venue.

g. The economies of scope associated with integrated C&S result in different rules for setting up collateral or margin requirements, better risk assessments and lower system costs.

h. The author argues that vertically integrated C&S/exchange models are generally cost-efficient, although network effects preclude definitive assessment of the influence on competition and efficiency. Simple disintegration of C&S and execution or offering clearing on non-discriminatory terms does not assure optimal outcome and can reduce efficiency through higher transaction costs.

i. The author analyzes the history of clearing in the US equity markets (DTCC is similar to a cooperative model); futures markets (including CBT-BOTCC, CME and others); option markets, Canadian derivatives markets, European equity markets (Euronext’s former subsidiary Clearnet, LCH, Deutsche Borse’s Eurex Clearing, LSE’s Settlement Department, CRESTCo, etc.), European derivatives markets; and Asian equity and derivatives markets.

j. Finally, the author finds that exchanges usually have an ownership stake in C&S organizations. Simultaneously, economies of scope diminish the role of exchanges as illustrated by the examples of DTCC and LCH Clearnet. In the US, the futures markets economies of scope allow “economizing on transactions costs in clearing through vertical integration, without sacrificing scope economies in execution.” Integration of trading and post-trade C&S is the model organization of financial markets and confirms the hypothesis that transactional efficiencies underlie organizational arrangements.


a. The paper is focused on the expansion of CCPs as a subtype of C&S arrangements and analyzes policy implications in light of pre-settlement risks. The authors find that multilateral C&S lead to substantial risk reduction.

b. The authors focus on both securities and derivatives markets and analyze substantial literature on C&S. Many scholars, e.g., see the introduction of CCPs in the OTC market as a risk reducing mechanism. “However, to our knowledge, there is no established analytical
framework for evaluating, \textit{quantitatively}, the relative cost and risk implications of a range of clearing methods, covering different constellations of products, trader profiles and market structures.”

c. This research is prompted by several important market trends, such as the expansion of CCPs (\textit{e.g.}, “since 1999 the London Clearing House (LCH) has introduced CCP services for swaps, repos and, most recently, securities traded on the London Stock Exchange”) and globalization of clearing (among the examples were the London Clearing House and Clearnet merger in 2003, and “the Chicago Mercantile Exchange (CME) Clearing House taking over the clearing of trades for the Chicago Board of Trade (CBOT) in the same year.”). Another pressing matter was whether pan-European CCPs would bring significant efficiency gains. Overall, the paper provides comparative analysis of costs and risks of various clearing methods.

d. The authors scrutinize the two sides of the pre-settlement risk, including replacement cost losses, and the distribution of such losses. For instance, “[re]placement cost risk arises during the period between trade and settlement and reflects the cost to a trader of replacing a trade on which a counterparty has defaulted.” The article isolates netting ratios and margin pooling as the basic sources of differentials in the replacement cost risk.

e. “Clearing” is defined as “the set of procedures in place for calculating the net exposures arising from a set of financial market trades and managing the credit risks arising from these trades in the period prior to their final settlement.”

f. The authors also examine different types of C&S models, including the classification by Moser (\textit{Comment: James T. Moser, Contracting Innovations and the Evolution of Clearing and Settlement Methods at Futures Exchanges}, Federal Reserve Bank of Chicago Working Paper Series, 1998-26, \textit{available at} http://papers.ssrn.com/sol3/papers.cfm?abstract_id=910505 ). Moser identifies three S&C schemes for futures markets: “(i) clearing by direct settlement (bilateral clearing); (ii) clearing through ‘rings’ (multilateral clearing, without novation to a CCP); and (iii) complete clearing (CCP clearing).” In the end, the article analyzes the following four arrangements: “(i) bilateral clearing; (ii) multilateral clearing via ringing; (iii) single-product CCP clearing; and ultimately, (iv) multi-product CCP clearing.” “By providing centralised risk management and facilitating anonymous trade, CCP clearing is particularly beneficial in the case of exchange-traded assets, particularly those with long settlement periods, such as derivatives.”
g. Agents mitigate replacement cost risk through margining; “hence a trader (or CCP) will only incur a replacement cost loss if there is a coincidence of events: an adverse change in the underlying contract price in excess of the per-unit value of margin collected from a counterparty, combined with a default by that counterparty.” In the discussion of margining methods, the authors observe, *inter alia*, that tailored margining is rare in practice, “perhaps due to CCPs’ facing higher monitoring costs, or lower monitoring incentives, than individual members clearing bilaterally. Thus, high-quality agents may only wish to access a CCP directly if strict access criteria are applied, leaving lower-quality agents to clear either indirectly or bilaterally.”

h. The authors illustrate the “margin-pooling benefits” of CCP arrangements and state that “[t]he scale of any risk reduction available through margin pooling will depend… on the variances and covariances of both price changes and trading positions in these assets, and also on whether margin is set on an asset-by-asset or portfolio basis.” Portfolio-based margins can diminish the replacement cost risk-reduction benefits of margin pooling.

i. The article concludes that advantages of CCP consolidation depend “on the variances and covariances of asset prices and positions in the two CCPs to be merged.”

j. Finally, more complete data on consolidated CCPs and vertical integration of C&S are needed.


a. This paper analyzes economies of scale across major global depository and settlement institutions in 1993–2000. The paper analyzes 16 settlement entities within the timeframe of 1993-2000. The authors determine that there are differentials in the economies of scale among the institutions that are explained by their size (smaller entities have high potential for economies of scale; large institutions are more cost-effective). Technology significantly decreased the costs of C&S. The paper focuses on C&S and finds cost savings related to consolidation of the industry.
b. High cross-border C&S costs in Europe are explained by the complexity of the EU system. European markets and C&S services remain fragmented across jurisdictions.

c. A greater degree of integration is traditionally a characteristic of the U.S. securities markets. In the EU, Euroclear Bank and Clearstream International play a dominant role in C&S in debt markets. They also, to a lesser extent, clear equity transactions. Most equity market transactions are processed through domestic facilities.

d. “Clearing involves the process of establishing the respective obligations of the buyer and the seller in a security trade, while settlement comprises the actual transfer of securities from the seller to the buyer.” “Settlement refers to the actual transfer of a security while depository is the safekeeping of assets and the administration of securities on behalf of intermediaries and investors.”

e. The trends to consolidate the industry accelerated in recent years as demonstrated by the merger of Deutsche Borse Clearing and Cedelbank Luxembourg to form Clearstream International; the creation of the Euronext’s Euroclear Group, and the merger plans of Euroclear and CrestCo UK. The events exemplify the attempts to create vertically or horizontally integrated systems.

f. The U.S. system is the most cost-effective C&S system, although European and Asian settlement institutions “show the highest potential in unit cost savings.”

g. The authors analyze several domestic markets and find that vertical integration “may offer a number of positive effects such as increased speed, safety, and risk management.” Also, the cross-border European ICSDs “show almost the same cost effectiveness as their U.S. counterparts ($0.013 versus $0.007), while national CSDs report a lower cost efficiency of $0.060.”

h. The authors find that the E.U. operating income per settled trade is significantly higher than in the U.S. system, which operates with a narrower margin, while revenues generated mostly cover costs.

i. Smaller C&S entities can still tap into high economies of scale and “may be well advised to accelerate investment plans, reduce prices, and thereby increase overall production at a lower unit cost than if scale economies were absent.” “These findings also bear important implications for the competitive structure of the settlement industry. It can be inferred that mergers/alliances especially of smaller institutions may be cost advantageous. It might be optimal for smaller settlement service providers to form implicit mergers in order to process more settlement business through a lower number of systems. Thereby, costs may be spread
over a wider number of transactions and settlement services could be provided at a lower cost.”

j. Greater integration will benefit the E.U. C&S providers, even though it would be impossible to transplant the cost-efficient centralized U.S. model due to the differences in information technologies, taxation and law.

k. The authors also state that “settlement institutions from the European and Asia-Pacific regions show the highest potential in unit cost savings. Similar results were found for relatively smaller service providers where a doubling of settlement and depository activities would increase costs by 2/3.”

l. Operating costs of cross-border settlement are much higher than for domestic CSD within the EU, although such costs have decreased over time.

m. Finally, the study illustrates the cost-saving potential of integration. It also supports “the formation of mergers and alliances among smaller settlement institutions. In other words, expansions or the pooling of depository and settlement businesses is likely to enhance savings in unit costs for small and medium-sized institutions.” The effect is less significant for bigger C&S entities.


a. The paper examines if a single asset class (such as CDS) CCP may lower counterparty exposure and demand for collateral, and finds that multi-asset clearing is more efficient in terms of risk reduction. Examples include united transatlantic CCPs contrasted with separate European and U.S. entities, and combinations of CDS and interest rate swaps clearing in a single entity. Interoperability and contractual arrangements among CCPs may also mitigate counterparty risk exposure, although this scenario poses a number of legal hurdles.

b. The model involves the typical dichotomy of bilateral netting versus multilateral netting for a single class of assets. The latter is more preferable if its benefits for that particular class dominate losses across other derivatives uncleared through bilateral arrangements. In some circumstances, single-asset CCPs may increase exposure and require additional collateral from counterparties. In the other case scenario, it may provide extensive multilateral netting offsets among a large number of clearing members, thus, decreasing the overall counterparties’ exposure.
c. The authors note that the total CDS exposure decreased substantially starting from 2008. The introduction of a single CDS CCP may be unwarranted. Separating the European and the U.S. CDS CCPs would further reduce multilateral netting opportunities.

d. The authors suggest that that centralized CDS clearing is efficient if a single dealer’s exposure is 66% of the total exposure to other types of bilaterally cleared derivatives outstanding.

e. Combining CDS and interest rate swaps assures greater risk reduction. The model shows that combining four classes of derivatives monitored by the OCC generates even better results.

f. The model does not capture systemic risk and lacks data on bilateral netting. It also does not take into account knock-on defaults.


i. In 1975, Congress amended the SEA with respect to the national market system (NMS). The NMS is not limited to exchanges, but also focuses on the clearing through the national clearing system (15 U.S.C.A. § 78q-1). The Statute gives the SEC direct oversight powers over clearing agencies and transfer agents, including registration requirements (17 C.F.R. § 240.17Ab2-1; 17 C.F.R. § 240.17Ac2-1, 240.17Ac3-1) and the establishment of uniform procedures for settlement of transactions. The SEC develops these rules based on the principles of investor protection, due regard to the public interest and competition among broker-dealers, transfer agents and clearing agencies (15 U.S.C.A. § 78q(a)-1(a)(2)).

ii. Section 17A covers both clearing brokers and agencies and preempts state law.

iii. The SEC protects the efficiency of the clearing process via, e.g., supporting holding securities in street name and preventing restrictions of transfers to intermediaries (Issuer Restrictions or Prohibitions on Ownership by Securities Intermediaries, Sec. Exch. Act Rel. No. 34-50758, 69 Fed. Reg. 70852-01,2004 WL 2787357 (SEC 2004); SEC Rule 17Ad-20, 17 C.F.R. § 240.17Ad-20.)

iv. The SEC has granted registration to 10 clearing agencies (Sec.Exch. Act Rel. No. 34-20221 (Sept. 23, 1983); Sec.Exch.Act Rel. No. 34-21335 (Sept. 20, 1984)) and several registrations on a temporary basis. The Seventh Circuit held that prior to granting such registration the SEC needs to determine whether a trading system is a clearing agent or a securities exchange. (Board of Trade of City of Chicago v. SEC, 883 F.2d 525 (7th Cir.1989), appeal after remand923 F.2d 1270 (1991).
b. 14.2[2][B] Clearing Brokers
   i. The author describes the differences between introducing brokers and clearing brokers. For example, clearing brokers do not owe the same fiduciary duty to customers.
   ii. The NYSE amended its “know your customer” rule accordingly with the exception of knowingly wrongful conduct in the presence of extenuating circumstances.
   iii. Liability may also attach under blue sky laws.

   i. As a result of the paperwork crisis of the 1970s, Congress mandated a national clearing system (Securities Act of 1934, § 17A(a)(i), 15 U.S.C.A. § 78q-1(a)(1)(A) (2001)).
   ii. NSCC (which operates CNS, the continuous net settlement system, and nets transactions, including transfer and payment obligations, on a daily basis) and DTC (which handles clearing).
   iii. The term “clearing agency” also includes depositories (Section 3(a)(23)). Sections 17A(b)&(c) of the SEA require all agencies (unless they are dealing exclusively with exempt securities) and transfer agents to register with the SEC, including dual registration for entities acting as both agencies and agents.
   iv. Rule 17Ad-2 requires transfer agents to process expediently 90% of items received each month.

d. 14.2[2][D] Clearing – Other Issues
   i. State law is preempted by the SEA and the SEC regulations.
   ii. The SEC is planning to regulate the over the counter derivatives clearing and settlement.

   a. The Treatise reviews the history of exchanges and their regulation, including their function as central clearing houses for the trading of listed securities.
   b. It describes the SEC’s regulatory and oversight authority over the equities, bonds and options markets (references are made to a number of cases preempting antitrust law, such as In re Stock Exchanges Options Trading Antitrust Litigation, 2001 WL 128325, 33 Sec. Reg. & L. Rep. (BNA) 323 (S.D.N.Y. 2001) (when Congress empowered the SEC to regulate options trading, it impliedly repealed the antitrust laws with regard to such activity). Cf. United States v. NASD, 422 U.S. 694, 95 S.Ct. 2427, 45 L.Ed.2d 486 (1975); Friedman v. Salomon/Smith

c. Exchanges do not register each publicly traded option. Instead, the Options Clearing Corporation files disclosure documents on generic options. (17 C.F.R. § 240.9b-1 (options disclosure document)).

d. Under the Exchange Act mandate, the Division of Trading and Markets (formerly “the Division of Market Regulation”) regulates broker-dealers, exchanges, clearing organizations, and the OTC markets.

e. The SROs also impose a number of rules related to C&S.

f. Under the Market Reform Act of 1990, the SEC coordinates C&S procedures for stocks, options, and futures contracts.


a. The SEC registers securities exchanges and clearing agents; the CFTC regulates commodities exchanges and clearing agents. Prior to registration as a clearing agent, the SEC must make a formal determination as to the activity in question (Board of Trade of City of Chicago v. SEC, 883 F.2d 525 (7th Cir.1989), appeal after remand 923 F.2d 1270 (1991). Board of Trade of City of Chicago v. SEC, 923 F.2d 1270 (7th Cir.1991)).

b. Under the Commodity Futures Modernization Act of 2000 (Pub. Law No. 106-554, 114 Stat. 2763 (Dec. 21, 2000)), futures products may be traded on securities exchanges, commodities contract markets or derivatives transaction execution facilities. All those markets are regulated by different Commissions (News Release, SEC, SEC Approves Exemptions to Allow Central Counterparty for Credit Default Swaps (Dec. 23, 2008), available at 2008 WL 5342187. See also, e.g., SEC Exempts CME from Registration so it can Clear Credit Default Swaps, http://news.bna.com/sdln/SDLNWB/split_display.adp?fedfid=11664072&vname=sldbulallissues&fn=11664072&jd=A0B8C3F0K1&split=0 (March 16, 2009).)


a. The author covers C&S only with respect to federal preemption under Section 17A of the 1934 Act (Nanopierce Technologies, Inc. v. Depository Trust & Clearing Corp., 168 P.3d 73, 76 (Nev. 2007) (conflict preemption preempted state law [see Section IV, infra]).


a. The authors cover the specifics of settlement of cash-settled contracts (§ 1:04(8)), delivery of intangibles (§ 1:04(9)) and general delivery obligations in futures contracts (§ 1:04(7)). The authors describe (1) the development of the cash settlement method starting from the 1982 Shad-Johnson Accord; (2) specification of certain periods during which a contract can be completed by delivery of the commodity or cash settlement and its terms; (3) the specifics of “no delivery” or “optional delivery” futures, etc.

b. The Treatise describes the clearing houses (§ 1:05) and defines the term “clearance” as follows:

i. “First, a daily reconciliation is made of all futures transactions effected during the trading session” (i.e., trading members report to the clearing house the details of their contracts, trades are confirmed and the house accepts the confirmed trades becoming a counterparty to the contracts);

ii. “A second part of the clearance process is the daily settlement of amounts owed or collectible on futures contracts or options as the result of changes in contract prices during the trading session” (all trades are marked to the market);

iii. “A third function of the clearing house is to guarantee the financial integrity of all futures and options contracts that it has accepted” (id. at 189-190);

c. Traditionally, each contract market controls its clearing house. The Commodity Futures Modernization Act (CFMA) of 2000 created the foundations for independent clearing houses and “derivatives clearing organizations” “as separately regulated organizations in their own right” acting as registered entities (id.).

d. Generally, the duties of clearing houses (CH) are set forth in the Commodity Exchange Act. The CHs have to segregate margins and other customers’ funds from their own; may be required to maintain daily trading records; etc.

e. CFMA introduced derivatives clearing organizations and multilateral clearing organizations. Depending on their operations they have to register with the CFTC or the SEC. The Act obligates the CFTC to facilitate the linking of registered derivatives clearing organizations. Finally, under the Act (amending FDICIA of 1991) “clearing operations for over-the-counter derivative instruments may only be carried out by certain banking organizations, clearing agencies registered with the SEC, registered derivatives clearing organizations under the
Commodity Exchange Act, and clearing organizations supervised by a foreign financial regulator that the applicable domestic financial regulator has determined satisfies appropriate standards.” (id. at 192). Finally, the Treatise describes the new registration requirements for derivatives clearing organizations and the core principles applicable to clearing agencies (such as financial resources, participant and product eligibility, risk management, settlement procedures, protection for customer funds, appropriate rules and procedures, rule enforcement, system safeguards, reporting requirements, recordkeeping requirements, public information, sharing of information and antitrust considerations).

f. Other relevant Sections cover the futures commission merchants (§ 1:06) and their introducing brokers and associated persons (account executives, registered commodity representatives, agents, etc.) (§ 1:08), their liability, customer protection duties, their records and reporting requirements, etc.

34. Derivatives: Legal Practice and Strategies (Robert D. Aicher ed., 2009)

a. The book covers all types of derivatives contracts and their clearing/settlement by type; a separate Section on the OCC (§ 2:07); credit and insolvency risks associated with clearinghouses (§ 2:08); limiting risk exposure in close-out and settlement in drafting ISDAs (§ 6:01-6:04); the special case of credit derivatives cash, physical and alternative settlements (§ 10:06-10:09); and bankruptcy risk (§ 14).

b. Generally, clearinghouses are divisions of exchanges; separate entities partially controlled/owned by exchanges or independent entities (§ 2:07). In the US, the member-owned DTCC and the exchange-owned OCC (owned equally by 5 exchanges) are all registered under Section 17A of the SEA. In addition to options clearing, the OCC is the CH for security futures products traded on OneChicago. It is also registered under Section 5b of the CEA as a derivatives clearing organization. Thus, it clears certain futures for, e.g., CBOE Futures Exchange and NYSE Liffe.

c. An additional important function of a CH clearing futures is that the CH “not only settles exchange transactions but also becomes the obligor with respect to the derivative contracts that result from those transactions.”

d. Generally, for both securities and commodity derivatives, the clearing functions are identical.

e. The OCC has more than 100 clearing members (often, registered BDs or FCMs). All exchange members either have contractual arrangements with OCC clearing members or should be members themselves. A clearing member has an account in an approved bank. The OCC is authorized “to draft its account to effect daily cash settlements between the clearing
member and OCC.” (id. at 2-45). Record ownership is maintained in the clearing member’s account with the OCC. The OCC “does not know the identities of individual customers or have contractual privity with customers” (id.) - brokers maintain appropriate records.

f. The Treatise describes the actual settlement of exchange transactions (from the reporting of matched trades to netting and premium settlement between the OCC and its members); contract novation; exercise of option contracts (through series of instructions and notices between customers, brokers and the OCC); settlement and delivery of underlying interests (e.g., in the case of stock options, “OCC ordinarily simply reports the exercises and assignments to NSCC, which effects delivery of, and payment for, the underlying securities through its normal settlement process in essentially the same way as if the transactions had been effected on a stock exchanges,” id. at 2-47; if NSCC procedures are not available, there are broker-to-broker procedures; for index options, e.g., exercise settlement is effected through the OCC’s cash settlement system); risk management and the “Backup System” (with three elements: assessment of the financial strength of clearing members; margin deposits and clearing fund deposits); regulations under Section 17A of the SEA (applied to all clearing agencies-SROs); adjustment of options (particularly, stock options in such events as dividend payments, stock splits, spin-offs, etc.) that are made in individual cases by adjustment panels “consisting of representatives of OCC and each options exchange that list the affected class of options” (id. at 2-50).

g. Importantly, a separate Subsection (§ 2:08(C)) is devoted to bankruptcy of clearinghouses. Article VI, Section 27 of the OCC Bylaws provides rules for close-out netting in the case of insolvency. Accordingly, the OCC “would fix a ‘close-out value’ for all positions in clearing member accounts and would net such close-out values in accordance with prescribed rules.” (id. at 2-53). The rules are built into the SEC customer protection rules. For example, “customer long option positions that are required to be ‘segregated’ under SEC rules as reflected in OCC’s Rule 611 are not netted against short positions and other liabilities in the customers’ accounts of clearing members, and liabilities in clearing member’s proprietary accounts cannot be netted against assets in their customers’ accounts.” (id.). The insolvency of brokers falls under the purview of the Securities Investor Protection Act of 1970 and is administered by the Securities Investor Protection Corporation (id. at 2-51). In the insolvency of FCM, OCC or securities brokers, the treatment of securities futures “would depend upon whether the security futures were carried in a securities account [i.e., the regular rules for options apply] or a futures account [the Bankruptcy Code provisions on commodity brokers
and CFTC regulations apply].” (id. 2-53-54).

   a. The book does not cover the mechanisms of C&S per se, but mentions the role of the OCC (id. at 21) and covers liability of broker-dealers (which would be useful for the discussion on the liability of clearing and introducing brokers).

   a. The report covers all types of C&S systems, including Fedwire, the Clearing House Interbank Payment System, and securities and derivatives S&C. Risks are comparatively identical in all payments, clearance and settlement systems (id. at 4).
   b. Clearance is “the process of transmitting, reconciling, and in some cases, confirming payment orders or securities transfer instructions before settlement takes place.” Settlement is “the final step in the transfer of ownership,” it is “the process of recording the debit and credit positions of parties involved in a transfer of funds; in a securities transaction, settlement includes both the transfer of securities by the seller and the payment by the buyer” and is done either on the net or gross bases. (Id. at 2).
   c. Settlement must provide reliable exchange, security and finality of payments; and there is always a trade-off between the security (particularly important in wholesale exchange transactions), speed (the greater the speed the less default risk) and costs of settlement.
   d. In the overview of the main characteristics of the C&S of equities, Treasures and derivatives, the authors mention that the focus in equities and Treasuries transactions is the transfer of ownership, while in derivatives – the transfer of risk.
   e. NSCC clears and settles 98% of all equity, corporate and municipal bond transactions. Upon instructions from NSCC, DTC tracks the transfer of securities through NSCC via a book-entry system, and serves as a custodian for participating broker-dealers and banks. (Id. at 48).
   f. Equities C&S:
      i. Clearance begins after the trade; NSCC guarantees the trade and nets the delivery/receipt of settlement obligations. Usually on T, an exchange records trade information and transmits it to NSCC (most trades occur on a locked-in basis), which compares and matches trades and guarantees transactions through novation; on T+1, the results of matching (i.e., contracts) are sent to participants; on T+2, NSCC nets settlement positions (through the CNS system) and sends participants reports thereto.
Settlement occurs on T+3 by book-entry at DTC and settlement transfers through NSCC and settlement banks. Equities eligible for depository at DTC enter the NSCC CNS System. The other two systems NSCC has are one for non-eligible securities and one for trades outside of the netting process.

ii. There are two parts in the settlement process: equity share settlement (shares are transferred through DTC accounts; NSCC “instructs DTC to move shares from the accounts of net sellers to NSCC’s account and then from NSCC’s account to the accounts of net buyers”; an allocation algorithm is used if the total amount of shares is insufficient) and money settlement through settlement banks (which guarantee payments or receive money on behalf of a participant) (Id. at 51-55).

iii. Due to its guarantee, NSCC is exposed to counterparty and credit risks, and is dependent on market fluctuations. The risks are mitigated via, inter alia, the clearing fund, member admission standards, and arrangements with DTC “that – in the event participants are unable to complete money settlement and NSCC ceases to act on their behalf - shares delivered that day are returned to NSCC, or DTC makes payment to NSCC.” (Id. at 57). Also, unsettled trades or fail positions are marked to market and payments are made by participants based on market prices, thus keeping NSCC obligations close to the market.

b. Government Securities:

i. GSCC provides netting mechanism for S&C of Government securities. The Fedwire book-entry system services all marketable Treasuries, federal agency securities and some international agency securities. All members of GSCC have designated clearing agent banks operating though Fedwire. The Report provides a detailed description of the C&S of Government securities.

c. Futures C&S (id. at 66 et seq.):

i. The Report describes futures clearing and settlement, which is generally channeled through nine clearing organizations that serve 11 exchanges. Participants include exchanges, clearinghouses (which are departments of exchanges) and clearing corporations (which are independent from exchanges), clearing members (generally large futures brokers transacting with clearing organizations and serving nonclearing members) and settlement banks (maintaining clearing accounts for clearinghouses). “Settlement in the futures market usually pertains to cash flow payments that reflect
changes in the market price”. (id. at 67). Most clearing was done through BOTCC and CME’s clearinghouse.

ii. Comment: Today, the CME Group (http://www.cmegroup.com/clearing/index.html) has the greatest volume of futures trading and provides clearing.

iii. As opposed to equities, futures clear and settle on T+0 schedule (i.e., same day settlement).

iv. Clearing involves capturing (i.e., FCMs and traders provide data to the clearing organizations/houses), matching of trade data by the clearing organization, and guaranteeing (the clearing organization guarantees settlement).

v. Settlement can be of three types – namely, settlement by delivery, cash settlement and settlement by offset – and “refers to the settlement payment of funds between the clearing members and the clearing organization” via either a performance bond (margin deposit, to wit, a bond covering “the anticipated one-day loss that a clearing member’s portfolio and its customers open positions might incur) and variation settlement (a marked-to-market, daily calculated “amount that is required when the clearing member’s open positions are marked to the market prices”) (id. at 70-71).

vi. Similar to equity clearing, futures clearing organizations tackle counterparty and credit risk via admission standards, monitoring of clearing members, auditing, capital requirements (usually based on exchange rules) and the aforesaid performance bonds and variation margin settlements.

d. Options (id. at 71 et seq.):

i. Settlement “usually pertains to margin settlement, which is a payment that reflects changes in the value of the option”, premium settlement or exercise and assignment settlement.

ii. OCC clears and settles all exchange-traded options (mostly on equities, currency and equity indices). Exchange-listed options on futures are cleared through futures clearing organizations, although OCC can do that as well. OTC options are privately negotiated.

iii. The participants are exchanges, OCC, its clearing members and settlement banks.

iv. Options clear and settled in T+1.

v. OCC starts the C&S process when exchanges provide data on matched trades (in a batch-once-a-day mode). OCC guarantees the matched trades and issues a new novation contract. OCC “then performs what is known as exercise and assignment on
a random basis” (it occurs when a holder decides to buy/sell the underlying asset and its broker submits an exercise notice to OCC); it receives an exercise notice and assigns it to a clearing member (that has a position in the unit of trade and assigns it to its customers). The assigned clearing member is obligated to sell/buy the asset at the strike price.

vi. Settlement is done the day after a trade. The premium is paid by the buyer to OCC and passed on to the writer. With respect to the writer, there are the premium settlement (reflecting the market price at the time of the trade) and margin settlement (which is daily marked-to-market value of the option and the daily risk value of the option). OCC notifies both parties of their obligations on T+1. Each day, OCC nets the cash premiums and margins for each open position. Settlement banks are finally notified on the final amounts due from clearing members.

vii. OCC mitigates its counterparty and credit risk (to which it is exposed as it has to liquidate members’ respective positions should a member fail to settle) via monitoring members’ creditworthiness, requiring additional margins if necessary, guaranteeing matched trades only, requiring margin that is similar to collateral, maintaining a guarantee fund.


a. The S&C system is vital for the smooth functioning of financial markets. 99.9% of daily transactions by dollar value clear and settle based on the T+3 schedule. The remaining transactions result in failures to deliver (FTD). FTDs often indicate illegal activities, including manipulative naked short selling. Many FTDs are caused by mechanical errors and processing delays, resolved within several days. Recently, investors and publicly traded companies expressed concerns regarding intentional delays. Data on FTDs are sent to the SEC and stock exchanges by NSCC on a daily basis. Regulation SHO, recently amended, the July 2008 Emergency Order restricting naked short selling, the September 2008 Emergency Order and the October 2008 Interim Final Temporary Rule (requiring participants with FTDs on the third settlement day to close out their positions on the following morning) addressed FTDs.

b. Clearing agencies are SROs (Section 19 of the SEA, USC § 78s, providing for the SEC review and approval of their rules) and are registered with the SEC under Section 17A, SEA
(USC § 78q-1), establishing financial, operational, disciplinary and other requirements for registration. The following SEC divisions oversee clearing agencies: Trading and Markets (reviews structure and rule changes); OCIE (assesses agencies’ safety and reliability; conducts regular cycle and special examinations every other year for NSCC and DTC, and develops written guidance for its examiners from the broker-dealer oversight program; OCIE executes its authority through New York, Chicago, and Philadelphia Regional Offices), and Enforcement (prosecutes violations of law).

c. The two types of clearing agencies are:

   i. Clearing corporations, conforming trade data, reporting to participants trade comparisons submitted by exchanges, acting as CCPs and preparing settlement instructions.

   ii. Depositories, which retain custody of securities, maintain ownership records, effect deliveries, receive instructions from clearing corporations and participants to move securities to other accounts, and communicate with settling banks to settle financial obligations.

b. Between 2000 and 2008, six registered clearing agencies provided major clearing functions: DTCC’s subsidiaries (NSCC, DTC, FICC and OCC); and Boston Stock Exchange Clearing Corporation and the Securities Clearing Corporation of Philadelphia (both were acquired by NASDAQ OMX in July 2008).

c. The standard settlement cycle is T+3.

d. NSCC nets trades and payments through the Continuous Net Settlement System, which is “a book entry accounting system, whereby each NSCC participant’s daily purchases and sales of securities, based on trade data, are automatically netted into one long position (right to receive) or one short position (obligation to deliver) for each securities issue purchased or sold” (id. at 4). Payment obligations are also netted. NSCC instructs the depository designated by participants to deliver securities to the NSCC’s account and then to deliver securities from that account to participants with net long positions. In case of FTDs, a fails to receive may result. NSCC uses its Stock Borrow Program (SBP) to borrow shares to meet its delivery obligations. “Any shares that NSCC borrows are debited from the lending participant’s DTC account, delivered to NSCC, and, subsequently, delivered to a NSCC participant with a net short position.” The lending participant cannot re-lend the shares. Unfulfilled FTR and FTD positions are rolled over to the next settlement cycle. If FTR positions are not filled through SBP, members can either wait until NSCC receives securities
in the normal course of business, request priority in CNS, or initiate a buy-in (NSCC has no legal authority to force a buy-in). DTCC reported about 6000 notices of intention to buy-in a day, with 20 resulting in executions and the rest resolving in the normal course of business.

e. DTC is the central depository and custodian for the majority of security issues. Through its nominee Cede & Co., it owns securities traded in the markets. Broker-dealers and clearing firms, in turn, have pro-rata beneficial interest in the aggregate number of shares held by DTC, while beneficial owners-investors own pro-rata beneficial interests in those shares through broker-dealers. DTC transfers ownership during settlement.

History: NMS; Federal Regulations; Three-Day Settlement Rule

1. This summary provides an overview of the following sources:

   - Securities Acts Amendments of 1975 (15 USC 77b to 77e, 77j, 77k, 77m, 77o & 77s)

   a. Securities Acts Amendments of 1975 authorized federal regulation of the time and method of securities transactions settlement. Section 17A of the 1934 Act directs the SEC “to facilitate the establishment of a national system for the prompt and accurate clearance and settlement of transactions in securities (other than exempted securities).”
   
   b. The Market Reform Act of 1990 further expanded the SEC’s authority, thus, reflecting the interdependence of the options, futures, and equities markets. The Act authorizes the SEC to
take whatever actions it deems necessary in an emergency situation to: (1) maintain or restore fair and orderly securities markets; or (2) ensure prompt and accurate clearance and settlement of transactions in any securities. It also requires the SEC to facilitate the establishment of: (1) a national system for clearance and settlement of securities transactions; and (2) coordinated facilities for clearance and settlement of transactions in securities, options and contracts (See Bill Summary & Status, 101st Congress (1989 - 1990) H.R.3657, Market Reform Act of 1990). The Act was partially enacted in response to the 1987 crisis, which revealed interconnectedness of the markets (The Market Reform Act of 1989: Joint Hearings on S.648 before the Subcomm. on Securities and the Senate Comm. on Banking, Housing and Urban Affairs, 101st Cong., 1st Sess. 225 (Oct. 26, 1989) (statement of Nicholas F. Brady, Secretary of the Treasury)).


(1) Before 1993, the settlement cycle varied among markets. Settlement on the fifth business day was the industry practice. There was no federal rule on the matter. Prior to 1953, settlement at Amex occurred on the second day after the trade date and moved to the third day in 1953, T+4 in 1962, and to T+5 in 1968. The NYSE originally settled trades on T+1 in the 1920s, but settlement gradually moved to T+5.

(2) In 1993, the SEC introduced the three-day settlement rule (Rule 15c6-1), which provides that “a broker or dealer shall not effect or enter into a contract for the purchase or sale of a security… that provides for payment of funds and delivery of securities later than the third business day after the date of the contract unless otherwise expressly agreed to by the parties at the time of the transaction.” Some transactions are exempt from the Rule (those are “contracts for the sale for cash of securities [1] that are priced after 4:30 p.m. Eastern time on the date such securities are priced and [2] that are sold by an issuer to an underwriter pursuant to a firm commitment underwritten offering… or sold to an initial purchaser by a broker-dealer participating in such offering…” See Rule 15c6-1(c)). The rule applied to mutual funds shares, MBS and CMOs.

(3) In the Proposing Release, the Commission laid out the following reasons: fewer unsettled trades would be subject to credit and market risk, and the value of trades
would not deteriorate; liquidity risk among the derivative and cash markets would be reduced; shorter settlements could encourage greater efficiency of clearing agencies and broker-dealers.

(4) Part of the rationale behind the Rule was the lessons from the 1987 Market Break and the Drexel Burnham Lambert, Inc., bankruptcy case. In 1987, e.g., market participants could not meet margin calls and settlement obligations. The SEC stated in the prefatory note to the Rule that “[d]uring and after the week of October 19, 1987, over 50 introducing brokers failed, many as a result of the inability of customers to meet margin calls and pay settlement obligations. The failure to meet margin calls and/or transaction settlement obligations exposed some clearing firms to financial loss, thus threatening the entire financial system.”

Comment: A recent analysis of the 2008 crisis illustrates that the markets and C&S system performed well.

(5) The SEC attempted to decrease credit and liquidity risks by aligning C&S timing for securities, derivatives (which settle the first business day after the trade) and government securities for the benefit of all market participants.

(6) To accommodate the Rule, the DTC was developing an interactive Institutional Delivery (“ID”) system permitting real-time confirmation/affirmation of institutional trades and expediting confirmations, settlement instructions, and corrections among the agents for institutional investors.

   a. “Clearance is the process of capturing the trade data, comparing the buyer’s and seller’s version of the data, and guaranteeing that the trade will settle once the data match. Settlement is the final stage of the process when funds and/or financial instruments are exchanged between the parties through the clearing organization.” (id. at 1-43).
   b. The author describes the basics of C&S. Trades are matched either by C&S organizations or, often, by exchanges themselves. Clearing organizations thereafter become responsible for completion of trades and C&S, which exposes them to various risks managed through financial requirements, minimum capital standards and financial surveillance. Clearing members often take responsibility for clearing trades of smaller traders. A yet another party is a clearing bank that serves as a settlement bank and extends credit to clearing members. Overall, clearing organizations perform the same basic set of functions in most securities and
derivatives markets: trade comparison, risk management and settlement. The differences can be related to various settlement cycles. Comment: The trade cycles today changed. See the next Section.

c. As of 1992, three clearing organizations operated in the US - NSCC, and two houses servicing MSE and PHLX – and were interconnected with exchanges.

d. Futures clearance was traditionally within the province of 9 clearing organizations serving 14 exchanges, although BOTCC and CME Clearing House Division accounted for the majority of trades.

e. Due to the guarantee provided by clearing organizations to clearing members, “a widespread inability of clearing organizations and their members to meet their obligations could result in a rippling effect on parties and markets not directly involved with the failed member.” Id. at I-45.


g. The author mentions that intermarket trading or covering losses in one market with proceeds from another market are hindered due to various settlement cycles and trading strategies. Comment: Today, this has been partially overcome in highly standardized options and equities markets.

3. UNIFORM COMMERCIAL CODE, ARTICLE 8, INVESTMENT SECURITIES, available at http://thorpe.ou.edu/TribalUCC/Cherokee%20Nation%20UCC/UNIFORM%20COMMERCIAL%20CODEARTICLE%208cherokee.pdf:

a. Section 8-102(a)(5) defines "clearing corporation" as:

“(i) a person that is registered as a "clearing agency" under the federal securities laws;
(ii) a federal reserve bank; or
(iii) any other person that provides clearance or settlement services with respect to financial assets that would require it to register as a clearing agency under the federal securities laws but for an exclusion or exemption from the registration requirement, if its activities as a clearing corporation, including promulgation of rules, are subject to regulation by a federal or state governmental authority.”

b. A clearing corporation is a subtype of “securities intermediaries”, which also include “a person, including a bank or broker, that in the ordinary course of its business maintains securities accounts for others and is acting in that capacity.” (Section 8-102(a)(14))

c. Art. 8 uses the term "entitlement holder", meaning security holders or “a person identified in

the records of a securities intermediary as the person having a security entitlement against the securities intermediary.” (Section 8-102(a)(7))

d. Securities fall within the general definition of “financial assets” (Section 8-102(a)(9)), which involve securities; obligations “of a person or a share, participation, or other interest in a person or in property or an enterprise of a person, which is, or is of a type, dealt in or traded on financial markets, or which is recognized in any area in which it is issued or dealt in as a medium for investment; or … any property that is held by a securities intermediary for another person in a securities account if the securities intermediary has expressly agreed with the other person that the property is to be treated as a financial asset under this Article.” Financial assets cover certificated and uncertificated securities.

e. The UCC provides that rules of a clearing corporation take precedence over the UCC (Section 8-111).

f. The UCC defines the notions of control, delivery, warranties of a securities intermediary, liability of an intermediary (Section 8-115 provides, e.g., that an intermediary is not liable to persons having claims against financial assets, unless the intermediary has transferred assets after a valid injunction or acted in collusion with the wrongdoer.)

g. Section 8-501 determines the term “securities account” (“an account to which a financial asset is or may be credited in accordance with an agreement under which the person maintaining the account undertakes to treat the person for whom the account is maintained as entitled to exercise the rights that comprise the financial asset”), and book-entry and other transfers.

h. Section 8-503 determines that interests in a financial asset held by a securities intermediary are held for the entitlement holders, are not property of the intermediary, and are not subject to claims of creditors of the securities intermediary with certain minor exceptions.

i. An intermediary must maintain a financial asset in a quantity corresponding to the aggregate of all security entitlements established in favor of entitlement holders with respect to that asset (Section 8-504)

j. The UCC also outlines the duties of intermediaries regarding payments and distributions (Section 8-505) and changes of holders’ positions to other forms of security holding (Section 8-508).

a. After the 1987 market crash, the Presidential Working Group on Financial Markets examined, *inter alia*, the C&S systems used by various financial markets. The Group of 30 also analyzed the issue at approximately the same time. Thereafter, GAO launched an assessment of the three key areas of C&S: information processing, risk management and payments.

b. GAO analyzed activities of NSCC, OCC and nine clearing entities serving 14 futures markets. Almost 80% of futures trading volume was cleared by the following two clearinghouses: BOTC and CME Clearing House Division. The Report describes C&S in a nutshell, including trade guarantees provided by clearing organizations, the federal regulation of C&S (the SEC, CFTC and Federal Reserve), differences in the settlement cycle of different asset classes, differences in the payment systems in various markets, problems with intermarket C&S (about 20% of clearing members operated in two or more markets).

c. Due to large trading volumes and price volatility, many clearing organizations had processing problems, could not assess financial risk exposure to their member firms (including cases where a clearing member net capital was insufficient, guarantee funds could potentially be insufficient should members default on payments, etc.), did not have necessary funding, or did not make timely payments. In addition, large transfers among market participants depleted their available bank credit and in some cases banks delayed payment confirmations. At the same time, options and futures markets participants extensively relied on commercial banks secured lending. During the crash, some clearing members were late on payments to clearing organizations and unable to cover losses in the market. The Group of 30 suggested the T+3 rule for settlement to reduce some of these risks. Yet clearing entities are still subject to the aforesaid risks and procedures should be improved for timely settlement. Cooperation among exchanges and various asset classes is required.

d. Processing capacity of clearing organizations in the stock and options markets had been improved since the 1987 crisis, but financial risk management remained problematic. Namely, capital and liquidity requirements were improved (NSCC opposed increasing members’ capital requirements, but OCC and CME did increase their capital requirements; guarantee funds were established and increased in most markets), but monitoring of member-firms trading in various markets remained inadequate. Derivatives exchanges improved intraday payment systems via agreements with banks. Yet there were no studies on intermarket clearing and netting, and intermarket cash flow pressures. Namely, NSCC did
not participate in the futures intermarket information sharing system. In 1988, the Securities Clearing Group was established to improve information sharing between the stock and options clearing entities.

e. GAO proposed that the SEC and CFTC should reassess the adequacy of the use of letters of credit in guarantee funds of clearing organizations; and that shared intermarket information system regarding risks posed by joint members had to be established.

f. With respect to settlement problems in the derivatives markets, the CME and major settlement banks entered into uniform agreements that required “each clearing bank either to pay member obligations through irrevocable credits to the respective clearing organization’s account or to inform the CME that the payment cannot be processed by a certain time before the opening of regular trading hours” (id. at 42). At the same time, availability of credit for clearing members is uncertain. Multi-marginalization was perceived as a problem resulting in depletion of the financial resources of members trading in various markets with separate margin and collateral requirements.

g. Although some reforms [such as pilot problems on cross-margining, intermarket netting, coordinated clearing, bankruptcy problem with respect to broker-dealers and futures customers, and others] were discussed or even initiated, they did not result in full-fledged reforms.

h. GAO finally recommended that the SEC and the Treasury should examine intermarket cash flow pressures and simplify intermarket C&S.

Summary of Statutory Provisions:

1. 15 U.S.C. 78q (Section 17A):

also available at http://codes.lp.findlaw.com/uscode/15/2B/78q-1

(b) The provisions cover registration of clearing agencies (hereinafter “CA”); the general application process; determinations by the Commission requisite for registration of applicant as a clearing agency; denial of participation; disciplinary rules; summary proceedings; exemptions; and some other issues.

(1) “It shall be unlawful for any clearing agency, unless registered in accordance with this subsection, … to make use of the mails or any means or instrumentality of interstate commerce to perform the functions of a clearing agency with respect to any security (other than an exempted security)…”

(2) The registration requires filing an application with the SEC.
(3) The SEC may grant registration if the agency [and its rules] (A) has the capacity to facilitate accurate C&S, safeguard securities in its custody, comply with regulatory provisions, enforce compliance by its participants; (B) provides fair access to any type of persons designated by the SEC as appropriate for the national system of C&S; (C) has fair representation and governance procedures; (D) equitably allocates charges; (E) is not engaged in rate fixing; (F) has rules promoting prompt and accurate C&S of transactions with securities, derivatives, contracts, etc., assuring safeguarding of assets in the custody of the agency; removing impediments to the national C&S system; protecting investors; preventing unfair discrimination against participants; etc.; (G) has rules assuring disciplinary actions against violators; (H) has fair procedures; and (I) does not impose any unnecessary burden on competition.

(4) Registered agencies may deny participation to some persons under certain conditions (such as, e.g., statutory disqualification).

(5) This paragraph determines the principles of disciplinary proceedings (which should be based on specific charges and where a participant should be given an opportunity to defend himself), and summarily suspension.

(6) “No registered clearing agency shall prohibit or limit access by any person to services offered by any participant therein.”

(7) Agencies dealing with cash settled security futures products regulated by the CFTC are exempt from these provisions. If futures are not cash settled, then the agency “must have arrangements in place with a registered clearing agency to effect the payment and delivery of the securities underlying the security futures product.” Clearing agencies operating with the security futures products must develop fair links with other clearing agencies operating in that market in order to permit ”security futures products to be purchased on one market and offset on another market that trades such products.”

(8) If derivatives products are excluded from the CEA, a registered clearing agency is permitted to provide facilities for C&S of such products.

(c) The Section governs transfer agents.

(1) Similarly to CAs, transfer agents have to register, unless granted an exemption.

(2) A registration application should be filed with an appropriate agency.

(3) Registration may be denied or suspended if on the record, after notice and opportunity for hearing the agency finds that it is in the public interest and the agent has been convicted of certain offenses or is subject to an order suspending his rights to be associated with a transfer agent.
(d) The Section covers activities of clearing agencies and transfer agents; and enforcement by appropriate regulatory agencies

(1) Clearing agencies and registered transfer agents must comply with the SEC’s regulations.

(2) Other appropriate regulatory agencies also can enforce compliance with their regulations; “and the participants in any such clearing agency and the persons doing business with any such transfer agent shall be deemed to be ‘depositors’”

(3) The Section requires cooperation among the SEC and other regulatory agencies, including state banking authorities.

(5) A registered transfer agent may guarantee “a signature of an endorser of a security, including the acceptance or rejection of such guarantee,” only according to the rules and regulations of the Commission

(e) Congress emphasized that physical movement of securities certificates. The SEC “shall use its authority… to end the physical movement of securities certificates” related to settlement among BDs.

(f) This Section delineates rules concerning transfer of securities and rights and obligations of the parties involved.

(1) The Section preempts state law and gives the SEC the authority to adopt rules as to: (A) transfers of securities and (B) “rights and obligations of purchasers, sellers, owners, lenders, borrowers, and financial intermediaries” (including brokers, dealers, banks, and clearing agencies) involved in or affected by such transfers.

(2) The SEC should assure that the rules are necessary for the protection of investors and promote prompt and accurate C&S, and that the benefits of such rules “outweigh such impairment or diminution of rights” as may occur under state law.

2. 15 U.S.C. § 78c:

also available at http://codes.lp.findlaw.com/uscode/15/2B/78c

(a)(23)(A) “The term “clearing agency” means any person who acts as an intermediary in making payments or deliveries or both in connection with transactions in securities or who provides facilities for comparison of data respecting the terms of settlement of securities transactions, to reduce the number of settlements of securities transactions, or for the allocation of securities settlement responsibilities. Such term also means any person, such as a securities depository, who (i) acts as a
custodian of securities in connection with a system for the central handling of securities whereby all securities of a particular class or series of any issuer deposited within the system are treated as fungible and may be transferred, loaned, or pledged by bookkeeping entry without physical delivery of securities certificates, or (ii) otherwise permits or facilitates the settlement of securities transactions or the hypothecation or lending of securities without physical delivery of securities certificates.”

(B) The term “clearing agency” does not include (i) any Federal Reserve bank, Federal home loan bank, or Federal land bank; (ii) any national securities exchange or registered securities association solely by reason of its providing facilities for comparison of data respecting the terms of settlement of securities transactions effected on such exchange or by means of any electronic system operated or controlled by such association; (iii) any bank, broker, dealer, building and loan, savings and loan, or homestead association, or cooperative bank if such bank, broker, dealer, association, or cooperative bank would be deemed to be a clearing agency solely by reason of functions performed by such institution as part of customary banking, brokerage, dealing, association, or cooperative banking activities, or solely by reason of acting on behalf of a clearing agency or a participant therein in connection with the furnishing by the clearing agency of services to its participants or the use of services of the clearing agency by its participants, unless the Commission, by rule, otherwise provides as necessary or appropriate to assure the prompt and accurate clearance and settlement of securities transactions or to prevent evasion of this chapter; (iv) any life insurance company, its registered separate accounts, or a subsidiary of such insurance company solely by reason of functions commonly performed by such entities in connection with variable annuity contracts or variable life policies issued by such insurance company or its separate accounts; (v) any registered open-end investment company or unit investment trust solely by reason of functions commonly performed by it in connection with shares in such registered open-end investment company or unit investment trust, or (vi) any person solely by reason of its performing functions described in paragraph (25)(E) of this subsection” [i.e., transfer agents].

“(25) The term “transfer agent” means any person who engages on behalf of an issuer of securities or on behalf of itself as an issuer of securities in (A) countersigning such securities upon issuance; (B) monitoring the issuance of such securities with a view to preventing unauthorized issuance, a function commonly performed by a person called a registrar; (C) registering the transfer of such securities; (D) exchanging or converting such securities; or (E) transferring record ownership of securities by bookkeeping entry without physical issuance of securities certificates. The term “transfer agent” does not include any insurance company or separate account which performs such
functions solely with respect to variable annuity contracts or variable life policies which it issues or
any registered clearing agency which performs such functions solely with respect to options
contracts which it issues.”
(26) Registered clearing agencies are SROs.
(34)(B) The regulatory landscape includes the OCC (for national banks); the FRB (for BHCs and
state member banks); the FDIC (for insured banks); the OTS (in the case of thrifts); and the SEC (for
all other clearing agencies and transfer agents).
(C) With respect to a participant or applicant in a clearing agency or a person requesting access to
services of a clearing agency, the regulatory jurisdiction is principally the same.

3. 15 U.S.C.A. § 78k-1
also available at http://codes.lp.findlaw.com/uscode/15/2B/78k-1
a) Congressional findings as to NMS:
(1) “(B) New data processing and communications techniques create the opportunity for more
efficient and effective market operations.”
(C) Public interest dictates the maintenance of fair and orderly markets to assure (i) economically
efficient execution of transactions; (ii) fair competition among brokers and dealers, and among
markets…
(D) “The linking of all markets for qualified securities through communication and data processing
facilities will foster efficiency, enhance competition, increase the information available to brokers,
dealers, and investors, facilitate the offsetting of investors' orders, and contribute to best execution of
such orders.”
Comment: Although the aforesaid provisions predominantly concern the NMS with respect to exchanges
and BD, C&S is also indirectly covered.
(c) “(5) No national securities exchange or registered securities association may limit or condition
the participation of any member in any registered clearing agency.”

The structure of securities regulation historically includes SRO rules. An exception was that when
the SEA was passed, the OTC market was not subject to similar internal ethical controls like those of
exchanges. The SEA imposed some registration and disclosure requirements on the OTC market
participants and was further amended in 1938 to cover ethical standards of associations of BD. In 1975, the
NMS amendments defined “SRO” in a new way and, inter alia, added registered clearing agencies to the
definition. The NMS was supposed to be supported by the national system of clearance and settlement. Thus, it “would then permit an investor anywhere in the United States to initiate and complete a securities transaction through a local broker-dealer of the investor's choosing, dealing on a regional exchange and clearing through a regional clearing agency.”

Congressional policies emphasized the need to link markets for qualified securities through more centralized communications and data processing for the purposes of increasing efficiency and competition, and facilitating the best execution of orders.

This is a snapshot of the policies targeting fair access to clearing. A clearing agency may deny participation to a person only under certain conditions, such as statutory disqualification, a pertaining order of the SEC, failure to meet preset standards of financial responsibility, operational capacity and competence. Also, certain “due process” provisions are included in the SEA (15 U.S.C.A. § 78q-1(b)(5)(B)).

4. 17 C.F.R. 240.17Ab2-1, Registration of Clearing Agencies:
(a) “An application for registration or for exemption from registration as a clearing agency, as defined in section 3(a)(23) of the Act, or an amendment to any such application shall be filed with the Commission on Form CA-1…”
(c)(1) The Commission may grant registration and exempt the agency from some requirements upon making a proper determination.
(d) The registration takes 90 days from the day of filing of an amendment to an application for registration or for exemption from registration.

5. 17 C.F.R. 240.17a-22, Supplemental material of registered clearing agencies:
“Within ten days after issuing, or making generally available, to its participants or to other entities with whom it has a significant relationship, such as pledgees, transfer agents [, etc., any material like notices or periodicals], a registered agency shall file three copies of such material with the Commission” or another appropriate regulatory agency.
Comment: It is a general information exchange provision.
**Case Law: Definition and Liability of Clearinghouses and Clearing Brokers**

   a. A clearing broker was sued for breach of a clearing agreement with a BD, violations of CT law and tort. District Court found that the clearing agreement was void and unenforceable under federal and state law and for public policy reasons; and that clearing broker’s cancellation of the agreement with the BD’s counterparties did not amount to violation of state law. [The court mentioned, inter alia, that “[c]learing, in the context of securities, consists of the comparison of the details of a transaction between brokers prior to settlement, and the final exchange of securities for cash on delivery.”].

   a. The case belongs to a series of decisions minimizing the liability of clearing brokers and CH. “[A] private cause of action against an exchange or a clearinghouse for failure to comply with one of its rules which requires an exercise of discretion, if one exists at all, may be brought only if it is premised upon allegations of fraud or bad faith.”

3. *Board of Trade of City of Chicago v. SEC*, 883 F.2d 525 (7th Cir.1989):
   a. The case involved a review of an SEC no-action letter and registration of Delta as clearing agency. The court found that the futures markets had standing to seek review of the registration order as they were within the “zone of interest” protected by the SEA provisions on registration of exchanges. The SEC should first determine whether the putative clearing agency was eligible to be registered and whether it would act as an exchange or an OTC trading facility. Also, the court described the functions of CH.
   b. “Clearing houses stand between the parties, guaranteeing obligations so that each party shucks the risk of the other's non-performance. Once parties agree on the terms of an option, the clearing house “issues” the option and acquires the delivery or payment obligation on the other side. Each party deals exclusively with the clearing house, which matches transactions and requires margin and guarantees to minimize its own risk.” Board of Trade of City of Chicago v. S.E.C. 883 F.2d 525, 527 (C.A.7,1989).
   c. Clearing houses may offer the benefit of anonymity to buyers and sellers. “Parties may seek anonymity because their identities (coupled with information about the size of their positions) may enable others to infer information that they want to keep confidential. “Blind brokers” specialize in matching buyers and sellers of securities without identifying them to each other.
Options, which are executory contracts on one side, cannot be sold in anonymity without a clearing house. The long on a call option needs assurance that the short will deliver, the short on a put option assurance that the long will pay; an anonymous promisor is not a satisfactory trading partner. Clearing houses can be “in the know” while the traders are in the dark, producing anonymous trades with assured performance.” Board of Trade of City of Chicago v. S.E.C. 883 F.2d 525, 527 (C.A.7,1989).

   a. It is an action against a clearing house for securities law fraud, violations of RICO, common-law fraud and violation of fiduciary duty law. The court found that CH did not have any duty of disclosure (for the purposes of the 10b-5 claim) towards the customers of another introducing broker. Similarly, confirmation notices did not qualify as misrepresentations or omissions.
   b. “A duty to disclose “arises when one party has information that the other [party] is entitled to know because of a fiduciary or other similar relation of trust and confidence between them.” Grandon v. Merrill, Lynch & Co., 147 F.3d 184, 189 (2d Cir.1998) (internal quotation marks omitted) (quoting Chiarella v. United States, 445 U.S. 222, 228, 100 S.Ct. 1108, 63 L.Ed.2d 348 (1980)). It has been consistently held that clearing brokers owe no duty of disclosure to customers of introducing brokers such as Baron. See Connolly, 763 F.Supp. at 10; Dillon v. Militano, 731 F.Supp. 634, 634 (S.D.N.Y.1990); In re Blech Secs. Litig., 928 F.Supp. 1279, 1295-96 (S.D.N.Y.1996) ( “Blech I” ).” Fezzani v. Bear, Stearns & Co., Inc. 384 F.Supp.2d 618, 640, 2004 WL 744594, 17 (S.D.N.Y.) (S.D.N.Y.,2004)."

   a. Contrary to the previous cases, the court in McDaniel upheld a $1 million punitive damages award of an arbitration panel against a clearing firm.

   a. This is an order denying plaintiff’s motion to remand and dismissing the negligence action against DTCC and its subsidiaries, DTC and NSCC.
   b. The gravamen of the complaint was that DTCC and its subsidiaries, DTC and NSCC, failed to monitor their Stock Borrow Program (SBP). As a result, sellers engaged in naked short selling. “Such sales occur when sellers sell shares they neither own nor control knowing that NSCC will borrow shares to cover the shortfall.” Id. at 3. Given that trading in Cybercare, Inc., shares
was volatile and demand for the shares increased, the number of short positions also went up. “The naked short selling flooded the market with borrowed CYBR shares, hence depressing their value.” Id.

c. The major issue was whether the SBP helps creating “counterfeit shares”.

d. The court briefly analyzed the structure of DTC and NSCC, the history of federal preemption of securities law in the area of C&S, the Congressional intent in creating the National Market System with supporting C&S, and the fact that all NSCC rules are approved by the SEC. In particular, it mentioned that “[c]laims that a federally regulated financial institution has violated its own rules are routinely held to invoke a substantial federal interest, however. See Sparta Surgical Corp. v. NASD, Inc., 159 F.3d 1209, 1212 (9th Cir.1998) (claim that NASD imposed discipline violated state common laws necessarily required examination of NASD rules and therefore “arose under” federal law); Whitehall Wellington Investments, Inc. v. NASD, Inc., No. 00-3899, CIV-MIDDLEBROOKS, 2000 WL 1846129, at *3-4 (S.D.Fla. Dec.7, 2000).” Id. at 8.

e. The court applied the theories field preemption, substantial federal interest and conflicts preemption and concluded that federal law preempts the negligence claim.


i. Nanopierce and its shareholders brought securities fraud action against DTCC and its subsidiaries. The Second Judicial District Court dismissed the action and the plaintiffs appealed. The issue was whether Section 17A of the SEA preempted state law claims for damages.

ii. The complaints alleged several misrepresentation-based claims and non-misrepresentation based claims with respect to the NSCC’s Stock Borrow Program facilitating broker-to-broker securities transactions.

1. The appellants asserted, e.g., that NSCC’s rules falsely represented that “it complies with a buying broker's notification to cure a selling broker's failure to deliver shares by purchasing them in the open market. (National Securities Clearing Corp., 46 Fed.Reg. 41,892 (Aug. 18, 1981).) That representation is false, appellants contend, because the NSCC actually executes those buying broker requests through the Stock Borrow Program, not the open market.” Id. at 83. Based on the Nevada law, the appellants claimed that the Program created securities entitlements in brokers and “that respondents falsely represented, in
the NSCC’s rules and procedures manual, that the Stock Borrow Program satisfies delivery obligations by *borrowing* shares, since in reality those transactions constitute *sales*” Id. Also, the complaint asserted that, since a selling broker’s commitment to deliver remained unfulfilled for prolonged periods of time, it produced negative market effects and the defendants did not clear and settle trades promptly and efficiently as they claimed.

2. The non-misrepresentation claims concerned unfair trade practices, market manipulation (namely, because of resorting to the SBP instead of purchasing in the open market, “respondents conceal the demand for the stock” and “the market is misled,” id. at 84-85), conversion (”[b]ecause the Stock Borrow Program creates securities entitlements [not borrowing] when Nanopierce shares are loaned, appellants contend, an actual sale is taking place and unauthorized, wrongful dominion is exercised over those shares,” id. at 85), international interference with contractual relations, breach of the implied covenant of good faith and fair dealing (by the DTC, which held shares in its vault in the name of CEDE and did not act in good faith by placing the shares in the SBP) and conspiracy.

iii. The court affirmed the district court’s order dismissing the complaint based on the federal preemption doctrine. Specifically, it was found that state law posed an obstacle “to respondents' accomplishment of congressional objectives as explicitly stated in and gleaned from the Securities Exchange Act's framework, and because respondents' compliance with both state and federal requirements concerning the securities transactions at issue in this case is impossible, section 17A of the Securities Exchange Act preempts appellants' claims.” Id. at 76-77. Finally, the court highlighted that “imposing the requirements implicated by appellants' state law claims, which they primarily base on allegations that respondents conceal flaws in a Commission-approved national system for clearing and settling securities transactions, frustrates Congress's objectives with respect to the clearing and settling regulatory scheme and renders adherence to both that regulatory scheme and state law impossible. Federal law thus preempts appellants' claims.” Id. at 85.

iv. Notably, the court described in detail the SBP and the role of NSCC and DTC as SROs, which “thus stand in the Commission’s shoes when performing their functions.” Id. at 77. In addition, the court provided a step-by-step description of the DTC and
NSCC transactions. In particular, it mentioned that if a selling broker fails to deliver the agreed upon amount of securities, there are several options for covering unfilled obligations, including purchase in the open market, waiting with the settlement, and the SBP, which was implemented “to reduce the instances of a buying broker failing to receive the shares owed to him” (Id. at 78).


   a. It is an action for compensatory damages, punitive damages, and injunctive relief. The plaintiff claims violations of antitrust law, false advertising, and state-law claims. The DTCC filed a motion to dismiss, denied in all respects besides the false advertising claim.

   b. It is among a few antitrust cases against DTCC.

   c. In brief, the plaintiff was a financial intermediary between dealers and dealer banks, brokering corporate bonds and US Government securities. Chapdelaine developed the software-based Fail Management System tracking and confirming failed fixed-income securities trades, including MBS. DTCC, in turn, also offered automated trade comparison and NSCC had the Reconfirmation and Pricing Service System processing failed securities trades. In February 2005, the parties began negotiating regarding licensing the Fail Management System to DTCC and entered into a pertinent non-disclosure agreement. Chapdelaine terminated negotiations. Thereafter, DTCC made an announcement regarding developing its own similar software system. The plaintiff argued that it was done in violation of the non-disclosure agreement and that it “caused potential Fail Management System licensees to cease negotiations with Chapdelaine.” Id. at 2. According to Chapdelaine, the “announcement was false and issued for the purpose of discouraging potential licensees from negotiating or entering into agreements with Chapdelaine.” Id.

   d. The court analyzed the application of the Sherman Antitrust Act (the plaintiff must establish the possession of monopoly power and the willful acquisition or maintenance of that power, as well as anticompetitive conduct, id. at 3) and Lanham Act (regarding false advertising). It was found that the plaintiff had satisfied the foregoing two-prong test (“As a result of Depository's alleged conduct, Chapdelaine has been effectively foreclosed from competing in the relevant market, thus decreasing the number of alternatives available to consumers of such products. In the process, Depository has or is likely to artificially inflate prices and force customers to accept inferior technology. Thus, Chapdelaine has alleged harm to competition as a whole as well as adverse effects on price, quality, and output of the relevant service” Id. at 4.) and had
legal standing to file an antitrust claim. Dismissing the DTCC’s motion, the court mentioned the following:

i. “Depository intentionally foreclosed Chapdelaine from entering into prospective business relationships. Consequently, Chapdelaine was precluded from competing in the market for clearing services in mortgage-backed securities.” Id. at 5.


a. A stock transfer agent brought an action against DTC for violations of antitrust laws, exclusion of the agent from the FAST Program and tortuous interference with the agent’s economic relationships with customers. The defendant moved to dismiss the complaint. The court found, first, that DTC did not directly compete with transfer agents. Hence, the plaintiff could not state a monopolization claim. Secondly, whether a tortious interference claim can be proven should be examined in discovery and the plaintiff sufficiently alleged this claim.

b. In a nutshell, the facts were as follows. The plaintiff, a transfer agent, asserted “that DTC enjoy[ed] a monopoly over the entire securities depository industry, as demonstrated by the fact that DTC is the stock custodian for some 2.5 million issuers, valued at more than $28 trillion.” The plaintiff applied for participation in the FAST Program in order to participate in DTC's Direct Registration System (“DRS”). “Under DRS, individual investors have the ability to establish a direct book entry position with the issuer, either through the issuer's transfer agent or the investor's broker, without having to hold a physical certificate.” After his application had been rejected, the plaintiff increased the fees he charged DTC. Thereafter, DTC contacted several of his clients complaining about the fees and suggested that they should consider changing the transfer agent.

c. The complaint stated seven causes of action: “claims for actual and attempted monopolization pursuant to Section 2 of the Sherman Act (plaintiff's First and Second Causes of Action), attempted monopolization pursuant to Section 1 of the Sherman Act (Third Cause of Action), companion claims pursuant to New Jersey antitrust statutes (Fourth, Fifth, and Sixth Causes of Action), and a common law claim for tortious interference with prospective economic advantage (Seventh Cause of Action).”

d. The first six were dismissed. The court analyzed several similar cases. “The Second Circuit has explained that “it is axiomatic that a firm cannot monopolize a market in which it does not compete” and that there can be no “dangerous probability” of monopolization—a necessary element of an attempted monopoly claim—where the defendants “do not even compete in that
[the relevant] market and there is no indication that they ever sought to do so.” *Discon, Inc. v. NYNEX Corp.*, 93 F.3d 1055, 1062 (2d Cir.1996), rev'd on other grounds, 525 U.S. 128, 119 S.Ct. 493, 142 L.Ed.2d 510 (1998).” Also, a “claim of monopoly leveraging requires that “defendant (1) possessed monopoly power in one market; (2) used that power to create a dangerous probability of monopolizing another market; and (3) caused injury by such anticompetitive conduct.” *A.I.B. Express, Inc. v. FedEx Corp.*, 358 F.Supp.2d 239, 246-47 (S.D.N.Y.2004).”

e. Similarly, the essential facility doctrine (and DTC is an essential facility of the securities market) was found inapplicable on the same grounds. *Interface Group, Inc. v. Massachusetts Port. Auth.*, 816 F.2d 9, 12 (1st Cir.1987) (“The [essential facility] doctrine aims to prevent a firm with monopoly power from extending that power from one stage of production into another and from one market to another.... But it is difficult to see how denying a facility to one who, like [plaintiff], is not an actual or potential competitor [of the defendant] could enhance or reinforce the monopolist's market power.”)

f. Finally, it was held that the “plaintiff's legal theories for monopolization and attempted monopolization are fundamentally flawed because the complaint fails to allege that DTC competes in the relevant market.”


a. Pet Quarters, Inc., brought an action in state court against DTCC and its subsidiaries. The gravamen was that the Stock Borrow Program operated by NSCC created “phantom shares” and drove down market price for the plaintiff’s shares putting it out of business. The complaint asserted 16 state law claims, including market manipulation, illegal tying, conversion, conspiracy, misrepresentations, etc. The district court found that amending the complaint would be futile, dismissed it with prejudice and concluded that the claims presented substantial federal questions. Some claims against the SPB, approved by the SEC were also dismissed based on federal preemption. The Court of Appeals affirmed, holding that federal law preempted the state law claims.

b. Similarly to the court in *Nanopierce Technologies [discussed supra]*, the court in *Pet Quarters* described the development of the NMS, Congressional intent expressed through the enactment of Section 17A, the particulars of C&S through NSCC and DTC, and the definitions of short selling.

i. “NSCC provides centralized clearance, settlement, and information services for virtually all securities transactions in the United States. When a security's ownership
changes hands, NSCC acts as the intermediary between buyer and seller. It verifies the transaction information and assumes the rights and obligations of buyers and sellers to receive, pay for, and deliver securities. NSCC Rules & Procedures, Rule 11 §§ 1(b)-(c),(e), Procedure VII(A).” Id. at 776-777

ii. If a selling member does not hold enough shares on the settlement date in its DTC account, an FTD may follow. The problems may be caused by technical errors and uncovered naked short sales.

iii. “Short sales can be interpreted by investors as an indication that the share price of a stock will decline, and in some cases may actually cause the decline.” Id. at 776.

iv. “In a “covered short sale,” the seller offers to sell a security he does not own but arranges to borrow the security from a broker to meet his potential delivery obligation.” Id. at 777.

v. “In a naked short sale, however, the seller offers to sell a security which he does not own and has not arranged to borrow. In some cases the seller will not deliver the security by the settlement date; this failure to deliver leaves the seller with an open position.” Id.

vi. In 1981, NSCC established the automated Stock Borrow Program to cover FTDs. Members notify NSCC daily which securities they have for the Program. The Program borrows shares automatically and covers the sale without notifying the buyer. Loaning members’ accounts restrict the borrowed shares, which cannot be resold. If there are not enough shares, the buyer may wait for the seller to cure the default; resort to NSCC; or purchase shares on the open market and charge the seller for the any price difference.

c. “In short, all of the damages that Pet Quarters claims to have suffered stem from activities performed or statements made by the defendants in conformity with the program's Commission approved rules. A favorable ruling on any of them would conflict with the Commission's control of the national securities clearing and settlement system and pose an obstacle to the congressional objectives in Section 17A. We conclude that the district court did not err in dismissing the complaint on the basis of preemption.” Id. at 780.

11. See also Pet Quarters, Inc., et al., v. Depository Trust and Clearing Corporation, et al., 545 F.Supp.2d 845 (2008) (“Complying with both the SEC-approved SBP and Arkansas law, assuming Pet Quarters prevailed, would present Depository Trust with an impossibility and would completely frustrate Congress's intent to have one uniform system of settling and clearing security transactions.
Therefore, Pet Quarters’ suit is preempted by federal conflict preemption.” Id. at 853.

   a. Whistler and its shareholders filed an action against DTCC and its subsidiaries under Nevada law asserting that the Stock Borrow Program facilitated naked short selling and thereby drove down market price for the stock. The District Court dismissed the complaint. The Court of Appeals affirmed, holding that on the basis of the doctrine of conflict preemption, misrepresentation claims, challenges to the SBP, market manipulation claims, intentional interference with contractual relations, breach of implied covenant of good faith and fair dealing, conspiracy claim, unfair trade practices claim, and conversion claims were all federally preempted.
   b. Interestingly, the court found that “an examination of the statutory framework of the Exchange Act does not reveal the comprehensiveness necessary to infer that Congress intended to wholly occupy even the narrower field of clearing and settling securities transactions to the exclusion of state law.” Id. at 1164. “With respect to the narrower field of clearing and settling securities transactions, a provision within Section 17A and a subsequent amendment indicate that Congress did not intend to wholly occupy that legislative field either.” Id. at 1165. By contrast, the claims are preempted as “they would conflict with congressional directive, as set forth under Section 17A.” Id. “Congress enacted Section 17A precisely for the purpose of replacing an inefficient and outmoded system of clearing agencies with a more modern and efficient system. See 15 U.S.C. § 78q-1(a)(1). However, Congress did not impose any specific standards of efficiency and instead relied on the Commission to regulate the clearing agencies, see id., which is precisely what the Commission did in approving NSCC’s rules and procedures governing the Stock Borrow Program.” Id. at 1167.

   a. The case has little to do with C&S per se. Yet it emphasizes the importance of NSCC for the existence of orderly financial markets.
   b. The plaintiffs filed an action against Morgan Stanley & Co. Incorporated, The Goldman Sachs Group, and many other financial institutions for violations of the SEA, Sections 9, 10, 18, and 20, Rule 10b-5, conspiracy, and common law fraud. On July 2, 2010, the court found that plaintiffs failed to adequately allege any actionable claims and the defendants’ motion to dismiss the complaint was granted.
   c. In particular, the plaintiffs claimed that defendants engaged market price manipulations and “a
massive, illegal stock manipulation scheme,” including naked short selling.
d. The court cited an SEC release regarding Regulation SHO, where the Commission rejected the notion that naked short sales create “phantom” shares:
   i. “Some believe that naked short sale transactions cause the number of shares trading to exceed the number of shares outstanding, which in turn allows broker-dealers to trade shares that don't exist. Others believe that the U.S. clearance and settlement system, and specifically the National Securities Clearing Corporation's (“NSCC”) Continuous Net Settlement System (“CNS”), produces “phantom” or “counterfeit” securities by accounting for fails to deliver. Naked short selling has no effect on an issuer's total shares outstanding. There is significant confusion relating to the fact that the aggregate number of positions reflected in customer accounts at broker-dealers may in fact be greater than the number of securities issued and outstanding. This is due in part to the fact that securities intermediaries, such as brokerdealers and banks, credit customer accounts prior to delivery of the securities. For most securities trading in the U.S. market, delivery subsequently occurs as expected. However, fails to deliver can occur for a variety of legitimate reasons, and flexibility is necessary in order to ensure an orderly market and to facilitate liquidity. Regulation SHO is intended to address the limited situations where fails are a potential problem (for example, fails in securities on a threshold list).” Id. at 4-5.

   a. Apache sued a retail investor seeking to exclude his proposal from proxy materials to be distributed prior to an annual shareholder meeting. The materials failed to show stock ownership and the plaintiff’s motion was granted.
   b. Although the case did not directly concern the rights and programs of the DTCC and its subsidiaries, the court had a long and detailed discussion on the proof of securities ownership, the dematerialization of certificates, the 1975 reforms and creation of the national system for C&S, establishment of NSCC and DTC, their respective functions with respect to, e.g., changing the ownership records, etc.
      i. “The company's records, however, reflect that these securities are owned in street name, under the DTC's “nominee name” of Cede & Company. Delaware, 507 U.S. at 495, 113 S.Ct. 1550; In re Color Tile Inc., 475 F.3d 508, 511 (3d Cir.2007). Neither the company nor the DTC records the identity of the beneficial owner of the shares unless that owner is registered as such. Cede & Co. is the shareholder of record for a
substantial majority of the outstanding shares of all publicly traded companies. See *In re FleetBoston Financial Corp. Securities Litigation*, 253 F.R.D. 315, 345 n. 32 (D.N.J.2008) (quotations omitted).” Id. at 726.

ii. The court described the system of clearing and introducing brokers. Namely, there is always an intermediary between DTC and a retail investor. Participating brokers sell/buy securities to/from DTC. If a retail investor is a client of the participating broker, the chain of the intermediaries is shorter. Often, there is an introducing broker as well.

iii. “One important part of this system is the Non-Objecting Beneficial Shareholders (‘NOBO’) list. When a company's shares are held in street name, S.E.C. rules require the DTC to provide the company, upon request, with a list of participants that hold its stock. Once the company has this DTC participant list, called a “Cede breakdown,” it asks the participating banks and brokers on it to submit the names of beneficial owners to the company. This second list is the NOBO list. This is typically done through a centralized intermediary, Broadridge Financial Solutions, Inc., which compiles the NOBO list. Beneficial owners may exclude themselves from this list by objecting, which is why the list includes only “Non-Objecting” shareholders. The NOBO list includes the name, address, and ownership position of each nonobjecting beneficial owner. The NOBO list is used to communicate with shareholders, primarily to distribute proxy materials. See 17 C.F.R. § 240.14b-1; *Sadler v. NCR Corp.*, 928 F.2d 48, 50 (2d Cir.1991) Approximately 75% of beneficial owners object to disclosing their information to the company. But while the majority of institutional shareholders object to the disclosure, according to one report, an estimated 75% of individual shareholders do not object to inclusion on the list. Nonetheless, the company will never discover the identity of many of its beneficial owners. The company must communicate with those shareholders through Broadridge and the intermediary financial institutions.” Id. at 727.


   a. It was a state law claim seeking a TRO against defendants regarding purchases of stocks by defendants pending determination of the plaintiffs’ motion for a preliminary injunction. Plaintiffs made a tender offer for 42% of Newmont’s shares. The claim asserted breach of fiduciary duties and is as such irrelevant for the discussion on C&S.

   b. However, an interesting aspect is that NSCC filed an affidavit in this case. The affidavit illustrated that enjoining the transactions in the amount of $1.6 billion of trades could result in
massive disruptions of the securities market. First Boston, as a broker “will be disabled from making payment to the NSCC. The NSCC’s function is to match, in every stock trade, the buyer's payment to the seller's delivered stock. In order to assure the liquidity and reliability of the market, the NSCC in effect becomes both the buyer and the seller in all not-yet-consummated trades. It does so by ‘netting’ the amount owed not only for a particular stock, but also for all stocks traded on the Exchange. (Payments are not matched to specific stocks but rather to the brokers' net position in all securities traded by them.) Should all the sellers of Newmont stock deliver their Newmont stock to the NSCC, and should First Boston not make payment against those deliveries, the NSCC would likely be unable to pay the sellers, thereby defaulting on the trades. As a consequence of the $1.6 billion shortfall, NSCC would be unable to pay numerous brokers, including brokers that were not even involved in the Newmont stock trades.” Id. at 676-678. NSCC also emphasized the importance of prompt payments and the reliance of brokerages on the promptness of settlement. Serious defaults could deplete brokers’ capital and jeopardize their compliance with the net capital rules of the exchanges.

16. Brokers [to be reviewed later]:

a. Definitions and categories (clearing and introducing):
   v. 7 U.S.C.A. § 1a(14) (“introducing broker” under the commodities laws)

b. Liability of clearing brokers/houses (vis-a-vis introducing brokers)
iii. Edwards & Hanly v. Wells Fargo Securities, Inc., 602 F.2d 478 (2d Cir. 1979)

xi. Ross v. Bolton, 904 F.2d 819 (2d Cir.1990)


xxii. A.I.A. Holdings, S.A. v. Lehman Bros., Inc., 2002 WL 88226 (S.D.N.Y.2002) ("a clearing broker is not always immune from suit and in some circumstances, a clearing broker may be liable to investors").


could be held liable under Kans. Stat. Ann. § 17-1268(b)).

c. **Clearer Skies for Investors: Clearing Firm Liability Under the Uniform Securities Act**, 39 SAN DIEGO L.REV. 1327 (2002) (“Clearing firms that continue to extend credit, or fail to report introducing firms after becoming aware that they are not satisfying their net capital requirements legitimately, help those firms stay in business in violation of securities laws. The introducing firms are then able to perpetrate more violations. By keeping the introducing firm in business, the clearing firm is attempting to salvage its own financial position relative to the introducing firms at the expense of the broker's customers.”).

### Regulatory and Statutory Reforms


1. In 2004, the SEC considered new rules on completion of the confirmation and affirmation process on the trade date ("T+0") when a broker-dealer provides delivery-versus-payment or receive-versus-payment privileges to a customer; settlement cycle shorter than three days ("T+3"); and the use of physical/certificated securities.

2. In enacting the 1975 SEA Amendments and Section 17A, Congress outlined a number of findings that serve as the objectives for the SEC regulations of C&S:

   a. (1) Prompt and accurate clearance and settlement of securities transactions, including the transfer of record ownership and the safeguarding of securities and funds related thereto, are necessary for the protection of investors and persons facilitating transactions by and acting on behalf of investors. (2) Inefficient procedures for clearance and settlement impose unnecessary costs on investors and persons facilitating transactions by and acting on behalf of investors. (3) New data processing and communications techniques create the opportunity for more efficient, effective, and safe procedures for clearance and settlement. The linking of all clearance and settlement facilities and the development of uniform standards and procedures for clearance and settlement will reduce unnecessary costs and increase the protection of investors.

3. The industry associations and the SIA identified 10 principles for improving the speed and safety of settlement. Those were designed to modify internal processes at broker-dealers and custodians to
ensure compliance; comply with accelerated deadlines; amend the National Securities Clearing Corporation's ("NSCC") trade guarantee process; “report trades to clearing corporations in locked-in format and revise clearing corporations' output; rewrite Continuous Net Settlement processes at NSCC [thus enhancing the speed and efficiency]; reduce reliance on checks and use alternative means of payment, such as automatic debits allowed by the National Automated Clearing House Association; immobilize securities shares prior to conducting transactions; revise the prospectus delivery rules and procedures for initial public offerings; develop industry matching utilities and linkages for all asset classes; standardize reference data and move to standardized industry protocols for broker-dealers, asset managers, and custodians.”


5. Confirmation/Affirmation Process

i. Under SRO confirmation rules, a broker-dealer uses the facilities of a registered clearing agency, an exempted entity, or a qualified vendor when the broker-dealer allows a customer to pay for the trade when the broker-dealer delivers the securities or cash to the customer. These are receive-versus-payment ("RVP") or delivery-versus-payment ("DVP") privileges, usually provided to institutional customers. Customers, by agreement, have to promptly affirm trades. After the execution, "notice of execution" is given to a customer. If the broker correctly allocates the trade, the customer affirms it. The entity offering confirmation/affirmation services is the Global Joint Venture Matching Services - US, LLC (known as "Omgeo"). (Global Joint Venture Matching Services - US, LLC; Order Granting Exemption from Registration as a Clearing Agency, SECURITIES AND EXCHANGE COMMISSION, (Release No. 34-44188; File No. 600-32), April 17, 2001, available at http://www.sec.gov/rules/sro/34-44188.htm ). Omgeo submits a delivery order to DTC for settlement. The confirmation is on T +0 or T+1. About 11% of trades are not affirmed through Omgeo.

6. Securities Settlement Risks:

a. The length of time for C&S is a major risk factor. In 1993, FBR found that “settlement systems for securities and other financial instruments were a potential source of systemic
disturbance to financial markets and to the economy.” Shortening the cycle decreases the credit risk, market risk, the risks of default and insolvency between execution and settlement.

b. According to IOSCO, presettlement risk is "[t]he risk that a counterparty to a transaction for completion at a future date will default before final settlement. The resulting exposure is the cost of replacing the original transaction at current market prices and is also known as replacement cost risk."

c. The substantial risk addressed by C&S is systemic risk.

d. The 1993 Rule on the T+3 settlement cycle was a success. Yet the market volume substantially increased in the 1990s, tighter cross-border and cross-market linkages were formed; and certain events may cause regional disruptions. Hence, further reforms are needed.

Comment: On 2 February 2010, the Committee on Payment and Settlement Systems (CPSS) and the Technical Committee of the International Organization of Securities Commissions (IOSCO) have launched a comprehensive review of their standards for financial market infrastructures, including payment systems, securities settlement systems and central counterparties. (see http://www.bis.org/press/p100202.htm)

7. Offerings:

a. In a firm commitment underwriting, Rule 15c6-1 provides a T+4 settlement cycle, if securities are priced after 4:30 p.m. Eastern time, in which case an issuer can comply with Section 5 prospectus delivery requirements.

b. Under Rule 10b-10, a broker-dealer must give its customers a written confirmation of a purchase or sale of securities at or before the completion of a transaction. Typically, a Section 10 prospectus should be sent prior to or at the same time with the confirmation.

c. In theory, if the SEC adopts a significantly shorter settlement cycle, it may endanger accurate completion of due diligence and prospectus delivery requirements.

8. Specific Risks of Settlement:

a. In a defaulting party's transaction, pre-settlement risk can be aggravated by changes in the value of the securities sold. The resulting credit risk may lead to systemic problems, particularly evident during market declines, such as the 1987 Market Break, Monday, October 27, 1997, etc. Traders can default on delivery obligations and margin calls.
b. Longer settlement may exacerbate a number of problems. Shortening the settlement cycle, e.g., reduces replacement cost risk.

c. Settlement risk is the risk that settlement in “a transfer system will not take place as expected. This risk may comprise both credit and liquidity risk.” It is also called the principal risk of loss of securities; the buyer and seller are both exposed to it.

d. The liquidity risk on the settlement date includes the risk that the seller/buyer of a security who does not receive payment/delivery may have to borrow security or liquidate assets to complete other payment/delivery obligations. The risk depends on market liquidity and can create systemic disruptions and cause concerns about solvency of market participants. “The fear of losing the full principal value of securities or funds could induce some participants to withhold deliveries and payments, which, in turn, may prevent other participants from meeting their obligations.” Similar to the 1993 reform, further shortening of the settlement cycle would synchronize the settlement of corporate and derivative securities and produce liquidity benefits.

e. Operational risks according to IOSCO “is the risk that deficiencies in information systems or internal controls, human errors, or management failures will result in unexpected losses. As clearing and settlement systems become increasingly more dependent on information systems, the reliability of these systems is a key element in operational risk. The importance of operational risk lies in its capacity to impede the effectiveness of measures adopted to address other risks in the settlement process and to cause participants to incur unforeseen losses, which, if sizeable, could have systemic risk implications." Operational problems may result in the system’s inability to complete settlement, liquidity pressures, and an increase in credit exposure. Catastrophes like the events of 9.11.2001 may affect the markets and call for a resilient C&S system.

9. The Concept Release pays particular attention to immobilization and dematerialization of securities certificates.

a. It gives a short history of paper certificated securities and problems related to their processing. Since the paperwork crisis and the 1970s, the SEC has been working on removing securities certificates from the C&S system. Congress mandated the Commission "to end the physical movement of securities certificates in connection with the settlement among brokers and dealers of transactions in securities" and to establish a system “for reporting missing, lost, counterfeit, and stolen securities.” The SEC approved the DTC's registration as a clearing agency and depository. The SEC also approved rules requiring


DTC is one of the largest depositories in the world. It provides book-entry depository and settlement services for equities, corporate debt, municipal securities, money market instruments, ADRs, and ETFs between broker-dealers and between broker-dealers and their institutional customers. Many of the issues deposited are fully dematerialized.

c. During the 1990s, there were a number of studies on C&S and dematerialization of securities. The 1992 Bachmann Report also advocated dematerialization in light of the need for faster C&S. In 1990, the SEC held a roundtable on C&S. “In 1992, the Securities Transfer Association, the Corporate Transfer Agents Association, the Securities Industry Committee of the American Society of Corporate Secretaries, and DTC formed an ad hoc committee to further develop the concept of direct registration, modeling it after the systems used by transfer agents in their administration of issuers' dividend reinvestment and stock purchase programs.” Finally, the Direct Registration System ("DRS") operated by DTC was established (For an overview, see http://www.dtcc.com/products/asset/services/registration.php . See also Securities Exchange Act Release Nos: 37931 (November 7, 1996), 61 FR 58600 (November 15, 1996), [File No. SR-DTC-96-15] (order granting approval to establish DRS); 41862 (September 10, 1999), 64 FR 51162 (September 21, 1999), [File No. SR-DTC-99-16] (approving implementation of the Profile Modification System); 42704 (April 19, 2000), 65 FR 24242 (April 25, 2000),
[File No. SR-00-04] (order approving changes to the Profile Modification System); 43586 (November 17, 2000), 65 FR 70745 November 27, 2000), [File No. SR-00-09] (order approving the Profile Surety Program in DRS); 44696 (August 14, 2001), 66 FR 43939 (August 21, 2001), [File No. SR-DTC-2001-07] (order approving movement of DRS issues into the Profile Modification System and the establishment of the "S" position as the default in DRS); on the methods of holding securities see http://www.sec.gov/investor/pubs/holdsec.htm

10. The Concept Release also discusses the CPSS/IOSCO and G30 Recommendations in great detail (See Section VI, infra).


1. The Release considers new trends in the management and corporate structure of SROs, including their demutualization. Among the functions of most SROs is operating and regulating markets or clearing services. An important source of revenue for SROs is fees associated with members' or others' use of their systems (including order routing systems, trade execution systems, and electronic connectivity services) and fees paid by users for services, such as clearing transactions. The SEC found that about a third of revenues resulted from transaction and service fees.


1. The government seeks oversight of systemically important payment and C&S systems and activities of financial firms. The proposals grant the Federal Reserve the pertinent authority and suggest that the Fed have authority to provide systemically important payment and C&S systems access to Reserve Bank accounts, services and discount window. [Comment: See the discussed infra Payment, Clearing, and Settlement Supervision Act of 2009. See also the new Wall Street Reform and Consumer Protection Act, Jul. 21, 2010, discussed infra]

The SEC Initiatives in 2009-2010

   a. The June 2009 Department of Treasury White Paper called on the SEC and the CFTC to make recommendations to Congress regarding harmonization of regulation of futures and securities, and identification of necessary differences in light of “investor protection, market
integrity, and price transparency or makes recommendations for changes to statutes and regulations that would eliminate the differences.”

b. The Commissions organized joint meetings on harmonization, including one on clearance and settlement.


d. Since the 2008 crisis, the SEC has been monitoring surges in trading volumes, and hence C&S, experienced by clearing agencies. The conclusion was that the market responded successfully. The SEC reminded officials at the markets and clearing agencies about the need to develop new capacity ceilings.


f. The Automation Review Program (“ARP”) monitors IT systems operated by the exchanges, some high-volume alternative trading systems, and clearing agencies with the purpose to verify that they have sufficient capacity to accommodate increased trading volumes. Annual risk assessments are performed. The program also monitors the automated systems of American and foreign clearing corporations serving as counterparties for credit default swaps.

g. Important Rule Approvals:

i. On July 31, 2009, the Commission voted for permanent Rule 204T (determining when firms that clear and settle trades must deliver securities to a registered clearing agency for clearance and settlement on a long or short sale; Securities Exchange Release No. 34-60388; File No. S7-30-08, available at http://www.sec.gov/rules/final/2009/34-60388.pdf);


2. Compliance with the Department of Treasury regulations:


   a. The Report analyzed a number of issues related to C&S, including, in particular, the problems concerning interlinked national market and common clearing as opposed to separate markets and exchange-directed clearing, which exists in the derivatives markets.

   b. Overall, the Report analyzes the statutory structure for the CFTC and the SEC in the following areas: “(i) product listing and approval; (ii) exchange/clearinghouse rule changes; (iii) risk-based portfolio margining and bankruptcy/insolvency regimes; (iv) linked national market and common clearing versus separate markets and exchange-directed clearing; (v) price manipulation and insider trading; (vi) customer protection standards applicable to
financial advisers; (vii) regulatory compliance by dual registrants; and (viii) cross-border regulatory matters.”

c. The Commissions highlighted the differences between the SEC rules-based approach and the principles-based approach to exchanges and clearinghouses applied by the CFTC under the Commodity Futures Modernization Act of 2000 and rule filings based on self-certification procedures. Only the core principles for clearinghouses are established by the Statutes. To set aside a self-certified rule, the CFTC should determine that it violates the CEA. Under the Securities Exchange Act, many rule changes are not effective upon filing and have to be approved by the SEC.

d. Clearing Structure:

i. There are two different C&S models for the securities and derivatives markets. Fungible securities are traded within the NMS. Clearing is done through one central clearinghouse for each product. In the futures markets, individual contracts are directed for clearing by an exchange where they are listed and traded.

ii. The “exchange-directed clearing” in the futures markets contrasts with “common clearing” in the securities markets. Depository Trust and Clearing Corporation (“DTCC”) clears all equity securities transactions and OCC clears security options transactions.

iii. There is often either vertical or horizontal integration. In the first case, both the exchange and the clearinghouse (“CH”) have common ownership. Futures are not fungible across markets and CHs, by contrast with the options markets which use a common CH.

e. The SEC:

i. The Exchange Act provides for NMS for both trading and C&S of securities, because of market interconnectedness and the impact of clearing regulations on competition. The SEC requires cleared securities be fungible. A fair access to clearing should be provided by a CCP. In the process of enacting the 1975 Amendments to the SEA, Congress highlighted that “[t]he linking of all clearance and settlement facilities and the development of uniform standards and procedures for clearance and settlement will reduce unnecessary costs and increase the protection of investors.” (Securities Exchange Act Section 17A(a)(1)(D), 15 U.S.C. 78q-1(a)(1)(D).)

ii. Originally, each exchange cleared trades through an associated clearing agency. Clearing agencies were linked in compliance with the national system mandated by
the 1975 Amendments. With time, separate CH gave way to a common clearing agency for equity and fixed income securities transactions. In the options markets, a central clearing organization issuing and clearing standardized options was approved in 1974 (Securities Exchange Act Release No. 11146 (December 19, 1974)).


iv. The regulations deem the provisions assuring product fungibility and fair access to clearing as the underpinnings of competition in trading. “They enable market participants to establish a position at one trading venue and liquidate the position at another trading venue, yet still clear and settle the transactions through a centralized system just as efficiently as if they had traded at a single trading venue.”

f. The CFTC:

i. Under the CEA, exchanges and CH are governed by the core principles and are subject to the oversight by the CFTC. Exchanges are responsible for maintaining the fairness and financial integrity of trading in listed contracts. A “board of trade shall establish and enforce rules providing for the financial integrity of any contracts traded on the contract market (including the clearance and settlement of the transactions with a derivatives clearing organization).” (CEA Section 5(d)(11), 7 U.S.C. § 7(d)(11).). Exchanges select one or several CH that clear and settle the contracts that they list. This is “exchange-directed clearing.” Such CH are either vertically integrated or third party entities.
g. Relevant Conclusions:

i. The SEC and the CFTC do not recommend specific market linkages and clearing models. Instead, they support non-discriminatory access to CH for OTC derivatives.

ii. Most panelists argued that NMS improved competition among trading venues; to achieve that, products must be fungible; futures exchanges should enjoy the rents from fungible products to preserve the incentives for innovation; competition could be enhanced through clearing trades at a single CH regardless of their execution.

iii. The CFTC authority over exchange and CH compliance with the CEA should be enhanced. The CEA should be amended accordingly. More opportunity to comment on the CH rules should be given prior to the approval.

iv. The CFTC conflict of interest prevention authority needs to be expanded to build firewalls within firms performing analysis of commodity prices and involved in clearing and trading.

v. Convergence in overarching rules on CH overseen by the Commissions should be more precise than the principles provided by the CEA.

vi. Margin rules should be amended. Margin calculations methods should be approved by the SEC. "Currently, the only approved theoretical pricing model is the Options Clearing Corporation’s (“OCC”) Theoretical Intermarket Margin System (“TIMS”) model. TIMS considers movements for all instruments based on an underlying equity (in TIMS a “portfolio” consists of all positions, including options, futures and stock, referencing the same underlier) across a range of 30 percent, by moving 15 percent up from the current market price and down 15 percent from the current market price.” In the futures markets, “clearing margin” (paid by a futures commission merchant to a CH) is set by the CH, and “customer margin” (paid by a customer to its FCM) - by the exchange where a contract is traded. The CFTC monitors CH financial resources and risk surveillance, and, therefore, indirectly oversees clearing margins, thus ensuring adequate bond coverage. The FRB, under the CEA, can review “margin on broad-based stock index futures and options thereon.” The authority was delegated to the CFTC.

h. Many participants called for harmonization of the SEC and CFTC regulations. The discussion specifically revolved around fungibility of products and the creation of common CCPs. Some expressed the following concerns:

i. Inter-operability of CHs requires a CH to determine whether it is prudent to take on
the liability of another CH and increase interconnectedness, thus assuming each other’s credit risks.

ii. CH “compete on fees, operational efficiencies, financial strength, and effectiveness of risk management techniques” This could lead to innovation in clearing services.

iii. A common clearing utility for securities exchanges encouraged competition among exchanges. “One example of this innovation is the promotion of fungibility in the equity options markets. Using a clearing house as a utility and allowing product to be cleared at the same clearing house regardless of where it is executed is an idea worth careful study in the futures and OTC markets. To the extent that the fungibility model has allowed new exchanges to enter the market and promote innovative products, and will encourage competition among exchanges and among clearing houses, it is worth considering.”

iv. A common clearer might help manage systemic risk by way of enabling offsetting positions. Among the suggestions on harmonization of securities and futures regulations and competition among trading venues was the adoption of fungibility for futures contracts similar to the structure for securities and equity options.

v. A utility-style clearinghouse may inhibit innovations and product development “if competitors can immediately free ride off their ideas through a horizontal clearing model,” and stimulate payment for order flow. To protect the incentives for innovations, exchanges should have time to recoup this investment in innovations. The vertical model allows such recoupment. Interestingly, most global futures markets have the vertical model. Finally, there is a risk of the outflow of business offshore.

i. International cooperation:

i. The SEC is more cautious in recognizing foreign entities, which is usually done based on bilateral MOUs. The 2006 MOU between the SEC and the FSA covered Clearnet Limited for certain CDS in the U.S. In connection with the exemptive relief, the FSA and the SEC reached an agreement on information exchange.

ii. The CFTC recognizes foreign CH clearing OTC instruments, regulated by a foreign regulator and complying with certain standards. Foreign CH operating as derivatives clearing organizations should register with the CFTC under the CEA (7 U.S.C. 7a-1). Under the Federal Deposit Insurance Corporation Improvement Act of 1991 (12 U.S.C. 4422(b)(3)) a non-U.S. clearinghouse may function as a multilateral clearing
organization (MCO) with respect to OTC instruments. Such MCO should be supervised by a foreign regulator that has “appropriate” standards determined based on the risk management procedures, information-sharing arrangements with the foreign financial regulator, whether the regulatory regime is substantially similar to the Act and its core principles; whether the supervision provided by the regulator corresponds with the CFTC’s supervision of MCOs; and whether such supervision substantially complies with the IOSCO’s Principles and Objectives of Securities Regulation. On September 14, 2009, the CFTC entered into an MOU Between the Commission and the FSA Concerning Cooperation and the Exchange of Information Related to the Supervision of Cross-Border Clearinghouses (“The MOU establishes a framework for close cooperation, calls for sharing material information, provides for on-site visits, and contemplates ongoing discussions between the CFTC and FSA.”)

   a. Prior to 2009, NSCC permitted entities organized in a foreign country and not subject to U.S. federal or state regulation to become Direct Clearing Corporation Members only. In 2009, the NSCC’s Rules and Procedures expanded the types of membership categories available to non-U.S. members, which can apply to become Mutual Fund/Insurance Services Members, Fund Members, and Insurance Carrier/ Retirement Services Members. The applicable admission criteria address such unique risks as follows: (1) that the entity is not subject to U.S. regulation; (2) “that the operation of the laws of the entity’s home country and time zone differences may impede the successful exercise of NSCC’s rights and remedies, particularly in the event of the entity’s failure to settle”; and (3) “that financial information about the non-U.S. entity made available to NSCC for monitoring purposes may be less adequate than information about U.S.-based entities.” Therefore, non-U.S. entities sign additional undertakings and agreements tackling jurisdictional concerns and provision of audited financial information acceptable to NSCC. Also, foreign entities should be subject to their national regulation and be in good standing. To address problems with non-U.S. GAAP, the Rules require higher capital requirements.

   a. The SEC approved new rules on stock deposited as margin with OCC. Margin collateral was modified by: (1) “reducing the minimum price for stocks from $10 to $3” and (2)
“eliminating the 10% concentration test for certain Exchange-Traded Funds”. The rationale was that during the crisis, the market value of many stocks went below $10. OCC Rule 604(b)(4) provides that “equity and debt issues of any one issuer shall not be valued at an amount in excess of 10% of the margin requirement in the account for which such securities are deposited.” The concentration test protects OCC from exposure where such single security suddenly falls in value or becomes illiquid. The concentration test was developed before the ETFs. Therefore, ownership interest in ETFs can be accepted as margin without regard to the Concentration Limit under the conditions that such collateral is liquid and are broad-based equity index ETFs; and the applicable STANS margin interval is not more than 30%.

Comparison of the Senate and House Bills, Related Discussions and the July 2010 Act

1. On May 20, 2010, the Senate passed the Restoring American Financial Stability Act of 2010 (S. 3217). Prior to that, on December 11, 2009, the Wall Street Reform and Consumer Protection Act of 2009 (H.R. 4173) was passed by the House. The new Act went in effect in July 2010 [Comment: to be analyzed later].

2. The discussions of the Bills were held through 2009. The Senate Bill was more analogous to the White Paper compared to the House Bill. In addition, during the amendment process at the Financial Services Committee, some provisions on C&S were dropped from the House Bill.

3. Discussions related to the House Bill are available at


5. In general, issues related to C&S and the Derivatives Title (such as exemptions for “end-users” from new clearing requirements) are expected to be discussed in the conference.

6. House Bill v. Senate Bill:

   a. Clearing Exemption (Section on Derivatives):
      
      i. House: end users who are not dealers or “major swap participants” are exempt from the central clearing requirement.
      
      ii. Senate: “Commercial end users” and their affiliates are exempt in case they are involved in hedging commercial risks. For public companies, an approval of their audit committees for exempted swaps is required.
      
      iii. House: Swaps that are cleared should also be traded on exchanges or execution facilities (which is any person that facilitates/executes trades in swap products).
      
      iv. Senate: Cleared swaps should be also traded. An execution facility is “a trading facility in which multiple participants have the ability to execute or trade swaps by accepting bids and offers made by other participants that are open to multiple participants in the system.”

   b. Title “Payment, Clearance and Settlement”: 86
i. House: dropped

ii. Senate:

1. The Financial Stability Oversight Council can designate systemically important utilities and C&S activities of financial institutions.
2. Such designation entails supervision by the FRB and appropriate regulatory agencies.
3. The Fed prescribes risk management standards, including margin, collateral and capital requirements and special policies and procedures.
4. Systemically important market utilities are subject to at least annual examinations and close oversight by their respective regulators and, in addition, by the FRB at its discretion. The FRB is also entitled to take certain emergency actions. Similarly the Council may require such designated institutions to submit reports.
5. Designated utilities must give an advance notice to the regulators and the Fed of proposed rules/amendments changing their risk.
6. The FRB grants such designated utilities access to its discount window.

THE SENATE BILL:

7. The Financial Stability Oversight Council consists of 9 voting members, including the Treasury Secretary (the “Chairperson”) and the heads of the Fed, OCC, Bureau of Consumer Financial Protection (“Consumer Bureau”), SEC, FDIC, CFTC, and FHFA, and independent member with insurance expertise named by the President and confirmed by the Senate.
8. C&S-related provisions on derivatives:
   a. Federal assistance to swap entities is prohibited. Swap entities include, inter alia, CCPs, clearing houses, clearing agencies and derivatives clearing organizations.
9. Clearing Requirements:
   a. Central clearing requirement for non-exempt swaps.
   b. Exemptions apply if no CH accept the swap for clearing and for the aforesaid “commercial end user” swaps (“commercial end user” is a non-financial entity “who, as its primary business activity, owns, uses, produces, processes, manufactures, distributes, merchandises, or markets goods, services, or commodities (which shall include but not be limited to coal, natural gas, electricity, ethanol, crude oil, gasoline, propane, distillates, and other hydrocarbons) either individually or in a fiduciary capacity.”).
c. CFTC/SEC approves a swap or group of swaps to be cleared, and makes applications for approval public.
d. Clearing houses have to prescribe that swaps with the same terms are economically equivalent and may be offset within the CH.
e. Non-cleared swaps have to be reported to a registered repository.
f. For clearing new contracts and instruments and new rules, registered entities have to provide the CFTC or the SEC with a written certification of compliance

10. Trade Execution:
   a. All cleared swaps should be traded on a board of trade, a securities exchange or through a swap execution facility, unless they are not accepted for such trading.
b. “Swap execution facility” is a “facility in which multiple participants have the ability to execute or trade security-based swaps by accepting bids and offers made by other participants that are open to multiple participants in the facility or system, or confirmation facility, that (A) facilitates the execution of security based swaps between persons; and (B) is not a designated contract market.”
c. Derivatives clearing organizations have to have capital in excess of the amount that would enable them to cover operational costs and obligations to members under a stress test.
d. All contracts with non-eligible contract participants are to be exchange-traded.
e. Swap transaction data must be publicly reported under the rules that CFTC/SEC should promulgate for swap transaction and pricing data for cleared swaps. The Commissions should promulgate rules that do not identify the participants and where public disclosure does not reduce liquidity, and should specify block trade criteria. Similarly, rules on trading volumes and positions for uncleared swaps must be developed in a way not disclosing market positions and transactions.
f. The Bill provides for higher capital requirements for non-cleared swaps.
g. Only registered dealers and futures commission merchants can accept money or property or extend credit to margin or secure a cleared swap.
h. The Bill specifies that property of futures commission merchants and BDs should not be commingled with their customers’, which is especially useful for bankruptcy purposes.
i. Similarly, clearinghouses and depositories may not treat or use such property as if it belonged to a broker. It should be segregated as the property of a swap customer.

11. Payment, Clearance and Settlement:
a. See the discussion above on the systemically important financial market utilities and C&S activities.
b. Among the purposes of the Bill is promoting financial stability through strengthening “the liquidity of systemically important financial market utilities.”
c. “Payment, clearing, or settlement activity” is defined as “an activity carried out by one or more financial institutions to facilitate the completion of financial transactions.” Such transactions include “funds transfers, securities contracts, contracts of sale of a commodity for future delivery, forward contracts, repurchase agreements, swap agreements, foreign exchange contracts, financial derivatives contracts,” etc. With respect to financial transactions, C&S activities “may include the calculation and communication of unsettled obligations between counterparties; netting of transactions; provision and maintenance of trade, contract, or instrument information; the management of risks and activities associated with continuing obligations; transmittal and storage of payment instructions; the movement of funds; the final settlement of obligations,” etc.

12. Rationale for the Bill, as agreed upon by Senator Dodd and Senator Lincoln:
   b. Creates Central Clearing and Exchange Trading (also the SEC and CFTC would have to pre-approve contracts before clearing houses could clear them).
   c. Pushes out derivatives activities from big banks. Protects municipalities and pensions.
   d. Creates the Financial Stability Oversight Council and gives more authority to the FBR in supervising risk management for systemically important financial market utilities and activities.
   e. Describes evaluations of Systemic Importance.
   f. Determines new Risk Management Standards. (to be determined by the FRB).

THE HOUSE BILL

1. Mandatory Clearing:
   a. Introduces a central clearing requirement for swaps and security-based swaps (“SBS”).
   b. Provides for commercial end users exception.
   c. Increases transparency by requiring non-cleared swaps to be reported to a repository or the Commissions, which publish aggregate data.

2. Trade Execution Requirements:
a. See above (in a nutshell, it states that all cleared swaps should be exchange-traded; all swaps with certain small municipalities and “unsophisticated” investors should also be exchange-traded; provides for a broad definition of a swap execution facility, including electronic trade execution facilities, and requires all such facilities to register with the CFTC/SEC, etc.)

b. The Bill provides for slightly different rules with respect to segregation of collateral (segregation requirements are limited to the initial margin or collateral, CHs may continue segregating margins based on their current practices; custodians should not be owned by a swap dealer or major counterparties; there are no statutory segregation requirements for cleared swaps).

c. It imposes Restrictions on the Governance of Clearinghouses, Boards of Trade, Exchanges and Swap Execution Facilities (identified FHCs that are swap dealers or participants cannot vote more than 20% of shares of a CH; similarly, majority of directors should be independent of such FHCs; if a dealer or swap participant holds a material debt or equity investment in the CH, his operations with the CH should comply with the CFTC/SEC rules)


1. The WP proposes to amend the CEA and securities laws and standardize clearance of OTC derivatives through regulated CCPs subject to margin requirements and risk controls. CCPs and trade repositories should be required to make data on open positions and trading volumes available to the public.

2. The Fed will be granted authority to oversee systemically important clearing and settlement systems. Determinations will be made based by the risk of interconnectedness and the strength of settling payment of obligations between banks and other financial institutions.

3. The Fed will have the emergency enforcement authority in case it disagrees with the SEC or CFTC.

4. The CFTC and SEC should work on harmonization of their “principles-based” and “rules-based” approaches respectively. The CFTC should continue strengthening the “core principles” of the CEA via, e.g., adopting elements of international standards for central counterparty clearing organizations
5. Systemically important payment, clearing, and settlement systems should have access to Reserve Bank accounts, financial services, and the discount window. They cannot depend on commercial banks to perform payment services and provide liquidity for converting margin into funds when necessary.

6. The oversight of financial markets should be improved globally. The G-20 Leaders agreed to promote the standardization and central clearing of credit derivatives. Correspondingly, several CCPs have also been established globally to clear credit derivatives. Among the critical goals of international cooperation is “further enhancing the effectiveness of existing rules for the clearing and settlement of cross-border financial contracts and large value payments transactions, including by providing options for the maintenance of contractual relationships during insolvency, such as through the bridge institution option available in U.S. bank receivership law.”

International Reports

   a. The Report endorsed the 2001 CPSS/IOSCO recommendations; recommended that trade confirmation be further automated and standardized; suggested that matching utilities be used on the industry-wide bases; proposed that market participants should develop compatible, industry-wide market standards in order to automate the confirmation/affirmation process for institutional trades; recommended matching institutional transaction data on trade date; emphasized that post-trade processing models must be improved.

   a. The Report covers the following issues: the legal framework for securities settlements, risk management, access, governance, efficiency, transparency, regulation and oversight. The emphasis is made on cross-border issues, including law, securities custody in holding systems, finality of settlements, the functions of the C&S institutions, such as CSDs, stock exchanges, CCPs, custodians, etc. In certain cases, functional distinctions between operations
of some institutions, such as, e.g., CSDs and custodians, have become blurred. Thus, the recommendations are applicable to various entities.

b. The Report identified a number of risks.

i. The first one is the legal risk related to transparency of the C&S system.

ii. Secondly, there is pre-settlement risk, which includes trade confirmation (no later than trade date (T+0)), settlement cycles (no later than T+3); the risks of central counterparties (CCPs); securities lending and borrowing (that should be encouraged), etc. Notably, short timeframes and early agreement on trade details permit more efficient detection of errors and discrepancies in data.

iii. Thirdly, there is settlement risk related to central securities depositories (CSDs) (requiring predominantly dematerialized book entry transfers); delivery versus payment (DVP) (eliminating principal risk); timing of settlement finality; CSD risk controls (which need to address participants’ failures to settle through a combination of collateral requirements and limits); cash settlement assets (assets used should have no credit or liquidity risk).

iv. Fourthly, there is operational risk and operational reliability of C&S systems that should have scalable capacity.

v. Finally, custody risk is related to protection of customers’ securities.

vi. The Report also covered governance issues, efficiency, communication procedures and standards, transparency of CSDs and CCPs; regulatory issues and others.

c. In addition, the report recommends that "[s]ecurities should be immobilized or dematerialized and transferred by book entry in CSDs (central securities depositories) to the greatest extent possible." Maintaining custody of securities in entities like DTC reduces costs associated with securities settlement and custody through economies of scale. Dematerialization and immobilization of securities decrease the costs of trading for markets and investors.


a. The report defines a CCP as a party interposing “itself between counterparties to financial contracts traded in one or more markets, becoming the buyer to every seller and the seller to every buyer.” In recent years, more securities exchanges around the globe introduced CCPs. In many cases, the use of a CCP is mandatory, especially in derivatives exchanges. Trading is
often anonymous and participants cannot manage counterparty credit and liquidity risks. CCPs solve this problem.

b. Since in the systems with CCPs there are clearing and non-clearing participants (the first ones are members/counterparties of a CCP), non-clearing participants are exposed to counterparty credit risk vis-à-vis clearing participants. IOSCO emphasized the usefulness of capital requirements and other regulations for clearing participants.

c. Among the advantages of CCPs are risk reduction (the major risks are counterparty credit risk, liquidity risk, settlement bank risk, custody risk, investment risk, operational risk and legal risk), robust risk control and multilateral netting. Failures of risk management may have a spillover effect and require proper ex ante regulations and oversight. IOSCO and CPSS believe that certain international standards for CCPs “are essential” and both Organizations intend to promote implementation of these Recommendations via periodic assessments. The Report makes recommendations, analyzes risks of CCPs, and identifies issues relevant to guarantee arrangements.

d. Guarantee funds are used in many jurisdictions and often administered by market operators or CSDs. “Unlike a CCP, the organiser of a guarantee fund, known as a guarantor, does not have an exposure to a defaulting participant and typically does not assume a role in managing a default.” (id. at 6). “Non-defaulting participants would be entitled to make a claim against the assets of the guarantee fund for losses on their trades with the defaulting participant or participants. However, if the aggregate losses of non-defaulting participants exceeded the value of the fund, they would be compensated only to the extent of their pro rata share of the value of the assets in the fund. The value of the assets held in the fund is usually quite modest.” (id.). IOSCO believes that either a CCP or a robust guarantee fund are essential when there is a risk of substantial losses to non-defaulting participants.

e. In a nutshell, the Recommendations cover a number of subject areas regarding either the aforesaid major risks of CCPs or risk management:

   i. Legal risks (well-founded and transparent frameworks are needed in all jurisdictions; the rules should cover, inter alia, enforceability of netting arrangements, rapid deployment of collateral, finality of settlement, participants insolvency, etc.);

   ii. Participation requirements (objective and transparent requirements for participation, specifically regarding operational capacity and capital, must be set and monitoring procedures put in place);
iii. Measurement and management of credit exposures on at least a daily basis. The Report discusses margin requirements and position or trading limits as methods to control potential losses. “The effectiveness of such [position] limits as a risk management tool depends on the timeliness of data on actual positions, which may be virtually instantaneous for some products traded electronically. In any event, such limits provide no control over changes in exposure as a result of price changes” (id. at 10)

iv. Margin requirements (that should be risk-based and sufficient to limit credit exposures under normal market conditions). “Many CCPs impose margin requirements to limit the build-up of credit exposures and to generate a pool of resources to cover losses in the event that a participant defaults in normal market conditions. For contracts that have long durations or are inherently leveraged, a CCP should use margin requirements. Many CCPs for cash markets that have initiated their services in recent years also employ margin requirements.” (id. at 21). “Margin requirements impose opportunity costs on CCP participants” (id.). They can be collected based on either net positions or gross positions. “Under a net margin system, margin requirements are charged for net long or net short positions, that is, long and short positions held in the same security or derivatives contract are offset against each other to arrive at the net long or net short positions. In contrast, margin requirements are calculated based on the aggregate of long and short positions under a gross margin system.” (id. at 23).

v. Financial resources (that should be in the form of either assets directly held by a CCP or of contingent claims; and be sufficient under stress tests conditions; the adequacy of financial resources is assessed by stress testing);

vi. Default procedures (regarding timely actions to contain losses and liquidity pressures). Key issues should be publicly available; what constitutes an event of default must be clearly identified; mechanisms to “facilitate the transfer, closeout or hedging of a defaulting participant’s proprietary positions promptly” (id. at 28) should be established ex ante;

vii. Custody and investment risks. For instance, margins are held in a CSD or a financial institution; and, e.g., custodian accounting and safekeeping practices should be assessed by a CCP. Investment strategies should be consistent with risk management strategies. Finally, CCPs need to properly examine links with facilities offering
settlement bank services, custodial services and liquidity facilities. Some of such entities could be CCP participants.

viii. Operational risk (i.e., “the risk of deficiencies in information systems or internal controls, human errors, management failures, or disruptions from external events such as natural disasters resulting in unexpected losses” (id. at 33); should be minimized through reliable, secure and scalable systems);

ix. Money settlements (“Funds transfers to a CCP should be final when effected”). There are two basic models. The first is “a central bank model and a private settlement bank model. In the central bank model, the central bank of issue (the central bank that issues the currency in which the payments are being made) is the sole settlement bank used by a CCP, and all money settlements between a CCP and its participants are effected in central bank money. A CCP’s participants may have accounts with the central bank or may effect settlements with the CCP through banks with accounts at the central bank (a tiered settlement arrangement). In the private settlement bank model a CCP selects a group of private banks as its settlement banks, establishes an account with each of these settlement banks, and requires each of its participants to establish an account with one of them. Money settlements between a CCP and its participants are effected in private bank money through their accounts at the settlement banks.” (id. at 35-36). The use of private banks exposes CCPs to the risk of failure of those private banks.

x. Physical deliveries. “A CCP faces both credit and liquidity risks from the delivery process that it must manage. At delivery, the entire principal value of a transaction may be at risk, thus this form of credit risk is often termed principal risk. Both the buyer (receiver of the physical instrument) and seller (deliverer of the physical instrument) are exposed to principal risk. Liquidity risk arises because, if the buyer defaults, a CCP must still make payment to the (non-defaulting) seller. If a CCP guarantees delivery of a physical instrument, it faces a form of liquidity risk associated with acquiring that instrument should the seller default.” (id. at 38). The other risks are storage, warehousing and transportation of the physical instruments for settlement.

xi. Risks in links between CCPs (despite their usefulness for the C&S system, they can present legal, operational, liquidity and credit risks);
xii. Efficiency (specifically, cost-effectiveness, which becomes important in some jurisdictions where CCPs enjoy monopoly over the market);

xiii. Governance (IOSCO stopped short of defining which governance arrangement is the most appropriate, but highlighted the importance of transparency);

xiv. Transparency;

xv. Regulation and oversight.


Comment: *The Convention addresses several important issues inhibiting cross-border transactions. Those are, inter alia, the status and rights of account holders and divergent bankruptcy rules in different jurisdictions. (On some pertinent problems with cross-border C&S, see Ruben Lee, 2009, supra)*

a. The parties acknowledge the needs to reduce legal and systemic risks, to control costs related to transactions with intermediated securities; to access capital markets freely; to enhance international compatibility of legal systems; and to strengthen the soundness of domestic and international rules.

b. Article 1 provides the following definitions of clearing and settlement:

i. “(n) “securities settlement system” means a system that: (i) settles, or clears and settles, securities transactions; (ii) is operated by a central bank or central banks or is subject to regulation, supervision or oversight by a governmental or public authority in relation to its rules; and (iii) has been identified as a securities settlement system in a declaration made by the Contracting State the law of which governs the system on the ground of the reduction of risk to the stability of the financial system”

ii. “(o) “securities clearing system” means a system that: (i) clears, but does not settle, securities transactions through a central counterparty or otherwise; (ii) is operated by a central bank or central banks or is subject to regulation, supervision or oversight by a governmental or public authority in relation to its rules; and (iii) has been identified as a securities clearing system in a declaration made by the Contracting State the law of which governs the system on the ground of the reduction of risk to the stability of the financial system.”

c. The Convention applies to securities accounts maintained by certain intermediaries and by central banks (Art. 5);
d. The Convention defines rights of account holders. Specifically, the credit of securities to an account gives its holder the rights to “receive and exercise any rights attached to the securities, including dividends, other distributions and voting rights”, which are effective against third parties and may be exercised against the intermediary and the issuer.

e. Under the Convention, intermediaries must take measures to enable the exercise of rights by account holders, including, at the minimum, the following steps: to “protect securities credited to a securities account”, and “not dispose of securities credited to a securities account without authorization”.

f. With respect to the transfers of securities, the Convention outlines the basic rules on acquisition and disposition of securities by debit and credit (Art. 11) and other methods (Art. 12). Also, it specifies that transfers and the resulting rights and interests are “effective against the insolvency administrator and creditors in any insolvency proceeding” (Art. 14).

g. The Convention delineates the rules on unauthorized dispositions of securities (“1. An intermediary may make a debit of securities to a securities account, make or remove a designating entry or otherwise dispose of intermediated securities only if it is authorised to do so: (a) in relation to a debit, by the account holder [etc.]; (b) in relation to a designating entry, by the account holder; (c) in relation to the removal of a designating entry, by the person in whose favour the designating entry has been made; (d) in relation to any other disposition, by the account holder and, if applicable, the person to whom an interest in the relevant intermediated securities has been granted under Article 12 [e.g., secured creditors]” (Art. 15).

h. Acquisitions by an “innocent person” without knowledge of the rights and interests of third parties in the transferred securities are protected by a doctrine similar to the holder in due course status (Art. 18).

i. The Convention also touches upon the priorities issues among competing interests (Arts. 19-20).

j. In the Chapter devoted to the integrity of the intermediated holding system, the Convention defines that:

i. Rights and interests of account holders of a relevant intermediary are effective against the insolvency administrator (Art. 21);

ii. Upper-tier attachments are prohibited (i.e., attachments cannot affect “(a) a securities account of any person other than that account holder; (b) the issuer of any securities
credited to a securities account of that account holder; or (c) a person other than the account holder and the relevant intermediary.” (Art. 22);

iii. An intermediary is not bound by instructions of any person other than the account holder (Art. 23);

iv. An intermediary must have available sufficient securities, i.e., “of an aggregate number or amount equal to the aggregate number or amount of securities of that description credited to: (a) securities accounts that it maintains for its account holders other than itself; and (b) if applicable, securities accounts that it maintains for itself.” (Art. 24). Possession of certificates or procuring securities held on the register of the issuer are both sufficient.

v. The Convention also covers such issues as allocation of securities to account holders’ rights; loss sharing in case of insolvency of the intermediary and insolvency of a system operator or participant (Arts. 25-27);

vi. Finally, a number of special provisions govern collateral transactions, including recognition of title transfer, collateral agreements, enforcement against collateral (including sales and close-out netting provisions), top-up or substitution of collateral, etc. (Arts. 32 et seq.). For instance, “[i]f a collateral agreement includes: (a) an obligation to deliver additional collateral securities: (i) in order to take account of changes in the value of the collateral delivered under the collateral agreement or in the amount of the relevant obligations; (ii) in order to take account of any circumstances giving rise to an increase in the credit risk incurred by the collateral taker as determined by reference to objective criteria relating to the creditworthiness, financial performance or financial condition of the collateral provider or other person by whom the relevant obligations are owed; or (iii) to the extent permitted by the non-Convention law, in any other circumstances specified in the collateral agreement; or (b) a right to withdraw collateral securities or other assets on delivering collateral securities or other assets of substantially the same value, the delivery of securities or other assets as described in sub-paragraphs (a) and (b) shall not be treated as invalid, reversed or declared void solely on the basis that they are delivered during a prescribed period before, or on the day of but before, the commencement of an insolvency proceeding in relation to the collateral provider, or after the relevant obligations have been incurred.” (Art. 36).
Industry Profile and Structure

List of Companies and SEC Registration

1. Sec.Exch. Act Rel. No. 34-20221 (Sept. 23, 1983), available at http://www.sec.gov/rules/other/34-20221.pdf. The original nine registered clearing agencies were as follows: the Depository Trust Company, the Stock Clearing Corporation of Philadelphia, the Midwest Securities Trust Company, the Options Clearing Corporation, the Midwest Clearing Corporation, the Pacific Securities Depository Trust Company, the Pacific Clearing Corporation, the National Securities Clearing Corporation, and the Philadelphia Depository Trust Company.


Company Profiles:

1. DTCC (see http://www.dtcc.com/about/business/

   1. Provides “clearing, settlement and information services for equities, corporate and municipal bonds, government and mortgage-backed securities, money market instruments and over-the-counter derivatives.” “DTCC's depository provides custody and asset servicing for 3.5 million securities issues from the United States and 110 other countries and territories, valued at $28 trillion.”

   2. In late 2003, DTCC launched its OTC derivatives business. The first products were the automated matching and confirmation of single-name CDS. Today, DTC matches and confirms various credit derivative types, including indices, tranches and specialized CDS. “Today an estimated 90% of CDS traded globally are matched and confirmed on DTCC's platform, and an increasing number of OTC equity and interest rate derivatives are also matched and confirmed on the DTCC system.”
3. The Depository Trust Company is a depository holding about $34 trillion in securities from 120 countries in custody as of 2009.
4. DTCC has relationships with CCPs and CSDs worldwide, and participates in industry organizations, including the Americas CSD Association (ACSDA), CCP12 and the International Securities Services Association (ISSA).
5. 14 non-U.S. depositories maintain accounts at DTC to support DTC-eligible issues for their members. “DTC also operates accounts at three other depositories supporting non-U.S. issues for DTC participants.” Through its account at the Canadian Depository for Securities Ltd., DTC settles transactions in eligible Canadian issues in Canadian dollars on behalf of its participants. “DTCC also is expanding its relationships with major post-trade infrastructure organizations in Brazil, China, Japan, Korea, India, Pakistan, and Taiwan, signing Memoranda of Understanding (MOUs) that aim to expand cooperation and information sharing.”
6. In 2006, DTCC introduced the Trade Information Warehouse, the first and only trade database and centralized electronic infrastructure for post-trade processing of OTC derivatives contracts, working throughout their lifecycles, from confirmation to final settlement.
7. Omgeo, DTCC's JV with Thomson Reuters, provides certainty in post-trade operations by means of the automation and timely confirmation of the details of trades between investment managers and broker dealers.

Comment: Omgeo offers buy-side, trade-side and custodial services for trade life cycle events, such as confirmation/affirmation, settlement notification, operational analytics, collateral management and reconciliation, etc. (http://www.omgeo.com/products/). It works with different asset classes, from equities to hedge funds and derivatives, and provides post-trade processing. Omgeo’s products are used worldwide. See, e.g., Metzler and Omgeo: The way to an efficient post-trade process (2008), available at http://www.dtcc.com/products/omgeo/index.php (Metzler, a German financial institution, “decided to implement Omgeo CTM and Omgeo ALERT in order to meet the challenges of the equities and bonds market, reduce risks and execute processes with a high standard of quality.”)
8. Among its other operations are netting down, or reducing the number of trade obligations requiring financial settlement, and streamlining settlement processes. “NSCC optimizes capital for its customers by netting down trade obligations through its Continuous Net Settlement system.” (http://www.dtcc.com/products/cs/equities_clearance/cns.php)

History of DTCC
(http://www.dtcc.com/about/history/; http://www.dtcc.com/about/history/consolidation.php):
9. The Paperwork Crisis led to the creation of DTC in 1973. Initially, its functions were performed by the NYSE and its Central Certificate Service.

10. Immobilization of securities was achieved; and the system of multilateral netting and CCP was developed.

11. “Between 1977 and 1995, five regional exchanges exited the business of clearance, settlement and custody, and customers consolidated this activity at NSCC and DTCC.”

12. Starting from 1999, the operations of DTC and NSCC were consolidated. Further consolidation affected fixed-income securities, Government Securities Clearing Corporation (GSCC) and Mortgage Backed Securities Clearing Corporation (MBSCC).

**Subsidiaries:**

1. National Securities Clearing Corporation (NSCC)
2. The Depository Trust Company (DTC)
3. Fixed Income Clearing Corporation (FICC)
4. DTCC Loan/SERV LLC
5. DTCC Deriv/SERV LLC
6. The Warehouse Trust Company LLC
7. DTCC Solutions LLC
8. EuroCCP Ltd.

**DTCC’s Annual Reports:**

1. DTCC, *Annual Report 2008* (available at http://www.dtcc.com/downloads/annuals/2008/2008_report.pdf) describes in detail the exposure of third parties in Lehman Brothers’ bankruptcy (e.g., $285 billion of CDS contracts were netted down to $12 billion in actual payments), the role of DTCC in the Bear Stearns story; discussions concerning the merger with LCH.Clearnet Group, Ltd.; offering better disclosure of the notional values of the top CDS single-name reference entities in the DTCC’s Trade Information Warehouse; the launch of a pan-European equity clearing platform by EuroCCP subsidiary; EuroCCP receiving authorization that non-U.S. institutions could directly join DTC and NSCC. In 2008, DTCC Fixed Income Clearing Corporation saw record volumes of transactions and was able to decrease costs and promote liquidity by netting down or reducing trade volume. The DTCC Deriv/SERV LLC continued working on centralizing the maintenance and automated processing of OTC derivatives. Its Warehouse registry held the majority of outstanding CDS contracts by the end of 2008.

methodology reducing liquidation cycle, improving standby liquidity support for settlement in the depository and the clearing corporations; redefining treatment of “illiquid” securities and positions, and creating the new position of Chief Systemic Risk Officer. Regulatory approval is pending for a joint venture with NYSE Euronext, New York Portfolio Clearing for U.S. fixed income derivatives, including the new asset class - futures. A new sub, the Warehouse Trust Company LLC (a Federal Reserve System member) was created for operating the Trade Information Warehouse, a trust serving as a global repository recording trades in OTC credit derivatives and CDS. “DTCC strongly supports the value central counterparties (CCPs) can offer in the OTC derivatives market. But CCPs cannot encompass the entire market and we recognize that public corporations and other market participants will require, in limited circumstances, the flexibility that more tailored OTC derivative contracts can provide.” EuroCCP continuously helped driving down the C&S costs in the European markets. Since 2008, it has been “responsible for the dramatic reductions in equity clearing costs of 50% to 80% across Europe.” FICC’s Government Securities Division obtained regulatory approval as to direct participation by non-U.S. broker/dealers and banks. DTCC is working on redefining clearing fund requirements for illiquid and concentrated positions for NSCC. An approval is awaited for the proposal to accelerate NSCC’s trade guarantee for equities, corporate and municipal bonds trades from midnight of T+1 to validation on trade date (T). Intra-day risk monitoring systems for NSCC and New York Portfolio Clearing futures clearing corporation are planned. A CCP may be created for MBS. The following market trends were observed: processing volumes were relatively flat; there was a slight increase in the total of transactions from 2008; value of transactions decreased by “more than $100 trillion to $209.7 trillion, from $315 trillion in 2008.” DTCC provides clearing, settlement, risk management and a CCP guarantee of trade completion for almost all broker-to-broker equity, listed corporate bonds, municipal bond and UIT trading. In a couple of days, NSCC processed record numbers of shares in 2009. NSCC provides final CNS settlement instructions each day; the payment and book-entry movement of ownership is done through DTC, which settles NSCC transactions, institutional trades, money market instruments, etc. As solvency concerns rose in the market, NSCC’s CCP guarantee (assuming the buyer’s credit risk and the seller’s delivery risk in the event of default) became more important. The accelerated guarantee is pending SEC approval. NSCC redesigned its equity trade capture and reporting systems (accepting transaction data after execution and sending contract reports) through creating Universal Trade Capture (UTC). The SEC approved new limits on the net debit cap for Affiliated Families (through increasing cash deposits and securing lines of credit). An ex-clearing (outside C&S, broker-to-broker) trades were offered Obligation Warehouse services. FICC awaits approval from the SEC for the MBS CCP (the trade
guarantee and the CCP are supposed to “further streamline the settlement process and bring the industry even greater reductions in trade costs and risks.”). “DTC streamlines and automates the settlement and servicing of securities held in custody (including equities and bonds), helps execute corporate actions such as mergers and dividend and interest payments, and boosts efficiencies by streamlining the processing of syndicated loans, structured securities and tax services.” Collections of dividend, interest and reorganization payments decreased by 17% in 2009 from 2008. DTC also processes and settles new issues. New equities underwriting system was launched in 2009 and has become mandatory for corporate underwriters. A new corporate debt URW system is pending approval. As part of its dematerialization efforts, DTCC eliminated certificates for “withdrawals-by-transfer (WTs) for all eligible but non-participating issues in DTC’s Direct Registration System (DRS) starting July 1, 2009.” (SEC, Release No. 34-59033; File No. SR-DTC-2008-08, Dec. 1, 2008) Major exchanges modified their listing requirements accordingly, i.e., all listed securities must be eligible for a DRS.

By-laws of DTCC (http://www.dtcc.com/legal/rules_proc/DTCC_By-Laws.pdf ) (determine the general corporate structure, shareholder meetings, share certificates, etc.)

2. DTC:

1. The Depository Trust Company was established in 1973 to reduce costs and provide C&S efficiencies through immobilization of securities and "book-entry" changes to ownership of the securities. It services settlement made through NSCC, settlement of institutional trades and of money market instruments. DTC retains custody of securities issued in the US and 120 foreign countries. It is a member of the U.S. Federal Reserve System, a trust company under NY banking law and a registered clearing agency.

2. Services include:
   - Custody & Safekeeping Services
   - Underwriting Services
   - Deposit & Withdrawal Services
   - Dividend, Reorganization and Proxy Services
   - Restricted Securities Family of Services
   - Direct Registration Service

See also Products and Services (available at http://www.dtcc.com/products/index.php?id=dtc ) describing end-of-day net settlement of a participant’s trading activity; clearance; asset servicing, such as dividends,
custody, etc.; underwriting through the New Issue Eligibility program for primary and secondary distribution and book-entry delivery and settlement; and a number of other services.


1. In general, the by-laws include the rules on participants’ qualifications, participants fund, pledge of property to the corporation, definition of eligible securities, description of services, deliveries of notifications, transactions in security, money payments, eligible securities, clearing agency agreements, termination rules, disciplinary sanctions, “due process” provisions, insurance, reporting, Canadian-link service rules, DTCC shareholder agreement, policy statements on the admission and eligibility of foreign securities.

2. Market interconnections affect DTC’s policies and the definition of net debit caps with respect to Affiliated Families (The term “Affiliated Family” means each Participant that controls or is controlled by another Participant and each Participant that is under the common control of any Person.” “Control” means the direct or indirect ownership of more than 50% of voting power). Also, DTC enters into clearing agency agreements that are used “with respect to any Person that is concurrently a Participant and member of the other clearing agency, for (i) a netting of the settlement payments due to and from such Person, (ii) the provision of liquidity to the Corporation or the other clearing agency on account of a default by such Person in the performance of its obligations and/or (iii) a guaranty of any of the obligations of such Person to the Corporation or the other clearing agency.”

3. The rules on collateral define that on any business day it is “the sum of (i) the Actual Participants Fund Deposit of the Participant, (ii) the Actual Preferred Stock Investment of a Participant, (iii) all Net Additions of the Participant and (iv) any settlement progress payments wired by the Participant to the account of the Corporation at the Federal Reserve Bank of New York…”

4. The By-laws of DTC and NSCC make a number of direct reference to NYUCC (*Comment: major Article 8 provisions are discussed in the preceding Section*). The term “Securities Account” means “an account maintained by the Corporation for the Participant or Pledgee to which Securities transactions of the Participant or Pledgee effected through the facilities of the Corporation are debited and credited …”; the term “Security” equals “financial asset” defined in the NYUCC. The definition excludes preferred stock. Also, any “item credited to an Account shall be deemed a Security under these Rules and shall be treated as a financial asset under Article 8 of the NYUCC.”
5. Rule 2 (PARTICIPANTS AND PLEDGEES) requires compliance with the SEA requirement of fair access to C&S. DTC should make its services available to any persons who apply for the use of its services, meet a number of qualifications, are approved by DTC and make fund deposits. The criteria for approval should be applied on a nondiscriminatory basis and include sufficient financial ability to make any fund deposit and Required Preferred Stock Investment and meet anticipated obligations; demonstration of adequate operational capability (including personnel, physical facilities, books and records, etc.), fulfillment of its commitments to DTC and other participants promptly and accurately; absence of substantial information adversely reflecting on the applicant or its management, such as, e.g., conviction of a securities-related crime within 10 years prior to filing the application. There is a right to appeal from the decision. If a participant utilizes DTC for a non-participant, the Participant is liable as principal. Services of DTC are available to banks, trust companies and other persons that have been approved by DTC and entered into an agreement with DTC as “pledges” (need not be participants). “Only a Pledgee which is a Participant may receive a Pledge Versus Payment.” The Rule also facilitates information exchange in terms of providing on a daily basis information on a participant’s actual deposit and investment, collateral, and net credit/debit balance to other clearing agencies registered by the SEC of CFTC of which the participant is a member, or upon request of the participant.

6. Rule 3 (PARTICIPANTS QUALIFICATIONS). A company is eligible to become a participant if it engages in C&S activities and is a subsidiary of a national securities exchange; is in good standing; is authorized to engage in the business of transferring or pledging securities by book-entry; is a bank or trust company or subsidiary of a BHC regulated under banking laws; is an insurance company; is an investment company; is a pension fund; or demonstrates to the Board of Directors that its business and capabilities could materially benefit from direct access to DTC or a registered broker-dealer.

7. Rule 4 (PARTICIPANTS FUND AND PARTICIPANTS INVESTMENT) provides that the Fund comprises fund deposits of all participants.

8. Rule 5 (ELIGIBLE SECURITIES) defines that eligible securities are only securities accepted as such by DTC “in its sole discretion” and upon making determination that DTC has the operational capability and can obtain information regarding the security. The major principle is that such determinations or their revisions should be on a nondiscriminatory basis and promote facilitating the prompt and orderly settlement. If a security is not eligible, DTC notifies participants that it will “cease to render any service with respect to the Security.”
9. Rule 6 (SERVICES) provides that DTC accepts eligible securities for deposit; credits a participant's account accordingly; effects transfers by a participant of its deposited securities to another participant/s; effects pledges and the release of such pledges; delivers to a participant or its designee deposited securities; delivers dividends, distributions, rights, securities, proxy materials and other property or documents related to the deposited or pledged securities; disburses money to, and receives money from, participants and pledgees on behalf of other participants in connection with securities transactions; provides to the participants information and statements of account regarding their business; etc.

10. Rule 9(A) (TRANSACTIONS IN SECURITIES AND MONEY PAYMENTS) specifies how deliveries of securities through DTC are effected. A participant making a Delivery Versus Payment of securities should provide DTC with an instruction as to the amount of the payment. Thereupon, DTC credits the account of the deliverer with that amount and debits the account of the receiver with the same amount. Payments through DTC are made in accordance with its Procedures.

11. Rule 9(B) (TRANSACTIONS IN ELIGIBLE SECURITIES).

12. Collateral monitoring is calculated for the account family based on debit/credit of the accounts.

3. National Securities Clearing Corporation (NSCC)

1. NSCC was established in 1976. It provides C&S, risk management, CCP services and a guarantee of completion for most broker-to-broker trades in equities, corporate and municipal debt, ADRs, ETFs and UITs. It also nets trades and payments among participants. NSCC is regulated by the SEC. The S&C cycle is T+3. Services include equities clearance, including continuous net settlement (netting, allotting and fail-control mechanism where a security is netted to one position per participant through book-entry accounting centralizing settlement; after midnight of T+1 CNS transactions become guaranteed by NSCC; CNS clears equities and bonds, UITs, etc., see http://www.dtcc.com/products/cs/equities_clearance/cns.php ), ETF processing, OTC Comparison Service (accepts one-sided transactions from participants and matches buyers and sellers, provides centralized settlement, see http://www.dtcc.com/products/cs/equities_clearance/tcr_otctp.php ); NSCC provides equities settlement, including dividend settlement service; netting and settlement of MBS; mutual fund service, etc.

2. The available services include:
   a. Automated Customer Account Transfer Service (ACATS)
   b. Continuous Net Settlement (CNS)
   c. Index Share Processing
d. Trade Comparison and Reporting  
e. Real-Time Trade Matching (for fixed income securities)  
f. Reconfirmation and Pricing Service  
g. Settlement Services  
h. Stock Borrow Program  


1. In general, the Rules define the status of members and limited members, initial and ongoing membership requirements and monitoring, the structure of the clearing fund, distribution facilities, comparison and trade recording operations, delivery and receipt of securities and failures to deliver, the Continuous Net Settlement system, settlement procedures, insolvency issues, qualified securities depositories, procedures, insurance, financial reporting, restrictions on access to services, disciplinary proceedings, release of clearing data and clearing fund data, mutual fund services, limitations on liability, and procedures.

2. The term “CNS Securities” means cleared securities that are eligible for transfer on the books of each Qualified Securities Depository (i.e., a registered clearing agency) and are included in the NSCC list. CNS System is a method of “accounting for and settling securities transactions” (see also Continuous Net Settlement, http://www.dtcc.com/products/cs/equities_clearance/cns.php; “The Continuous Net Settlement (CNS) System is NSCC’s core netting, allotting and fail-control engine. Within CNS, each security is netted to one position per participant, with NSCC as its central counter-party (novation).” It is a book-entry automated accounting system available to all full-service settling members. All trades are netted by issue to net-long and net-short positions and open positions. NSCC acts as a CCP.)

3. RULE 2 (MEMBERS AND LIMITED MEMBERS). Similarly to DTC, NSCC offers its membership on a nondiscriminatory basis. A person has to apply, meet the membership qualifications, be approved, and, if required, contribute to the Clearing Fund. Members generally access all services; and only members may settle contracts through NSCC and participate in the Comparison and Recording Operation and Accounting Operation (see Procedure II, at p. 176 of the By-Laws). Upon request, an applicant may be approved as a Limited Member, including a Commission Billing Member (participates in the collection and payment of commissions); Data Services Only Member (solely in the transmission of data and information, or other designated
services); Fund Member (participates in Mutual Fund Services and is a principal underwriter, co- or sub-distributor); Investment Manager/Agent (“IMA”) Member (Mutual Fund Services on behalf of investment managers). As in the DTC case, participants transacting through NSCC with non-participants, i.e., non-members, are liable as principals (except for a Municipal Comparison Only Multi-Number Agreement).

4. Rule 2A (INITIAL MEMBERSHIP REQUIREMENTS) specifies the following standards: financial responsibility, operational capability, experience and competence.

5. Rule 4 (CLEARING FUND). Members and Mutual Fund/Insurance Services Members make deposits in the amount determined in accordance with an approved formula to the Clearing Fund. Deposits are held by NSCC. The amounts (at least $10,000) are determined based on the use of the facilities. “The collateral value of the Eligible Clearing Fund Securities and the face amount of Letters of Credit (if any Letters of Credit are required by the Corporation) shall not at any time be less in the aggregate than the amount of the participant’s open account indebtedness.” The Eligible Clearing Fund Securities are pledged to NSCC and may include the pledge by members to the NSCC’s accounts at another qualified securities depository. Not pledged securities are held by NSCC by a bank designated NSCC. The actual deposit funds may be used against obligations of a member to NSCC in case of default of cross-guaranty obligations.

6. Rule 5 (GENERAL PROVISIONS). A member may send NSCC buy-side and sell-side information on contracts calling for delivery of cleared securities. NSCC compares the contracts and accounts for CNS Securities, for balance order securities; and for foreign securities. CNS securities are delivered to NSCC through its facilities or another clearing agency. The payment is made through NSCC or its designated agent. For balance order securities, the delivery and payment procedures are similar. For foreign securities, delivery and payment are governed by an agreement.

7. Rule 11 (CNS SYSTEM). “The CNS System is a system for accounting for and settling CNS Contracts whereby a Member's Settling Trades in CNS Securities are netted so that with respect to each issue of CNS Securities in which the Member has activity, the Member is either obligated to deliver units of that security (a Short Position) or is entitled to receive units of that security (a Long Position), the delivery obligation being to the Corporation and the right to receive being against the Corporation …; whereby Short Positions or Long Positions outstanding in respect of prior activity are brought forward on a perpetual basis and, together with stock dividends or distributions payable or receivable in respect of Short Positions or Long Positions, miscellaneous entries and CNS Securities delivered to or by Members, are merged, netted and carried forward, leaving in each Member's account all transactions which have failed in delivery or receipt; and whereby the contract
money of all Settling Trades is netted with cash dividends or distributions receivable and payable and increases and decreases in obligations to the Clearing Fund, if applicable, and miscellaneous items resulting in the closing CNS System money balance for each Member which, for the purpose of computing the CNS System money settlement (including marking any Long or Short Position of a Member at the close of business to the Current Market Price), is adjusted by the net market value of all Closing Positions.” For each settlement, reports will be issued on daily basis to every member regarding all CNS positions in each security due to settle that and on the next settlement day. A CNS Security should be removed from the List if it is no longer eligible for transfer by book entry or members believe that they “may lose important rights by reason of its continued status as a CNS Security.”

8. Rule 12 (SETTLEMENT) provides in what manner NSCC debits/credits itself and its members and the events of default. A settlement statement is produced each business day. Each participant settles through a Settling Bank the net amount.

9. Rule 20 (INSOLVENCY). A member who cannot perform his obligations or is insolvent should notify NSCC, which will then treat it as insolvent (the determination may be made by NSCC or by court).

10. Rule 43 (DIVIDEND SETTLEMENT SERVICE).

11. Rule 52 (MUTUAL FUND SERVICES). The services include processing and/or settlement “on an automated basis purchase and redemption orders and transactions in interests in Fund/Serv Eligible Funds (such interests, whether structured as shares, units, or other denominations shall be referred to as “shares”…), transmit registration instructions and/or to enable, as the case may be, the transfer on an automated basis of the value of Fund/Serv Eligible Fund shares.”

**Services:**

1. In a nutshell, the NSCC’s services include:

   - **Equities Services**
     - Equities Clearance
     - Equities Settlement

   - **Fixed Income Services**
     - Government Securities
     - Mortgage-Backed Securities
     - Corporates, Municipals, UITs

   - **Asset Services**
     - Loan/SERV
- Asset Servicing
- Issuer Services
- Global Tax Services
- Underwriting
  - Global Corporate Actions
  - OTC Derivatives
    - Trade Information Warehouse
    - MarkitSERV
  - Wealth Management Services
    - Mutual Funds
    - Managed Accounts
    - Alternative Investments
  - Insurance & Retirement
  - Omgeo
  - DTCC Learning

4. DTCC Deriv/SERV
(see http://www.dtcc.com/products/derivserv/data/index.php )

1. Trade Information Warehouse Reports: The Warehouse reports on the vast majority of CDS contracts registered in its global repository. The data are divided into three sections: all live positions in the Warehouse; the change in weekly activity for Warehouse positions; all transaction activity (confirmed trades, assignments, and terminations) on weekly basis.

5. OCC

1. OCC was organized in 1973 as an independent clearinghouse for listed equity options. Now, it is the largest equity derivatives clearing organization.

2. OCC operates under the jurisdiction of both the SEC (clears options and security futures) and the CFTC (provides C&S for futures and options on futures). It also provides CCP C&S for securities lending transactions (for two securities lending market structures, OCC's OTC Stock Loan Program and AQS).

4. OCC clears futures contracts traded on CBOE Futures Exchange, NYSE LIFFE, NASDAQ OMX Futures Exchange and ELX Futures; security futures contracts traded on OneChicago; options on futures contracts traded on NYSE LIFFE US.

5. Products cleared by OCC are exchange-dependent. E.g.: CBOE Russell 2000 Volatility Index Futures; CBOE Mini-VIX Futures; CBOE Volatility Index (VIX) Futures; DJIA Volatility Index (VXD) Futures; S&P 500 Three-Month Variance Futures; S&P 500 Twelve-Month Variance Futures – CBOE; Gold Futures & Options; Silver Futures & Options; Mini Gold & Silver Futures – NYSE LIFFE.

**OCC, Financial Guarantee (2008)**


2. OCC eliminates counterparty risk and assures performance by acting as a buyer to a clearing member – seller and a seller to a clearing member – buyer through binding novation. Its members act with their customers as principals.

3. Membership standards: initial creditworthiness, minimum requirement of net capital, aggregate indebtedness, etc. For BDs-applicants and FCMs, net capital is calculated based on the SEC’s “Uniform Net Capital Rule” or the CFTC rules.

4. Non-US parties may become clearing members if their financial reporting standards are adequate.

5. Managing clearing arrangements is permitted.

6. The creditworthiness of members is monitored continuously.

7. Margin deposits (cash, letters of credit, eligible U.S. and Canadian government securities, debt securities of eligible government-sponsored enterprises, corporate debt and equity securities, money market fund shares, and other collateral) are deposited with OCC and mostly held in securities depositories or banks.

8. Accounts carrying long securities options positions are segregated from other positions free of encumbrances in favor of OCC.

9. A clearing fund is also created, deposits are computed monthly.
1. The Report mentions a number of interesting market trends in 2009. Namely, the total volume across exchanges surpassed the record of 2008. To date, this upward trend has been continuing for seven years. The average daily volume also increased compared to 2008. “Options premium totaled $1.22 trillion, down from $1.9 trillion in 2008 as prices to buy options came down from the peaks seen at the height of the financial crisis.”

2. The numbers of cleared futures demonstrated a 140% increase over 2008.

3. OCC continued developing its capacity as a central processing hub. By 2010, it will introduce new processing for Large Options Position Reporting.

6. Other Related Entities and Initiatives:

Securities Transfer Association (STA) and Transfer Agents:

1. Functions of transfer agents:
   a. Issue and cancel certificates to reflect changes in ownership.
   b. Act as an intermediary for the company.
   c. Handle lost, destroyed, or stolen certificates.

2. STA Guidelines define general procedures for signature guarantees, endorsements, transfers, share split-up and combinations, document certification, order of dividend and interest payments, transfers by various corporate and unincorporated entities, etc.

Bloomberg CDS Initiatives:

   a. Bloomberg started providing software for CDS operations, such as the first interface in the U.S. CDS market. The Interface connects buy- and sell-side firms to the two CCPs, the Chicago Mercantile Exchange (CME) and the InterContinental Exchange's ICE Trust. “This
connectivity leverages the Bloomberg VCON infrastructure for linking to MarkitServ for credit default swap and interest-rate swap trades.”


   a. Expecting statutory changes as to central CCPs for CDS, Bloomberg has become the first company offering a connection between traders and clearing houses. Its matching interface, Vcon (which is also a confirmation utility), sends both sell- and buy-sides of a swap transaction to send executed orders to CME and ICE, which in 2009 launched new facilities for clearing CDS. Europeans, such as Eurex and LCH.Clearnet may join.

### Clearing and Settlement in Some Foreign Jurisdictions


   a. The financial crisis has highlighted the importance of post-trading infrastructure.

   b. For the European market, the Eurosystem plays a key role in harmonizing financial infrastructure services. It has developed TARGET2-Securities for cross-border settlement. Removal of the Giovannini barriers and the Eurosystem initiatives in collateral management are also important.

   c. Historically, each European jurisdiction had one CCP and one CSD. Today, C&S remains fragmented with respect to technical arrangements, market practices and regulatory requirements, which entail high costs and risks. This is against the need for a single currency and pan-European integration. In addition, international C&S remains more expensive than domestic, while domestic European C&S is more expensive than in the US.

   d. The 2001 Giovannini Report showed the use of custodians and other links in cross-border transactions. In some cases, up to 11 intermediaries and “a minimum of 14 institutions between” parties were involved. At the domestic level – five only. That results in higher costs of C&S.

   e. Straight-through processing harmonizing operations of C&S infrastructures is needed to achieve substantial efficiency gains available due to positive network externalities and economies of scale and scope. Also, harmonization will lower barriers to entry and cross-border consolidation, increase interoperability (through pertinent agreements) and promote
competition, inter alia, via reducing switching costs, extending servicing other markets, and making C&S more compatible, comparable and transparent to investors.

f. By 2009, about 40 CSDs operated in the EU, with five of them accounting for 81% of the total value of delivery instructions. In 2008, the total of 322 million delivery instructions were processed by CSDs with the value of €631 trillion, which was a 9% decrease from 2007.

g. The authors expressed concerns that the size and interdependence among the C&S systems and payment systems may affect financial stability in case of defaults. Such interdependencies may hamper orderly money, repo and financial markets.

h. Also, complexity increases uncertainties for international players as to, e.g., which rules should apply. Directives and related domestic rules on, e.g., defaults, prices of collateral evaluation, decision making, discretion of authorities, credit and liquidity management, etc., are either different or not consistently applied in all countries.

i. “[C]oordination problems and vested interests may constitute hurdles to progress” (id. at 58) and translate into higher profits. Fiscal and legal differences are another side of the problem.

j. Contact Group on Euro Securities Issues (COGESI) is a major forum discussing surveys on DVP settlement, interoperability links, and settlement fails. CESAME was put in place by the EC in 2004 (starting from 2008, CESAME2) to support the efforts of the private sector to harmonize the markets. The European Central Securities Depositories Association (ECSDA) and the Securities Industry and Financial Markets Association (SIFMA) also cooperated with the ECB with respect to mapping some CSDs practices covering intra-day finality and differences in operating hours and different cut-off times for domestic and cross-border transactions.

k. Among the major Directives applied to C&S are the Settlement Finality Directive and the Financial Collateral Directive (“both provide some protection against certain risks inherent in settlement and the use of securities as collateral, and their scope has recently been extended. The Directives also usefully provide that when securities are provided as collateral via book entry, for example to a system participant or central bank, it is the law of the place where the securities account is maintained that determines the rights of the collateral taker”). See Directive 98/26/EC of the European Parliament and of the Council of 19 May 1998 On Settlement Finality in Payment and Securities Settlement Systems, as amended (OJ L 166 of 11.06.1998, pp. 45–50 ) and Directive 2002/47/EC of the European Parliament and of the

1. In 2005 the Commission established the Legal Certainty Group (LCG), a group of securities law experts, to advise on solutions to legal barriers related to the cross-border holding and settlement of securities. See “Second Advice to the European Commission of August 2008 On Solutions to Legal Barriers Related to Post Trading in the EU”, LCG, 2008. See also Consultation document of the Services of the DG Internal Market and Services, G2/PP D (2009), 16 April 2009.

m. The 2006 Code of Conduct on Clearing and Settlement, as a self-regulatory initiative, enhances harmonization and was signed by all major exchanges, CCPs and CSDs. The Code covers price transparency, interoperability and service unbundling.


o. One of the initiatives of the ECB and ECSDA was to provide a common grid for understanding the price lists of CSDs. The 2009 ECB study shows that full comparability is not feasible.

p. ECB and CESR (the Committee of European Securities Regulators) published two sets of recommendations for securities settlement systems and for CCPs. Also, the TARGET systems were devised.

i. The Eurosystem and ECB provides “a uniform service and pricing structure for the settlement of large-value payments” through TARGET2 system “operated on a single shared platform”. The other new platforms are TARGET2-Securities (T2S) for settling European securities transactions in central bank money; and CCBM2 for managing collateral for central bank operations.

ii. “T2S aims to overcome the fragmentation of settlement in Europe by creating a single technical platform for the settlement of European securities trades. T2S will provide harmonized and commoditised DVP settlement in central bank money, eliminating the distinction between domestic and cross-border securities transactions within the European market.” (id. at 63).

iii. By 2009, 28 CSDFs signed the T2S MOU with the Eurosystem.
iv. “Although T2S will not address all the existing barriers to cross-border securities processing in Europe, it will *de facto* create a domestic market for the settlement of European securities thanks to a single platform and harmonised services and prices for all participating CSDs.” (id. at 63) “Building T2S forces decisions to be taken on the existing options to harmonise securities settlement, such as the adoption of a common interface, common message formats, a common set of rules for intra-day settlement finality and a harmonised daily timetable and calendar.”

v. “T2S will contribute to eliminating Giovannini barrier 1 as it will provide a single IT platform with common interfaces and a single messaging protocol (known as ISO 20022) covering instructing, matching, settlement, querying and reporting across all connected markets.”

vi. “Moreover, by introducing a single operational schedule and calendar for all connected markets (including a single start and end-of-day, a common night-time settlement window and a single calendar per T2S-eligible currency), T2S will not allow different national cut-off times and will therefore be instrumental in removing Giovannini barrier 7. Besides, by extending a single harmonised settlement model, comprising RTGS DVP in central bank money, to all domestic and cross-border transactions, T2S will significantly help remove the remaining technical obstacles to interoperability, connectivity and intraday finality across different markets (Giovannini barriers 2, 4 and 5). Lastly, the lifecycle management and matching functionality in T2S will provide completely harmonized services in the area of settlement instruction management (Giovannini barriers 2 and 5).”

vii. T2S will provide a settlement process, which will not support existing national specificities. “Whereas CSDs are free to offer services tailored to the specificities of a local market at their own cost after T2S is operational, this extra cost creates incentives for harmonisation. Furthermore, T2S will allow intermediaries to harmonise their back-office processes. Indeed, banks and other CSD users will have the possibility of routing their settlement instructions directly to the T2S platform rather than via a CSD, which will enable them to rationalise their back-offices and to centralise the processing of securities settlement.”

r. In addition, “the Eurosystem decided in 2008 to move from a decentralised to a technically consolidated collateral management system. The new collateral management platform, called CCBM2, will ensure the greatest possible synergies with T2S and also TARGET2.” “[T]he CCBM2 User Requirements published in July 2008 set out key aspects of collateral management that will be harmonised as a result of implementation of the project, such as communication standards, collateralisation practices and credit claim management.”

s. At the industry level, the year 2009 brought about several initiatives, including:

i. The Euroclear Group completed the Euroclear Settlement of Euronext-zone Securities (ESES) project integrating C&S in France, Belgium and the Netherlands. Users can hold one account at one participating CSD only.

ii. Eight European CSDs and two non-European CSDs organized a joint venture (“Link Up Markets”), which, although does not create a single consolidated settlement engine, “focuses on the provision of more efficient cross-border settlement and custody services between legally independent CSDs, through an enhanced exchange of messages.” (id. at 68).

t. The report also analyzes derivatives clearing (id. at 80-82). The findings state that:

i. Central clearing through CCPs is useful, “can reduce and more effectively manage counterparty risk”; and “enables multilateral netting, diversification and sharing of risk exposures, thereby reducing the levels of counterparty risk and the need of collateral.” CCPs also prevent potential defaults from propagating. Among the CCPs established for CDS were the US-based ICE Trust and Chicago Mercantile Exchange, the British ICE Clear Europe and the German Eurex Credit Clear. The French LCH.Clearnet SA is developing another CCP for CDSs.


iii. The studies suggest that bilateral netting is prone to greater counterparty risk than CCPs. Finally, establishment of trade repositories for OTC derivatives, i.e., registries where OTC trade data with respect to values of trades and their terms and pricing are maintained. Trade repositories will enhance regulatory transparency.

iv. Finally, the ECB believes that regulatory structure of the OTC derivatives market should be harmonized globally and that derivatives should be liquid and standardized to allow central clearing and transparency. For this reason, mandatory reporting and better collateralization should be developed. “Finally, given the systemic importance of securities clearing and settlement systems and considering the large proportion of euro-denominated OTC derivatives, there should be at least one CCP for CDS (as well as for other OTC derivatives) in the euro area. The Governing Council confirmed the importance of the issue in its decisions of 18 December 2008 and 16 July 2009.”


a. The paper is an introduction to a series of the following research papers on C&S. It presents an overview of economic studies on C&S in Europe, approximately from 2000 to 2007. Many reviewed studies focused on network externalities, the effect of MiFID, horizontal and vertical integration of CSDs and exchanges (Rochet, e.g., “is able to compare the efficiency benefits of integration with the potential welfare losses of foreclosure” [id. at 2957]), customer-ownership of CSDs and CCPs (“it is arguable that those [entities] can internalize such market benefits, setting prices for clearing and settlement prices sufficiently low to maximize the benefits to users” [id. at 2954]) economies of scale and scope (often, DTCC is perceived as operating “closest to efficient scale of output” [id. at 2958]), interactions of trading platforms, and economic efficiency of alternative industrial structures. The introduction reviews empirical and theoretical models presented in the studies by Van Cayseel and Wuyts, Kauko, Rochet, Serifsoy and Weiss, Milne, Holthausen and Tapking, and others.

a. The increase in cross-border trading activities prompted creation of a successful framework for EU trading that must be followed by integration of EU post-trading and C&S services. The recent developments include the possibilities to choose a provider under the MiFID and the Code of Conduct for Clearing and Settlement. Relevant cross-border infrastructure is, however, underdeveloped, thus placing European markets at a disadvantage compared to the US.

b. The EU stepped up its efforts based on the Giovannini Reports, published in 2001 and 2003. These reports describe the following categories of obstacles: “(a) technical requirements and industry practices; (b) taxation; and (c) legal certainty.” Those three areas are broken down into fifteen specific barriers.

c. LCG is a group of 36 legal experts from the post-trading industry, academia and competent authorities from 23 EU Member States. The First Advice was provided in July 2006. “The Commission's Mandate for the Legal Certainty Group covered the development of concepts capable of dismantling two of the four Giovannini barriers (Barrier 13 on book-entry securities and Barrier 9 on the location of securities) and the legal aspect of one of the industry barriers (Barrier 3 on corporate actions processing). Barrier 13 deals with the absence of an EU-wide framework regarding the treatment of "book-entry securities". The issue had been identified by the Giovannini Reports as the single most important legal obstacle to a legally sound cross-border framework for post-trading arrangements.”

d. The LCG Report provides a number of recommendations that propose harmonized rules for book-entry records, for account providers, acquisitions and dispositions through such accounts (such as “the methods for acquisition and disposition; the minimum content of the acquired position; effectiveness and reversal; the protection of the acquirer; priority issues; the integrity of the number of securities; instructions; and, the possibility of attachments”).

e. Furthermore, the Recommendations cover processing of corporate actions (i.e., issuer-investor relations through account providers, voting at general shareholders meetings, different notification processes, identification of the moment of transfers, record dates, payment dates, standards of electronic communication, incompatible liability rules, etc.) and operational issues. “[T]he Advice proposes to dismantle existing obstacles with two global and functional rules which complement and broaden the relevant rules contained in the
Shareholders' Rights Directive: first, a rule ensuring that a cross-border investor can exercise rights enshrined in his securities, either directly or through assistance by the chain of account providers; and, second, a rule addressed to account providers obliging them to provide a harmonised level of basic assistance to investors as regards the exercise of these rights.”

f. There are still certain problems related to dematerialization of securities and the issue of “location” (Barrier 9) (particularly with respect to the entering of securities (both dematerialised and certificated) and CSDs). Restrictions are imposed either by market rules or by national laws. For instance, some national laws require securities listed in their regulated markets to be deposited exclusively in the local CSD. The Report recommends that securities issued under the law of one Member State should be allowed to be initially entered into a CSD constituted by the law of another Member State. Giving the issuers free choice as to the location of securities will increase competition and market efficiency.

g. In a nutshell, the Report recommends the following:

i. Greater legal certainty, particularly with respect to book entries in securities accounts.

ii. Recognition of the legal relationships between account holders, account providers, book entries, issuers and investors.

iii. Recognition of a number of duties of account providers as to safeguarding book-entry securities; acting within the scope of an account agreement and processing corporate actions accordingly, maintaining proper reporting systems; liability for willful misconduct and gross negligence.

iv. Granting account holders the rights in securities, such as the rights to exercise all rights associated with securities under applicable law; to give instructions to account providers with respect to disposition and the manner of holding the securities, etc. Also, the status of the account holders should be clarified, including their property rights, security interests in securities, etc.

v. Acquisitions and dispositions of securities should be deemed valid by dint of crediting an account, debiting an account, earmarking book-entry securities in an account, or earmarking a securities account, concluding a control agreement, concluding an agreement with and in favor of an account provider, by operation of law, etc.

vi. Those acquisitions/dispositions should be immediately effective with no other steps required by law, unless an agreement between a provider and an account holder provides otherwise.
vii. The national laws should provide that entries can be reversed in the cases of consent of the account holder, of erroneous crediting, of unauthorized debiting, earmarking or removal of an earmarking.

viii. “An account holder [or a “person in whose favour an earmarking has been made”] should be protected against reversal of a credit unless it knew or ought to have known that the account should not have been credited.”

ix. Unless an agreement or law provides otherwise, priorities in the same securities should be assigned based on the first-in-time principle, in chronological order, earmarked acquisitions should have priority over securities acquired via control agreements.

x. Account providers have to maintain a number of securities corresponding to the aggregate number of securities credited to accounts. Imbalances may call for “the reversal of erroneous bookings; the buy-in of missing securities; the attribution of securities held by the account provider for its own account to the account provider's account holder (clients); in the event of insolvency of the account provider, the loss represented by the missing securities is to be shared amongst the account holders following the law of Member States or the rules of the relevant settlement systems in accordance with the relevant law.”

xi. Instructions given by the entitled person should be executed by the account providers promptly and with due care.

xii. Creditors of account holders may attach securities held by account providers; while creditors of account providers may not attach segregated client accounts, even if held by another account provider.

xiii. The overarching EU legislation is needed for improving C&S. Namely, the legislation should call on the Member States to recognize and be compatible with holding patterns in other jurisdictions, including holding through one or more account providers and through omnibus accounts; and “holding of securities by an account provider acting in its own name for the account of another person or other persons, and investors should not be discriminated by the law of the issuer, as regards in particular the exercise of the rights enshrined in their securities, due to the fact that they use one of the above holding models under a law different from the law of the issuer.” The laws should also harmonize the role of account providers in the processing of corporate actions.
xiv. To recapitulate, securities registered under one national law, should be “capable of being initially entered into holding and settlement structures for securities, in particular those maintained by a central securities depository, in or governed by the law of any Member State.” Mandatory local registrar, local settlement and other requirements should be abolished. So should any rules discriminating against securities that are not constituted under the local law.

   a. In the past decade, the C&S industry was consolidating fast. The author reviews literature on the problem of consolidation and develops a model of competition.
   b. Notably, integration of the industry is encouraged by the European Commission seeking to develop a unified financial market. Both forms of horizontal and vertical consolidation are present. The EU authorities seem to follow the laissez faire approach in this case and abstain from supporting a single model of consolidation.
   c. The author believes that the market by itself may not necessarily create the most socially beneficial structure.
   d. The analysis compares two models: a single CSD and a CSD consolidated within a custodian bank. The author concludes that such consolidation (1) changes the nature of the settlement excluding a Central Bank; (2) reduces competition for banking services, (2) while a CSD may increase profits and BDs can benefit, the model could raise the costs for retail investors; (3) vertical integration may simultaneously decrease marginal costs of settlement and reduce competition. Regulations of consolidated organizations are complex and hindered by inefficient disclosure rules.

   a. The European Commission’s Financial Services Action Plan provided incentives for exchange and C&S integration within the EU.
   b. The governance structure of C&S should address a wide range of interests, including stakeholders, national interest and transnational EU interests, while minimizing systemic
risk. C&S organizations are “imbued with a public” interest through supporting access to capital, risk management, vital for the real economy, etc.

c. The paper focuses on the conflicts of interest within in the S&C system and the actions that public authorities can undertake to mitigate such problems.

d. The author argues that, first, particularly in complex clearing-settlement-banking services organizations, full independence of directors in risk management is crucial. Secondly, integration, both vertical and horizontal, may lead to conflicts of interest within financial groups. Horizontal integration at various levels increases the numbers of markets served by such integrated entities and introduces the need to account for the interests of non-resident customers and shareholders. There is also the potential for the abuse of monopoly positions in certain circumstances.

e. The 2001 Core Principles for Systemically Important Payment Systems of the Committee on Payment and Settlement Systems (CPSS) offered a number of standards, which were followed by the international standard on governance for securities settlement systems (SSSs) by CPSS-IOSCO (available at http://www.bis.org/publ/cpss42.htm). The standards require CCPs and CSDs to promote public interests and objectives of owners and users. Similarly, the Giovannini Report and the Communication from the Commission to the Council and the European Parliament on Clearing and Settlement in the European Union dated 28 April 2004 (COM (2004) 312 final) envisage a framework Directive addressing appropriate governance arrangements for SSS.

f. The lack of competition and increased consolidation within the industry are widely perceived as problematic. Similarly, cross-border operations call for greater cooperation and protocols among various public authorities.

g. The author analyzes such issues as disclosure, transparency and ownership of SSS. For example, CPSS-IOSCO and ESCB-CESR recommendations on governance and the Giovannini Reports do not specifically recommend particular ownership types, while the European Parliament Report on Clearing and Settlement expresses a preference for not-for-profit SSS structures.

h. The author describes in details the general models of corporate governance, identifies their major determinants, considers conflicts of interest among providers of post-trading services and gives an overview of public policy responses.

i. The research reviews two models of corporate governance: stakeholder and shareholder models.
j. CSDs:
   i. There is a variety of national legal provisions and corporate forms of CSDs in Europe: some are commercial entities, which is in line with the law of most Member States, “while four CSDs are organised as banks: Clearstream Banking Luxembourg, the national CSD for Luxembourg and an ICSD; Clearstream Banking Frankfurt, the national CSD for Germany; Euroclear Bank, an ICSD; and Keler, the national CSD for Hungary.”
   ii. Non-bank CSDs are usually subject to prudential regulations. Regulatory models vary substantially. In all jurisdictions, the central bank has some authority with regard to CSD for government securities. CSDs in the form of banks are also subject to requirements imposed on directors and officers by the central banks, which also review capital adequacy and management of CDSs.

k. CCPs:
   i. Similar considerations apply CCPs. For example, the corporate form of CCPs in Europe varies. “All operate as commercial entities except LCH.Clearnet, S.A., a subsidiary of LCH.Clearnet Group Limited, which operates as a bank.”

l. In general, the ownership structure of C&S systems differ around the world, from SSS owned by customers or third parties to corporations, from nonprofit to for-profit entities. Vertical or horizontal integration are not uncommon. For corporate structures, both single and dual board structures are appropriate.

m. As of 1 May 2004, the CSDs of twelve Member States were “subsidiary entities owned within a company group, while the CSDs of three Member States (Austria, Denmark and Sweden) [were] held independent of a company group. Of the twelve CSDs held within a company group (including, for Belgium, both Euroclear Bank and Euronext CIK), eight [were] held by a company group organised around the official stock exchange of the jurisdictions in which they operate (or its holding company) and four (Euroclear Bank for Belgium and for Irish government bonds, Euroclear France, CrestCo for the United Kingdom and for Irish equities, and Euroclear Nederland) [were] organised around the ICSD, Euroclear. The other ICSD, Clearstream Luxembourg, was held within a company group centred on the Deutsche Börse.” In the new members states, most CSDs were government-owned.

n. Among the CCPs, five were commercial entities within exchanges. Euronext Lisbon, the Helsinki Exchanges, MEFF in Spain and Stockholmsbörsen were held within a company
group. The Wiener Börse was an independent entity. Eurex Clearing in Germany, ADECH in Greece, CC&G in Italy and FUTOP Clearing in Denmark were commercial subsidiaries within their company groups or exchanges. LCH.Clearnet was owned partially (45.1%) by exchanges with 45.1% owned by system participants, and the rest - by the Euroclear Group.

Among the services provided by CSDs are “securities numbering (using ISIN codes), administration of corporate actions, interest payment and tax withholding services, collateral management (for equities settlement, repos, or derivatives transactions), cash transfers, foreign exchange services, securities lending (as agents for CSD participants as securities borrower and securities lender), trade matching and confirmation services, order routing services, settlement and other services across links with an ICSD or other national CSDs, and the provision of other information and data services.”

CCPs within holding companies focus on central counterparty services, related risk management and auditing. Also, they can provide trade matching, confirmation, and data services.

The authors focus on the mechanisms addressing the interests of customers through user-ownership of the CSDs and CCPs; board composition rules requiring customer representation, the use of advisory committees and publications of public consultation documents. “LCH.Clearnet Group Limited is unique in setting aside board seats for representatives of the trading platforms for which it clears.”

CCPs manage credit risk with respect to both parties to a transaction, thus, enhancing the creditworthiness of the system and facilitating trading. This requires independent risk management, proper and independent calculation of contributions to the default fund, collateral arrangements.

“A tension may exist between this profit maximisation objective and the necessity to assure the uninterrupted provision of CSD core services in all market foreseeable conditions.” In this way, banking services, potentially offered by a CSD, could jeopardize core settlement services.

Integrated entities are particularly prone to conflicts of interest “due to the possibility that management of the parent institution will pursue the interests of the parent company or other affiliates at the expense of the interests of the CSD or CCP.” It can be done through, e.g., price bundling, especially dangerous in the monopolistic environment. Also “the provision of netting or central counterparty services by a CCP outside the financial group may be prevented if the CCP would be in competition with the CSD.” In the event of default, some
customers may be preferred over others, especially non-resident ones. Finally, anti-competitive links may be used to tie various services within a group.

u. The author suggests a number of regulatory approaches to the system, including increasing transparency and disclosure, requirements for effective governance for all ownership structures (here, the paper draws on the conclusions of the Giovannini report), development of a harmonized regime for C&S (which is required based on Art. 82 of the Treaty establishing the EC and the Directive on Markets in Financial Instruments requiring “a minimum substantive harmonisation of regulatory requirements, including requirements relating to corporate governance, with respect to each post-trade processing service provided along the value chain of securities clearing and settlement sufficient to justify mutual recognition of the regulatory authorisations to provide such service granted in each Member State; the availability of a passport to provide each such service throughout the Community based on a home country authorization”, see also the Settlement Finality Directive, 33 Official Journal L 166, 11.6.1998, p.45), considering the applicability of the European Company Statute (a form of an LLC) and the European Economic Interest Grouping (a nonprofit entity promoting businesses of its members) for cross-border activities.


a. Settlement in Brazil occurs based on the T-3 cycle. Generally, a seller delivers shares to BM&FBOVESPA (which is a combined securities and derivatives exchange created in 2008) on T+2. Delivery and payment occur through CBLC (Brazilian Clearing and Depository Corporation), which is a subsidiary of the exchange. CBLC also provides depository services, guarantees execution of transactions, and provides multilateral C&S. Financial
settlements take place through the Central Bank's Reserve Transfer System; clearing – through the CBLC custody system. C&S are final.

   a. Law 2533/1997 is the organic statute of the Athens Derivatives Exchange (hereinafter "the ADEX"), and of the Athens Derivatives Exchange Clearance House (hereinafter "ADECH")
   b. ADECH clears transactions as the CCP for all derivatives transactions conducted on the ATHEX Derivatives Markets. It guarantees the clearing of contracts.
   c. To mitigate the risk of nonpayment, principals must post daily margin. The margin is calculated by ADECH.
   d. The clearing procedure is reserved to ADECH members only; and members may be "clearing" or "non-clearing". C&S must go through the single Settlement Bank.

   a. C&S of transactions are performed by the CSD through the Dematerialized Securities System with participation of brokerage firms and Custodian Banks (as the "CSD Operators")
   b. All transactions in listed securities are monitored through the Investor Share and DSS Dematerialized Securities Accounts of individual investors
   c. In a nutshell, ASE trade documents to the CSD, where through DSS data are reviewed to ensure matching sales and acquisition records. Trades are then aggregated and finalized.
   d. By the third business day, the CSD transfers securities from the seller’s DSS Securities Account to the buyer’s, and debits or credits, as applicable, the Operators' Cash Account with the Cash Settlement Bank. Settlement is considered final and irrevocable.

   a. Italy has the Clearing & Guarantee House ("CGH"), incorporated as a joint stock company. Intermediaries operating on the Stock Exchange and derivatives markets may be members. Securities regulators and the Bank of Italy oversee CGH’s operations.
   b. CGH is charged with guaranteeing financial stability of derivative markets, prompt settlement in securities markets and C&S in the Italian Futures and Options Market for Government Bonds.
   c. CGH is a CCP and the middleman for transactions between members, whether “individual”
or “general” (such as banks and security firms with net assets of at least Lire 100 billion).

d. CGH has certain risk management safeguards, such as a standard guarantee system, initial and variation margins, and market price monitoring. In cash markets, CGH assures conclusion of rolling account transactions on the Stock Exchange and performs its functions without recourse.


a. The settlement system is managed by *Interbolsa - Sociedade Gestora de Sistemas de Liquidação e de Sistemas Centralizados de Valores Mobiliários, S.A.* ("Interbolsa") owned by Euronext Lisbon.

b. It settles transactions with stocks, bonds, notes, credit operations collateralised by Treasury bonds and private paper. It acts as central securities depository with respect to registration, deposit and safekeeping of securities and as settlement system. There is no custody risk as, pursuant to the Securities Market Code, deposited securities are not part of the CSD's assets and are deemed owned by the beneficiaries.

c. *Interbolsa*:
   i. establishes and operates systems for the registration and management of transferable securities, and for depositing, safekeeping and managing fungible securities;
   ii. provides services for administration of securities;
   iii. operates the system linking CSD to financial intermediaries, issuers, regulated markets and the central bank;
   iv. ensures the settlement and manages the securities settlement systems;
   v. etc.

d. LCH.Clearnet SA is a clearing house and a central counterparty for the operations of the Euronext group markets, including Euronext Lisbon, in the cash and derivative markets, and registers, clears, settles and provides risk management related to transactions in Euronext Lisbon.

e. Central Securities Depository (CSD) of Interbolsa provides the actual settlement of cash market operations and of derivative market operations.

f. Two systems of settlement are used: the general settlement system, and the real-time settlement system, mostly used in OTC operations and for the administrative transfer of securities.

g. There is no zero-hour rule for reversal of settled transactions.
h. Intra-day delivery-versus-payment settlement is possible and ensures that securities are
delivered only upon confirmation of payment from the central bank. Otherwise, the securities
are conveyed back to the seller.


a. Spain does not have a centralized CCP. C&S is strongly dependent on the national federal
system. Major stock exchanges in Barcelona, Bilbao and Valencia clear and settle transactions
with securities listed solely on the respective exchanges through their internal departments.

b. The major C&S operations are for the stocks listed on the Madrid Stock Exchange,
IBERCLEAR clearing and settlement system, and the Continuous Market ("Sistema de
Interconexión Bursátil" or "SIB") administered by "Sociedad de Bolsas, S.A.". Its shares are
owned by the four stock exchanges.

c. Overall, there are four substantial systems of clearing and settlement: one for the Madrid Stock
Exchange and the SIB, another to the Latibex S.O.N., the third one for private debt securities
(AIAF) and the fourth one for public debt securities.

d. There are two entities operating in the futures and options markets (Meff Sociedad Rectora de
Productos Financieros Derivados de Renta Variable, S.A., Sociedad Unipersonal and Meff
Sociedad Rectora de Productos Financieros Derivados de Renta Fija, S.A., Sociedad
Unipersonal).

e. IBERCLEAR, as the main C&S entity, does not act as a CCP, but has rules preventing defaults,
such as guarantees, margin requirements, etc. IBERCLEAR does not assume any liability or
guarantee payments and delivery of securities. Instead, all participants create a collective
guarantee. IBERCLEAR keeps registries of securities in book entries, is in charge of settlement
and clearing, provides operational services, etc. IBERCLEAR is regulated by the Central
Government, as opposed to smaller departments of regional exchanges. In case of default by a
participant of IBERCLEAR, it may sell his securities. Settlement of transactions is final, which
is in line with the EC Directive 98/26/CE. Orders for the transfer of cash or securities cannot be
revoked because of, e.g., bankruptcy.

f. IBERCLEAR records all C&S transactions and all in rem rights over such securities.

g. For cash deliveries, there is an agreement between IBERCLEAR and the Bank of Spain.

h. The C&S principles are universality, delivery upon payment, objective date of settlement,
assurance of delivery and financial neutrality. Settlement is carried out in D+2.

12. Carol Ann Northcott, Estimating Settlement Risk and the Potential for Contagion in Canada’s

a. Comment: The paper focuses on the interbank market in Canada, although some of its conclusions may be applicable to clearing and settlement in general.

b. The paper was prompted by the growing interconnectivity of financial systems and by economic crises. Payment systems are crucial for an efficient economy and should be designed in such a way that they are able to withstand a crisis and avoid contagion of defaults.

c. The author reviews substantial literature on the issue starting from Humphrey (Humphrey, D.B. 1986. “Payments Finality and Risk of Settlement Failure.” In Technology, and the Regulation of Financial Markets: Securities, Futures, and Banking, edited by A. Saunders and L. White. Lexington, MA: Lexington Books, 97–120), whose approach was later adopted by other authors. Humphrey examined the potential for contagion and bilateral exposures using data from the US net settlement system. Default of a sizeable participant could expose its counterparties to the extent that they would be unable to comply with their payment obligations to the system. Interlinkages within the system would expedite contagion. The author describes Humphrey’s empirical analysis as follows (id. at 2):

i. “[O]n a given day, a participant defaults on its payment obligation. All transfers to and from that participant are removed from the clearings (“unwound”) and revised multilateral net positions are calculated for the survivors. To the extent that a survivor has allowed its clients to use expected incoming funds due from the defaulter (provided provisional credit) with the expectation of final settlement at the end of the day, it will experience a liquidity problem due to the unwinding of payments. The survivor’s net position change resulting from the unwind is used as a measure of this liquidity problem. To measure the potential for contagion, a standard assumption is used. If a survivor experiences a net position deterioration greater than or equal to its capital, and is in a revised net debit position, the survivor is assumed to be unable to meet its obligation and it too defaults. All payments to and from any participant exceeding this threshold are unwound, and further revised settlement positions are calculated. This process continues until all remaining participants are below the threshold.”

d. The paper examines the Automated Clearing Settlement System in Canada in light of the potential for contagion. It creates a quantitative model of a deferred net settlement system to
test the system against various conditions and to analyze behavior of various parties *vis-à-vis* potential contagion.

e. Net settlement presumes that obligations of counterparties are offset against each other within a specific period of time. Those who are owed funds *de facto* extend credit to their counterparties. The final exchange of net positions extinguish payment obligations. The structure exposes counterparties to the risk of default, which affects other market participants depending on the system’s risk-control mechanisms (e.g., collateral requirements), provisional credit, loss allocation among participants, and recovery from the estate.

f. The paper also analyzes the structure of claims in the ACSS. Capacity of various agents to absorb the risk of default is also analyzed. The author describes the ACSS’s tiered arrangement for settlement through indirect and direct clearers.

g. She also analyzes liquidity and credit risks within the ACSS system. A contagion is defined “as the default of a participant in the system owing to exposures incurred by the default of another participant” (id. at 12).

h. The author concludes that the ACSS is not likely to facilitate contagion, and that capital and liquidity holdings of participants are crucial to protect them against knock-on effects. It also emphasizes the importance of claims against the estate of a party in default for survivors. Participants differ in their sensitivity to knock-on defaults and in their ability to initiate knock-on effects. The risk of contagion and its magnitude depend on the structure of interlinkages within a financial system. The ACSS is subject to potential contagion and knock-on defaults only under extreme conditions, although subsequent defaults are improbable.


   a. The study primarily focuses on the EU markets.

   b. Scholarly literature reveals a correlation between the financial sector and economic growth by means of technological innovations and capital accumulation. The authors examine the causal relationship between the two from the perspective of financial integration.

   c. First, trading costs are weighed against liquidity. The impact of the economies of scale (such as those existing in CSDs) on liquidity is also assessed. The dataset includes 21 OECD markets in 2000-2001. The authors find that a one percent decrease in post-trading costs leads to a commensurate increase in trading volume for all markets in the dataset.
d. Second, liquidity and trading costs are assessed against the cost of capital.

e. Finally, the authors consider the impact of all three aforesaid variables on GDP. A major conclusion of the study was that an efficient post-trading system decreasing the overall trading costs by 18% can result in the 0.6% increase of GDP in the following years.

f. The authors also point out at a number of studies illustrating that in Europe, domestic CSD show the highest potential for cost-savings and economies of scale in comparison with ICSDs.

14. TARGET2


i. TARGET2 (as a successor of TARGET) is a part of the payment infrastructure for large value and urgent payment transactions in Euro.

ii. It is run by the Eurosystem under the governance of the Governing Council of the ECB. Three central banks (Italian, French and German) provide technical infrastructure and the Single Shared Platform.

iii. Recently, the system was assessed against the Core Principles for Systemically Important Payment Systems (Report by the Committee on Payment and Settlement Systems on “Core Principles for Systemically Important Payment Systems”, BIS, January 2001) as to the following variables: legal bases, understanding of financial risks, management of financial risks, prompt final settlement, multilateral netting, settlement assets, security and operational reliability, access criteria and governance. Generally, the assessments were positive.


i. Trans-European Automated Real-time Gross Settlement Express Transfer (TARGET) is the “Eurosystem interbank funds transfer system, which is designed to support the Eurosystem’s objectives of defining and implementing the monetary policy of the euro area and promoting the smooth operation of payment systems, thus contributing to the integration and stability of the euro area money market.”

ii. TARGET2 is a single system offering real-time gross settlement services to participating countries and the ECB payment mechanism.
iii. TARGET2 only transfers payments in Euro, especially those relating to foreign exchange and money market transactions. It decreases costs and time of transfers and provides immediate and final settlement. There are no set minimum amounts for payments.

iv. The Guide covers daily activities of TARGET2, including its governance and technical structure; organizational structure at the Central Bank level, types of transactions (customer payments, interbank payments, direct debits, liquidity transfers, SWIFTNET FileAct and InterAct); settlement of ancillary systems, including securities settlement, operation communications; access criteria for direct participation, indirect participation, multi-addresssee access, addressable BICs, group of accounts; static data collection; certificate testing, measuring security and operational reliability of participants; their termination/suspension; billing; description of daily operations; handling of incidents and other failures; compensation schemes and procedural rules.

v. TARGET2 works with the so-called “ancillary systems”, such as retail payment systems (RS); large value payment systems (LVPS); foreign exchange (FX) systems; money market systems; clearing houses; and securities settlement systems (SSS).

vi. All ancillary systems are assessed whether they can cause systemic risk based on “the results of a consultation of the relevant Eurosystem entities and available documentation.”

vii. CSDs, ICSDs and CCPa are deemed to be “of systemic importance and the failure of an (I)CSD/CCP would have knock-on effects on the smooth functioning of TARGET2. Consequently, all organisations in the field of securities clearing and settlement are considered critical participants. In order to avoid over-regulation, the relevant central bank may have to examine on a case-by-case basis whether a particular organisation in the field of securities clearing and settlement should indeed be classified as a critical participant. If the outcome of this examination were to demonstrate that the failure of such an organisation would not have systemic implications for the TARGET2 system or its participants, the relevant central bank could classify it as a normal player. The relevant central bank has to inform the ECB about this reclassification and to explain the rationale behind it. The ECB will then form an opinion on whether the reclassification is reasonable. This opinion will be submitted to the relevant Eurosystem committee for further consideration and this
committee might decide that the criteria used by the reclassifying central bank should be commonly used.”

viii. The Guide describes all payments steps. Participation of ancillary systems in TARGET2 requires an ex ante agreement with settlement banks. The Continuous Linked Settlement system “provides global multi-currency settlement services for the forex contracts using a payment versus payment (PvP) mechanism.” Payments related to margin calls of CCPs are highlighted as an important part of TARGET operations (initial and variation margin) (a “margin call is a demand by the clearing house to a clearing member for additional funds or collateral to offset position losses in a margin account. If no initial margins were to be received, it would postpone the start of trading in the respective market or, if some margins were not paid, the positions of the concerned member might be closed out and the member might eventually be excluded.”).

c. See the description of TARGET2 at http://www.ecb.de/paym/t2s/about/why/html/index.en.html

i. Its objective is to “better meet user needs by providing a harmonised service level with a harmonised pricing scheme; ensuring cost-efficiency; and preparing for future developments, including the enlargement of the EU and the euro area.”

ii. TARGET2 Securities (T2S) “will be a single IT settlement platform for all CSDs to use. This single platform will form the common technical basis for security settlement in Europe. The common basis will significantly reduce the existing barriers and support competition between service providers. T2S is neutral, and as such, will not put specific countries, market infrastructures or groups in any more favourable or disadvantageous positions.”

iii. “More than 2 million settlements are processed every day in Europe. T2S will make cross-border security settlement cheaper and easier. It will be a single IT platform that all Central Security Depositories (CSDs) can use. T2S will stand for fast and low-cost settlement of virtually all securities circulating in Europe, in euros, in central bank money and possibly other currencies, making it very safe. T2S will be operated by the Eurosystem on a nonprofit basis. It is being designed in a way that it can cope with the expected further growth of the number of settlements.”

a. Participating organizations “welcome the transparency of prices, the freedom of choice for traders, the improvement of open and transparent access to posttrading services with a view to achieving greater interoperability.”

b. The Code is a voluntary self-commitment covering post-trading activities in cash equities in Europe and such services as clearing houses, CCPs and CSDs clearing services, settlement and custody services by parties offering issuer CSD services and others.

c. Among the objectives is price transparency, which requires every organization to publish all “offered services and their respective prices including applicable terms and conditions,” all discounts and rebates schemes, etc. Also prices should be comparable and billing – reconcilable.

d. In terms of access and interoperability requirements, “CCPs should be able to access other CCPs; CCPs should be able to access CSDs; CSDs should be able to access other CSDs; CCPs and CSDs should be able to access transaction feeds from trading venues; CSDs should be able to access transaction feeds from CCPs; a trading venue should be able to access a CSD and/or CCP for its post-trading activities.” MiFID already gives some access rights in this area, such as the right of a participant to access remotely foreign CCPs and CSDs.

e. Fair access conditions and procedures should be developed. “Standard unilateral access and transaction feed access shall be provided on a nondiscriminatory price basis; any customised component of a unilateral access or transaction feed access should be paid for by the Organisation requesting access on a cost-plus basis unless otherwise agreed between the parties.” In the event of a dispute, mediation should start.

f. Interoperability should be enhanced through the commitment of all organizations to a number of terms. For instance, “[a]ny Organisation receiving a proposal for Interoperability will expeditiously enter into discussions with the proposing Organisation about the most appropriate design and procedures for establishing such an Interoperability relationship.”

g. The Code provides for service unbundling and accounting separation in order to make transparent the ratio of revenues and costs of services, facilitate competition, disclose cross-subsidies between services and provide users with choice. Unbundling of prices means that the participants “will allow any customer to purchase an unbundled service without compelling that customer to purchase also another unbundled service and [e]ach unbundled service will be available at a price applicable to this service.”
a. The paper analyzes the nature of OTC derivatives and the post-crisis political debate on the OTC derivatives that is currently progressing in the EU. The bilateral nature of the market makes it non-transparent to outsiders. The paper describes the mechanics of derivative contracts, market structure and infrastructure, the level of standardization, risk characteristics and risk mitigation instruments; and risks and risk mitigation measures.

b. Even before the crisis, some potential hazards of the OTC market were highlighted by CPSS in its 1998 report and expressed in the Financial Collateral Arrangements Directive (FCD) (which improved collateral treatment and granted protection for the collateral provided for netting and close-out netting agreements).

c. On 2 December 2008 the Council supported the creation of one or more European CCP clearing capacities for the OTC derivatives and called for similar global initiatives. (On 18 December 2008 the ECB's Governing Council stated that "there was a need for at least one European CCP for credit derivatives and that, given the potential systemic importance of securities clearing and settlement systems, this infrastructure should be located within the euro area"). The 2 April 2009 G20 Declaration also targeted standardization and resilience of credit derivatives and the establishment of CCPs.

d. Among the findings of the Paper are that CCP clearing is the most efficacious means of reducing credit risk in OTC derivatives transactions. The creation of CCPs and CCP-eligible products call for safe, sound and standardized market and product requirements, proper collateral management and central storage of contracts. Otherwise, CCP clearing may not be applicable to all OTC derivatives.


j. Comment: The paper was cited by various reports and articles.

k. The report is based on independent research, EU research papers and a number of interviews with industry representatives and public officials. In a nutshell, the Report makes the following observations:

(1) Most of the interviewees expressed beliefs that a single European CCP is needed and represents an easier solution than consolidation of CSDs; that given the current state of affairs and the example of Euroclear, regional groups are likely to emerge;
that harmonization is a key to cost-effectiveness; that consolidation may have a
negative effect on competition as some providers may become regional monopoly
utilities (note: the Report emphasizes the increasing integration of post-trading
systems in Europe); an ideal structure for C&S entities is not-for-profit utilities
owned by users, although user governance may be ineffective.

(2) The respondents also mentioned that a consolidated CCP will reduce switching
costs, reduce the number of transactions processed by CSDs, and have a positive
effect on trading and settlement. Gaining economies of scale require standard
market practices and messaging.

(3) On the one hand, the national and European legislators need to dismantle the
barriers indicated in the Giovannini Report; competition laws should target
vertically-integrated structures that obstruct rationalization of the European post-
trade infrastructure; regulations must be harmonized. On the other hand, users need
to make governance rules more efficient; harmonize standards for settlement a
European-wide industry body needs to be formed.

I. A number of interesting points are discussed:

(1) The Report continuously emphasizes the idea that low-cost C&S contributes to the
market effectiveness. Clearing (defined as “processes for managing risks between a
trade taking place and it being settled”) has been historically important in
derivatives markets, where counterparty risk is extended over months or years.
Settlement is defined as “the exchange of cash and assets between buyers and
sellers following a trade.” CSDs provide DVP (i.e., simultaneous transfers of
ownership and payments) services and safekeeping of securities. Securities “held in
CSDs are used as collateral to support the provision of liquidity by central banks.”
ICSDs are Euroclear Bank and Clearstream International. They are often direct
members of national CSDs, offer services similar to those of custodian banks and
provide the safekeeping of international bonds.

(2) Notably, the study gives an overview of the governance and ownership systems for
European C&S entities. Only a few are user-owned. Others are “publicly quoted” or
have “plans for flotation” (id. at 14). Differences in national laws often inhibit
consolidation and multiply the existing distinctions in corporate governance, taxes,
ownership transfers, etc. Overall, there have been two contrasting trends in the
ownership structures: in some jurisdictions C&S moved out of the control of
exchanges (e.g., CREST, LCH.Clearnet, etc.); in others – vertical silos were formed (e.g., Germany (acquisition of CEDEL)).

(3) The Report provides an overview of the new tendencies in trading. Those include, e.g., the move to electronic order-driven systems giving participants anonymity before and after trade execution; increasing the speed of execution and helping the development of the “black box” trading system within investment banks.

(4) Also, the Report briefly compares the EU-US C&S costs. Among other reasons, the lower costs of clearing in the US are partially explained by “the sheer size of its domestic market, with no internal boundaries” (id. at 20). Interestingly, the integration of clearing and settlement platforms in the DTCC-like manner is of dubious value. “Some of [the limited] benefits – specifically some reductions in transaction and connection costs – could, in theory, be achieved by sharing systems between clearing and settlement providers. However, the lack of common practice between CSDs and clearing houses means that it is difficult to use a platform designed for one market in another. The clear majority view is therefore that corporate consolidation among that operation of these systems is necessary before significant economies of scale can be achieved.” (id. at 24).

(5) It is important that, as opposed to many other studies, such as the IOSCO Reports, this paper emphasizes the positive value of user-owned systems and the role of users in improving governance and developing industry standards. (id. at 40).