**3. From the Renaissance Exchanges to Cyberspace:**

 **A History of Stock Market Globalization**

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The revolution in computing and communications technology of the last two decades has produced a radical realignment of traditional financial institutions. *Ex post,* the patchwork framework of regulatory oversight has proved incapable of adapting to these changes resulting in systemic instability in the globalized financial system. Lessons gained from centuries of historical development are being ignored, e.g., Neal and Davis (2005). The current public debate on financial market reform reflects confusion about essential properties of trading stock in ‘cash’ and derivative security markets, e.g., Pirrong (2008); CFTC (2008).[[1]](#endnote-1) One of the casualties has been the collapse of the self-regulating, mutual form of centralized stock exchange organization that has been replaced by a dispersed, demutualized opaque network of electronic trading networks (ETNs) and automated trading system (ATS) platforms, e.g., Markham and Harty (2008; 2011); Kumpan (2006); Treptow (2006). The crude rationale given by regulators for such fundamental changes, and the relatively limited associated public debate, is disturbing.[[2]](#endnote-2) Counter-productive regulatory arbitrage, fragmentation of market liquidity and undermining of the price discovery and dissemination function of important financial markets have been some implications of the changes.

 Despite being fundamental to the market economy, the history of the globalization in trading for stocks and shares has received relatively limited academic attention.[[3]](#endnote-3) The connections between public property rights, government regulation, exchange ownership, composition of the trading population and pricing efficiency have been generally ignored. Basic questions about the evolution of exchange trading remain unanswered, such as: does a globalized trading system of competing ETNs, electronic communications networks and dark pools represent a sustainable, liquidity enhancing and risk reducing evolution of traditional, centralized open-outcry exchange floor trading of equity securities on national exchanges? What form of stock trading system takes greatest sustainable advantage of the potential social gains associated with the revolution in trading technology? By tracing the historical evolution of trading in stocks and shares, this chapter focuses on three key elements: the market participants involved in the trading process; the approach to regulating markets, e.g., registration and other barriers to entry; and, the contracting, clearing and settlement methods employed. Where applicable, the public perception regarding pricing efficiency is also considered.

 In the following chapter, Section 1 examines complications that arise with basic definitions for ‘stocks’, ‘shares’, ‘stock exchange’ and ‘exchange traded’. Section 2 examines the historical developments that surround the emergence of speculative exchange trading in ‘to arrive’ contracts on the Antwerp exchange during the 16th century. Sections 3 and 4 detail the application of speculative exchange trading techniques to forward and option contracts for shares in joint stock companies traded in 17th century Amsterdam and 18th century London. Specific attention is dedicated to considering the regulation of trading in stocks and shares prior to the 19th century. Section 5 considers: the emergence of the global stock market centered on the London stock exchange during the 19th century; the subsequent emergence of the New York Stock Exchange; and, the erosion of globalization generated by WWI and the Great Depression. The concluding section examines the substantive reemergence of stock market globalization since WWII. This time period includes: the creation of the Chicago Board Options Exchange in 1973 and subsequent emergence of equity derivative trading, primarily on futures exchanges; and, the demutualization of stock exchanges that commenced late in the 20th century that is sustaining the ongoing mergers of major national exchanges.

**1. Basic Definitions**

 Any history of ‘stock’ market globalization prior to the 20th century has to deal with semantic complications, with “the perplexing habit of business nomenclature which seems to go out of its way to be unscientific and confusing” (Withers 1910, p.33). In particular, the securities being traded, market terminology and trading conventions are often determined by the dominant trading venue. During the 20th century, New York emerged as the center of globalized stock trading and ‘stock’ came increasingly to refer only to equity securities, primarily ‘common stock’. Withers (1910, p.55) describes market terminology at the beginning of the 20th century: “Bonds are nearly always bearer securities, but are occasionally registered, and a bond necessarily implies debt. Shares are always portions of a company’s capital, while stock may represent either capital or debt.” Observing that the “word stock has meant many things in the course of its versatile career”, Withers (1910, p.33-4) traces usage of term from Francis Bacon to Ben Jonson to Adam Smith where ‘stock’ refers to “the capital of a firm or company … the monetary resources which have been invested in its business or kept in hand for its daily needs.” From this point, ‘stock’ evolved to mean “securities received by those who subscribed the capital of companies, and then divided itself again to mean marketable securities in general, and a certain kind of marketable security in particular.”

 Ultimately, Withers (1910, p.34) decides the definition of ‘stock’ “is applied to all the securities dealt in on the Stock Exchanges.” This is consistent with referencing a ‘stock broker’ as an individual “who will buy and sell for you stocks, shares and bonds.” From this point, American practice has come to supplant the historical English convention of distinguishing between ‘shares’, which represent indivisible equity securities typically issued in bearer form, and ‘stock’, which represents a divisible equity security issued in registered or inscribed form. Such distinctions between different historical terminologies are not merely arcane historical details. As Withers (1910, p.43) illustrates, the process of stock market globalization at the beginning of the 20th century was intimately connected to the characteristics of the securities being traded and the conventions governing the exchange process:

The quickness and cheapness of telegraphic and telephonic communication have knit the chief stock markets of the world into one, and a security thus has a great advantage which can be bought and sold not only in London, but in Paris, Berlin, Amsterdam, and other centres where the cravings of Continental capitalists for investments are satisfied. Owing to the Continental habit, this advantage can only be enjoyed by bearer securities, and where it is desired to create an international market, it is now general practice to give the security bearer form, or at least to give its holders the choice of being registered, or holding bearer securities, as they may choose.

The profound impact of technological change on the stock market globalization process is also a fundamental in the stock market globalization process currently underway. Distinct biases in the globalization process arise from different security market conventions employed by the dominant trading venues of the time.

 A stock market where bearer securities are prevalent had advantages and disadvantages. The gains to clearing and settlement greatly facilitate international trading. However, the problems of dividend distribution, fraud, counterfeiting, theft and market manipulation are significant negatives. The current globalization process is conditioned on US registration requirements initially introduced in the Securities Act (1933) and the Securities Exchange Act (1934) that require publicly traded securities to be registered and for regular financial reports to be filed. This modern move to trading of registered securities has been accompanied by an incongruent segmentation of modern trading venues for: fixed income and equity securities; and, cash and futures markets. As a consequence, in modern times the ‘stock’ market has come to represent a cash market for trading common stocks. From an historical perspective, such an interpretation of ‘stock’ is too narrow and fails to capture essential elements of previous ‘stock’ market globalizations. A more appropriate historical approach is to interpret ‘stock’ to include tradeable securities used to raise firm capital. This is the approach employed in this chapter.

 Given this, the history of stock market globalization can be closely connected to the evolution of ‘exchanges’ where stock is traded. Despite being a widely used term, it is difficult to precisely define ‘exchange traded’. Though the roots of security trading stretch back to antiquity, the emergence of centralized venues where securities are traded is more recent. The economic basis for such trading evolved from the fundamentals of exchange in goods markets. This exchange process involves two steps. First, a buyer and a seller agree on a market clearing price for the goods involved in the transaction. Second, the transaction is completed, typically with a cash payment being made in exchange for adequate physical delivery of the goods involved. In many transactions, time can separate the pricing agreement, the settlement date and the delivery of goods. For example, a forward credit sale involves immediate pricing, delivery as specified in the forward contract and final settlement at an even later date. Because the earliest ‘stock’ markets were also venues for goods trading, trading practices associated with goods transactions were naturally adapted to the trading of ‘stock’.

 Commercial goods transactions in early markets often involved a rudimentary sale agreement structured as a forward contract with option features. The contract could vary from loosely structured to formal and notarized. Unstated terms and conditions of such agreements were often governed by merchant convention, e.g., Malynes (1622), Peri (1638). For example, because trading on samples was common in 16th and 17th century goods markets, an agreement for a future sale would typically have a provision that would permit the purchaser to refuse delivery if the delivered goods were found to be of inadequate quality when compared to the original sample. As reflected in notarial protests stretching back to antiquity, disagreement over what constituted satisfactory delivery was a common occurrence.[[4]](#endnote-4) Contracting practices in the goods market were also employed in the early trading of ‘stocks’. The history of stock market globalization demonstrates the importance of recognizing the connection between cash market trading and the corresponding use of forward sale contracts to facilitate such trade.

 Following van der Wee (1977) and Gelderblom and Jonker (2005), the first instance where a contingent claim was unbundled and traded as a separate security on an exchange was the transferable ‘to arrive’ commodity contracts traded on the Antwerp exchange during the 16th century. This development signifies the depth of liquidity and degree of trading sophistication associated with commodity transactions at a time when commercial sales typically employed either outright cash sales or, where trading on samples was involved, non-transferable forward contracts with multiple delivery dates. Similar to modern OTC derivative transactions, these contracts were executed as private deals between two signatories, usually employing *escripen*, notaries and “scriveners” to formalize the contract. As Malynes (1622, p.126) observes, if a broker was involved, a verbal contact could be used:[[5]](#endnote-5)

Verbal contracts are made between party and party, or by means of Brokers or Mediators, and that only by word without writing. Such are the daily buying and selling of commodities either for ready money, or payable at some dates of payment, wherein the mediation of a Broker is most necessary: For as it would be troublesome to use Scrivners in every bargain; so is it commodious to use the means of Brokers, the commodities are not only bought and sold with more credit and reputation, but all controversies which do arise by misadventure or otherwise are sooner determined, and a sworn Broker is taken as a double witness, if he do produce his book, with a *Memorandum* of the bargain, as the same was agreed between both parties, whereby many variances are reconciled, and differences (like to fall out) are prevented.

This brief discussion on the use of brokers in commodities transactions follows a longer discussion by Malynes (1622, p.124-6) regarding the use of “notarial contracts” in the trading business of the regulated company of “Merchant Adventurers” where the systemic use of forward sale contracts in their commercial transactions is apparent.[[6]](#endnote-6) In modern vernacular, the 16th and 17th sales contracts that Malynes describes for the sale of English cloth goods arranged on the English bourse in Antwerp, the Bruges bourse and other important commercial centers were structured as non-transferable forward sale contracts with option features.

 Clarifying the definition of ‘stock’ permits the different trading venues for the ‘stock market’ to be identified. Since the 17th century, stock trading has been increasingly associated with ‘stock exchanges’ which requires ‘exchange’ to be defined. As painfully apparent in the difficulties confronting the SEC since Reg ATS was contemplated in 1997 (see Markham and Harty 2011, p.xxx), this is not as easy as might be expected. A number of conventional and technical definitions for an “exchange” are possible, e.g., Lee (1998, p.322-3). Almost all modern academic definitions identify an exchange with a physical location or building. This creates problems when, say, the ‘exchange’ is in cyberspace. The SEC (1934; amended 2010) currently identifies an exchange as:

The term ‘‘exchange’’ means any organization, association, or group of persons, whether incorporated or unincorporated, which constitutes, maintains, or provides a market place or facilities for bringing together purchasers and sellers of securities or for otherwise performing with respect to securities the functions commonly performed by a stock exchange as that term is generally understood, and includes the market place and the market facilities maintained by such exchange.

This expands the location of an exchange to be a ‘market place’ with ‘facilities’ which:

includes its premises, tangible or intangible property whether on the premises or not, any right to the use of such premises or property or any service thereof for the purpose of effecting or reporting a transaction on an exchange (including, among other things, any system of communication to or from the exchange, by ticker or otherwise…)

Significantly, while recognizing the technological evolution of segmented exchanges into a market system of trading platforms, this definition fails to adequately specify “the functions commonly performed by a stock exchange as that term is generally understood”.

 Stock market history illustrates the relevance of accurately identifying stock exchange functions. Consider a general definition that treats ‘bourse’ and ‘exchange’ as synonyms that is provided by Ehrenberg (1928, p.54):

A bourse or exchange is an assembly meeting at frequent intervals, usually daily, consisting of the merchants and other persons, who meet for the purpose of dealing without exhibiting, delivering or paying for their goods at the same time.

This definition identifies essential characteristics that apply to ‘bourse’ and ‘exchange’, but in doing so ignores features that divide bourse and exchange trading. In a modern context, this definition is consistent with the location of an exchange in ‘cyberspace’. It is also sufficient to distinguish an exchange from, say, a marketplace selling produce and is preferable to definitions that identify an exchange only as a physical location where buyers and sellers meet to trade goods.[[7]](#endnote-7) However, this commonly used general definition fails to identify characteristics of an ‘exchange’ that facilitate “speculative exchange trading”. In this chapter, characteristics associated with the contracts, clearing and settlement procedures are identified that make a distinction between centralized exchange trading and decentralized bourse trading. Identification of these differences clarifies fundamental difficulties confronting modern regulators regarding periodic market instability generated by trading in over-the-counter (OTC) derivative securities and the associated price discovery distortions arising from unconstrained manipulative short selling.

 Given this, the impact of exchange trading techniques on the historical evolution of the stock market can be more readily identified. In particular, speculative exchange trading of a transferable security contract needs to be distinguished from a situation where a buyer and seller meet at, say, the Royal Exchange and agree to a forward sale of goods with a contract then drawn up by a ‘scrivner’. In this situation, it is the goods that are being traded, not the forward contract. Speculative exchange trading requires transferability and an exchange clearing mechanism to settle positions. In turn, transferability requires standardized contract terms and relatively homogeneous deliverable commodity. A transaction where merchants meet at the Royal Exchange and agree to a non-transferable forward contract with multiple delivery dates would correspond, in modern terms, to an OTC commodity swap transaction. There is no exchange clearing mechanism for the transaction. The merchants that are party and counter-party to the trade are responsible for completion. As such, a technical distinction is being made that corresponds to the modern difference between trading derivative securities on exchanges or OTC. In addition to the clearing mechanism, there can be significant variation in the character of exchange speculation due to settlement practices, i.e., between cash settlement and ‘settlement by account’.

 The beginning of purely speculative exchange trading occurs when the parties involved in the completion of the trade are different from those initiating the trade. This requires a traded contract to be created for which there is no intention of completing the underlying goods transaction; in effect, the seller may not have possession of the goods and the buyer may not intend to take delivery. In this case, a contract is created for which there is no resulting delivery of goods. This requires a clearing method for determining and settling gains and losses on contracts. Various prerequisite conditions are required for such trading to occur. The evolution was gradual, not dramatic, and depended on a range of informal restrictions on those participating in the trade. Recognizing that initial trade was in the bulk commodities of herring, whale oil and wheat – commodities that require special warehousing, grading and handling facilities – initial trade was associated with brokers and dealers directly involved in the bulk commodity trade willing to execute ‘to arrive’ forward contracts for which there was no associated goods transactions, seeking to offset the position prior to delivery or, if necessary, cover the position in the spot market upon arrival of the fleet. Given the vagaries of market liquidity, in the event the contract could not be transferred, both parties to the contract needed to be able to complete delivery.

**2. The Antwerp Exchange**

 The evolution of exchange trading techniques for bulk commodities revolved around two important elements: enhanced securitization of the transactions; and the emergence of speculative trading. Both these developments are closely connected with the increasing concentration of commercial activity, initially at the large medieval market fairs and, later, on the bourses and exchanges. Securitization of bulk commodity transactions was facilitated by extending trading methods that had been in use for centuries in the market for bills of exchange.[[8]](#endnote-8) Prior to the emergence of joint stock companies, bills of exchange and related contracts were the primary methods of raising capital for business ventures. By implication, the early markets in bills of exchange were the precursors of modern stock markets. By the 16th century, the central role of bills of exchange in financing domestic and international trade was associated with the prevalence of partnerships to structure firm governance. The seasonality of the commodity businesses that dominated commercial trading and the ‘localized’ character of international trade did not require permanency in firm capital structure that the joint stock company introduced in the following century.

 In addition to being focal points for goods trading activities, the medieval fairs were also financial events. The fairs, such as those at Champagne, featured well organized money markets conducting manual foreign exchange transactions and substantial dealings in bills of exchange (de Roover 1954, p.204).[[9]](#endnote-9) Because the larger fairs involved transactions between merchants from a number of different regions, it was not practical to settle all transactions using manual exchange of coin. This was a primary impetus for dealings on credit, as de Roover (1949, p.110) observes:[[10]](#endnote-10)

Today banks discount the trade acceptances or the promissory notes of merchants who are in need of credit. Such a procedure was ruled out as long as contracts involving the payment of interest were unenforceable at law. It is true that usury laws could be circumvented by various subterfuges. However, the easiest method for securing short-term credit was for merchants to “take up” money by exchange and not at interest. The result of this practice was that commercial credit was tied to the exchange. This point, although obvious, is so fundamental that its importance should be stressed ... the credit system rested on the exchanges.

As such, methods for clearing and settlement of bill of exchange transactions were fundamental to the smooth operation of the international commercial and financial system.

 Though the precise origin of the practice is unknown, ‘arbitration of exchange’ first developed during the Middle Ages. Around the time of the First Crusade (1095-1099), Genoa had emerged as a major sea power and important trading centre (Einzig 1964). The Genoa fairs had become sufficiently important economic and financial events that traders from around the Mediterranean were attracted. To deal with the problems of reconciling transactions using different coinages and units of account, a forum for arbitrating exchange rates was introduced. On the third day of each fair at Genoa, a representative body composed of recognized merchant bankers would assemble and determine the exchange rates that would prevail for that fair. The process involved each banker suggesting an exchange rate and, after some discussion, a voting process would determine the exchange rates that would apply at that fair. Similar practices were adopted at other important fairs later in the Middle Ages. At Lyons, for example, Florentine, Genoese and Lucca bankers would meet separately to determine rates, with the average of these group rates becoming the official rate. These rates would then apply to bill transactions and other business conducted at the fair. Rates typically stayed constant between fairs in a particular location providing the opportunity for arbitraging of exchange rates across fairs in different locations.

 The actual clearing process differed from fair to fair (Parker 1974, p.546). At the Lyons fairs, clearing involved the participation of all merchants attending the fair. At other fairs, such as the fairs of Besançon or Medina del Campo, clearing was controlled by a restricted group of merchant-bankers who were responsible for setting exchange rates and for handling the book-transfers between the accounts of merchants at the various clearing member banks. Ehrenberg (1928, p.284) describes the clearing process used in Lyons:[[11]](#endnote-11)

 Before the merchants attended the fair they entered in their ‘market book’ ... all the payments due from or to them in the fair. At the beginning of the fair these payments books were compared with one another. In the case of every entry found correct the person from whom the payment was due made a mark which was taken as a binding recognition of the debt; later he had to sign his whole name. The bill – for, generally speaking, there was no question of anything but bills – was *accepted* in this way. If an item was not recognized, the owner of the book would write by it ‘S.P.’ (*sous protest*).

 After the acceptance of the old bills there followed the new business with foreign markets, which originated wither at the preceding fair or as the result of the acceptance, or otherwise. Here we meet for the first time a peculiar arrangement, the settlement of an official average price for each species of bill, the so-called Conto.

 (T)he Conto in Lyons was done as follows: The bill dealers met on a certain day and formed a circle (*Faire la Ronde*); the Consul of the Florentines then asked the dealers of the different nations in turn what they thought the price ought to be. The answers were noted and an average taken. This was the official rate for bills which was noted in the bulletins ... and sent abroad. The dealers themselves were naturally not bound by this, their business was left free to bargaining. Yet the Conto at the beginning had some meaning for the market itself, as previously many transactions had been concluded at the average rate which had not yet been settled ...

 The payment proper closed the fair. It was affected chiefly by *viremant de parties, giro* or *scontro*, as follows: Two persons were commissioned to collect and compare ... all the fair books. They then canceled the payments against one another, and only paid the balances in cash ... The fair payments at Lyons owe their form to the Florentines, a fact which is clearly shown by the development of the Lyons Bourse.

Various features of the clearing process at Lyons were not only adapted for use at other important fairs, but also had an impact on the methods later employed on the Lyons bourse. The method of offset used in the end-of-fair settling process was later reflected in the *rescontre* system adopted to settle exchange trading of shares in 17th century Amsterdam and 18th century England.[[12]](#endnote-12)

 The Lyons fairs first assumed importance circa 1463 due to the explicit mercantilist policies of Louis XI. As early as 1419, various French kings had granted privileges to merchants doing business in Lyons in an attempt to counteract the success of the fairs held in Geneva. These privileges included freedom to engage in various financial transactions, such as manual exchange of coin and dealing in bills of exchange, activities that were tightly regulated elsewhere in France. Even more than the economic benefits associated with the commodities trade, the French monarchs were motivated by the gains associated with the financial dealings of the fairs. By the 15th century, the capital that could be raised at important fairs such as those of Geneva was substantial. This capital was essential to securing financing for the military adventures in which the national monarchs were, almost continually, engaged. The extension of commercial liberties beyond the time period of the fairs contributed significantly to the emergence of bourse trading. As early as the end of the 13th century, the dukes of Brabant encouraged the growth of Antwerp by granting privileges to alien merchants visiting the city (van Houtte 1966), such as not requiring that local brokers be used to transact commodity business. Such merchants trading in Bruges, the northern centre of European commerce during the 14th century, were required to use local brokers.

 While the medieval fairs served as an important step in the growth of trade and payments, by the late 15th century economic activity was outgrowing the restrictions of the fixed fair dates. A network of international merchants had established permanent offices and warehouses throughout the key commercial centres of Europe. To support the associated trading activities, sizeable communities of foreign merchants were established. These changes meant that liquidity was sufficient to support trading throughout the year. This growth sustained the creation of bourse trading in various cities, designed to facilitate dealings in both physical and financial commodities. The bourses were, effectively, meeting places for merchants of various countries to transact financial and commodities business. The use of the term ‘bourse’ (beurs) is indicative of the historical development, the term being taken from a square in Bruges, named for an inn on the square owned at one time by the van Beurs family, where the Florentines, Genoese and Venetians had their consular houses. This inn was a popular meeting place for foreign merchants. Though exchange trading of free standing derivative securities was yet to come, some essential characteristics of exchange trading are discernible at the beginnings of the bourses: a self-regulating collection of merchants -- both brokers and dealers -- meeting for the mutual gain of enhanced liquidity. For the early bourses, access to credit and foreign exchange facilities were integral factors.

 Bourse trading was a major development on trading at medieval fairs and local markets for at least two reasons. First, trading at the fairs was restricted to specific time periods. While initially useful as a method of concentrating mercantile activity, the growth of trade soon surpassed the narrow time windows provided by the individual fairs. Bourse trading involved both financial transactions and trading in goods. For the medieval fairs, these two activities were complementary. Commercial trade in goods generated financial transactions, activities that were facilitated by the concentrated activity of the fair. Yet, as evidenced in the activities of merchant bankers in centres such as Bruges (e.g., de Roover 1948), there were other reasons for financial activity independent of goods trading, especially trading in bills of exchange for investment and market making purposes. These financial activities formed the basis of an element of bourse trading that can been traced back to the Middle Ages in southern Europe, starting in the trading centers of Italy. By the 14th century, financial bourse trading can be found in certain northern European centers, most importantly Bruges (Ehrenberg 1928, p.55):

in the trading cities of Italy, [bourse trading] arose from the business which developed at the banks of the money-changers native to the city, when the notaries likewise had stalls in the open air ... there arose ... the characteristics of the exchange business as early as the fourteenth century ... In the countries north of the Alps bill business ... developed in closest connection with the factories of the Italians. The streets and market places where they lived, and more especially where they had their consular houses or Loggias, were the localities where the bourse business first developed.

Bruges was geographically well situated to have the first significant bourse trading in northern Europe. The opening of seaborne trade routes through the Straits of Gibraltar contributed to the decline of fairs along the land trade routes, such as the Champagne fairs. In addition, the Hansards developed important seaborne trade from northern Europe. This growth in seaborne traffic contributed to the initial rise of Bruges as “the greatest market of Christendom in the fourteenth century” (van Houtte 1966, p.37).

 In addition to being a main seaport, Bruges was also the locale for one of the five fairs of Flanders. The importance of Bruges peaked in the mid-1300s with the comparatively faster growth of commercial markets and bourses in other centres being due to two primary local factors: the silting of the waterway connecting Bruges to the ocean; and, the various restrictions imposed by Bruges on foreign merchants trading there. The international growth of trade meant that Portuguese, Spanish, South German and Italian merchants had sufficient reason to establish permanent colonies in locales such as Bruges and Antwerp where, before, these merchants sojourned to the fairs. In addition to geographical factors, the freedoms granted to alien merchants played a key role in determining where bourse trading was concentrated.[[13]](#endnote-13) From the beginnings of bourse trading there was competition between geographical venues for business. A second factor favouring bourse trading was that fairs required goods to be transported to the fair's geographical location for inspection in order to conclude specific transactions. The goods were then transported to another district to be sold. As trade expanded, factors such as acceptable levels of standardization and the growth of mutual merchant confidence allowed goods transactions to be made without actual inspection of goods at the time the sale was completed. In turn, bourses and exchanges were located geographically close to the center of the underlying bulk goods trade. Such factors significantly reduced transactions, transport and other costs. By providing enhanced liquidity and cheaper execution, bourse trading was an essential impetus to the emergence of speculation in commodities which, ultimately, progressed into speculative exchange trading of derivative securities on stocks.

 Though the transition from discrete trading intervals at the medieval fairs to the regularity of bourse trading was gradual, the 16th century does provide a transition period: at the beginning of the century, the fairs still played an important role in providing fixed dates and locations at which concentrations of liquid capital were assembled; by the end of the century, general economic activity was such that bourse and exchange trading predominated. During the century, the emergence of exchange trading in Antwerp and Lyons was especially important, though by the end of the century both these centers were in decline. Of these two centers, Antwerp was initially most important for trade in commodities while Lyons for trade in bills of exchange. In 1531, Antwerp opened a new exchange building designed exclusively for trading of commodities and bills of exchange.[[14]](#endnote-14) Tawney (1925, pp.62-5) describes the international money market of the 16th century:

In its economic organization the machinery of international trade had reached a state of efficiency not noticeably inferior to that of three centuries later. Before the most highly-organized economic systems of the age were ruined by the struggle between Spain and the Netherlands, and by the French wars of religion, there were perhaps ten to twelve commercial centres whose money markets were the financial power-houses of European trade, and whose opinion and policy were decisive in determining financial conditions. In the Flemish, French and Italian cities where it reached its zenith, and of which England was a pupil, the essence of financial organization of the sixteenth century was internationalism, freedom for every capitalist to undertake every transaction within his means, a unity which had as its symptom the movement of all the principal markets in sympathy with each other, and as its effect the mobilisation of immense resources at the strategic points of international finance. Its centre and symbol was the exchange at Antwerp, with its significant dedication, ‘*Ad mercatorum cujusque gentis ac linguae*’ where ... every language under heaven could be heard, or the fairs at Lyon which formed, in the words of a Venetian, ‘the foundations of the pecuniary transactions of the whole of Italy and of a good part of Spain and of the Netherlands’.

The public good characteristic of such a centralized exchange location was recognized and adapted in other centers, with Sir Thomas Gresham personally advancing the funds for the building of a similar exchange in London, the Royal Exchange, opening in 1571. With initial construction starting in 1611 on the new building for the Amsterdam Exchange, by 1613 the transfer of trading to the exchange from different venues around the city was completed. [[15]](#endnote-15)

 Fully developed speculative trading in commodities emerged in Antwerp during the second half of the 16th century (Tawney 1925, pp.62-5; Gelderblom and Jonker 2005). The development of the Antwerp commodity market provided sufficient liquidity to support the development of trading in ‘to arrive’ contracts associated with the rapid expansion of seaborne trade during the period. Various sources report that speculative transactions in ‘to arrive’ grain that was still at sea were particularly active, with trade in whale oil, herring and salt also being important (Gelderblom and Jonker 2005; Barbour 1950; Emery 1895). Unger (1980) provides detailed information on the herring industry during this period. The Dutch herring trade to the Baltic was intimately connected to the grain trade to southern Europe. Due to a number of technological developments introduced over the fourteenth to sixteenth centuries, the Dutch herring fleets dominated this trade until the second half of the 17th century. The evolution of the herring fishery depended on increased capital requirements; as a consequence the role of brokers also evolved: “By the mid-fifteenth century the brokers were becoming owners and operators of ships as well. They were merchants with an interest in more assured supplies of preserved fish ... even individuals with no direct connection with fishing can and did invest in the boats and their supplies” (Unger 1980, p.258).

 That ‘to arrive’ contracts came to be actively traded by speculators also directly involved in trading the underlying physical commodity is not surprising. Because transport by sea was a risky business and information about cargoes to arrive at a later date could be sketchy, the quality and quantity of physical commodity available for delivery could not be known prior to arrival of the fleet; a forward sale of such cargoes would be inherently speculative. The concentration of speculative liquidity on the Antwerp Exchange centered on the important merchants and large merchant houses that controlled either financial activities or the goods trade (Van der Wee 1977). The milieu for such trading was closely tied to medieval traditions of gambling and insurance where wagering on the safe return of ships, a rudimentary form of early insurance (Lewin 2003), was often connected with the conclusion of commercial transactions. A key step in the evolution of exchange traded contracts came when trading in ‘to arrive’ contracts involved standardized transactions in fictitious goods for a future delivery that was settled by the payment of ‘differences’.[[16]](#endnote-16) Purchasers of such contracts would speculate on the rise in prices before the due date. If such a rise occurred, the contract could then be sold and the speculator pocketed or paid the difference in price. This ‘difference dealing’ was also conducted by goods vendors, selling for future delivery betting that prices would fall.

 The development of difference dealing was accompanied by the emergence of ‘premium contracts’ where: “The buyer made a contract for future delivery at a fixed price, but with the condition that he could reconsider after two or three months: he could then withdraw from the contract provided that he paid a premium to the vendor (*stellegelt*)” (Van der Wee 1977). Little is known about the precise evolution of the contracts used for speculative trading, but the premium contract appears well suited to difference dealing by speculators. The ‘premium’ form of contract for forward sale became a staple of the European securities trade into the 20th century, e.g., the contract for the German *prämiengeschäfte*, (Hafner and Zimmermann 2009). Such contracts differ from the options traded in modern markets which have inherited characteristics associated with historical features of US option trading. Following Emery (1896, p.53), the *prämiengeschäfte* “may be considered as an ordinary contract for future delivery with special stipulation that, in consideration of a cash payment, one of the parties has the right to withdraw from the contract within a specified time”.[[17]](#endnote-17) As such, this option is a feature of a forward contract with a fee to be paid at delivery if the option is exercised. For example, on the 19th century Paris and Berlin exchanges the premium payment at maturity was fixed by convention and the ‘price’ would be determined by the setting the exercise price relative to the initial stock or commodity price, e.g., Courtadon (1982).

 Characteristics of trading in commodities and bills of exchange in Antwerp formed the basis for later trading at other venues. Some elements of that trade are still of contemporary relevance. While access to the Antwerp exchange was unrestricted, those unconnected to the bulk commodity trade and seeking to speculate required a broker to establish a position. Brokers could also be dealers in the commodity. The exchange was a largely self-regulatory entity with broker-dealers clearing speculative difference trades with other broker-dealers. Rules of conduct for trading were largely governed by merchant convention. Penalties for violations involved loss of reputation and an ensuing inability to conduct business. The State provided official recognition to certain ‘sworn brokers’ and established a civil court system for settling disputes. Physical infrastructure and a sympathetic legal and taxation environment were provided to promote the development of trade. Difference dealing was facilitated by the use of premium contracts. Following traditions developed in the bill of exchange market, the clearing and settling of positions in commodity difference dealing was done by brokers coordinating with other brokers. The ‘hand-to-hand’ settlement practices in Antwerp involved primarily cash settlement of contracts, eliminating the possibility of contract offset associated with ‘settlement by account’.

**3. Exchange Trading in 17th Century Amsterdam**

 The collapse of Antwerp in 1585 and the resulting diaspora of important merchants contributed substantially to the rise of the important exchanges in Amsterdam and other centres such as London, where the Royal Exchange was established in 1571. While Amsterdam had developed as an important commercial center prior to 1585 (van Dillen 1927; Gelderblom and Jonker 2005), the establishment of a permanent building for the Amsterdam bourse in 1611 marks a symbolic beginning of Dutch commercial supremacy. During the 17th and 18th centuries, speculative trading of forward and option contracts on the Amsterdam exchange developed many essential features of such trading in modern derivative security markets. By the middle of the 17th century speculative exchange trading in Amsterdam for shares in the Dutch East Indies Company (*VOC*) and, to a lesser extent, the Dutch West Indies Company, had progressed to where contracts with regular expiration dates were traded (Wilson 1941; Gelderblom and Jonker 2005) and a clearing method with contract offset and settlement by account was fully developed.[[18]](#endnote-18) By the 18th century, the trade involved both Dutch joint stock shares and “British funds”. This trading on the Amsterdam exchange is the first historical instance of speculative exchange trading in financial derivative securities. “With the appearance of marketable British securities, and the application to them of a speculative technique that was already well understood, the Amsterdam [exchange] became the scene of international finance at its most abstract and most exciting – gambling in foreign securities” (Wilson 1941, p.79).

 Despite isolated instances of previous joint stock trading in other centres, the first developed market arose with trade in *VOC* shares in Amsterdam starting from the founding of the Company by the States General in 1602.[[19]](#endnote-19) At this time, the Amsterdam bourse was held in the open air near the New Bridge and in the church square near the *Oude Kerk*. It was not until 1613 that trading completely moved to a building dedicated for the Amsterdam exchange. Trading in shares was only a small portion of the general activity on the Amsterdam exchange, which was predominately in bills and commodities. Creation of the Company led to a call for initial subscriptions of capital. Prospects for the Company were generally perceived to be favorable among the moneyed individuals willing to invest in such a venture and the closing of the *VOC* subscription lists found numerous individuals still desiring shares. These individuals turned to the Amsterdam bourse to purchase shares and, when this could not be done at par, a 14-16% premium emerged within a number of days (Ehrenberg 1928, p.358).[[20]](#endnote-20) With such immediate returns, the potential for gain became apparent to bourse traders and the speculative trade in shares began in earnest with the selling of shares for deferred delivery not owned at the time of the sale. This initial trade was conducted in bourse fashion using OTC style forward contracting.

 By the beginning of the 17th century, it was apparent that bourse trading in Amsterdam was becoming the successor to the Antwerp exchange that had fallen on hard times due to a combination of political, geographic and economic factors. In conjunction with the shift in trading activity, many of the traders also eventually relocated from Antwerp to Amsterdam and brought with them the trading techniques that had been successfully developed on the Antwerp exchange. Included among these techniques was speculative trading for future delivery. This technique, almost immediately, was applied to bourse trading in Company shares. Ehrenberg (1928, pp.358-9) provides some fundamental insight into methods used for trading in *VOC* shares:

From the beginning, the speculation in shares ... as a means of gain depending on taking advantage of future price changes, made it appear extremely desirable to postpone the fulfilment of the bargains. In the case of bears, who had sold shares which they did not possess, this was an absolute necessity.

 Speculative future dealings made possible a twofold simplification of the technique of dealing. First, speculative dealings could be realized before the date of delivery. Secondly, settling days made it possible to use the same procedure that had done so much in the methods of payment, namely, set off. Both together resulted in an incalculable increase in turnover, since now only a little ready money and stock were required for very large dealings.

Significantly, “it was speculation which made the first modern stock exchange”. Speculators provided the liquidity essential for continuous trading and ‘accurate’ pricing. In turn, traders seeking to acquire or dispose of stock positions provided the ‘honest’ liquidity needed to clear the market. De la Vega (1688, p.164) suggests that the relative composition of the speculative trading population changed over time reflecting the evolution from bourse to exchange trading: whereas “formerly twenty speculators ruled the exchange ... Today there are as many speculators as merchants”.

 Kellenbenz (1957, pp.139-42) provides a useful summary of de la Vega's discussion of the various types of transactions in the Amsterdam market:

a. There were sales of real stock against immediate payment of cash.

b. There were comparable sales where the money to cover payments was borrowed from individuals, up to four-fifths of its value.

c. There were transactions in which future settlement dates were specified – that is, beyond the regular monthly settlement dates. These future contracts were seemingly used for both speculative and hedging purposes, both by speculators and by the lenders on securities. De la Vega implies that the latter parties always hedged by means of such contracts. Hypothecation, which was mentioned as early as 1610 (in the edict of that year), was permitted to the seller presumably during the period of the forward contract. Arrangements also were possible, and were fairly frequently resorted to whereby the date of the termination of a future contract could be postponed, apparently by mutual consent of the parties. This action was called 'prolongation'. A large proportion of the foregoing future sales were really sales 'in blanco' – or short sales, as we would label them – even though such transactions were prohibited by laws of the state and of the city

d. There were options contracts. These were at least of the ‘call’ and ‘put’ varieties, which have persisted ever since ... Option contracts were utilized sometimes for hedging purposes by *bona fide* investors, but more commonly for mere speculation ...

e. In addition there were purchases and sales of ‘ducaton’ shares. (Such transactions were of recent origin in 1688, and actually had been abandoned in the slump that had occurred just as de la Vega was writing his book.) What this ‘ducaton’ trading amounted to is a bit uncertain on the strength of what de la Vega actually says. Scholars who have worked on this period assert that the ducaton shares were fictitious ...

Trading for forward delivery was essential to the 17th century trade in shares on the Amsterdam bourse (Barbour 1950).[[21]](#endnote-21) Such trading was of practical necessity because the delivery and settlement process for traded shares was much different than the modern process. Though shares could be transferred, the process required the seller to be present at the Company offices to record the transfer in the ‘book of shareholders’ and to pay a transfer fee. The practice of same day cash settlement, delivery and transfer was not usually possible – even for trades arranged at the transfer office.[[22]](#endnote-22) Agreements to sell shares typically included a future settlement and transfer date which could be months in the future, though delivery dates longer than one month in the future were discouraged by statutes dating from 1610.

 Perceptions of speculative abuse associated with the delivery process appeared almost from the start of bourse trade in *VOC* shares (van Dillen et al. 2007; Gelderblom et al. 2010). A bear ring headed by Isaac Le Maire was formed around 1609 to gain by manipulating prices to fall using long dated forward short sales in order to purchase stock in the cash market at lower prices. “It is not clear that the ring did more than help to hold down the already slumping prices, but the company lodged a protest with the States of Holland and West Friesland in the summer of 1609 to have a ban placed on the sale of shares ‘in blanco’” (De Marchi and Harrison 1994, p.51). The result was the Dutch edict of 1610 banning short sales ‘in blanco’, where, at the time of the short sale, the seller does not actually possess the shares being sold. In addition, the edict required that share transfers be made within one month of the sale date. The ban on short sales was not permanent and the “occasion of renewal brought out anew sentiment for and against *VOC*” (p.51). Despite opposition, the ban on ‘selling in the wind’, or *windhandel* trade, was repeated in 1624, 1630, 1636 and 1677. It is important to recognize that the *de facto* impact of the ban on in blanco short selling was to make such contracts unenforceable in the courts. There was no direct criminal penalty for entering into such contracts which provided the basis for difference dealing among the close knit community of brokers and dealers that dominated the stock and commodity trade on the Amsterdam exchange.

 Though the ban on in blanco short selling technically applied to both commodities and stocks, the character of speculative trading in commodities was less affected due to the practical need for bourse speculators to have a connection to the underlying goods trade. No such constraint was associated with stocks. Without the discipline of exchange trading, the potential for abuse of non-transferable forward contracts with option features in the loosely organized Amsterdam share market was considerable. In turn, the ban did not eliminate speculative trading. Rather, the characteristics of trading were altered. Though the Amsterdam exchange had unrestricted access, the exchange also facilitated concentration of commercial activity. Exchange trading was primarily conducted by sworn and free brokers in combination with a group of dominant merchants. This provided a foundation for the introduction of trading conventions that constitute an early form of exchange self regulation. The emergence of the *rescontre* settlement was a development on these early methods of exchange self regulation. Self regulation of trading in *VOC* shares on the Amsterdam exchange was further facilitated by the bulk of trading activity being conducted by Jewish traders of Iberian descent.

 Modern knowledge about stock trading activity on the Amsterdam exchange at the end of the 17th century derives primarily from *Confusion de Confusiones* (1688; Fridson 1996) (Cardoso 2006). Though central concerns of this remarkable book are much broader, de la Vega does make a number of detailed references to speculative exchange trading practices on the Amsterdam exchange. For example, there is a general description (Fridson 1996, p.155) of the potential gains to options trading: “Give ‘opsies’ or premiums, and there will be only limited risk to you, while the gain may surpass all your imaginings and hopes.” This statement is followed by a somewhat exaggerated claim about the potential gains: “Even if you do not gain through ‘opsies’ the first time ... continue to give the premiums for a later date, and it will rarely happen that you lose all your money before a propitious incident occurs that maintains the price for several years.” Presumably, de la Vega has call options trading in mind, the possibility of trading put options appears later (p.156).

 The reference to extending contracts is further elaborated in de la Vega's discussion of the *rescontre* system (p.181), a major technical evolution of the ‘settlement by account’ method of clearing trades that emerged between 1650 and1688, when the Dutch first introduced quarterly settlements of share transactions on the Amsterdam bourse. Prior to this time, settlement procedures had been less formal. Wilson (1941, p.83) provides the following description of the settlement process:

The technique of speculation in the British Funds at Amsterdam ... was a kind of gamble carried on every three months: no payments were made except on *rescontre* (settlement or carry-over), i.e., the period for which funds were bought or sold and for which options were given or taken. *Rescontredag* (contango day) occurred four times a year, and on these occasions representatives of the speculators gathered round a table to regulate or liquidate their transactions, and to make reciprocal payments for fluctuations or surpluses. Normally these fluctuations were settled without the actual value of the funds in question being paid – only real investors paid cash for their purchases. Speculative buyers paid to sellers the percentage by which the funds had fallen since the last contango day, or alternatively received from them the percentage by which funds had risen in the same interval. After surpluses had been paid, new continuations were undertaken for the following settlement. In such a *prolongatie* (continuation) the buyer granted the seller a certain percentage (a contango rate) to prolong his purchase to the next *rescontre*: in this way he stood the chance of benefiting by a rise in quotations in the interval, without tying up his capital: he was only bound to pay any possible marginal fall.

A key feature of the *rescontre* was the concentration of liquidity that, for example, permitted prolongations to be done more readily (Dickson 1967, p.491; van Dillen 1927). The term ‘rescontre’ was derived from the practice of Dutch merchants to “indicate that a bill had been paid by charging it to a current account — ‘solvit per rescontre’ as distinct from ‘per banco’, ‘per wissel’ and so on” (Dickson 1967, p.491; Mortimer, *Everyman*, 5th ed., p.28n).

 In addition to the references to extension of the option expiration dates, with regular marking-to-market, de la Vega takes up the uncertain legal interpretation of option contracts at a later point (p.183) and explicitly recognizes that the Dutch restriction on in blanco short sales could impact put and call options differently:

As to whether the regulation (banning short sales) is applicable to *option contracts*, the opinions of experts diverge widely. I have not found any decision that might serve as a precedent, though there are many cases at law from which one [should be able to] draw a correct picture. All legal experts hold that the regulation is applicable to both the seller and buyer [of the contract]. In practice, however, the judges have often decided differently, always freeing the buyer from the liability while holding the seller [to the contract] ... If ... the opinion is correct that it applies only to the seller, the regulation will be of no use to me [as a person wanting to seek shelter] when I receive call premiums, for in this case I am in fact a seller; but it will help me if I have received a put premium, as I am then the buyer of stocks. With regard to the put premium... law and legal opinion, the regulation and the reasons for the decisions are contradictory. The theory remains uncertain, and one cannot tell which way the adjudication tends.

The bulk of option market participants appear to have been speculators, attracted primarily by the urge to gamble, usually “men of moderate wealth indulging in a little speculation” (Wilson 1941, p. 105). In contrast, drawing from de Pinto (1762), Wilson (p.84) observes that for trading conducted on the Amsterdam exchange during the 18th century: “Options were the province of the out-and-out gamblers.”[[23]](#endnote-23)

**4. Exchange Trading** **in 18th C. London**

 Following the Glorious Revolution of 1688, many of the speculative practices used in Amsterdam were adopted in England where a bourse market for stock trading had developed by the mid-1690s with about 140 joint stock companies available for trading by 1695. However, speculative share trading took a substantively different form than in Amsterdam. Despite the presence of the Royal Exchange, the development of speculative exchange trading of shares was hampered in England by a combination of factors. Houghton's 1694 contributions to his circular *A Collection for the Improvement of Husbandry and Trade* can be fairly recognized as containing possibly the first coherent and balanced description of early stock trading in London, e.g., Neal (1990, p.17), though the description provided by Houghton is so brief that Cope (1978, p.4) credits Mortimer (1761) with being the “first detailed description of the market”. In addition to providing a description of cash stock trading, the bulk of the contribution by Houghton is on the specific subject of share trading using option contracts. For seven weeks in June and July 1694, Houghton dedicated the first page of his circular to discussing various aspects of stock trading. About 2 1/2 of the seven weeks are dedicated to trading in “puts and refusals”. On June 22, 1694, Houghton provides the following discussion of the process for cash trading of shares at that time:

The manner of managing the Trade is this: The Monied Man goes among the *Brokers*, (which are chiefly upon the *Exchange*, and at *Jonathan's* Coffee House, sometimes at *Garaway's* and at some other Coffee Houses) and asks how *Stocks* go? And upon Information, bids the Broker buy or sell so many Shares of such and such Stocks if he can, at such and such Prizes. Then he tries what he can do among those that have stock, or power to sell them; and if he can, makes a Bargain.

As with early Amsterdam share trading, there was no specific physical exchange location where the bulk of trading could take place.

 Prior to 1696-1697, there were two venues for London stock trading, the Royal Exchange and Exchange Alley. In the Royal Exchange, dealers in stocks and shares “had a ‘walk’ near the centre of the building between the salters, the Italian merchants and the Canary merchants” (Morgan and Thomas 1962). However, due at least partly to abuses arising from the 1696 price collapse of various joint stock promotions, stock traders left the Royal Exchange, conducting business after that date in the environs of Exchange Alley. “There is a certain amount of mystery about [the stock dealers] withdrawal [from the Royal Exchange]. Scott refers to their being turned out, whereas Duguid insists that they were so harassed by their fellow traders, and so short of space that they went voluntarily and in spite of the efforts of the City to prevent them” (Morgan and Thomas 1962, p.27). Until 1773, when a group of brokers acquired a building in Threadneedle Street that was, for the first time, called the Stock Exchange, the history of speculative trading in London for stocks was intimately connected to Exchange Alley. Not being associated with a single physical location where access to entry could be restricted, the coffeehouse trading in Exchange Alley was initially incapable of providing the clearing and settlement conditions needed to avert abuses associated with speculative trading of shares.

 The separate trading venues represented by the coffeehouses in Exchange Alley and the company transfer offices cannot be considered an exchange. Absent the structure of exchange trading, clearing and settlement posed problems for brokers and other stock traders. While it is not possible to precisely date the beginning of the regular three month *rescontre* (called “rescounters” in London) for settlement of stock trades in London, Dickson (1967, p.508) “tentatively” puts the date in the early 1740's. Dickson attributes the emergence of the rescounters to the impact of Barnard’s Act on the use of option contracts and other time bargains and to the subsequent emergence of “dealing on margins, where the penalties on the broker were less severe, and harder to enforce.” In turn, dealing on margins “made the case for regular settlement days (like the Dutch Rescounters) increasingly urgent. The institutional development required for regular clearing to emerge contributed significantly to the formal establishment of the London Stock Exchange (1773).” Though standardized contracts were in use from the early beginnings of share trading in London, conditions were not sufficient to sustain speculative trading of standardized derivative contracts for shares until a method of clearing was in place. As such, the London experience prior to the introduction of the rescounters reflects the difficulties of permitting OTC style trading of derivative securities. Attempts to directly suppress the contracts used for such speculative trading only led to trading of leveraged cash securities, e.g., Shea (2007).

 Until well into the 18th century, the London stock market was impacted significantly by Dutch investors and speculators conducting a considerable amount of their British securities trading outside the Amsterdam exchange at various locations in London. By construction, such trades took time to complete – if only for the time needed to draw bills of exchange between Amsterdam and London. Trading in both “time bargains” and option contracts was widespread.[[24]](#endnote-24) These activities were the main components of the ‘stockjobbing’ associated with the trading of stock for future delivery. Following Mortimer (1761, p.32):[[25]](#endnote-25)

the mischief of it is, that under this sanction of selling and buying the funds for time for foreigners — Brokers and others, buy and sell for themselves, without having any interest in the funds they sell, or any cash to pay for what they buy, nay even without any design to transfer, or accept, the funds they sell or buy for time. The business thus transacted, has been declared illegal by several acts of parliament, and this is the principal branch of STOCK-JOBBING.

While stockjobbing would be considered a basic activity in the context of speculative exchange trading of derivative securities, the result of the widespread OTC trading of such securities is reflected in the infamous history of stockjobbing in England which was met with considerable and generally disapproving interest in Parliament.[[26]](#endnote-26)

 A number of attempts were made to regulate stockjobbing, starting in 1697 with an Act “To Restrain the number and ill Practice of Brokers and Stockjobbers”.[[27]](#endnote-27) In addition to restricting the number of practices of commodity brokers, this Act was designed to deal with three main difficulties associated with the trade in shares: unscrupulous promotion activities; manipulation of prices for shares; and, misuse of option contracts. The pressures to further regulate stockjobbers intensified leading to the Bubble Act of 1720 and, following the South Sea Bubble, to the passage of “An Act to prevent the infamous Practice of Stock-jobbing” in 1733, also known as Barnard's Act. While this Act contained substantial penalties for speculative trading in options, the primary contractual vehicle for speculators, the Act was quite ineffective in eliminating this trade. However, Barnard's Act was successful in removing legal protection for these transactions, making the broker a principal in speculative transactions, responsible for completion of transaction in the event of default by a client. In turn, this led to the increased use of ‘dealing on margins’ as a method of speculation and the subsequent introduction of the London rescounters. The increased need for honesty and integrity in the settlement process was a significant factor leading a loose knit group of brokers to form the London Stock Exchange where access by the general public could be restricted.

 That speculating in shares using option contracts was present from the beginnings of London share trading in the 1690's is evident from the discussion in Houghton (1694):

 Another time he asks what they will have for Refuse of so many Shares: That is, How many Guinea's a Share he shall give for liberty to Accept or Refuse such Shares, at such a price, at any time within Six Months, or other time they shall agree for.

 For Instance; When *India* Shares are at Seventy Five, some will give Three Guinea's a Share, Action, or Hundred Pound, down for Refuse at Seventy Five, any time within Three Months, by which means the Accepter of the Guinea's, if they be not called for in that time, has his Share in his own Hand for his Security; and the Three Guinea's, which is after the rate of Twelve Guinea's profit in a year for Seventy Five Pound, which he could have sold at the Bargain making if he had pleased; and in consideration of this profit, he cannot without Hazard part with them the mean time, tho' they shall fall lower, unless he will run the hazard of buying again at any rate if they should be demanded; by which many have been caught, and paid dear for, as you shall see afterwards: So that if Three months they stand at stay, he gets the Three Guinea's, if they fall so much, he is as he was losing his Interest, and whatever they fall lower is loss to him.

 But if they happen to rise in that time Three Guinea's, and the charge of Brokerage, Contract and Expence, then he that paid the Three Guinea's demands the Share, pays the Seventy Five Pounds, and saves himself. If it rises but one or two Guinea's, he secures so much, but whatever it rises to beyond what it cost him is Gain. So that in short, for a small hazard, he can have his chance for a very great Gain, and he will certainly know the utmost his loss can be; and if by their rise he is encouraged to demand, he does not matter the farther advantage the Acceptor has, by having his Money sooner than Three Months to go to Market with again; so in plain *English*, one gives Three Guinea's for all the profits if they should rise, the other for Three Guinea's runs the hazard of all the losses if they should fall.

This insightful description is quite remarkable in that, unlike de la Vega or de Pinto, Houghton was not an active participant in the market; Houghton was “not much concern'd in Stocks, and therefore (had) little occasion to Apologize for Trading therein”. As Houghton does not provide a discussion concerning speculation using ‘time bargains’, it is likely that many speculations were executed using options contracts.

 An important, but overlooked, feature of Houghton's 1694 discussion appears in the contributions of June 29 and July 6 where samples of put and call option contracts are given in detail, e.g., Poitras (2000, pp.350-1; Poitras 2009a). The use of standard contracts indicates that contracting practices common in Amsterdam were adopted in London. As de la Vega (1688, pp.181-2) observes for Amsterdam trade:

For ... time bargains the brokers use printed *contract forms* with the customary stipulations and conditions of the business. On these forms spaces are left only for names, dates, and prices ... For the *option business* there exists another sort of *contract form*, from which it is evident when and where the premium was paid and of what kind are the signatories’ obligations.

With standardized forms and *rescontre* clearing, brokers were the vehicles for executing trades. As to the types of brokers, practices similar to those in Amsterdam appear to have been adopted in London. On practices in Amsterdam, de la Vega (1688, p.185) reports:

There are two kinds of brokers. Some are appointed by the municipal authorities and are called “sworn” brokers, for they take another to do business on their own account. Their number is limited, and it changes only in the case of death, or through special privilege, which is seldom conferred. The other class of brokers is called “free” brokers ... clemency and indulgence toward these brokers prevail, instead of the sworn brokers attending actively to their own interest.

Unlike Amsterdam where free brokers “appear so faithful and concerned about their customers that they compensate by zeal what they lack in reputation” and where exchange clearing and settlement were well developed, the speculative trading activities of free brokers operating in the London share market almost immediately involved some unscrupulous activities.

During the emergence of trade in free standing option contracts, the conventional legal view in both Holland and England was that, while technically a gambling transaction, such contracts could be entered into by private parties willing to conduct such business without the guarantee that the courts could be used to enforce such contracts. However, in periods of speculative excess, the abuse of derivative security contracts, in general, and option contracts, in particular, produced a subsequent demand for further regulation. As Houghton (1690) reports, the organized use of options contracts that had emerged in London during the 1690's was a venue for market manipulation: [[28]](#endnote-28)

But the great *Mystery* of all is, That some Rich Men will join together, and give money for REFUSE, or by Friendship, or some other way, strive to secure all the Shares in a Stock, and also give Guinea's for Refuse of as many Shares more as Folk will sell, that have no Stock: and a great many such they are, that believe the Stock will not rise so high as the then Price, and Guinea's receiv'd or they shall buy before it does rise, which they are mistaken in; and then such takers of Guinea's for Refuse as have no Stock, must buy of the other that have so many Shares as they have taken Guinea's for the Refuse of, at such Rates as they or their Friends will sell for; tho' Ten or Twenty times the former Price.

In modern parlance, this is a classic example of a short squeeze being executed against uncovered call option writers. The Act of 1697 limited some of the potential abuses that were perpetrated with options, but did not eliminate such trading. This left forward trading as the favored vehicle for manipulating security prices, an undesirable outcome of the “villanous” practice of stockjobbing.[[29]](#endnote-29)

 There was considerable disagreement in the London broker community about whether options transactions were reputable. While potentially useful in some trading contexts, reputable brokers felt that options contributed to the speculative excesses common in the early financial markets. While trading in options and time bargains did contribute to the most important English financial collapse of the 18th century, the South Sea Bubble of 1720, this event was due more to the cash market manipulations of “John Blunt and his friends” (Morgan and Thomas, ch. 2) facilitating installment purchases of stock by lending the margin needed to raise the initial installment. In any event, dealing in time bargains and, especially, options were singled out as practices that were central to “the infamous practice of stock-jobbing”. In 1721, legislation aimed at preventing stockjobbing passed the Commons but was not able to pass the Lords. It was not until 1733 that Sir John Barnard was able to successfully introduce a bill under the title: “An Act to prevent the infamous Practice of Stock-jobbing.” This Act is generally referred to as Barnard's Act. Unlike the Dutch regulatory actions aimed at *in blanco* selling, the British approach was designed to regulate those features of stock dealings associated with excessive speculation, e.g., Morgan and Thomas (1962, p.62).

 The main provision of Barnard's Act (1733) states:

All contracts or agreements whatsoever by or between any person or persons whatsoever, upon which any premium or consideration in the nature of a premium shall be given or paid for liberty to put upon or deliver, receive, accept or refuse any public or joint stock, or other public securities whatsoever, or any part, share or interest therein, and also all wagers and contracts in the nature of wagers, and all contracts in the nature of puts or refusals, relating to the then present or future price or value of any stock or securities, as aforesaid, shall be null and void.

A penalty of £500 was levied on any person, including brokers, who undertook any such bargain. All bargains were to be “specifically performed and executed”, stock being actually delivered and cash “actually and really given and paid”, and with a £100 penalty for anyone settling a contract by paying or receiving differences. Consistent with the 17th century Dutch restrictions on *in blanco* selling, it was further provided: “whereas it is a frequent and mischievous practice for persons to sell and dispose of stocks and securities of which they are not possessed”; anyone doing so would incur a penalty of £500. There is disagreement among modern writers, such as Cope (1978) and Dickson (1967), concerning the extent to which Barnard's Act actually limited trading of options and other time bargains for stock. That it had some impact is evident as the Act did produce a stock market dependent upon cash settlement. Speculation was conducted using margin purchases and cash market short selling of borrowed securities replacing trading of options contracts and time bargains. Instead of settling by account at the rescounters, differences and loans would be settled in cash and loans for securities renewed until the next rescounter.

 By the middle of the 18th century, the more substantial securities brokers in London “were looking for ways of conducting their business in greater comfort and away from the disreputable hangers-on of the market” (Morgan and Thomas 1962, p.68). An attempt in 1762 by a club of 150 brokers to obtain exclusive rent of Jonathan’s failed when the courts upheld the access rights access by those being denied access. Subsequently, in 1773 a group of brokers acquired a building in Sweetings Alley off Threadneedle St. that was called the ‘Stock Exchange’. However, while some trade did gravitate to the new venue, there were no formal rules regarding membership, trading and the like. Access was open to the public on payment of a daily admission fee. In addition, trading continued to take place at various locales around London, especially in the Rotunda of the Bank of England building that had opened in 1765. In addition to free admission, the Rotunda building was where transfers for Bank of England stock and, more importantly, government debt issues were executed. Though the volume of trade was much greater than in Paris, this London stock exchange was “neither exclusive or dominant” in the London securities market (Michie 1999, p.32).

 The evolution of the London stock market took a dramatic turn starting with the French Revolution in 1789 and the closure of the Paris bourse in 1793. The subsequent occupation of Amsterdam by French troops in 1795 meant that two of the most important financial centers in Europe – Paris and Amsterdam – were disrupted. These events triggered an exodus of important bankers, brokers and other merchants to London, providing further impetus to the emergence of London as the dominant financial center for global trading of stocks and shares in the period from the early 19th century until WWI. Against this late 18th century backdrop, the British government greatly expanded the stock of national debt to fund military expenditures.[[30]](#endnote-30) The eventual result was that “on 3 March 1801 a London Stock Exchange formally came into existence that not only provided a market for securities but also incorporated regulations on how business was to be conducted”. With this move, the exchange moved from an open to a closed market designed to ensure “that all those who participated both obeyed the rules and paid for the necessary administration” (Michie 1999, p.35-6). In effect, the first modern stock exchange was born.

 Despite Barnard's Act making options trading illegal, such speculative trading continued to the point where, in 1820, a controversy over the trading of stock options nearly precipitated a split in the London Stock Exchange.[[31]](#endnote-31) A few members of the Exchange circulated a petition discouraging options trading. The petition passed, and members formally agreed to discourage options trading. However, when an 1823 committee of the Exchange followed up on this with a proposal to implement a rule forbidding Exchange members from dealing in options (which was already illegal under Barnard's Act), a substantial number of members voted against. A dissident group even began raising funds for a new Exchange building. In the end, the trading ban rule was rejected because the options trade was a significant source of profits for numerous Exchange members who did not want to see that business lost to outsiders. The upshot is that speculative exchange trading of options on the London Stock Exchange was subject to the discipline of trading by a restricted group traders – the exchange members – operating subject to explicit agreed upon rules. Though such contracts were settled by the party and counterparty, because exchange members were involved on both sides of the trader, either as dealer or broker, the fortnightly clearing process for shares was sufficient to prevent the significant speculative abuses that had plagued the previous OTC trading of option contracts and time bargains.

 Until the middle of the 19th century, development of the London stock market was profoundly impacted by the fallout from the South Sea bubble of 1720. The South Sea scheme involved the conversion of government debt conversion into shares in the South Sea company. The fantastic promotion of John Law was in the process of unwinding just as the South Sea scheme was beginning, though the full extent of the financial market collapse in France could only be guessed at the time. The markets in England and France were awash with speculative capital. In England, this produced a competing array of small joint stock promotions, involving companies either acting without a charter or using a charter that was not granted for the firm's current activities. Scott identifies 120 such issues appearing between September 1719 and August 1720, with a potential market capitalization of £220 million. To stem the flow of speculative capital out of the market for South Sea shares, the South Sea Company was able to get the so-called ‘Bubble Act’ invoked.

 The Bubble Act was not a specific Act, per se. Rather, the Bubble Act was some clauses attached to a bill enabling the charter for two insurance companies, the Royal Exchange Assurance and London Assurance Companies; yet another instance of the government exchanging exclusive rights in exchange for the paid-in capital of the venture. These clauses prohibited promoters from ‘presuming to act as if they were corporate bodies and pretending to make their shares or stocks transferable or assignable without any legal authority’. The prohibition was extended to companies operating ‘under the authority of charters that were obsolete or had been given for some other purpose’. The effect of this Act was to severely restrict joint stock issues, leaving the two insurance companies, together with the Bank, the East India Company and what remained of the South Sea Company as the main components of the English market joint stocks for the rest of the century and half of the next. Little progress was made in joint stock company formation until the enabling of “letters patent” in 1834 and passage of the Joint Stock Company Act (1844), e.g., Todd (1932); Alborn (1998). As a consequence, the London stock market during this period was largely concerned with government loan stock and the debts of private companies. Despite being the center of the global stock market until well into the 20th century, developments in the US stock market have had the greatest impact on the current stock market globalization process.

**5. The US Stock Market during the 19th Century**

 With the emergence of the London stock exchange to international prominence at the end of the 18th century, there developed during the 19th century an international network of stock exchanges with London being the dominant exchange for international issues of stocks and shares with Paris having a greater role for Europe and the Mediterranean. This growth was facilitated by the sometimes massive increases in government debt and corporate share issues due to events such as the Napoleonic wars, the railway construction boom through much of the19th century, the US Civil War, and the transition of businesses to publicly traded joint stock companies. Changes in communication technology, such as the telegraph and the telephone, contributed to the evolution of the local and regional exchanges from being sources of capital for smaller, locally located enterprises toward national specialization in specific stocks traded in a global market, e.g., South African exchanges for gold mining stocks; New York for American securities. The exchanges located in national financial centers increasingly “provided the most liquid market in which money could be readily employed or securities quickly sold” and so attracted business from throughout the country (Michie 1999, p.6).

 Accompanying the development of stock exchanges was a gradual transition in the sophistication of the investing public and the businesses seeking to attract capital. Shares in joint stock companies came increasingly to be perceived as ‘investments’ instead of ‘gambling’ vehicles. The increasing liquidity of stock markets substantially reduced the difficulty of purchase and sale, further encouraging trade. While these social transitions took place somewhat more quickly in Paris and London than in New York, only by the beginning of the 20th century was New York was on a comparable footing. The development of US stock trading is roughly consistent with the growth of New York as the world’s financial capital. As late as the 1820's, Philadelphia had as strong a claim as New York to be the nation’s financial capital. In the period before the Civil War, London was still, by far, the world’s dominant securities market. Even with the sizable influx of funding issues associated with the Civil War, around 1866 London still had a market cap of around $10 billion compared to $3 billion for New York (Gordon 1999, p.123). Armstrong (1848), an essential source on US stock market practices at the middle of the 19th century, indicates stock trading in the US was a gambling transaction conducted in a trading environment characterized by corners, bubbles and “fancy stock manoeuvres”. Later biographical and autobiographical accounts of those involved in the industry in the second half of the century, such as Henry Clews Fifty Years on Wall Street (1908) or Edwin Lefèvre Reminiscences of a Stock Operator (1923), present a similar picture.

 This somewhat later social development is consistent with the “dramatic expansion” that took place in US stock markets from the mid-1880's to the late 1920's (O’Sullivan 2007). Yet, these comparable historical developments mask fundamental differences in the workings of the financial markets in Europe and America. As it turns out, these differences – such as ‘trading for account’ versus ‘daily cash settlement’ – have had a significant impact on the development of the stock market that continues to the present. Fortunately, helpful primary sources that detail stock trading practices, such as Armstrong (1848) and Emery (1898), are available. Among other insights, these sources support the conclusion that early stock market trading practices in the US were transplanted from European centers, especially London. This is hardly surprising given that America was a British colony until the War of Independence. However, the lack of US stock market liquidity and sophistication produced a greater reliance on cash settlement. Despite the lack of sophistication, certain trading practices employed during the 19th century are closer to the modern US stock market than the highly regulated markets that prevailed from the Securities Act (1933) until the creation of the Chicago Board Option Exchange (CBOE) at the CBT and the International Monetary Market (IMM) division of the CME in the 1970’s. During this latter period, there were sharp restrictions on trading equity derivative securities. In addition, cash market short selling and buying on margin were subject to restrictions. Gradual removal of these restrictions since the 1970’s places the modern stock market on a similar playing field to the 19th century stock market where stock trading could involve cash, ‘time contracts’ or ‘hypothecation’.

 Armstrong (1848, p.9-12) details New York stock market trading methods used around the middle of the 19th century. “When Stocks are bought and sold in ‘*the regular way*’, the delivery and payment must take place the day after the sale is effected”. Trading by legitimate investors “making or withdrawing investments … would seldom be on any other terms than in the ‘regular’ way”. In addition to this legitimate cash trade, there was also considerable trading activity in “time operations” that involved non-transferable forward sale contracts with a variety of delivery options, e.g., “seller three days” where “the seller has the right to deliver and demand payment for the Stock upon any day of the three”.

In all time operations, Contracts are generally exchanged which specify the terms of sale; and it is understood that either party has a right to call for a deposit as collateral security for fulfillment of the contract … the deposit most commonly desired is five per cent. and occasionally ten. This deposit is then generally deposited by each party in the hands of any third person who may be agreed upon.

In no case was a contract made for more than a year to delivery or could an increase in collateral be requested “unless it was agreed upon at the time of sale”. In addition, time operations were “not recognized by the law … upon a par with all other gambling operations … there is no other security for the performance of contracts than the laws of honor”. Yet, similar to trade in London, a network of brokers and influential speculators sustained a viable market in time contracts.

 Armstrong (1848, p.12) recognizes that the overriding purpose of time contracts was speculation:

all those transactions called time operations, which are based on anticipated fluctuations in prices, are … essentially the same as so many bets upon what the future will bring forth, for hardly any one share out of fifty which is sold on time is actually transferred, the contract being “settled” by one party paying to the other the “difference” between the price specified at the time of sale and the market price at the time the stock is to be delivered and paid for.

Significantly, Armstrong also finds that, as a consequence of time operations, “inevitable fluctuations [in stock prices] are aggravated, and unnecessary or unnatural actions and reactions are produced by the various manoeuvres resorted to” by those involved in time operations. For Armstrong: “One prominent result of these time operations has been the formation of two opposing parties among stock operators – the Bulls, who have based their transactions upon their expectations of an advance in prices, and the Bears, who have sold stock which they are not in possession of, trusting to a decline.” Upon closer inspection, many of the mythic events of 19th century US stock market history were conducted using time operations.

 Not all time operations involved the use of time contracts. Similar to the practices in the London stock market after passage of Barnard’s Act, speculative dealings could also be conducted using ‘hypothecation’. “When such a time operation as is desired cannot be conveniently obtained, it is customary to buy the stock for cash, and then borrow as much money upon it as possible, and deposite the certificate of Stock with the lender as security for repayment of the amount borrowed. The market value less five or ten per cent. can almost always be obtained.” Various sources provided such loans: banks, “professed money lenders” and “any person who has got money to spare”. If the stock declined in value after the purchase then the loss would have to be paid or the stock would be sold. Short sellers that did not use time contracts were typically lenders against stock collateral that had sold the stock place on deposit to secure the loan. A system of borrowing stocks that would then be sold, as described in Emery (1896, p.77), is not mentioned by Armstrong (1848). Similarly, Emery (1896) observes that “time dealings have given place to dealings which are practically for immediate delivery”. Much of this evolution in US stock market trading practices over the last half of the 19th century can be attributed to the emergence of the New York Stock Exchange (NYSE) as “far and away the most important exchange of the United States”.

 In examining the various stories and historical accounts of the early US stock market trading activities, it is conventional to go back to 1792 when the twenty-one individual brokers and three firms signed the Buttonwood Agreement “not to buy or sell from this day for any person whatsoever any kind of Public Stock, at a rate less than one quarter per cent Commission on the specie value, and that we will give preference to each other in our negotiations” (Eames 1894, p.14). This arrangement was eventually to evolve into the NYSE, a name that was introduced in 1863 as a name change for the Regular Board of the New York Stock and Exchange Board. The New York Stock Exchange emerged as the dominant exchange for trading stocks in New York with its merger with the Open Board of Brokers in 1869 (Gordon 1999, pp.95,124-5). The New York Stock and Exchange Board, formed in 1817 (Eames 1894, p.18), could trace its pedigree to the Buttonwood Agreement. The Open Board was a relative newcomer that flourished in the face of the flood of issues arising from the Civil War. Armstrong (1848, p.8) discusses the “Old Board” and “New Board”, the latter composed of brokers that for various reasons could not gain a seat on the New York Stock and Exchange Board where admission required approval of the members. Prior to “memorable crash” of 1836, the number of members and volume of transactions on the New Board was larger than the Old Board.

 Even after the emergence of a dominant exchange, stock trading in New York was still scattered across a range of venues. For example, in 1856 Gordon (1999, p.87) reports there were 360 railroad stocks, 985 bank stocks, 75 insurance stocks, in addition to hundreds of corporate, municipal, state and federal bonds and other types of stocks being traded in New York. Of these most were not traded on the New York Stock and Exchange Board (NYSEB), the lineal precursor of the NYSE, as the Board did not trade new and untested issues. These issues were “curb-stone” traded. The primary venue for curb trading changed over time. Armstrong (1848, p.18) refers to the trading taking place:

when the two boards of brokers are not in session, the members, small operators, money lenders, toadies, and other interested, assemble promiscuously for the transaction of business at the corner of Wall and Hanover-streets; and it not unfrequently happens that more business is done at this place that at the board.

In severe weather, the business would “cluster about the interior of the Exchange”. In 1836, the NYSEB prohibited members from street trading so Armstrong is suggesting that this ban was not fully effective. Honorable brokers were essential to curb trading where time operations were conducted. Armstrong (1848, p.24) observes: “be very particular in selecting a broker as people very often lose by their agent … there are a thousand different ways in which a dishonorable broker can cheat his employer”. Later in the 19th century, the curb market expanded to various lamp posts in the Wall Street area. Throughout the 19th century, even though the volume of curb trading was usually higher than trading on the Board, the market cap of curb issues was lower.

 The tales of American stock operators predate the Buttonwood Agreement. Notoriety was, and still is, the result of doing something on a grand scale, often in conjunction with a massive bull market speculation, or the creation of colossal conglomerate or the execution of an immense market manipulation. An early example is William Duer who was at the center of a 1791-92 speculative scheme to inflate the value of bank stocks, particularly the Bank of New York (Gordon 1999, p.40-5). The scheme was based on leveraged speculation, i.e., making cash purchases using borrowed funds, and trading on insider information. At the height of the speculative frenzy, a number of banks were incorporated that, ultimately, did not open. As such, these stocks represent an early US instance of bull market ‘paper hanging’. The collapse of the scheme resulted in bankruptcy of many of the players, including Duer. The scheme prompted Alexander Hamilton to write: “ ‘Tis time there should be a line of separation between honest Men and knaves, between respectable Stockholders and dealers in the funds, and mere unprincipled Gamblers.” This seeking of the line of separation between legitimate trade and counter-productive speculation is a task that has occupied regulators up to the present day.

 The formation of the New York Stock and Exchange Board in 1817 also marks the beginning of the Wall Street career Jacob Little, the first of a long line of big-time Wall Street speculative operators (Gordon 1999, p.59-62, 89-90). Unlike Duer who only used Wall Street as a trading venue, Little made a career on Wall Street. Jacob Little and Co. is the first broker detailed in the “sketches of the brokers” given in Armstrong (1848, p.32-9). As a broker, Little gained membership to the NYSEB in 1825. Yet, it is as a speculator that Little made his reputation, further supporting the view that some members of the NYSEB were involved in time operations. Little’s trading strategies were typically short-term, aimed at anticipating market movements. During his career, Little made and lost four fortunes in speculative trading activities.[[32]](#endnote-32) In the end, he was unable to recover from his last insolvency brought on by the market panic of 1857. From that time, until his death a few years later, Little ended his Wall Street career as a trader of penny stocks and odd lots.

 Little was primarily a short seller, commonly using the collateral deposited against hypothecations. Little was involved in lending to buyers of stock on margin, using the collateral deposited for the short sale. Oddly enough, Little’s first fortune was made in a 1834 short squeeze involving the Morris Canal and Banking Company. The objective of a short squeeze in a stock issue is to gain control of the quantity of that stock available for trading (the ‘float’ or ‘floating supply’) at a time when a sizable amount of stock has been sold short by traders who do not have a sufficient amount of stock to deliver. As was the case in the squeeze on Morris Canal and Banking, the capital requirements for gaining control of the stock for delivery usually involves a group or pool of speculators operating in concert. When the time comes for the short to make delivery of the stock on a time contract or return the collateral on a hypothecation, the short has to enter the market to buy – but there is no supply available because the short squeezers have already gained control. The result is a rapid rise in the stock price as short sellers bid up the price to tempt new supply onto the market (either from accounts of long-term investors or from the short squeezers). At Little’s time, most short sellers were brokers using time contracts that had sold stock they did not own to investors, speculators or other brokers. The short position was sometimes the outcome of longer settlement periods than in modern times. In other cases, the objective of both parties was to engage in speculative forward trading, resulting in delivery dates on the short that could be many months in the future.

 Prior to the wide reaching regulatory reforms of 1933-34, stock market self-regulation was an important theme of government policy. Yet, self-regulation suffered from the conflicting interests of the legitimate brokers, who recognized the negative impact associated with widespread unscrupulous trading activities, and the big-time speculators, who saw the market as a conduit for achieving big profits from a range of trading schemes. As late as the Great Depression, many practices that are illegal in modern markets were considered fair game, such as trading on insider information or the formation of pools to engage in manipulative trading activities aimed at creating price movements favorable to speculation on stock price changes. Though important changes were implemented from time to time, the process of reform using self-regulation was slow and problematic. One example of an important change happened in November 1868, just prior to the merger of Open Board and the New York Stock and Exchange Board, when registration of securities and 30 days notice of new issues was required of companies listed on the two Boards. As is often the case, this change was precipitated by severe and adverse market events.

 The imposition of the listing requirement had an immediate impact on the activities of the big-time speculators, Daniel Drew, Jay Gould and James Fisk, involving the Erie Railway. The 1864-1869 manipulations associated with the securities of the Erie are almost epic, reflecting the state of stock markets of that time. On one side of the struggle was ‘Commodore’ Cornelius Vanderbilt, a giant in the transportation industry, who wanted to control the Erie in order to be able to control the pricing of railway freight rates into and out of New York City. On the other side was a group including Drew, Gould, Fisk and other big-time speculators who were seeking to control the Erie as a vehicle for making speculative gains through manipulation of the companies security issues. The machination of these two camps has been captured in some of the early classics of business finance, e.g., Adams and Adams, Chapters of Erie (1871) and Henry Clews, Fifty Years on Wall Street (1908). The struggle between these two groups is an epitome of the problems that prevailed in stock markets of that era, e.g., Medbury (1870, ch.9), Gordon (1999, ch.6).

 Vanderbilt was concerned with stock markets only as a vehicle for creating and managing a business empire, primarily involving railways. As part of the ongoing process of expanding this empire, Vanderbilt moved to acquire a controlling position on the Erie board of directors during the late summer and early fall of 1867. Vanderbilt had been involved with the Erie as recently as 1865, when he resigned from the board over concerns about the evident manipulations in the stock that took place during 1864-65. A major player in these manipulations was Daniel Drew, also a board member who, conveniently, served as treasurer. In his position as treasurer, Drew was able to issue securities, and in 1866 had done so by loaning the company $3.5 million in exchange for 28,000 unissued shares and $3 million in convertible bonds that had the provision that the 30,000 shares obtained from conversion could be reconverted back into convertible bonds. This provided Drew with the ability to expand and then contract about 10% of the outstanding stock – providing effective control of the floating supply.

 When Vanderbilt was unsuccessful in using his influence to control the Erie board of directors, starting in January 1868 he moved to gain control of the company by making purchases of as much of the outstanding stock as could be obtained. The speculators saw this as an opportunity to issue more convertible bonds that became a conduit to print stock certificates that were then sold to Vanderbilt. From late February to mid-March, Drew and his group were able to sell 100,000 newly issued shares. The absence of registration and listing requirements prevented the New York Stock and Exchange Board from knowing what was happening. All this was set against a backdrop of corrupt judges issuing injunctions and arrest warrants and legislators being bribed to pass laws favorable to one or the other of these groups. On April 19, Vanderbilt was able to strike a deal with Drew, Gould and Fisk and recoup his potential losses from his stock dealing. Following this, Gould and Fisk continued to manipulate Erie stock issues, until the listing and registration requirements were introduced by the two Boards. Gould attempted to resist the requirements, even trying to establish a new exchange for the purposes of trading Erie stock. In September 1869, Gould capitulated and agreed to the new regulations. At that time, it was revealed that the number of Erie shares outstanding was around 700,000, about double the 351,000 shares outstanding at the time of the Vanderbilt agreement of April 1868.

 To modern observers, events surrounding the Erie have the appearance of a classical farce. A business titan attempting to gain control of a railway company in order to implement a pricing cartel enters battle with a group of big time speculators seeking to use the company as a vehicle for generating profits from stock price manipulation. Drew, Gould and Fisk are usually lumped in with Andrew Carnegie, J.D. Rockefeller and Commodore Vanderbilt and recognized as the ‘Robber Barons’ who dominated American industry through their financial dealings in the 1870-1890 period, e.g., Geisst (1997, ch.3). The activities of the robber barons took place against a backdrop of increasing concentration of economic power in the hands of the trusts such as American Telephone and Telegraph, General Electric, Standard Oil and the American Tobacco Company. The trusts were formed largely as a way of dealing with the legal restriction imposed on corporations until around 1900 that prevented holding the stock of other corporations. During the 1890's there were about fifty trusts operating throughout the US, involving most of the major industries. This number includes some agricultural trusts that were concentrated primarily in the South.

 Trusts were formed as a legal device largely to circumvent state corporation laws that restricted the ability of a corporation to expand using mergers and takeovers. Prior to the changes in state corporation law that started with New Jersey during the 1890's, the ability of a corporation to act as a holding company was quite limited. Trusts provided a legal avenue around these restrictions. In a trust, the companies being merged or taken over would exchange the common shares in the original corporations for trust certificates that possessed a claim to earnings of the trust as well as voting rights to elect the trustees that ran the trust. Standard Oil, for example, had nine trustees. Trust certificates traded like common stocks on the stock exchanges. The trust was a useful legal mechanism for the takeover ambitions of the emerging industrialists. Instead of having to issue new shares to raise new capital for a takeover, trusts could pay for the takeover using trust certificates or internal sources of funds.

 Due to changes in various state corporation laws, the trusts had a relatively short life span. The legal status of trusts did not prevent various states from initiating legal actions under other grounds, such as the common law restrictions on monopoly, aimed at preventing the increasing monopolization of specific industries. In addition, the public perception of economic and social problems posed by the trusts was addressed in 1890 with the passage of the Sherman Anti-Trust Act. Though this Act did not result in many successful prosecutions, it did provide a federal definition and jurisdiction for what constituted a monopoly. The trusts gradually reorganized as holding companies and trust certificates were replaced by common shares. Standard Oil, for example, completed the shift in 1899. Whether it was trading in trust certificates or the common shares, the changes in American industrial structure were good for Wall Street. The importance of trading in shares of these industrial companies gradually came to surpass the railroads. The volume and value of trade on the NYSE doubled between 1875 and 1885 with more growth on the horizon.

 Yet, despite the growth, the US stock market of that era justly deserved the public perception as a speculator’s haven. Henry Clews (1908, p.19), a veteran broker and investment advisor with fifty years experience on Wall Street from 1857-1907, provides an informed view of “How to Make Money on Wall Street”:

 To the question often put, especially by men outside of Wall Street, “How can I make money in Wall Street?” there is probably no better answer than the one given by old Meyer Rothschild to a person who asked him a similar question. He said, “I buys ‘sheep’ and sells ‘dear’”.

 Those who follow this method always succeed. There has hardly been a year within my recollection, going back nearly thirty years, when there has not been two or three squalls in “the Street”, during the year, when it was possible to purchase stocks below their intrinsic value. The squall usually passes over in a few days, and then the lucky buyers of stocks at panic prices come in for their profits ranging from five to ten per cent on the entire venture.

 The question of making money, then becomes a mere matter of calculation, depending on the number of squalls that may occur during any particular year.

 If the venture is made at the right time – at the lucky moment so to speak – and each successive venture is fortunate, as happens often to those who use their judgment in the best way, it is possible to realize a net gain of fifty per cent. per annum on the aggregate of the year’s investments.

Coming from an individual so intimately connected to the dealings of ‘the Street’, it is difficult to deny that speculation played an essential role in the US stock market of the time. Given the numerous abuses associated with trading common stocks, the disposition of the small investor to favor bonds over stocks during this period is understandable.

 Many of the systemic problems raised by the predominance of speculators in the US stock market persisted until the regulatory reforms following the Great Depression. The introduction of legislation such as the Securities Act (1933) involved a radical realignment of the federal government’s role in securities markets, in general, and the stock market, in particular. The collapse of the US stock market from late 1929 to early 1933 was sufficient to end the period of self-regulation that had largely governed stock trading up to that time. Yet, the period of self-regulation was not without contributions. Many of the trading tools needed to lay the foundation for sustainable stock trading had evolved without government intervention. The growth of stock markets witnessed the emergence of professionals who made their living in the market and had a vested interest in making sure the game was played, if not always fairly, at least according to accepted rules.

**7. US Evolution of Derivative Security Trading**

 By the beginning of the 19th century, a number of characteristics associated with stock exchange trading had emerged in Europe. In particular, self regulatory requirements needed to ensure settlement of positions were imposed on exchange participants. Both informal and formal rules were introduced by exchanges to control access to the trading process, e.g., restrictions on participation in the trading process through private ownership of the exchange building and restrictions on membership. When speculative exchange trading was concentrated around a small group of merchants and brokers directly involved in the commodity trade of 16th century Antwerp, self regulation was generally sufficient to prevent speculative excesses and manipulation. However, as trading expanded to include joint stocks, government oversight was required to prevent speculative abuses and unscrupulous practices associated with OTC style contract design, where deals were directly done between counter parties. The practical connection of speculative exchange trading for bulk commodities to the underlying goods trade restricted speculative participation in comparison to such trading in stocks and shares. Competition among exchanges was muted by the need to locate trading geographically close to the associated goods trade, e.g., the transfer offices for shares or the wholesale goods market for commodities.

 Though primary sources are scarce, it is likely that some form of speculative trading with time contracts was present from the 18th century beginnings of US trade in ‘stocks’, perhaps earlier in the produce markets, e.g., Markham (1987, 2002). Significantly, over time this trade developed differently from Europe due to differing settlement practices. In the US, “each day is a settling day and a clearing day for transactions of the day before ... This is a marked difference from European practice” where “trading for the account” involves monthly or fortnightly settlement periods with allowance for continuation of the position until the next settlement date (Emery 1896, p.82). Daily or short dated settlement had dramatic implications for speculative trading in the US stock market. Instead of trading using time contracts which was discouraged by the stock exchange, it was more expedient to speculate by selling (shorting) borrowed stocks and buying stocks on margin. As a consequence, the venue for evolution of speculative exchange trading in the US was in the bulk commodity markets which, during the 19th century, experienced a revolution that can be attributed to the subtle impact American culture had on specific business practices. Writing in 1896, Emery (1896, p.7) captures the main theme: “The American people are regarded by foreigners as the greatest of all speculators.” This drive to speculate facilitated American innovations in commodity derivative security trading. “It was not until the (19th) century ... that the system (of dealings for time) became widely developed and not until the great expansion of foreign trade in the last fifty years that it became of great importance.”

 An important theme in the historical progress of stock market trading is the public good benefits provided by enhanced participation of speculators in the exchange process. Among other benefits, enhanced speculation increases market liquidity and can improve price discovery. Yet, speculative activity can have decided disadvantages, such as the increased incentive and ability to manipulate markets resulting in sometimes severe distortions in the pricing process. Periods of turbulence in specific commodity markets – where price discovery apparently failed – are often associated with the entrance of speculators not directly connected to physical trade in the underlying commodity using the leverage associated with derivative contracts to distort market pricing for private gain. Though there were time dealings being conducted in a number of centers throughout the 19th century, the beginning of speculative exchange trading in the US commences with commodity futures contracts traded on the Chicago Board of Trade (CBT) in mid-19th century Chicago, First incorporated as a village in 1833, Chicago had only a population of 4,107 by 1837. In order to promote commerce, the Board of Trade of the City of Chicago was founded on April 3, 1848 with 82 members. This event, in itself, was not particularly noteworthy. The usefulness of boards of trade in promotion had been recognized for quite some time. For example, around 1700 John Law of the infamous Mississippi scheme promoted the creation of a board of trade for the city of Edinburgh (Murphy 1997).

 From the beginning, there were inherent conflicts between the exchange as a promoter of trade and promoter of the interests of (owner) members. The exchange as a self-regulatory entity was not recognized, e.g., Lurie (1972, p.221):

A basic purpose of the Board was to facilitate profitable economic activity by members. Thus its directors had to sense with some accuracy how far they could go in the areas of rule enforcement. If rules were enforced too harshly, board members could either ignore them or decline to remain in the organization. Yet, another purpose of the exchange was to rationalize the commodities market through efficient and effective regulation. The efforts of the directors to reconcile this inherent tension between private economic activity and an ordered national market represent a recurring theme throughout Board history.

The CBT initially served as a marketplace for members of the grain trade. A system of wheat standards was developed together with a system of inspecting and weighing grain. In 1859, the Board of Trade was authorized by the state of Illinois to engage in the measuring, weighing and inspecting of grain, effectively corn and wheat. As Hieronymous (1977, p.73) observes: “The development of quality standards and an inspection process and the substitution of weighing for the measurement of grain greatly facilitated trade. The substitution of weight for volume measures made the development of grain handling machinery possible. Increase in physical efficiency was important in the development of Chicago as a great grain terminal.” These developments facilitated the handling of grain in bulk, through the use of grain elevators. This permitted interchangeable warehouse receipts to be introduced, instead of having to deal in unstandardized, specific lots. Not unlike the bulk commodity trade in 16th century Antwerp and 17th century Amsterdam, conditions in the goods market were evolving to where standardized contracts on physical commodities could be traded.

 The grain trade of that time typically involved merchants at various points along major waterways such as the Illinois-Michigan canal purchasing grain from farmers which was then held in storage, often from fall or winter into spring. In this operation, the merchants' capital investment involved: paying the farmers for their crops at delivery; costs of building and maintaining storage facilities; and, providing funds for shipment of grain when required. In order to avoid the risk of price fluctuation and to satisfy bankers, merchants started to go to Chicago and make forward sale contracts for future, spring delivery of grain, at prices which were determined that day. While there was ad hoc OTC style forward sale of grains previously, the first “time contract” in Chicago was made on March 13, 1851 calling for delivery of 3000 bushels of corn in June at one cent below the March 13 cash price. The transferable time contracts called for delivery of a standardized grade at a later delivery date. Similar contracts for wheat appeared in 1852. However, while there were similarities to exchange traded futures contracts, other conditions were significantly different such as: the absence of an exchange clearing mechanism; contracts that were specific to the original parties to the transaction; and, contracts being created by parties able to ensure delivery. As such, the initial trading in time contracts did not have all the aspects needed to support speculative exchange trading.

 The development of futures markets in Chicago was significant because, in the years immediately following the introduction of time contracts, individuals not connected to the grain trade became interested in taking positions. The resulting contracts often changed hands numerous times before being purchased by a market participant actually interested in taking delivery of the grain. This marks the introduction of a fundamental feature of speculative exchange trading, the essential participation of speculators not concerned with completing the underlying commodity transaction. Characteristics of speculative exchange trading were not associated with trading in the often non-transferable ‘to arrive’ contracts and ‘privileges’ which had characterized American commodities trading previously (Williams 1982). This trade was concentrated primarily in flour. ‘To arrive’ forward sale contracts in wheat, corn, rye and pickled hams were also conducted with activity centering on New York. The contracts typically featured short delivery dates, limited standardization of the deliverable commodity and the expectation that delivery would be completed. While there is some evidence of limited speculative dealings in these ‘to arrive’ contracts and ‘privileges’ associated with the flour default of May 1847, participants to these transactions usually involved merchants directly involved in the commodity business.

 The increasing speculative interest in time contracts led the Board of Trade to introduce a number of resolutions to curb abuses. Many of the abuses were consistent with speculative participation and longer delivery dates. “It seems that when time for settlement arrived some of the contracting parties were difficult to locate.” (Hieronymous p.76) Out of the early self regulatory process came the beginnings of formal trading rules for futures contracts. In 1863, the Board adopted a rule which suspended the membership of anyone failing to comply with a contract, either written or verbal. On Oct. 13, 1865 the General Rules of the Board of Trade explicitly acknowledged futures trading and adopted rules which included many essential elements required for speculative exchange trading, i.e., standardized contract terms; restriction of futures contract trading to exchange members; margin deposits to guarantee performance; and, standardized delivery procedures.[[33]](#endnote-33) Prior to this date, individual traders had been responsible for establishment and enforcement of the terms of the contract. This development followed a similar move in 1864 by the Liverpool Cotton Brokers' Association introducing formal regulations for ‘to arrive’ contracts in cotton (Forrester 1931).

 Speculative exchange trading of commodities progressed dramatically since the first corn futures trade on the CBT in 1865. Many other commodity futures exchanges emerged in the period between the Civil War and World War I. The New York Cotton exchange was formed in 1870 and the New Orleans Cotton Exchange in 1871, though time contracts did not play an important role on the latter exchange for almost a decade. In 1874, the Chicago Produce Exchange was formed by dealers trading in produce of various kinds. The Coffee, Sugar and Cocoa Exchange was initially founded in 1882 as the Coffee Exchange of New York City with the specific intent of trading in time contracts for coffee. Initially founded in 1872 to trade in butter, eggs and cheese, a decade later the exchange acquired its current name, the New York Mercantile Exchange (NYMEX).[[34]](#endnote-34) In 1898, a subgroup of the produce exchange known as the Produce Exchange Butter and Egg Board withdrew from the Produce Exchange and formed the Chicago Butter and Egg Board. This group is of present interest because it had established an active trade in time contracts for eggs, even though such trade was only a small proportion of the Butter and Egg Board's activity. When margin rules for time contracts were finally written in 1911 there was considerable controversy among the members. Finally, in 1919, a complete set of commodity futures trading rules was written and the mandate of the Butter and Egg Board was changed to include commodity futures trading. The end product was the emergence of the Chicago Mercantile Exchange, which started trading contracts for butter and eggs on Dec. 1, 1919.

 The late 19th century Renaissance in speculative exchange trading for commodities was accompanied by a rash of speculative manipulations that ultimately led to vociferous attacks from agrarians and Populists, e.g., Cowing (1895), Hicks (1961). Though referred to as ‘anti-option’ bills, the focus of the attacks was commodity futures contracts. The anti-speculation reasoning behind the attacks was described around that time by Cowing (1895,p.5):

The seemingly orthodox futures contract, occasionally used before the Civil War and an outgrowth of earlier “to arrive”, and “forward delivery” agreements, began to receive unprecedented attention from speculators. Persons not previously connected with the commodities business had been attracted, and were buying and selling futures contracts in the central markets, especially in Chicago and New York. The number of bushels and bales traded on the exchanges exceeded the annual production from 1872 on and in several years toward the end of the century amounted to sevenfold the annual crop. Prices had moved widely before the war because of weather, economic instability, and imperfect crop information, but it appeared that the new volatility was due to maneuvers by speculators with large purses. Thus “speculator” became more than ever a term of opprobrium; the physiocratic bias against those who produced no primary products was more bitterly asserted as the agrarian population shifted consciously to the defensive. The mysterious and remote commodity speculator seemed more of a parasite to the farmers than the local physician who was holding land for appreciation. Farmers identified the commodity speculator as the villain responsible for erratic price changes in Chicago, Minneapolis, and New York, especially around harvest time. The stage was set; the national crusade against the exchange speculator was about to begin.

Various efforts were made by the exchanges, as well as state and federal legislatures, to control the perceived market manipulations. At the federal level, between 1880 and 1920, there were some 200 bills introduced in the US Congress aimed at regulating derivative security trading, though few bills made it out of committee (Markham 1987, p.6-9). State legislatures that did pass bills, e.g., an 1874 Illinois statute prohibiting ‘corners’, were unsuccessful in curbing such activities. Various states passed laws prohibiting futures trading for which there was no intent to take delivery. Such laws were voided by the courts on grounds that “pro forma assertions of interest with respect to delivery were sufficient to preclude application of the statutes” (Markham 1987, p.6; Lurie 1972).

 The decline in agrarian conditions following the post-1886 droughts generated sufficient political will to produce the Hatch-Washburn bill of 1892, the most concerted effort at anti-speculation legislation prior to passage of the Grain Futures Act in 1922. Instead of outlawing futures trading, this bill aimed to impose a prohibitive tax on speculative dealings in futures contracts. The Congressional debate on the issue surrounding the Hatch-Washburn bill is an essential primary source on 19th century views on derivative securities. The committee meetings leading up to votes on the bill included testimony from important agrarians, such as J.H. Brigham, Master of the National Grange and C.W. Macune of the Farmers' Alliance and Industrial Union. Not only farmers were in favor of the bill, the testimony also included statements from millers, such as Charles Pillsbury, as well as grain and hog merchants. Pillsbury held that “neither grower nor miller had as much influence over prices as a few men around the wheat pit in Chicago. Short selling by these few made prices erratic and unstable; opinions based upon supply and demand were worthless in the face of this manipulation” (Cowing 1965, p.7). Pillsbury also maintained that the use of futures to hedge would not be necessary if price volatility due to speculation was eliminated.

 In 1893, the Hatch-Washburn bill successfully passed the House, 167 to 40, and passed the Senate, 40 to 29, though there were some amendments which had to be returned to the House for approval.[[35]](#endnote-35) However, this placed the bill too far down the calendar to be dealt with before the end of the session. A suspension of House rules was required for the bill to become law. However, suspension of rules requires a two-thirds majority and the vote, 172 to 124, fell short by 26 votes. The gradual return of prosperity dampened, but did not eliminate, the drive of the anti-speculator forces. However, it was not until after WWI that sufficient legislation, such as the Grain Futures Act (1922), was in place to curb the alleged abuses of the middlemen and speculators using the exchanges. By this time, the extreme anti-speculator position of the agrarians had faded. Though the Act did contain provisions against manipulation these were largely ineffective, the Act was successful in bringing the futures exchanges under federal supervision and in providing for “continuous fact-finding and supply of continuous trading information” (Hieronymous 1971, p.314). However, the failure to reinforce and exploit the fundamental role of exchange self regulation in identifying and penalizing market manipulation still survives to the present.

 The history of regulating speculation was primarily focused on time contracts. Though there were instances of earlier trading, initial US trade in *commodity* options is usually associated with the beginnings of the CBT, where options were known as “privileges”.[[36]](#endnote-36) Bid and offer privileges roughly corresponded to modern day puts and calls. The similarity of privileges to gambling, as well as the prominent use of options in a number of market manipulations, led to numerous unsuccessful attempts by the CBT, various state and federal legislatures and the courts to halt commodity options trading. As early as 1865, the CBT introduced a rule which denied the protection of the exchange to privilege traders. This rule was found to be both unpopular and ineffective and was withdrawn in 1869, illustrating the ineffectiveness of self-regulation when the governance of the exchange is controlled by the members being regulated. Various legal challenges were launched to privilege trading, including an Illinois Supreme Court ruling which found privileges to be illegal. In 1890, the US Congress attempted to ban commodity options but was unsuccessful in getting the legislation passed. The trade in commodity options continued under different guises, e.g., calling the contracts “indemnity of sale or purchase” (Markham 1987, p.9), until the trade was banned by the Commodity Exchange Act (1936).

 The social resistance to commodity option trading during this period was propelled by farm based “populist” political movements which associated erratic price behavior with excessive speculation. These views were not without foundation. The limited amount of regulation of commodity and stock markets in the pre-WW I period permitted numerous corners and other market manipulations. Charles Taylor (1917) relates the role of privileges in one of the more “outstanding of these (corners that) had to do with oats, and was operated by Mr. Chandler, a prominent merchant. He peddled ‘puts’ about the city, inducing speculation on the part of a large number of people not ordinarily in the market. Chandler and his friends did not count on a large inrush of oats attracted to Chicago by the high prices and the corner failed. Many people lost money and there was much public indignation.” (Hieronymus, p.85) There was a prevailing belief among populists that brokers were using the exchange process to extract money from farmers. This view was carried forward into the Grain Futures Act (1922) which contained a section maintaining futures contract prices are “extremely sensitive to speculation and manipulation” (Markham 1987, p.14). The social importance of many of the underlying commodities meant that commodity options received substantially more scrutiny and opposition than stock options.

**8. US Option Trading from the 19th Century to the CBOE**

 For a variety of reasons, including a history of speculative abuses, option trading was generally held in low esteem by the bulk of stock and commodity market participants in the US.[[37]](#endnote-37) Until the emergence of the CBOE, there was no exchange trading of such contracts in the US. As a consequence, the trade was generally conducted by a specialized group of OTC dealers catering to a relatively small clientele. Circa the end of the 19th century, trading in privileges was only conducted in the after market and on ‘the curb’ as such trading was prohibited on all US stock and commodity exchanges. Evidence for such trade in stock options is provided by Kairys and Valerio (1997, p.1709) where an 1873-5 sample of over-the-counter US option contacts is examined. This sample was obtained from advertisements in the *Commercial and Financial Chronicle*. The prices were only ask quotes, exclusive of bids, and were aimed at generating business from buyers of options. The option prices were found to favor the option writer. Following the European practice, these contracts determined prices by keeping the premium constant and adjusting the exercise price:

Whereas current option prices are quoted after fixing the strike price, the cost of a privilege was fixed at $1.00 per share for all contracts and the strike price was adjusted to reflect current market conditions. Furthermore, the strike price was expressed as a spread from the current spot price of the underlying stock with the understanding that the spread was then the “price” that was quoted for the privilege contract.

Based on Emery (1896), this method of pricing options was also customary in the Chicago grain markets where contract maturities varied from one day to a week. This indicates the prevalence of European practices in the US option market at this time.

 Kairys and Valerio (1997, p.1719) pose the question: why did the option markets fail to develop further given the apparent level of refinement? Unfortunately, the explanations provided are lacking. In contrast, Emery (1896, p.80) provides a more insightful explanation for the disappearance of stock options trading:

In the last few years ... privileges have been less common than they formerly were. The trade in privileges depends chiefly upon a few men of large means. The public buy, but seldom sell, privileges, and if the men who are accustomed to dealing in that way stop selling, the field for such practices becomes very circumscribed.

The disappearance of the ‘men of large means’ in 1875 is possibly due to the substantial deterioration in the public perception of options or to lack of profit from such ventures. This privilege trade is not to be confused with the stock projector Jacob Little’s use of options to manipulate the price of Erie stock (see n.36). According to Clews (1915, p.10): “Mr. Little had been selling large blocks of Erie stock on seller’s option, to run from six to twelve months.” In this case, the seller’s option permitted delivery on a date determined by the seller. Delivery was required. There was no ‘privilege’ to sell or not sell. The resulting attempt to corner the stock and squeeze Little is one of the fascinating stories of the 19th century robber barons. The upshot was, yet again, a public black eye for speculative stock trading in the US and the imposition of a restriction on the maximum term of stock ‘option to deliver’ contracts to sixty days.

 Following the introduction of taxes on privilege earnings in 1921, the Grain Futures Act (1922) represented a significant step in curbing market abuses associated with derivative security trading. Following Markham (1987, p.15): “Although [the Grain Futures Act] was subsequently replaced by the Commodity Exchange Act of 1936, it nonetheless forms the core of the current regulatory scheme.” This Act required commodity exchanges and their members to maintain and file privilege trading reports. The Act also required commodity exchanges to act to prevent price manipulation. Combined with the authority of the Secretary of Agriculture to investigate exchange operations, this led to a substantial curtailment in commodity options abuses. However, some commodity options trading still continued and, following the collapse of agricultural prices associated with the Great Depression, pressure from farm lobbies led to the outright ban on commodity options trading, in selected commodities, legislated in the Commodity Exchange Act (1936). Included in the restricted list were wheat, cotton, rice, corn, oats, and barley. However, despite the restrictions, considerable OTC trade continued in unlisted commodities such as coffee, silver, copper and platinum, together with commodity options trading offshore, especially in London.

 In the US, trading in *stock* options began as early as 1790. Much as with commodity options, stock (privilege) option trading also played a significant role in market manipulations. As early as the 1890's, option pools were in operation.[[38]](#endnote-38) Two general types of pools were present in the 1920's: trading pools and option pools, with the latter being the most common. While trading pools acquired stock on the open market, option pools would acquire all or most of its securities by obtaining call options contracts to purchase stock at favorable prices. These options were acquired OTC from various sources, such as the corporation, where the options took the form of warrants, as well as large stockholders, directors, officers, large speculators and banks. While there was considerable diversity in the maturity of the options granted and the types of schemes involved, the primary objective of the option pool was to benefit through manipulation of the common stock price. In addition to speculative abuses of over-leveraged positions, the option pools were symptomatic of the types of abuses that contributed to the 1929 stock market collapse. The regulatory response implemented in the 1930's, culminating in the Securities Act (1933) and the Securities Exchange Act (1934) was to prohibit all activities aimed at manipulating market prices and trading on insider information.

 Franklin and Colberg (1958, p.29-30) illustrate the importance of stock options trading in the 1929 market collapse:

Testimony before the Senate Committee on Banking and Currency in 1932 and 1933 disclosed that many of the financial abuses of the 1920's were related to the use of options. A favorite device of large stockholders was to grant options without cost to a pool which would then attempt to make these profitable by "churning" activities designed to bring the general public in as buyers of the stock. In addition, long-term and even unlimited-period option warrants were issued frequently in connection with new stock issues.

During the wave of securities market reform following the market collapse of 1929-33, considerable attention was given to terminating option trading all together. One of the most profitable pools was the Sinclair Consolidated Oil option pool of 1929. While Sinclair stock was selling in the $28 to $32 range, a contract was obtained from Sinclair granting the pool an option to buy 1,130,000 shares at $30 per share. The pool then purchased 634,000 shares in the open market to bid up prices. The pool exercised its option, then liquidated all its holdings while the stock was selling in the $40 range. The pool also sold 200,000 shares short as the price fell. The pool's total profit was approximately $12.5 million from the following sources: $10 million profit from optioned shares purchased at $30 per share, $500,000 profit from shares purchased in the market, and $2 million profit from the short sales.[[39]](#endnote-39)

 In the process of developing a regulatory response to the market abuses which contributed to the financial market turbulence of 1929-33, it was accepted that the abuses associated with option pools would become illegal. However, in addition to the use of options in pool operations, there were other, more legitimate reasons for stock option trading. In the end, the brokerage industry was able to avoid the outright ban associated with commodity options. The initial legislation aimed at regulating the securities markets, the Fletcher-Rayburn bill (1934) called for a total ban on stock options. The brokerage industry was able to prevent this result. Instead, the Securities Exchange Act (1934) empowered the newly created Securities and Exchange Commission (SEC) to regulate the market and introduced the Put and Call Brokers and Dealers Association (PCBDA) (1934) which was designed to act as a self-policing agency, working closely with the SEC and other agencies to avoid further direct government regulation. It was member firms of the PCBDA which formed the basis for the OTC market trading of options which took place in the period leading up to the creation of the CBOE and IMM.

**9. The Emergence of the CBOE and IMM**

 “The strategic direction of derivative security regulation, both in the US and internationally, is almost incoherent” (Poitras 2002, p.22). The incoherence in the regulation of trading in derivative securities on common stock is apparent in the so-called ‘flash crash’ of May 6, 2010 detailed in Chapter X. The roots of the regulatory confusion can be traded to the creation of the Chicago Board Option Exchange (CBOE) and the International Monetary Market (IMM) divisions of the CBT and the CME in the early 1970's. Various substantive questions can be used to identify some key issues. Why did a self-regulating futures exchange specializing in bulk commodities, the CBT, undertake and be permitted to trade options on stocks? Why did the trade in stock options not originate with the stock exchanges that trade the underlying stocks? Why did the CME, another exchange associated with trading in bulk commodities, create a division dedicated to the trading of financial futures? Why were currency futures (but not option) contracts, a commodity for which there was a well developed OTC market between financial institutions, the initial contract to be traded on the IMM? Why are two US regulators – the CFTC and the SEC – responsible for key elements in the speculative trading of common stocks?

 The regulatory conflict between mutually owned exchanges as promoters of trade and as self regulatory organizations responsible for protecting the interests of exchange members was addressed by the exchange demutualization process. The associated fundamental change in exchange governance required a transition in the self regulatory oversight function. Compounded by the historic changes in communications and trading technology, the formulation of adequate changes confounds present regulators , e.g., Pirrong (1995), Mahoney (1997), Markham and Harty (2008; 2011). Fortunately, the fear generated by the apparently inexplicable events of May 6, 2010 has provided a regulatory paper trail that gives unprecedented information about the workings of the modern stock market. Regulatory analysis of detailed information about the interconnection between the cash and futures markets for stocks produced an incremental move back toward restrictions that had been previously been removed, such as the use of circuit breakers and trading pauses. These changes coincided with changes to incrementally increase short selling restrictions that had been introduced following the global stock market collapse of late 2008.

 To appreciate the major historical advance that the CBOE represented, it is necessary to consider the state of equity option trading prior to the CBOE. Franklin and Colberg (1958, p.22) describe the general state of equity option trading at the end of the 1950's:

Practically all of the Put and Call business in the US is handled by about twnty-five option brokers and dealers in New York City. The brokers operate through (the PCBDA). All the contracts in which they deal are guaranteed or indorsed by member firms of the New York Stock Exchange ... The Put and Call business is largely self-regulated, but a great deal of the aura of secrecy which surrounds this activity seems to stem from the early 1930's when the threat of strict regulation or even legislative extermination haunted the entire options trade. Testimony before the Senate Committee on Banking and Currency in 1932 and 1933 disclosed that many of the financial abuses of the 1920's were related to the use of options.

At this time, the options market was relatively small. Self-regulation, both by the exchanges and by the PCBDA, coupled with the ability of the SEC to require reporting of options trading, were sufficient to prevent the abuses of previous years. However, the markets were relatively illiquid and it was difficult to resell positions. Upon closer inspection, though the options being traded through the PCBDA were transferable and, in a sense, protected by a clearing mechanism, some common drawbacks of OTC trading of derivative securities were present. In addition to illiquidity, trading in the market primarily involved large institutional investors writing overpriced options to small investors seeking to gamble in stocks with limited capital. In effect, OTC trading was aimed at capturing rents from control of the information and transactions technology of options trading.

 Among other significant regulatory changes introduced by the Securities Act (1933) was the requirement that all options sellers post margins. Unscrupulous activities such as granting brokers options for touting a stock were banned together with the use of options to trade on inside information. In addition to the increased government regulation, self-regulation by the PCBDA also played on important role. While the options traded in the OTC market were often illiquid, in 1972 this started to change with the creation of the Options Clearing Corporation, as a subsidiary of the Chicago Board Options Exchange (CBOE). In following years, the American, Philadelphia, Pacific and Midwest stock exchanges also introduced options trading. Trading on the CBOE commenced in April 1973 with 16 stock options. While initial interest in options trading was limited, by 1977 volume had increased substantially to the point where put options were introduced. The ensuing implications of inter-exchange competition undermining the self-regulatory function of exchanges, a phenomenon which has overtaken derivative markets in recent years, was not adequately appreciated at the time. The advantages associated with combining options with cash trading, a tradition on European exchanges stretching back to early 19th century France (Viaene 2006), is unrecognized.

 The implications and advantages associated with exchange trading of options are much as with futures. Strike prices and expiration dates of contracts are standardized to facilitate liquidity. The security of doing trades with the clearinghouse instead of a specific counterparty means positions are easier to unwind. Transactions and other costs are also lower. The subsequent profitability of stock option trading was reflected in the cost of exchange seats: before the recent wave of exchange demutualization and mergers, seats on the CBOE were the most expensive of any exchange in the world. The successful introduction of exchange trading for stock options was not, initially, matched by commodity options. The creation of the CFTC in 1974 in combination with a number of large commodity options frauds originating in London commodity options led, in 1978, to the CFTC banning all London options, dealer options and domestic exchange traded options, except under certain restrictive conditions.[[40]](#endnote-40) These rules were altered substantially in 1981 when new regulations on trading in commodity options were introduced. In 1982, trading began with options on futures for gold, heating oil, sugar, US Tbonds and certain stock indices. Over time, stock index option trading has been extended to a variety of national stock markets.

 Despite having decades to deal with the problem, there is still regulatory confusion over how to deal with speculative exchange trading in the stock market. The confusion is apparent in the regulation of options where the SEC has jurisdiction over trading in derivative securities on common stocks. In addition, the SEC is responsible for regulating stock exchanges, broker-dealers and other traders in the stock market. In contrast, the CFTC is generally responsible for regulating trading on the commodity futures exchanges where important derivative security contracts for stocks are traded. The CFTC is also responsible for regulating futures and options contracts for a range of financial ‘commodities’ such as currencies and government debt. The situation has become even more complicated with the Congress granting regulatory authority to entities for regulating specific commodity markets, such as the Federal Energy Regulatory Commission (FERC). The competition between exchanges for business that characterized the emergence of the CBOE is reflected in the experience of the IMM division of the CME where financial futures first appeared in 1972 in the guise of foreign currency futures contracts, followed shortly thereafter by interest rate futures and, eventually, stock index futures. Demutualization transformed the competition between exchanges into competition between the exchanges and OTC trading platforms – a theme which continues to the present with the competition between exchanges and OTC ETN and ATS trading platforms. Against this backdrop, various important market participants such as hedge funds are seeking and exploiting exemptions from regulatory oversight leading to situations such as the Amaranth Advisors LLC in 2006 where both the FERC and CFTC battled over jurisdiction to prosecute market manipulation involving trading across both futures exchange and OTC ETN platforms, e.g., Cuillerier and Fleitas (2008).

 The history of speculative exchange trading contains numerous lessons being largely ignored in the current calls for regulatory reform. There is limited recognition of the danger to market liquidity and oversight from the fragmenting of trading activity through the emergence of dark pools and other maneuvers aimed at capturing the economic rents associated with control over information and transactions technology. Given the historical difficulties with legally proving manipulation in courts, the role of the self-regulatory exchange in maintaining ‘fair and orderly’ markets is being threatened by an ongoing process of trading platform fragmentation. Regulators have failed to provide rules for resolving the conflict between the private and public functions of the self-regulating exchange. With the economic rents from the demutualization process largely dissipated, profit maximizing exchanges will understandably seek to reduce the costs of maintaining the public self-regulatory function. Where trading is still concentrated on exchanges, regulatory costs can be reduced by exempting important traders and not incurring assorted costs associated with determining the composition and strategies of market participants. Despite claims by large investment banks and other self interested stock market participants, speculative OTC trading of derivative securities is not ‘innovative’ and ‘flexible’. The history of speculative exchange trading suggests, instead, that encouraging such OTC trading will only lead to counter-productive regulatory arbitrage, fragmentation of market liquidity and undermining of the price discovery and dissemination function of important commodity and financial markets

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**NOTES**

1. The current debate on financial market reform is widespread and has many volumes of contributions. Relevant parts of the debate of immediate interest about clearing mechanisms are reviewed in Pirrong (2008) where the misconceptions of the US regulators are identified. Even Pirrong (2008) does not make a sufficient connection between the self-regulatory function of exchanges and the mechanisms for clearing and execution. CFTC (2008), prepared against the backdrop of escalating oil prices, is a further example of the confusion among regulators. The conclusion of the Interagency Taskforce employs Granger causality tests to support the view: “based on available evidence to date … changes in futures market participation by speculators have not systematically preceded price changes.” Leaving aside the questionable relevance of using Granger causality tests in this instance, as many hedge funds and other alternative investment vehicles currently operate under exemptions from reporting requirements, it is difficult to see how key speculative players have been identified. [↑](#endnote-ref-1)
2. . Treptow (2006, ch.3) and Pirrong (1999) review many available studies. Hart and Moore (1996) demonstrate theoretically that closed ownership structures for exchanges, such as the mutual form, can result in inefficiencies in governance leading to economic inefficiencies. Lack of technological innovation, higher transactions costs, reduced liquidity and monopoly rent extraction are a number of undesirable outcomes. However, Hart and Moore fail to consider the gains associated with using self-regulation to restrict manipulation. Both empirically, e.g., Pirrong (1995), and theoretically, e.g., de Marzo, et al. (2005), it has been demonstrated that self-regulation can only be effective with accurate government oversight. [↑](#endnote-ref-2)
3. . Weber (1894) is an early exception. Modern exceptions include Gehrig and Fohlin (2006), Neal and Davis (2005), Rajan and Zingales (2003), Michie (1986), Lurie (1972) and the references cited in Markham and Harty (2008, p.867-82). [↑](#endnote-ref-3)
4. . Some of the earliest examples of written language, the Sumerian cuneiform tablets, contain such notarial protests. See, for example, which provides a picture of a Sumerian tablet circa 1750 BC from the British Museum collection: “A letter complaining about the delivery of the wrong grade of copper after a Gulf voyage.” [↑](#endnote-ref-4)
5. . In the following quotes, the old English spelling used by Malynes in the original text has been modernized, e.g., “booke” to ‘book’, “necessarie” to ‘necessary’. No alternations have been made to grammar. [↑](#endnote-ref-5)
6. . “In 16th century England, the bulk of the export trade was in the hands of the Merchant Adventurers, but the import trade was largely controlled by the merchant strangers, especially Italians, Spaniards and Flemings” (de Roover 1949, p.110). The Merchant Adventurers were an important English regulated company, a guild association of merchants with a royal charter providing a grant of monopoly for the export of cloth from England. Regulated companies differ from joint stock companies in that each merchant member provides capital and conducts business on an individual basis. Admission to the Merchant Adventurers could be obtained by patrimony or apprenticeship or by paying an admission fee. It was also possible to obtain admission by 'free gift'. [↑](#endnote-ref-6)
7. . Max Weber (1924, 2000, p.339) provides an example of such a definition: “A stock or commodity exchange is a *market* in which the purchase and sale of large quantities of goods and money, of stocks and commercial bills of exchange, take place between professional businessmen”. Weber (1894, 2000) aims to defend the exchange process from the view that “one is dealing with an wholly dispensable organization – one that must be judged by its very nature to be a sort of ‘conspirators club’ aimed at lying and deception at the expense of honest laboring people.” [↑](#endnote-ref-7)
8. . The term ‘bill of exchange’ is being used loosely. The subtle differences in the features of the bill of exchange contract, e.g., transferability, that evolved over time are being ignored. Munro (2000) and de Roover (1949) discuss these differences in some detail. Until the latter part of the 16th century, the bill of exchange was the dominant means of settlement in southern Europe, while the bill obligatory (letter obligatory, writings obligatory) was prevalent in the north: “The bill of exchange was definitely not unknown in the north; on the contrary. But before 1550 the bill of exchange was certainly not yet the characteristic, dominant instrument of foreign trade. Within the Hanseatic League the bill of exchange remained marginal. From the second third of the sixteenth century...use of the bill of exchange quickly became general in the north... The letter (or bill) obligatory, based on extension of payment, had from the late Middle Ages been the characteristic, dominant security in the foreign trade of the north. It continued to hold this position in the fifteenth and sixteenth centuries” (van der Wee 1977, p.324-5). [↑](#endnote-ref-8)
9. . De Roover (1954, p.205) traces the progression of the banking practices from the fairs to fixed metropolitan locations: “By 1325...the role of the fairs of Champagne was played out, both as trading and financial centres. In the fourteenth and fifteenth centuries, the banking places of Europe were: Bologna, Florence, Genoa, Lucca, Milan, Naples, Palermo, Pisa, Siena, Venice and the court of Rome in Italy; Avignon, Montpelier, and Paris in France; Barcelona, Valencia, and Palma de Mallorca in Spain; Bruges in Flanders; and London in England... Paris declined shortly after 1400... and its place was taken by the fairs of Geneva and, after 1465, by those of Lyons. There were no banking places east of the Rhine, although the fairs of Frankfort-on-the-Main began to emerge as a clearing centre toward the end of the fifteenth century.” [↑](#endnote-ref-9)
10. . Relevant English legislation on enforce ability of interest payments is detailed in de Roover (1949, p.110, n.31). Henry VIII made the first substantive effort in 1545. [↑](#endnote-ref-10)
11. . A similar description can be found in van der Wee (1977, p.318-9). [↑](#endnote-ref-11)
12. . The contrast in settlement practices between different trading venues is an historical theme that continues to the present. Lyons was an important Renaissance financial centre for trading in bills of exchange while Antwerp was an important commercial centre. From the settlement practices employed at Lyons, the Continental and British practice of ‘settlement by account’ developed. In contrast, commercial trading in Antwerp was primarily based on cash settlement and short dated forward contracts. It was this general ‘cash’ approach to settlement that emerged in the US stock market.

 [↑](#endnote-ref-12)
13. . Buckley (1924, p.590) makes the following observation about the treatment of the English merchants of the Staple in Bruges: “It was, apparently, an important concession which the city Bruges made to the English merchants of the Staple in 1559, when it was agreed that the latter should be free of brokers when buying. It was asserted in 1562 that in most foreign countries no ‘stranger’ bought or sold except through a sworn broker, and the English Statute Book contains a number of regulations of similar import. Such arrangements were general, being due to the universal prejudice against foreigners”. Buckley (p.591) also makes another observation which is indicative of the pervasiveness of brokers at Gresham's time: “Dealings in Bills of exchange without the intervention of a broker were exceptional”. [↑](#endnote-ref-13)
14. . This statement disguises a number of characteristics of bourse trading in Antwerp. Following the practice in Bruges, which preceded Antwerp as the centre of economic activity in Northern Europe, bourse trading consisted primarily of dealings in money and bills of exchange located in a building around a specific square (‘Beurs’ square named after the van Beurs family which owned a meeting house on the square where Italian financiers would conduct business). Trade in commodities was conducted “either in the large ‘Halles’ or in the houses and warehouses where the goods were stored” (Ehrenberg 1928, p.237). In 1531, the Antwerp City Council opened a building dedicated exclusively to bourse trading. While intended to accommodate both trading in bills and commodities, the Antwerp bourse emerged as the venue for trading in bills while bourse trading in commodities was conducted on the ‘English bourse’. Whereas in Bruges and other medieval trading venues, traditional bourse trading was organized along national lines, in Antwerp trade was segmented by the type of transaction. An impediment to trading in Antwerp was the rudimentary settlement practices. In contrast to the clearing-house methods that sustained the importance of Lyons as a financial centre, settlement in Antwerp was ‘hand-to-hand’. [↑](#endnote-ref-14)
15. . Kellenbenz (1957, p.134) gives more precise information on the evolution of the Amsterdam Exchange: “The institution began as an open-air market in Warmoestreet, later moved for a while to New Bridge, which crosses the Damrak, then flourished in the ‘church square’ near the Oude Kerk until the Amsterdam merchants built their own exchange building in 1611". The Amsterdam bourse was fully open for business in 1613. [↑](#endnote-ref-15)
16. . The identification of this early trade as ‘futures’ contracting is found in Gelderblom and Jonker (2005). This approach is at variance with the conventional view that futures trading began in Chicago in the 19th century or the less conventional view that such trading began in the17th century Japanese rice market (West 2000; Schaede 1987). [↑](#endnote-ref-16)
17. . Emery (1896, p.51-3) provides a number of references to late 19th century German and French sources on options trading. The connection between German and English terminology is also discussed ( p.91). Courtadon (1982) examines option trading practices on the Paris bourse. [↑](#endnote-ref-17)
18. . The acronym VOC is a reference to the English to Dutch translation of the Dutch East India Company, as the *Verenigde Oostindische Compagnie*. [↑](#endnote-ref-18)
19. . In addition to share trading in Amsterdam, van Dillen et al. (2006) makes reference to trading in shares also occurring in Hamburg, Frankfurt, Middleburg, Cologne, Rouen and in other locations. However, there is no evidence that this trade was anything other than small, occasional and generally unorganized (Barbour 1950, p.76). [↑](#endnote-ref-19)
20. . As shares were issued by specific chambers, trading was confined almost exclusively to those issued by the Amsterdam chamber. Even at later dates where trading in shares of other chambers emerged, shares of the Amsterdam chamber still demanded a substantial premium, for example, Barbour (1950, p.77). [↑](#endnote-ref-20)
21. . The primary documentation associated with the Dutch Edict of 1610, which removed legal protection for ‘windhandel’ contracts, contains an important *memoir*, probably written by Isaac le Maire, which outlines arguments in favour of retaining short sales (van Dillen 1930; De Marchi and Harrison 1994; Gelderblom et al. 2010). A number of arguments draw on the similarity of the trade in shares to the trade in goods: “the authors proceed from free trade in goods (perfectly conventional from a common weal point of view), move on to the freedom to make forward purchases of commodities (accepted practice for at least several decades), and end with the freedom to trade in shares. This bundling, as well as the progression itself, may have been intended to persuade the reader that (all) share trading practices should unquestionably be regarded as no different in principle from trade in goods” (De Marchi and Harrison 1994, p.55). [↑](#endnote-ref-21)
22. Though the actual recording of the transfer could be effected within the day, there were often delays associated with settlement if cash was not paid directly, e.g., the sale could be made by installments and the transaction would require a contract to be drawn up. Problems could also arise in verifying the identity of the person transferring the shares and where bills of exchange were required for payment, e.g., the seller was an off shore investor. [↑](#endnote-ref-22)
23. . Wilson (1941, p.84-5) describes the options trade: “A *prime à délivrer* (a call) was the option which A gave to B, obliging him to deliver on the following *rescontre* certain English securities — say £1000 East India shares — at an agreed price. If the speculation of the giver of the option was unsuccessful, he merely lost his option: if, on the other hand, the funds rose, he had the benefit of the rise. The *prime à recevoir* (a put) was the option given by A to B by which B was pledged to take from A on *rescontre* £1000 East India shares, say, at an agreed price. B became, in fact, a kind of insurance for A, obliged to make good to him the margin by which the funds might diminish in the interval.” [↑](#endnote-ref-23)
24. . There was variable use of the terms to describe derivative security contracts. ‘Time dealings’ was used to refer to both forward and option contracts. Though ‘time bargain’ was occasionally used to refer to all types of time dealings, de la Vega and others use ‘time bargain’ to refer only to forward contracts. In the terminology of the time, a time bargain was a usually a long dated, transferable to arrive contract that did not involve the expectation of delivery. The confusion between the types of derivative security contracts appears in the US debate over ‘anti-option’ bills which were primarily aimed at curtailing futures and forward contract trading. The intricate dealings that were involved in the South Sea Bubble are discussed in various sources, including: Morgan and Thomas (1962, ch. 2); Wilson (1941, ch. IV); Hoppit (2002); Shea (2007). [↑](#endnote-ref-24)
25. . Mortimer makes no reference to the use of options in stockjobbing activities, giving some support to the position that Barnard's Act of 1734 was effective in deterring this activity. In contrast to Mortimer, another early source – Defoe (1719) – makes no reference to forward trading, using examples which usually relate to cash transactions, for example, using false rumours to influence the stock price, the idea being to buy low on negative rumours and selling high on positive rumours (pp.139-40). However, it is not clear that Defoe had the best grasp of the financial transactions which were being done. [↑](#endnote-ref-25)
26. . At Mortimer’s time, the bulk of ‘stock’ being traded was British government securities – primarily term annuities and consols. The various legal restrictions on joint stock issues introduced after the South Sea bubble prevented new issues of shares until well into the 19th century. The bulk of available shares for trading were associated with the large companies formed prior to the bubble – the Bank of England, the British East Indies Company, the South Seas Company. The primary asset of these companies was, in turn, British government debt. Such ‘stock’ was typically purchased by installment and, as a consequence, partially paid– “light horse” -- stock was a popular speculative vehicle as the ‘margin’ requirement was less.

 [↑](#endnote-ref-26)
27. . A broker in this period was an intermediary or mutual agent who served as a witness, for a commission, to contracts between two parties. In London, legal brokers had to be licensed and sworn. While much of the commodity and joint stock business was conducted through brokers, dealing was not confined to sworn brokers and, at various times, many unlicensed dealers operated in the market. [↑](#endnote-ref-27)
28. . The early history of options trading in England can be found in Morgan and Thomas (1962). An early discussion can be found in Duguid (1901). Barnard's Act was repealed in 1860. [↑](#endnote-ref-28)
29. . The abuses associated with stockjobbing were due, at least partly, to the standard market practice of a significant settlement lag for purchases of joint stock. While there was a cash market conducted, often at or near the company transfer office, dealing for time had a legitimate basis in the practical difficulties associated with executing a stock transfer. This meant that when stock was sold for time, the short position had a considerable lead time to deliver the security. Trading involved establishing a price for future delivery of stock and paying a small deposit against the future delivery. In cases where the selling broker did have possession of the underlying stock when the transaction was initiated, there was little or no speculative element in the time bargain. However, this was not the case when the seller did not possess the stock. In addition, the purchaser for time did not usually have to take possession of the stock at delivery but, rather, could settle the difference between the agreed selling price and the stock price on the delivery date. [↑](#endnote-ref-29)
30. . Michie (1999, p.34) reports that the English national debt increased by about £500 million to £744.9 million between 1790 and 1815. Following Kaplan (2006) and Ferguson (1998), the substantial increase in the supply of debt available for issue and trade precipitated the creation of banking dynasties, most notably the House of Rothschild. [↑](#endnote-ref-30)
31. . Cope (1978) takes a somewhat different view of these events. [↑](#endnote-ref-31)
32. . Clews (1915) claims that Little made and lost nine fortunes. [↑](#endnote-ref-32)
33. The search for rules to regulate financial trading could be found in various venues, not just Chicago. In addition to the discussion surrounding such trading in England associated with the Liverpool cotton contracts, such debates led to the attempt of Jules Regnault in France to create a financial science (Jovanovic 2006). [↑](#endnote-ref-33)
34. . Of the various recent exchange mergers, in 1999, the NYMEX merged with the COMEX to form the New York Board of Trade. Markham and Harty (2008) have a detailed discussion of more recent mergers and developments. [↑](#endnote-ref-34)
35. . The Senate debate included a vote on the George amendment which aimed to ban futures trading altogether. This amendment was prompted by the concern of Southern members about the use of tax-to-destroy as a method of dealing with the anti-speculation arguments of the agrarians and Populists. This amendment was defeated by 51 to 19. However, as it turns out, the Southern supporters of the George amendment held the balance in the House vote to suspend rules which lead to the defeat of the Hatch-Washburn bill. [↑](#endnote-ref-35)
36. . Early US references to options often reflect a semantic confusion where ‘options’ refer to derivative securities, in general, and not only ‘privileges’. Trades not settled for cash, i.e., time contracts, were specified with a seller’s or buyer’s option to deliver. Such contracts did not have delivery as an option, as with ‘privileges’ and modern options contracts. Rather, the option in the contract determined whether the buyer or seller would be able to initiate delivery, which could be made with proper notification any time during the life of the time contract. This ‘American’ option was in contrast to European practice where ‘trading for account’ dictated delivery on the expiration date, which was typically a regular *rescontre* settlement date. The various attempts in the late 19th century to pass ‘anti-option’ legislation were aimed at prohibiting trading of time contracts, as trading of privileges was relatively muted at that time. [↑](#endnote-ref-36)
37. . Armstrong (1848, p.9) reports: “It is common observation that no sensible person will sell a privilege, and there are not many sold.” There were similar views regarding options trading in France, e.g., Preda (2006), Jovanovic (2006). Poitras (2009a) documents the increasing acceptance of options trading within a wider group of traders in the last quarter of the 19th century. [↑](#endnote-ref-37)
38. . “A pool is a temporary association of two or more individuals to act jointly in a security operation of a manipulative character. There is no inherent reason why manipulation should be carried out through the use of pools; many such manipulations have been carried on with great financial success by single operators, such as Drew, Little, Vanderbilt, Gould and Keene. During the 1920's, however, the pool developed a high degree of popularity. The possibility of combining capital, trading skill, experience and corporate connections into one cooperative venture appeared so attractive that it became the typical organization procedure of manipulators of that era. There was no particular size of the pool of the 1920's and early 1930's. The Radio pool, one of the largest, had about 70 members, the first Fox pool had 32, and the second 42. The profitable alcohol pool of 1933 had only eight participants.” (Teweles and Bradley, p.269) [↑](#endnote-ref-38)
39. ."Stock Exchange Practices," Senate Report 1455, 73rd Congress, 2nd Sess., p.63, quoted in Teweles and Bradley (1985). [↑](#endnote-ref-39)
40. . Wolf (1982) provides background on the specific events that were associated with the CFTC options ban. Since the creation of the CFTC in 1974 to replace the Commodity Exchange Authority which had been part of the USDA, changes to commodity futures and options regulations have usually been associated with the regular four year reauthorization of the CFTC. For example, the 1982 reauthorization contained the Shad/Johnson Accord Index Act which specifies the authority of the SEC and CFTC for stock related products. This Act gave the CFTC exclusive jurisdiction over stock index futures and options while the SEC was given control over options on securities and currencies. [↑](#endnote-ref-40)