

8. The Analysis of Joint Stocks

The Evolution of Joint Stocks¹

The rudiments of modern exchange trading in common and preferred shares emerged during the 17th century. Yet, there are a number of subtle and not so subtle differences between modern common shares and the joint stocks of the 17th and 18th centuries. A number of differences arise from the form of business organization. Modern corporations operate within a somewhat different legal structure than applied to the early joint stock companies. The method of chartering and the applicable law of limited liability were substantively different than in modern times (Shannon 1931; Amsler, et al. 1981; Baskin and Miranti 1997). Another important difference arises because many of the most important joint stock companies were chartered with monopoly privileges over some activity in exchange for using the paid in share capital to purchase government debt. This made the cash flows and risk characteristics of these joint stocks different from those of modern common shares.

Joint stock companies represented an evolution from the partnerships, medieval corporations and regulated companies that had previously characterized business organization.² The early history of joint stock companies is structured around individual companies. It is not until the second half of the 17th century that economic and legal changes had progressed to the point where the start of a 'general movement' away from partnership and toward joint stock organization can be detected. Though there were some significant Continental European developments, such as the early introduction of a number of joint stock companies in Holland, the bulk of the early developments and the thrust of the general movement can be found in England. However, as for the earliest contributions to the financial analysis of joint stock valuation and trading, the most substantive efforts originate from Holland.

Much of medieval business organization was structured around municipal regulation, for example, the guilds, taxation, coinage and the like. Craft industries bound to local markets did not require much capital and the capital that was invested was not subject to much risk. Trading enterprises, particularly those involved in long distance trade, were different. The amount of capital required was larger, the risks often substantial and the capital was tied up for the duration of the expedition and subsequent sale of goods. A related situation arose in large scale mining, where there was also a sizeable capital stock required, with attendant risks and a long investment period. It is with these two types of commercial ventures that the first instances of commercial joint stock ventures arise.

Hecksher (1955, v.1, p.392) characterizes joint stock companies as being 'capital associations of a corporate character'. This somewhat obscure characterization distinguishes the joint stock company from the

partnership, a non-corporative capital association, and from corporate associations either not bound together by capital, such as the guilds, or where the capital was not common, as in the regulated companies. The first capital associations of a corporate character did not arise in commercial ventures but, rather, were an outcome of the organization of public credit in the Italian city states, especially Genoa. Two types of such organizations can be identified (Heckscher 1955, v.1, p.334). One type, the *maone*, was associated with groups of individuals combining to outfit a military expedition, in exchange for a share in the profits of the expedition. As colonization was sometimes involved, the *maone* could become involved in colonial administration, as in the case of the island of Chios.

The other type of early capital association of a corporate character, the *compere*, arose from organization of state creditors. While less active than the *maone*, these organizations secured control over state revenue sources, in order to assure the security of payments on capital that had been lent to the state. Having control over state credit permitted the *compere* to be a conduit for further lending to the state. In some cases, this financial importance permitted the *compere* to secure special privileges. One important *compere* can be found in Genoa where the *compere* secured the privilege of establishing the famous bank, the *Casa di San Giorgio* (Bank of St George), in 1408. The perpetual bonds issued by the Bank of St George, the variable dividend *luoghi*, were one of the most stable and noteworthy securities of the 16th and 17th centuries.

Where did the joint stock form of business organization originate? Hecksher (1955, v.1, p.355) makes a clear statement on this point:

It is usually considered, in the literature on the subject, that the *compere* were no joint stock companies but altogether non-commercial associations like, for example, the Board of Foreign Bondholders in the late 19th century. The economic correspondence between the *compere* and several of the most famous companies at the end of the 17th and the beginning of the 18th century is, however, complete almost down to the smallest detail. Both the Bank of England, the English South Sea Company, John Law's French Mississippi Company, as well as other well-known institutions of this period, were originally associations of capitalists who obtained the right to pursue various kinds of trade in return for making fresh loans to the state, or for taking over old ones. The Bank of England, in fact, had precisely the same function as made the *Casa di S. Giorgio* famous. The correspondence here is obvious. The only doubtful point is whether the origin of the more recent of these organizations can be attributed directly or indirectly to the influences of the earlier ones. Up to the present, at least, this has not been proven. Judging from our present knowledge, it appears probable that the same difficulties lead spontaneously to the same solution.

This authoritative statement calls into question the often expressed modern view that joint stock companies were developed during the 16th and 17th centuries to meet the requirements of long distance, sea-borne trade, for example, Kindleberger (1993, p. 191), Clough and Rapp (1975, p. 152).

The view that joint stock organization arose due to the requirements of long distance, sea-borne trade is understandable. By the 16th century, maritime partnerships had evolved to the point where it was common for individual voyages to involve a large number of co-owners who divided the cost of the ship and its cargo. Examples of these arrangements were the *loca navis* in the Mediterranean and the Dutch *rederij* and German *reederei* in the North Sea. A typical arrangement would have one partner responsible for sailing the ship and selling the cargo while the other partners contributed capital and goods and shared in the profit or loss according to their contribution. In some cases, partnership shares in a *loca navis* were transferable. However, because such partnerships were generally dissolved after the voyage was completed, there was no permanent capital stock which is an essential feature of the joint stock arrangement.

Another precursor of the joint stock company was the enlarged family partnerships of which the Fuggers of Augsburg and the Affaitidi of Cremona are two examples (Parker 1974, p.554). These partnerships featured a permanent capital stock, the *corpo*, that was advanced by the family partners. Shareholders in the *corpo* participated in the profit and loss of the company. Additions to capital, the *sopracorpo*, were raised either from partners or outsiders, through the use of deposits with an insured return. Under the scholastic treatment of the triple contract, interest was permitted on these deposits. Payments on all *sopracorpo* deposits were made before any payments were made to the *corpo*. While similar to the use of common stock and bonds used by modern corporation, this form of business arrangement was still a family partnership and limited liability and the transferability of shares, essential to the joint stock company, were not present.

English and Dutch joint stock companies emerged during the 16th and 17th centuries to deal with the need for large stocks of capital to be invested in risky ventures for long holding periods. The first two joint stock ventures were formed in 1553, one for trade with Africa, the Guinea Adventurers, and one with an original title of 'The mysterie and companie of Merchants adventurers for the discoverie of regions, dominions, islands and places unknown' that came to be known as the Russia or Muscovy Company. These two early ventures have a number of interesting characteristics. Both were involved in opening up long distance trade to new territories and were started on mercantile speculation, without a royal charter. Only the Russia Company secured a charter, granting a monopoly on Russian trade and any other territories to be newly secured by the company's adventures.³

Attempts to characterize these early exercises in joint stock ownership as seminal events would be incorrect. The Russia Company had initial difficulties and had to resort to calls on shareholders to the point where, in 1564, the original £25 subscription has been increased to £200. While, from this date, the company was able to carry on profitable trade until the end of the century, it was converted to a regulated company in 1622. The Guinea Company can only generously be considered as a joint stock company as it engaged in the practice of raising separate

subscriptions for each voyage, making complete disbursements of capital upon return of the ships and sale of cargo. The instability in the Africa trade had a number of companies being formed and dissolved until a joint stock company with a permanent capital stock and a strong charter was established after the Restoration. Even this company converted to a regulated company in 1750 (Hecksher 1955, v.1, p.375).

Early English joint stock ventures were not restricted to long distance overseas trade. Two of the earliest joint stock companies, the Company of the Mines Royal and the Mineral and Battery Company, originated in mining. Both companies were granted charters in 1568, though both had conducted business for a few years before that date. The Mines Royal was involved in silver and copper mining and manufacture while the Mineral and Battery Company was involved in a range of mining and metallurgical activities including the mining of zinc ore, manufacturing of brass and milling of iron. The share ownership of both these companies reflected a strong German influence. Hecksher observes that 'it is very probable that these companies were influenced by the numerous and well-developed capital associations in German mining'.

The experience of the early English mining joint stocks reinforces the view that the roots of this form of business organization can be found in the experiences of various countries. These experiences range from the early Italian organizations, such as the *Casa di San Giorgio*, to the permanent capital associations of the wealthy continental European family partnerships, to the business relationships developed for long distance trade. It is not surprising that the first English joint stock companies retained some features common to other forms of business organization, such as the partnership and regulated companies. However, with the emergence of the Dutch and British East India Companies, the joint stock form of business organization permitted a seminal transformation in commercial practice. This change is the beginning of exchange trading of company shares. The study of this activity is a central component of modern financial economics.

Though the early joint stock companies represented an important evolution in corporation finance, there were still significant differences between these early companies and the modern, publicly traded corporation (Baskin 1988, pp.201-2):

The first British trading companies combined features that today would be associated with both partnerships and public corporations. As in a partnership, 'most of the earlier companies probably began by being exclusive, in the sense that shares were sold amongst persons known to each other' (Scott 1910). Also, as in a partnership, the number of shares was fixed and liability was unlimited: investors were subject to calls whenever the firm needed additional capital. On the other hand, as in a modern corporation, managerial ranks distinct from ownership arose (that is, although recruitment appears to have been limited to current shareholders, the degree of management control exercised by a partner was not necessarily equal to the percentage of ownership, but became increasingly related to issues of knowledge, interest and ability). Tradable shares were an early development, and of course they came to play a crucial role in the growth of corporate finance. But these shares were originally intended only to facilitate exchange among known business associates and not to create securities

to be sold on public exchanges (which in fact did not exist when the idea of shares was conceived).

At a more abstract level, the successful evolution of joint stock shares depended on transferability that, in turn, depended on methods of handling the asymmetric information problem. Once the joint stock company developed a permanent capital stock, such that assets were retained in the company after the end of a specific venture such as a voyage, this imposed demands on the accounting systems used, for example, Yamey (1949).

The Dutch East India Company

That the earliest exchange trading in joint stocks originated in the Netherlands is a credit to the ingenuity and commercial acumen of the Dutch merchants of that era. Yet, the creation of the primary vehicle for the emergence of exchange trading of joint stocks, the Dutch East India Company, was due as much to statesmanship as entrepreneurial initiative. The Dutch East India Company emerged right after the creation of the purely private *Compagnie van Verre*, for the purpose of engaging in the Dutch East India trade. There followed quickly the creation of at least ten similar companies, centred in different Dutch provinces, particularly Holland and Zeeland. Collectively these early companies were known as the *voor-compagnieen*. The resulting competition among these companies proved to be 'violent and not exclusively commercial' (Hecksher 1955, v.1, p.356). In 1602, the States General, under the leadership of the Dutch statesman Oldenbarnevelt, was able to unify these various companies into the Dutch East India Company.

The negotiations leading up to the creation of the Dutch East India Company indicate that a variety of possible organizations were considered (Hecksher 1955, v.1, p.360). While having sufficient structure to facilitate the emergence of trading in company shares, the final product was uniquely Dutch though there were numerous elements that were similar to English joint stock companies. Consistent with mercantilist objectives behind the English joint stock trading companies, there was the element of monopoly on trade. To facilitate the creation of the Dutch East India Company, the company charter passed by the States General granted a monopoly on the India trade for a period of 21 years, a term that was renewed repeatedly. Even though another provision of the charter provided conditions for the shareholders to demand the return of capital with interest, in 1612 this provision was declared void by the Company's governors and a decree issued that shares were to be cashed in through open sale on the Amsterdam bourse.

The reluctance of the Company to permit the withdrawal of capital is understandable. The need to make large fixed investments involving expenditures on troops, making fortifications, and paying gratuities to gain agreements with foreign princes meant that a large portion of initial capital investment was not readily recoverable. However, the process by

which an article of the charter was voided does reflect how much the internal organization of the Dutch East India Company differed from the English counterparts. The administration of the company was not unified but, rather, contained six chambers organized on local lines. This roughly reflected the composition of the *voor-compagnieën*, with the Amsterdam chamber being the most important, followed by Zeeland. Elaborate arrangements provided for the sharing of costs and profits among the chambers. Needless to say, such a system was administratively chaotic.

The administrative problems created by the six chambers was countered by the almost absolute authority of the governors of the company, organized in a common assembly known as the 'Seventeen Masters'. With one vote from any smaller chamber, the strength of the Amsterdam chamber was strong enough to control the assembly. Within this framework, shareholders had no effective influence: 'no statement of accounts was made by the management during the whole of the company's existence. Dividends were paid entirely at the arbitrary pleasure of the governors and on one occasion they even openly threatened to withhold payments altogether if shareholders showed themselves refractory towards their "lords and masters"' (Heckscher 1955, v.1, p.366). The Company maintained strong links with the government and within the governors of the company appear a variety of important public officials, both municipal and from the States General.

Following the creation of the Dutch East India Company, a number of other joint stock ventures were introduced but only one, the Dutch West Indies Company, chartered in 1621, met with prolonged success. The East and West Indies Companies were anomalies within the fabric of Dutch commercial success of the 17th and 18th centuries. Even the success of the West Indies Company required considerable government involvement, with half the capital coming from the government and considerable government pressure being used to raise the other half from private sources. Unlike the Dutch East India Company which engaged in political and military efforts only for a solely commercial objective, the West Indies Company was chartered with state objectives in mind. The charter granted more authority to the States General and military functions were more in evidence. Perhaps for these reasons, of the only two Dutch company shares traded on the Amsterdam bourse, West Indies Company shares were always far less important.

The Emergence of Markets for Trading in Shares

Whatever the origin of joint stock organization, the emergence of this type of business was slow and progressive. The changes represented by the first joint stock company were not dramatic, compared to other alternative types of business arrangements, such as the regulated companies. In turn, the trade in joint stocks was well established on the Amsterdam bourse before the first important descriptive analysis of the trading in shares of joint stock companies became available with Joseph

de la Vega's *Confusion de Confusiones* (1688). Prior to this, writings on bourse trading of joint stocks, largely in Dutch, were concerned with controlling the undesirable implications arising from speculative trading activities (Barbour 1950, p.76; De Marchi and Harrison 1994).

When did trading in joint stocks emerge? There is evidence of trading in shares of the earliest English joint stock companies 'practically from their beginning' (Morgan and Thomas 1962, p.14). However, the volume of trade was not significant enough to encourage even specialist-brokerage-based-trading in joint stocks. Sales were typically negotiated privately, though the East India Company would sometimes auction shares at the same events that imported goods were being sold. Various factors contributed to restrict the sale of shares of early English joint stock companies: the lack of permanence in the capital stock of many companies, restrictions on membership embedded in the charter of incorporation that restricted transferability, and the often sizable value of individual shares.

Despite isolated instances of joint stock share trading in other centres, the first developed market for company shares arose with trade in Dutch East India Company shares in Amsterdam starting from the founding of the Company in 1602.⁴ Creation of the Company by the States General in 1602 led to a call for initial subscriptions of capital. Prospects for the Company were generally perceived to be favourable among the moneyed individuals willing to invest in such a venture and the closing of the Dutch East India Company subscription lists found numerous individuals still desiring shares. These individuals turned to the Amsterdam exchange 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).⁵ With such immediate returns, the potential for gain became apparent to exchange traders and the speculative trade in shares began in earnest.

Circa 1602, the Amsterdam Exchange was held in the open air on the New Bridge.⁶ It was not until 1613 that trading moved to a building dedicated for the Amsterdam bourse. Trading in shares was only a small portion of the general activity on the Amsterdam Exchange, which was predominately in bills and commodities. By the beginning of the 17th century, it was apparent that trading in Amsterdam had become the successor to the Antwerp bourse 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 bourse. Included among these techniques was speculative trading for future delivery. This technique, almost immediately, was applied to trading in Company shares.

Ehrenberg (1928, pp.358-9) provides some fundamental insight into methods used for trading in shares:

From the beginning, the speculation in shares was preferably in futures. This brought a new element into the development. The nature of speculation 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, hedgers and traders seeking to acquire or dispose of stock positions provided the 'honest' liquidity needed to clear the market.

Types of Transactions in Amsterdam

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 systemic to the 17th century Amsterdam stock market. The trading venue was the Amsterdam bourse where forward trading in commodities had been practised at least since the 16th century (Barbour 1950).⁷ In addition to forward trading, the whole delivery and settlement process was much different than the modern process. Though shares could be transferred, the process required the seller to present themselves at the Company offices and pay a transfer fee. The practice of same day settlement, delivery and transfer, as practised in modern stock markets, was not possible. Agreements to sell shares also included a future settlement and transfer date.

Kellenbenz (1957) on Ducaton Trading

The actual trading mechanics for ducaton shares are somewhat obscure. Kellenbenz (p.142) provides perhaps the best discussion of this activity:

At all events the best authorities assure us that in such dealings the 'stock' had a nominal value of a tenth of that of real East India shares. No delivery of securities was expected, of course, and the point of the whole business was the calculation of profit or loss at a monthly settlement date ...

De la Vega describes how, for settlement purposes, the value of fictitious stock was determined on the day appointed ... Apparently an official of the exchange put a legal termination to the transactions to be included within the given period by raising a stick as a signal. Some folk wanted the raising of the stick delayed, other to have it speeded up; and seemingly the speculators gave loud vent to their respective desires.

Perceived speculative abuses of the delivery process appeared almost from the start of trade in Dutch East India Company (VOC) shares.⁸ Following the activities of a bear ring, formed 'in early 1609 ... to challenge the company on the exchange. 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 resulting Dutch edict of 1610 required to 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', also known as *windhandel* or trading 'in blanco', was repeated in 1624, 1630, 1636 and 1677.

Tracy (1985) on the History of Government Debt, 13th to 16th Centuries

Tracy (1985) dates the free market in Dutch *renten* from 1552 when the issue method was changed from compulsion, effectively forced loans, to sales on the open market, where the level of purchases was determined by the interest rate offered on the debt. This event is a key part of the 'financial revolution' which took place in the Hapsburg Netherlands from 1515-1565. Tracy (1985, p.9) provides the historical context of this change:

From the thirteenth through the sixteenth century, long-term debt usually consisted either of *rentes* backed by the revenues of a prince or a town government, or of interest-bearing forced loans levied on wealthy subjects or citizens. The distinction between these two forms of public credit can be merely a theoretical one — for instance, when a government compels wealthy subjects to buy its *rentes*. Also, both forms of credit could be sold or transferred to third parties, though usually at a discount, unless the government in question had been scrupulous about meeting its annual interest payments. There is, however, an important difference between the two in terms of their political implications. On one hand, forced loans are more equitable because the wealthy are not given a choice of whether or not to support the state in its hour need; on the other hand, there are limits as to how much can be raised in this way, since forced loans depend on a government's knowledge of who its wealthy citizens are, and on their willingness to have portions of their private wealth appropriated by the state. Conversely, the voluntary sale of *rentes*, though it may permit wealthy subjects to escape the burden altogether, has at least the potential for harnessing to public ends the full strength of capital markets both domestic and foreign, since *rentes* may attract capital from people of middling wealth, or from those whose propensity has gone undetected by government, as well as from beyond the frontiers. Broadly speaking, Italian city-states preferred the more equitable practice of forced loans, whereas northern cities opted for the potentially more lucrative technique of selling *rentes* on the open market.

For much of the 17th century, the Amsterdam stock market was confined to trading primarily in VOC stock and, to a lesser extent, in the stock of the Dutch West Indies. Despite evidence of an active secondary market in Dutch *renten*, trading in Dutch government debt did not start until much later (Barbour 1950, p.84):⁹

Although the investment value of public funds was recognized, they seem not to have been subject to market trading before the end of the third quarter of the century ... the obligations of Holland were maintained at par, which discouraged

speculation, and if there were fluctuations in the prices of other public securities, the fact that they were widely held in small lots made them less responsive to market manipulation than actions of the India companies, nor were they liable to sharp variations in price such as occurred in commodity values. The sudden downward plunge of these funds, those of Holland included, at the time of the French invasion (1672), acted as an incentive to speculative trading, and thereafter prices were frequently quoted. In 1673 the States General engaged to pay subsidies to the emperor in bonds at current prices on the bourse of Amsterdam. Trading in them soon quickened, and with time spread to other countries.

Circa 1688, the time of the Glorious Revolution in England, there was active securities trading on the Amsterdam bourse securities trading in Dutch government debt and the shares of the two Dutch Indies companies. Towards the end of the century trading in English funds also assumed importance in Amsterdam trading.

Isaac le Maire and the First Market Manipulation in Stocks

Market manipulation was an important feature of the early trade in joint stocks. General public sentiment about initial joint stock trading was concerned with various schemes that were aimed at rigging the market. This concern generated much of the early analysis of joint stock trading, for example, De Marchi and Harrison (1994), van Dillen (1930). Instead of developing analytical methods for determining the appropriate price of shares, much of the early discussion of joint stock trading centred on describing the negative features of the speculative trade that was taking place. Of course, attempts to manipulate markets did not originate with stock trading. For example, Aristotle in *Politics* refers to a Sicilian who cornered the cash market for iron by buying up all available supplies. Anecdotal evidence for even earlier examples of market manipulations could be identified.

The techniques of stock trading on the Amsterdam Exchange were inherited from techniques used on the Antwerp bourse. Market manipulations were not uncommon in Antwerp. Perhaps the most infamous case happened in 1540 when Gaspare Ducci, 'formed a ring which succeeded in creating panic on the Antwerp *bourse* and in cornering the factor of the King of Portugal. Ducci apparently had piled up a huge store of money by selling bills of exchange on his accomplices abroad' (de Roover 1949, pp.159-60). When the King of Portugal, through his factor, entered the market to pay off maturing debts, Ducci was the only lender with sufficient funds to lend. Such manipulations in the 16th and 17th century bill markets were grist for the views of Sir Thomas Gresham, Gerard Malynes and others who were strong proponents of the view that a banker monopoly rigged the exchange market.

Techniques required to corner or otherwise manipulate a security or commodity market were almost certainly common knowledge to the early stock traders in Amsterdam. Many traders had moved north from Antwerp following a sequence of events that undermined the political

stability of Antwerp.¹⁰ One such trader was Isaac le Maire, who was able to obtain Fl.60,000 of Dutch East India shares in the initial subscription of 1602. Following the initial increase of 15%, the price of Dutch East India shares continued to appreciate steadily and, by 1607, had reached a high value of 300, triple the initial par subscription price of 100.¹¹ By November 1608, the price had fallen to less than 140, and stayed in a range of 130 to 180 for the next two years. The significant decrease in prices precipitated a notarial protest against the management of the company for improper use of shareholder capital. Around this point, le Maire joined together with eight others to form a private association to deal in East India Company shares 'for their common profit' (van Dillen 1935, p.25).

The most noteworthy of the market manipulations engaged in by le Maire and associates constituted a 'bear raid' designed to depress the value of Company shares. The group combined short sales for forward delivery, presumably settled using 'differences', with 'cash' sales of Company shares. Many of the actual cash sales of Company shares were long-dated, with delivery dates well beyond the conventional one-month-or-less delivery date. These activities were further supplemented by using their personal influence to spread unfavourable rumours about the Company's prospects. As le Maire was at this time also engaged in attempts to found a rival French East India Company, these rumours had at least superficial validity. The profits on the transaction would be gained from the forward short sales and, possibly, by less-than-a-month-to-delivery repurchases of the Company shares, made at lower prices than the initial sales.

The trading activities of le Maire's group were apparently successful in holding down the price of VOC shares. The potential impact of the bear ring on share prices attracted the attention of the Directors and other politically connected investors. The result was a period of political debate that included some of the first writings on stock market structure and performance. The debate ended in February 1610 with the passing of the first substantive legislation designed to limit stock market manipulation. Selling of shares *in blanco*, also known as the 'windhandel' or 'wind trade', was prohibited. More precisely, short selling of securities, defined to mean the sale of securities not owned by the seller, was banned. This ban covered both cash sales and forward sales. In addition, it was required that shares which were sold had to be transferred no later than one month after the transaction. Private sanctions included the expulsion of le Maire as a VOC shareholder.

Unlike modern securities laws, many 17th and 18th century prohibitions imposed on security trading activities did not have criminal sanctions. Rather, edicts such as the 1610 prohibition on short selling removed the protection of the courts for the purpose of enforcing contracts. The inability of the edict to control the 'wind trade' speculation in shares was evident with the establishment of the Dutch West India Company in 1621, when shares were sold on a 'when-issued' basis, prior to the initial subscription. This prompted the issuance of another edict reinforcing the ban on selling shares not owned by the

seller. Any trader seeking to repudiate a short sale could find refuge in the courts. Similar edicts in 1630 and 1636, during the time Frederick Henry held the office of Stadholder, led to the use of the term ‘appeal to Frederick’ to refer to a trader invoking the protection of the prohibition on short sales to avert payment on a losing position.

Early Stock Trading in London

Glossary of Some Early English Stock Market Terms

Lame duck: a defaulter on a loan or securities contract, such as a deal for time. Typically the loan involved the finance of a securities purchase. According to Mortimer, a lame duck is a ‘name given in 'Change Alley to those who refuse to fulfil their contracts (Figure 8.1). There are some of these at almost every rescounters. The punishment for non-payment is banishment from (Jonathan's), but they can still act as Brokers at the offices’.

Stocks and Shares: As reflected in Mortimer (1761), the term could apply to securities listed as stocks, which appeared with price quotes in the public newspapers and on brokers' lists. This general category included the government funds, joint stock of public companies, and the various debt securities issued by the public companies. Usage of the term evolved during the 18th century. Houghton (1694) still uses the European term ‘*Actions*’, a term which for Houghton lumps joint stocks and lottery tickets together with a range of commodities such as copper, coal, lead and saltpetre. Following Mortimer, ‘shares’ can refer to either ‘stocks of the public companies of England’ or to shares in government debt issues, such as ‘shares in annuities’. This interpretation of ‘shares’ differs from Baskin (1988, p.207, n.29).

Chronological neatness suggests dating the commencement of stock trading in London with the ascendancy of William III of Orange in 1688.¹² This date is also intuitively appealing as William III was accompanied by an influx of Dutch persons and practices. However,

prior to 1688 London was already trading government securities, including Exchequer bills and navy bills. In addition, there was some limited trading in the stock and debt of joint stock companies, in particular the East India Company, Royal African Company and the Hudson's Bay Company (Cope 1978, p.2). Still, despite the development of highly sophisticated joint stock trading in Amsterdam by the mid-17th century, dealing in joint stocks and shares in London was 'haphazard and unorganized' before 1680, with a 'highly developed market', complete with trading in options and time bargains, only in evidence by the early to mid 1690s (Houghton 1694; Morgan and Thomas 1962, p.21).

A number of key factors contributed to the rapid development of English stock trading starting around 1690. One factor was the supply of joint stock issues. Just prior to this date a number of new joint stock companies had been created in areas such as fire insurance, paper making and street lighting. Combined with the established joint stock companies such as the East India Company and the Hudson's Bay Company, circa 1688 there were about '15 joint stock companies ... enjoying an active life' (Morgan and Thomas 1962, p.22). In addition, the political reforms associated with the Glorious Revolution permitted the commencement of the financial revolution in English government debt issues. The period from 1688-1695 witnessed an explosion in new joint stock issues, in both shares and bonds, and in the supply of government debt. Included in these promotions was the initial subscription for the Bank of England in 1694.

Types of deals in Early English Stock Trading:

A deal for ‘ready money’ or ‘money’: a transaction for immediate delivery, to be settled within no less than two days. Also called a deal for **cash**.

A deal for ‘time’: a transaction for future settlement, effectively a forward contract in the security. Where a *rescontre* settlement system was in place, the transaction would typically have the next *rescontre* as the settlement date.

Heavy horse and Light horse: Subscriptions to government debt issues could be paid by instalment, with the first deposit generally being 15% (Mortimer 1761, p.137), with further payments of 10 or 15% being required each month until the balance was paid. The full amount of the subscription could be paid in advance, with credit being given for the associated interest. During the period in which subscriptions were being paid, secondary market trading had to account for the unpaid balances on a specific security. Heavy horse referred to a security which was fully paid, while light horse had a balance remaining to be paid. Stockjobbers preferred to deal in the light horse, which required a smaller invested capital for the same notional principal, ‘they have an opportunity for sporting with, and gaining profit on, a nominal thousand, for the same money, that it would cost to buy a hundred, heavy’ (Mortimer 1761, p.138).

Scott (1910) estimates by 1695 that there were no less than 140 joint stock companies. Clapham (1958) makes reference to ‘more than one hundred fifty companies, two-thirds English and one-third Scottish, (that) started lives most of which were brief and unfortunate’ during the stock promoting boom of 1692-1695. Of all these issues, the Bank of England was the giant. The deal leading to the creation of the Bank had elements of the fantastic. The original plan has been attributed to the Scottish projector William Paterson, though ‘whether he was strictly the originator, or merely the mouthpiece of a City group, we cannot be quite sure’. In any event, the government was anxious to obtain large amounts of funds to sustain the 1690-1697 war of the Grand Alliance against France and, in exchange for £1.2 million, Parliament granted a charter to a joint stock bank with an effective monopoly on the note issue.

The creation of some type of public bank in England by the end of the 17th century was expected. In the preceding century, various jurisdictions had evolved different forms of public banks. The Bank of

Amsterdam, founded in 1609, played a key role in the settlement and transfer of funds. The Bank of Hamburg, an imitation of the Bank of Amsterdam, was founded in 1619 with the Bank of Sweden following in 1656. 'On the coasts of the Mediterranean, the North Sea, the Baltic, English merchants of the seventeenth century came into touch with public banks: the influence of these merchants on government was on the increase and so were the public banks' (Clapham 1958, p.3). Yet, the Bank of England was to be considerably more than a public bank of the 17th century. The Bank became the model 'public bank' of the 18th century.

The Bank of England was novel in that it combined the notions of joint stock ownership and bank of issue. As the right to provide the circulating medium had historically been the preserve of the crown, it took a particular set of circumstances, combined with the payment of a considerable amount of cash, to consummate the deal. The original Act that authorized creation of the Bank provided for a maximum authorized borrowing of £1.5 million with payment of £1.2 million by 1 January, 1695. In order for corporate privileges to be conferred, at least half of the subscription amount of £1.2 million had to be paid by 1 August, 1694. This condition proved to be overly pessimistic. Within twelve days of the June 1694 subscription announcement date, the full amount had been subscribed (with 25% of the price paid up front).

From the government's perspective, the deal between the Bank of England and the government involved a fully funded loan from the subscribers of the Bank. Derived from taxes on ship tonnage and duties on liquor the government undertook the obligation to pay 8% on the bulk of the £1.2 million. These regular debt payments contributed substantially to the success of the Bank subscriptions, compared to alternatives that were available in the security market (Clapham 1958, pp.19-21):

Water companies, most of them quite sound; treasure seeking companies, highly speculative; paper, linen, lead, copper, plate glass, bottle glass and mining companies; The Society for improving Native Manufacture so as to keep out the Wet, and the Company for the Sucking-Worm Engines of John Loftingh, merchant, at Bow Church Yard, Cheapside — a sucking-worm engine was a fire hose — had all been projected and supported less or more. Among these, the Bank with its parliamentary backing, its high sounding name, and its guaranteed income from the taxes was a very attractive proposition.

However, though the potential stability of Bank of England stock was attractive to some, for the prime movers in the deal the main objective was the gains to be obtained from the banking business.

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 London stock trading was intimately connected to Exchange Alley.

Geographically, Exchange Alley is located across Cornhill Street from the Royal Exchange. Starting at Cornhill the Alley runs to Lombard Street (Figure 8.2). The Alley contained various coffeeshops that were the focus of stock trading. Circa 1696, the chief coffeehouses for stock trading were Jonathan's and Garraway's, though Sam's Coffee House in the Alley and Powell's and the Rainbow in Cornhill were also of some importance (Copes 1978):

Jonathan's was founded about 1680 by Jonathan Miles, and was from the start connected with financial business. The Garraways were a City family of the period, who were landlords of the Sun Fire Office in its early days. The coffee-house was started by Thomas Garraway in the early 1670s. The trend to financial specialization, using coffee-houses as a place of business, is typical of the period: other examples are Edward Lloyd's Coffee House, a centre for marine insurance, and Tom's and Causey's Coffee Houses, used in their early

days by the Hand in Hand Fire Office and the Sun Fire Office. Jonathan's as a centre for dealers gradually superseded Garraway's (which was concentrating on auction sales by the 1750s), and developed lineally into the Stock Exchange of 1772.

While there was apparently considerable, and almost certainly disreputable, 'curb trading' in Exchange Alley, various City orders, such as those of 1700 and 1703, were aimed at eliminating this type of trading.

Brokers and Stockjobbers

Following the Glorious Revolution, the significant increase in the supply of issues to be traded was accompanied by the emergence of a trading infrastructure composed of brokers and stockjobbers, centred around the London Exchange and Exchange Alley. John Houghton (22 June, 1694) describes the process involved in stock trading 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.

Houghton follows this brief discussion with a considerable discussion of 'refusals' and 'puts', giving the distinct impression that options trading was a regular component of early London stock trading.

A List of English Acts Relative to Brokers, from Francis (1850)

13 Edward I.	Statute 5	Anno 1284
1 James I.	Statute 21	1604
8 and 9 William III	Statute 32	1697, expired 1707
6 Anne	Statute 16	1707
10 Anne	Statute 19	1711
6 George I.	Statute 18	1720
3 George II.	Statute 31	1730, for Bristol
7 George II.	Statute 8	1739

Brokers and dealers have been an essential feature of markets since ancient times. Brokers were used to do business in a wide range of commodities, from cloth and wool to copper and saltpetre.¹³ Various jurisdictions imposed laws governing the ability of individuals to engage

in brokerage and when brokers were required in a business transaction. For example, a 1697 English law restricted to 100 the number of brokers permitted to transact business in joint stocks. Another example is from medieval Bruges, where alien merchants were required to use local brokers even where a broker was not necessary.¹⁴ Heuristically, brokers do business by connecting buyers and sellers, charging a commission for this service. A broker does not take a position in the security being traded.

In contrast, dealers buy and sell for their own account. Dealer activity can take various forms. In modern financial markets, a dealer typically makes markets in securities, quoting prices for both buying and selling, adjusting bid and offer prices in response to perceived changes in demand, often as reflected in the level of dealer inventory. Such traders were apparently not present in the early English stock market (Cope 1978, p.5):

It has been suggested that in the first half of the (18th) century there were bankers, stockbrokers, merchants and speculators, even clerks in the transfer offices, who had adopted the role of a professional dealer, 'a stabilizer in the market, normally ready to buy and sell, and professionally interested in adjusting supply and demand' (Dickson 1967, p.496). A dealer in this sense was not mentioned by Mortimer or by any other contemporary writer. Isaac de Pinto described such intermediaries in Amsterdam, but said nothing about them in London.

The first published account of such modern day 'jobbing' appears in 1796.¹⁵

The relationship between dealing and brokerage is an important feature of market microstructure (Cope 1978, pp.7-8):

There are various ways of organizing a security market. One is that found in the London Stock Exchange of today, which has two classes of members: brokers, who act as agents on behalf of clients, and dealers or jobbers, who act as principals. Another way is to have only brokers, who are purely agents, and who have to find other brokers with whom they can match their orders. The third way is to have brokers in name who are in fact dealers who buy from and sell to their clients. Most stock exchanges combine the second and third of these methods, and this was the practice in the securities markets in London in the eighteenth century. In the last quarter of the century there were signs of a transition to the first system, with the emergence of jobbers who 'made the market' and who had no dealings with the public.

The early 18th century English stock market definitely blurred the distinction between dealers and brokers. For example, it was typical for a market participant to act as broker in a transaction for, say, security X while still conducting transactions for their own account in security X, such as where the broker charges brokerage for, say, a sale while purchasing the security for their own account. The potential for abuse was considerable, especially when trading for forward delivery and trading in options was also a common activity.

The considerable discussion and analysis aimed at early English

stockjobbing activities was particularly venomous. Consider, for example, the full title of a Daniel Defoe work on the subject: *The Anatomy of Exchange Alley or, A System of Stock-Jobbing: Proving that Scandalous Trade, as it is now carried on, to be Knavish in its private practice, and Treason in its Public* (1719). Stockjobbing, it seems, was much more than simple dealing in shares and government funds. Defoe's views on stockjobbers is quite clear:

if you talk to them of their occupation, there is not a man will own it is a complete system of knavery; that it is a trade founded in fraud, born of deceit, and nourished by trick, cheat, wheedle, forgeries, falsehoods, and all sorts of delusions; coining false news, this way good, this way bad; whispering imaginary terrors, frights, hopes, expectations, and then preying upon the weakness of those whose imaginations they have wrought upon, whom they have either elevated or depressed.

Though Defoe is among the best at thrashing the stockjobber, Thomas Mortimer provides a much more insightful description of stockjobbing activities.

Stockjobbing was not so much an occupation as an activity. Defoe recognized that the activity attracted a range of participants, not just 'the Alley throngs (of) Jews, jobbers, and brokers; their names ... needless, their characters dirty as their employment' (Defoe 1719):

to see statesmen turn dealers, and men of honour stoop to the chicanery of jobbing; to see men at the offices in the morning, at the P——— house about noon, at the cabinet at night, and at Exchange Alley in the proper intervals, what new phenomena are these? What fatal things may these shining planets ... foretell to the state and to the public; for when statesmen turn jobbers, the state may be jobbed.

Despite some insights, Defoe's brief tract is more a polemic than an reasoned discussion of stockjobbing. Appearing on the eve of South Sea Bubble, the tract is somewhat prophetic.

Compared to Defoe, Mortimer is much more analytical in his discussion of stockjobbing. For example, Mortimer (1761, pp.33-4) gives a precise description of the 'sorts' of individuals involved in stockjobbing:

STOCK-JOBBERs may be divided into three different sorts.

The first are foreigners, who have property in our funds, with which they are continually JOBBING.

The second are our own gentry, merchants, and tradesmen, who likewise have property in the fund, with which they job, or, in other words, are continually changing the situation of their property, according to the periodical variations of the funds, as produced by the divers incidents that are supposed either to lessen, or increase the value of these funds, and occasion rises or falls of the current price of them.

The third and by far the greatest number, are STOCK-BROKERS, with very little, and often no property at all in the funds, who job in them on credit, and transact more business in the several government securities in one hour, without having a shilling of property in any one of them, than the real proprietors of thousands transact in several years.

Mortimer explicitly identifies the blurring of the dealer and broker functions. This is reflected in the common language of the time that ‘used broker and jobber as interchangeable terms’ (Dickson 1967, p.494).¹⁶ However, Mortimer is quite clear that stockjobbers also include others than just brokers.

What was stockjobbing? Mortimer (1761, p.27) has a useful description:

Now, the Dutch and other foreigners have so large an interest in our public funds, has given rise to the buying and selling of them for time, by which is to be understood, the making of contracts for buying and selling against any certain period of time; so that the transfer at the public offices is not made at the time of making the contract; but at the time stipulated in the contract for transferring it; and this has produced modern STOCK-JOBING, as I shall presently shew.

Nothing could be more just or equitable than the original design of these contracts, nor nothing more infamous than the abuse that has, and still is made of it.

Unlike the modern-day market, stockjobbing in the 18th century was associated with forward trading of securities, at least according to Mortimer (p. 32):¹⁷

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-JOBING.

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.

Almost from the beginning of English stock trading, attempts were made to severely restrict stockjobbing. The first important piece of legislation was the 1697 Act ‘To Restrain the number and ill Practice of Brokers and Stockjobbers’. This Act did not actually have much application to stockjobbing, as conceived by Mortimer. Rather, stockjobbing was conceived as ‘pretended’ brokerage. From the preamble to the Act (Morgan and Thomas 1962, p.23):

whereas divers Brokers and Stock-Jobbers, or pretended Brokers, have lately set up and on most unjust Practices and Designs, in Selling and Discounting of Talleys, Bank Stock, Bank Bills, Shares and Interests in Joint Stocks, and other Matters and Things, and have, and do, unlawfully Combined and Confederated themselves together, to Raise or fall from time to time the Value of such Talleys, Bank Stock, and Bank Bills, as may be most Convenient for their own private Interest and Advantage: which is a very great abuse of the said Ancient Trade and Employment, and is extremely prejudicial to the Public Credit of this Kingdom and to the Trade and Commerce thereof, and if not timely prevented, may Ruin the Credit of the Nation, and endanger the Government itself.

Stockjobbers were seen as interlopers in the legitimate trade of brokerage. As a consequence, the Act specifically restricted the trade of brokerage to those brokers licensed by the City of London. The Act then limits the number of licensed brokers to one hundred.

Though it had some impact, the Act of 1697 was insufficient to stem the stockjobbing abuses, as reflected in the need for subsequent English legislation. Unlicensed brokers continued to operate throughout the 18th century and licensed brokers were often involved in dealing activities, for example, Dickson (1967, pp.493-7). Though there were definitely political considerations in its passage, the Bubble Act of 1720 was designed to eliminate the rampant stockjobbing in the initial public offerings of the numerous bubble promotions (Harris 1994). That options still played a significant role in stockjobbing activities, both during and after the South Sea Bubble, is reflected in the specific inclusion of restrictions on options trading in Barnard's Act of 1733, which also attempted to restrict time bargains. Various other unsuccessful attempts to get anti-speculation and anti-stockjobbing bills passed were launched.

Interest in restrictive legislation was often sparked by the decline of stock values during periods of military hostility or severe commercial difficulties. With war breaking out between England and France in 1744 (Cope 1978, pp.9-10):

In 1746, a bill was introduced which indicated the ways in which its sponsors (who included Sir John Barnard) thought bear speculators had been operating. The bill would make it an offense to 'conspire' to lower prices and to sell for time at a price below the price for money. Lenders were not to sell the collateral security they held, unless it had depreciated or the loan was in default; those holding stock for nominees were not to sell for their own personal account with a view to repurchasing, and stocks were not to be sold conditional on the happening of a future event.

Further attempts at legislation were made in 1756, 1762 and 1773. What is apparent from all this is that stockjobbing was a rather loosely defined term, which could include a range of trading activities, some speculative, some manipulative. Despite Mortimer's rather restrictive definition, the colloquial meaning of 'stockjobbing' could include both cash and forward trading. However, as reflected by the introduction of the quarterly 'rescouter' system to London sometime during the 1740s (Dickson 1967, p.507), the jobber speculation may well have been centred, in practice, on forward trading when Mortimer was writing.¹⁸

The English Coffeehouses¹⁹

Coffeehouse trading was a novel feature of English (and European) securities and commodity markets in the late 17th and early 18th centuries. Though none of these original establishments has survived to the present day, there are at least three modern English financial institutions that have a lineage traceable back to the coffeehouses: the London Stock Exchange, which evolved from Jonathan's; the insurance

syndicate, Lloyd's of London, originated at Lloyd's coffeehouse; and the Shipping Exchange can be traced to the Baltic coffeehouse (Gibb 1957, p.4). Though the Royal Exchange also was an important venue for securities and commodity trading, there were certain inherent features of the coffeehouse that made this environment better suited to the trading activity of the London merchants of the late 17th and early 18th century.

The introduction of coffee into the English milieu is often credited to Archbishop Laud, who was involved in helping Christian refugees escape the Islamic empire in the Middle East (Gibb 1957, p.1). A few years before 1650, the Archbishop brought one of these refugees, a Cretan scholar named Canopis, to Balliol College, Oxford. Soon after arriving at Oxford, Canopis introduced his colleagues to coffee, 'a drink of soote colour dryed in a furnace and that they drink as hot as can be endured'. The coffee drinking habit spread quickly amongst the scholars and students of Oxford and Cambridge and, in 1650, a coffeehouse appeared in an apothecary's house 'against All Soules College'. By 1677, the habit had become so popular that a Cambridge don was quoted as saying: 'Why doth solid and serious learning decline and few or none now follow it in the University? Answer: because of coffeehouses where they spend all their time' (Gibb 1957, p.2)

In 1652, not long after Canopis introduced coffee to the English

The Mideast Origins of the European Coffeehouse

The origins of coffee drinking are obscure, though it is reasonably certain that the practice of consuming the fruit of the coffee plant originated in Ethiopia, possibly in the Kaffa region where coffee is a native plant. Though Ethiopia was likely the original source, the practice of coffee drinking can 'almost invariably' be traced to Yemen where 'most stories connect it to a man or men of one of the mystical Sufi religious orders' (Hatton 1985, p.14). Though coffee drinking by Sufis in Yemen may have originated earlier, the 'available evidence' dates the practice from the mid-fifteenth century. 'By the first decade of the sixteenth century ... coffee had spread from Yemen to the Hijaz and Cairo ... it was another decade or so before it reached Syria, probably by the pilgrimage caravan, and from there it was carried to Istanbul around the middle of the 1500's' (Hatton 1985, p.28).

Though the 'social use of coffee may be traceable to Sufi practice ... the roots of its social importance must be sought elsewhere', more precisely in the coffeehouse. 'From all indications the coffeehouse, like coffee, must be considered of Arab origin' (Hatton 1985, p.76). Rudiments of coffeehouse society had appeared in Mecca by the beginning of the sixteenth century, where an official judicial report of 1511 attempted to outlaw coffee drinking. This was the first of numerous attempts over the next two centuries to ban coffee drinking in various locales in the Mideast and Europe. The object of the bans was not usually coffee drinking, *per se*, but rather the social activities which were taking place at the coffeehouses. Recognizing that the severe restrictions Islam placed on alcohol effectively prevented the tavern from being a gathering place, the social attractions of the coffeehouse in the Muslim world were considerable. As such, attempts to ban coffeehouses were almost invariably unsuccessful.

(cont'd)

scholarly community, the first London coffeehouse was opened by an Italian merchant, Pasqua Rosee, originally from Ragusa in Sicily. The subsequent proliferation of coffeehouses was dramatic. By 1679, there were at least one hundred and by 1702 over five hundred (Wright and Fayle 1928, p.9). What explains the remarkable popularity of the coffeehouse? Compared to taverns, the coffeehouse was quieter and the refreshments offered were much better suited to conducting business and leisurely daytime activities. For the usual price of a penny, a customer would be entitled to a drink of coffee and a seat to linger with friends or read the available newspapers. In winter, there would invariably be a fire to warm the customers from the damp and dreary London weather.

Such an environment was an excellent place for obtaining news and information of interest.

Mideast Origins of the European Coffeehouse....(cont'd)

By the end of the 16th century, the coffeehouse craze was evident throughout the Middle East. Major centres such as Istanbul, Damascus and Cairo featured a wide range of establishments: from the 'take-out shop' catering to local merchants, to the small local shops with a few benches, to the grand-style coffeehouses catering to important clientele. By 1575, it was estimated that Istanbul had over 600 coffeehouses. The coffeehouse became a microcosm of Islamic society. To attract customers, certain coffeehouses would provide entertainment such as storytellers, puppet shows or musicians. Other establishments used the coffeehouse venue as a front for forbidden social vices, such as gambling, prostitution and drug use. This connection between certain coffeehouses and unseemly social practices gave support to the on-going efforts, primarily from religious fundamentals, to ban either coffeehouses or coffee drinking.

Almost from the beginning, coffeehouses became specialized to certain clientele. The type of clientele was primarily determined by proximity to important locations. For example, the Royal Coffee House and Charing Cross coffeehouse were near to Whitehall and catered to 'beaux and courtiers'. Important coffeehouses for transacting business, such as Garraway's, Jonathan's and Lloyd's, arose near to the Royal Exchange. In addition to endeavouring to offer an ambience agreeable to the specialized clientele, coffeehouse proprietors made special efforts to provide information of importance. In addition to the relevant newspapers, letters of general interest were obtained and posted. 'Accommodation addresses' were provided, not unlike a modern General Post Office. This service was especially important to coffeehouses, such as Lloyd's, which catered to the maritime trades.

In the regular course of business, including financial transactions, coffeehouses served as makeshift offices. An interesting example of this use is evidenced by the following advertisement appearing in Houghton's *A Collection*...: 'John Castaing, at *Jonathan's Coffee-house*, or *Exchange*, buys and sells all Blank and Benefit Tickets; and other Stocks and Shares'. The initial copies of the famous Castaing's *Course of the Exchange* was ended with: 'By John Castaing, Broker, at his Office at *Jonathans Coffee-house*'.²⁰ Abraham de Moivre conducted his business of calculating odds for gamblers and reckoning values for underwriters and annuity brokers in Slaughter's Coffee House in St Martin's Lane. Specialized coffeehouses, such as Jonathan's actually became important centres of business and were able to charge admission to the facilities.

Ultimately, however, specialized coffeehouses were not able to keep pace with the growth in business and migration took place to venues outside coffeehouses.

Jonathan's is a case in point. By 1762, the stock trading business centred at Jonathan's was sufficiently developed that 150 of the more reputable brokers formed a club and entered into an agreement with the proprietor of Jonathan's for the exclusive use of the establishment in return for a rent of £1200 a year, which they raised by a subscription of £8 per head. This action, aimed at excluding specific individuals from a coffeehouse, was problematic as coffeehouses were businesses serving the public. Shortly after Jonathan's attempted to enforce exclusivity (Morgan and Thomas 1962, p.68):

A broker who had been ejected from the coffee-house brought an action against the proprietor. The case was tried before Lord Mansfield and a special jury, who found that Jonathan's had been a place of resort for dealers in stocks and shares since time immemorial, and upheld the plaintiff's right of access.

Shortly thereafter, in 1773, the brokers club purchased a building of their own in Threadneedle Street, and called the building the 'Stock Exchange'. Oddly enough, they did not try at first to limit membership, but allowed the use of its facilities to anyone on payment of 6d a day. This gradual process of progressing from public coffeehouse to restricted private quarters was roughly paralleled in the maritime insurance trade, where Lloyd's coffeehouse served a similar role to Jonathan's.

The coffeehouse phenomenon was not restricted to England. Coffee first appeared in Venice in 1615 and Paris in 1643. There was a coffeehouse craze in Paris, similar to that in London, with around 250 coffeehouses appearing in Paris by the end of the 17th century. Coffeehouses were also popular in Amsterdam, as indicated by de la Vega (1688, p.199):

Our speculators frequent certain places which are called *coffy-huysen* or coffee-houses because a certain beverage is served there called *coffy* by the Dutch and *caffé* by the Levantines. The well-heated rooms offer in winter a comfortable place to stay, and there is no lack of manifold entertainment. You will find books and board games, and you will meet there with visitors with whom you can discuss affairs. One person takes chocolate, the others coffee, milk, and tea; and nearly everybody smokes while conversing. None of this occasions very great expense; and while one learns the news, he negotiates and closes transactions.

John Law: The Great Projector

Adam Smith (1776, p.302) characterized John Law's Mississippi scheme as 'the most extravagant project of both banking and stock-jobbing that, perhaps, the world ever saw'. Compared to the Mississippi scheme, the South Sea manipulation was 'a mere fraud' whose 'fall was not very prejudicial to the nation' (Smith 1763, p.219). Smith also maintains that: 'This scheme of Law's was imitated all over Europe. It gave occasion to the South Sea Company in England ...' This statement characterizes

much of Smith's contribution to financial economics. While Smith was able to identify the general characteristics of this major financial event, Law's Mississippi scheme, the details are brief, rendering Smith's analysis too cursory and sometimes confusing. Upon closer inspection, while there are a number of striking similarities, Law's scheme did have some substantive differences with the South Sea Bubble. The claim that the South Sea manipulation was an 'imitation' of the Mississippi scheme is not entirely supportable.

John Law qualifies as one of the truly colourful figures of political economy. His life and contributions have been examined in numerous sources, with Murphy (1997) being a particularly impressive account.²¹ Law's main theoretical work, *Money and Trade Considered; with a Proposal for Supplying the Nation with Money* (1705) 'presented fundamental insights into the nature and functions of money' (Hutchison 1988, p. 135). Schumpeter (1954, p. 295) observes that Law 'worked out the economics of his project with a brilliance and, yes, profundity, which places him in the front rank of monetary theorists of all time'. Despite being a noted monetary theorist, it was Law's limitations as a financial economist that ultimately led to his fall from grace. As Adam Smith recognizes, what made John Law's project particularly destructive was the notion of combining joint stock distributions with bank note issues. The use of these joint stock issues to undertake an immense refunding of the government debt led ultimately to the collapse of the French monetary system and financial markets.

John Law was born in Edinburgh in 1671, the eldest son of a successful goldsmith and banker. At the age of fourteen, he entered his father's counting house and spent three years acquiring knowledge of the Scottish banking business. With the death of his father in 1688, Law left the counting house and, bolstered by revenues from the estates he inherited from his father, moved to London to undertake the 'gay life' (Mackay 1852, p.3). For the next six years, Law engaged in an extravagant lifestyle and became heavily involved in gambling. While initially quite successful in his gambling ventures, he eventually became consumed and his gambling losses led to the mortgaging of the family estate. In April of 1694, this life came to an abrupt end when Law engaged a Mr Wilson in a duel and had the misfortune of shooting his antagonist dead.²²

The reason for this duel apparently stemmed from Law's actions towards a Miss Elizabeth Villiers (later Countess of Orkney). Whether there was a love affair or even a slight flirtation between Law and Miss Villiers is unclear. There is considerable evidence for a protracted relationship between Mr Wilson and the lady. In any event, Law was arrested the same day, following the duel, and the relatives of Mr Wilson pressed for his trial on murder charges. In the subsequent trial, Law was found guilty and sentenced to be hanged, a sentence which was commuted to a fine when the charge was reduced to manslaughter. This disposition did not satisfy the family of Mr Wilson. An appeal was launched and while in detention in the King's Bench, Law escaped and fled to the Continent. In subsequent years, Law did make attempts to

obtain a pardon for the murder of Mr Wilson. The pardon was eventually obtained in 1719.

'Little is known of Law's life between his escape from prison in 1695 and his involvement in the land bank debate in England and Scotland in 1704-5. Archival material that has been trawled yields a meagre catch of occasional sightings and passing references to him' (Murphy 1997, p.35). Based on the little primary evidence that is available it appears that, following his escape from England, Law was engaged in travel on the Continent, primarily in France, Italy and Holland. During these travels, Law became absorbed in the general study of finance and trade. While in Amsterdam, he 'speculated to some extent in the funds' (Mackay 1841, p.4), gaining familiarity with both the Dutch securities market and the operations of the Bank of Amsterdam. With this accumulated study and practical experience, Law began to formulate a number of projects on various topics. During his travels and study, Law became impressed with the potential benefits that introducing paper currency had produced in England and Holland. In contrast, countries where resistance to paper currency was significant, such as France and Scotland, were beset by depressed economic activity.

Mackay (1852, p.5) and others claim that during his travels Law supported himself by successful gaming. 'At every gambling-house of note in the capitals of Europe he was known and appreciated as one better skilled in the intricacies of chance than any other man of the day.' There is much more to this part of Law's story than might appear, as it provides important clues as to how a Scotsman, fugitive from British justice, making an abundant living solely from gambling, could persuade the despotic government of the French nation to undertake revolutionary financial gimmicks: 'Though Law made a fortune out gambling, it is inaccurate to describe him as a gambler in the traditional sense of the term. His gambling activities involved his use of mathematical skills to calculate rapidly the most advantageous gambling odds allied to his adoption of the key position at the gaming tables, that of banker' (Murphy 1997, p.37).

John Law was so much more than a simple gambler, combining his innate ability at calculation with intensive study of games of chance. In an era when the basic calculations of modern probability were just being developed, John Law was hard at work calculating the odds for the various games of chance. It is hardly surprising that Law discovered how the banker in certain games was similar to a modern bookmaker. The two games that Law is known to have specialized in, *faro* and *basset*, were both games where 'the odds were stacked in favour of the banker' (Murphy 1997, p.38). Gambling in Law's day was a much more socially ingrained activity, featuring a willingness to engage in novel games of chance, such as betting on lives. Law was known to devise games that would stack the odds in his favour, such as one described in a letter from the Abbe Conti to Madame Caylus: '(Law) offered 10,000 sequins to any who could throw six six times in a row, but each time that they fail to do so they give him a sequin'. The actual odds for throwing six sixes in a row is 46,656 to 1.

Precisely when John Law made the transition from ‘gambler’ to projector is unclear, though Murphy (1997, p.43) estimates that ‘Law started writing on money and banking issues sometime between 1701 and 1704’. This posture as a projector was appealing in an era populated by the likes of William Paterson, Hugh Chamberlain, and Nicholas Barbon. Although Law was a wanted man in England, until the Union with England in 1706 this peril did not extend to Scotland. Around 1700 or shortly thereafter, Law returned to Scotland and became engaged in attempts to get some of his projects implemented. Though an initial attempt at establishing a council of trade attracted little attention or support, Law was successful in gaining considerable attention with a proposal for a land bank.²³

Law departed Scotland in 1705 for the Continent where he continued his efforts to be a financial projector. In 1712, Law surfaced in Turin where he was advisor to Victor Amadeus, the Duke of Savoy, on establishing a bank, along the lines of the Bank of England. As in Scotland, Law's plan was also not implemented in Turin. Shortly after this, Law's projecting efforts in France began to bear fruit. In 1714, Law was in the process of establishing permanent residence in France and ‘during the summer of 1715 Law appeared finally to have persuaded Louis XIV and Nicolas Desmaretz to accept his plan for a bank’ (Murphy 1997, p.124). Unfortunately for Law, on 12 August, 1715 the King became ill and at 8:15 a.m. on 1 September the 76-year-old monarch died, leaving his five-year-old great-grandson to carry on the legitimate Bourbon dynasty.

When Louis XIV died in 1715, the King's nephew, Phillippe, the Duke of Orleans was selected as Regent to act for the rightful heir who was only an infant. It was under Phillippe that Law's fantastic plans came to fruition (Murphy 1997, p.130):

The key to analyzing Law's rise and fall lies partially in understanding the operations of the financial system and the political power structure behind this financial system. Law came to power because of the near collapse of the financial system under Louis XIV. The bankruptcy of the financial system encouraged the search for a financial innovation that might remedy ‘les finances’ and encourage the growth of the real economy. Law, with his fertile and imaginative mind, his ability to master statistical detail, along with his desire to think of solutions outside those normally presented to the administration, represented the type of person that not just the Regent, but even prior to him Louis XIV and Desmaretz, wanted to consult over the financial situation.

With this, the ground was set for the execution of what is, possibly, the most amazing sequence of financial events in recorded history.

The Mississippi Scheme

Almost from the beginning of trading in joint stocks, periods of seemingly irrational pricing have been observed. Providing theoretical explanations for such behaviour occupies a considerable amount of energy in modern financial economics. Yet, closer examination of

specific historical events reveals an array of determining factors, with each event featuring its own particular profile. This observation is well illustrated in the two most significant episodes of seemingly irrational pricing in the 18th century: the Mississippi scheme in France and the related South Sea Bubble in England. Both these events came to a head in 1720, the collapse of the Mississippi scheme preceding that of the South Sea Bubble. Despite the proximity of these two events and similarities in certain details, the Mississippi scheme seems to have been the result of well-meaning but misguided policy while the South Sea Bubble had the distinct smell of fraud and manipulation.

The Mississippi scheme was the brainchild of John Law (1671-1729), that colourful Scottish exile Schumpeter claims is 'in the front rank of monetary theorists of all time'. The Mississippi scheme began in 1716 when Law was able to gain approval from the Duke of Orleans, the Regent of France, to establish the *Banque Generale* in Paris. Law's bank was given authority to issue notes and to participate in the management of royal revenues. Initially, the note issue was restricted in size and, as a protection against debasement of the coinage, was made payable on demand in the coin in use at the time of issue. While France had some experience with paper currency, in the form of the *billets d'etat* issued by Louis XIV, this project was the first significant case in France of a private bank issuing paper currency.

Somewhat to the surprise of the regent, Law's bank met with resounding success and bank branches were soon established in other centres such as Lyons, Tours, Rochelle and Orleans. There was also a noticeable positive impact on credit conditions and payment of state taxes. Around this time, the finances and general economy of France were in serious disorder, having suffered greatly from the excesses of the recently deceased Louis XIV. The regent seized on the opportunity and, in December 1718, Law's bank was converted from a private to a public institution, the *Banque Royale*. This bank was conceived to be a note-issuing central bank, with provincial branches, to which was added a range of monopoly powers, over activities such as the sale of tobacco and the refining of gold and silver.

One of the first acts of the *Banque Royale* was to print unbacked notes in the amount of one thousand million *livres*. This step was a harbinger of the financial mayhem that was to follow. Law's private bank had been careful to restrict note issues to an amount that could be managed with the specie reserves that were within the control of his bank. Whether Law concurred with this unbacked note issue is not known, though his attentions were at least partly diverted by the granting in September 1717 of letters patent to a company with exclusive trading privileges on the western bank of the Mississippi River, in the area of the province of Louisiana. This company was formally known as the *Compaigne d'Occident* or, in slang, the Mississippi Company. The increasing value of the shares in this venture proved to be another success for Law, and in May 1719 the Mississippi Company was evolved into the *Compaigne des Indes*, which was granted further exclusive trading privileges in the East Indies, China and the South Seas.

The creation of the new *Compaigne des Indes* was accompanied by an offering of fifty thousand new shares. Accounting for the method of payment, Law promised an annual dividend on the shares exceeding 100% that triggered an almost staggering interest in the new issue. What followed was a sequence of arrangements: first, to lease the bulk of the indirect taxes, the General Farms, in August 1719; and, starting in October 1719, to use the proceeds of further issues of *Compaigne des Indes* stock to pay off virtually all of the debt of the French government. Throughout this period there was frenzied, almost unbelievable, trading in shares of the company. Propelled by the unbacked note issues of the central bank, the scheme started to slowly unravel during 1720, collapsing completely during September. On 29 September, 1720 the government announced *Banque Royale* notes would not be accepted for payments. In December, John Law fled to Brussels, fearing for his life.

The South Sea Bubble

Since the collapse of the bubble in 1720, the story of the South Sea Bubble has been told and retold, sometimes profoundly.²⁴ The actual story begins with the first of the three great English joint stock companies, the Bank of England. This flotation was particularly successful, both as a business venture and, more importantly, for validating the effectiveness of using company charters as a vehicle for funding government debt. The basic scheme was quite ingenious: the government has the ability to grant monopoly privileges for certain activities, such as the right to conduct trade to a particular region or the right to issue the 'coin of the realm'. The market can be used as a mechanism to capitalize the value of these rights that, in turn, can be sold in exchange for funding government debts, either new or outstanding as the case may be.

Dickson (1967) on England in 1720

The economic and social conditions in 1720 England stand in stark contrast to those prevailing in France. Dickson (1967, p.90) highlights many key differences:

By 1720 the new English state initiated so precariously in 1688 could congratulate itself on immense achievements. In the long wars of 1689-1713 it had led and partly paid for the successful resistance to Louis XIV's last and most costly attempt to expand the power of France in Europe. It had carried through the Union with Scotland. It had broken the legitimate succession to the English throne, excluded the Stuarts from it, and forced the Bourbons to recognize this exclusion. The pro-Stuart uprisings of 1715 and 1719 had been brushed aside. Civil and religious liberty had been effectively established, and all this had encouraged considerable investment and innovation in domestic finance and foreign trade. If England on the eve of the 'never-to-be-forgotten or forgiven South Sea Scheme' was bolder and more confident than ever before, it was because of her successes, and not from mere bravura.

The basic difficulty with this scheme is that the pool of such rights is small, with an even smaller number of truly valuable rights. The success generated by the Bank of England issue spurred calls for more such deals. However, the right to issue notes proved to be far and away the most lucrative monopoly that the British government could issue. The demand for new charters was such that (Morgan and Thomas 1962, p.29):

In 1698, the subscribers to a government loan were incorporated as, 'The General Society entitled to the advantages given by an Act of Parliament for advancing a sum not exceeding two million for the service to the Crown of England'. The 'advantages' were that the subscribers were entitled to share in the trade to India, each in proportion to his subscription, and that such of them as chose might form a joint stock for carrying on their trade.

The right to trade with India was an important concession that had already been conveyed on the East India Company. Yet, the government had a limited number of viable concessions that could be exploited.

**English War Expenditure and Public Borrowing
1688-1763**

Year	Total Expenditure £	Total Income £	Balance raised by loans £	Col. (4) as % of (2)
1688-97	49,320,145	32,766,754	16,553,391	33.6
1702-13	93,644,560	64,239,477	29,405,083	31.4
1739-48	96,628,159	65,903,964	29,724,195	31.1
1756-63	160,573,366	100,555,123	60,018,243	37.4

Source: Dickson (1967, p.10)

**English Government Long-term Debts,
at Michaelmas 1719 (excluding life annuities)**

I) Owed to companies	£	£
(a) Bank of England	3,375,028	
(b) East India Company	3,200,000	
(c) South Sea Company	11,746,844	
	Total	18,321,872
(2) Redeemable Government Stock		16,546,202
(3) Annuities for terms of years		
(a) Long annuities, £666,566 valued at 20 years' purchase		13,331,322
(b) Short annuities, £121,669 valued at 14 years' purchase		1,703,366
	Total	15,034,688
	Total Long-term Debts	49,902,762

Source: Dickson (1967, p.93)

The creation of the New East India Company came at the expense of the 'old' East India Company, creating an arrangement that was to prove unworkable. In 1702, the two East India companies were merged and once again Parliament made the traders pay for their privileges. The deal was for the company to assume the debt of the 1698 East India company, £2 million at 8%, together with an additional £1.2 million, at no interest, producing a total loan to the government of £3.2 million paying 5%. Such capitalized transactions were an immediate relief to a government spending, on average, 30% more than could be supported by revenue sources. By 1710, the pressures of financing a protracted war had become considerable. After tapping the two existing joint stock companies for additional funds, once again the government resorted to the granting of charters in exchange for paid-in share capital.

The 'Company of merchants of Great Britain, trading to the South Seas and other parts of America and for the Encouragement of the fishing',

better known as the South Seas Company, was given royal assent on 11 June, 1711. During times of war, the government typically paid for the war effort using short-term debt such as Navy tallies and Army and Transport debentures. Circa 1711, the amount of this short-term unfunded debt was over £9 million. It was this debt that the South Sea Company agreed to assume. Compared to the operations associated with Bank and East India Companies, this deal was immense. For over two years the South Sea Company was engaged in taking subscriptions, ultimately raising £9,177,968 for which the government was to pay annually £550,678 interest and £8,000 management fees.

The early history of the South Sea Company was not good, due in part to funding the debt with tax sources that did not apply until 1715-1716, interest to be paid on the debt from general revenue of the Treasurer of the Navy. During the almost predictable period of suspended interest payments, shareholders were obliged to accept bonds in lieu of interest, further increasing their stake in the Company. However, by 1717 the various encumbrances on South Sea stock had been eliminated, and Parliament further enhanced the attractiveness of South Sea stock by an enactment requiring that any deficiencies in interest payments from funded sources would be met with payments from the General sinking fund. By 1717, there was also renewed prospects for the most important segment of the monopoly business granted to the South Sea Company: trading with Spanish America.

John Blunt is an oddity in the South Sea affair. He has, ultimately, been singled out as the kingpin of the manipulations that produced the South Sea Bubble, yet his initial involvement was by request of the Government. It was Robert Harley, the newly appointed Chancellor of the Exchequer, who, in August of 1710, sought out John Blunt, George Caswall and Sir Ambrose Crowley for their advice on dealing with the pressures of government finance. That both Blunt and Caswall were affiliated with the Sword Blade Bank, the former as secretary and the latter as partner, was eventually to prove a fatal error. 'Directors and officials of the Sword Blade held five seats on the Original Court of Directors of the South Sea Company and the provision of credit by the bank played an essential part in Blunt's manipulations' (Morgan and Thomas 1962, p.31).

Another key element in the South Sea Bubble mix was the presence of a complicitous Minister, in this case John Aislabie, Chancellor of the Exchequer. Aislabie was a man of mixed character. As one of his contemporaries, Arthur Onslow described him: 'a man of good understanding ... and very capable of business; but dark, and of a cunning that rendered him suspected and low in all men's opinion ... He was much set upon increasing his fortune and did that' (Dickson 1967, p.95). In the summer and autumn of 1719, the apparent success of John Law's scheme in France generated plans for similar 'projects' in Britain. One such project was proposed by John Blunt: to incorporate all of the National Debt, including that embodied into the Bank of England and the East India Company. The result would be a company very much like the company constructed by Law, with powers of note issue combined with

profitable trading monopolies to support the interest income from government.

Whatever John Blunt's precise proposals were, the deal that was ultimately consummated left the two other joint stock companies in place, with the South Sea Company to undertake a conversion of the remainder of the relevant government debt, some £31 million. This was a considerable undertaking for a company whose primary earning asset was, itself, government debt. From this point, the essence of the scheme is captured by Cantillon (p.323): 'a Bank with the complicity of a Minister is able to raise and support of the price of public stock and to lower the rate of interest in the State... and thus pay off the State debt. But these refinements which open the door to making large fortunes are rarely carried out for the sole advantage of the State, and those who take part in them are generally corrupted.' In the case of the South Sea Bubble, the Bank involved was the Sword Blade bank and the minister was John Aislaby.

After a bidding process involving the Bank and the South Sea Company, the deal eventually reached was for the South Sea Company to be permitted to undertake the conversion of government debt into South Sea stock, with the South Sea Company agreeing to a reduction in the government debt payments to 4% in four years and an additional cash payment from the Company to the government that would range from £4 million to £7.5 million. For this deal to make financial sense, the company would have to convince current holders of the government debt to take less than equal par value in South Sea stock. If only the interest payments are compared, the promised income from South Sea stock would be considerably less than many debt holders were receiving. For the conversion process to be profitable, it was necessary to create the illusion that South Sea stock was more valuable than its potential earnings would justify.

The resulting machinations of Blunt and his confederates is surpassed only by the magnitude of the collapse of the Mississippi scheme (Morgan and Thomas 1962, p.32):

Even before the bill became law, South Sea stock had risen above par, and Blunt and his friends now used every means in their power to enhance the rise. Their technique included carefully staged offers of stock for cash at a little above the current price; the use of this cash together with the Exchequer bills which the Company had undertaken to 'circulate' and its credit at the Sword Blade to support the market; the making of loans against the Company's own stock, so enabling holders to buy still more; the promise of lavish dividends; securing the interest of prominent people by thinly veiled bribes; and extracting the utmost propaganda value out of current events from the peace negotiations with Spain to a carefully contrived reconciliation between the King and the Prince of Wales.

On April 14, 1720, one week after the passage of the Act, the company announced its first 'money subscription' at a price of £300 for £100 par value in South Seas stock. Debt holders were required to register for conversion by April 28, with terms of the conversion to be announced on

May 19. To sustain the rate of conversion indicated by the first money subscription, the Company boosted the half-yearly dividend to 10%, where 3% was expected based on Company dividends prior to the conversion. Two additional, even fundamental, inducements were: the requirement of only a 20% (£60) downpayment on the subscription; and, in conjunction with the Sword Blade Bank, loans against stock.

Following the debt-financed success of the first issue, the scheme proceeds with an additional £400 'money subscription' at the end of April, with the King and the Prince of Wales being the first subscribers. And so it goes, on 19 May the conversion rate for government debt holders is announced as £800/£100, and this is followed by yet another money subscription, on 17 June, at £1,000. These prices were sustained by the announcement of a 30% dividend for the year and a guarantee of a 50% dividend for the following ten years. The most remarkable feature of the South Sea Bubble is the extent to which the fraud succeeded. In particular, the £1,000 money subscription was a triumphant success, with subscription lists including half of the House of Lords and more than half of the House of Commons. Even the sole voice of reason who spoke out against the initial South Seas scheme, Robert Walpole, was tempted into this scheme.

Predictably, the scheme foundered. The Sword Blade Bank could not sustain the large loans that the South Sea Company was incurring to support the high price of the stock. In addition, the driving force behind the scheme was rising prices. In the early stages of the scheme, money could be borrowed for the initial subscription payment and the resulting subscription receipt sold 'light horse' in the market. In order to prevent an oversupply of subscription receipts, effectively in-the-money subscription warrants, the Company would enter the market and purchase both light and heavy horse securities, using credit extended by the Sword Blade Bank. In an upward rising market, the profit potential of this plan was immense. If the credit underlying prices collapses, prices peak and the ensuing price collapse is more intense than the rise. In the period between 8 September and the end of September 1720, South Sea stock fell from 670 to below 200.

When the dust had settled, Aislabie and the directors of the Company had been required to forfeit a large part of their estates and arrangements had been made to do 'rough justice' to other participants (Morgan and Thomas 1962):

The main points of the ultimate financial settlement were:

The £7 million liability of the company to the state was cancelled.

Borrowers against stock were to repay only 10% of their loan, but to have the stock which they had deposited against it cancelled.

Outstanding calls on money subscriptions were cancelled and stock allotted to all subscribers on to all subscribers on the basis of £100 stock for each £300 cash already paid.

The parties to the August conversion received additional stock to bring their terms to the same as those of the May conversion.

The remaining stock, after discharging all these obligations was divided proportionately among all holders, old and new ...

The net result was ... to leave the cost of servicing the National Debt much as it would have been if the South Sea scheme had never been thought of.

Even though the scheme did not have a substantial fallout for the direct participants, there was one event produced by the South Sea Bubble that would have lasting consequences.

The South Sea scheme involving the government debt conversion did not take place in a vacuum. 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 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 stock market for the rest of the century.

Analysis of Trade and Pricing for Joint Stock Companies

Unlike fixed income securities, the cash flows associated with stocks are much less predictable making valuation a more uncertain exercise. Stock valuation is complicated by numerous factors involved in the estimation of the cash flows that, in turn, involve estimating variables such as market conditions and other fundamentals of the business. This valuation process is impacted by an agency problem brought on, at least partly, by the asymmetric information situation inherent in the separation of ownership and control embodied in the corporation. Given this, joint stock valuation in the 18th century differed somewhat from modern common stock valuation. In the 18th century, accurate accounting information was often scarce, exacerbating the asymmetric information situation. Offsetting this difficulty was the limited number and type of joint stock securities traded.

Following the Bubble Act of 1720, stock trading in England focused on the three great joint stock companies, the Bank, the East India Company and the South Sea Company. These companies, and other important joint stock companies such as the VOC, typically aimed at regular dividend payout that, by modern standards, was quite high. Efforts were made at sustaining the dividend at levels that made their joint stocks a comparable alternative to debt securities. The composition of the asset side of the balance sheet was primarily government debt, rendering the cash flows to be fairly predictable, accounting for the possible suspension of payments due to military misadventures. The inherent similarity and substitutability between joint stock and government debt was captured in the use of par values in the trading of joint stock.²⁵

In any event, it is difficult to compare 18th century joint stock valuations with similar procedures used in modern stock markets. There is considerable disparity in the various modern techniques proposed for stock valuation. In particular, modern financial economics lacks a *theoretical* model of stock pricing that has the practical accuracy of fixed income pricing models, offering in its place a theory of portfolio management based on quadratic optimization in which the determination of individual stock prices is not directly addressed. The key assumption underlying this approach is that, because markets are efficient, stock prices will be accurate representations of available information. Hence, the best approach to investment decisions is to focus on optimal diversification strategies. The acceptance of this approach is reflected in the awarding of the Nobel prize in Economics to two of the originators of this approach, Harry Markowitz and William Sharpe.

All this is not to say that analysis of individual stock values is to be ignored. The most popular practical approach to the modern valuation of individual stocks relies on analysis of fundamental information, especially the data gleaned from the firm's accounting statements. The modern father of this approach is often identified as Benjamin Graham, with investor Warren Buffett of Berkshire Hathaway as a leading proponent. In addition to having a significant accounting component, the fundamental approach is not readily adapted to the systematic data analysis required for economic science to be useful. The practical importance of the stock valuation problem energizes the historical connection between financial analysis and accounting, undermining the attempts of Economics to claim academic supremacy of financial topics. Yet, stock valuation is inherently individual and much of the requisite information needed lies within the scope of accounting.

Unlike the well-developed mathematical theories for pricing life contingent claims, the 17th and 18th century analyses of trade and pricing for joint stocks were quite sparse. There were a number of contributions that were little more than descriptive accounts, such as John Houghton's 1694 contributions to his weekly journal *A Collection for the Improvement of Husbandry and Trade* (1692-1703). There were the statistical contributions, most notably John Castaing's *The Course of the Exchange*, a regular publication that started sometime before 1699

and recorded market information such as foreign exchange rates and the prices for selected securities. Castaing's publication is recognized as the starting point for what is the *Official List* of the modern London stock exchange. Houghton's *A Collection...* also contained stock price and exchange rate quotations, as did a number of specialist newspapers.²⁶

Another class of contributions to the analysis of joint stocks was concerned with moralizing about the nefarious activities of stock market players. This group includes Daniel Defoe's *The Villany of Stock-Jobbers detected* (1701) and *The Anatomy of Exchange Alley* (1719), as well as various Dutch publications of the 17th century examining *windhandel* trading, a number of which are reproduced in van Dillen (1930). Typically, periods of market turbulence were followed by 'the usual crop of pamphlets' (Morgan and Thomas 1962, p.22). However, the pamphlet literature is invariably concerned with causes, consequences and remedies of turbulence, and almost certainly has little to offer in the way of reasoned analysis of stock pricing though, in fairness, a careful study of the primary literature remains to be written.

This relative lack of analysis of stock price determination is puzzling because joint stock companies played an important role in both commercial activities and state finance.²⁷ Detailed analysis of the broader implications of joint stock organization failed to produce connections to pricing. For example, Adam Smith recognized that joint stock companies possess two essential features not embodied in the typical partnership: transferability and limited liability, for example, Smith (1776, p.699). These features permitted joint stock companies to raise initial capital substantially greater than could be raised with a partnership. Yet, despite a detailed historical examination of the performance of various English joint stock companies, all that Smith (1776) was able to conclude about stock pricing was: 'The value of a share in a joint stock is always the price it will bring in the market; and this may be either greater or less, in any proportion, than the sum which its owner stands credited for in the stock of the company'.

Participants in the Amsterdam Market

Kellenbenz (1957, p.139) gives the following summary of de la Vega on the individuals populating the Amsterdam stock market:

The elements in the market at Amsterdam were as follows: wealthy investors; occasional speculators, mostly merchants of the city; persistent speculators, either in real stock or a lower-denomination substitute; the Bank of Amsterdam; persons who loaned money with stock as security (who may also individually have been 'wealthy investors'); brokers of various types; 'rescounters' for the settlement of 'differences' relative to transactions in real shares, and at least one comparable individual who had, until shortly before 1688, adjusted 'differences' relative to transactions in the substitute (ducaton) stock.

Against this backdrop stand two interesting anomalies: Joseph de la Vega's *Confusion de Confusiones* (1688) and Thomas Mortimer's *Everyman his own Broker* (1761).²⁸ *Confusion de Confusiones* is written as four dialogues between a shareholder, a philosopher and a merchant. Each dialogue describes different features of the activities of the Amsterdam bourse in the later 17th century. In *Confusion*, de la Vega (1688, p.156) demonstrates a modern understanding of the use of fundamental information to value stocks:

The price of shares (in the Dutch East India Company) is now 580 ... it seems to me that they will climb to a much higher price because of extensive cargoes that are expected from India, because of the good business of the Company, of the reputation of its goods, of the prospective dividends and of the peace in Europe.

Recognizing the uncertainties in seaborne trade and the difficulty in obtaining information about incoming cargoes, de la Vega goes on to describe how some traders could profitably trade on information about incoming cargoes from the East. He correctly recognizes that such information alone is insufficient but would depend also on European conditions and the safe arrival and unloading of cargo.

Modern financial economics typically models the valuation problem as determining the discounted value of expected future cash flows. This reliance of the valuation problem on expectations is explicitly recognized by de la Vega (1688, p.165), who gives this story an additional twist:

The expectation of an event creates a much deeper impression upon the exchange than the event itself. When large dividends or rich imports are expected, shares will rise in price; but if the expectation becomes a reality, the shares often fall; for the joy over the favourable development and the jubilation over a lucky chance have abated in the meantime.

Recognizing that there are 'natural reasons for this phenomenon', de la Vega attributes this share pricing behaviour to a struggle between bulls and bears over market sentiment: 'the leaves tremble in the softest breeze, and the smallest shadow causes fear'.²⁹

In the second dialogue, de la Vega (pp.158-9) provides four useful rules to guide investment activities in shares: 'The first principle: ... Never give anyone the advise to buy or sell shares ... The second principle: Take every gain without showing remorse about missed profits ... The third principle: Profits on the exchange are the treasure of goblins ... The fourth principle: Whoever wishes to win in this game must have patience and money'. Variations of the second and third of these principles could easily pass as commonsense advice given to modern traders. The fourth principle is evidence that de la Vega, an astute 17th century observer of stock trading, was an adherent to what is known in modern markets as 'long-run investment strategies'. Combining this fourth principle with de la Vega's recognition of the importance of fundamental information anticipates the approach to security investment pioneered by Ben Graham more the 250 years later.

Even though de la Vega identifies how the price of joint stocks can be determined by fundamental information, much of his dialogue is taken up in a description of how prices will deviate from the fundamental values based on the expectations of bulls and bears. In particular, the last of the four dialogues is concerned with detailing methods of market manipulation: ‘the acme of Exchange operations, the craftiest and most complicated machinations which exist in the maze of the Exchange and which require the greatest possible cunning’ (*Confusion*, p.191).³⁰ The manipulation of securities markets in the 17th and 18th centuries was facilitated by the social practice of using securities for purposes of gambling. This practice was in keeping with the widespread public acceptance of gambling reflected, for example, in the use of lotteries to increase the attractiveness of government debt operations (Daston 1988, Sec. 3.4.1; Cohen 1953).

However, gamblers were not the only participants in the stock markets (de la Vega 1688, p.150):

it should be observed that three classes of men are to be distinguished on the stock exchange. The princes of business belong to the first class, the merchants to the second, and ... gamblers and speculators to the third class.

Of the investment motives of the ‘princes of business’, de la Vega observes (p.151): ‘their interests lies not in the sale of the stock but in the revenues secured through the dividends, the higher value of shares forms only an imaginary enjoyment for them’. Even though share trading in Amsterdam, circa 1688, was largely conducted in one stock, the VOC, this recognition of dividends as a key element in stock investment is another insight. The use of attractive dividend payout as a criteria for stock investment is one of the modern strategies for successful investment suggested by Graham, Dodd and Cottle (1962).

That *Confusion de Confusiones* is an isolated gem in the history of financial economics is an understatement. The book itself is an oddity, initially written in Spanish, published in Amsterdam by a Jewish writer of Portuguese descent. Joseph de la Vega was the second son in a family of four sons and six daughters. His parents were Isaac Penso and Esther de la Vega. Though his formal name was Joseph Penso de la Vega Passarinho, according to custom he typically used the shortened name derived from his mother. Isaac Penso was born in Spain though the family's ancestral roots appear to have been in Portugal. As was the case with many Jews in 17th century Spain, the Inquisition produced a forced emigration and his parents moved first to Antwerp, then Hamburg and finally Amsterdam. Joseph was likely born sometime around 1650, soon after the family had relocated to northern Europe.

Isaac Penso achieved success as a banker in Amsterdam and became a prominent member of the local community. Though Jews in Amsterdam were relatively unrestricted in comparison to almost all other cities, there were still considerable barriers to Jewish participation in various trades. However, Jews were permitted to engage in activities such as wholesale trading in goods, shipping and banking functions such

as money lending and money changing. Some Jews were also permitted to engage in brokering. Not surprisingly, Jews were central players in the business of trading stocks. Anecdotal evidence indicates that as much as 85% of Amsterdam stock trading circa 1700 was in the hands of Jews, many of which were of Iberian descent.³¹ Based on this, de la Vega was in an excellent situation to gather the type of information needed to write a detailed account of stock trading on the 17th century Amsterdam bourse.

There is considerable evidence that valuation methods for joint stocks making using of fundamental information were in general use by brokers to support their activities relative to de la Vega's first and second types of participants. For example, Wilson (1941, p.124) quotes a *19 April, 1720* correspondence between the London attorney and stock broker, Peter Crellius, and David Leeuw, a Dutch investor: 'Shares seem to be notably higher, but it looks to me as if the best-informed people are against the rise and great projects of the South Seas Company, believing the Bank and East India Company to be, in general, more secure and reliable.' However, as in other areas of early financial economics, the methods used by 'informed people' to arrive at such conclusions are not recorded.

The middle of the 18th century produced one contribution that was roughly comparable to de la Vega's *Confusion*: Thomas Mortimer's *Everyman his Own Broker* (1761). Another related effort, Isaac de Pinto's *Traite de la Circulation et Credit* (1771), contains some descriptive material on stock trading but is largely concerned with issues of debt management. Cope (1978) describes *Everyman his Own Broker* as the first detailed account of the English stock market. The book proved to be extremely successful, reaching four editions within the first year of publication and achieving a 14th edition in 1807. As for Mortimer, himself (Cope 1978, p.4):

Mortimer is an interesting character. Born in 1730 he published his first work at the age of 20, and became a prolific writer on political, economic and business subjects. In 1756, according to his own account, he speculated in the newly issued scrip of the loan of that year, dealing on his own at Jonathan's instead of employing a broker, in order to save the cost of the brokerage. The result was disastrous, and he lost what he described as a 'genteel fortune' ... Somewhat embittered by his experience, his works show him hostile to jobbers and other speculators. It has been said that he was a broker, but of this there is no record.

As for every man actually being his own broker, Mortimer councils against going to Jonathan's, where trading was broker-with-broker, and there was resentment to those trading for their own account in order to avoid the brokerage. Rather, it was better to go to the Bank of England where deals for money were often conducted.

Everyman is much more than a how-to book about stock trading, though numerous how-to insights are provided. For example, Mortimer (1761) observes: 'Always suspect the man who wants to engage you to be continually changing the situation of your money, to be influenced by some private motive, unless you are a JOBBER yourself'. As for the

specific topic of joint stock valuation, Mortimer (1761) states:

Every original share of a trading company's STOCK must greatly increase in value, in proportion to the advantages arising from the commerce they are engaged in; and such is the nature of trade in general, that it either considerably increases, or falls into decline; and nothing can be a greater proof of a company's trade being in a flourishing condition, than when their credit is remarkably good, and the original shares in their stock will sell at a considerable premium. This, for instance, has always been, and still is the case of EAST INDIA STOCK in particular, not to instance any other. The present price of a share of £100 in the company's stock is £134. The reason of this advance on what cost the original proprietor only £100 is, that the company, by the profits they have made in trade, are enabled to pay £6 *per annum* interest or dividend for £100 share. But then it is uncertain how long they may continue to make so large an annual dividend, especially in time of war; for several circumstances may occur (though it is not likely they should) that may molest their trade in their settlements, and diminish their profits ...

It follows that Mortimer subscribed to the view that share price was driven by the sustainable level of dividend payout that, in turn, was affected by the various factors driving firm profitability. The dividend level is implicitly being compared to the prevailing level of interest rates. Dividends, firm profitability and interest rates drive stock valuation. This view is an early precursor of what, in modern times, is referred to as fundamental analysis.³²

Adam Smith on Stockjobbing

Being the author of the *Wealth of Nations*, Adam Smith is properly considered as the father of classical political economy. Yet, there is relatively little in the *Wealth of Nations* that is of direct relevance to financial economics. To those familiar with the *Lectures*, this is somewhat surprising. Cannan (1937, p.xxviii) considered the 'Police, Revenue and Arms' portion of the *Lectures* to be an 'early draft' of the *Wealth of Nations*. Two of three subjects treated in the police, revenue and arms lectures that were 'altogether omitted' in the *Wealth of Nations* are of interest to financial economics. These two subjects are stockjobbing and the Mississippi scheme. The discussion of both these topics in the *Lectures* is relatively substantial. Section II.13, 'Of the Scheme of Mr. Law' gets an eight page treatment while Sections III.3 and III.4, 'Of Stocks' and 'Of Stockjobbing' get six total pages. By comparison, Section II.8, 'Of Money as the Measure of Value and Medium of Exchange', warrants eight pages.

This significant change of course by Smith, decidedly away from waters most familiar to financial economics, may have had a profound impact on the later development of economic science, in general, and on financial economics, in particular. If the *Wealth of Nations* had provided a substantial discussion of the pricing of joint stocks or, say, outlined the implications of the invisible hand for major financial events such as the South Sea Bubble, then later authors such as Thornton, Ricardo or J.S. Mill may have dedicated considerably more time and effort to developing

analyses of financial subjects. In any event, this did not happen, leaving the unanswered question: why did Smith choose to omit from the *Wealth of Nations* the bulk of the subject matter of the sections of the *Lectures* most relevant to financial economics?

The only source to consider a potential answer to this question is Cannan (1937, p.xxxviii) where it is stated: 'The description of stock-jobbing was probably left out because better suited to the youthful hearers of the lectures than to the maturer readers of the book. The Mississippi scheme was omitted, Smith himself says, because it had been adequately discussed by Du Verney.' This explanation is unconvincing. More likely is that Smith recognized that his insights on stockjobbing could offer little over what was well known among the men of substance who populated the securities markets of the time. Compared to what Smith had to offer on other subjects, such as international trade or value and distribution, his views on financial economics were cursory, at best, and misguided, at worst. As recognized by Cannan, Smith (1776, p.302) acknowledges his potential contribution is limited by referring discussion and analysis of Law's scheme, 'the most extravagant project of both banking and stock-jobbing that, perhaps, the world ever saw', to Mr. Du Verney.

It is appealing at this point to pose the question: what did Smith have to say in the *Lectures* of relevance to financial economics on the topics of the Mississippi scheme and stockjobbing? Unfortunately, it is difficult to obtain much insight from the *Lectures*. This is partly due to the inherent feature of the *Lectures*. Being recorded by a diligent student and further transcribed by 'a person who often did not understand what he was writing' (Cannan 1937, p.xviii), the *Lectures* may not be a particularly reliable source Smith's views on a range of subjects. This said, consider Smith's (1763, p.251) description of stockjobbing:

The practice of stock-jobbing, or the buying of stocks by time has, too, on all occasions, a very considerable influence on the rise and fall of stocks. The method in which this practice is carried on is as follows. A man who has not perhaps £1000 in the world, subscribes for £100,000, which is to be delivered at several fixed times, and in certain portions. He therefore hopes to get these several portions sold out to great advantage by the rising of the stocks before they fall due, but as anything he is worth would go if the stocks should fall, he uses all means to make them rise, he spreads reports at Change Alley that victories are gained, that peace is to be concluded, &c. On the other hand, they who want to purchase a stock, and want that it should fall, propagate such reports as will sink the stocks as low as possible, such as that war will continue, that new subscriptions are thought on, &c. It is owing to this that, in time of war, our newspapers are so filled with invasions and schemes that never were thought of.

The stockjobber is being depicted as a highly leveraged gambler, manipulating the market with rumours aimed at facilitating a quick profit.

As stated Smith's views on stockjobbing are pedestrian, at best. The contrast with Mortimer is striking. A similar comment applies to Smith's understanding of stockjobbing trading strategies (1763, p.250):

As there are a great many stock-holders who are merchants, and who keep their stocks in the hands of the government that they may be ready to sell out on any sudden demand, and take the advantage of a good bargain when it casts up, and as these chances occur most frequently in time of war, they have often occasion to sell out, and thus more stock runs to the market, and the new subscriptions sink below par. But further, in time of war, as was observed before, stock cannot be so advantageously employed, and everybody is tempted to subscribe. Even those whose circumstances are but very inconsiderable, subscribe for great sums in hopes that stocks will rise, and that they may sell out before the time of delivery, to great advantage; but when things do not answer their expectations, and they are forced to sell out one way or another to support their credit, they are often obliged to sell below par. In this manner the new subscriptions may fall. Stock-jobbers that are well acquainted with their business, observe particularly when a number of indigent persons are in the subscriptions, and as they are soon obliged to sell out, and consequently stocks fall, it is their proper time to purchase them.

It is difficult to see what is being proposed here. General situations in which stocks, presumably government funds, could fall are identified. Stockjobber profits arise from an ability to recognize 'indigent persons', observe when these individuals are selling stock, and profit by buying these securities at a discount. This is not a credible description of an actively functioning securities market.

Views on Corporate Finance

Joint stock organization is one possible method of organizing business activity, regulated companies and partnerships being two other alternative methods. Not surprisingly, the emergence of the joint stock company was accompanied by scattered analyses arguing the wisdom of using this approach, if only because the granting of a company charter often conferred some special monopoly right. For example, Hecksher (1955, v.1, p.396) refers to an early English memorandum dated about 1582 that 'described very aptly the pros and cons of the regulated and joint stock company'. Similar Dutch documents appear during the debate over the creation of the VOC.³³ Debate over the relative usefulness of the joint stock form of organization continued up to the time of Adam Smith, where this topic occupied a section of the *Wealth of Nations*.

One of the more heated debates about the relative merits of joint stock and regulated companies happened in 1681, with Sir John Buckworth and Dudley North submitting for the regulated company and Sir Josiah Child (1630-1699) replying for the joint stock company. The underlying dispute involved the Turkey Company, a regulated company with a monopoly on trade with the Levant, and the East India Company, a joint stock company with monopoly privileges in 'East India'. The period leading up to 1681 was particularly harsh on the Turkey Company which had been watching its own monopoly decay as a result of the other's successes in adjacent and sometimes overlapping areas. The complaints of the Turkey Company 'became especially vexed when piracy in the Mediterranean and tyranny in Turkey reached a peak, so that trade

became more risky and costly than usual' (Letwin 1964, p.32).

The end result was that the conflicting claims of the monopolies led to a Privy Council review of the problem, hence the submission from the regulated company and the joint stock company arguing the merits of their particular form of business organization (Letwin 1964, p.33):

The Turkey Company submitted a paper, prepared by Sir John Buckworth and Dudley North, pleading that they be preferred to their rival (the East India Company). They allege in the first place that their business was more beneficial to the nation, because they exported about £500,000 worth of woollen goods and other English products and imported a great deal of raw silk and cotton that was subsequently worked up in England, all of which, exports and imports alike, gave employment to English labourers. The East India Company, on the other hand, injured the nation by exporting vast quantities of gold and silver, depriving English workmen of labour by importing finished calicoes and silk cloth, and sold at low prices the 'deceitful sort' of raw silk that they brought from India, to the 'infallible destruction of the Turkey trade'. Secondly, they said, the East India Company was much too exclusive. Their own, a regulated company, was open to any qualified merchant on payment of a small fee, whereas the East India Company, being organized on joint stock, could be entered only by buying some of a very small number of shares, whose ownership was, in fact, 'confined to the narrow compass of some few persons'. And the third great complaint was that the joint stock was too small to carry on the trade.

Among other requests, the Turkey Company wanted the King to 'reconfirm exclusive right to trade in the Red Sea and all dominions of the Grand Signor and to have free access to those areas by the most convenient passages' (p.34).

That Child would be involved in detailing the position of the East India Company was understandable. From 1674 on, Child was probably the East India Company's largest shareholder and, in all years but one, was elected as director. In 1681, Child was elected Governor of the Company 'and from then on his policy and the Company's policy were one, so that he became a symbol as well as manager of the Company's rapidly increasing power' (Letwin 1964, p.28). The East India Company's position was (Letwin 1964, pp.34-5):

As to the first allegation ... the Privy Council could undoubtedly discover the truth by checking the customs house records, they themselves were certain they exported more and better cloth than the Turkey Company, amounting recently to about 19,000 pieces a year, and that the Turkey Company was no less culpable than they themselves in exporting gold and silver. As to the organization of their trade, the experience with all European countries showed that trade with the East Indies was best carried on by joint stock companies. To this, Child's favourite argument on the subject, they added that their Company was by no means so exclusive as the others alleged. If anything, it was more open than the Turkey Company, for while the latter admitted only qualified merchants, such as had served apprenticeships, theirs was open to any Englishmen at all that chose to buy its stock. Furthermore, they denied that its stock was so closely held as alleged; there were, they said, 600 shareholders, and contrary to the assertion that a single shareholder had over 80 votes — that is he owned over £40,000 of shares — no one owned as many as 60, although it would not matter if he did, because the Company's work benefited not only its owners and its employees, but many others.

And so it goes, up to the time of Adam Smith. Even in Smith's time there was still disagreement over the most appropriate type of business organization for a particular activity, especially those activities operating under royal grant of monopoly privileges.

In addition to providing a reasonably coherent statement of the late 17th century arguments, the 1681 debate is also interesting because Sir Josiah Child was a contributor. Child is another of the truly remarkable individuals populating the early history of financial economics. Child has some modern status as a noteworthy, pre-Smithian economist.³⁴ 'Child came to be the most widely read of seventeenth-century English economic writers' (Letwin, p.45), his writings on the legal maximum interest rates being of particular importance in the early history of financial economics. Yet, in his day, Child was recognized as one of the great English financiers; according to Defoe: 'that Original of Stock-Jobbing, Sir Josiah Child'. His status as Governor of the East India Company was matched by his stock trading acumen.

In 'The Villany of Stock Jobbers Detected', one of Child's contemporaries, Daniel Defoe (1719), illustrates the deep seeded cynicism that could be attached to the grand stockjobber of his time.³⁵

It would be endless to give an Account of the Subtilties of that Capital Ch...t, when he had a Design to Bite the whole Exchange. As he was the leading Hand to the Market, so he kept it in his Power to set the Price to all the Dealers. Every man's Eye when he came to the Market was upon the Brokers who acted for Sir Josiah: Does Sir Josiah Sell or Buy? If Sir Josiah had a Mind to buy, the first thing he did was to Commission his Brokers to look sour, shake their Heads, suggest bad News from India and at the Bottom, it follow'd, I have Commission from Sir Josiah to sell out whatever I can, perhaps they would actually sell Ten, perhaps, Twenty Thousand Pound; immediately the Exchange (for they were not then come to the Alley) was full of Sellers; no Body could buy a Shilling, 'till perhaps the Stock would fall Six, Seven, Eight, Ten per Cent, sometimes more. Then the Cunning Jobber had another Sett of Men employed on purpose to buy but with Privacy and Caution, all the Stock they could lay their Hands on 'till by selling Ten Thousand Pound at Four or Five per Cent Cost he would buy a Hundred Thousand Pound Stock at Ten or Twelve per Cent under the Price.

Child was part of the group of 17th century English writers who promoted Dutch society as a model for England. Evidently, Child also came to master the Dutch financial market techniques, described so accurately by de la Vega.

The analysis comparing joint stock companies provided by Adam Smith in *Wealth of Nations* (Bk.V, Ch.1, Pt.III, Art. 1) is a benchmark, a reasonable reflection of the progress of the debate on joint stocks and other forms of business organization.³⁶ Smith's views were, by no means, received opinion. Continuing the tradition of Sir Josiah Child, various authors, such as Mortimer, were decidedly in favour of joint stock ventures (Mortimer 1774, p.143):

Our East India, and Bank companies, have brought the commerce and mercantile

credit of Great Britain to such a degree of perfection, as no age or country can equal; and to suppose that this national success could have been accomplished by private merchants, or even by companies not trading on a joint stock, is an absurdity that does not deserve serious consideration.

On the other hand, periodic debates in the House of Commons, such as those in 1767 and 1768, would elicit eloquent speeches against the chartered companies. These speeches invariably retraced the arguments made in the 1681 debates.

As far as joint stocks are concerned, in the *Wealth of Nations* Smith was more concerned with how the structure of company ownership impacted company performance than with how the traded market value of the company was determined. On the issue of pricing joint stocks, Smith is somewhat vacuous, only identifying the difficulties inherent in the valuation of shares in joint stock companies: 'The value of a share in a joint stock is always the price which it will bring in the market; and this may be either greater or less, in any proportion, than the sum which its owner stands credited for in the stock of the company' (1776, p.232). Smith takes much more care with the issue of business organization. Smith goes on to provide a significant analysis of joint stock companies as sources of corporate finance.

Smith (1776) begins his discussion by contrasting the joint stock company with a partnership, recognizing the features of transferability and limited liability. Transferability brings with it the risk that, at sale, the value received will not equal 'his share of the common stock' or retained earnings plus paid-in capital. This is in contrast to partnerships where shares are not usually transferable and 'upon proper warning' a partner may withdraw and receive his appropriate share. In addition to the market price risk associated with transferability, Smith also identifies the ability to transfer joint stock shares to another person 'without (the) consent' of the other members of the company.

Having recognized the essential features of transferability and limited liability, Smith proceeds to construct an indictment of the usefulness of the joint stock form of organization for all but a restricted list of economic activities. The crux of his argument depends on the modern notion of *agency costs* (p.233):³⁷

The directors of (joint stock) companies ... being the managers rather of other people's money than of their own, it cannot well be expected, that they should watch over it with the same anxious vigilance which the partners in a private copartnery frequently watch over their own ... Negligence and profusion, therefore, must always prevail, more or less, in the management of the affairs of such a company.

In making this argument, Smith also recognizes that the 'general court of proprietors' or board of directors 'seldom pretend to understand any thing of the business of the company; and when the spirit of faction happens not to prevail upon them, give themselves no trouble about it, but receive contentedly such half yearly or yearly dividend, as the directors think proper to make to them' (p.232). Recognizing that joint

stock issues are capable of raising significantly larger amounts of capital than partnerships, Smith concludes that there are only four types of business for which joint stock is an acceptable form of organization: banking, insurance, canal building and water works.

Writing before the advent of the Industrial Revolution, Smith's views on joint stock companies were conditioned by the performance of those companies up to his time. This included the dealings of the South Sea Company that contributed to the South Sea Bubble (pp.235-6):

The South Sea Company never had any forts or garrisons to maintain... But they had an immense capital divided among an immense number of proprietors. It was naturally to be expected, therefore, that folly, negligence, and profusion should prevail in the whole management of their affairs. The knavery and extravagance of their stock-jobbing projects are sufficiently known, and the explication of them would be foreign to the present subject. Their mercantile projects were not much better conducted.

It is unfortunate that Smith did not attempt a detailed discussion of his views on the 'stock-jobbing projects' of the South Sea Company. Despite numerous, seemingly exhaustive studies, the causes of the South Sea Bubble are still a subject of debate, for example, Neal (1990).

In the end, Smith was decidedly negative on the capacity of the joint stock form of ownership to operate successfully in most branches of trade. After a quite detailed examination of the operating performance for most of the major English joint stock companies that had operated up to his time, Smith concludes (p. 713):

The only trades which it seems possible for a joint stock company to carry on successfully, without an exclusive privilege, are those, of which all the operations are capable of being reduced to what is called routine, or to such uniformity of method as admits of little or no variation. Of this kind is, first, the banking trade; secondly, the trade of insurance from fire, and from sea risk and capture in time of war; thirdly, the trade of making and maintaining a navigable cut or canal; and, fourthly, the similar trade of bringing water for the supply of a great city.

In light of the central role that the publicly traded, limited liability corporation has in almost all fields of the modern economy, on the issue of joint stock companies Smith would appear to be more of an apologist for then current English legal practice, rather than a visionary economic theorist.

Appendix: Selected Stock Price and Dividend Series

A number of recent contributions have succeeded in producing price series for the major English joint stock companies, especially, Neal (1990b) and Mirowski (1981). The main, primary source for this data is John Castaing's *Course of the Exchange*, though in constructing a monthly series Neal (1990b) also had to examine other sources, specifically London and Amsterdam newspapers. While price series for the important 18th century British joint stocks are now not too difficult

to obtain, the same cannot be said for dividends. At present, this has to be constructed from various sources. In particular, the dividend information for the Bank of England was from Francis (1850), the dividend data for the British East India Company was constructed from income statement and balance sheet information contained in Chaudhuri (1978), and the dividend data for the VOC from de Korte (1984). The series provided are only for selected years (Tables 8.1-8.4). Though a larger amount of data could be obtained, the objective is only to provide some background information on stock price levels and dividend payout.

Table 8.1 Dutch East India Company stock prices and dividends

Year	Dividend % of par value	Stock price		Dividend yield %	
		Low	High	High	of stock price
1738	15.00	548	582	2.737	2.577
1739	15.00	499	569	3.006	2.636
1740	12.50	496	585	2.520	2.137
1741	12.50	480	494.5	2.604	2.528
1742	12.50	459	478	2.723	2.615
1743	12.50	446	458	2.803	2.729
1744	15.00	436	446	3.440	3.363
1745	15.00	427	436	3.513	3.440
1746	20.00	419	427	4.773	4.684
1747	20.00	410	419	4.878	4.773
1748	20.00	397	410	5.038	4.878
1749	25.00	381	394	6.562	6.345
1750	25.00	350	378	7.143	6.614
1751	25.00	557	599.5	4.488	4.170
1752	25.00	546.5	580	4.575	4.310
1753	20.00	534.5	559.5	3.742	3.575
1754	20.00	510	555.5	3.922	3.600
1755	20.00	407.5	515.5	4.908	3.880
1756	20.00	405	445.5	4.938	4.489
1757	20.00	410	453	4.878	4.415
1758	15.00	400	457	3.750	3.282
1759	15.00	388	413	3.866	3.632
1760	15.00	380.5	411	3.942	3.650
1761	15.00	379	405	3.958	3.704
1762	15.00	365	379	4.110	3.958
1763	15.00	327	364	4.587	4.121
1764	15.00	375	404.5	4.000	3.708
1765	17.50	406	583.5	2.999	4.310
1766	20.00	546	588.5	3.663	3.398
1767	20.00	517	578	3.868	3.460
1768	20.00	455	518	4.396	3.861
1769	20.00	412	472	4.854	4.237
1770	15.00	325	409	4.615	3.667

1771	12.50	317	383	3.943	3.264
1772	12.50	328	369	3.811	3.388
1773	12.50	321	359	3.894	3.482
1774	12.50	336	360.5	3.720	3.467
1775	12.50	340	355.5	3.676	3.516
1776	12.50	342.5	359	3.650	3.482

Source: This data was obtained from a number of sources including de Korte (1984) and the Larry Neal files housed at the website www.icpsr.umich.edu.

Table 8.2 Bank of England, stock prices and dividends

Year	Dividend	Price Highest	Price Lowest	Dividend Yield: High	Dividend Yield: Low
1698	7.00	104.25	84.75	6.71	8.26
1699	9.50	124.50	101.00	7.63	9.41
1700	10.75	149.75	122.00	7.18	8.81
1701	9.00	122.75	96.00	7.33	9.38
1702	12.00	129.25	112.25	9.28	10.69
1703	16.50	139.75	123.00	11.81	13.41
1704	15.75	133.50	115.00	11.80	13.70
1705	15.50	120.50	87.00	12.86	17.82
1706	18.25	91.25	76.00	20.00	24.01
1707	7.75	119.00	81.75	6.51	9.48
1708	12.50	128.25	113.25	9.75	11.04
1709	8.50	137.50	112.00	6.18	7.59
1710	7.50	129.50	118.25	5.79	6.34
1711	7.00	114.75	100.00	6.10	7.00
1712	8.00	117.50	107.25	6.81	7.46
1713	8.00	127.50	117.50	6.27	6.81
1714	8.00	134.25	116.75	5.96	6.85
1715	7.75	134.63	115.00	5.76	6.74
1716	8.00	145.50	123.75	5.50	6.46
1717	8.00	157.50	131.00	5.08	6.11
1718	8.00	161.50	140.50	4.95	5.69
1719	7.50	157.75	140.00	4.75	5.36
1720	7.50	270.00	136.00	2.78	5.51
1721	6.00	149.00	119.50	4.03	5.02
1722	6.00	124.75	107.00	4.81	5.61
1723	6.00	128.00	115.25	4.69	5.21
1724	6.00	138.75	124.50	4.32	4.82
1725	6.00	138.50	128.25	4.33	4.68
1726	6.00	129.50	116.00	4.63	5.17
1727	6.00	133.75	117.25	4.49	5.12
1728	5.50	140.00	130.50	3.93	4.21
1729	5.50	140.00	132.00	3.93	4.17

1730	5.75	145.75	138.75	3.95	4.14
1731	5.75	149.75	143.00	3.84	4.02
1732	5.75	152.00	109.00	3.78	5.28
1733	5.50	151.00	130.00	3.64	4.23
1734	5.50	140.00	132.00	3.93	4.17
1735	5.50	146.00	138.00	3.77	3.99
1736	5.50	151.00	148.00	3.64	3.72
1737	5.50	151.00	142.00	3.64	3.87
1738	5.50	145.00	140.00	3.79	3.93
1739	5.50	144.00	115.00	3.82	4.78
1740	5.50	144.00	138.00	3.82	3.99
1741	5.50	143.00	135.00	3.85	4.07
1742	5.50	143.00	136.00	3.85	4.04
1743	5.50	148.00	145.00	3.72	3.79
1744	5.50	148.00	116.00	3.72	4.74
1745	5.50	147.00	133.00	3.74	4.14

Source: Adapted from Francis (1850).

Table 8.3 British East India Company, stock prices and dividends

Year	Dividend %	Dividend' 000s	Share Capital '000s	Stock Price High	Stock Price Low	Div. Yield High	Div. Yield Low
1710	8.41	266	3163	140.00	112.50	6.01	7.48
1711	12.68	401	3163	132.25	107.50	9.59	11.80
1712	5.63	178	3163	127.00	108.25	4.43	5.20
1713	9.96	315	3163	128.50	120.00	7.75	8.30
1714	10.09	319	3163	141.00	116.50	7.16	8.66
1715	7.71	244	3163	143.50	127.00	5.37	6.07
1716	9.99	316	3163	184.00	131.25	5.43	7.61
1717	9.86	315	3194	209.50	159.00	4.71	6.20
1718	9.89	316	3194	219.00	183.50	4.52	5.39
1719	10.08	322	3194	219.50	188.00	4.59	5.36
1720	9.96	318	3194	420.00	145.00	2.37	6.87
1721	9.92	317	3194	172.00	133.00	5.77	7.46
1722	9.80	313	3194	143.00	124.50	6.85	7.87
1723	8.99	287	3194	141.50	124.50	6.35	7.22
1724	8.08	258	3194	153.75	138.00	5.26	5.86
1725	7.98	255	3194	179.50	146.25	4.45	5.46
1726	8.27	264	3194	158.50	129.50	5.22	6.39
1727	7.92	253	3194	169.25	129.50	4.68	6.12
1728	7.92	253	3194	175.50	160.00	4.51	4.95
1729	8.02	256	3194	188.50	162.50	4.25	4.94
1730	8.02	256	3194	192.50	176.25	4.17	4.55
1731	8.08	258	3194	200.75	173.50	4.02	4.66

Source: Constructed from information in Chaudhuri (1978).

Table 8.4 South Sea Company, annual stock prices

Year	Stock Price: High	Stock Price: Low
1711	81.75	65.25
1712	86.50	71.00
1713	98.25	82.38
1714	99.00	82.00
1715	102.00	87.75
1716	109.25	91.75
1717	120.38	97.00
1718	119.75	104.75
1719	128.00	108.00
1720	950.00	128.38
1721	200.00	90.00
1722	100.50	81.50
1723	116.75	95.00
1724	122.75	113.00
1725	123.50	117.38
1726	117.75	95.25
1727	114.50	96.38
1728	108.38	96.63
1729	105.50	97.13
1730	105.88	101.00
1731	104.25	101.00

Source: Constructed from Neal (1990).

Notes

1. Homer and Sylla (1996, pp.46-7) make reference to joint stock companies appearing as early as Roman times, being used in the financing of public projects. More precisely, companies of 'knights' were used for collecting taxes, especially in Asian provinces, and in public works construction. However, while these early associations may have had some basic characteristics of the later joint stock companies, such as a form of limited liability, other features such as negotiability and transferability of shares were not present.

2. A corporation is defined to be a group of people authorized to act as an individual. This has applications to business and municipal organizations. For example, the civic authorities of a borough, town or city can be considered a corporation leading to the notion of a municipal area being incorporated.

3. Company charters could be granted either by the crown, by an act of parliament, or both. In cases where the charter was only granted by the crown and involved a monopoly on trade, this was sometimes used as grounds for interlopers to infringe on the monopoly privilege. The rationale was that only an act of parliament could confer certain privileges. In addition, interloping could legally occur for a range of other reasons such as explicit provisions in charters and special permits issued by the crown (Hecksher 1955, v.1, p.407).

4. In addition to share trading in Amsterdam, van Dillen (1935, p.125) 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).

5. 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).

6. While trading on a bridge may seem somewhat odd to modern observers, it was common for bridges at this time to also have shops and other buildings along the span, providing the requisite facilities for display of samples, recording of transactions and the like. 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.

7. 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). 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).

8. The acronym VOC is a reference to the Dutch translation of the Dutch East India Company, the *Verenigde Oostindische Compagnie*.

9. Tracy (1985, p.90) draws this conclusion from an examination of the government transfer books where 'sales in the secondary market are indicated ... by notations that so-and-so is the beneficiary *bij transport van* (by transfer from) from the original buyer or a previous owner'. However, records of secondary market prices are rare. Tracy (1985) quotes a 1530 trade at 86.25% of par value.

10. These events included the Dutch river blockade of 1572 and the siege of Antwerp by Spanish troops in 1585.

11. Barbour (1950) differs from De Marchi and Harrison (1994) in the description of the early price history of the VOC. The latter source has been taken as accurate in the following discussion. Following Barbour (1950), the impact of the bear ring on VOC prices was substantially greater.

12. For example, Dickson (1967) identifies the Revolution of 1688 as a defining event for London stock trading.

13. In the Advertisements section of *A Collection for the Improvement...* Houghton would provide various lists, such as those for Counsellors and Attorneys on 20 July, 1694. In a 6 July, 1694 listing which also included Coaches and Carriers, Houghton provided a list of Brokers, in this case for Corn (2), Dyers Wares (3), Exchange (6), Grocery (7), Hemp (1), and Silk (10), with the number in brackets representing the number of names listed as brokers.

14. 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'.

15. This account follows Cope (1978). However, consider the following quote from Houghton in 1694: 'Sometimes the Dealers in *Stock* sell to one, and buy of another different Shares of the same *Stock* for different prices, and so make Advantages'.

16. Dickson (1967, pp.493-7) has a detailed analysis of the available evidence on dealer activities as reflected in the transfer records.

17. In contrast, 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. One quote of interest is: 'the bear-skin men must commute, and pay differences money' (p. 148), indicating that forward trading mechanisms similar to those used in Amsterdam were in place in London, circa 1719.

18. Rescounter was the adopted English spelling for the Dutch *rescontre*. Early editions of Mortimer contained the following footnote: 'The author is wholly at a loss for the etymology of this word (rescounter); and is obliged to suppose that, like most cant words, it is a corruption, and probably taken from the French *rencontre*, tho' with what propriety he cannot imagine' (Mortimer 1761, p.30). By the fifth edition of 1762 Mortimer had resolved that the word originated from the practice of Dutch merchants of indicating that a bill had been paid by charging it to a current account (Dickson 1967, p.491).

19. There are numerous discussions on the history of English coffeehouses, starting with a 17th century pamphlet literature which includes titles by 'Anonymous' such as *Coffee Houses Vindicated* (1675). This pamphlet literature largely revolved around the question of whether coffeehouses were nuisances (Wright and Fayle 1928, pp.7-10), though there are also descriptive works such as *The Character of a Coffee-House* (1673) (Straus 1938, p.48) and R. Bradley, *A Short Historical Account of Coffee* (1714).

Numerous discussions about coffeehouses appear in more general sources such as Samuel Pepys *Diary*. The subject has attracted attention, even up to modern times, with E. Robinson, *The Early History of Coffee Houses in England* (1893), W. Dawson, *The London Coffee-Houses and the Beginning of Lloyd's* (1930) and Lillywhite (1963) being three interesting examples.

20. *The Course of the Exchange* is the primary source for 18th century stock prices and is the historical precursor of the 'Official List' of the modern London Stock Exchange. An excellent treatment of the historical evolution of *The Course of the Exchange* is provided in Neal (1990b).

21. Murphy (1997, ch.2) provides detailed information about two precursors in the study of John Law and his System: Paul Harsin and Earl Hamilton. In 1934, Harsin produced the first significant collection of John Law's writings, in which Murphy uncovers some relevant errors and omissions. Earl Hamilton spent almost fifty years accumulating archival material on John Law and his System, though all this effort produced only a few journal articles. The main body of Hamilton's somewhat disorganized archives are now housed at Duke University and are currently undergoing efforts at classification and compilation which will take 'many years' to complete. Hamilton's collection of books and pamphlets was donated to the University of Chicago Library. Why did Hamilton have so little output from a lifetime of archival work? Murphy (p. 12) speculates that Hamilton was 'swallowed up in the vortex of minutiae concerning the system ... Hamilton wanted to write a complete history of the System. Such an objective was unattainable'.

22. Melville (1921, p.32) indicates that Mr. Wilson was Edward Wilson, known more familiarly as 'Beau' Wilson, 'a scion of an old Leicestershire family, a noted dandy, who lived in luxury, apparently on nothing a year. Much curiosity was evinced, and many speculations were rife, as to the source from which he derived his income'. Minton (1975) and Murphy (1997) both explore the connection between Beau Wilson and Elizabeth Villiers, a mistress of William III, as a possible basis for the duel. These sources provide considerable detail about events related to the duel, including the trial and Law's escape.

23. Law was, by no means, an originator of the land bank proposal. 'The first serious proponent of a land bank in England was William Potter, who in 1656 served as registrar of debenteures on the Act for the sale of the late King's lands' (Murphy 1997, p.46). Potter's writings on land banks appeared in 1650.

24. Dickson (1967, p.90) references most of the sources available up to 1967. Neal (1990) includes some more recent references. Dickson (1967, chs. 7-8) is also an essential source for examining in detail the period of financial reform and reconstruction following the bubble. Of the available references on the bubble, Anderson (1764, 1787-1789) is seminal. As a clerk working for the South Sea Company during the bubble period, Anderson had first hand knowledge of events and practical details. Many of the insights found in later works can be traced to Anderson. Scott (1910-1912) has, perhaps, the most in-depth account though there are a number of points at which the discussion is incorrect.

25. The use of par values in trading stock was continued until the 20th century when stock with either no par value or notional par value was first issued in the US, starting in the 1920s, for example, Baskin (1988, p.227).

26. Sources for prices of various commodities, including stocks, has been documented and discussed in a number of sources. McCusker (1979, pp.29-31) provides a useful discussion of these sources, known as price currants in London and price courants in Amsterdam. These sources were what passed for the commercial and financial newspapers of the time. The first printed price lists date from the 1580s in Antwerp, Hamburg and Amsterdam with the first London price currants appearing around the 1660s.

27. This statement is not meant to imply that the holders of joint stocks were numerous. On the contrary, there were a relatively small number of individuals involved. For example, in 1691 the combined stock of the East India and Africa Companies was divided into 680 holdings (some held by the same person). For both English and Dutch joint stock issues, most of the holders of joint stock lived in London or Amsterdam (Parker 1974, p.559).

28. Though written for a somewhat different purpose, Isaac de Pinto's *Traite de la Circulation et Credit* (1771) also deserves some recognition.

29. De Marchi and Harrison (1994, p.62) seem to be claiming that de la Vega proposed a model where stock prices were a random process, quoting de la Vega as saying: 'shares are enveloped in a veil of almost religious mystery such that the more one reasons the less one grasps, and the more cunning one tries to be the more mistakes one makes'. The solution, according to de la Vega, is to trade randomly. Despite this, it would be quite a stretch to claim de la Vega was a precursor of the random walk model of stock prices.

30. De la Vega recognizes that the motives of gamblers and speculators were often somewhat nefarious, and that the presence of manipulation makes accurate pricing a difficult exercise: 'shares are enveloped in a veil of almost religious mystery such that the more one reasons the less one grasps, and the more cunning one tries to be the more mistakes one makes', for example, De Marchi and Harrison (1994, p.62).

31. This evidence, quoted in Kellenbenz (1957, p.128) does not imply that Jews owned 85% of the stock. Rather, Jews, as the brokers, market makers and gamblers, did 85% of the trading.

32. Modern security analysis has a much more refined treatment of firm profitability, based on exploiting the much more elaborate accounting information now available. Graham and Dodd's dictum that security analysis involves the use of financial statements would have been lost on Mortimer because, at his time, accounting information was quite rudimentary and was often proprietary.
33. Consider the title of a 1677 work by Robert Ferguson, 'The East-India Trade a most profitable trade to the Kingdom, and best secured and improved in a company, and a joint stock'.
34. There is considerable evidence that Child plagiarized much of his work, either consigning the work to be written by someone else, presumably under his direction, or by direct copying. 'It is hardly too much to say that the *Brief Observations* is merely a compendium of statements made by a series of authors whom Child followed more or less closely, but never with acknowledgment' (Letwin 1964, p.15).
35. Comparison of this quotation with the associated text from *The Anatomy of Exchange Alley* (p.139) reveals much similarity in the text but 'Sir Josiah' has been changed to Sir F———, and a reference is made to: 'The subject then was chiefly the East India stock'. This and other attempts to update the text to 1719 would seem to bring into question the statement of Morgan and Thomas (1962, p.28) that *The Anatomy of Exchange Alley* was probably 'by Defoe, published in 1719 but referring to the sixteen-nineties'.
36. Smith was not the first to deal with the problems of the joint-stock form of ownership. For example, the problems of inefficient production associated with 'stock-jobbing management' were raised in Parliamentary enquiries going back to at least 1696 (Morgan and Thomas, pp.22-3). Smith also references a number of earlier works on joint-stock companies such as Abbe Morellet, *Examen de la Reponse de M. Necker* (1769) and, especially, Adam Anderson, *The Historical and Chronological Deduction of the Origin of Commerce* (1764).
37. Smith (1776) was not the originator of the notion of agency costs. Similar comments can be found in early writers, such as Houghton.

