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The world's first stock exchange: how the Amsterdam market for Dutch East India Company shares became a modern securities market, 1602-1700

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INTRODUCTION

‘This little game could bring in more money than contracting charter parties for ships bound for England’, wrote Rodrigo Dias Henriques to Manuel Levy Duarte on 1 November 1691.¹ Dias Henriques was referring to the ‘game’ of trading shares of the Dutch East India Company (Verenigde Oost-Indische Compagnie, VOC, founded 1602) and its derivatives* on the Amsterdam securities market. He acted as exchange agent for Levy Duarte and performed a high number of transactions on his account. The most notable feature of the exchange dealings of these Portuguese Jewish merchants was that they consisted solely of very swift trades; Dias Henriques made sure to always settle the transactions within a few days or a fortnight at most. He actively speculated on short-term share price* movements, while at the same time making sure that his portfolio did not become too risky – and, judging by his quote, he was rather good at it. Dias Henriques could perform these swift dealings because by the end of the seventeenth century, a very active secondary market* for securities existed in Amsterdam.

Modern securities markets have two functions: price discovery* and the provision of liquidity*. The interaction of traders in the marketplace, in other words, determines the price of the assets that are traded on the market. The liquidity function means that as a result of the concentration of traders in the marketplace, traders can easily buy or sell assets. Straightforward as these market functions may seem, they play a very important role for investors: they allow investors to reallocate their asset holdings at low cost, enabling them to manage their financial risks according to their personal preferences.² Securities markets thus provide major advantages to investors.

The secondary market for VOC shares became the first securities market in history that provided these advantages to investors. Hence it was in seventeenth-century Amsterdam that ‘the global securities market began to take on its modern form’.³ Using hitherto unexplored source material from the archives of the VOC, judicial institutions of the Dutch Republic and merchants who were active on the securities market,

¹ Dias Henriques to Levy Duarte, 1 November 1691, SAA, PIG, inv. nr. 677, pp. 897-8.

* Words market with an asterisk (*) are further explained in Appendix C – Glossary.

² Maureen O’Hara, ‘Presidential address: Liquidity and price discovery’, *Journal of finance* 58 (2003) 1335-1354, there 1335.

³ Ranald C. Michie, *The global securities market: a history* (Oxford 2006) 26.

this book analyzes how the secondary market for VOC shares could develop into the world's first modern securities market.

Context, historiography and theory

How the secondary market for VOC shares started off in the first decade of the seventeenth century is well known.⁴ In 1602, the States General of the Dutch Republic granted the VOC a charter for a period of 21 years, with the provision that an interim liquidation would follow after ten years.⁵ Inhabitants of the Dutch Republic were called upon to invest in the new company. The VOC thus became a privately-owned company in which the authorities of the Dutch Republic had a large say. The capital subscription was a great success: in Amsterdam alone, 1143 investors signed up for f3,679,915.⁶ According to a clause on the first page of the subscription book of the VOC, shareholders could transfer their shares to a third party. On this same page, the procedure for registering share transfers was laid down: the buyer and the seller should go to the East India house where the bookkeeper, after two company directors had approved the transfer, transferred the share from the seller's to the buyer's account in the capital book.⁷

These clear rules for ownership and transfer of ownership reduced investors' hesitancy about trading the valuable shares that existed only on paper. Secondary market trading therefore took a start immediately after the subscription books were closed.⁸ However, the real incentive to trade shares emerged later. The directors of the VOC did not liquidate the company after ten years and at the end of the first charter, in 1623, they requested a prolongation of the charter, which the States General

⁴ See, particularly: Oscar Gelderblom and Joost Jonker, 'Completing a financial revolution: The finance of the Dutch East India trade and the rise of the Amsterdam capital market, 1595-1612', *The journal of economic history* 64 (2004) 641-672.

⁵ For a general account of the founding of the VOC, see: J.A. van der Chijs, *Geschiedenis der stichting van de Vereenigde O.I. Compagnie en der maatregelen van de Nederlandsche regering betreffende de vaart op Oost-Indië, welke aan deze stichting voorafgingen* (Leyden 1857). This book also contains a transcription of the 1602 charter. The text of the first charter can also be found online: <http://www.vocsite.nl/geschiedenis/octrooi.html> An English translation is also online available:

<http://www.australiaonthemap.org.au/content/view/50/59>

⁶ The total capital stock of the VOC amounted to f6,429,588; Middelburg contributed f1,300,405 (20%), Enkhuizen f540,000 (8%), Delft f469,400 (7%), Hoorn f266,868 (4%) and Rotterdam f173,000 (3%); Henk den Heijer, *De geotrooieerde compagnie: de VOC en de WIC als voorlopers van de naamloze vennootschap* (Deventer 2005) 61. According to the historical purchasing power calculator of the International Institute of Social History in Amsterdam (see <http://www.iisg.nl/hpw/calculate.php>), the value of the 1602 subscription would amount to almost €100 million today.

⁷ A facsimile and transcript of the first page of the subscription book can be found in: J.G. van Dillen, *Het oudste aandeelhoudersregister van de Kamer Amsterdam der Oost-Indische Compagnie* (The Hague 1958) 105-6.

⁸ Gelderblom and Jonker, 'Completing'.

granted. Again, no intermediate liquidation took place. Consequently, the capital stock* of the VOC became *de facto* fixed.⁹ In the end, the company would stay in business for almost two centuries and the capital stock remained fixed during the entire period. Since investors generally do not want their money to be locked up for that a long period of time, they used the secondary market to sell their shareholdings to a third party.

The fixed capital stock of the VOC was unique. Shipping companies in late-medieval Italy and, from the mid-sixteenth century onwards, also in England and the Low Countries were often equity*-financed, but these companies were always liquidated after a single expedition to the destination. The same went for the *Voorcompagnieën*, the predecessors of the VOC that had equipped expeditions to the East Indies from 1594 onwards. The proceeds of the liquidation were divided among the investors. In many cases, the company was reestablished immediately after liquidation and participants were given the opportunity to reinvest their money in the new partnership. Consequently, there was little need for secondary market trading, because after liquidation, investors could decide not to reinvest. Investors knew that they could always get their money back within a few years' time.¹⁰ Likewise, it took until the end of the seventeenth century before a secondary market for shares emerged in England.¹¹ Before that time, there were no joint-stock companies with a sufficiently large fixed capital to get the development of a securities market going.¹² The capital stock of the English East India Company (EIC, founded 1600), for example, only became fixed in 1657. Before that time, the EIC repeatedly issued new stock to fund its fleets; the EIC was thus basically a series of separate companies that worked together as the EIC.¹³

Remarkably, already in the later Middle Ages, secondary markets for public debt had emerged in Italian city states. Venice, Genoa and Florence were the first

⁹ Den Heijer, *De geotrooieerde compagnie*, 59, 63.

¹⁰ Oscar Gelderblom, Abe de Jong and Joost Jonker, "An Admiralty for Asia. Isaac le Maire and conflicting conceptions about the corporate governance of the VOC", in: Jonathan G.S. Koppell (ed.), *The origins of shareholder advocacy* (Basingstoke, forthcoming 2011).

¹¹ Anne L. Murphy, *The origins of English financial markets. Investment and speculation before the South Sea Bubble* (Cambridge 2009).

¹² Ron Harris, *Industrializing English law: entrepreneurship and business organization, 1720-1844* (New York 2000) 117-8, 120-1, 127.

¹³ The fixed capital stock of the EIC in 1657 amounted to £793,782. W.R. Scott, *The constitution and finance of English, Scottish and Irish joint-stock companies to 1720* II *Companies for foreign trade, colonization, fishing and mining* (Cambridge 1912) 129, 192. Michiel de Jongh, 'De ontwikkeling van zeggenschapsrechten van aandeelhouders in de 17^e en 18^e eeuw', *Working paper* (2009). At the exchange rate of 1654 (the 1657 rate is unavailable), £793,782 equaled approximately f8,250,000: N.W. Posthumus, *Nederlandsche prijsgeschiedenis I: Goederenprijzen op de beurs van Amsterdam 1585-1914. Wisselkoersen te Amsterdam 1609-1914* (Leyden 1943) 592.

states to consolidate their public debt – a revolution in public finance, because it eased the process of underwriting new debt issues.¹⁴ Venice, for example, consolidated all its outstanding debt in a so-called *monte* in 1262. The original obligations were converted into shares in the *monte* and investors could subsequently transfer the title to these shares by way of assignment. Secondary markets came into being, but these markets did not have the characteristics of a free market, since new loans were often forced loans. Hence, the decision to invest was not taken by the investors themselves. Moreover, the number of transfers typically rose when a new forced loan was announced, which indicates that some shareholders were forced to dump their shares on the secondary market to get the liquidity needed to pay for the upcoming debt issue.¹⁵ This innovation in public finance failed to spread to other parts of Europe, however. In the Low Countries, the provinces kept issuing short-term debt and it would take until at least 1672 before secondary trade of any significance took place in government debt in the Dutch Republic.¹⁶ The English government recognized the advantages of secondary market trading in the early eighteenth century. It started to use the secondary market to sell its debt in transferable annuity obligations in the 1720s.¹⁷

This short overview has identified the factors that led to the emergence of a secondary market for VOC shares in the Dutch Republic. Very little is known about the subsequent development of the market, however. Smith studied the trade in derivatives, focusing on official regulations and pamphlets that addressed the share trade, and Gelderblom and Jonker discussed the history of derivatives trading on the Amsterdam exchange from 1550 to 1650, mentioning the emergence of several types of derivatives and analyzing similarities and differences in the trade in equity derivatives and forward* contracts that were used in the grain trade.¹⁸ Apart from these

¹⁴ See, particularly: Reinhold C. Mueller, *The Venetian money market: banks, panics, and the public debt, 1200-1500* (Baltimore 1997).

¹⁵ Julius Kirshner, 'Encumbering private claims to public debt in renaissance Florence', in: Vito Piergiorgio (ed.), *The growth of the bank as institution and the development of money-business law* (Berlin 1993) 19-76. Meir Kohn, 'The capital market before 1600', *Dartmouth College working paper* nr. 99-06 (1999) 10-11.

¹⁶ James D. Tracy, *A financial revolution in the Habsburg Netherlands: Renten and renteniers in the county of Holland, 1515-1565* (Berkeley 1985). Oscar Gelderblom and Joost Jonker, 'A conditional miracle. The market forces that shaped Holland's public debt management', *Working paper* (2010) 21, 24-7.

¹⁷ Larry Neal, *The rise of financial capitalism: international capital markets in the Age of Reason* (Cambridge 1990) 10.

¹⁸ M.F.J. Smith, *Tijd-affaires in effecten aan de Amsterdamsche beurs* (The Hague 1919). Oscar Gelderblom and Joost Jonker, 'Amsterdam as the cradle of modern futures and options trading, 1550-1650', in: William N. Goetzmann and K. Geert Rouwenhorst (eds.), *The origins of value: the financial innovations that created modern capital markets* (Oxford 2005) 189-205. The article 'Completing', by the same authors, has been mentioned above. This article focused on the funding of East India trade in the Dutch Republic

studies, most economic historians merely marveled at the sophistication of the market in the late seventeenth century. They used Joseph de la Vega's high-flown description of the share trade in *Confusión de confusiones*, the famous account of the share market dating from 1688¹⁹, as a starting point for their work.²⁰ Others tried to catch the significance of the market in very general phrases. Barbour, for example, wrote that 'Amsterdam gave [existing financial instruments] more precise formulation, greater flexibility and extension, and used them effectively over a wider field.'²¹ Braudel's interpretation of the financial developments in Amsterdam was that 'ce qui est nouveau à Amsterdam, c'est le volume, la fluidité, la publicité, la liberté speculative des transactions. Le jeu s'y mêle de façon frénétique, le jeu pour le jeu.'²² Superficial as these observations may seem, they touch upon some very important aspects of the market. The flexibility and enhanced formulation of the financial instruments meant that investors could use them to manage their financial risks. Moreover, the market could fulfill its core functions price discovery and liquidity only because of the increase in trading activity. This raises the questions which factors led to the sophistication of financial instruments in Amsterdam? And what caused trading activity to increase on the Amsterdam market?

In this book, the development of the market will be examined from an institutional perspective. In the most widely used definition, institutions 'are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction.'²³ Institutions consist of formal and informal rules. Informal rules are not enforceable by law; they mostly depend on social sanctions for their enforcement. Formal institutions, such as laws and official regulations, are enforced by the

and argued that the emergence of a secondary market for shares completed the financial revolution of the sixteenth century, as has been advanced by James D. Tracy: Tracy, *A financial revolution*.

¹⁹ Dutch translation of De la Vega's work, with a good introduction by M.F.J. Smith: Joseph Penso de la Vega, *Confusión de confusiones* (1688), M.F.J. Smith (ed.) (The Hague 1939). The best English (abridged) edition: Joseph Penso de la Vega, *Confusion de confusiones by Joseph de la Vega 1688. Portions descriptive of the Amsterdam Stock Exchange* (1688) Hermann Kellenbenz ed. (Cambridge 1957).

²⁰ Jonathan Israel, amongst others, relies heavily on De la Vega, for example in: Jonathan I. Israel, 'Jews and the stock exchange: the Amsterdam financial crash of 1688', in: idem (ed.), *Diasporas within a diaspora: Jews, Crypto-Jews and the world maritime empires (1540-1740)* (Leyden 2002) 449-87. Also: Charles Wilson, *Anglo-Dutch commerce and finance in the eighteenth century* (Cambridge 1941, reprinted in 1966). Geoffrey Poynter, *The early history of financial economics, 1478-1776: from commercial arithmetic to life annuities and joint stocks* (Cheltenham 2000) 315, 385-7.

²¹ Violet Barbour, *Capitalism in Amsterdam in the seventeenth century* (Baltimore 1950) 142.

²² Fernand Braudel, *Les jeux de l'échange. Civilisation matérielle, économie et capitalisme, XVe-XVIIIe siècle II* (Paris 1979) 81-2.

²³ Douglass C. North, *Institutions, institutional change and economic performance* (Cambridge 1990) 3.

state. The institutional framework of markets generally consists of a combination of formal and informal institutions.

The theory of institutional economics argues that institutional innovation takes place because economic actors always search for ways to reduce transaction costs. Put another way, economic actors always search for ways to obtain benefits from economic interaction at the lowest transaction costs possible.²⁴ Acemoglu, Johnson and Robinson divide transactions costs into three categories: ‘1) those that increased the mobility of capital; 2) those that lowered information costs; and 3) those that spread risk.’²⁵ These three categories will be addressed in this study. I will show how the development of a sophisticated enforcement mechanism ensured traders that their transactions would be consummated by the market. Because traders had a high level of certainty that their trades would be completed, they were more inclined towards trading, which increased the mobility of capital. The market also lowered information costs. The use of intermediaries and particularly the creation of trading clubs, whose participants could easily monitor each other’s behavior, meant that less effort was needed to check a possible counterparty’s creditworthiness. Furthermore, as a result of the high trading activity, the share price was constantly updated to the beliefs of the trading populations.²⁶ This reduced the need for investors with long-term investment horizons to find price-relevant information; they could rely on the prices quoted on the exchange. Lastly, the range of derivative instruments available to the traders by the second half of the seventeenth century allowed them to mitigate the risk of their investment portfolios.

Scope and structure

The scope of this book is limited to the seventeenth-century Amsterdam market for VOC shares. The focus on the seventeenth century flows, in the first place, from the fact that it is widely known, mainly from De la Vega’s work, that Amsterdam boasted

²⁴ Sheilagh Ogilvie, “‘Whatever is, is right’? Economic institutions in pre-industrial Europe’, *Economic history review* 60 (2007) 649-684, there 656.

²⁵ North, *Institutions*, 125. Daron Acemoglu, Simon Johnson and James A. Robinson, ‘Institutions as a fundamental cause of long-run growth’, in: Philippe Aghion and Steven N. Durlauf (eds.), *Handbook of economic growth* (Amsterdam 2005) 385-472.

²⁶ According to Ross Levine, markets with high trading activity provide an incentive for traders to gather price-relevant information: ‘Intuitively, with larger and more liquid markets, it is easier for an agent who has acquired information to disguise this private information and make money by trading in the market.’ As a result, prices on liquid markets reveal relatively more information about the assets that are being traded. Ross Levine, ‘Finance and growth: theory and evidence’, in: Philippe Aghion and Steven N. Durlauf (eds.), *Handbook of economic growth* (Amsterdam 2005) 865-934, there 872.

a highly sophisticated securities market by the end of the seventeenth century, but the path of development towards becoming the first modern securities market has remained obscure. Secondly, a study on the seventeenth-century Amsterdam securities market provides new material for future research on the transfer of financial know-how from Amsterdam to London in the late seventeenth century. The London securities market started developing quickly from around 1688 onwards – shortly after the invasion and subsequent accession to the English throne of Dutch stadholder William III. Although Murphy has recently argued that the London market developed largely by itself, the timing of the stock market boom in London still suggests that the Dutch experience must have had some influence on the developments in England.²⁷ This book on the securities market in Amsterdam will aid new researchers in identifying to what extent the London financial markets profited from Dutch financial experience.

It is important to note that Amsterdam was not the only city in the seventeenth-century Dutch Republic where a secondary market for company equity existed. The organizational structure of the VOC, with six semi-independent chambers, resulted in the emergence of six separate markets. However, due to the smaller capital stock of the Middelburg, Enkhuizen, Hoorn, Delft and Rotterdam chambers, these peripheral markets experienced different development paths. Shares in these chambers were, of course, occasionally transferred, but what this study tries to unravel is how the transition took place from a market where company shares were occasionally transferred to a thriving securities market that provided its participants a range of financial services. This happened only in Amsterdam.²⁸ I will also pay some attention to Middelburg, however. The Middelburg chamber of the VOC had the second-largest capital stock and consequently, the development of the Middelburg market came closest to that of Amsterdam. As I will show in chapter 5, traders used the liquidity of the Middelburg market for arbitrage* purposes; they tried to be the first to use information available on the Amsterdam market for transactions on the Middelburg market and vice versa.²⁹ Finally, shares in the Dutch West India Company (WIC, founded 1623) were also traded on the secondary market. However, investors generally kept away from these shares. The disproportionately large government interference in the

²⁷ Murphy, *The origins of English financial markets*, 5.

²⁸ The development of the markets in equity of the smallest chambers stalled soon after the subscription of 1602. See chapter 2, section Divergent developments: Amsterdam and peripheral markets on page 68 ff.

²⁹ Cf. page 169 ff.

WIC made investors afraid that the company management would behave too opportunistically. Moreover, investors were well aware that the WIC was a financial disaster. I will therefore focus on the trade in VOC shares only.

My analysis of the development of the secondary market for VOC shares into the first modern securities market is structured in two parts. Part I treats the seventeenth-century history of the market in general. Part II explores in more detail how the market was organized.

Part I starts, in chapter 1, with a chronological overview of the key developments that shaped the market during the seventeenth century. Subsequently, chapter 2 analyzes long-term developments, such as the increase in trading activity on the market, the number of active traders, the dividend policy of the VOC and the diverging development of the Amsterdam market in comparison with the peripheral share markets in the Dutch Republic. The findings of part I show that after the important first decade of the century in which the market emerged, the Amsterdam market for VOC shares entered into a second stage of development in the period 1630-50; this stage brought about the transition into a modern securities market. The two principal developments during this period were a staggering increase in trading activity and the appearance of new groups of traders on the market.

Part II goes deeper into the developments that made the organization of risky financial transactions possible in a market that grew in size and became increasingly anonymous and hence answers the question how the market for VOC shares could develop into a modern securities market. Chapter 3 discusses the formal and informal institutions that guaranteed that traders lived up to their agreements. My argument is that the traders built a private enforcement mechanism on top of a formal legal framework. The private enforcement mechanism was needed because large parts of the forward trade were unenforceable by law. Because of the existence of a clear legal framework, which took shape through official regulations and court judgments in the first three decades of the seventeenth century, traders knew exactly which transactions were unenforceable by law. This awareness was key to the good functioning of the market: the traders recognized the risks of the forward trade and adjusted their dealings accordingly.

In chapter 4, I discuss how traders could use the market to manage and control their financial risks – this being the principal purpose of investors in modern financial markets. The chapter therefore explores the evolution of the various types of

transactions that were available on the market. Using data from private records of traders, I first focus on the way in which traders could adjust the level of counterparty risk* of their transactions. Thereafter, I show how traders used derivatives to leverage or mitigate the risk of their portfolios. The possibilities for risk management and control really took off after the entry of a large pool of speculators on the market. These speculators were specialized in trading risks and hence also enabled other investors to manage and control their risks.

Chapter 5 focuses on information. Financial information about the VOC was hard to come by on the market – the company did not publish financial statements – but investors nevertheless put their money in VOC shares. This chapter explores, on the basis of share traders’ correspondence, how shareholders obtained information needed for their investment decisions and how the share price reacted to new information. My analysis shows how the market changed over the course of the century. In the early decades, the information that was publicly available on the exchange sufficed for the predominantly long-term investment strategies of the traders. The shift to more speculative trade later in the seventeenth century, however, resulted in the need for speculators to be the first to obtain relevant information. Due to the competition between traders, only those traders with private information networks could make short-term profits on the market. As a result, trading activity became increasingly concentrated in the hands of a relatively small number of ‘professional’ traders – traders whose main occupation was trading shares. This reduced transaction costs (both search costs and the costs of possible litigation), because these traders knew that their counterparties were all specialized traders who were familiar with the rules and the customs of the trade; the chance that they would not live up to their agreements was very small. This situation resembles present-day stock exchanges*, where only authorized dealers are allowed to trade; private individuals cannot access the exchange, but give their trading orders to a stockbroker. The developments on the secondary market for VOC shares in the second half of the seventeenth century thus transformed the securities market into the world’s first stock exchange.

Sources

The capital ledgers of the Amsterdam chamber of the VOC have formed the starting point of the archival research for this book. Every shareholder had his own account, specifying the nominal value of his investment in the VOC and the amount of dividend

distributed on his share. Furthermore, the company bookkeeper registered all mutations (i.e. share transfers) on these accounts. The capital ledgers are available from 1628 onwards. For the first decade (1602-12), the transfer journal has survived, which together with the subscription book of 1602 yields the same data as the capital ledgers. I have taken five samples from the transfer data: 1609-11, 1636-41, 1664-7, 1672 and 1688.³⁰ The sample periods are geared to the availability of other sources, mostly from the archives of legal institutions. In these sources, data from years with a high number of share-trade-related conflicts are overrepresented. The last three sample periods witnessed large share price fluctuations and therefore also a relatively high number of conflicts. As a result of Isaac le Maire's attempts to bring the share price down, the period 1609-11 also yielded many legal data. Lastly, the period 1636-41 was chosen to bridge the gap between 1611 and 1664. Moreover, in this period, the share price rose steeply. The transfer ledgers allow for a check on whether this rise incited people to start participating in the market.

Even though the capital books list all share transfers that took place in the capital stock of the Amsterdam chamber of the VOC, they provide only a very limited picture of the secondary market for VOC shares as a whole. Share traders performed many transactions without ever going to the East India house to register a share transfer. In the first place, they tried to combine several spot transactions into a single share transfer. If, for example, trader A sold a share to B, and B sold a similar one to C, a single share transfer from A to C sufficed to settle both transactions. Trader B did not have to go to the East India house; he would only be involved in a money transfer with traders A and C. Another option for share traders was to contract a forward or option* transaction. These kinds of transactions could be settled without actually transferring a share. At or before the expiry date of the contract, the traders could come together to negotiate a money settlement or they could cancel out their contract with another contract. Hence, only part of the transactions on the market ended up in the official ledgers and the pairs of shareholders involved in a share transfer had not necessarily traded with each other.

The transfer data are nevertheless interesting. Firstly, they give information on the number of shareholders of the Amsterdam chamber of the VOC and the number of active shareholders (i.e. shareholders who occasionally transferred a share) in a

³⁰ Oscar Gelderblom and Joost Jonker moreover generously shared the transfer data (1602-11) they collected for their article 'Completing' with me. I have not used their data in this book, however.

given period. Secondly, the ledgers allow for an analysis of patterns in the trade. Even despite the shortcomings mentioned above, peaks in the number of share transfers will have coincided with peaks in the number of share transactions. Lastly, these capital ledgers are the only source that can be used to estimate the level of market activity. I will treat this issue in chapter 2.

To gain a more complete picture of the development of the market, I have supplemented the data from the capital ledgers with qualitative data from official institutions, Amsterdam notaries and judicial institutions, on the one side, and private archives on the other. The data from the notaries and the courts of law give information on all kinds of transactions performed on the market, but they must be treated cautiously. Traders went to a notary or started litigation only when their transaction went sour or when one of the parties feared that something could go wrong in the near future. In the case of lawsuits brought before one of the law courts of Holland, there was, of course, always a conflict of some kind. Consequently, the data from notarial deeds and court cases are biased; riskier transactions are more likely to be found in these sources. The data they yield are nonetheless very usable: they give information on the kinds of transactions performed on the market, the conditions of the contracts and the circumstances that could lead to conflicts. Additionally, the descriptions of the conflicts often give information on the number of traders involved in a single transaction and the way traders went about settling their contracts. Lastly, they usually mention the part played by intermediaries in negotiating the transaction.

I have focused my research in the notarial protocols on the same sample periods that were used for the capital ledgers. Almost all of the deeds dating from the first decade of the share trade were executed before notary Jan Fransz. Bruyningh, whose protocol happens to be very well represented in a notarial card index available in the Amsterdam City Archives. I have covered this period by solely using this card index. Naturally, I have also retrieved the cards for the rest of the seventeenth century. The card index thus also yielded the data for the periods 1636-41 and 1664-67. The selection criteria that were used in compiling this card index are unknown. As the representativeness of the cards in the index cannot be determined, the data the cards yield cannot be used as the basis for grand theses. This flaw does not stand in the way of my use of the card index, however. I have only collected circumstantial data from this source; mainly share prices and qualitative information on the kinds of transactions performed on the market.

The card index contains an increasingly smaller amount of data for the last thirty years of the seventeenth century. So, to complement these data, I have studied the entire protocol of one notary for the years 1672 and 1688: notary Adriaen Lock for 1672 and Dirk van der Groe for 1688. These notaries executed the bulk of the deeds related to the share trade.³¹ This approach certainly does not cover all deeds relating to share transactions available in the protocols of Amsterdam's notaries, but it suffices for the purpose for which I use the data from this source.

For my research in courts' archives, I have used the name indices of the Court of Holland and the High Court. I have looked up court cases in which familiar names or Sephardic names appeared; familiar names being those names that also appear in notarial deeds or in the capital ledgers of the VOC. I have covered the Court of Holland's extended sentences for the entire seventeenth century and those of the High Court for the years before 1625 and after 1676 – thus covering the years in which most conflicts arose.³² Using this approach, I am confident that I have seen the large majority of lawsuits concerning share transactions. The archives of the Court of Aldermen in Amsterdam have been lost, so it was not possible to study the cases that were brought only before this court. The extended sentences of the higher courts do give some information about the procedure before the local court, however, since litigants always mentioned how the court in Amsterdam had ruled in first instance.

Finally, I have used a number of private archives. Anthoine l'Empereur's papers in the Bibliotheca Thysiana in Leyden contain correspondence with his nephew in Amsterdam who informed him about the share trade and who performed transactions on his account. The Deutz family archive contains ledgers and journals of Joseph Deutz and his mother Elisabeth Coymans, who both participated actively in the share market. Joseph Deutz' great bookkeeping skills have provided insights in the more complicated transactions. Louis Trip's journals and ledgers have also survived. Jeronimus Velters kept letter books containing regular correspondence with share traders in Middelburg and informants from The Hague and overseas. Finally, the archives of the Portuguese-Jewish congregation in Amsterdam contain the papers of Jacob Athias and Manuel Levy Duarte, two Sephardic merchant jewelers. They kept

³¹ I have, of course, also glanced over the protocols of several other notaries to arrive at this conclusion. Lock was no longer active as a notary in 1688. I have also gone through Van der Groe's protocol of 1672, but this yielded far less data than his 1688 protocol, indicating that he took over Lock's position as prime notary providing services to share traders after Lock quit his profession.

³² Conflicts from 1672 would not have come up before the High Court before 1676.

ledgers of their activities in share trading clubs in the 1680s and Levy Duarte also saved his correspondence with his exchange agent Rodrigo Dias Henriques for some years in the 1690s.

These private individuals are not representative for the trading community as a whole. The wealth of traders like Deutz and Trip, for example, enabled them to frequently act as moneylenders in repo* transactions. As a result, their ledgers show a high level of activity on the share market, but their dealings are not typical for the average market participant. Moreover, it must be kept in mind that share traders' correspondence reveals the attitudes only of the individuals who wrote the letters. I will therefore once again be cautious about treating this data as being representative for the secondary market for VOC shares as a whole.

This book will end with an epilogue, in which I relate my findings to Joseph de la Vega's famous *Confusión de confusiones*. His, at first sight rather cryptic, remark 'sabed que ha traçado la necesidad hazer deste negocio juego'³³ ['please note that this trade became a game out of necessity'], in the first fictitious dialogue, turns out to encompass the main argument of this study.

³³ De la Vega, *Confusión de confusiones*, 4 (p. 21 in the 1688 edition).