

Mercantile communication and foreign exchange in medieval Europe: evidence from the Datini archive

Francesco Bettarini

Helen Bradley

Tony Moore, ICMA Centre, Henley Business School, University of Reading

Abstract

In the later Middle Ages, Florentine merchants established trading companies across Europe and played a key role in the development of the foreign exchange market. But how did they co-ordinate their activities and share price data, news and speculation, given the limitations of medieval communications technology? This article analyses the business letters received by Francesco di Marco Datini, ‘the merchant of Prato’, between 1383 and 1411. It examines the information contained in the letters and the extent of the Florentine communications network to explore their practical value to the recipient, with particular focus on the reporting of exchange rates.

The later Middle Ages was a time of increasing financial sophistication following the ‘Commercial Revolution’ of the thirteenth century.¹ The growth of international trade spurred the development of the foreign exchange market, including the use of bills of exchange to move money across Europe without transporting gold and silver.² Italian merchants played a particularly important role within all this, combining their own trading activities with acting on commission and providing financial services for correspondents. Foreign exchange trading lay at the heart of the emergence of the medieval merchant banking industry, comprising just over half of the turnover of the Borromei of Bruges in 1438.³ It has also been argued that the use of bills of exchange facilitated financial innovation by permitting the charging of interest without violating the ecclesiastical prohibition on usury.⁴ Merchant societies and sedentary merchants, who directed trade from their home cities rather than travelling with their merchandise, needed access to information about prices and potential counterparties in foreign markets; the costs of acquiring this information was a potential barrier to long-distance trade.⁵ They also faced difficulties in monitoring their factors and correspondents in foreign markets. This is described in modern economic theory as the ‘principal-agent’ problem – how could the principal (in this case the sedentary merchant) ensure that his agents (either factors or correspondents) acted in his best interests and not their own?⁶ Before the advent of the financial press and modern communications technology, how did merchants receive market information and convey orders in response in a timely and efficient manner?

This paper draws on the business and personal archive of the Italian merchant Francesco di Marco Datini, ‘the merchant of Prato’.⁷ The Datini archive contains nearly 600 account books and 150,000 letters with around 600,000 pages, of which 125,000 letters are classified as commercial correspondence.⁸ Although Datini was active as a merchant in Avignon from the 1350s, the bulk of the correspondence dates from 1383, when he returned to Italy and especially from the mid-1390s, when he established branches in Spain. Datini also expanded

¹ P. Spufford, *Money and its Use in Medieval Europe* (Cambridge, 1988), pp.240-63.

² P. Einzig, *The History of Foreign Exchange* (2nd ed., 1970), pp.71-4.

³ J. Bolton and F. Guidi Bruscoli, ‘When did Antwerp replace Bruges as the commercial and financial centre of north-western Europe? The evidence of the Borromei ledger for 1438’, *Economic History Review* 61 (2008), 368.

⁴ J. Rubin, ‘Bills of exchange, interest bans and impersonal exchange in Islam and Christianity’, *Explorations in Economic History* 47 (2010), 219-24.

⁵ G. Stigler, ‘The economics of information’, *Journal of Political Economy*, 69 (1961), 213-25.

⁶ A. Greif, ‘The fundamental problem of exchange. A research agenda in Historical Institutional Analysis’, *European Review of Economic History*, 4 (2000), 265-72.

⁷ F. Melis, *Aspetti della Vita Economica Medievale: Studi nell’Archivio Datini di Prato* (Siena, 1962); I. Origo, *The Merchant of Prato: Francesco di Marco Datini, 1335-1410* (1957); *Francesco di Marco Datini: The Man, the Merchant*, ed. G. Nigro (Florence, 2010).

⁸ Melis, *Aspetti*, pp.24-5. All references to unpublished material are to material in the Datini archive, *Archivio di Stato di Prato (ASP)*. Letters are identified by their *busta*, *inserto* and *codice* and can be viewed online at <http://datini.archiviodistato.prato.it>.

his basic trading activities to cover merchant banking and manufacturing.⁹ The geographical spread of Datini's branches and key correspondents is shown in Figure 1. In their busiest year, 1399, Datini's branches received a total of 11,877 letters.¹⁰ Keeping up this correspondence, as well as the company's account books, was a full-time job for numerous clerks and factors. Despite this obvious concern for record-keeping, the survival of the Datini archive was a matter of chance. Datini, who died without direct male heirs, bequeathed much of his property and assets to establish a charitable hospital. Along with this property came his records.¹¹

The following is based on a new analysis of the letters sent from Florence, Genoa, London, Naples and Paris and also draws on previous studies of the correspondence from Barcelona, Bruges, Gaeta, Milan, and Venice.¹² It will examine the market information contained in the Datini letters and consider its practical value to the merchants when planning business decisions, focusing in particular on the inclusion of exchange rate data. This information was not just valuable to the merchants then but also to historians today. The wealth of quantitative data contained in the Datini letters is suitable for analysis using econometric techniques and this paper will highlight some examples of the potential of such approaches. Of course, to utilise any historical data correctly it is first necessary to understand the nature of the source material. This paper will begin by briefly describing the basic structure of the business letters and their contents, before discussing in more detail the price and exchange rate data provided as well as news and speculation about politics or trade that may have moved the markets. In the second section, it will set out how these letters were communicated and information disseminated through the network of Italian merchants throughout Europe.

The content of the letters

The Datini letters are clearly differentiated by their content. The most personal information can be found in the *Carteggio Privato*. These include letters between Datini and his wife

⁹ Melis, *Aspetti*, p.108. Merchant banking was a natural extension of Datini's commercial business, but he also ran a banking company in Florence between 1398 and 1401. A good overview of the different activities of the Florentine merchants is R. Goldthwaite, *The Economy of Renaissance Florence* (Baltimore, 2009), pp.63-114 and 203-30.,

¹⁰ Calculated from the online catalogue, deducting those letters that were sent in late 1398 but arrived in 1399, which are returned by a search for 1399.

¹¹ Melis, *Aspetti*, pp.7-8.

¹² Exchange rates for Florence, Genoa, London, Naples and Paris were collected from the letters, and the existing series for Bruges was extended. For rates from the other cities: R. de Roover, *The Bruges Money Market Around 1400 with a Statistical Supplement by Hyman Sardy* (Brussels, 1968); *Il Carteggio di Gaeta nell'Archivio del Mercante Pratese Francesco di Marco Datini. 1387-1405*, ed. E. Cecchi Aste (Gaeta 1997); L. Frangioni, *Milano fine Trecento. Il Carteggio Milanese dell'Archivio Datini di Prato* (2 vols, Florence, 1994); R. Mueller, *The Venetian Money Market: Banks, Panics, and the Public Debt, 1200-1500* (Baltimore, 1997).

Figure 1: Map of Datini's branches (upper case) and selected correspondents



Margherita, and his friend Ser Lapo Mazzei.¹³ Datini also engaged in similar private correspondence with the heads of his overseas branches, in which he enquired into the behaviour and moral character of their subordinates.¹⁴ Another class of documents, the *Carteggio Specializzato*, mostly contains accounting paperwork, bills of exchange and of lading and insurance contracts. This paper focuses on the third and largest class of letters, the *Carteggio Commerciale*. This includes letters received by Datini's branches from external

¹³ *Le Lettere di Margherita Datini a Francesco di Marco (1384-1410)*, ed. V. Rosati (Prato 1977), translated in *Margherita Datini: Letters to Francesco Datini*, trans. C. James and A. Pagliaro (Toronto, 2012); *Le Lettere di Francesco Datini alla Moglie Margherita (1385-1410)*, ed. E. Cecchi (Prato 1990). Francesco and Margherita Datini's relationship is discussed in C. James, 'A woman's work in a man's world: The letters of Margherita Datini (1383-1410)', in *Francesco di Marco Datini*, ed. G. Nigro, pp.53-72. *Ser Lapo Mazzei, Lettere di un Notaro a un Mercante del Secolo XIV, con altre Lettere e Documenti*, ed. C. Guasti (2 vols, Florence, 1880). For a more transactional interpretation of Mazzei and Datini's relationship, see R. Trexler, *Public Life in Renaissance Florence* (New York, 1980), pp.131-58.

¹⁴ For examples, see Origo, pp.115-132.

correspondents as well as other branches within the Datini system. The content of these letters is strictly business – similar to the published correspondence of the Venetian Andrea Berengo, writing from Aleppo in the sixteenth century.¹⁵ This reflects the genre of the letters rather than the personality of the writers; Datini himself was clearly interested in personal affairs and gossip, but tended to limit discussion of such matters to the *Carteggio Privato*.¹⁶ Here Datini's correspondence differs from the letters of later medieval English merchant and gentry families, which included a mixture of legal and family news as well as business matters.¹⁷ It is interesting that the Italian merchants made such a clear distinction between business and more personal communications in a way that contemporary English merchants did not.

Despite this focus on business matters, the *Carteggio Commerciale* is a heterogeneous collection. Many of the letters were very short and limited to giving instructions or reports on the progress of transactions. Other letters were longer and more in the character of newsletters, containing updates on the economic and political situation, as well as pricelists for various commodities and exchange rates.¹⁸ It is the latter on which we focus. Looking particularly at the letters from Datini's correspondents in London and Genoa, it is clear that keeping up a flow of commercial intelligence was all part of the service provided. In return, information flowed back, not only from elsewhere in Europe, but also the Middle East. As a result, Florentines in London could base their business plans on the most recent news from Beirut.¹⁹ Significantly, this service was provided for free on a reciprocal basis within the network of Florentine merchant societies rather than being made available to anyone for a fee as in the case of early modern 'price currents' or the modern financial press.²⁰ The time and effort spent writing these letters and the investment in overseas branches and correspondents can therefore be seen as the cost of entry into the community of international Florentine merchants. In this way, the absence of personal information noted above does not mean that the letters did not serve a wider social purpose. Inclusion within this network was an important symbol indicating the participant's status and allowed him to build up social capital.²¹

¹⁵ *Lettres d'un Marchand Vénitien Andrea Berengo (1553-1556)*, ed. Ugo Tucci (Paris, 1957).

¹⁶ The Medici registers make a similar distinction between *lettere de compagnia* and *lettere private* (R. de Roover, *The Rise and Decline of the Medici Bank, 1397-1494* (New York), pp.96-7).

¹⁷ *The Cely Letters, 1472-1488*, ed. A. Hanham (Oxford, 1975); *The Paston Letters and Papers of the Fifteenth Century*, ed. N. Davies with R. Beadle and C. Richmond (3 vols, Oxford, 2004-2005).

¹⁸ Melis, *Aspetti*, pp.33-9.

¹⁹ 777/37/313003. For the geographical range of these letters, see Melis, *Aspetti*, p.120.

²⁰ Goldthwaite, pp.104-8.

²¹ F. Trivellato, 'Merchants' letters across geographical and social boundaries', in *Correspondence and Cultural Change in Europe, 1400-1700*, ed. F. Bethencourt and F. Egmond (Cambridge, 2007), pp.88-93..

The internal structure of the letters was simple and consistent.²² A headline date, ‘in the name of God’ (*Al nome di dio*), was given at the top. The opening paragraph clarified whether the letter was sent for a particular reason (*di bisogno*), or just to keep in touch (*a compimento, per buona usanza*).²³ It also catalogued letters sent out and received, which allowed the recipient to check that he had indeed received all the letters sent to him, and conversely that his correspondent had received letters addressed to him. The main body of the letter followed, with each topic presented in a visually distinct paragraph. Any text copied over from an earlier letter carried the date of the original, and further additions were clearly dated. The writer finished by declaring that there was ‘nothing more to tell you and no other news’, frequently gave exchange rates for different cities, and hoped that God would watch over the recipient. The signature block showed the company name - sometimes just the forenames - and a greeting from the city where they were based (*saluti da Londra, saluti da Genoa*). Some added the date and time of closure.²⁴ This can be particularly important for exchange rates, which could change over the course of the day and so vary between letters sent at different times on the same date. This basic structure had a number of practical advantages. The recipient could quickly check he was up to date with correspondence; he could scan easily for particular information, and mark off each paragraph when he had dealt with it.²⁵ The recipient logged the date of receipt on the outer side of the incoming letter and retained it. Datini took great care with his records and noted that ‘I would look over all of my papers and set them in order and mark them, that I may be clear about each man with whom I have to do’.²⁶

Coming to the content of the letters, the majority of the correspondence was concerned with day-to-day business concerns.²⁷ Principals sent instructions and orders to their agents and in return they received information about the status of bills of exchange and book transfers, updates on sales and purchases, and shipment details. All of this was vital information for Datini in order to track his business interests and keep his records up to date. However, these routine functions are not the main focus of the current study. Instead, it concentrates on the inclusion of market information in the Datini correspondence and how useful this may have

²² J. Hayez, ‘“Io non so scrivere a l’amicho per siloscismi”’. Jalons pour une lecture de la lettre marchande de la fin du Moyen Âge’, *I Tatti Studies in the Italian Renaissance*, 7 (1997), pp.37-79.

²³ ‘... p(er)che vi diremo breve elbisogno p(er) q(ue)sta’ (664/27/407487); ‘... & solo visifa q(u)esta p(er) buona usanza’ (664/22/308929).

²⁴ ‘stata fino d(i) 17 al’alba di n(uov)o no(n) c’è altro ...’ (514/4/7613); ‘di xx a s(er)a’ (505/2/400377); ‘chiusa a di 13 a vespr(i) ...’ (183/25/316647). For more examples of the precision with which letters could be dated, see J. Hyde, ‘The role of diploamic correspondence and reporting: News and chronicles’, in J. Hyde, *Literacy and its Uses: Studies on Late Medieval Italy*, ed. D. Waley (Manchester, 1993), pp.232-5.

²⁵ For marginal notations, 653/14/511251. As a bonus, the blank parts of the outer leaf provided scrap paper for his sums (e.g. 512/10/305798, 653/10/800160).

²⁶ Origo, p.105.

²⁷ Melis, *Aspetti*, pp.33-9.

been to the merchants. Before proceeding further, one important clarification must be made. According to John McCusker, an essential distinction must be drawn between published or public market information, as included in the printed early modern 'price currents', and lists of prices given in private correspondence, which he believed represented the private prices at which particular merchants were prepared to buy or sell.²⁸ This does not seem to hold for the Italian merchants in the Middle Ages. The prices and exchange rates given by Datini and his correspondents in their letters were not their private prices but reports of the market price. The Datini archive also includes a number of separately-recorded *listini dei prezzi* and, indeed, McCusker notes that the later Antwerp 'price currents' followed the same order when listing commodities as their Datini precursors.²⁹

One obviously important class of economic information was price data, and a large number of business letters give local prices for a range of commodities. Some items were common to price-lists from London and Genoa, including Cotswold wool, Essex straits, sugar, spices (such as pepper, cumin, ginger and cinnamon), dyestuffs (like grain, woad and indigo), and other items such as leather, wax, tin and lead.³⁰ Such goods could be priced differently according to their provenance.³¹ The cost of spices, especially pepper, sometimes appeared at the end of the letter among the exchange rates.³² Letters could also be sent with samples of stock, like saffron or woad, to demonstrate quality; and once a small box of grain-dye was sent, together with a colour swatch of cloth dyed with it.³³ The letters also provided information about freight costs and the price of maritime insurance. Such transaction costs were an important factor when making business decisions and, when the Mannini were planning a new cloth venture to Beirut, they wrote to Datini asking for information about the prices for insurance and shipping.³⁴

²⁸ J. McCusker, 'Information and transactions costs in early modern Europe', *Weltwirtschaft und Wirtschaftsordnung: Festschrift für Jürgen Schneider* (Stuttgart, 2002) pp.69-82 at 77-8.

²⁹ F. Melis, *Documenti per la Storia Economica dei Secoli XIII-XVI* (Florence, 1972), pp.298-321; J. McCusker and C. Gravesteyn, *The Beginnings of Commercial and Financial Journalism: The Commodity Price Currents, Exchange Rate Currents, and Money Currents of Early Modern Europe* (Amsterdam, 1991), pp.22-3.

³⁰ H. Bradley, 'The Datini Factors in London, 1380-1410', in *Trade, Devotion and Governance: Papers in Later Medieval History*, ed. D. Clayton, R. Davies and P. McNiven (Stroud, 1994), 57-62. Appendices of prices for different commodities can be found in H. Bradley, 'Italian merchants in London c.1350-1450' (unpublished PhD thesis, Royal Holloway, University of London, 1992).

³¹ For prices for Seville, Lisbon and Barbary leather, see 511/5/305739; and for Barbary and Spanish wax, see 652/4/800286.

³² 654/6/800014, 507/7/305597.

³³ 654/4/407696; 511/1/6955; 653/4/9240.

³⁴ '...e q(ue)llo costano le sicureta su me(r)cantie sino a baruti partendo d(a) costa e q(ue)llo costano i noli d(a) costa i(n) baruti ...' (777/37/313003).

Even more significant for this study was the inclusion of information about foreign exchange rates. Many of the letters end by quoting the exchange rates current at the place from which the letter was sent. In fact, exchange rates are included much more frequently than any other kind of market data, demonstrating the crucial importance of foreign exchange to the medieval merchant, particularly those concerned with international trade and merchant banking.³⁵ Bills of exchange were used to fund trade by moving money across Europe and the merchants needed to track the movements of the rates in order to make such transfers at the most advantageous times. Merchants also needed to know the exchange rate in order to compare the relative prices of goods in different markets.

In addition, bills of exchange could be used to borrow or lend money.³⁶ In short, the seller in city A received a sum of local currency from the buyer and in return issued a bill of exchange addressed to the seller's correspondent in city B ordering him to pay the equivalent sum in foreign currency to the buyer's correspondent after a set period, known as *usance*, varying with the distance between the cities. As a result, bills of exchange necessarily involved the extension of credit; the seller was a borrower and the buyer a lender. The 'time value of money' was incorporated into a spread between the exchange rates quoted in the two cities. This made it possible to recreate a short-term loan using an exchange and rechange transaction, whereby the differential between the exchange rates in the two places usually returned a profit (interest) to the buyer. As a result, it is possible to calculate implicit interest rates from the exchange rates quoted in the letters. Annualised interest rates, taking into account the *usance* period, these fall within the range of 10-15% *per annum*, which is broadly comparable to other indications of the cost of credit at this time.³⁷

Here it should be noted that the exchange rates quoted in the commercial correspondence are specifically for bills of exchange not for manual or spot exchange of coin for coin.³⁸ Raymond

³⁵ A. Leone, 'Some preliminary remarks on the study of foreign currency exchange in the medieval period', *Journal of European Economic History*, 12 (1983), pp.619-629.

³⁶ For a succinct explanation, see R. de Roover, 'What is Dry Exchange? A contribution to the study of English mercantilism', *Journal of Political Economy*, 52 (1944), pp.250-66.

³⁷ G. Booth, 'Foreign exchange profits in two early Renaissance money markets', *Journal of European Economic History*, 38 (2009), pp.123-144; and A. Bell, C. Brooks and T. Moore, 'Cambium non est mutuum: exchange and interest rates in medieval Europe', *Economic History Review*, 70 (2017), pp.373-96.

³⁸ On occasion, the letters do provide spot exchange rates for foreign coins. For example, on 1 March 1398, Antonio and Doffo Spini in Gaeta wrote to Datini in Florence that the spot rate was 4 *tari* 17 *grossi* per florin but the rate for bills of exchange was 46¼ *carlini* for 5 florins - equivalent to 4 *tari* 12½ *grossi* per florin (Cecchi Aste, *Gaeta*, p.255). The Spini do not elaborate on the potential value of this information but presumably it would have been clear to the recipient. If Datini sent 100 florins in coin to Gaeta, he could exchange these for 485 *tari*. He could then use this to buy a bill of exchange drawn on Florence, which would pay 104 florins 17s 4d (to the nearest penny). The spread between the spot rate and the bill rate would produce a profit of 4.86% and, since the transaction would take around five weeks, this represents an annualised return of nearly 50%. Obviously, Datini

de Roover believed that the rates were probably collected from the bill brokers that arranged such deals in each city.³⁹ They thus represent the generally available market rates rather than the actual rates used in particular transactions, which as Mueller has observed, could be influenced by the relative ‘contractual leverage’ of the two parties.⁴⁰ By removing the idiosyncratic factors that might influence the rates used in particular transactions, the market rates in the letters are especially suitable for statistical analysis of the foreign exchange market.⁴¹ One interesting practice is that, once the text of the letter had been finished, the writer would enter the names of the cities for which rates were to be quoted but leave a blank space for the rates themselves, which were then filled in just before the letter was sent. Occasionally they were left blank, either by mistake, because there was no business to report or the writer was in a hurry.⁴² As a result, the date entered at the top of the letter was not necessarily the date on which the rates at the end were current. Indeed, some letters carried two sets of rates, valid on different dates.⁴³ Even though the letter might not arrive at its destination for days, weeks or even months, it is clear that the writers still tried to provide the most up-to-date exchange rates possible.

Extracting the exchange rates from the letters involved more than reading a line of cities and figures. The medieval merchants, much like their modern counterparts, developed their own conventions and terminology. There were two main methods of quoting rates.⁴⁴ The first was based on the fact that the gold coins adopted by various governments on the model of the florin tended to have similar precious metal contents and so cited the exchange rate as being a percentage better (*meglio*) or worse (*peggio*) than par.⁴⁵ If, for example, the rate at Florence for the Genoese florin was at par, then the buyer of a bill of exchange for 100 Florentine florins in Florence would receive 100 Genoese florins in Genoa at usance (eight days after the presentation of the bill). If the rate was five better, then 100 Florentine florins would be worth 105 Genovese. However, if it was five worse, then it the buyer would have to pay 105

would have to react quickly to take advantage of this arbitrage opportunity before other merchants did and caused the spot and bill rates to converge.

³⁹ de Roover, *Bruges Money Market*, p.29.

⁴⁰ Mueller, p.588.

⁴¹ For example, see A. Bell, C. Brooks and T. Moore, ‘Medieval foreign exchange: a time series analysis’, in *Large Databases in Economic History: Research Methods and Case Studies*, ed. M. Casson and N. Hashimzade (Abingdon, 2013), 98-100.

⁴² For numbers and cities written in different ink, see 506/3/305525, /305533; for numbers left blank, see 506/3/305539, 664/38/509989.

⁴³ For examples, see 510/3/305751; 183/32/317095; 512/11/406280.

⁴⁴ Giovanni di Antonio da Uzzano, ‘La Pratica della Mercatura’, in *Della Decima e di varie altre gravetze etc: Tome Quarto Continente La Pratica della Mercatura Scritta da Giovanni di Antonio da Uzzano nel 1442*, ed. F. Pagnini (Florence, 1766), pp.133-41.

⁴⁵ Note that some writers used *meglio/peggio questi* (meaning that the local currency was trading better/worse than par) while other writers used *meglio/peggio quelli* (meaning that the foreign currency was better/worse than par) which have opposite meanings.

Florentine florins to receive 100 Genovese.⁴⁶ Other rates tended to be expressed per unit of one currency; at both Florence and Venice, for instance, the rate was generally expressed as the number of *lire*, *soldi* and *denari affiorino* per *lira di grossi* of Venice.⁴⁷ Rates at London were always quoted as pence sterling per unit of foreign currency, those at Barcelona in terms of shillings and pence of Barcelona and rates at Bruges (with the exceptions of Barcelona and London) as pence *groot*. Another complication is the use of ‘imaginary coins’ as units of account. For example, the exchange rate between London and Bruges was expressed in terms of pence sterling per écu (a unit of account equivalent to 24 pence *groot*) but that between Barcelona and Bruges was quoted as shillings and pence of Barcelona per écu of 22 pence *groot*.⁴⁸

Finally, and in addition to the current rates themselves, the quotations provide additional notes, such as *h* if there was no business, *bocie* where the rate was estimated rather than based on actual transactions, and sometimes whether the rate refers to that for buyers of bills of exchange (*datori*) or sellers (*prenditori*). Further, the writer might also indicate the direction in which he thought the market was moving, and the rate at which they were prepared to remit.⁴⁹ Alternatively, they might include explanations for why they had not carried out transactions ordered by Datini. For instance, in December 1388, Datini’s agents in Genoa explained that they had not carried out his exchange instructions because, considering the Christmas holidays and the prevailing rates, it would not have been in his best interests.⁵⁰ Again, in late 1391, Datini instructed his Genoese correspondents to buy a bill of exchange drawn on London but they could not find a seller; eventually they did not remit direct to London but instead indirectly via Bruges.⁵¹ Letters could also make suggestions as to potentially profitable trades or highlight any arbitrage opportunities.⁵²

⁴⁶ J. Heers, *Gènes au XV^e Siècle: Activité Économique et Problèmes Sociaux* (Paris, 1961), p.78. Note Mueller incorrectly states that a rate of two *peggio* would mean that the buyer of a bill for 100 florins in local currency would receive only 98 florins in foreign currency (Mueller, pp.589-90).

⁴⁷ Mueller, pp.593-4. At Naples and Gaeta, the exchange rate with Genoa was expressed in Genoese *lire*, *soldi* and *denari* per Neapolitan gold *oncia* but that with Florence was expressed as Neapolitan silver *carlini* (sixty of which equalled one gold *oncia*) per Florentine florin.

⁴⁸ Uzzano, p.140. Similarly, the Genoese florin used in the rates was not the physical gold coin but a unit of account equal to 25 Genoese silver *soldi*. Thus, when the local silver currency was debased after 1400, the exchange rate also depreciated as a result (P. Spufford, *Handbook of Medieval Exchange* (1986), pp.110-112).

⁴⁹ ‘*e i d(enari) p(er)firenze cred(i)amo cimegl(i)oranno siche p(er)o sostegnamo ... datori a 4 e devolve a 5 sirimettessono*’ (508/9/100698).

⁵⁰ ‘*no(n) c’è il modo a farlo ... siche p(er)ò no(n) se n’ è fatto nulla che semp(r)e che metterene una chosa guardarremo d(i) farla chon vostro vantagio e p(r)estamente*’ (652/6/511332).

⁵¹ 654/9/413070, /413075, /413076, /413077, /413083.

⁵² The Davanzati were apparently specialists in arbitrage (Mueller, pp.297 n.12).

Such market information about local commodity prices and exchange rates alone would have been useful information for the merchants. First, by collating prices and rates from multiple sources, they could double-check the accounts submitted by their agents.⁵³ Second, price information could be used to inform future business decisions. Of course, in order to compare relative prices in different countries, the merchant also needed up-to-date exchange rate data. The more information that a merchant had about the prices of goods and exchange rates in different markets, the better informed his trading decisions could be. As the author of a contemporary handbook for merchants, Giovanni di Antonio da Uzzano, wrote:

The good rule in making exchange should be as follows: beware not to find yourself in debt in a certain territory at a time when money can be expected to be high, either because of fairs, or because of ships sailing out, or because of large sales of merchandise, or because of payments which may be due to soldiers, rulers, communes, or the like, or because of anything of an ordinary or extraordinary nature as a result of which you may hear that money is going to be withdrawn from banks and changers, but you ought to find yourself well-supplied with money.⁵⁴

However, the merchant could not simply react to news of high exchange rates or prices, since:

Wherever money is expensive, cash flows in from every place, money is withdrawn from banks and therefore abundance is bound to come. And where there is great abundance, cash is drawn away, and money is bound to become tight... In regard to merchandise, you ought to have foreseen the dearth and to be in a position that you have bought in time of abundance and that you have [the commodities] later, when they are dear.⁵⁵

Given the long lag times involved, by the time the merchant had heard about high prices or favourable exchange rates at a foreign centre, it was often too late for him to take advantage of them. Not only was the price information often weeks old by the time it reached the merchant but it would take a similar or longer time to dispatch money or goods there. Thus, while it was certainly useful to know what the prices and exchange rates were when the letter was sent, it was perhaps even more valuable to have some idea of where prices and rates

⁵³ F. Lane, *Andrea Barbarigo, Merchant of Venice, 1418-1449* (New York, 1967), pp.94-6.

⁵⁴ Uzzano, p.153. Translated in *Medieval Trade in the Mediterranean World: Illustrative Documents*, ed. R. Lopez and I. Raymond (New York, 2001), p.420.

⁵⁵ *Ibid.*, pp.420-1.

might move in the future. Such ‘market moving’ information can be divided into two classes along the lines set out by Uzzano: that of an ‘ordinary’ nature linked to the flows of trade and more ‘extraordinary’ events related to politics, war and natural disasters.

In the first extract above, Uzzano notes the impact of fairs and large sales of merchandise. Contrary to popular conception, the law of supply and demand was well known in the Middle Ages and the letters explain price movements for individual goods in those terms.⁵⁶ The writers also gave advice about potentially profitable trading opportunities based on predicted price changes. A particularly illustrative example combining both of these aspects can be found in July 1393, when Alamanno Mannini wrote from London to Genoa that Berto da Ruciano’s ship had arrived in Southampton with a large cargo of pepper.⁵⁷ The price was now 13d and Mannini planned to start buying once it had dropped to 10d. However, Ruciano had not brought any ginger, of which there was a great shortage in England and Flanders; as a result, good quality ginger was worth 25d per lb and was expected to exceed 30d by the end of September. Meanwhile, his correspondents in Venice had sent news that a Catalan ship had left Beirut in March bound for Barcelona, carrying a large consignment (at least 300 bales) of ginger. The arrival of this ship should cause the price of ginger in Barcelona to fall and, provided no more ships bringing ginger arrived in England or Flanders in the meantime, then Mannini thought one might ‘reasonably do well’ out of buying ginger in Spain and sending it north.

Further, commodity prices and exchange rates were closely linked.⁵⁸ At times of high demand for cash or credit to purchase goods, the local currency would appreciate, that is, sellers of bills of exchange (borrowers) would have to promise more foreign currency to receive one unit of local currency. In this case, merchants described money as being ‘tight’ (*strettezza*) or ‘scarce’ (*carestia*). In the contrary situation, when the supply of money exceeded the demand, money was ‘loose’ (*larghezza*) or ‘abundant’ (*dovizia*) and the local currency depreciated as buyers of bills of exchange (lenders) were prepared to accept less foreign currency per unit of local currency.⁵⁹ Because of the seasonal nature of the production of different goods, the rhythms of international trade were fairly predictable; for instance, Uzzano devoted a section

⁵⁶ D. Wood, *Medieval Economic Thought* (Cambridge, 2002), pp.132-44.

⁵⁷ 777/37/313003.

⁵⁸ The following discussion is based on Mueller, p.305.

⁵⁹ Of course, whether the quoted exchange rate rose or fell depends on the method of quotation.

of his merchants' manual to 'the improvement of monies in many places', describing the factors influencing exchange rates at the key financial and trading centres.⁶⁰

For example, demand for saffron in Barcelona in September and October 1388 did not just push up the local price of the spice but also caused *carestia* of money, as would-be purchasers of saffron sought to borrow money by selling bills of exchange, and thus the *lira* of Barcelona to strengthen.⁶¹ This agrees with Uzzano's overview of seasonal patterns in Barcelona, with peaks in August linked to purchases of wool and grain-dye, followed by another tightening in October 'because of the investments in saffron, when the dearness is even greater than in the wool season, and it will last until January'.⁶² The exchange rate data extracted from the Datini letters supports the first part of Uzzano's story, as the *lira* of Barcelona appreciated over the summer and peaked in October, but thereafter it diverges as the *lira* subsequently weakened in November, December and January.⁶³ Perhaps the clearest example of these seasonal patterns was in Venice during the galley season - as the galleys prepared to depart to the east, merchants sought to raise funds to buy goods for export and to acquire specie to settle the chronic western European trade deficit with the East. As a result, Uzzano described how 'in Venice money is expensive from May to 8 September, because of the outward bound galleys which leave in July, August and September'. After 8 September, however, 'all the galleys have gone, so there is no more demand - and the banks are quick to supply and money goes through the floor'.⁶⁴ In this case, Uzzano's practical observations can be confirmed empirically using the exchange rate data from the Datini letters.⁶⁵

Since these seasonal variations in prices and exchange rates were well-known, news about events that might cause deviations from these trends was especially valuable. For example, the letters were particularly concerned with shipping and frequently describe the departure and arrival of ships with their cargoes. Such information had an obvious importance for marine insurance, which Datini both bought for his own goods and sold to other merchants.⁶⁶ In addition, shipping also had an obvious impact on commodity values. In England, the prices of goods for export went up when Italian carracks and galleys came into port, and fell again

⁶⁰ Uzzano, pp.155-8. For other similar descriptions, see *Il Manuale di Mercantura di Saminiato de' Ricci*, ed. A. Borlandi (Genoa, 1963), pp.115-19 and *E Libro di Mercantarie et Usanze de' Paesi*, ed. F. Borlandi (Torino, 1936), pp.167-8.

⁶¹ 651/6/407888, 652/1/9163, 652/1/9291792.

⁶² Uzzano, p.156.

⁶³ Bell et al, 'Time series analysis', pp.104-7.

⁶⁴ Uzzano, pp.156-7.

⁶⁵ Bell et al, 'Time series analysis', pp.109-10.

⁶⁶ F. Edler de Roover, 'Early examples of marine insurance', *Journal of Economic History*, 5 (1945), 187-90, 197-8.

after they left for home.⁶⁷ On the other hand, ships bringing a glut of imported goods would cause prices to fall, for instance in November 1394 on the arrival of two ships in Southampton.⁶⁸ The quantity of goods loaded in England also affected prices when the ships arrived back in Italy and so the letters often contained detailed accounts of the cargo contents, some of which survive as separate lists of *carichi di nave*. A merchant who was aware of what a ship was carrying and when it was likely to arrive was in a better position to predict future price movements. Shipping likewise had an impact on exchange rates. The departure of ships buying up goods for export could increase the demand for cash and drive up exchange rates, as it did in the summer at Venice. Likewise, at Genoa in September 1388, ‘money [was] a little tight because the ships left’.⁶⁹ Equally, however, the arrival of ships bringing specie could cause rates to fall; as the same correspondent noted in November 1391, the rates ‘should change for the better because two [incoming] galleys had to have coin’.⁷⁰

The letters also contained information about Uzzano’s ‘extraordinary’ events that might move the markets. Datini’s correspondents in Genoa frequently passed on news of the Visconti lords of Milan, whose expansionism posed a direct threat to Florence. This could have economic implications; when Giangaleazzo Visconti became signore of Padua in late 1388, one correspondent connected this to a fall in the price of silver, although it was only expected to be temporary.⁷¹ Another major concern was the on-again off-again progress of the Hundred Years War, and its likely impact on trade to and from England. The first letter from London was sent in July 1388, although earlier news about the naval campaign against the French and Flemings in spring 1387 had been passed on to Pisa and Florence via the Genoese branch, who had themselves received information about the English victory at Cadzand/Margate from their correspondents in Bruges and Paris.⁷² For example, in March 1407 Gherardo Davizi announced that the siege of Bordeaux was lifted, the duke of Orleans had gone back to Paris, there was a twelve-month Anglo-Flemish truce and Henry IV was preparing to go to France.⁷³ The positive results could be seen in the following year, when Giovanni Orlandini wrote from Bruges that ‘now many English merchants will tarry here, and we shall trade much more with them’. Unfortunately, the resumption of conflict in 1410 disrupted the market at Bruges,

⁶⁷ ‘...quando ci saranno pasagi p(er) costa ne sarano più chari ...’ and ‘... d(e)livere le chariche torneranno al’usato ...’ (664/41/509886); ‘... d(i) poi le ghalee partirono e panni sono tornati a ragionevoli p(r)egi ...’ (664/38/509985).

⁶⁸ ‘... p(er) le molte spezie an(n)o aportato tutte spezie ci sono calate di p(r)egio ...’ (777/37/313020).

⁶⁹ ‘... e ci un pocho stretta d(i) d(enari) p(er) li navili partitosi’ (652/6/511302).

⁷⁰ ‘...varan(n)o meglio p(er) queste 2 ghalee ch’anno avere d(enari)...’ (514/13/406549).

⁷¹ 511/5/305720.

⁷² 509/2/6809; 651/2/9059. For the battle itself, see T. Moore, ‘The cost-benefit analysis of a fourteenth-century naval campaign: Margate/Cadzand, 1387’, in *Roles of the sea in medieval England*, ed. R. Gorski (Woodbridge, 2012), pp.103-124.

⁷³ 664/25/10038.

leading Diamante and Altobianco degli Alberti to lament ‘the default of the English, who ever spend most at this fair and who may not journey here, because of their war with the French’.⁷⁴

In addition to disrupting production and trade, war meant that governments had to raise money to pay for their armies, which could also have a dramatic impact on exchange rates. This can be seen in Mueller’s analysis of the course of the exchange in Venice during 1389, based on the letters sent to Datini by the Davanzati company.⁷⁵ Normally, exchange rates would have fallen in spring, due to a lack of demand for cash and credit between the Christmas fair and the departure of the galleys in the summer. However, the rates remained high in January on news that Giangaleazzo Visconti of Milan intended to withdraw 30,000 ducats in cash to pay his troops employed in the war against Florence. Likewise in March, further withdrawals by the Visconti pushed up rates against the expected seasonal trend. The exchange rate data from the Datini letters is sufficiently extensive to allow us to apply quantitative mathematical analysis to investigate the impact of such events, for example using structural break testing. A structural break occurs where the behaviour of a time-series (in this case an exchange rate) or its relationship with other series changes on a long-term or permanent basis, so that previous models that described these relationships subsequently break down.⁷⁶ For example, most of the exchange rate series at Bruges reveal a structural break after the summer of 1396. This does not coincide with any of the frequent debasements or *renforcements* of the Flemish coinage but may be linked to the financing of a crusading force led by John de Nevers, heir to the duchy of Burgundy. This force was defeated at the battle of Nicopolis and Nevers and other local magnates were captured and ransomed for the vast sum of 200,000 ducats. The statistical analysis confirms de Roover’s suggestion that the arrangements for the payment of this ransom had a lasting impact on financial flows from Bruges.⁷⁷

One of the underlying determinants of medieval exchange rates was the respective metallic contents of the two currencies. Indeed, it is argued that the exchange rates used for bills of exchange could not diverge too far from the intrinsic value of the two coins; if the exchange rate crossed the specie points then merchants could engage in arbitrage by transporting gold

⁷⁴ Origo, p.83.

⁷⁵ Mueller, pp.309 and 307-12 for further examples of the impact of political and other news on exchange rates.

⁷⁶ Bell et al, ‘Time series analysis’, pp.113-19.

⁷⁷ De Roover, *Bruges Money Market*, pp.52-3; C. Wright, ‘An Investment in Goodwill: Financing the Ransom of the Leaders of the Crusade of Nikopolis’, *Viator*, 45 (2014), pp.261-97.

or silver between the two places.⁷⁸ Any change to the gold or silver content of the coinage was therefore a major concern for the merchants. The Italian communities at Bruges, for instance, took a special interest in the repeated monetary reforms launched by the duke of Burgundy.⁷⁹ Between 1399 and 1401, the authorities at Bruges also sought to enforce settlement of bills of exchange in gold rather than by book transfer, presumably in an attempt to attract more specie to the city.⁸⁰ The Orlandini in Bruges wrote to Datini's branch in Barcelona predicting that, as a result, money would remain dear in Bruges for the foreseeable future, and so they should aim to remit to rather than drawing on Bruges. As de Roover pointed out, 'medieval bankers understood perfectly well the game of arbitrage'.⁸¹ Ultimately, the ordinance failed to achieve its goal of increasing the amount of gold in circulation and, after fierce lobbying from the Italians and other merchants, the plan was abandoned in September 1401.

Furthermore, medieval rulers could also engage in aggressive currency debasements to raise funds. For example, between 1395 and 1400 Giangaleazzo Visconti debased the Milanese silver coinage to fund his wars with Florence.⁸² The impact of Milanese monetary policy can be traced via the exchange rate with Venice and confirmed via structural break testing.⁸³ Although the exchange rate with Venice was nominally expressed in terms of the gold Venetian ducat and the gold Milanese ducat, in fact the Milanese ducat was another unit of account equivalent to 32 silver *soldi imperiali*. As a result, when the value of the Milanese silver coinage decreased, the exchange rate moved in favour of Venice. By early 1400, the domestic exchange rate between silver *soldi imperiali* and the gold ducat in Milan had risen from 32 to 48-49 *soldi imperiali*, an increase of 51.6%. Correspondingly, the Venetian ducat traded at 52 better than par in Venice.⁸⁴ When Giangaleazzo sought to reverse these debasements and restore the previous quality of the silver coinage, the exchange rates rapidly incorporated this information too. In fact, this adjustment was suspiciously rapid. The decision to enhance the Milanese silver coinage was taken at a council held on 21 February 1400 to become effective on 1 March, but the exchange rate at Venice had dropped from 52

⁷⁸ O. Volckart and N. Wolf, 'Estimating financial integration in the middle ages: What can we learn from a TAR model?', *Journal of Economic History*, 66 (2006), 122-39..

⁷⁹ J. Munro, 'Coinage debasements in Burgundian Flanders, 1384-1482: Monetary or fiscal remedies?', in *Comparative Perspectives on History and Historians: Essays in Honour of Bryce Lyon*, ed. D. Nicholas, B. Bachrach and J. Murray (Kalamazoo, 2005), pp.314-60.

⁸⁰ De Roover, *Bruges Money Market*, pp.54-62.

⁸¹ *Ibid.*, p.56.

⁸² Mueller, pp.591-2.

⁸³ Bell et al, 'Time series analysis', pp.118-19.

⁸⁴ Thus 100 Venetian ducats were worth 152 notional Milanese ducats of 32 *soldi imperiali*, or 4,864 *soldi imperiali*, making each actual Milanese ducat worth 48.64 *soldi imperiali* – almost exactly equivalent to the domestic exchange rate in Milan of 48-49 *soldi imperiali* per ducat.

better than par to only nine better between 14 and 19 February.⁸⁵ The potential for such dramatic swings underlines the value of the information contained in the letters to Datini and his fellow merchants.

It is therefore clear that Datini and his correspondents did take an interest in political and other news although, as Origo observed, ‘every event [the merchants] report... is noted only with a view to its impact on trade’.⁸⁶

The communications network and infrastructure

The contents of the letters themselves, however, are only part of the story. Equally important was the network of contacts and the infrastructure that made such communication possible. Indeed, this was a prerequisite for the international operations of the merchant societies since it enabled them to send instructions and monitor their agents. Moreover, as we have seen, the market information contained in the letters had the potential to help them plan their future trading or financial operations. Moreover, the speed, frequency and reliability of communication also affected the ability of merchants to identify business opportunities and find counterparties. Information costs, i.e. the cost of encoding and decoding, storing and transmitting information, therefore play an important role in determining the viability of, particularly long-distance, trade and economic activities.⁸⁷ In addition to their contents, a quantitative analysis of the ‘metadata’ of the letters - the correspondents and locations to which they were sent and from which they were received - can also provide invaluable information about the internal structure and business of Datini’s organisation in particular as well as an insight into trade patterns and financial flows more generally.

A broad overview of Datini’s commercial correspondence is given in Table 1.⁸⁸ It shows a selection of the key commercial and financial centres with which he was in contact and also the distribution of letters sent from these places to the different Datini branches. The geographical spread of the letters reflects Datini’s own interests, mainly focused on the wool and cloth industry. His branches formed an arc running east to west from Florence to Pisa, Genoa, Avignon and, after 1396, on to the Spanish branches at Barcelona, Majorca and

⁸⁵ Intriguingly, the exchange rate in Venice adjusted before that in Milan – as late as 25 February, after the council decision, the exchange rate in Milan was still 44 in favour of Venice and only fell to between 6 and 7 in favour of Venice by 11 March (Frangioni, pp.524, 525).

⁸⁶ Origo, p.83.

⁸⁷ O. Volckart, ‘Influence of information costs on the integration of financial markets: Northern Europe, 1350–1560’, *Information Flows: New Approaches in the Historical Study of Business Information*, ed. L. Müller and J. Ojala (Helsinki, 2007). p. 31-5.

⁸⁸ Melis, *Aspetti*, pp.23-6 and 40-2.

Table 1: The geographical distribution of the Datini correspondence

PlaceFrom	Rank	PlaceTo								
		Florence	Prato	Pisa	Genoa	Avignon	Barcelona	Valencia	Majorca	Total
Florence	1	7	4586	15604	5092	18	4519	1943	1627	33925
Genoa	2	2713	98	4251	2	330	2080	805	519	10824
Pisa	3	5652	1429	14	1866	283	850	213	230	10786
Barcelona	4	1334	45	1049	1016	92	6	3359	3134	10350
Avignon	5	2285	589	1090	709		1776	349	419	7311
Venice	6	2081	7	905	205		1426	670	703	6251
Valencia	7	610	7	254	584	1	2509		1402	5750
Montpellier	8	157	2	405	550	185	2799	244	307	4652
Prato	9	2931	11	1083	18	8	12	2		4152
Bologna	10	1868	127	1256	180	8	279	120	205	4055
Majorca	11	540	4	228	220	7	1472	844	2	3446
Bruges	13	197		109	232	1	1027	431	375	2383
Lucca	14	494	16	1033	189		165	39	2	1948
Rome	15	392	5	625	547		59	5	22	1660
Paris	21	51		45	205	27	402	47	65	845
Milan	22	221	39	192	284	5	40		6	799
Gaeta	28	129		59	63		19	13	18	302
London	29	159		10	81		13	2	6	271
Total		24552	7281	34124	14183	1147	21343	10270	10218	125549

Source: Melis, *Aspetti*, pp.18-23. Omitted from the list of places sending letters: Livorno (Pisa) 3232; Pietrasanta (Lucca) 1383; Savona (Genoa) 1037; Perugia 1023; San Matteo (wool) 937; Perpignon 861; Pistoia 624; Palermo 557; Ibiza 555; Arles 467; Marseilles 464. The totals include letters from all cities, including those omitted from the table.

Valencia. Notably, Datini had no branch in Venice and instead he operated there through correspondents.⁸⁹ Likewise, Datini did not establish branches in Bruges, Paris or London, the main financial centres of northern Europe, although again he was in regular correspondence with other Florentine merchants based in these cities. Consequently although letters sent from Venice, Bruges, Paris and London to Datini's branches survive in the archive, none of the outgoing letters sent by Datini or his partners to correspondents in those cities survive. For instance, de Roover analysed the condition of the money market at Bruges based on letters

⁸⁹ Mueller, pp.267-72.

sent from Bruges to Barcelona, but we lack the return letters from Barcelona to Bruges.⁹⁰ Furthermore, there must have been active communication between Italian merchants in Bruges and London, Bruges and Paris and also Bruges and Venice but this too is now lost. Equally, while Datini's letters from Florence to his branches in Pisa, Genoa or Barcelona survive today, any letters that he sent to external correspondents in those places do not. As a result, we must be careful when drawing wider conclusions from the Datini evidence.

Used judiciously, however, the patterns within the Datini correspondence may shed some light on wider commercial and financial linkages between different places.⁹¹ One key triangle was Florence-Pisa-Genoa, representing nearly a third (30.8%) of all the letters sent and nearly two-thirds of all outgoing letters from these three places circulated within this triangle. These figures are especially noteworthy given that Datini's branches in Pisa and Genoa were effectively closed after the devastating plague outbreak of 1400.⁹² Prato, by contrast, was Datini's hometown but not a major financial or commercial centre. The bulk of letters to and from Prato were sent to Florence (65.7%) or Pisa (22.0%), which therefore acted as gateways for the flow of information and instructions into and out of Prato. In Spain, there was another triangle between the branches at Barcelona, Majorca and Valencia - again nearly two-thirds of outgoing correspondence from these places circulated within this triangle.⁹³ Of the three, the Barcelonese branch was the most active, sending and receiving as many letters as those of Majorca and Valencia combined. Moreover, Barcelona may also have acted as the entry point to the wider mercantile network - while one-half to three-fifths of all letters to Majorca and Valencia originated outside Spain, over four-fifths of the letters received at Barcelona came from Italy or northern Europe. There were particularly strong connections between Italian merchants operating in Iberia and Northern Europe. Letters from Bruges were sent overwhelmingly to Datini's Iberian branches (76.9%) with relatively few letters to Italy (22.6%, fairly evenly split between Genoa, Florence and Pisa). Paris likewise was in frequent communication with Spain (60.8%), which is interesting because, as we shall see, there was apparently no active market for bills of exchange between those two places. These contrasts between the network of communication, trade and finance will be explored further below.

⁹⁰ Of course, de Roover was able to observe the exchange rate with Bruges at Barcelona as reported in letters sent from Barcelona to other Datini branches.

⁹¹ The following figures are derived from Table 1 and build on the analysis in Melis, *Aspetti*, pp.24-5. Note that they refer to all commercial correspondence, not just those letters containing exchange rates.

⁹² Origo, pp.93, 96.

⁹³ This may also reflect the fact that Datini had no branches in Northern Europe and so any letters sent to Bruges or Paris, places from which the Spanish branches frequently received letters, do not survive.

Although Datini was active for over fifty years, the surviving letters are not distributed evenly over this long period.⁹⁴ The chronology of the correspondence is illustrated in Figure 2 and is closely related to the changing emphasis of his business. There are very few surviving letters prior to 1383, the pivotal year when Datini returned to Italy from Avignon and began to expand his business interests.⁹⁵ There is a further increase throughout the 1390s, as Datini grew the scope of his operations. Unsurprisingly, the volume of surviving correspondence peaked in the late 1390s when Datini was simultaneously operating branches in Florence, Pisa, Genoa, Avignon and Barcelona (with sub-branches in Valencia and Majorca). At the same time, he also ran a banking company in Florence, two industrial companies in Prato, one specialising in wool and the other in dyeing, and a company set up to trade silk, cotton and linen. After 1400, there is a sharp reduction in the number of letters received, reflecting the closure of the Datini branches in Pisa and Genoa. It should be noted, of course, that this pattern is partly a consequence of Datini's record-keeping practices. Even after his branches in Genoa and Pisa were closed, Datini continued to correspond with other Florentine merchants based in those two cities, whose incoming letters survive in the archive today.

The close relationship between foreign exchange and merchant banking can be seen clearly from the first appearance of exchange rate quotations in the Datini correspondence. The earliest letter to quote exchange rates that has so far been found was sent by Bonaccorso di Vanni da Prato from Genoa to Datini in Avignon on 3 June 1377.⁹⁶ It is extremely rare for exchange rates to be quoted in the correspondence received by Datini during his years in Avignon, when he was engaged in trade rather than merchant banking. Although there are a handful of additional letters that report exchange rates for 1377-1382, these were not sent to Datini himself. Rather, they survive within the archive today because some of Datini's later associates brought with them letters that they had received when they worked on their own or in other partnerships.⁹⁷ Importantly, no letter sent by Datini or from Florence before 1383 quotes exchange rates. It was only after Datini returned to Italy from Avignon and established companies at Pisa and Florence that letters containing rates appear *en masse*. The systematic

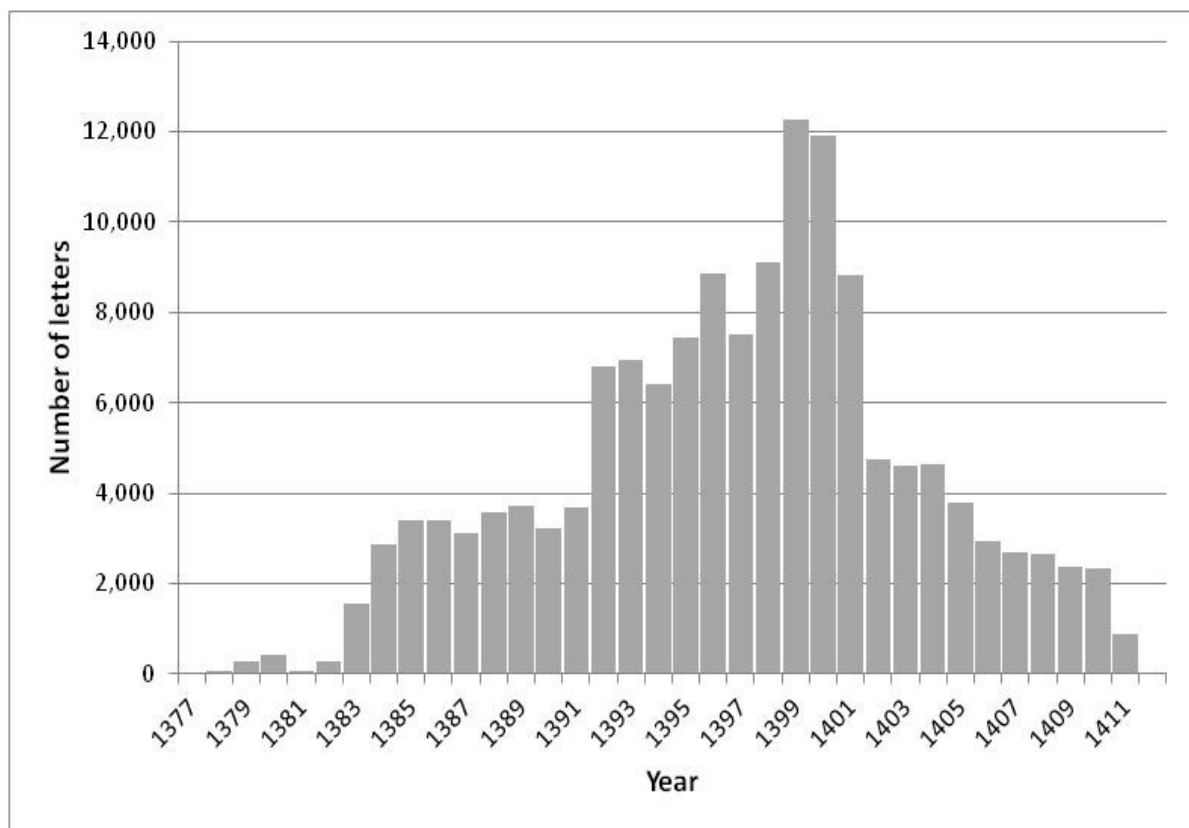
⁹⁴ Melis, *Aspetti*, pp.27-8. Somewhat confusingly, Melis first identifies the decade 1395-1405 as the busiest, representing two-thirds of all surviving letters, but then notes that four-fifths of all the letters date from before 1400. In fact, the decade c.1392-1401 accounts for nearly 60% of all letters.

⁹⁵ For the following chronology, see Melis, *Aspetti*; and relevant chapters in *Francesco di Marco Datini*, ed. Nigro.

⁹⁶ 183/7/316596. This was followed by two more letters in quick succession (183/7/316597-316598). A letter from Piero da Spignano in Genoa to Datini in Avignon from April 1380 quotes rates for Avignon, Montpellier and Pisa (183/23/317254). See also letters from Francesco di Bonaccorso Alderotti and Lodovico Marini to Datini in Milan in December 1382 (1116/130/6000187) and Prato in January 1383 (341/2/424479).

⁹⁷ See letters from Ambrogio di Meo or Bruno di Francesco in Genoa to Lodovico di Guido Adimari, and to Salvestro Barducci in Florence.

Figure 2: The chronology of the Datini correspondence



Source: Datini archive. Note that these figures are slight overestimates, since a search for 1379 on the online catalogue will also return a small number of letters that were sent in late 1378 but arrived in 1379.

inclusion of exchange rates in the correspondence thus reflects a fundamental change in the nature of Datini's business activities and his return to Italy had a more than purely geographical significance.

The range of different exchange rates cited in the letters can also allow us to assess the major financial centres in which Florentine merchants conducted business although, as noted above, we need to be careful generalising from one case study. For instance, as Datini's business interests expanded in the 1390s, so did the range of rates quoted in his correspondence. Taking one small partnership, Adoardo Portinari and Paolo di Francesco, as an example: between 1393 and 1396 they sent roughly weekly letters from Florence to Datini's Pisan branch, routinely quoting exchange rates for Pisa, Genoa, and Rome. From April 1397, they started writing more regularly to Datini's branch in Genoa and reporting exchange rates for a larger number of cities, adding Bologna and Venice, plus Barcelona, Montpellier, Bruges,

Paris and London.⁹⁸ This probably reflects the extension of Datini's interests to Spain and Northern Europe during the second half of the 1390s. At the same time, the choice of rates was also influenced by the interests and connections of Datini's correspondents themselves. For example, there is a significant difference between the rates quoted in letters sent out from Florence by members of the Mannini and Pucci firms. The former was a large partnership system with branches in five cities and a major role in the Florentine mercantile communities in Bruges and London, and their letters quote a wide range of different rates. By contrast, Bongianni Pucci headed only two branches that mainly traded within the triangle Florence-Pisa-Genoa and his letters generally only quote Italian rates.⁹⁹

Changes in the exchange rates cited in the letters can also shed light on wider events. This can most clearly be seen from the alternating inclusion of Pisa and Lucca. Lucca was neither a major financial nor trading centre, but rather a manufacturing city specialising in silk production.¹⁰⁰ As a result, it is largely absent from the lists of exchange rates at the start of the period under discussion. Instead, Pisa provided access to the sea for Florentine trade and communications and, as a result, was one of the most frequently-quoted rates. This continued until 1397, when Pisa fell into the Visconti sphere of influence and the Florentine merchants were expelled.¹⁰¹ As a result, the Florentines moved their base of operations to Lucca and, from November, exchange rate quotations for Pisa were replaced with those for Lucca in letters from Florence. Although in the following year the harbour of Pisa was re-opened to Florentine merchants, the letters continue to include rates for both Pisa and Lucca, presumably in case the continuing Florentine-Milanese conflict forced the merchants to relocate again. Local economies could be strongly affected by the movement of the royal courts, whose expenses created a continuous demand for money.¹⁰² After the death of Charles III of Naples in 1386, his young son Ladislaus was ejected from Naples by the rival Angevin claimant to the throne, Louis II, and retreated to Gaeta.¹⁰³ The correspondence from Naples ceases at this time and instead letters were received from Florentine merchants in Gaeta, and letters from Florence and Genoa start to quote exchange rates for Gaeta rather than Naples.

⁹⁸ For example, compare the rates quoted in an early letter to Pisa of 31 Jan. 1394 (478/15/8444) with those in a later letter to Genoa of 10 Feb. 1397 (767/19/415437).

⁹⁹ The Mannini sent letters to Datini from their branches in Florence (696), Rome (34), Paris (227), Bruges (408) and London (122). Pucci only sent letters from Florence (499) and Genoa (1951). Figures from the online catalogue to the Datini archive.

¹⁰⁰ C. Meek, *Lucca, 1369-1400: Politics and Society in a Renaissance City-State* (Oxford, 1978), pp.31-9.

¹⁰¹ M. Berti, 'The Pisa company: a difficult political context', in *Francesco di Marco Datini*, ed. Nigro, pp.294-307.

¹⁰² As Uzzano (p.57) notes, 'where the pope goes, money is always in short supply'.

¹⁰³ L. Frangioni, 'Central and southern Italy in the Datini system', in *Francesco di Marco Datini*, ed. Nigro, pp.463-6.

The collection of a dataset of the exchange rates quoted in letters from different cities permits a more systematic analysis of the European financial network c.1400. Table 2 shows the percentage of those letters from each city that provide quotations for each of the other cities. Obviously these figures have to be interpreted with care. For instance, the percentages for Florence and Genoa in particular are skewed by the high number of short-distance internal communications with each other and the branch at Pisa, which tended only to quote rates for those places. Thus, although rates for London were only quoted in around one in four of the letters from Florence and one in three from Genoa, this still represents a substantial number of observations given the volume of letters from these places.¹⁰⁴ Similarly, although rates for London are only quoted in 10% of all Venetian letters over the whole period, from roughly April 1403 they appear in nearly half of all letters.¹⁰⁵ So, although exchange rates for London do not appear in a high percentage of letters, they were still relatively frequently quoted and so have been treated as routinely available. Finally, since the merchants tended to quote either Pisa or Lucca and Gaeta or Naples, depending on the political situation, these have been treated together.

The analysis of the exchange rates quoted in the Datini letters, as shown in Table 2, thus allows us to examine two key aspects of these medieval financial market centres. First, since the exchange rates were collected from the brokers based on market transactions, the number of different rates that were frequently quoted at each financial centre (by horizontal row) may be taken as an indication of the depth or liquidity of the local financial market, although, as we have seen, the particular business interests of the sender and recipient of the letter may also have influenced the former's choice of rates to quote. Second, the number of other centres that quoted rates for that centre (by vertical column) may indicate the degree to which and how each centre was connected to the international financial network. Building on these concepts, it is possible to distinguish between financial centres of European, inter-regional and regional significance.

¹⁰⁴ Moreover, the London quotations are concentrated from the 1390s onwards. Rates for London at Genoa were quoted from October 1391 and thereafter appear in 1746 of 3143 letters; and at Florence, quotations start from December 1395 and feature in 1102 of 2543 letters after that date.

¹⁰⁵ Similarly, exchange rates for Venice in letters from London mostly date from September 1401, after which they are found in 29 of 82 letters. It seems that the Venice-London connection was becoming established in the years after 1400 and grew in importance over the fifteenth century (de Roover, *Rise and Decline*, pp.113-23).

Table 2: Exchange rates quoted in the Datini correspondence

Place From	Exchange rates cited														
	Tuscany		Western Mediterranean				Northern Italy			Southern Italy		Northern Europe			No. of rates cited
	Florence	Pisa/Lucca	Genoa	Avignon	Montpellier	Barcelona	Venice	Bologna	Milan	Rome	Gaeta/Naples	Paris	Bruges	London	
Genoa	95	90		71	70	66	55	24	19	30	10	43	52	31	
Florence		88	89	46	40	49	81	62	1	58	14	49	57	24	12
Venice	100	85	83			38		65	40	28		48	64	10	10
Barcelona	48	88	96	93	95		44						91		7
Paris		48	96	80	95		80						95		6
Bruges	1	20	97		<1	96	98					96		88	6
Milan		54	96				88					37	40		5
London			91				14					2	95		3
Gaeta/Naples	91	32	88							2					3
No. of places quoted by	4	8	8	4	4	4	7	3	2	3	2	5	7	4	

Source: Exchange rate dataset. This table shows the number of letters from each city that include at least one exchange rate. It then shows the percentage of those letters that quote exchange rates for different financial centres (i.e. letters that do not contain any exchange rates are excluded from the analysis). It combines Pisa and Lucca and Gaeta and Naples since the Florentine merchants tended to alternate between one or the other, depending on the political situation. It also excludes some smaller centres, most notably Majorca (quoted in 42% of the letters from Barcelona), Palermo (quoted in 38.1% of the letters from Naples), Perugia (quoted in 24.9% of the letters from Florence) and Valencia (17% of the letters from Genoa).

The three major financial centres are, unsurprisingly, Genoa, Florence and Venice.¹⁰⁶ The liquidity of the foreign exchange market in these centres is demonstrated by the number of different rates that were routinely quoted at each; thirteen for Genoa, twelve for Florence and ten for Venice. However, there is an intriguing contrast in that Genoa and Venice seem to have been much more closely linked to other markets than Florence. Rates for Genoa were quoted at eight other centres and Venice at seven, but Florence only four (almost invariably at Genoa and Venice, occasionally at Barcelona, and also at the more peripheral Gaeta/Naples). For example, Florence quotes Bruges, Paris and (from 1396) London but rates for Florence are not quoted at those cities. This suggests that there was no active market for remitting directly to Florence from Bruges, Paris or London. This imbalance in the direction of financial flows may highlight the role of Florence as a major capital exporter, from where a merchant could remit funds pretty much anywhere. By contrast, a merchant in Northern Europe wishing to transfer funds to Florence would have to do so indirectly, probably via Genoa. Venice played a similar role as a link to the markets of Central and Eastern Europe and the entire Levant. Although Datini did not establish a branch of his own in Venice, this did not mean that he lacked interest in trade with the East. Rather, Datini, like many other great Florentine merchants, relied on correspondents in Venice to engage in trade with the East rather than establishing his own branch there. It was only from the second half of the fifteenth century that Florence opened its own route to the Ottoman Empire through Ancona and Ragusa.¹⁰⁷

Slightly less developed, but still major, financial centres can be classified as inter-regional hubs. The two key examples are Bruges for northern Europe and Barcelona for Spain.¹⁰⁸ Although Bruges only quotes five centres regularly and a sixth occasionally, rates for Bruges were quoted at no fewer than seven other centres. Bruges was probably the gateway to London and also a key link between the northern European cities and Spain. It played a particularly vital role in the Italian merchants' trade with the North.¹⁰⁹ Barcelona regularly quoted rates for eight other cities (the seven listed in Table 2 plus Majorca) and, in return, it was the city most frequently quoted in exchange rates for Spain. This is significant because

¹⁰⁶ The letters from Pisa have not been analysed in detail and so it is not yet known whether Pisa was a true international centre or an inter-regional hub for trade to and from Florence.

¹⁰⁷ Goldthwaite, pp.184-193. For more on the subsequent links with Ragusa, see F. Bettarini, *La Comunità Pratese di Ragusa (1414-1434): Crisi Economica e Migrazioni Collettive nel Tardo Medioevo* (Florence, 2012).

¹⁰⁸ The letters from Avignon and Montpellier have not been examined by the current study but these centres may well have enjoyed a similar significance.

¹⁰⁹ For the role of Bruges within the Datini system, see Guidi Bruscoli, 'Northern Europe'; For the importance of Bruges as a financial centre more generally, see R. de Roover, *Money, Banking and Credit in Medieval Bruges: Italian Merchant Bankers, Lombards and Money-Changers, a Study in the Origins of Banking* (Cambridge, Mass., 1948); J. Murray, *Bruges, Cradle of Capitalism, 1280-1390* (Cambridge, 2005); L. Galoppini, *Mercanti Toscani a Bruges nel tardo Medioevo* (Pisa, 2009); Bolton and Guidi Bruscoli, 'When did Antwerp'.

Datini also had branches in Valencia and Majorca, while wool from San Matteo was of crucial importance to his cloth-making business.¹¹⁰ Even those letters sent directly to the branches in Valencia and Majorca more often quote rates for Barcelona rather than for their ostensible destinations. This reinforces the conclusion derived from the patterns of correspondence that Barcelona was the dominant financial centre in Iberia. It also demonstrates that the inclusion of information concerning exchange rates was decided by the merchants based on the financial role of these places rather than their strictly commercial significance.

Other cities, like Paris and Milan, occupied a more ambiguous position within the international financial system.¹¹¹ Paris quoted exchange rates for Genoa and Venice, and sometimes Pisa, as well as Bruges and the Southern French centres of Avignon and Montpellier, but not for Florence, London or the branches in Spain. The latter is particularly interesting since Datini's correspondents in Paris frequently wrote to his Spanish branches, but even these letters do not quote any rates for Spanish cities, instead noting that there was no business in the exchange market for those places. In a similar way, Milan frequently quoted Genoa and Venice and, more sporadically, Pisa, Paris and Bruges but it was only quoted at Genoa and Venice. It is therefore likely that the majority of financial transfers to and from Milan were mediated via the more developed neighbouring markets of Genoa or Venice.

Finally, there are a number of financial centres that had a regional importance but were on the periphery of the wider network. Perhaps the clearest example is London.¹¹² The letters from London quote rates for Bruges and Genoa but never Florence and only occasionally Venice towards the end of our period. The latter point is particularly interesting because, as noted above, the London-Venice axis became important later in the fifteenth century. The lack of depth in the rates quoted suggests that the local exchange market was not very developed or liquid. Despite this, London was reasonably well-integrated into the European financial system, and rates for London were quoted at Bruges and the Italian centres of Florence, Genoa and Venice but not at Paris or Barcelona. As we have seen, a merchant in Florence could buy or sell a bill of exchange on London but there does not seem to have been an active

¹¹⁰ Melis, Aspetti, pp.237-79; A. Orlandi, 'The Catalonia company: An almost unexpected success', in Francesco di Marco Datini, ed. Nigro, pp.347-76.

¹¹¹ See Guidi Bruscoli, 'Northern Europe' and L. Frangioni, 'Milano "is a good land and the basis of our trade"', in Francesco di Marco Datini, ed. Nigro, pp.419-33.

¹¹² For Datini's interests in England, see Bradley, 'Datini Factors', and for Florentine merchants more broadly, G. Holmes 'Florentine merchants in England, 1345-1436', *Economic History Review*, 2nd Ser., 13 (1960-1), 193-208.

market in London for the reverse operation. Gaeta and Naples present a more extreme situation. They consistently quote rates only for Florence, Genoa and Pisa and were only quoted (infrequently) by Florence and Genoa in return, indicating that they had even more limited connections to the wider financial network.

This wide geographical coverage would have been moot, however, if the communications infrastructure was insufficiently reliable, regular and (relatively) rapid for the merchants to act with confidence on the information that they received. McCusker has argued that, prior to the development of the business press, ‘merchants relied for their news on irregular, almost random contacts with business associates’.¹¹³ This may have been the case for Northern Europe but the situation in Italy was very different. Since the mid-fourteenth century the Italian communities in the various European cities had organised mailbag deliveries (the *scarsella*).¹¹⁴ This provided a vital service but was not without certain disadvantages. It was not always on schedule; on 12 November 1387, the bag from Barcelona arrived in Genoa in the morning, but not the one from Provence, which was then hoped for that evening or the following day.¹¹⁵ Occasionally, the writer also had to sign off in haste because the messenger was leaving, or else wait for the next mailbag.¹¹⁶ Alternatively, letters could be sent with a bundle of letters (*mazzo*) addressed to other companies, which the initial recipient was to distribute onwards.¹¹⁷ In addition to these formal structures, the merchants also used other means of sending letters. Companies entrusted them to employees, as well as shipmasters, family or friends.¹¹⁸ Travellers also made verbal reports: messengers left London overnight on 17 November 1398 with news of the death of the papal collector in England; Luigi and Salvestro Mannini in Bruges added this information as a postscript to one of Alamanno and Antonio’s letters from London.¹¹⁹

¹¹³ McCusker, ‘Information costs’, p.71.

¹¹⁴ F. Melis, ‘Intensità e regolarità nella diffusione dell’informazione economica generale nel Mediterraneo e in occidente alla fine del medioevo’, in *I trasporti e le comunicazioni nel Medioevo*, ed. L. Frangioni (Florence, 1985), pp.185-93; L. Frangioni, *Organizzazione e Costi dei Servizio Postale alla Fine del Trecento* (Prato, 1983), pp.46-51.

¹¹⁵ 651/2/9098.

¹¹⁶ *p(er) fretta d(i)chi parte*, (652/6/511295); for letters held over, see 511/1/6957, 652/1/9180; for lack of messengers, see 509/2/6869 and 664/31/407471.

¹¹⁷ ‘... *datele i(n) loro mano.*’ (512/11/406167); ‘...*p(r)egianvi i(n) sua mano la pongniate & no(n) d’altri*’ (664/22/308926); ‘... *datela i(n) sua p(ro)p(r)ia mano & da lui fate d’avere R(isposta) ...*’ (512/10/305772). On the outer leaf, ‘*datela a Rosso che lla mand(i)*’, (654/6/800002).

¹¹⁸ ‘*Istamani va fante a Vigno(ne) e ma(n)damo vostra le(ittera) ...*’ 653/14/511153; for shipmasters, see 511/5/305741, 513/8/406385; for colleagues and friends, see 511/6/308001, 513/4/521549, 653/4/9246.

¹¹⁹ ‘*I(n) q(ue)st’ora abia(mo) auto fante p(ro)pr(ia) da Londra de d(i) 17 d(i) q(ue)sta a notte e co(n)tano come il coll(ectore) al Papa ch’era là e morto che gran’dan(n)o ci è ne segue dela sua morte p(er)ch’era n(ost)ro padre e n(ost)ro singniore ...*’ (777/37/313052). The Florentines had a particularly close working relationship with the new papal collector and nuncio, Lodovico da Prato, bishop of Volterra (664/25/10037-10038).

These varied forms of communication provided a relatively speedy service, given the limitations of contemporary technology, as shown in Table 3. Post between the key centres of Florence and Pisa took two days and Pisa and Genoa four days, meaning that letters between Florence and Genoa took six days. Communication between Florence and Venice was usually by the *via Bolognese*, and Bologna lay two days from Florence and four from Venice, and so letters between Florence and Venice generally took six days. Within Datini's triangle of Spanish branches, letters from Barcelona took two days to reach Majorca and five or six days to Valencia. In northern Europe, letters took an average of six days between both Bruges and Paris and Bruges and London, although the vagaries of sea voyages made the latter less predictable. By contrast, inter-regional communication between more distant centres, such as Italy and Spain/Northern Europe or Northern Europe and Spain, could take from three weeks to a month. Table 3 also shows the *usance* periods between different centres. The first point to note is that *usance* was always longer than the postal time, which gave the merchants on whom the bills were made sufficient time to arrange for payment. The fact that *usance* periods varied could be used to construct loans of different lengths using exchange and rechange transactions – one month between Florence and Venice, two months between Bruges and London, four months between Italy and Bruges or Bruges and Barcelona, and the longest, of six months between Italy and London.¹²⁰

Table 3: Postal times (and *usance*) in days between key financial centres

	Florence	Pisa	Genoa	Venice	Barcelona	Paris	Bruges	London
Florence		2 (+3)	6(+8)	6(+5)	23 (d60)	21 (d60)	27 (d60)	30 (d90)
Pisa	2 (+3)		4 (+5)	8 (d20)	22 (+30)	20 (d60)	25 (d60)	32 (d90)
Genoa	6 (+8)	4 (+5)		15 (+10)	17 (+20)	18 (+10)	24 (+10)	30 (d90)
Venice	6 (d20)	8 (d20)	15 (+10)		21 (d60)	20 (d60)	26 (d60)	33 (d90)
Barcelona	23 (d60)	22 (+30)	17 (+20)	21 (d60)		20 (+30)	23 (+30)	27 (N/A)
Paris	21 (d60)	20 (d60)	18 (d60)	20 (d60)	20 (+30)		4 (+10)	10 (d30)
Bruges	27 (d60)	25 (d60)	24 (d60)	26 (d60)	23 (+30)	4 (+10)		6 (d30)
London	30 (*)	32 (d90)	30 (d90)	33 (d90)	27	10 (d30)	6 (d30)	

Source: F. Melis, 'Intensita'; Spufford, *Handbook*, pp.316-20. The first number is the median postal time calculated by Melis from the Datini correspondence. The *usance* period is given in brackets – where preceded by +, this indicates the number of days after the presentation of the bill to the payee, where preceded by a d, this indicates the number of days after the initial drawing of the bill. For convenience, one month has been taken as consisting of 30 days. *Usance* from London to Florence depended on individual arrangement.

¹²⁰ Mueller, p.289.

The differences in speed of communication between different financial centres had important practical consequences. Longer communication times meant higher opportunity costs. Also, the lag between the occurrence of an event in one city and the arrival of this news in the second increased the risk that something unexpected would happen while goods were in transit or before a bill of exchange matured. We might reasonably expect, therefore, that the better the communications between two markets, the more integrated the exchange rates at those places. Indeed, Uzzano identified certain cities in which rates tended to move together (Bruges and Paris, Barcelona and Valencia, Montpellier and Avignon, Venice and Bologna and Florence and Pisa). If the exchange rate with Paris was ‘tight’ (i.e. it was expensive to remit money there), then Uzzano advised merchants to remit to Bruges instead.¹²¹ As a result, such ‘triangular arbitrage’ would tend to equalise the rates quoted for Bruges and Paris at any given financial centre. Applying Threshold Error Correction analysis to the exchange rates quoted in the Datini letters, Ling-Fan Li has demonstrated this empirically; the direct exchange rate between Venice and Paris kept very close (within 1%) to the cross-exchange rate from Venice via Bruges to Paris. By contrast, however, the threshold for arbitrage was much wider between the more distant centres of Barcelona, Bruges and Venice. Here the direct exchange rate Venice-Barcelona and the cross-rate Venice-Bruges-Barcelona could deviate by up to 8% before arbitrageurs intervened.¹²² The slower communications between Barcelona-Bruges-Venice compared to Bruges-Paris Venice seem to have made arbitrage more difficult and thus reduced the efficiency of the financial market.

As important as the speed with which letters travelled was the frequency at which they were sent. Even if the transport itself was rapid, if information was only received intermittently or at long intervals, then it would be of limited use to the merchant. The average length of time between the receipt by one of Datini’s branches of information about exchange rates at each of the cities under study is shown in table 4, taking the peak year of 1399 as a sample. Note that this does not include letters that do not quote exchange rates, and so understates the overall frequency of communication, especially between Genoa and Florence. Letters containing exchange rate information were received on an almost daily basis from Florence (on average, every two days) and twice-weekly from Genoa. Information came from the slightly more distant markets of Venice, Bruges and Paris every five days. Updates were received from Gaeta every seven days, Milan every eight and Barcelona every nine days. The

¹²¹ Uzzano, p.154. Mueller refers to these as ‘paired cities’ (Mueller, pp.588-9).

¹²² L.-F. Li, ‘Bills, bullion and arbitrage: exchange markets in fourteenth- to seventeenth-century Europe’ (unpublished PhD thesis, London School of Economics, 2012), pp.53-67.

Table 4: Frequency of exchange rate information in 1399

City From	Most-cited pair	Count	Days between quotations			
			Mean	Median	Mode	Count
Barcelona	Barcelona-Florence	39	9.4	8	5	7
Bruges	Bruges-Barcelona	81	4.4	3	1	20
Florence	Florence-Pisa	174	2.1	1	1	92
Gaeta	Gaeta-Florence	53	6.9	6	6	8
Genoa	Genoa-Bruges	102	3.5	3	1	28
London	London-Bruges	18	19.3	14.5	4	2
Milan	Milan-Venice	17	8.2	6	4	6
Paris	Paris-Montpellier	75	4.9	3.5	1	19
Venice	Venice-Florence	78	4.7	5	7	15

Source: Exchange rate dataset. The table shows the most frequently-quoted currency pair at each city, the number of daily observations and the average length of time between quotations. There were no letters from Naples received during this year as the Florentine mercantile community was based at Gaeta. The figures for London cover April 1399-March 1400 and those for Milan cover December 1399-July 1400.

least frequent news came from London every 24 days. This frequency and regularity of communication should have provided the necessary information for the merchants to monitor their business interests and tailor trading strategies according to price and exchange rate data. This was probably especially true in the foreign exchange market, since money could be raised and transferred via bills of exchange faster than goods could be acquired and transported.

The reliability of these communication channels was also vital in order for the merchants to act with confidence on this information. To improve the chances of their letters arriving safely, writers often sent multiple copies via different routes or messengers, and important documents such as bills of exchange were routinely sent in triplicate.¹²³ Moreover, the inclusion within the correspondence of a list of letters sent and received allowed the recipient to confirm both that their own letters had arrived and also that they had received everything that they should have. Authentication was provided by the handwriting of the letter and the recipient had to recognise the hand of his correspondents in order to act on proper authority. Before his departure from London to the Levant, Vieri di Francesco Ghorì wrote to Genoa that ‘you are advised that this is a letter in my own hand so that you will recognise it in the future’.¹²⁴ Commercial letters were not always written by one individual. Some contained two

¹²³ Copies of letters might be sent by different ships (513/8/406374), or one copy by sea and the other overland (652/1/9184).

¹²⁴ ‘... Io Vier(i) d(i) Francischo Ghor(i) sono qu(e)gli che vo i(n) Levante & p(er)tanto sitte avizati che q(ue)sta è l(ettera) d(i) mio mano sicche la chonoscite p(er) l’avenire ...’ (777/37/313005 and /313006).

hands, usually those of the partners in the company.¹²⁵ In October 1392, for instance, Alamanno Mannini in London sent a sample of his brother Antonio's hand to Datini's branch in Genoa, because at times only one of them would be there to give instructions. Furthermore, orders from their junior, Gherardo di Domenico, were to be treated as if given by a partner.¹²⁶ While it was important to know which hands to accept, it was equally important to know which to ignore. In May 1397, the Mannini of London advised that 'Piero Cambini isn't with us any longer and so you don't have to reply to his letters any more'.¹²⁷ Likewise, news of financial difficulties spread very quickly. In 1394, the Mannini reported that Steffano Maruffo had paid them in pepper on a protested letter of exchange for 500 florins, before sailing from London secretly, leaving his other creditors behind.¹²⁸

Membership of the international network of Florentine merchant bankers certainly had its advantages. Moreover, unlike commodities, economists classify information as a 'non-rival good' in the sense that its use by one person does not preclude others from using it. Indeed, there could also be positive network externalities; as the number of participants in the network increased then so did its usefulness. For instance, a merchant could act with more confidence if he were able to confirm information from multiple sources.¹²⁹ Correspondence was also a way to make and maintain connections that could prove useful in the future and to establish the merchant's reputation within the group.¹³⁰ Beyond these practical benefits, participation in these networks of correspondents was also an important marker of status. This was true even outside the Florentine network itself; the contemporary Hanseatic merchant Sievert Veckinghausen wrote to his brother Hildebrand in Bruges that not only could they turn a profit if the latter were keep their agent in Venice informed of events in Flanders, but that it would be 'a great honour' for him 'always to receive letters with all runners, like other people do'.¹³¹

At the same time, while the operation of this international Florentine network relied on trust and co-operation, these same merchants were also competing with each other. Importantly, the first merchant to hear news that might move future exchange rates or prices had an advantage over his less-informed peers as he could act before the new information was

¹²⁵ For examples, see 664/38/509987 and 664/31/407469.

¹²⁶ 777/37/312994 and /313005.

¹²⁷ 777/37/313041.

¹²⁸ 777/37/313020. Later, in 1396, news came from Bruges of the failure of Marco Pagnini's company (777/37/313035). For other examples, see 511/3/601208; 652/4/800308; 511/6/308106.

¹²⁹ G. Christ, 'A newsletter in 1419? Antonio Morosini's chronicle in the light of commercial correspondence between Venice and Alexandria', *Mediterranean Historical Review*, 20 (2005), 41-2.

¹³⁰ Trivellato, 'Merchants' letters', pp.101-3.

¹³¹ Volckart, 'Information costs', p.35.

‘priced-in’ by the market. Indeed, Peter Spufford has argued that one ‘key to commercial success was the acquisition of economic information faster than one’s rivals’.¹³² Thus, Paolo de Certaldo advised the merchant receiving a *mazzo* to take care of their own business before passing on the letters addressed to other merchants.¹³³ In fact, Datini’s agent in Avignon even offered a ‘bonus’ to one courier heading to Genoa, Cola da Bisso, to deliver the letters addressed to his own agent and to Marchionne di Marini first and then to wait until vespers on the following day before handing over the others. This was to enable his correspondent in Genoa ‘to have time to talk to Marchionne and to do what is said herein below before the others know anything about it’.¹³⁴ Fortunately for Datini and his peers, according to Aquinas, a merchant was not strictly obligated to share any such knowledge about future price changes with his uninformed counterparties, even if that might be the morally virtuous thing to do.¹³⁵

Moreover, the intensive level of communication necessary to participate in this reciprocal system must have been costly on a day to day basis. In addition to expenditure on ink and paper, Datini’s branches in Avignon and Genoa were each paying an average of 40 florins per year on postal services during the 1390s.¹³⁶ The work of writing, reading and filing the correspondence, as well as maintaining the account books, also required a large staff. At its peak in 1399, Datini employed 46 factors and clerks across his various companies, each receiving wages of between 5 and 60 florins depending on their seniority.¹³⁷ At roughly the same time, in 1402, the Medici employed 17 staff in their five branches, at an annual cost of 1,053 florins. Since the Medici company made net profits of around 6,000 florins per year, salaries were one of their main operating expenses.¹³⁸ Beyond these monetary costs, keeping up to date with the correspondence required a major investment of time. As Datini himself wrote in 1395, ‘since this morning, Stoldo and I have done nothing but read, except for prayers and lunch, and we still have enough to read to last us two days’.¹³⁹ For these reasons, Stuart Jenks has argued that the high fixed costs involved in maintaining the infrastructure of the Italian merchant companies may help to explain how their generally less sophisticated or informed Hanseatic (and English) counterparts were able to compete with the Italians.¹⁴⁰

¹³² P. Spufford, ‘Trade in Fourteenth-Century Europe’, *New Cambridge Medieval History Volume VI: c.1300-c.1415*, ed. M. Jones (Cambridge, 2000), pp.180-1.

¹³³ Origo, p.84.

¹³⁴ Goldthwaite, p.95.

¹³⁵ *Summa Theologica*, Book II Part II chapter 77 article 3 reply to objection 4. Translation from *The Summa Theologica of St Thomas Aquinas: Literally Translated by Fathers of the English Dominican Province* (22 vols, 1920-42), 10, pp.325-6.

¹³⁶ Frangioni, *Organizzazione*, pp.35-8.

¹³⁷ Melis, *Aspetti*, p.297.

¹³⁸ de Roover, *Rise and Decline*, pp.43-4, 47.

¹³⁹ J. Hyde, ‘Some uses of literacy in Venice and Florence in the thirteenth and fourteenth centuries’, *Transactions of the Royal Historical Society*, 29 (1979), pp. 113-16. For similar complaints, see Goldthwaite, pp.84-5.

¹⁴⁰ S. Jenks, ‘Small is beautiful: Why small Hanseatic firms survived in the late Middle Ages’, in *The Hanse in Medieval and Early Modern Europe*, ed. J. Wubs-Mrozewicz and S. Jenks (Brill, 2012), p.199.

Conclusion

As commercial correspondence, the business letters in the Datini archive are primarily concerned with internal business orders and made a clear distinction between these and more private matters. As a secondary function, the business letters sent and received by Datini, his partners, factors and correspondents also provided them with data about commodity prices and exchange rates as well as speculation about potentially market-moving events from across Europe. The correspondence could therefore have provided the Florentine merchants with valuable information for their trading. In particular, Florentine merchants dominated the international foreign exchange markets, for which it was particularly important to stay up-to-date. As a result, the Datini archive contains an unparalleled resource of quantitative data about exchange rates and prices, which historians and economists today can use to shed light on the medieval economy and financial markets. As a mid-fourteenth century merchant noted, ‘paper is cheap, and often it brings in a good profit’.¹⁴¹

Of course, part of this profit derived from the fact that the members of the select group of Florentine merchants that participated in this international network had privileged and early access to prices, rates and potentially market-moving news and so the ability to trade on them before those outside the network. The speed with which the merchants were informed of events is striking and was made possible by the simultaneous presence of agents belonging to the same network in a very wide number of markets. The tertiary function of the letters was therefore to gain access to this circle – indeed it may not be over-stating the case to assert that it was the correspondence itself that constituted the network. As well as transmitting information, it also allowed the merchants to establish the reputation and social capital that they needed to engage in long-distance trade. The breadth and depth of the Datini correspondence demonstrates the centrality of Italian, and especially Florentine, merchants to European trading, financial and information networks. Indeed, Goldthwaite has strongly argued that it was international trade and finance, rather than the regional trade or domestic textile manufacturing, which formed the foundation of Florence’s wealth.¹⁴² The Datini letters support this suggestion that the secret of Florence’s success was networking.

¹⁴¹ *Social and Economic Foundations of the Italian Renaissance*, ed. A. Molho (New York, 1969), p.55.

¹⁴² Goldthwaite, pp.114-25.