The emergence of double entry bookkeeping

Alan Sangster, University of Aberdeen

Forthcoming in *Economic History Review*, DOI: 10.1111/ehr.13xxx

Abstract

Double entry account books of medieval Italian merchants and bankers have been extensively used as primary sources by historians of several disciplines interested in business, trade, commodities, markets, sources, prices, interest rates, exchange rates, tariffs, taxes, wages, rentes, agents, networks, and many other related topics. The reason for the emergence of such a detailed bookkeeping method is unknown. This paper presents a critical analysis of entries in a ledger of Florentine moneychanger-bankers from 1211. Comparison with later examples confirms that this ledger portrays a method of bookkeeping embracing double entries that transformed into entity-wide double entry bookkeeping by the end of the thirteenth century. Following consideration of the socio-political, economic, legal, and commercial environment of the period and place in which it was used in 1211, the origin of this bookkeeping method is attributed to northern Italian moneychanger-bankers in the twelfth century. Their bookkeeping method addressed the evidential demands of multiple legal systems relating to use of credit necessitated by a lack of sufficient quality coinage in circulation to support the growing and expanding regional markets of northern Italy.

Keywords: double entry bookkeeping, commercial law, medieval, northern Italy, causal analysis, social economics, pragmatic literacy

> There is still not a satisfactory explanation for the emergence of double-entry bookkeeping in Italy in the thirteenth century.[1]

Accounting practice is the result of environmental conditions and the circumstances that occur in the same place and time.[2] It became influential for the medieval Italian entrepreneur, *'who carefully preserved its methods once he understood their importance'*.[3] Standardisation in technique can be seen in many of the more than 3,000 account books that have survived from late-medieval Italy, of which numerous are kept in double entry.[4] These books are replete with information that enhances knowledge of and across all relevant historical fields.[5] Not surprisingly, they have been an invaluable resource to generations of medieval historians of economics, business, and history itself.

With respect to the method of double entry, it has been described as making possible the twelfth and thirteenth century expansion of markets and trade[6], the emergence of banking[7] and, in conjunction with personal networks, the emergence and operation of the system of bills of exchange[8]. Arising out of the clearing process at the end of trade fairs, these technologies combined with double entry to both give birth to, and make possible the financial markets that grew and expanded throughout medieval and early modern Europe.[9] However, as described in the opening quotation, the factors that gave rise to the emergence of the method of double entry bookkeeping remain a mystery. This paper addresses this issue by critically examining the entries

[1] Dobie and Oldroyd, 'Bookkeeping', p. 126.
[2] Ciambotti, 'La storia', p. 135.
[3] Orlandi, 'Emergence', p. 544.
[4] Bettarini, 'Census'; Martinelli, 'Origination and evolution', p. 191.
[5] Ciambotti, 'La storia', pp. 131, 137.
[6] Schaube, *Handelsgeschichte*.
[7] Cassandro, 'La contabilità bancaria'.
[8] Bolton and Guidi-Bruscoli, 'Your flexible friend'.
[9] Matringe, 'Early practices'.

in a northern Italian bank ledger of the early thirteenth century that is recognized as an example of an early application of the method, within its surrounding socio-political, economic, legal, and commercial environment.

One of the factors that has contributed to this lacuna is the fixation of many twentieth century historians of the method upon the form and procedure of the bookkeeping, from which they never progressed to consideration of context, nor sought explanations for what they saw.[10] Strongly influenced by the several works of the economist, Basil Yamey, between 1949 and 2000, they accepted his consistent and often repeated conclusion that double entry bookkeeping only became useful following the growth in numbers of joint stock companies in the nineteenth century.[11] It did so then because it could be used to produce financial reports that enabled overall performance to be assessed, financial position to be identified, movements in capital to be identified, and return on capital employed to be calculated.

Aligned to this view, and stemming from the studies of Fabio Besta undoubtedly influenced by Werner Sombart, from the early twentieth century the definitions of double entry used by these scholars embraced the *outputs* from enterprise-wide double entry systems of the nineteenth and twentieth centuries – profit & loss accounts and balance sheets – and the opportunity those provide to identify movement in capital. When earlier periods were first considered, the same definitions were adopted, resulting in very few medieval examples of double entry bookkeeping being recognized, the earliest being in Genoa in 1340.[12] Several years later, following relaxation of some of the criteria sought, its place was taken by a Florentine ledger from the Champagne fairs in 1296[13] and the ledger of a Florentine firm operating in Salon in what is now southern France, in 1299[14].

For a definition of double entry that instead focuses on the method, we must look to the economic historian Frederic C. Lane who, frustrated at the absence of a consistent appropriate definition in use for the term, suggested[15] that we *'may regard any accounts with duality of entry as being an elementary form of double-entry'*. This represents the basic defining characteristic of the method when entries made in ledger accounts since the last decade of the thirteenth century have been recognized as "double entry".

Not surprisingly given Lane's background as an economic historian of medieval Venice, this is consistent with the only "ever-presents" found in entries in medieval Italian ledgers recognized as being in double entry – duality, i.e. an equivalent entry made once in debit and once in credit in different accounts and, in each entry:

- the amount;
- whether it is a debit or a credit, or, more crudely, whether in the context of the account, it was a plus or a minus;
- and the explicit or implicit identity and location of the other (contra) account in each entry, which makes it possible to see the duality to which Lane refers.

Other items often included in the entries are sometimes found elsewhere. The date, for example, may be found in a heading at the top of a page, or in a column to the left of the entry, or may even be absent; and, wherever it is, it may be the date when the transaction occurred, or the date when it was recorded in the ledger. The inclusion of other details relating to

---

10 De Roover, 'Development'; idem, 'Alberti'. By 'form and procedure', De Roover was referring to a focus on whether entries were prepared and processed "appropriately", i.e. according to twentieth century standards. If they were not, they were not "proper" double entry.

11 Yamey, 'Scientific bookkeeping'; idem; 'Introduction'; idem, 'Accounting'; idem, 'Particular gain'.

12 Besta, *La Ragioneria, Volume 1*; idem, *La Ragioneria, Volume 3*; Martinelli, 'Origination and evolution'.

13 De Roover, 'The organization of trade', p. 91.

14 Lee, 'Coming of age'.

15 Lane, 'Doubles entry bookkeeping', p. 187.

transactions, such as the names of witnesses and guarantors varies, presumably according to the needs of those for whom the entries were made.

Following Lane, this is how the method of double entry is defined in this paper. It focuses on the *inputs* to the bookkeeping system: the entries made for transactions. For the purpose of this paper, it needs to be distinguished from what accounting historians call "double entry bookkeeping", which is dependent for its recognition on the *outputs*, ot potential *outputs* from the bookkeeping system: profit & loss accounts and balance sheets.

Thus in this paper, if transactions are recorded in double entries, that is bookkeeping embracing double entries, or double entry. Looking beyond the entries and, instead, looking at the bookkeeping system, using terminology from economic history: if some but not all transactions are recorded in double entries, that is partial double entry bookkeeping[16]; and, if all transactions are recorded in double entries, that is full or entity-wide double entry bookkeeping[17] or a double entry bookkeeping system; or, as it is referred to in the accounting history literature, "double entry bookkeeping". The authors of the quotation at the beginning of this paper were seeking to know how the latter came into existence. For that to occur, it was first necessary that double entries were included when transactions were recorded. Identifying where and when that occurred and the contextual factors that gave rise to that practice are the focus of this paper.

In the examples of double entry bookkeeping from 1296 and 1299, use of double entry had developed from keeping records of individual transactions to the point where all transactions were recorded and financial statements for the firm could be produced. To have developed to that level, this Italian bookkeeping method must have originated considerably earlier. However, few of the small number of earlier surviving Italian accounting records appear to have any features resembling double entry bookkeeping. One that does is a ledger belonging to Florentine bankers who were present at the May regional fair in Bologna in 1211. More than 160 entries contained in 44 accounts on four pages have survived. It has been examined several times for evidence of double entry, but with differing conclusions depending on the objective, approach, and definition being applied by those undertaking this work.

The fair bank ledger of 1211 and double entry

Fabio Besta in 1916[18] and Raymond de Roover in 1956[19], described the surviving entries from the ledger but did not classify them. Federigo Melis looked at them twice, with different conclusions. In 1950,[20] he declared them not to be in double entry, offering as apparent justification that the amount of each entry was recorded in the body of the entries, not in an extended column. This was consistent with how De Roover in 1956[21] described the focus of accounting historians on form and procedure up to that time. Then, in 1972, Melis[22] appeared careful not to classify the bookkeeping in pointing out that what was recorded on the surviving fragments were debit and credit entries in personal accounts, and that the entries described everything that had occurred and was expected of the parties.

When Geoffrey Lee translated them into English in 1972, he did not find evidence of an entity-wide double entry bookkeeping system but, he did recognize double entries in the records:

> The principle of double entry was thus latent, even in [this] most rudimentary Italian system… All in all, then, the form of ledger exemplified by that of the anonymous Florentine bankers of 1211 proved extremely serviceable, and was the seed-bed of that mighty revolution in accounting

16 Bruscoli, 'Le tecniche bancarie', p. 557; Goldthwaite, 'Practice and culture', p. 626.
17 Sangster, 'Genesis'.
18 Besta, *La Ragioneria, Volume 3*.
19 De Roover, 'Development'.
20 Melis, *Storia della Ragioneria,* p. 395.
21 De Roover, 'Development', p. 114.
22 Melis, *Documenti*, pp. 49-50.

techniques whose effects endure to this day.[23]

In contrast, in 1974, Alvaro Martinelli presented a brief summary about how the debits and credits were linked in these entries (bold added):

> The accounting method, characterised by cross references to other accounts and the double records classified into two distinct categories of debit and credit entries, constituted an advanced system, even if it cannot be compared to more complex accounting systems found in later documents during the thirteenth century. **These are undoubtedly the very first germs of the double entry bookkeeping method** which was brought to perfection during the fourteenth century.[24]

A parallel but much briefer stream of literature has considered the nature of the entries. In 1927, A.C. Littleton recognized evidence of "cross entries", i.e. "offset", between the accounts of clients of the bank.[25] In 1930, the Italian historian of law and business, Mario Chiaudano, concluded in terms echoed 44 years later by Martinelli, that these records show (bold added):

> the first germs of **double entry records** that will develop and improve over the course of the 13th and 14th centuries … **with references from one account to another** and the **double entries** of credit and debit, **they present a system that is already very perfect**.[26]

In 1934, Abbott Payson Usher declared:

> it represents a transitional stage in the development of double entry bookkeeping, because the accounts are never presented in the form of an equation or balanced statement.[27]

Most recently, in 2016, Sangster labelled two of the entries as dual entries[28], defined as equal entries in debit and credit, indicating the corresponding (contra) account, but without any indication of its location[29]. He did not classify any other entries using that term and described the entries overall as being:

> very detailed, replete with information, in no sense either minimalist or highly structured. They include single entries and "book transfers", where a transfer from one account was made to another.[30]

Thus, Littleton, Chiaudano, Usher, Martinelli, and Lee all found evidence that supports a claim that entries on these pages used an early form of double entry. And, Chiaudano, Usher, Martinelli, and Lee believed them to be the earliest known signs of the emergence of the double entry bookkeeping method that developed over the course of the next 200 years into the enterprise-wide double entry bookkeeping systems of the late-thirteenth and fourteenth centuries. Sangster also believed this ledger marked a shift from single entry towards double entry.[31] However, none have previously considered whether the ledger is in double entry using a definition for the method of double entry from an *input* perspective, derived from a synthesis of what has been declared as double entry bookkeeping over the past 100 years, as was presented above. The closest to doing so was Lee in 1972[32], though his focus was on entity-wide double entry bookkeeping. Consequently, he never focused solely on the method itself. The next section presents a critical analysis of entries in the Florentine bank ledger from 1211.

1. A CRITICAL ANALYSIS OF THE ACCOUNT ENTRIES FROM 1211

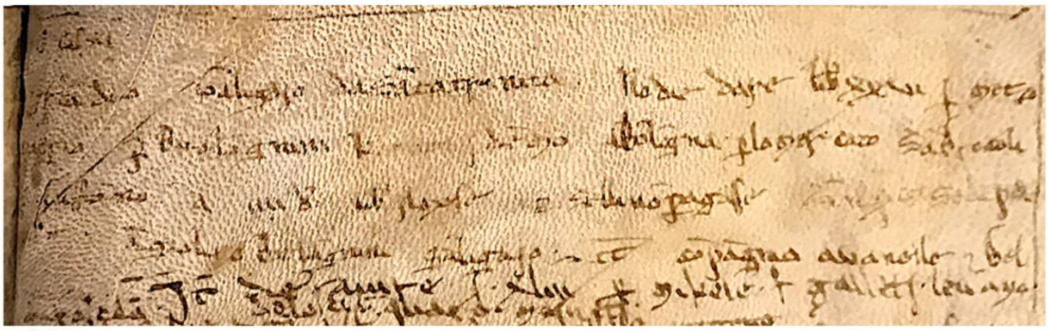
Large sections of three of the four surviving pages from the bank ledger can be read. Santini's (1887) transcription was used where that was impossible. Figure 1 shows the first two entries in

---

[23] Lee, 'The oldest European ledger', pp. 58, 59-60.
[24] Martinelli, 'Origination and evolution', p. 325.
[25] Littleton, 'Antecedents of double-entry', p. 147.
[26] Chiaudano, *Studi e documenti*, p. 64.
[27] Usher, 'Origins of banking', pp. 405-6.
[28] Sangster, 'Genesis', p. 303; idem, p. 302.
[29] Ibid., p. 301.
[30] Ibid., p. 302.
[31] Ibid., p. 302.
[32] Lee, 'The oldest European ledger'.

the first account opened in Bologna, and their transcription prepared by Santini.[33]

Figure 1. *Bologna San Procolo Fair Account #1, entries 1 & 2*



MCCXI
Orlandino galigaio da santa trinita no die dare lib'. xxvj per metzo magio per buolongnini ke i demmo a bolongna por lo mercato sanbrocoli. So più sstanno a iiij d'.lib'. il mese: e s'elli non pagasse sinno promise da pagare angiolino bolongnini galigaio. tt. cõpangnio auanelle e bellacalza. Item die auiro sol. xliij per mikele f. galleti: leuammo di rascione de lo scilinquato maineti.

Source: Aedil 67, La Biblioteca Medicea Laurenziana, Firenze.

Figure 2 presents entries translated into English from a random selection of seven accounts, the first of which was shown in Figure 1. They include entries for loans (#1,2,4,5,6); names of witnesses (#1,3); names of guarantors (#1); offset between accounts of two different people (#1,2,4,5,6); offset between the debtor account and the creditor account of the same person (#1,5,7); payments by third parties (#3); mention of a balance brought forward from a previous book (#4,7); the indication of whether the contra entry of an entry made into an existing account was to an account created with a debit entry or a credit entry, essential information when debtor (loan) accounts were maintained separately from creditor (deposit) accounts (#5,6,7); an indication of the page on which the contra entry was made (#6); the terms of loans (#1,3); and the reason for the transaction (#2).

The names of the accounts to use are shown in bold. The terms debit and credit are inserted into the entries in Figure 2 to facilitate understanding.[34] It was several centuries before those terms became standardized, even in Italy[35]; and a variety of verbal phrases (e.g. *die dare*) and conjugated verbs (e.g. *levammo*) are used in these entries, as well as words meaning “for”, “by”, or “to”, all of which expressed the impact of a transaction on an account mentioned in the entry.

[33] Santini, ‘Frammenti’, p. 170.
[34] When translating these entries from 1211, Geoffrey Lee (‘The oldest European ledger’, p. 49) declared that it would be anachronistic to use the terms “debit” and “credit” but, did so in his discussion that followed.
[35] Flori (*Trattato*, p. 35), discusses the lack of standardisation of the verbs that still existed in 1636 when he wrote his manual on double entry bookkeeping.

Figure 2. *Examples of entries from the ledger of Florentine bankers in 1211*[36,37,38,39,40]

1	**Orlandino the tanner from Santa Trinità** *no die dare* [**debit**] £26 by mid-May, for *buolongnini* [**cash**] {**credit**} which we gave him in Bologna for the San Procolo fair. If late, [the interest] is at 4 denari per libra per month and, if he does not pay, Angiolino Bolongnini the tanner promised to pay us. Witnesses: Compangnio Avanelle and Bellacalza. Item {**Orlandino**} *die avire* [**credit**] 43 soldi from Mikele, son of Galleti: we posted them {for Mikele} *levammo* [**debit**] the account of **the stutterer Maineti**.
2	**Appollonio Tribaldi** *no dei dare* [**debit**] 8 soldi that we loaned him {in **cash**} {**credit**}; he said that he wanted to give them to the son of Aldobrandini Fabro, for grain. Item {**Appollonio**} *die dare* [**debit**] 35 soldi 4 denari for a gypsy to whom *ne demmo* [**credit**] *tornesi* [**cash**]. He said that he wanted to give him it for linen cloths. Item {**Appollonio**} *die avire* [**credit**] 21 soldi less 1 denari *per* [**debit**] **Servodeo, guest of Maineti del Mediko**. Item {**Appollonio**} *die avire* [**credit**] 5 soldi which he gave to Arnolfino {in **cash**} {**debit** to give to us} Item **Appollonio** *ci diè* [**credit**] 17 soldi and 5 denari from his hand {**cash**} {**debit**}.
3	**Ristoro, son of Pieri the purse maker, and Iakopino, son of Sigolo**, *no dino dare* [**debit**], each jointly liable, in total £8 and 10 soldi 8 denari for £8 which we gave them {in **cash**} {**credit**} 12 days before the first of June at [a charge of] 16 denari per libra {**interest** of 10 soldi 8 denari} {**credit**}, and are due to pay 12 days before the first of August; if late, [interest is] at 4 denari per libra per month, for as long as we permit. Witnesses: Alberto Baldovini and Konsiglio dei Kastagniaci. Item {**Ristoro and Iakopino**} *die dare* [**debit**] for **interest** {**credit**} 19 soldi and 4 denari. {Item} **Ristoro** {**and Iakopino**} *ci a dato* [**credit**] from his hand 40 soldi {**cash**} {**debit**}; received from Tegiaio on 3rd December. Item Tadellato son of Buono *die per noi* [**credit**] {for **Ristoro and Iakopino**} £7 10 soldi {**cash**} {**debit**} 12 days before the first of April.
4	**Gerardo son of Buonackorsi Monteloro**, *die dare* [**debit**] 20 soldi and 10 denari for **Buoglione son of Traversi** {**credit**}; Traverso was a debtor for this in the previous ledger.
5	To **Manetto Passarimpetto** we lent {**debit**} 20 soldi in his hand {**cash credit**}: {signed} Aldobrandino. Item {**Manetto Passarimpetto**} *ci diè* [**credit**] 20 soldi; we deducted from {**debit**} {**Manetto**'s} creditor account {created by an entry from the account of} Buonaquida Forestani.
6	**Alberto son of Ubertini** *no die dare* [**debit**] 22 soldi and 4 denari for two *massasmutini* [**cash**] {**credit**}. {Item} Ubertino {on behalf of **Alberto**} *ci à dato* [**credit**] 22 soldi and 4 denari posted to {**Ubertino**'s} creditor account {that} he had paid {**debit**} {the} above, three parchments after this.
7	**Kirispino Attiglianti** *no die dare* [**debit**] 100 soldi *per* [**credit**] {**Kirispino Attiglianti**'s} account in the previous ledger, in which we had paid the above {amount} to Attiglianti. {Item} **Attigliante** *ci addato* [**credit**] £3 and 21 denari which was the value of *the English pennies and other coins* [**cash**] {**debit**} {he} exchanged. Item **Attigliante** *ci addato* [**credit**] 28 soldi and 3 denari: *levammo* [**debit**] from {**Attigliante**'s} creditor account.

As can be seen in Figure 2, the entries in the accounts of the Florentine bankers contain the

[36] "{}" indicates the text inserted was implied. "[]" indicates what the italicized term means.

[37] The "4" in the second entry in account 2 is represented by a horizontal line touching a vertical bar on its left. As presented by Santini in his transcript ('Frammenti', p. 169), it is one-third of the way down, which would signify one-third of a *soldi* = 4 *denari*. On the previous page, he drew it with the horizontal line at the mid-point of the vertical bar and interpreted that as meaning half.

[38] The second entry in account #1 appears to have been the result of Mikele holding a promissory note from Maineti.

[39] While the transaction date is given in some entries – see account #3 – the date and location where the ledger was maintained is written above the entries, implying that an approximate date was sufficient in most cases.

[40] The difference of 10 *soldi* 8 *denari* between the £8 loan and the amount charged to the debtor may have been credited to an account for interest in this ledger. More likely, given what is known of medieval Tuscan bookkeeping practice, it was recorded in a separate book. Similarly, the gains and losses on exchange when realized, which was the original business of the moneychanger-bankers, were likely recorded elsewhere. Tuscan double entry practice until at least 1500 was to maintain several separate record books linked together through the bookkeeping system with accounts sometimes maintained in them, rather than in the ledger (e.g. Lee, 'Coming of age', pp. 82-5; Kuter et al 'Profit calculation', p. 20). In the rest of the entries, there are several loans at 20 per cent, which is consistent with rates applied elsewhere in northern Italy at the end of the twelfth century, such as 20 per cent in Venice and 25 per cent in Genoa (Wickham, *The donkey and the boat*, pp. 510, 547); and 20 per cent was not considered extortionate in the thirteenth century (De Roover, 'Development', p. 177). There is also one instance of an interest rate of 30 per cent. It is evident that the Florentine bankers were unconcerned about recording these details, though that may have changed after usury was made *"a more heinous mortal sin"* by the Lateran Council of the Church in 1215. Not surprisingly, *'loan contracts that in an earlier era openly admitted the payment of interest are rarely encountered from the thirteenth century.'* (Munro, 'Medieval origins', p. 507) However, interest did not entirely cease to be recorded after 1215.

components required to be recognized as containing double entries. Unsurprisingly given that only four pages of the ledger have survived, in virtually all cases the contra entry account, if it existed, has not survived. However, many double entries are confirmed from the detail included, particularly those recording offset[41] – book transfers between account holders, and those involving transfers to and from accounts in old ledgers, the current ledger, and the next ledger. Figure 2 contains several examples, in accounts #1, 4, 5, 6, and 7.

One very clear example of a double entry between two accounts was identified where both accounts have survived. Previously, Sangster classified it in 2016[42] as an example of a dual entry i.e. one where the location of the contra entry was not indicated. But he had misinterpreted a semi-colon in Lee's English translation[43] and failed to realize that the credit entry concluded with the statement, '*posto ove die dare di sopra*' (*posted to debit above)*. The account where the debit contra entry was made was on the same page, immediately above the account containing that statement; and the entry made within it for the transaction identified the name of the account where the contra credit entry was recorded.

The entries in the accounts and the accounts themselves do not embrace all the rigid formats of later periods with amounts placed in monetary columns, page numbers or, as mentioned above, use of consistent terminology for "debit" and "credit", something that was still the case 400 years later.[44] The parchment sheets were *not* numbered but, as can be seen in the sixth account, the location of the contra entry was described when deemed necessary – several other entries contain similar statements. There is, however, sufficient detail in the entries to identify the accounts and the amounts to be debited and credited; and there is no reason to presume that the volume of activity would have resulted in too many accounts being maintained for any to be difficult to locate – cf. Martinelli in 1974, who discussed this feature in an early fourteenth century Tuscan double entry ledger and reached the same conclusion.[45]

Confirming that these entries contain the minimum that would be expected of accounts maintained in double entry, Figure 3 presents in T-accounts the relevant information from the first two shown in Figures 1 and 2. They are the first and second entries in the account of Orlandino the tanner from Santa Trinita. From the entries recorded, we know that an account was kept for the stutterer Maineti. This analysis assumes that an account was also maintained for cash, though the Tuscan custom in later periods was to keep a separate *entrata e uscita* (cash book) for that purpose, and this may have been the case in 1211.

Several examples can be found in Tuscan thirteenth century account books, including interest of 20 and 25 per cent recorded in the double entry ledger for 1296-1305 of the Florentine Fini firm at the fairs of Champagne. Recording interest may only have ceased after the Council of Vienne under Pope Clement V *'specifically cited account books as bona fide evidence'* of usury in 1311-1312 (Marshall, *Local merchants*, p. 83).

41 Offset occurs automatically when entries are made between two accounts of the same type held in a ledger. It did not develop as a concept in evolutionary stages, such as is presented by Matringe ('Early practices', p. 764). In this earliest known example of double entries from 1211, systematic cross-referencing is very evident. Matringe wrongly classified it as a final (fourth) stage fifteenth century innovation. Nor is Matringe's third stage, "cross-references between accounts" a fourteenth century innovation. While recording offset undoubtedly became more systematic after page numbers were added, that too happened in the thirteenth century, as evidenced, for example, in the 1296 Fini ledger from the Champagne fairs (Castellani, *Nuovi testi*, pp. 674-96).

42 Sangster, 'Genesis', p. 303.

43 Lee, 'The oldest European ledger', p. 46.

44 Flori, *Trattato*, p. 35.

45 Martinelli, 'Origination and evolution', pp. 270-1.

Figure 3. *The double entries from Orlandino's account in Figures 1 and 2 presented in T-accounts*

Orlandino the tanner from Santa Trinita

	Dr		Cr
Cash	£ 26 – 0 – 0	The stutterer Maineti	£ 2 – 3 – 0

Cash

	Dr		Cr
		Orlandino the tanner from Santa Trinita	£ 26 – 0 – 0

The stutterer Maineti

	Dr		Cr
Orlandino the tanner from Santa Trinita	£ 2 – 3 – 0		

Anyone comparing these entries to those identified as examples of double entry bookkeeping in 1296[46] and 1299[47] will note the strong similarity and the differences, which are principally that page numbers are in use in both those examples and a separate column is used for the amount of each entry[48]. The method of recording the debit and credit and indicating the contra entry account is the same; the entries are all in the spoken language; a single money of account is used; the first entry in each account begins with the name of the account holder and each subsequent entry begins by confirming this; and the most commonly used verbs are the same. All three of these thirteenth century examples are, essentially, variants of the same method of bookkeeping being used in three different locations by Florentine firms, all of whom engaged in offering banking services. All these features and similarities support the conclusions of Chiaudano in 1930, Usher in 1934, Lee in 1972, and Martinelli in 1974 that these entries from 1211 are of a period when double entries were emerging in a form of bookkeeping that would develop into entity-wide double entry bookkeeping systems by the end of the thirteenth century, as exemplified by those two ledgers of 1296 and 1299.

Acknowledging that many of the entries are for transactions undertaken at a regional trade fair in Bologna in 1211, and recognising that each modification to practice is the result of the influence of environmental conditions and circumstances[49], by focusing on the entries and considering the socio-political, economic, legal, and commercial context of its time (1211) and place (Bologna), an explanation for the existence of the ledger and the content and format of the entries within it may be found. The primary considerations, informed by where it was being kept, were the nature of trade in northern Italy and, because the entries are primarily about debt, the legal framework at that time. From this, two highly relevant contextual factors relating to the detail contained in the entries can be identified: the legal environment and the commercial environment.

2. HIGHLY RELEVANT CONTEXTUAL FACTORS RELATING TO THE EMERGENCE OF DOUBLE ENTRY BOOKKEEPING

The commercial environment

During the ninth to the eleventh century, the focal points of trade in northern Italy were local fairs, where everyone knew everyone else and community justice was sufficient to maintain honesty in trade. 'The eleventh century saw the beginning of what was effectively a period of "sustained growth" … as the market expanded'.[50] During the twelfth and thirteenth centuries,

[46] De Roover, 'The organization of trade'.
[47] Lee, 'The coming of age of double entry'.
[48] The transcribed text of these ledgers are in Castellani, *Nuovi testi*. Their layout can be seen facing pages 688 and 720.
[49] Ciambotti, 'Luca Pacioli', p. 1.
[50] Braudel, *Civilization and Capitalism*, p. 546.

trade with foreign merchants became more common, along trade routes, and in ports. For example, twelfth century Genoa was a major centre of trade where goods were re-exported into the Mediterranean, Spain, Algeria, and the Levant. Flemish merchants and others from France brought goods south, and merchandize was brought from other parts of Italy and the Levant.[51]

However, particpants in the markets faced a problem if they did not or could not use barter to trade: while there was a wide variety of coins in circulation, the supply of coins was inconsistent the supply of coins was inconsistent, their quality was variable, transporting them was both risky and costly, and counting them and checking their value was time-consuming.[52]

Addressing these problems was the task of moneychangers whose role was "rooted in in the manual exchange of coins".[53] They exchanged the coins they were given by merchants with coins that could be used, but that did not overcome the issue of quality. Merchants and bankers still had to check the value of each coin received, which they did by weighing each one individually, incurring potentially considerable transaction costs in doing so.[54] For example, a payment of £8 (Figure 2, #5) required more than 1,920 silver *denari*, each of which had to be assayed individually. Nor did manual exchange overcome the recurring problem of insufficient coins to enable bargains to be struck, particularly as markets grew in size,[55] or the impact of fluctuating prices for silver and gold which directly impacted the value of the coinage in circulation.[56]

Banking

This was partially addressed when the moneychangers began changing coins, not with cash, but by recording their receipt as a deposit and paying sellers at the request of their depositors. The first known recorded instance of the latter was in a Genoese local bank in or just before 1200.[57] This practice can also be seen in the entries from the Florentine Bologna fair bank ledger of 1211 (Figure 2); and, when the moneychangers had insufficient coins a merchant would accept, they recorded him as a creditor (depositor) for what remained.

Raymond de Roover believed that this was how banking originated, as, for example, did another who also studied the bankers of twelfth century Genoa: Margaret Hall.[58] Some however, such as Sayous in 1934,[59] who believed that Italian bankers descended from both moneychanging and lending, some more from one than the other. De Roover responded in 1944[60] and more emphatically in 1954[61] dismissing the hesitation of Sayous and declaring that banking derived from moneychanging, not credit. In 1944, he also added that deposit banking grew out of this activity and that:

> because the money-changers developed a system of local payments by book transfer … the great inconvenience of making all payments in specie… ultimately led to the establishment of transfer banks… in all the more important commercial centres on the European continent.[62]

When that occurred, the international banking was done, not by local bankers but by Italian

---

[51] Reynolds, 'The market'; Bautier, 'The Fairs of Champagne', p. 45; Van Doosselaere, *Commercial agreements*, pp. 152-5; Wickham, *The donkey and the boat*, pp. 534-57.
[52] Einaudi, 'Imaginary money'; De Roover, 'What is dry exchange', p. 251; Cipolla, *Money*; MacDonald and Gastmann, *Credit & Power*, pp. 60-1; Spufford, 'Stable moneys'.
[53] Geva, 'The order to pay', p. 410.
[54] Einaudi, 'Imaginary money'; Mueller, 'Bank money'. This was confirmed by economic historian of medieval Venice, Reinhold Mueller, in conversation with the author in June 2023.
[55] Schaube, *Handelsgeschichte*. This 816-page study in German, published in 1906, was translated and published in Italian in 2015: Schaube, *Storia del commercio*.
[56] Spufford, *Money*.
[57] De Roover, 'New interpretations'.
[58] Hall, 'Early bankers', p 73.
[59] Sayous, 'Operations', p. 285.
[60] De Roover, 'Dry exchange', p. 251.
[61] De Roover, 'New interpretations', p. 40.
[62] De Roover, 'Dry exchange', p. 251.

merchants who, without exception, also continued to act as merchants. Led by Tuscan merchant-bankers, their monopoly was "nearly absolute"[63] and, along with double entry which these Italians used, it did not diffuse to non-Italians before the sixteenth century.[64]

In contrast to the Tuscan merchant-bankers operating in the large fairs, there was no large fair in Genoa to bring merchants together. Trade in Genoa was continuous which limited the extent to which balances at the end of trading were cleared compared to a fair lasting several days. The Genoese retained their own ways by resisting the methods of the merchants from the rest of Italy who came to trade locally from the mid-twelfth century onwards.[65] Thus, they continued to keep their ledgers in Latin and used notaries as bookkeepers in banks, while much of the rest of northern Italy, did not. The richest merchants, who were also the nobility of the city, were less likely to use credit than others and this did not change until the mid-fourteenth century.[66]

While the Genoese were heavily involved in the fairs of Champagne in the thirteenth century, their adherence to the Holy Roman Emperor rather than the Pope meant they never had access to the papal funds that made Tuscan international merchant-bankers wealthy and, particularly after the Sienese were excommunicated in the mid-1260s, the Florentines.[67] Without the constraints of having to involve notaries in their bookkeeping and use a language that was not the spoken tongue for their business records, and with their routine use of credit, and virtually immediate introduction of holograph bills of exchange once they became the principal Papal bankers,[68] Florentine merchant-bankers and merchants flourished during the rest of the middle ages. Merchants from Genoa, although very successful, never achieved equivalent financial success until they emerged as a dominant force in merchant-banking in the sixteenth century.[69]

Money of account

The problem of the inconsistency in the value of coinage was overcome by use of ghost moneys of account whereby the records kept of transactions used a non-existent coinage linked to the price of gold or silver. All entries in ledger accounts were made in a single money of account. In 1211, there were two northern Italian denominations of coinage in circulation, the silver *denaro* and the silver *grosso* worth 24 *denari*.[70] In Figure 2, all entries are reduced to a single money of account of 1 *libra* = 20 *soldi* or 240 *denari* but, there was no physical *libra* or *soldo*. The ratio between the three denominations was fixed, with the value of physical coins dependent on the weight of silver each coin contained. By adopting a single money of account, when a debtor settled his debt by payment in coins, the value of the coins received was the same as the original value of the debt, irrespective of how much the price of silver or gold may have changed, or of which coins were used for payment.[71] As can be seen in Entries 1, 2, 6, and 7 in Figure 2, the adoption of this system was a natural extension of the moneychanger role as soon as records were kept of coinage exchanged, deposited, lent, or spent into a single money of account.

Once this process gained acceptance and the ledgers of the bankers gained the trust of all who dealt with them, which these coinage-related problems made both necessary and inevitable, the moneychangers-turned-bankers began making loans in the forms of "lines of credit" using "bank money". Payments were made on behalf of their clients using 'book transfers' to whoever

---

[63] De Roover, 'Development', p. 159.
[64] De Roover, 'Development', p. 160; ide., 'The organization of trade', pp. 46, 93.
[65] Tucci, 'Il documento', 545-9.
[66] Van Doosselarae *Commercial agreements*, pp. 155, 166-7.
[67] Padgett, 'Emergence'.
[68] The introduction of holograph bills of exchange, replacing the previous notarised *instrumentum ex causa cambii* or notarised deed, was dated in 1979 by John Munro to the mid-1260s (Munro, 'Bullionism', pp. 198-9).
[69] Van Doosselarae, *Commercial agreements*, p. 207.
[70] Spufford, 'Stable moneys', p. 232.
[71] Einaudi, 'Imaginary money'; Cipolla, *Money*; Goldthwaite and Mandich, *Moneta Fiorentina*.

the borrower wanted – an example is the second entry in the first account in Figure 2. Both the payer's new debt and the credit to the other party were entered once in each person's account in the bookkeeping system that the moneychanger-bankers had devised. In this way, the shortage of coins was overcome, trade flourished, markets grew, and double entries were made in bank ledgers. It also removed the transaction costs incurred in transporting coinage and in checking the weight of coins when settlement was made in cash. It was a permanent solution: this *'development of more advanced accounting techniques allowed the development of growing economic activity despite the shortage of coins'*.[72]

Regional fairs

As fairs became larger in the eleventh century, they transformed into regional wholesale events lasting weeks rather than days.[73] Circuits were established, including one in north-east Italy involving an annual cycle of eight fairs in five different locations: Bologna (2), Badia Polesine, Mantua (2), Ferrara (2), and Verona.[74] This brought merchants together from across the region, trading luxury goods from North Africa and the Middle East, raw silk, cotton, and spices[75] to which greatly expanded access by sea for Italian merchants had resulted from the Crusades and, in particular, the Fourth Crusade culminating with the sack of Constantinople in 1204.[76] The resulting increased size of the fairs made what had been a small problem worse. Credit became even more necessary. But, as the volume of trade with strangers grew, offering credit to people merchants knew became relatively less common.

Now that trade was between strangers, the moneychangers began to specialize more on banking. As evidenced in one of the accounts not included in Figure 2, they began to travel, taking with them their details of outstanding debtors and creditors brought forward along with a supply of a mixed variety of coins, which they then used to offer the same combined services at other regional fairs.[77] But, doing so among strangers was problematic because those from elsewhere – whether banker or merchant – did not have the same protection of the community enjoyed by locals. Defaults by debtors were bound to increase. So too were disputes over debt while, to win disputes with strangers, people with the weight of their own community behind them relied on it, positive common knowledge, and their local reputation, plus negative accusations against the other (foreign) party.

As shown in the first entry in Figure 2, guarantors and witnesses could be used to reduce the likelihood of disputes, but for those to be effective, a means to resolve disputes was needed. If a dispute could not be resolved, the laws of the courts until the eleventh century were based on Lombard law[78] which dated from 643-755CE and was largely unsuited to commercial disputes – it *'consisted largely of penalties for various forms of violence and contained little contract, commercial, or property law'*.[79] This changed when Roman law – the Code of Justinian – was rediscovered in the eleventh century.

The legal environment

'It was a time of economic awakening… especially in Northern Italy, and the new trade and commerce demanded a law more flexible than [Lombard law]. The towns came to prefer Roman law'.[80] Founded upon Roman law, Canon Law also emerged and developed from around 1140, initially at the

---

72 Bruscoli, 'Le tecniche bancarie', p. 552.
73 Epstein, 'Regional fairs', p. 461.
74 Schaube, *Handelsgeschichte*, pp. 712-23.
75 Van der Wee, 'Structural changes', pp. 23-5.
76 Braudel, *Civilization and Capitalism*, p. 110.
77 The account records the funding of a journey being made by a banker who was travelling from Bologna to the regional fair held the following month in Badia Polesine.
78 Wickham, 'Fama', p. 4.
79 Mather, 'Medieval revival', p. 324.
80 Haskins, *Renaissance*, p. 207.

University of Bologna. During the fourteenth century, *ius commune* became the umbrella term for both these branches of law, of which Roman law did not change over time, but Canon law did.[81] The combination of Roman and canon law *'formed the basis of legal principles in Italy, and to some extent all of Europe, from 1100 to 1800'*.[82]

However, although Charles Haskins in 1927,[83] for example, believed they did, neither the Code of Justinian*,* nor the developing Canon law embraced the custom and practice of merchants or bankers beyond what was recognized in Roman times. And, the rules from that period that had survived in the Code of Justinian and Lombard law were inadequate to '*to meet the kinds of domestic and international commercial problems that arose in western Europe in the late eleventh and twelfth centuries'*.[84] For example, some protection was provided relating to records kept in account books – ancient Roman law recognized the probative value of a properly maintained ledger,[85] but only some of the entries in the thirteenth century[86].

The importance of documentation

When a dispute was heard, it has been argued by Basil Yamey that reputation and character would have been taken into account whatever evidence was presented, and whatever its form.[87] Others, such as Clément Lenoble,[88] believed that a merchant's reputation established the reliability of his accounts. But, it was far more complicated than that. Examination of dispute documents from twelfth century Lucca, Pisa, Florence, Siena, Arezzo, Volterra, and Pistoia[89] revealed that documentary evidence was **not** subordinate to reputation; it was essential, and it could include account books. But, having good "public fame" could be almost as important.[90]

This was not the "*fama*" (reputation) of Roman law. It was primarily about common knowledge *'about a set of events or a legal situation, which was more stable than rumour, and often more depersonalized than reputation'*, though less reliable than eyewitness knowledge (Wickham 2003b, 16). In validating documentary evidence (or in its absence), eyewitness knowledge was the most important source, then common knowledge and, lastly, reputation. It did not matter how poor a reputation a banker or merchant had, if eyewitnesses who were judged reliable confirmed he was in the right, or in their absence common knowledge did so, his reputation was irrelevant.

Having appropriate documentation was essential. No less so when, as in the example presented in this paper, it involved a banker who was not local, but from a different place, and so more at risk from common knowledge that favoured locals, and also from the reputation or public standing of the other party. However, judges and jurists in these courts were not men of business, which could lead to delays in bringing a case in court, not to mention delays in reaching decisions as legal debate ensued. It could also result in decisions that conflicted with custom, none of which made those courts ideal or suitable for commercial disputes. Furthermore, in preparation for a hearing, there could be several time-consuming and costly actions required involving lawyers.[91]

To address these issues, commercial law, based on custom and good practice – customary law – built upon a foundation of Roman law, developed in a combined body of local law comprising guild regulations and commune proclamations and statutes intended to ensure fairness and

[81] Cavallar and Krishner, *Jurists*, pp. 3-6; Häcker, 'Divergence and convergence', pp. 425-6.
[82] Stern, 'Politics and law', p. 209.
[83] Haskins, *Renaissance*.
[84] Berman, *Law and Revolution*, p. 339.
[85] Ibid, p. 244; Martinelli, 'Origination and evolution', pp. 175-9.
[86] Cavallar and Kirshner, *Jurists*, p. 259.
[87] Yamey, 'Personal accounts', p. 13.
[88] Lenoble, 'Avant l'ascèse intramondaine', p. 69.
[89] Wickham, *Courts and conflict*, p. xv.
[90] Wickham, 'Fama', p. 19; idem, *Courts and conflict*; Radding, 'Review', p. 1.
[91] Reynolds, 'A business affair'.

equity in trade.[92]

Customary law

> The initial development of mercantile law was left largely, though not entirely, to the merchants themselves, who organized international fairs and markets, formed mercantile courts, and established mercantile offices in the new urban communities that were springing up throughout western Europe.[93]

The growth in commerce led to communes being faced with a need to manage their economic development, which gave rise in the late twelfth and thirteenth century of craft guilds and, in particular merchant guilds. By the height of this municipal age in the mid-thirteenth century, professional associations of merchants and artisans were not only powerful forces in their local economies, '*but also in the political life of the[ir] city*'.[94,95] Members had to adhere to their guild customs and guilds restricted access to membership through apprenticeship,[96] which may have made the threat of expulsion ensure a fair outcome to a dispute. However, the regional fairs involved non-members, which often removed that possibility. To ensure that disputes were understood and that custom was applied in their resolution, by the last-third of the twelfth century, communes had begun to establish courts of customary law presided over by merchants. However, we know little of any customary laws that may have been created before the beginning of the thirteenth century.

Similarly to the requirement that guild members adhere to their laws, which non-members would also have needed to do, local customs enshrined in proclamations and statutes had to be observed by those to whom they applied, both resident and stranger. One outome of this was that moneychanger-bankers such as those from 1211, accepting deposits, providing loans, and making payments on behalf of merchants through their ledger, also needed to keep appropriate documentary evidence and adhere to commercial custom in doing so. Most importantly, they also needed to keep any relevant evidence, and know what it was. As shown in Figure 2, they did so by including those details in the entries they made, making their ledger an *aide-mémoire* as well as a document of record.

In cases held in (Roman or ecclesiastical) law courts, local law – customary law – always took precedence, but its existence could be challenged, particularly by magistrates and jurists unaware of custom. To satisfy these courts, the relevant customary law had to exist in written form.[97] This may explain the existence of a relatively large number of pronouncements and statutes that have survived from medieval northern Italy that were identified by Alessandro Lattes in 1884.[98]

To ensure fairness and understanding, the courts of customary law were presided over by merchants who *did* understand the needs of business. In Pisa in 1164, when arrangements for a regional 2-week fair that August were announced by the Consul (leader) of the Commune they included a series of measures whereby, '*a special tribunal corresponding to [a] pie-powder court,*[99] *was set*

---

[92] Lattes, *Diritto*; Berman, *Law and Revolution*.
[93] Berman, *Law and Revolution*, p. 339.
[94] Greci, *Corporazioni*, p. 124.
[95] Berman, *Law and Revolution*, p. 101.
[96] Greci (*Corporazioni*, pp. 157-223) discusses in detail the apprenticeship system in Bologna during this period.
[97] Häcker, 'Divergence and convergence', p. 426.
[98] Lattes, *Diritto*.
[99] 'Piepowder courts were the courts attached to [medieval English] fairs and markets… The judges in these courts were merchants. [They] were popular with the mercantile community, being quick, effective, and not unduly hampered by procedural technicalities.' https://www.oxfordreference.com/display/10.1093/oi/authority.20110803100326547 (accessed on 28 March 2024). 'The court decided summarily and on the spot disputes arising in fairs and markets. Its civil jurisdiction extended to all matters of contract arising within the district of the fair or market. These cases were mostly trade disputes; hence, the decisions were based upon the law as it was interpreted by the local merchants. Its criminal jurisdiction extended to all offenses committed at the particular fair where the court was held.'

up to transact legal business and to settle disputes between traders' .[100] At the same time, the Consul declared:

> In the marketplace itself I will appoint two consuls, previsores [judges of the Court of customary law[101]], a sentinel, and two treuguanos [justices of the peace], for the administration of justice, during the appointed days. And penalties, if necessary for the benefit of the market, I will cause to be made.[102]

Few other such proclamations have survived from Pisa but one that has demonstrates how much importance was placed on these tribunals overseen by merchants:

> We will defend and maintain the court of the merchants of the city of Pisa, in their justices and judgements, and we will defend and maintain the just and ancient customs; and we will also hold their *Breve* firm and fair – *Breve* [Pronouncement] of the Commune of Pisa 1286, §XXXIII.[103]

Not surprisingly, especially given the reluctance of *ius commune* courts to recognize local law, this legal system and the courts of customary law created by communes run by bankers and merchants, and their guilds[104] was, as noted in 1458, the one they sought to use:

> [A merchant] should live in a place where mercantile law is applied rather than the Code of Justinian, because the disputatiousness of lawyers, who are hostile to his profits, is no small problem for the merchant. Besides, mercantile affairs require rapid preparation and speed in execution, while in legal disputes the exact opposite is the general rule.[105]

This would have been as relevant in the twelfth century as it was in the fifteenth. From the beginning, the two strands of law and the judiciary were quite different; and the relative standardisation of the surviving statutes from northern Italy indicates that similar customary law courts were established wherever trade fairs were held. It was from the creation of this branch of law that commercial law evolved.[106]

Once established, the commercial legal framework and judiciary of the fairs protected the moneychanger-bankers. This also increased trust among merchants because they knew that any disputes between them could be resolved by recourse to a court of customary law that would understand the needs of business. Fairs continued to grow in size as numbers attending increased while trade expanded geographically, attracting more merchants from farther afield. The regional fair in Pisa was the closest to Florence. While there are no entries relating to that fair in the 1211 ledger, there are entries for loans made there in May and June, which indicates that this form of bookkeeping was consistent with custom in Pisa as well as Bologna.

In Bologna, the two oldest guilds were the moneychangers and the merchants. They both probably existed in 1174[107] and before the end of the twelfth century they had joint control over the Bolognese mint. The existence of these guilds at that time has been attributed to a need to

---

https://www.britannica.com/topic/piepoudre-court (accessed on 28 March 2024). 'It is evident that the procedure of the court of piepowder resembles the procedure of the international law merchant as it was administered in all European tribunals. The "lex mercatoria" [law merchant] was a customary law that grew up gradually through the intercourse of merchants; and special rules relating to litigation in mercantile transactions existed already in the eleventh century.' (Gross, 'The courts of piepowder', p. 245)

100 Heywood, *Pisa*, p. 247.

101 Those qualified for this role were *'de usu scientes'* (knowing of the practice), not jurists of Roman law (Classen, '*Res gestae*', p. 356).

102 Bonaini, *Statuti*, p. 29.

103 Ibid, p. 89.

104 Merchants, including bankers, participated in government long before others due to the importance they acquired through their wealth and the prevailing culture (Lattes, *Diritto*, p. 26), and to their prominent role in the shift from the feudal age to the age of the municipalities (Greci, *Corporazioni*, pp. 103-4).

105 Cotrugli, 'The art of trade', p. 40. Benedetto Cotrugli was an international merchant from Ragusa, which was part of the Venetian Republic when this book was written in 1458.

106 Mitchell, *An essay*, p. 22.

107 Gaudenzi, *Statuti*, p, ix.

protect the interests of their members against the feudal aristocracy whereas, for example, in Venice and Genoa the moneychangers and merchants formed the aristocracy and needed no guilds to protect them.[108] The Bologna moneychangers had considerable wealth before the guild was established, which the proceeds from the mint only enhanced and their statutes demanded truth and faith of its members such that whatever they said or did proceeded from truth alone. Clearly this would have counted for them in dispute, reducing their risk when they offered banking services, and they were powerful in the commune. By 1194, other guilds had formed and their numbers expanded after a change of podesta in 1198.[109] However, the prosperity, dominance and political pre-eminence of the merchants and the moneychangers (bankers) lasted until the mid-thirteenth century.[110]

It was in this legal and commercial environment that emerged the form of bookkeeping evidenced in the surviving entries from 1211 which developed into double entry bookkeeping in twelfth and thirteenth century northern Italy.[111] While some have suggested that we need to look for use of double entry in earlier times, no bookkeeping records have survived that might support such claims. Furthermore, while there may have been some similarities in 1211 northern Italy compared to, for example, Roman times, many factors – including, society, religion, culture, economies, ethnic groupings, states, social status, literacy, politics, taxation, population, forms of governing control, commerce, markets, and the legal system – had all gone through several iterations of change, division, emergence, enlargement, and dispersion throughout the preceding 700 years.[112] Or as A.C. Littleton, believing that all the necessary antecedents for adoption of double entry bookkeeping existed in ancient times, described it from a similar perspective with different emphasis:

> The answer lies, I think, in the historical characteristics of the next period – in the differences in outlook and background, in the differences in men's aspirations and interests, and in the differences in the quantity of the wants and the quality of the ideas of the times.[113]

The next section addresses these and other contextual factors in considering the form of bookkeeping evident in the Florentine bank ledger from 1211.

3. CAUSE AND EFFECT

> Of the greatest importance … was the use of a means [other than coins], which alone makes it possible to explain that, given the total inadequacy of the existing means of [monetary] circulation, highly developed trade could have existed. **That was the general diffusion that bookkeeping had acquired among businessmen of the time. The fragments of the Florentine ledger of 1211, show us the system fully developed…**; there is no doubt that this adjustment through use of credit to the greatest possible extent was intended to [address] the scarcity and inadequacy of coins.[114]

The reliance on credit facilitated by bookkeeping emphasised in this quotation from Adolf Schaube involved risk to the lender and additional costs, not simply those, perhaps minimal, of obtaining and keeping appropriate evidence, but also those incurred if a debt was disputed or remained unpaid. Taking this into account, this paper proposes that the bookkeeping in 1211, and thus double entry bookkeeping itself, emerged from the steps taken to protect the interests of creditors and minimize their financial risk and that, as *'the laws determined the rules to be followed in*

[108] Ibid., p. x.
[109] Greci, *Corporazioni*, pp. 120, 101.
[110] Ibid., p. 122; Franchini, 'La funzione', pp. 136-8.
[111] Chiaudano, *Studi e documenti*; Usher, 'Origins of banking'; Martinelli, 'Origination and evolution'.
[112] Wickham, *Medieval Europe*.
[113] Littleton, 'Antecedents', p. 143.
[114] Schaube, *Handelsgeschichte*, p. 119, bold added.

the compilation and maintenance of [medieval Italian] commercial books',[115] those steps were shaped by the demands of the legal system and, in particular, the demands of customary law that developed throughout the late-medieval period in northern Italy.

However, what came first was customary practice,[116] which was then embraced in customary law, that then guided practice thereafter. Given the importance placed on evidence when resolving disputes, it is not unreasonable to propose that this was included in the bookkeeping system from the start. Evidence is only relevant to something that occurred, so recording what had taken place was also a necessity, even if only to act as an *aide-mémoire* so that the evidence might serve its purpose.

When the first steps were taken towards keeping a comprehensive record of transactions, the resulting document would not have had any legal status. For that to occur, it first had to be recognized as customary practice in a court of customary law. Until then, to overcome this an account could have been transcribed, translated into Latin if necessary – there is no evidence that this was a requirement under Roman law, Canon law, Lombard law, or customary law – and then notarised. The supporting evidence would then have been presented alongside the notarised transcript.[117] In the case of the ledger from 1211, as Adolf Schaube declared in the above quotation, the bookkeeping system is "fully developed". It is too similar to the examples from 1296 and 1299 for it to have been merely an *aide-mémoire* in 1211. Neither the addition over 90 years of page numbers or a separate monetary column changes the method. If the bookkeeping in 1296 and 1299 were recognized in customary law, which they were,[118] and major changes were not made to it before 1296, it seems reasonable to conclude that the bookkkeeping in 1211 would have been similarly recognized.

On a related topic, as previously noted, local law (customary law) took precedence irrespective of whether a dispute was heard in a court of customary law or one of either branch of *ius commune*. Local law dictated that custom be adopted and anyone not doing so would not be protected by it, which indicates that the ledger of 1211 represents customary practice at the Bologna fair, including its use of the spoken language in the entries. This use of the spoken language is omnipresent in Florentine and other Tuscan commercial account books throughout the late-medieval period.

In contrast, in Genoa where book transfers were being made in bank ledgers around the same time, Latin was the language of record until several centuries later and notaries did the bookkeeping.[119] There is no known example of a notary acting as the bookkeeper or of notarised medieval commercial or banking account books among the more than 3,000 that have survived from Florence.[120] Instead, across most of the centres of trade in northern Italy, account books had to be authorised for use by an officer of the guilds.[121] Furthermore, by the end of the thirteenth century Florence had *'abandon[ed] the notarised act (i.e. document) in favor of the accounting record as the legal documentation for exchange transactions'*.[122] The freedom to develop their own customs, that by then had became enshrined in customary law, made this possible:

---

115 Santini, 'Frammenti', p. 177-8.
116 Lattes, *Diritto.*
117 I am grateful to an anonymous reviewer for suggesting this.
118 Goldthwaite, *The economy of Renaissance Florence*, p. 90. Richard Goldthwaite was referring to entries in account books being recognized as evidence of money being transferred between accounts. For that to be possible the method of bookkeeping must previously have been granted evidential status.
119 Tucci, 'Il documento'.
120 Apart from the author who has over a decade of experience of working in the archives where these books are held, of several other scholars with more than 100 combined years of study in these archives who were asked if they had seen one, none indicated that they could recall seeing a notarised account book from this period.
121 Lattes, *Diritto,* p. 283.
122 Goldthwaite, *The economy*, p. 90.

> The merchant's document does not take long to emancipate itself from subjection to the notary because it is the product of an environment regulated by its own uses, which gave substance to a particular law, to which the strong technical imprint and the tendency to take on a supranational character guaranteed its autonomy.[123]

While we know practice was established before it was embraced in customary law, we cannot state when the practice described in law first began to be followed. Customary laws have survived from the beginning of the thirteenth century and they often embrace the content of previous pronouncements.[124] All we know is that those that have survived reflect practice that could have been current many years earlier. Thus, for example, we know that a decree was issued in Milan on 13 July 1204, declaring that a creditor was authorised to instruct his debtor to make payment to whoever the creditor chose. We do not know whether this was the first time such a regulation was issued, nor when the practice it describes became part of customary practice. Nevertheless, its protective nature towards the rights of the creditor is symptomatic of the body of the commercial laws that have survived, and those on this theme were not unique to Milan.[125]

More specific conclusions can however be drawn concerning the origins of a 1245 statute issued by the moneychanger-bankers guild in Bologna. It obliged its members to make book transfers at the regional fair of any credit balance they held for another banker or a non-Bologna resident if instructed to do so by the creditor, or make payment in coins immediately. They had to do so within two days of the end of each fair.[126] The response or, more accurately, catalyst for this statute was the invention of clearing as the fair bankers, who were both local and from elsewhere (and consequently included non-members of the Guild), used book transfers through their ledgers to settle the outstanding debt. And that process occurred before legislation, such as the 1245 statute, was created, because commercial law was derived from banking and mercantile customary practice, not the other way round.

That is one example of how the practice of the bankers pre-empted commercial law.[127] However, before there were any of these laws, under *ius commune,* eyewitness statements had the highest evidential status, and documentary evidence was given higher status than common knowledge. This was part of the Roman law that was the foundation for commercial law, which explains why the bankers developed the method of record keeping illustrated in Figures 1 and 2 that embraced both evidence and documentation: they not only described what had occurred, they mentioned what supporting evidence they had, both physical and verbal. Thus, the names of guarantors and witnesses can be found in these entries. Not only were these records documentary evidence, they acted as an *aide-mémoire*, which was vital if for whatever reason the ledger itself could not, or was not allowed to be presented as evidence.

4. VIEWING THE ENTRIES FROM 1211 WITHIN THEIR LEGAL FRAMEWORK

Irrespective of its limited validity under the Law of Justinian and Canon law, because of the primacy of local law the magistrates and jurists of 1211 would have recognized this bank ledger as having probative status. Lattes draws attention to this; and both Santini and Chiaudano state that the bank ledger from 1211 was recognized as having this status. The laws required that ledgers were kept according to custom, so this ledger from 1211 must have reflected that custom and, in doing so, the way the entries were made by the Florentine bankers embraced what the

[123] Tucci, 'Il documento', p. 546.
[124] Lattes, *Diritto*, p. 251.
[125] Schaube, *Handelsgeschichte*, p. 119.
[126] ibid, p. 717.
[127] Because both moneychanger-bankers and merchants travelled around the region, it would be reasonable to assume that the laws that appeared were based on customary practice that may have originated elsewhere. An evident similarity between commercial statutes across northern Italy supports that view (Lattes *Diritto*; Tucci 'Il documento', p. 554).

law required. Ledgers kept in any other form were not accepted by the courts, which meant that simpler methods of bookkeeping were not an option.

Bankers also had no choice but to adopt the basic principles of this method because when book transfers were recorded between two personal accounts, as these are in this ledger, failure to record the contra entry would have left the banker with no record of the transaction on the other personal account and no means of proving that a book transfer had been recorded. This is an obvious reason why we see duality and examples of double entry in these records from 1211. And, as can be seen in Figures 2 and 3, the information in the entries, formed to meet the demands of the law, indicates the other account involved, resulting in what are recognisably the necessary components of double entry in each entry made.

5. DIFFUSION AND DEVELOPMENT

It is not suprising that Orlandi[128] found that medieval Italian entrepreneurs *'carefully preserved [their accounting] methods once [they] understood their importance'*. They were motivated to do so by its recognition in customary law, and desire for that recognition meant that the method spread and did so before it was recognized in customary law. The only way those methods evident in 1211 could have been enshrined in customary law as customary practice was if all fair bankers were preparing their records in the same way. We know those bankers travelled to other regional fairs and also provided banking services in Florence and Pisa, but we have no other physical evidence of the bookkeeping in the ledgers of Florentine fair bankers before the 1290s. The alternative, that fair bankers changed their bookkeeping methods to satisfy the local customary law at each fair, may have applied at first, but the surviving statutes and the similarity between the bookkeeping method in 1211 and those of 1296 and 1299 indicate that either this phase had already ended by 1211, which is what Adolf Schaube believed,[129] or that the bookkeeping method from 1211 was the one that was ultimately adopted by all.

The situation for merchants was different. While jurists agreed about the status of bank ledgers, they could not agree about the status of merchant ledgers.[130] That hesitation could only have been due to a lack of uniformity in the way merchants kept their ledgers compared to the bankers, which is evident in the small number of examples of thirteenth century merchant bookkeeping presented by Martinelli.[131] This distinction in recognition is still evident in fourteenth century Florence, where bank ledgers were accepted as proof in court, which led some merchants to prefer to rapidly update their ledgers when they realized they did not contain all the entries shown in their account held by the bank, even if they did not know if those entries were correct.[132]

Not only merchants began to increasingly adopt the method; and the influence of the bankers was implicitly recognized when Fabio Besta identified what he viewed as the earliest recognized example of double entry in a government ledger from 1340 Genoa.[133] The relevant legislation from 1327 prescribed that accounts must be kept using *'the method of the bankers'*.[134] By that time, as evidenced by its widespread use in fourteenth century Florence,[135] double entry had not only been adopted by merchants, it had also spread into local banking, local trade and, also, domestic bookkeeping.

6. DATING THE EMERGENCE OF THIS FORM OF BOOKKEEPING

128 Orlandi, 'Emergence', p. 544.
129 Schaube, *Handelsgeschichte*, p. 119.
130 Lattes, *Diritto*, p. 283.
131 Martinelli, 'Origination and evolution'.
132 Goldthwaite, *The economy*, p. 433.
133 Martinelli, 'Origination and evolution', p. 271.
134 De Roover, 'Development', p. 133.
135 Goldthwaite, *The building of Renaissance Florence*; idem, 'Dibattito'; idem, 'Florentine household accounts'.

Once recognized under customary law, amendments to the bookkeeping method *had to be viewed as good practice* if they were not to threaten the validity of the ledgers. Pietro Santini, who was the first to transcribe the entries, believed that Latin was initially required but that the use of the spoken language had become accepted by the jurists. The argument that doing so meant all merchants could read, understand, and thus genuinely approve the entries made in their names in their banker's ledger would have been compelling[136]; and,

> since these fragments have a very developed form, which cannot be believed to have been formed there and then, **it is natural to hypothesize that the bank book** written in [that language], **as we have it in 1211**, **already existed in the twelfth century**.[137]

Federigo Melis agreed,[138] believing that the bookkeeping method had been in use for several decades, *'albeit in a language other than the vernacular'*, before it was replaced by it.

These Florentine bankers were not, therefore, the first to keep records in this way. Bankers were operating in Florence in 1194[139] and were one of the three major guilds that had a representative on the chief council of the city in 1204.[140] The coinage-related problems described in this paper applied in the twelfth century as much as the thirteenth, and they applied everywhere, which suggests that bankers were also as important elsewhere. The previously mentioned Consul of Pisa's pronouncement in 1164 included a commitment to attract merchants from across Tuscany and beyond to its regional fair.[141] Hence, the circumstances in that respect in Pisa were similar to those at the Bologna fair of 1211. It would be surprising if moneychanger-bankers in Pisa were not providing similar credit and facilitating payment through book transfer rather than coins. They were, after all, doing so somewhere – Pisa – that had already established a court of customary law. Perhaps it was not the first such court but, even if it were not, the Florentine bankers of 1211 were using a bookkeeping system that had probably been evolving for at least 47 years. Yet, a question remains: why the moneychangers? One possible answer concerns trust, coins, and credit.

7. WHY THE MONEYCHANGERS?

> Buying, selling, and exchanging commodities requires some trust among the participants, and we can assume (even without concrete evidence) that the Italian markets that survived throughout the Dark Ages were based upon some degree of *fiducia*.[142]

Any transaction can be viewed as a credit transaction, even when payment is immediately made in cash,[143] particularly when the intrinsic value of any coin is variable and unlikely to be equal to its face value. Agreements involving loan credit to fund international trade can found in the notarial records of twelfth century Genoa and in both notarial documents and commercial records in Venice in the eleventh and twelfth century,[144] but credit in trade between strangers both trying to buy or sell, not lend, is a different situation. For credit to be adopted in trade, any lack of trust between particpants must be addressed.

It has been argued that a long-lasting system of community responsibility helped to overcome that problem. That in making the home community of merchants responsible for debt default by one of its members with a merchant from another community, it was effective and contributed to the establishment of merchant institutions and commune institutions and laws that protected

[136] This was an example of pragmatic literacy. It was not unique to medieval northern Italy. For an example from fourteenth century Sweden, see Larsson, *Pragmatic literacy*.
[137] Santini, 'Frammenti', p. 178, bold added.
[138] Melis, *Documenti*, p. 50, fn. 1.
[139] Staley, *The guilds of Florence*, p. 173.
[140] Ibid, p. 41.
[141] Bonaini, *Statuti*, p. 29.
[142] Mielke, 'Fede and fiducia', p. 85.
[143] Berman, *Law and Revolution*, p. 349.
[144] Reynolds, 'The market'; Lopez, 'Review'; Wickham, *The donkey and the boat*, pp. 509-15, 534, 542-55.

the creditor.[145] Some have commented on and/or challenged these broad claims: instutions and laws were certainly created, but not necessarily because of the existence of a system of community responsibility, not least because governments needed to protect the markets on which their revenue, and consequently their authority depended;[146] and the mercantile class, individually and collectively undoubtedly influenced developments in legal principle and procedure favourable to business, particularly the enforcement of contract and the recovery of debt.[147] Others have pointed to examples of the lack of efficacy of the community responsibility system,[148] its potential negative impact on innocents and innocent communities,[149] while others insist that social norms and expectations are more effective[150].

While there is no agreement on the extent of their influence and efficacy, the community responsibility system and the institutions and laws all had the effect of reducing risk relating to situations that relied on trust. It is within this context in a period when institutions were still emerging and laws still developing that the financial system portrayed by the ledger of 1211, and the willingness of the particpants to embrace it should be considered. From the perspective of risk minimisation, some insight may be gained from social economics using the credit theory of money developed in 1913 by Mitchell Innes in which he presented his "primitive law of commerce":

> A sale… is not the exchange of a commodity for some intermediate commodity called the "medium of exchange," but the exchange of a commodity for a credit. … As debtor we can compel our creditor to cancel our obligation to him by handing to him his own acknowledgment of a debt to an equivalent amount which he, in his turn, has incurred. … the constant creation of credits and debts, and their extinction by being cancelled against one another, forms the whole mechanism of commerce. [151]

Innes presents a simplified example of how this might function in trade among merchants living in the same place when total purchases are equal to total sales and all involve credit. It involves A who sells goods to B, C, and D each of whom gives him an IOU. A also buys goods from E, F, and G, giving each an IOU. Then E, F, and G buy goods from B, C, and D, and pay for them with the IOUs they received from A. Next, B, C, and D present A's IOUs to A and all the debts are cleared. However:

> as soon as commerce widened out, and the various debtors and creditors lived far apart and were unacquainted with one another, **it is obvious that without some system of centralizing debts and credits commerce would not go on**.[152]

This is when the bankers emerge from among the moneychangers to provide that centralising system. Through the service they already provide, they must have gained the trust of the particpants, including the strangers who can only trade with cash. Why would they accept the judgement of the moneychangers on the value of their coins if they dd not trust them? That must have been viewed as an acceptable risk in the same way that travellers today trust airport moneychangers – the real risk of a poor exchange rate is offset by convenience. The medieval moneychangers agreed to accept deposits and grant loans, which reduced the risks for the local participants now trading with strangers, and also for the strangers:

> B, C and D before buying the goods they require make an agreement with the banker by which he undertakes to become the debtor of A in their place, while they at the same time agree to become the debtors of the banker. Having made this agreement B, C and D make their purchases from A

[145] Greif, 'Institutions and impersonal exchange'; idem, *Institutions and the path to the modern economy.*
[146] Mielke, 'Fede and fiducia', p. 91.
[147] Jones, *The Italian city-state*, p. 230.
[148] Edwards and Ogilvie, 'Lessons', pp. 145-6.
[149] Boerner and Ritschi, 'Individual enforcement', p. 206.
[150] Trivellato, *The familiarity of strangers*, p. 267.
[151] Innes, 'What is Money?', pp. 391-3.
[152] Ibid., p. 403, bold added.

and instead of giving him their [IOUs]… they give him [an IOU from] the banker.[153]

If these examples are related to the present day: a debtor (A) can write a cheque and give it to his creditor (B) who deposits it in their bank, which clears the debt by transfering the amount of the cheque from A's account to the account of B.[154] This has the same result as the system of offset being operated by the Florentine bankers in 1211. Strangers traded with each other because a third party facilitated clearing of their debt, so maximising opportunities for (credit-based) trade while minimising, through clearing, the amount of debt outstanding at the end of each fair. The loans granted by the bankers were funded from deposits made by the participants.

From this perspective, moneychangers offering banking services is suggested as the event that led to the establishment of customary practice in how settlement of debt using offset was done and recorded. Merchants attending the fairs transferred risk to the bankers of (1) default by strangers on debt owed to local merchants; (2) default by local merchants on debt owed to strangers; and, (3) default by any merchants on debt owed to another. The bankers took on the risks of credit and reduced their risk of loss from debt default by developing a robust system of record keeping and evidence keeping. They could also use the funds they had received from the merchants to trade themselves, so compensating them for the risks they had incurred. All the bankers adopted it, so making it "customary practice", which led to its recognition by merchant courts, and then under both branches of *ius commune*.

When the bankers started taking deposits, instead of giving coin, and granting overdrafts (loans), both because there was insufficient reliable coinage to use cash, the step towards transfer banking – offset – would have been swiftly taken. In contrast, without the bankers, debt would not have became transferable and could not have been used to settle transactions. Instead, the lack of trust in strangers would have stifled trade. And, even when trade occurred using credit, its lack of transferability would have removed resources from trade until settlement occurred. This explain how and why:

> Unstinting credit was the great lubricant of the Commercial Revolution… [its] take-off was fueled not by a massive input of cash, but by a closer collaboration of people using credit.[155]

8. CONCLUDING DISCUSSION

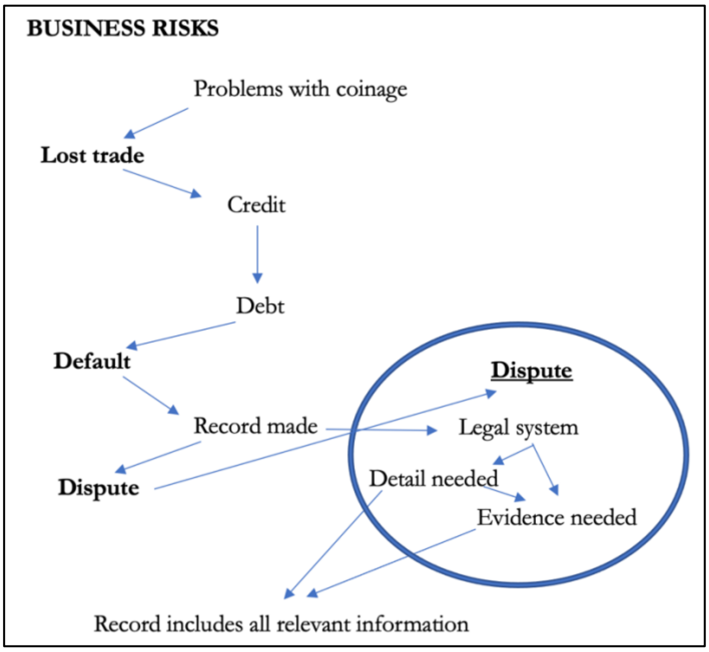
> Credit dealings almost certainly were responsible for systematic accounting. The incentive to keep proper records of debts was strengthened by the recognition the law, in certain circumstances, gave to ledgers as evidence of debts.[156]

The bookkeeping method from 1211 addressed business risks that stemmed from problems relating to coinage and the resulting adoption of credit that enabled trade to continue and expand,[157] both as an *aide-mémoire* and as evidence of what had occurred, and why. The various factors discussed can be combined sequentially to demonstrate how those risks interacted and combined leading to the development of this bookkeeping method that embraced double entries (Figure 4).

Figure 4. *A causal diagram of the factors that influenced the content of entries in the bookkeeping system of the fair bankers*

---

[153] Ibid., p. 403.
[154] Wray, 'Banking, finance and money', p. 485.
[155] Lopez, *The Commercial Revolution of the Middle Ages*, p. 72.
[156] Yamey, 'Scientific bookkeeping', p. 103. Yamey's use of "systematic accounting", is ambiguous. He is either referring to double etnry bookkeeping or to financial reporting embracing profit and loss accounts and balance sheets derived from data held in an entity-wide double entry bookkeeping system. However, irrespective of his meaning, he believed that use of credit in trade led to the emergence of double entry bookkeeping.
[157] Schaube, *Handelsgeschichte*; Lopez *Commercial Revolution*; Bruscoli, 'Le tecniche bancarie'; Börner and Hatfield, 'The design of debt-clearing markets'.



The moneychangers were the obvious more trusted group to act as intermediaries in a trading environment in which credit was necessarily adopted. They had already gained the trust of merchants. In accepting deposits and providing loans and payment by offset in their bank ledgers, the fair bankers reduced the financial risk of the merchants and made impersonal exchange between strangers viable and efficient. The method of bookkeeping the moneychangers adopted was designed to embrace all the information that could be relevant in the event of a dispute. It became customary practice recognized in customary law, applicable under both that legal system and the branches of Roman law. At the end of the thirteenth century, the same bookkeeping method was in use by Florentine merchant-bankers at the Champagne fairs and by Florentine merchant-bankers in southern France; and by the mid-fourteenth century, it had permeated all levels of society in Florence. It then continued in use in written form until hand-written ledgers began to be replaced by computers in the late twentieth century. By then, each entry was typically prefaced by the date and included the identity and location of the contra entry, and the amount, and little else. The other information, so important when the method first began to emerge, was recorded somewhere else.

Finally

This paper has addressed the mystery presented by Dobbie and Oldroyd in 2020[158] by confirming that double entry bookkeeping had begun to emerge by 1211. It has situated the beginnings of that process several decades earlier, and presented evidence seeking to explain its emergence. The surrounding context was used to abduce the function served by the Florentine bank ledger of 1211; and causal analysis illustrated the process that spurred the emergence of double entry bookkeeping. This represents a major contribution. No-one has previously provided *any* satisfactory explanation for the emergence of double entry bookkeeping. And, none have utilized the contextual evidence presented here. This is, in part, because most were not aware of it. Those that were, such as Raymond de Roover, as he himself admitted[159], were unable to eliminate their presentist thinking which made addressing the questions answered in this study

[158] Dobbie and Oldroyd, 'Bookkeeping', p. 126.

[159] De Roover, 'The story of the Alberti Company of Florence', p. 42. In this paper published in 1958, De Roover commented on the difficulty of understanding what certain things in the ledgers he was examining represented, and then broadened his discussion to all medieval Italian bookkeepers, saying that they did strange things the reasons for which accounting historians were unable to understand, because they had a different point of view *'and accounting has progressed since the Middle Ages'*.

impossible. Others were preoccupied with comparing form and procedure to twentieth century practice and neglected to consider why what they were looking at was created, from the perspective of its own time and place.[160] It is hoped that others faced with unanswered questions on topics on which context has been largely ignored will be encouraged by the findings of this paper to adopt a similar approach to the one presented here.

REFERENCES

Bautier, R.-H., 'The Fairs of Champagne', in R. Cameron, ed., *Essays in French Economic History* (Homewood, IL, 1970), pp. 42-63.

Berman, H. J., *Law and Revolution: the formation of western legal tradition* (Cambridge, Mass. 1983).

Besta, F., *La Ragioneria, Volume 1, 2nd edition* (Facsimile Reprint 2007) (Rome, 1916).

Besta, F., *La Ragioneria, Volume 3, 2nd edition*, (Facsimile Reprint, 2007) (Rome, 1916).

Bettarini, F., 'The Census. A census of private account books in Florence, 1211-1499' (2021) https://phaidra.cab.unipd.it/view/o:453620 (accessed on 9 Jan. 2024).

Boerner, L., and Ritschl, A., 'Individual enforcement of collective liability in premodern Europe: comment', *Journal of Institutional and Theoretical Economics (JITE)/Zeitschrift für die gesamte Staatswissenschaft*, 158 (2002) pp. 205-13.

Bolton, J. and Guidi-Bruscoli, F., ''Your flexible friend': the bill of exchange in theory and practice in the fifteenth century', *Economic History Review*, 74 (2021), pp. 873-91.

Bonaini, F., *Statuti inediti della città di Pisa dal XII al XIV sec.* (Firenze, 1854).

Börner, L. and Hatfield, J. W., 'The design of debt-clearing markets: clearinghouse mechanisms in preindustrial Europe'. *Journal of Political Economy*, 125 (2017), pp. 1991-2037.

Braudel F., *Civilization and Capitalism 15th–18th Century* (1984).

Bruscoli F., 'Le tecniche bancarie', in F. Franceschi, R. A. Goldthwaite, and R. C. Mueller, eds., *Commercio e cultura mercantile* (Treviso, 2007), pp. 543-66.

Cassandro, M., 'La contabilità bancaria (XlII-XIV sec.)', in S. Cavaciocchi, ed., *L'impressa industria commercio banca secc. XIII-XVIII, Atti della 'Ventiduesima Settimana di Studi' 30 aprile – 4 maio 1990* (Firenze, 1991), pp. 197-222.

Castellani, A, ed., *Nuovi testi fiorentini del Dugento, Tomo II* (Firenze, 1952).

Cavallar, O. and Kirshner, J., *Jurists and jurisprudence in medieval italy: texts and contexts* (Toronto, 2020).

Chiaudano M., *Studi e documenti per la storia del diritto commerciale italiano nel sec. XIII* (Torino, 1930).

Ciambotti M., 'La storia della ragioneria e la storia socio-politica', *De Computis. Revista Española de Historia de la Contabilidad,* 10 (2009), pp. 131-56.

Ciambotti, M. 'Luca Pacioli e le innovazioni del linguaggio contabile nelle amministrazioni mercantili e nelle signorie del '400', *Cultura giuridica e diritto vivente*, Special Issue (2016), pp. 1-17.

Cipolla, C. M., *Money, prices and civilization in the Mediterranean world, fifth to seventeenth century* (Princeton, 1956).

Classen, P., '*Res gestae*, universal history, apocalypse. Visions of past and future', *Vorträge und Forschungen*, 28 (1983), pp. 347-78.

Cotrugli, B., 'The book of the art of trade', in C. Carraro and G. Favero, eds., *Benedetto Cotrugli: the book of the art of trade* (Cham, 2016), pp. 21-172.

De Roover, R., 'What is dry exchange? A contribution to the study of English mercantilism', *Journal of Political Economy*, 52 (1944), pp. 250-66.

[160] De Roover, 'The development of accounting prior to Luca Pacioli', p. 114. In this book chapter published in 1956, De Roover wrote that until then accounting historians had focused on form and procedure – the format of entries and the technical procedures within the accounting system – and were only beginning to investigate the use of accounting for management and control. He does not mention investigation of the environmental context, nor investigation of why bookkeepers adopted their bookkeeping practices.

De Roover, R., 'New interpretations of the history of banking', *Cahiers d'Histoire Mondiale*, 2 (1954), pp. 38-76.
De Roover, R., 'The development of accounting prior to Luca Pacioli according to the ledgers of medieval merchants', in A. C. Littleton and B. S. Yamey, eds., *Studies in the history of accounting* (1956), pp. 114-74.
De Roover, R., 'The story of the Alberti Company of Florence, 1302-1348, as revealed in its ledgers', *Business History Review*, 32 (1958), pp. 14-59.
De Roover, R., 'The organization of trade', in M. M. Postan, E. E. Rich, and E. Miller, eds., *The Cambridge economic history of Europe from the decline of the Roman Empire Volume 3: Economic organisation and policies in the Middle Ages* (Cambridge, 1963), pp. 42-118.
Dobie, A. and Oldroyd, D., 'Bookkeeping', in J. R. Edwards and S. P. Walker, eds., *The Routledge companion to accounting history, 2nd edition* (2020), pp. 102-35.
Edwards, J., and Ogilvie, S., 'What lessons for economic development can we draw from the Champagne fairs?', *Explorations in Economic History*, 49 (2012), pp. 131-48.
Einaudi, L., 'The theory of imaginary money from Charlemagne to the French Revolution', in F. C. Lane and J. C. Riemersma, eds., *Enterprise and secular change* (1953), pp. 229-61.
Epstein, S. R., 'Regional fairs, institutional innovation, and economic growth in late medieval Europe', *Economic History Review*, 47 (1994), pp. 459-82.
Flori, L., *Trattato del modo di tenere il libro doppio domestico col suo esemplare* (Palermo, 1636).
Franchini, V., 'La funzione economica di Talune arti nel sec. XIII in Bologna', *Rivista Internazionale di Scienze Sociali e Discipline Ausiliarie*, (1930), pp. 131-9.
Gaudenzi, A., *Statuti delle società del popolo di Bologna, Vol. 2* (Roma, 1896)
Geva, B., 'The order to pay money in medieval continental europe', in D. Fox and W. Ernst, eds., *Money in the western legal tradition: Middle Ages to Bretton Woods* (Oxford, 2016), pp. 409-40.
Goldthwaite, R. A., *The Building of Renaissance Florence: An economic and social history* (Baltimore, 1980).
Goldthwaite, R. A., 'Dibattito', in S. Cavaciocchi, ed., *L'impressa industria commercio banca secc. XIII-XVIII, Atti della 'Ventiduesima Settimana di Studi' 30 aprile - 4 maggio 1990* (Firenze, 1991), pp. 262-5.
Goldthwaite, R. A., *The economy of Renaissance Florence* (Baltimore, 2009).
Goldthwaite, R., 'The practice and culture of accounting in Renaissance Florence', *Enterprise & Society*, 16 (2015), pp. 611-47.
Goldthwaite, R. A., 'Florentine household accounts, fourteenth to seventeenth centuries', *Renaissance Studies*, 32 (2018), pp. 219-35.
Goldthwaite, R. A., and Mandich, G., *Studi sulla moneta fiorentina (secoli XIII-XVI)* (Firenze, 1994).
Greci, R., *Corporazioni e mondo del lavoro nell'Italia padana medievale (secoli XII-XV)* (Bologna, 1988).
Greif, A., 'Institutions and impersonal exchange: from communal to individual responsibility', *Journal of Institutional and Theoretical Economics (JITE)/Zeitschrift für die gesamte Staatswissenschaft*, (2002), pp. 168-204.
Greif, A., *Institutions and the path to the modern economy: Lessons from medieval trade* (Cambridge, 2006).
Gross, C., 'The Court of piepowder', *Quarterly Journal of Economics*, 20 (1906), pp. 231-49.
Häcker, B., 'Divergence and convergence in the common law-lessons from the Ius Commune', *Law Quarterly Review,* 131 (2015), pp. 424-53.
Hall, M. W., 'Early bankers in the Genoese notarial records', *Economic History Review*, 6 (1935), pp. 73-9.
Haskins, C. H., *The Renaissance of the Twelfth Century* (Cambridge, Mass., 1927).
Heywood, W., *A History of Pisa: eleventh and twelfth centuries* (Cambridge, 1929).
Innes, A. M., 'What is Money?', *Banking Law Journal*, 30 (2013), pp. 377-408.
Jones, P., *The Italian city-state: from commune to signoria* (Oxford, 1997).

Kuter, M., Baker, C. R., and Gurskaya, M., 'Profit calculation in a late 14th century sole proprietorship: the case of Francesco Datini', *Accounting Historians Journal*, 49 (2022), pp. 15-28.
Lane, F. C., 'Doubles entry bookkeeping and resident merchants', *Journal of European Economic History*, 6 (1977), pp. 177-91.
Larsson, I., *Pragmatic literacy and the medieval use of the vernacular: the Swedish example* (Turnhout, 2009).
Lattes, A., *Il Diritto commerciale nella legislazione statutaria delle città italiane, studii di Alessandro Lattes* (Milano, 1884).
Lee, G. A., 'The oldest European ledger: a Florentine bank ledger of 1211', *Nottingham Mediaeval Studies*, 16 (1972), pp. 28–60.
Lee, G. A., 'The coming of age of double entry – The Giovanni Farolfi ledger of 1299-1300', *Accounting Historians Journal*, 4 (1977), pp. 80-95.
Lenoble, C., 'Avant l'ascèse intramondaine: ecclesiastical comptabilités, gouvernement et rationalité économique 13th – 15th siecles', *Archives des sciences sociales de réligion*, 195 (2021), pp. 51-81.
Littleton, A. C., 'The antecedents of double-entry', *Accounting Review*, 2 (1927), pp. 140-9.
Lopez, R. S., 'Review: Famiglia Zusto. L. Lanfranchi…', *Speculum*, 31 (1956), pp. 176-9.
Lopez, R., *The Commercial Revolution of the Middle Ages, 950-1350* (Cambridge, 1976).
MacDonald, S. B. and Gastmann, A. L., *A History of Credit & Power in the Western World* (New Brunswick, 2001).
Marshall, R. K., *The local merchants of Prato: small entrepreneurs in the late medieval economy* (Baltimore, 1999).
Martinelli, A., 'The origination and evolution of double entry bookkeeping to 1440' (unpub. Ph.D. thesis, North Texas State University, 1974).
Mather, H., 'The medieval revival of roman law: implications for contemporary legal education', *The Catholic Lawyer*, 41(2002), pp. 323-62.
Matringe, N., 'Early inventory management practices in the foreign exchange market: Insights from sixteenth-century Lyon', *Economic History Review*, 75 (2022), pp. 739-78.
Melis, F., *Storia della Ragioneria* (Bologna, 1950).
Melis, F., *Documenti per la storia economica dei secoli xiii-xvi* (Firenze, 1972).
Mielke, J., 'Fede and fiducia: the problem of trust in Italian history, 1300–1500', in, G. Brucker, ed., *Living on the edge in Leonardo's Florence: selected essays* (Oakland, 2005), pp. 83-105.
Mitchell, W., *An essay on the early history of the law merchant* (Cambridge, 1904).
Mueller, R. C., 'The Role of Bank Money in Venice, 1300-1500', *Studi Veneziani*, n.s. 3 (1979), pp. 47-96.
Munro, J. H., 'Bullionism and the bill of exchange in England, 1272−1663: A study in monetary management and popular prejudice', in F. Chiappelli, ed., *The dawn of modern banking* (1979), pp. 169−239.
Munro, J. H., 'The medieval origins of the financial revolution: usury, rentes, and negotiability', *The International History Review*, 25 (2003), pp. 505-62.
Orlandi, A., 'The emergence of double-entry bookkeeping in Tuscan firms of the thirteenth and fourteenth centuries', *Accounting History*, 26, (2021), 534-51.
Padgett, J. F., 'The emergence of corporate merchant-banks in dugento Tuscany', in J. F. Padgett and W. W. Powell, eds., *The emergence of organizations and markets* (Princeton, 2012), pp. 121-67.
Radding, C., 'Review of Wickham, C. (2003) 'Courts and conflict in twelfth-century Tuscany', *Reviews in History*, Number 389 (2004).
Reynolds, R. L., 'The market for northern textiles in Genoa 1179-1200.' *Revue belge de philologie et d'histoire*, 8 (1929), pp. 831-52.
Reynolds, R. L., 'A business affair in Genoa in the year 1200; banking, bookkeeping, a broker (?), and a lawsuit', *Studi di storia e diritto in onore di Enrico Besta*, *Vol. 2* (Milan, 1939), pp. 165-81.

Sangster, A., 'The genesis of double entry bookkeeping', *Accounting Review*, 91(2016), pp. 299-315.
Santini, P., 'Frammenti di un libro di banchieri fiorentini scritto in volgare nel 1211, *Giornale storico della letteratura italiana*, 10 (1887), pp. 161-77.
Sayous, A.-E., 'The operations of the bankers of Genoa at the end of the 12th century', *Annals of French, foreign and international commercial law*, XLIII (1934), pp. 285-96
Schaube, A., *Handelsgeschichte der romanischen Völker des Mittelmeergebiets bis zum Ende der Kreuzzüge* (München/Berlin, 1906).
Schaube, A., *Storia del commercio dei popoli latini del Mediterraneo sino alla fine delle Crociate* (Torino, 1915).
Spufford, P., *Money and its use in medieval Europe* (Cambridge, 1988) University Press.
Spufford, P., 'The provision of stable moneys by Florence and Venice, and North Italian financial innovations in the Renaissance period', in P. Berholtz and R. Vaubel, eds., *Explaining Monetary and Financial Innovation: A Historical Analysis*, (Cham, 2014), pp. 227-51.
Staley, E., *The guilds of Florence* (1906).
Stern, L. I., 'Politics and law in Renaissance Florence and Venice', *The American Journal of Legal History*, 46 (2004), pp. 209-34.
Trivellato, F., *The familiarity of strangers: the Sephardic diaspora, Livorno, and cross-cultural trade in the early modern period, 1st paperback edition* (New Haven, 2012).
Tucci, U., 'Il document del mercante', in G. Tabacco, M. Bellomo, U. Petronio, and V. Piergiovanni, eds., *Civiltà comunale: libro, scrittura, documento: atti del Convegno, Genova, 8-11 novembre 1988*, (Genova, 1989), pp. 541-65.
Usher, A. P., 'The origins of banking: the primitive bank of deposit, 1200–1600', *Economic History Review*, 4 (1934), pp. 399-428.
Van der Wee, H., 'Structural changes in european long-distance trade, and particularly in the reexport trade from South to North, 1350-1750', in J. Tracy, ed., *The rise of merchant empires: Long-distance trade in the early modern world, 1350-1750* (Cambridge, 1990), pp. 14-33.
Van Doosselaere, Q., *Commercial agreements and social dynamics in medieval Genoa* (Cambridge: 2009).
Wickham, C., *Courts and conflict in twelfth-century Tuscany* (Oxford, 2003a).
Wickham, C., 'Fama and the law in 12th century Tuscany', in C. T. Fenster and D. L. Smail, eds., *Fama: the politics of talk and reputation in medieval Europe* (Ithaca, 2003b), pp. 15-26.
Wickham, C., *Medieval Europe* (New Haven, 2016).
Wickham, C., *The donkey and the boat: reinterpreting the Mediterranean economy, 950-1180* (Oxford, 2023).
Wray, L. R., 'Banking, finance and money: a social economics approach', in J. B. Davis and W. Dolfsma, eds., *The Elgar Companion to social economics* (Cheltenham, 2008), pp. 478-95.
Yamey, B. S., 'Scientific bookkeeping and the rise of capitalism', *Economic History Review*, 1 (1949), pp. 99-113.
Yamey, B. S., 'Introduction', in A. C. Littleton and B. S. Yamey, eds., *Studies in accounting history* (New York, 1956), pp.1-13.
Yamey, B. S., 'Accounting and the rise of capitalism: further notes on a theme by Sombart', in A. Giuffrè ed., *Studi in onore di Amintore Fanfani, Vol. VI* (Milano, 1962), pp. 831-57.
Yamey, B. S., 'The 'particular gain or loss upon each article we deal in': an aspect of mercantile accounting, 1300-1800', *Accounting, Business & Financial History*, 10 (2000), pp. 1-12.
Yamey, B. S., 'Personal accounts, account books and their probative value: Historical notes, c. 1200 to c. 1800', *Accounting Historians Journal*, 39(2) (2012), pp. 1-26.