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# The Genesis of Double Entry Bookkeeping

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**ABSTRACT:** The emergence of double entry bookkeeping marked the shift in bookkeeping from a mechanical task to a skilled craft, and represented the beginnings of the accounting profession. This study seeks to identify what caused this significant change in bookkeeping practice. I do so by adopting a new accounting history perspective to investigate the circumstances surrounding the emergence of double entry in early 13<sup>th</sup> century Italy. Contrary to previous findings, this paper concludes that the most likely form of enterprise where bookkeeping of this form emerged is a bank, most likely in Florence. Accountability of the local bankers in Florence to the Bankers Guild provided a unique external impetus to generate a new form of bookkeeping. This new bookkeeping format provided a clear and unambiguous picture of the accounts of all debtors and creditors along with the means to check that the entries between them were complete and accurate.

**Keywords:** accountability; banking; book transfer; double entry bookkeeping; dual entry bookkeeping; new accounting history; single entry bookkeeping.

## I. INTRODUCTION

Historians generally accept that the 'Italian method' of double entry bookkeeping, based upon making entries of equal amounts to the debit and credit of two different accounts, was the foundation for modern accounting. Although all modern accounting systems rely upon the principle of duality enshrined in that technique, we do not understand how this system emerged. This unanswered question is the focus of this paper: what led to the emergence of double entry bookkeeping?

The importance of this question to accountants is that the emergence of double entry marked the point at which accounting evolved from a mechanical task that virtually anyone could perform to become a skilled craft. It signaled the beginnings of the accounting profession. By identifying what led to this development, we learn about our roots and improve our understanding of the importance of our discipline and of its place in the economic history of the past millennium.

I adopt a '*new accounting history*' perspective that reflects the historical context, the local conditions, and the language and vocabulary in which this particular practice was articulated (Miller and Napier 1993, 631). I incorporate these factors and surviving records of the period to understand the reasons behind the change in bookkeeping practice that gave rise to the emergence of double entry bookkeeping.

The motivation for this study was the recent publication of a best-selling book that has popularized the history of double entry bookkeeping (Gleeson-White 2011). Its title – *Double Entry: How the Merchants of Venice Shaped the Modern*

*World and How their Invention Could Make or Break the Planet* – tells us that Venetian merchants invented double entry bookkeeping, but did they?

Various scholars have speculated upon the origin of double entry bookkeeping, including Rossi (1896); Besta (1909); Littleton (1927, 1931, 1933); Peragallo (1938); Melis (1950); Zerbi (1952); de Roover (1971); Lee (1972, 1973a, 1973b, 1977); and Martinelli (1974). However, with the exception of Rossi and Littleton, and to a lesser extent, Martinelli, they focus on the presence of an enterprise-wide accounting system based upon double entry, something that tells us little of the origins of double entry many years earlier. To identify how, where, why, and by whom double entry was first developed, the conditions that gave rise to it are likely to be more fundamental than the circumstances of its first identifiable enterprise-wide application. Consequently, in looking for the genesis of double entry bookkeeping, I focus on how and where the concept of double entry originated, the circumstances that led to its development, and particularly which professional group first developed it.

I follow the approach adopted by Rossi and Littleton. Littleton also considered what the terminology of double entry tells us of its origins. However, neither of them specifically sought to identify the group that developed the method, nor where it first emerged. This study builds upon and extends their work. We know with certainty that the technique of double entry emerged in the 13<sup>th</sup> century in Italy. Unfortunately, no complete set of documentation from that period has survived in its entirety. The earliest confirmed instance of its enterprise-wide application is from the final year of the 13<sup>th</sup> century (Lee 1977), while the evidence indicates that this was many decades after the technique first appeared.<sup>1</sup>

Previous studies document that double entry bookkeeping emerged in different places at different times, and that the form it took varied from place to place. However, these various forms all share the fundamental characteristic of “*dual entries*” that serve as the starting point in the shift to double entry bookkeeping. Dual entries require that when accounts were being maintained for the parties to and/or items involved in a transaction, for each entry made in one account, an equal and opposite “*contra entry*” must be made in another account. To that end, I begin this study by seeking instances of items being recorded in a consistent dual form that could then have developed into a recognizable form of double entry bookkeeping.

The difference between dual entry and double entry lies in how the contra entry is recorded. In double entry, each entry in an account must include the *location* of the account in which the contra entry has been made. No such information is provided in dual entry. Therefore, I include this essential requirement in the definition of double entry in this study. That is, my approach requires that this additional step be included in order for bookkeeping entries to qualify as double entry bookkeeping.

This is an appropriate definition for double entry for two further reasons. The account books of this period were solely for debtors and creditors (Goldthwaite 2009) and entries were sometimes made transferring amounts between two of

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<sup>1</sup> See, for example, Littleton (1931).

these accounts, such as between the accounts of a debtor and a creditor. In such cases dual entry occurs *by chance* because an equal amount is entered on the opposite sides of two accounts. In contrast, as defined here, the emergence of double entry stemmed from the belief that each entry should include the location of the contra entry. This conscious step marked the genesis of double entry bookkeeping. At this point bookkeeping moved from being a device used to maintain a historical record of a transaction to a method that enabled rapid confirmation that the transaction had been entered accurately in both accounts. It had become important to ensure that entries were made correctly. This also marked the point at which bookkeeping shifted from being a mechanical task to a skilled craft, requiring far more care and attention, and signaling the beginnings of the accounting profession.

This step was the common starting point for double entry, the link among all the Italian variants of double entry bookkeeping that were in use during the 13<sup>th</sup> to 17<sup>th</sup> century. These variants included “mingled accounts” (Martinelli 1974) with credits immediately below the debits, and vice versa; account books with debtors accounts at the front and creditor accounts at the back; bilateral account books with the debit and credit entries in each account on opposite facing pages; and bilateral account books with the debit and credit entries of each account in two columns of the same page. All of these formats had their own variants in word sequence and in the manner in which dates, cross references, and amounts were entered. The commonality in the basic underlying rationale of double entry bookkeeping enabled all these variants to merge into one unified method many centuries later. Beyond the scope of this study, the emergence of double entry bookkeeping eventually led to another phase in the evolution of accounting, which ended with firms combining the details in their accounts to calculate profits and losses. This subsequent double entry-based accounting system (Gurskaya, Kuter, Deliboltoayn, and Zinchenko 2012) combined all accounts, represented initially in lists of balances and then in income statements and balance sheets.

### **Contribution**

This study contributes to the debate concerning the conditions that gave rise to modern bookkeeping and accounting by amending and extending previous theories. I introduce a context focused in the city of Florence, as opposed to the entire country of Italy. My approach embraces explanatory conditions that are unique to Florence and would explain the emergence of double entry there before other locations. The continuous threat of external scrutiny and penalties for failure to meet standards present only in Florence were conditions that demanded an effective response by bankers. Adopting double entry was the ideal response.

A second contribution to the existing literature on the origins of double entry bookkeeping is that mine is one of only a few studies to focus upon identifying the historical context that enabled the emergence of double entry bookkeeping. My related hypothesis is both new and supported by the only other study to attempt to identify the professional group who would have been the first to develop double entry, and concluded that it was banks. My hypothesis is further supported by two other studies that looked at the development of double entry and also concluded that it most likely developed first in banks.

Finally, my study also makes a significant contribution to knowledge and understanding of how bookkeeping developed from single entry to double entry. I identify for the first time the intermediate step, 'dual entry' bookkeeping. Dual entry involved equal entries being made on the opposite sides of two personal accounts but without any indication in either account of the location of the account containing the contra entry. This represents the last stage at which bookkeeping was undertaken purely to preserve a historical record of something considered important by the bookkeeper. Once the location of the contra entry was added, it became double entry, and the entries now showed not only the result of what had occurred, but also where else these details had been recorded. This format facilitated external and internal auditing of the correctness of both entries.

Next, Section II presents an overview of the transformation of bookkeeping from the single entry tabular system of the Knights Templar to double entry. Section III considers the catalysts and necessary conditions that gave rise to the emergence of double entry bookkeeping. Section IV presents a discussion of banking practices and regulations in medieval Florence, the principal financial center of its day (Goldthwaite 2009, 119-120). Section V considers the hypothesis that merchants were the first to use double entry. I present conclusions and limitations in Section VI.

## II. THE STEPS TO DOUBLE ENTRY

This section describes the stages by which bookkeeping developed into double entry bookkeeping. In the 12<sup>th</sup> century, the Knights Templar<sup>2</sup> used a tabular bookkeeping system based on a cash book and single entry ledgers in which each transaction is only recorded in one account (Delisle 1889, 162-210; Bisson 1989, 287-292; Barber 1994, 269-271). Tabular bookkeeping can be traced back to Roman times when records were kept on wax tablets or *tabulae ceraque*. Among the account books, an *adversaria* (day book) was used to record all the debts, purchases, credits, and obligations of trade. Financial data were then posted from the day book to a *tabulae rationum*, or tabular ledger. Each account in the *tabulae rationum* was divided into two pages facing each other, one for debit entries and one for credit. But there was no entry made into a second account. All the entries made were single entry in form (Martinelli 1974, 174-184).

The tabular method had the advantage that entries could be made in a wide range of currencies, something that is impossible in double entry because it requires that all entries are recorded in a single currency (Martinelli 1974, 265-7). The tabular method was more than adequate for the typically small-scale and narrow

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<sup>2</sup> The Knights Templars was a military order of monks formed in c1119 when a small group of knights in Jerusalem took holy vows and dedicated themselves to protecting Christian pilgrims in Palestine. The Order expanded in number rapidly, and based on donations and pledges, built up a vast holding of properties stretching across Europe and the Middle East. It attained enormous wealth and established a financial network to move funds between its centers of operation. Pilgrims could use this network to transfer funds safely to their destination. Nobles, kings, and popes utilized the Order's expertise and its wealth, in the form of loans. The Order was abolished in 1312. (Barber 1994; Lord 2004)

range of 12<sup>th</sup> century activity, even by the Templars. However, it was limited in scope, designed only to identify the present position with respect to specific financial obligations. Nevertheless, the tabular method with its focus on maintaining accounts for obligations, continued to be used in some instances in the 13<sup>th</sup> and 14<sup>th</sup> centuries until replaced by other methods when awareness of profitability and financial position became desirable (Martinelli 1974).

Tabular bookkeeping may have been the predecessor of the detailed single entry method that developed into double entry. Zerbi (1952) was convinced that this was the case. However, the variations in how double entry emerged in different places and the associated range of verbs suggest otherwise. This perspective is supported by Fabio Besta (1909), for example, who dismissed the possibility that the tabular method developed into double entry.

What more likely occurred was that a new method of recording emerged, one influenced by tabular accounting but of a different nature and a different form. In this new method accounts were linked directly rather than linked via original entries in a day book. This development began with a highly detailed form of single entry bookkeeping.

### **Single entry, dual entry, and double entry**

The first shift from the single entry tabular method occurred when bookkeeping for debtors and creditors began to be recorded in a very detailed single entry in a *quaderno di cassa* or 'cash book'. This book contained historical records of receipts and payments of cash. The entries recorded the results of these transactions in the form of the changes in amounts due from debtors and to creditors. However, the entries were only in accounts for debtors and creditors, not accounts for cash, nor anything else (Goldthwaite 2009, 443).

The absence of a cash account was a consequence of the Catholic Church's prohibition of usury that only diminished in the mid-15<sup>th</sup> century. Interest entries had to be hidden because of the ban. As a result, entries in the accounts of debtors did not necessarily reflect the actual movement of cash. For example, a bank would record a loan in the account of the borrower for the full amount that was to be repaid, including all interest due (Goldthwaite 1985, 35-7). As a result, if a cash account had been maintained, the two account entries for the transaction would not have been equal and anyone inspecting the accounts would have discovered the bank's usurious activities. For this reason, banks did not keep accounts for cash, nor did merchants. Each entry in the *quaderni di cassa* involving cash was recorded only in the relevant personal account, in single entry form. For the banks of the late 12<sup>th</sup> and early 13<sup>th</sup> century, which had no notion of using accounts to calculate profit or wealth, this made little difference. Amounts were relatively small and cash could be seen and physically counted whenever required.

When an amount due was paid, this was noted by scoring across the account, irrespective of the nature of the original transaction. Dual entries were made when a transaction only involved debtors and/or creditors of the bank. When the location of the contra entry was added to these dual entries, the result was a double entry record. Table 1 summarizes the differences among the single entry, dual entry and double entry forms.

**TABLE 1**

**The three stages of modern bookkeeping**

	Single entry	Dual entry	Double entry
Entries made in	1 account	2 accounts	2 accounts
Each entry names the other account	-	✓	✓
Each entry includes the page number where the contra entry can be found	-	✗	✓

Merchants had their equivalent of the banker's *quaderno di cassa* in the *libro de debitori e creditori* or "book of debtors and creditors". When a cash account was included many years later, probably in the 15<sup>th</sup> century (de Roover 1938, 147), the name of the book did not change. Similarly, the name remained unchanged when the book began to include impersonal accounts, such as accounts for brokerage fees, commission, wages, general expenses, candles, horses, silk, wool, wine, fixtures and furnishings, and freight. At some point, bankers also adopted a ledger of this type, but only for commercial activity, such as the sale of jewelry that had been deposited with the bank and entered in the depositor's account by the banker at its assayed value. When banks used this ledger as well as a *quaderno di cassa* the two books were distinctly separate, effectively splitting the business into two different activities (Goldthwaite 1985, 14).

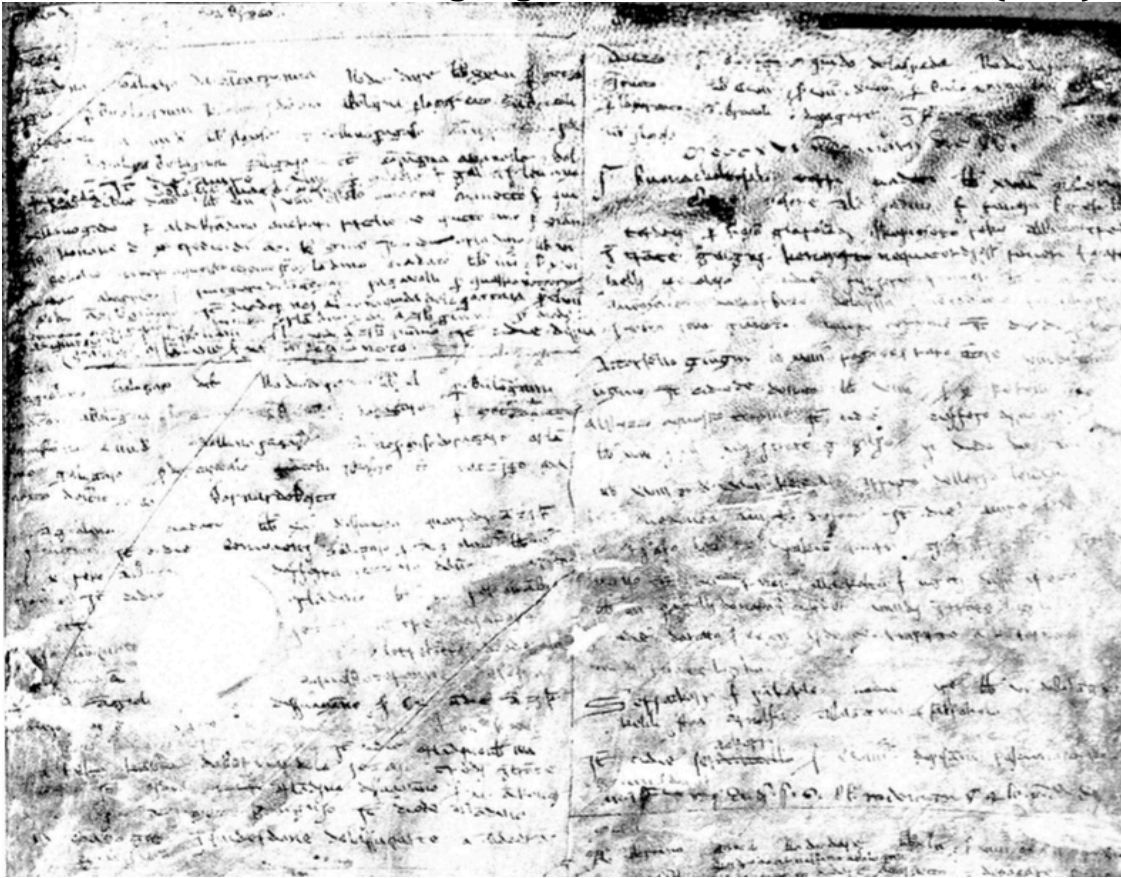
The earliest known example of dual entry bookkeeping is to be found in two parchment folios for a Florentine banking firm dating from 1211.<sup>3</sup> Both the front and back of the parchment was used. The extract presented in Figure 1, while no longer legible, shows each page divided into two vertical columns separated by a horizontal line. The use of two columns simply divided the parchment in two, creating two pages of entries on each side of parchment. Each account was placed within one of the two columns rather than across the page, with debits above credits, or vice versa depending upon which entry was made first.

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<sup>3</sup> These fragments survived because they were used as padding in the cover of a later bound book (Usher 1934).

FIGURE 1

An extract from the banking fragments of 1211. Source: Orlandi (2011).



These entries were first translated into modern Italian and described by Santini (1887). Both Lee (1972; 1973a; 1973b) and Martinelli (1974) translated them into English, and then analyzed the terms used and whether the records included any contra entries. The entries relate to loans and repayments of relatively small amounts. They reflect a fully-fledged banking venture operating in Florence, Bologna, and Pisa and reveal, “*relatively complex modes of settling debts, by the setting-off of liabilities between customers of the bank and their own debtors*” (Lee 1972, 56).

Each of the accounts was entered in a space set aside to accommodate the entries for the original loan and its settlement. The loan was entered first and the entry or entries relating to its repayment were recorded below. Sometimes additional debit entries were entered in the space available. The upwards-sloping lines visible in Figure 1 indicate that the amount due on the account has been repaid.

The entries are 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. An example can be found in two accounts on the fourth page of these fragments (Lee 1972, 46, 55):



The debit entry in the account of Compagno Soldi

*Item he is due to give 2s. 6d. on behalf of Baldovillano di Sotto*

The credit entry in the account of Baldovillano di Sotto

*Item Compagno Soldi gave us 2s. 6d.*

In this transaction, the bankers entered a credit to the account of Baldovillano for 2 soldi and 6 denari by transferring that amount from the debit of the account of Compagno Soldi. These are examples of dual entries. Thanks to the chance location of these accounts on the same page, we can see the details of the entries in which the contra account is named without indicating the location of the contra entry.

The next stage was the shift to double entry. Figures 2 and 3 contrast single entry with dual entry and then with double entry. Figure 2 presents an example of single entry bookkeeping from a textbook on that topic from 1525. The debit entry on the left is for a sale of 50 pounds of *cannella* (cinnamon) *addì 15 gennaio* ('on 15 January') and the credit entry is for the partial payment of the amount due on 20 January. The ledger only contained accounts for debtors and creditors so there was no account within it for cinnamon, nor for cash or bank. The credit entry shows that the debtor (Francesco di Giovanni) made the partial payment by depositing 10 ducats in the name of the seller in the bank of *Antonio Cappello e Luca Vendramin*.

**FIGURE 2**

**Single entry bookkeeping showing no indication of an account for the contra entry.**

[Source: Tagliente (1525).]

Ser Francesco di Giovanni deve dare addì 15 gennaio, Lire 125, soldi 0, per libbre 50 di cannella, al prezzo di soldi 50 la libbra.	L 125	s 0	d 0	Ser Francesco di Giovanni al riscontro deve avere addì 20 gennaio, ducati 10 che egli fece registrare a mio nome nel banco di ser Antonio Cappello e Luca Vendramin per parte delle contrascritte mercanzie.	L 62	s 0	d 0
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The credit entry in Figure 2 shows that when payment was received from a debtor, the entry reflected the means of the payment but single entry was preserved because no other account was used to record a contra posting. This is consistent with the author's description of the bookkeeping system in the title of his book as 'single entry'.

Had this been dual entry, the other account would have been mentioned, but not its location in the book. Further, if these were entries in a double entry *libro de debitori e creditori* that contained accounts for cinnamon and the bank of Antonio

Cappello e Luca Vendramin, each entry would have included the name of the contra account and the page number on which the contra entries were made.

Figure 3 presents 1494 textbook examples of entries in a Tuscan banker's *quaderno di cassa*, by which times bankers had begun to record entries in a cash account. The entries in the two accounts record the deposit of cash on 14 November by Francesco d'Antonio Cavalcanti. The first account shown is the banker's cash account while the second is Francesco's account with the banker. Both show the entry for the deposit, including the name of the contra entry account and, at the end, the page number (*carta 2*) where it could be found.

**FIGURE 3**  
**Double entry bookkeeping. [Source: Pacioli (1494).]**

The debit entry in the account of <i>Cash</i>			
Cassa in mano di Simone d'Alesso Bonbeni de dare a di 14 novembre 1493 lire 62 soldi 13 denari 6. da Francesco d'Antonio Cavalcanti in questo a carta 2.	l 62	s 13	d 6
The credit entry in the account of <i>Francesco d'Antonio Cavalcanti</i>			
Francesco d'Antonio Cavalcanti de havere a di 14 novembre 1493 lire 62 soldi 13 denari 6. reco lui medesimo contanti posto cassa dare a carta 2.	l 62	s 13	d 6

The addition during the 13<sup>th</sup> century of the page where the contra entry is to found completed the transformation from single entry to dual entry to double entry. Its inclusion meant that the audit trail was visible, something that is central to the hypothesis developed in this paper. Next, in Section III I clarify why double entry bookkeeping emerged in the 13<sup>th</sup> century rather than earlier, and I describe the catalysts that led to the adoption of double entry bookkeeping and facilitated the development of modern accounting.

### III. PRIOR PERSPECTIVES ON THE EMERGENCE OF DOUBLE ENTRY

This section discusses the context surrounding the emergence of double entry bookkeeping. Giovanni Rossi suggested (1896, 68) that the key conditions that enabled double entry to develop in the 13<sup>th</sup> and 14<sup>th</sup> centuries included the ready supply of good quality paper, improvements in writing, new methods of counting, and the binding of paper, allowing all accounts to be maintained in one book. In 1927, A.C. Littleton adjusted and extended this hypothesis by presenting a list of seven antecedents of double entry bookkeeping: writing, arithmetic, private property, money, credit, commerce, and wealth, which he called, 'capital'. All seven existed in Mesopotamia in the third millennium BCE (Mattessich 1987, 1994; Peacock 2013a, 2013b). However, Littleton argued that it was not until arithmetic, commerce, capital, and credit underwent significant changes in the late Middle Ages (1927, 144) that the conditions existed that led to the emergence of double entry. What gave vitality to these antecedent elements and resulted in its emergence were three *surrounding conditions* present in 13<sup>th</sup> century Italy (1927, 140, 146-7):

- the creation of Italian banking houses that by 1230 had spread across Europe;
- the adoption by merchants of Hindu-Arabic numerals for calculation; and,
- the circumstances surrounding commerce and capital.

The second of Littleton's three conditions can be set aside. While recording amounts with Hindu-Arabic numerals occupies less space and facilitates use of a number-place-value layout, i.e. columns for hundreds, tens, units, etc., or their equivalent, merchants using an abacus could perform calculations more quickly than those who used quill and paper.<sup>4</sup> Not only could calculations be performed faster on an abacus, Roman numerals were consistent in form and continued to be widely used long after double entry bookkeeping had emerged. After their introduction into Europe in the late 10<sup>th</sup> century (Cajori 1993, 45-70), it took centuries for Hindu-Arabic symbols to standardize on the shapes we know today. Further, their use was restricted for bookkeeping because some considered them too easily altered (Struik 1987, 81).

Littleton's other two conditions were central to the emergence of this new form of bookkeeping. At the end of the 12<sup>th</sup> century, commerce was expanding as merchants entered new foreign markets, particularly after guilds were established in many of those centers of trade. The presence of the guilds protected the rights of alien merchants in those markets and thus encouraged international trade. (Greif, Milgrom, and Weingast 1994).

Individual wealth, however, was insufficient to support the major expansion of business required in some centers (Martinelli 1977b, 55), as was the lack of coinage. The demand for additional funds was not satisfied until a 'modern' banking system emerged, beginning in the final third of the 12<sup>th</sup> century. By the end of that century, Florentine merchants were depositing increasingly larger funds with the banks (Staley 1906, 172), leaving the bankers free to utilize the funds to extend loans, invest in business ventures, and provide foreign exchange involving the use of agents located abroad. This bank-based expansion of foreign exchange occurred in all the major centers, for example with loans being made in Genoa repayable at the Northern European fairs and loans made at the Fairs repayable in Genoa (Hall 1935, 73-5). As a result, bankers frequently attended these fairs and some traveled long distances to establish new businesses, such as Florentine bankers operating in England in 1199 (Staley 1906, 171).

The emergence of a system of bank credit-based funding for commerce provided the capital for business expansion, and together with a bank-operated system of foreign and domestic funds transfer facilitated the receipt and payment of amounts receivable and payable. The latter also addressed the problem of scarce and unreliable currency, and did so both locally and at a distance through a network of branches that ultimately extended across Europe (Goldthwaite 2009). The 'book transfer' was a particularly important device that facilitated commerce by enabling merchants to focus on their core business in their day-to-day trade.

Book transfers, or '*cessioni*', involved the transfer of funds between the accounts of two people without involving any movement of cash. There were three

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<sup>4</sup> For an overview of the superiority of the abacus, see Kojima (1954) and Sakamoto (1999).

types (Pietra 1586, 9; Flori 1636, 19-20). By far the most common form arose when a customer requested that funds be transferred from his account to the account of someone else. There were also two variants of the practice that involved judgmental orders:

- (i) when a debt due to a creditor (A) is not paid and the judge orders a debtor (C) of the defaulter (B) to pay his debt to A instead of B; and,
- (ii) when someone (A) has a creditor (B) who owes a third party (C) and the judge orders A to pay the third party (C) instead of B.

This system of book transfer, particularly of the first type, contributed to the expansion of credit, a vital condition that led to the development of double entry bookkeeping.

Merchants embraced the book transfer system and their credit-expanded wealth began to be used actively, *“turning over, ever changing in the processes of producing more... [that] creates questions and doubts and hopes, and men, in striving to find answers to these questions, slowly evolve[d] methods of record [keeping] to serve their needs”* (Goldthwaite 2009, 143). As a result, while the money supply was limited and barter was commonplace, credit was ubiquitous (de Roover 1971, 104; Udovitch 1979, 262), fuelling the commercial revolution during this period (Lopez 1976, 72). This combination of the bank credit and bank transfer supported expansion of trade and the resulting increased financial risks led to the evolution of a record keeping method that focused on recording in detail what had occurred. Of principal importance was ensuring effective control of credit through a system that ensured that amounts owed and owing were known, verifiable, and correct. Banks were the businesses that most needed this new method of record-keeping because they were at the heart of the system and clearly had more at risk.

Therefore, a combination of Littleton’s first and third conditions, the emergence of a banking industry and the circumstances of that period surrounding commerce and capital were the crucial elements that led to the development of modern accounting. The gap between the needs of commerce for capital and the limited extent of personal wealth fuelled the need for bank credit to support the expansion of commerce. This demand also supported a system of bank transfers, both local and international, to overcome the shortage of currency and the risks of carrying funds personally from one place to another (MacDonald and Gastmann 2009, 60).

This expansion of commerce and credit included the formation of new partnerships and agencies, which brought with them a demand for a form of accounting that gave reassurance that individual interests were being adequately recorded. This gave further impetus towards the development of a more sophisticated form of accounting. However, despite a considerable number of studies into the origins of double entry bookkeeping during the 19<sup>th</sup> and early 20<sup>th</sup> centuries, it was not until the late 1930s that the critical importance of partnership and agency were noted.

### **Credit, partnership, and agency**

A number of 19<sup>th</sup> century Italian scholars including Giuseppe Cerboni (1827-1919), Giovanni Rossi (1845-1921), and Fabio Besta (1845-1922) contributed to

this debate on the origins of double entry bookkeeping. In particular, Besta developed a checklist of items required in order to recognize the existence of such a system (1909, Vol. III, 342). This line of inquiry was further extended beginning in the 1930s by a new generation of scholars, including the Belgian-American, Raymond de Roover (1904-1972), and the Italians Federigo Melis (1914-1973) and Tomasso Zerbi (1908-2001).<sup>5</sup>

In 1937, Raymond de Roover summarized knowledge to that point, including when many elements of a double entry-based accounting system, such as depreciation, were first used. However, he did not consider the structure of entries, nor the surrounding conditions that were necessary or had given impetus to the emergence of the system of double entry. The following year, without mentioning the question of the emergence of double entry bookkeeping, he expressed the belief that credit, partnership, and agency (1938, 145) were responsible for the development of accounting. De Roover described how these conditions ultimately led to the use of double entry in a complete mercantile accounting system containing accounts for goods and expenses, as well as personal accounts. In doing so, he was very much in line with the views of his Italian contemporaries, though their contributions came later. These later contributions focused on the emergence of enterprise-wide double entry, not the emergence of the double entry method itself.

### **Cash, merchandise, expenses, profit, and wealth**

In two major works, Melis (1950) and Zerbi (1952) analyzed the origins of double entry, concluding that double entry emerged as a necessary ingredient to support the growth of commerce, rather than as a random event (de Roover 1955, 420). Zerbi believed that what finally led to the emergence of enterprise-wide double entry was the addition of cash, merchandise, and expenses to the personal accounts that originally were the only form of accounts in the ledger. The addition of these accounts 'closed the circle' enabling all transactions to be recorded in double entry, not just those between debtors and creditors. The addition of accounts for capital facilitated the preparation of income statements and balance sheets. Melis agreed but placed more emphasis on accounting for profit and identifying changes in wealth as giving rise to adoption of double entry.

Melis returned to this theme in 1954, reaffirming the belief that he expressed in 1950, that double entry bookkeeping first emerged as a complete system in Tuscany. Once again placing emphasis upon the role of economic demand as leading to the emergence of double entry bookkeeping, he argued that without a profit motive there was no need for an enterprise-wide system. He believed it could only have emerged as an enterprise-wide system in a capitalist, profit-oriented business, and not in the books of an artisan, a monastery, or a public body (1954, 6).

De Roover (1956, 174) agreed with Melis that enterprise-wide "*double entry developed in Italy in response to the needs of nascent capitalism.*" However, he did not

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<sup>5</sup> For details of 20<sup>th</sup> century Italian scholars involved in this line of research and in analysis of medieval Italian accounting practice, see Galassi and Mattessich (2004) and Viganò and Mattessich (2007).

believe it was capitalism that gave rise to its emergence. De Roover (1955) reviewed the two books by Melis and Zerbi and concluded (p. 413) that rather than a single catalyst for the emergence of enterprise-wide double entry, it emerged for different reasons in different places. De Roover repeated his views in 1971, again with an emphasis on enterprise-wide double entry, rather than upon the emergence of the double entry method itself. Despite the vast amount of research that went into those two large volumes by Melis and Zerbi, de Roover took the clear position that neither author, nor he himself, had brought us closer to identifying what led to the emergence of enterprise-wide double entry. They had also all failed to identify the origins of the double entry method itself.

Other scholars, including Littleton (1931), forego this pursuit of enterprise-wide application of double entry. Instead, they focus on who may have first adopted double entry, concluding that bankers were almost certainly the first.

### **Bankers**

Lee (1972, 57) believed that bankers would have been the first to adopt double entry but did not develop this theme further. Alvaro Martinelli (1974), an Italian by birth studying in the US, is the most recent scholar to undertake a major inquiry into the origin of double entry bookkeeping. Unlike Melis, Zerbi, and de Roover, Martinelli separated double entry's origins from its ultimate use. Basing his research and analysis largely on the works and views of Besta, Melis, and Sombart, Martinelli studied an extensive range of archival records of Italian mediaeval business, notarial, and commune records and considered what earlier scholars had proposed, including Cerboni, Rossi, Besta, Kats, de Roover, Sieviking, and Melis.

Martinelli defined double entry in a number of ways, and apart from each transaction being recorded once to debit and once to credit in the books of a single entity, viewed specifying the location of the contra entry an additional necessary condition. However, because no account was kept for cash, when it was obvious where to find the contra entry, he concluded that the location did not need to be formally stated (1974, 270-271). In other words, he believed that the fact that all transactions involving cash were recorded in single entry in the other account did not prevent the bookkeeping system being described as 'double entry'. This was also the view of Lee (1977) and had been implicitly adopted by Melis but not by Zerbi (de Roover 1955, 411), who looked at the late-14<sup>th</sup> century when cash accounts were being maintained by some merchants, if not yet by bankers.

Thus, recognition of the emergence of double entry during the 13<sup>th</sup> century requires that the location of postings to accounts maintained *within* the double entry system are all specified. This study adopts the same position, consistent with the criterion adopted in all the previously cited studies, including Zerbi's.

Martinelli considered partially extant records including accounts for revenue and expenses as *strong evidence* of the existence of double entry because these accounts were non-existent in single entry bookkeeping. Further, he reasoned that the inclusion of a capital account *confirmed* that double entry was being used (1974, 380). Contradicting most scholars after Fabio Besta, he did not believe that it was necessary to produce income statements or balance sheets in order to confirm the existence of enterprise-wide double entry. Thus, Martinelli adopted two key

positions. The first concerned whether the location of contra entries was included or obvious. If so, this was double entry bookkeeping. Secondly, if revenue and expense accounts were included, especially if a capital account was included, this indicated that the bookkeeping system was being used to measure wealth, which meant that this was an instance of complete, enterprise-wide double entry bookkeeping. As mentioned earlier, Martinelli treated the absence of a cash account as an acceptable omission.

In his opinion, bankers were, “*probably the first businessmen who, due to the nature of their transactions, were compelled to keep a systematic bookkeeping*” (1974, 24). However, he dismissed the possibility voiced by Littleton (1931, 181) that this would have led to all bankers maintaining their books in double entry. In Martinelli’s view, double entry would have first been adopted by international merchants and international bankers. Borrowing from Melis (1954, 6, 12), the firms would most likely have originated from inland locations, such as Florence, Lucca, or Siena, rather than coastal cities (Martinelli 1974, 289-90). He concluded that the first instances of double entry bookkeeping would have been in Sienese international firms, because they were the dominant international commercial and banking force at that time: “*it is almost unquestionable that in the account books of these Sienese companies, during the second half of the thirteenth century, double entry bookkeeping appears almost as a complete method*” (1974, 491). However, on the same page he concedes that he has no direct evidence to support this conclusion.

Thus, Martinelli agreed with Littleton and Lee that bankers were the most likely group to have first maintained records in double entry, but Martinelli further argued that these would have been ‘international’ bankers. That is, they conducted their business at a location or locations distant from their origins – a Florentine banker operating in Venice would meet this criterion, or even one operating elsewhere in Tuscany. Yet, while the scale and variety of business may have been different, local bankers would have been just as likely to adopt double entry when maintaining the accounts of their customers, particularly in Florence, a theme that I examine in Section IV.

Another important aspect of the hypothesis developed in the paper concerns the development of the language of bookkeeping because it may reflect the region and the type of business in which it first emerged, something referred to by de Roover, Martinelli, and previously by Littleton.

### **The language of bookkeeping**

Melis, Zerbi, de Roover, and Martinelli suggest that Genoa, Lombardy, and Tuscany are the three centers in which double entry is most likely to have first emerged. In Genoa and Lombardy, Latin was used to record entries (de Roover 1956, 137), whereas records in Tuscany were typically maintained in the language of the day. Littleton (1926, 1931) concluded that the technical terms of bookkeeping emerged from the spoken language, in particular the verbs *dare* (give) and *avere* (have). These verbs have come to represent ‘debit’ and ‘credit’ rather than their Latin equivalents of *dare* and *habere* that were used in tabular accounting (Martinelli 1974).

The adoption of the language of the day indicates that Tuscany is the most

likely region in which double entry first emerged. Further, many technical terms of accounting are known to have originated in the Bankers Guild of Florence, the capital city of Tuscany, including *giornale* (journal), *debito* (debt), *debitore* (debtor), *credito* (credit), and *creditore* (creditor) (Staley 1906, 178-179).

This view that double entry bookkeeping first emerged in Tuscany is further supported by the fact that all of the earliest examples of what appears to be double entry bookkeeping are from Tuscany. Further, the earliest indication we have of a shift from single entry towards dual entry is found in the Florentine parchment fragments from 1211.

Although Littleton apparently never studied these fragments, his views on the use of language are supported by the absence of technical terminology in the verbs used in the entries from 1211. The wording of the entries is used in its natural sense, with the past tense used where appropriate. Six different forms of verbs are evident, in three types of entries:

- making a loan (*die dare* = should give), and receiving repayment (*die dato* = has given);
- receiving a deposit (*die avire* = should receive), and its repayment (*demo dato* = we gave);
- making a transfer between a deposit (*levammo* = we took, i.e. deducted from the deposit) and a loan account or someone else's deposit account (*ponemmo* = we put, i.e. deducted from the loan/added to the deposit).

While these verbs included those that were to become the ones used to represent debit and credit – '*die dare*' (should give) and '*die avire*' (should have/should receive) – the terminology was clearly still developing as appropriate verbs were established, and their application was not yet specific to bookkeeping. It was to take a further 300 years to complete this process. Once the verbs became technical terms, standardized on *dare* and *avere* and stopped varying with the context of what had occurred, the personal nature of the implied pronouns always reflected the perspective of the owner or agent with others, and the timeframe of the entries was always stated in relation to future events (Littleton 1931, 181).

In 1211, the form of entry had reached dual entry, a starting point towards double entry. It was neither entirely single entry nor double entry (Usher 1934). How and why did the transition beyond that point to double entry occur? The key lies in the verbs that were finally adopted to represent debit and credit: *dare* and *avere*. These are verbs relating to giving and receiving, not buying and selling, not renting and leasing. They are the verbs of banking, not the verbs of commerce. Just as the earliest examples of dual entries are Tuscan, the banking firm that recorded them was from Florence. Therefore, in the next section I look to Tuscany, and to Florence in particular, for the genesis of double entry bookkeeping.

#### IV. THE BANKERS OF FLORENCE

This section considers how bankers in the late 12<sup>th</sup> and 13<sup>th</sup> centuries, particularly in Florence, addressed a set of key issues. The combination of the growth in commerce, as international trade flourished and expanded after the mid-12<sup>th</sup> century, and a coinage that was scarce and inconsistent in value (Spufford



1989), created problems for the banks. By the beginning of the 13<sup>th</sup> century they needed to develop better methods of record keeping than the single entry-based systems they had inherited from the Knights Templar and the moneychangers. Further, local bankers in Florence had a particularly strong reason to do so. Uniquely among the Italian cities, in Florence the *local* banks that served the local citizens, as opposed to banks that were active elsewhere, were subject to the strict control of *L'Arte del Cambio*, the Bankers Guild (Staley 1906).

To be recognized by the State and authorized to operate a bank within Florence, bankers were required to be members of the Guild. To ensure that appropriate standards were maintained, the Guild required that bankers kept accurate account records and ensured that this was done through a system of unannounced audits. When an audit was conducted, neatness and legibility were considered key criteria, along with accuracy and an absence of fraud (Staley 1906, 177). To minimize the possibility of fraud, the statutes of the Guild required that bankers maintain a *quaderno di cassa* and keep their records using Roman numerals (Littleton 1927, 147). This accountability reinforced the need for a sound system of bookkeeping, particularly to record the book transfers that occurred routinely between clients of individual banks. This extended to include interbank transfers, so enabling funds to move between banks (Spufford 1989, 256; Goldthwaite 2009, 436). In return for their being accountable to the Guild, the account books of the Florentine bankers were accorded the status of notarized records, and were recognized as reliable evidence in resolving disputes (Goldthwaite 2009, 23). In contrast, elsewhere in Italy bankers were required to have their books notarized or maintained by notaries,

Consequently, the local bankers in Florence needed to devise an appropriate system to maintain a historical record of their transactions to a standard that would enable checks to be undertaken by external auditors. The more standardized the system adopted, the easier that would be. This externally driven motivation to devise a structured system of bookkeeping is indisputable. It sets the Florentine local bankers apart from international bankers and other local bankers and, in all likelihood, it led to double entry bookkeeping first emerging in the local banks of Florence. Further support for this hypothesis is provided by the location of those local banks, as I describe next.

### **The form, development and location of Florentine local banking**

The nature of banking in late 12<sup>th</sup> and early 13<sup>th</sup> century Florence was very different from current practice. It operated mainly in market stalls (Staley 1906, 176) within a few hundred yards of the Guild headquarters between the Mercato Vecchio and the Mercato Nuovo (Goldthwaite 2009, 414). Consequently, bankers had no advance warning of an audit and so could not simply update their records prior to the audit. Rather than the narrative paragraph descriptions that are to be found in personal *ricordi*<sup>6</sup> and notarial records of that period, a formal structure to these records was developed embracing accounts for debtors and creditors and the entries within them. Bankers were not alone in maintaining records for debtors and

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<sup>6</sup> Diaries and aide-memoires.

creditors: “the statutes of many of the artisan guilds, including those of the [apothecaries], the grocers, the tailors, the wine merchants, the smiths, and the dealers in furs and skins, required that their members keep an accounting record of their affairs” (Goldthwaite 2009, 354). However, as suggested by Littleton (1931), comparing the relatively narrow range of activities and elements of key importance to banks against the broader range of activities relevant to merchants, it is more reasonable to expect that bankers were the likely developers of both a formalized system of single entry and a system of double entry.

As mentioned previously, the banking system that emerged at that time also faced monetary-related problems that led to major changes in business practice and fuelled the need for an efficient method of recording banking transactions, as I discuss next.

### **The nature and treatment of cash and ‘bank money’**

Coins were not just scarce in 12<sup>th</sup> and 13<sup>th</sup> century Italy, they were also inconsistent in value and of a multitude of varieties, which required bankers to be skilled assayers of metals (Goldthwaite 2009, 234, 415). Banknotes did not exist. Promissory notes were used as evidence of a debt but were difficult to enforce. The only form of debt that required settlement was a notarial act of agency. Some of these notes were raised and/or settled at the fairs that were held across Northern Europe at that time, but they were as often linked to loans and transfers of funds as they were to commercial transactions. The most common reason for these notes was the needs of “pilgrimages, crusades, movements of clerical funds, and transfers of money to meet the expenses of students studying in distant towns” (Usher 1914, 568).

Letters of exchange<sup>7</sup> whereby money deposited in one location could be withdrawn in another first emerged in Europe through the Knights Templar. They also acted as moneylenders and issued and accepted letters of credit whereby a prince, baron, or bishop guaranteed to reimburse anyone who lent the person specified in the letter an amount up to a stated limit. The Templars established themselves as bankers to princes, kings, and the Papal state for which they were “operators of places of deposit”. In addition they interacted with Italian bankers, both in those parts of the Middle East in which the West had established a presence and in Europe. The Templars obtained funds from the Italian bankers upon arrival in new locations when they had no local sponsor to provide what they needed. (Metcalf 1980, 6-7; Olsen 1969, 55)

By the mid-12<sup>th</sup> century, the emerging merchant banking firms were emulating the Templars, operating letters of exchange and letters of credit. This facilitated the transfer of funds between the banks and their agents, enabling banks to lend in one place and receive repayment in another. Similarly, this system enabled merchants to make a payment in one place and receive reimbursement in another (Usher 1914, 567-571).

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<sup>7</sup> Metcalf (1980, 7) cites an example from 1207 in which “Simon Rubens, ‘bancherius’ says that he has received £34 of denari of Genoa, for which his brother William, ‘bancherius’ ought to pay in Palermo 8 marks of good silver to the bearer.”

Bankers dealt with the complexity of currency by controlling its exchange, encouraging its circulation, and offering safe locations in which it could be held, while utilizing the deposits received to generate profits for themselves. The freedom with which they could use these deposits owed much to the system of book transfer. Once cash was deposited in a bank, the amount circulated as a flow of credit between customers and between banks. The result had a multiplier effect on the economy. Further, because cash was rarely physically paid-out by a bank, the bankers could invest the majority of the deposited funds, and benefit from the results (Mueller 1979).

This was the environment in which banks became indispensable and accounting 'came of age'. Merchants in larger cities attempted to avoid using coinage in their trade and business was conducted in the 'currency of account', which did not exist in a physical sense. Rather, the value of whatever was exchanged was converted into the 'currency of account'. Any debts due or receivable were recorded in that form (Lane and Mueller 1985, 3-13), by merchant and bank alike, as were all other activities on their accounts.

To facilitate settlement of amounts due, merchants deposited coinage with a bank where it was evaluated and the amount of the currency of account it represented was credited to an account for the depositor. This account was, effectively, what is now called a 'current account' in the U.K.<sup>8</sup> Banks also maintained deposit accounts but these were for savings, not for settlement of amounts due. Many bankers acted as moneychangers and many also acted as pawnbrokers, accepting deposits of precious metals, particularly jewelry, which became security for loans (Goldthwaite 2009, 412-416, 442, 482).

Every time a banker transferred one person's debt to another, a dual entry was made in their accounts in the banker's *quaderno di cassa*. Instead of keeping an account for cash, bankers counted it when it was necessary to do so, such as when they wished to draw up a balance sheet or discover the amount of cash held (Goldthwaite 1985, 15-16). At some point, the double entry form was adopted, but what motivated the move from dual entry to double entry?

### **The motivation for double entry bookkeeping of the form used in a *quaderno di cassa***

Apart from being an historical record, the demand for double entry bookkeeping in a *quaderno di cassa* stems from the maintenance of an accurate, complete, and verifiable historical record to facilitate control and monitoring of debtors and creditors. This is the bookkeeping context of the present study. It is concerned with the *beginning* of records being maintained in double entry in *quaderni di cassa*. This not only facilitated control over the accounts of debtors and creditors, it also provided an audit trail on receipts and payments linked to the accounts of those debtors and creditors.

As previously mentioned, a key step toward double entry was the decision to allow 'book transfers' between accounts without involving the movement of cash. This led to the development of dual entry. The later addition in each entry of the

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<sup>8</sup> Also called a 'debit account' in Australia and New Zealand and a 'checking account' in the U.S.A.

location of the account in which the contra entry had been made completed the transformation into double entry, distinguishing it visibly from both single entry and dual entry. The transformation of the terminology from its natural meaning to become a technical language does not matter. It was not necessary for double entry to exist. Irrespective of the language used, double entry was an arrangement of information that ensured that each entry could be verified by the contra entry made in the other account. It was an approach that met the needs of the Guild auditors of the local bankers of Florence, but what of bankers elsewhere?

### **Accountability**

The manner in which language is used in early bookkeeping entries points to the roots of modern bookkeeping most likely being in banking. However, bankers operating outside Florence had far less motivation than the Florentine local bankers to go beyond making dual entries for each book transfer. They were not accountable to anything equivalent to the oversight of the Bankers Guild. Particularly when the banking system was still in its infancy and the firms were trying to establish themselves, they were most likely slower to move to detailed single entry bookkeeping from tabular accounting, slower to ensure that they made the debit and the credit entries at the same time, and slower to add the location of the contra entry than the local bankers of Florence.

It seems inconceivable that the benefits of including the location of the contra entry were not recognized by both the bankers and the Guild within a short period of the Florentine bankers first making dual entries in their *quaderni di cassa*. In addition, the accountability of the local banks to the Bankers Guild may have propelled the bankers, keen to make their entries as easy to understand as possible, to relatively quickly establish a consistent technical terminology to indicate the debit and credit entries. These two steps would also have made it more straightforward to verify the accuracy of the entries in hearings of the *Mercanzia*, the Florentine court where disputes over accounts were heard,<sup>9</sup> thereby protecting the status and reputation of the local bankers.

While the proceeding makes a good case for the Florentine local bankers being the first banks to adopt double entry, could merchants have done so before them?

## **V. MERCHANTS**

As described in the Introduction, many believe that merchants invented double entry bookkeeping. However, a comparison between the needs of bankers and merchants at the end of the 12<sup>th</sup> century fails to support this view.

### **The comparative needs of bankers and merchants**

Commerce in the late 12<sup>th</sup> century could not expand at the rate merchants desired without their having the means to secure and transfer their funds. When the three largest Florentine guilds needed an organized banking system, they created the Bankers Guild (Staley 1906, 172-3). This facilitated the emergence of a carefully

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<sup>9</sup> Staley (1906, 85).

controlled banking structure, accountable to the Guild, which required that the banks maintained accurate and reliable records for their debtors and creditors. The double entry *quaderno di cassa* that fulfilled that requirement must have been in use by the banks *before* merchants started to use the banking system to expand their business. In addition, while merchants needed somewhere to place their funds in order to use the exchange transfer and credit facilities of the banks to expand their activities, they did not need sophisticated records for their trade debtors and creditors until credit became a major element of trade. For this to occur, sufficient banks had to be established to support a credit-based economy that facilitated the transfer of funds without the physical movement of cash.

In this respect, many national and international trading transactions were settled at that time, and for a considerable period thereafter, by barter (Smith 2008, 144; Staley 1906, 107; Edler de Roover 1941, 89). Before credit became a significant element of their business, merchants only required a memorandum note of their trade debtors and creditors and the reassurance that their money was safe. Their businesses would not fail if a creditor demanded payment at a time when insufficient cash was held. They could offer goods, transfer a debt owed to them to the creditor, or request more time to pay. They could even go to a banker and request a loan. Sound control over this core aspect of the business using bookkeeping was essential to survival for the banker, but less important for the merchant.

Furthermore, merchants may have ultimately copied the system from the bankers, but they are unlikely to have invented it. Had they done so, the verbs used in impersonal accounts would have resonated with commerce, not debt. If international merchant bankers rather than local bankers developed the method to account for their banking activities, they would surely have expanded it to cover their mercantile activities using verbs appropriate for impersonal accounts. They would not have waited until double entry for debtors and creditors had fully emerged in banks before doing so. Thus, the terminology used in entries is consistent with the nature of transactions between banks and their debtors and creditors. These transactions were the reason for the detailed single entry bookkeeping practices that developed in Italy during the late 12<sup>th</sup> and early 13<sup>th</sup> century and then transformed into dual entry and then double entry. If anything other than credit had been the catalyst for bookkeeping of this form, the verbs '*dare*' and '*avere*' would not have been used universally for all transactions.

Merchants embraced a bookkeeping method developed by bankers who had moved from using everyday language to make entries in their accounts to using specialized terms in the form of verbs. The verbs were derived from elements of that language that they used most repetitively in their bookkeeping. This analysis is consistent with Littleton (1931) and Lee (1972), both of whom believed that double entry was fully formed before merchants adopted it. Martinelli (1974) believes that merchants had begun this process by the middle of the 13<sup>th</sup> century and both Melis (1950) and Lee (1977) believed that some had completed the process by the last decade of that century. By that time, "[t]he two expressions [*de dare*' and '*de avere*'] had been customized, they had lost their relationship with the context, the words were no longer of the common language, but had become conventional terms of a specialist

*language*” (Sosnowski 2006, 45, translated by the author).

Noticeably reinforcing the primacy of bankers in the emergence of double entry, when the Commune of Genoa adopted double entry for some of its activities, probably in 1327 and definitely by 1340, the accounts were described as being prepared, *ad usum banchi* (de Roover 1956, 131) or *ad modum banchi* (133), ‘in the manner of the banks’. De Roover believed that this referred to a bilateral tabular form of presentation that some Genoese bankers used in 1313, and that it may not have referred to the use of double entry. After detailed consideration of the Commune regulations relating to bookkeeping, this was dismissed by Martinelli (1983, 88, 116). He concluded, “*we may infer that the ledgers since 1327 were kept according to the same rules of double entry, and that the ledgers of Genoese banks were also kept [at that time] in double entry*” (1983, 88).

While merchants were not the first to adopt double entry bookkeeping, some studies have proposed that forms of double entry bookkeeping were in use elsewhere that predate its emergence in 13<sup>th</sup> century Italy. These include India (Lall Nigam 1986); ancient Rome (Kats 1929, 1930); 11<sup>th</sup> century Arabic accountants (Scorgie 1994); and the Knights Templar (Lord 2004). However, none of these propositions have been substantiated. All the evidence points to double entry first emerging in banks in 13<sup>th</sup> century Italy.

## VI. CONCLUSION

Consideration of how, why, and where double entry bookkeeping first emerged has been largely overlooked by 20<sup>th</sup> century scholars in their efforts to identify the first enterprise-wide accounting system based upon double entry. To redress this oversight and identify the origins of double entry bookkeeping, I analyze the conditions that gave rise to it. Rather than focusing on the origins of present practice, I analyze why double entry emerged, not the many changes and compromises between the original development and current practice.

Unlike previous archival studies that have investigated the origins of double entry bookkeeping, I adopt a new accounting history approach with an emphasis on philological analysis and a re-examination of the conditions that A.C. Littleton concluded gave rise to modern accounting. My analysis of the commercial, legal and financial environment in 12<sup>th</sup> and 13<sup>th</sup> century Italy identified one location – Florence – that was uniquely suited to the double entry innovation. As a result, I identify what is arguably a more compelling set of conditions that were the catalysts for the emergence of double entry bookkeeping than has previously been suggested.

Double entry bookkeeping did not emerge to enable the preparation of balance sheets and income statements, which are only a by-product of double entry. Instead, double entry evolved to maintain an historical record that is accurate, complete, verifiable, and facilitates control. Martinelli (1974) believed that businesses that adopted double entry in the 13<sup>th</sup> and 14<sup>th</sup> centuries for some, but not all of their activities, did so for a reason. They perceived that those activities required greater administrative control and/or a higher level of completeness and accuracy of records, or to identify the profitability of particular activities. However, for banks, especially at the dawn of banking in the late 12<sup>th</sup> and early 13<sup>th</sup> centuries, the key to their survival was accuracy, completeness, verifiability, and control over

all their business activity, which was principally providing credit.

The banks created the credit-based market economy founded upon 'bank money' that enabled merchants to develop and expand their businesses and carry on their trade without recourse to cash. It is likely that banks maintained *quaderni di cassa* that recorded transferences of credit between the accounts of their customers before merchants did so with their *libri de debitori e creditoribus*, because the bankers were the first for whom recording credit in this way was central to their business. Once banking emerged as a recognizable enterprise in the late 12<sup>th</sup> century, it was the obvious center for the development of fundamental accounting practice. This was particularly the case in the Guild-monitored local banks of Florence, whose accountability to the Guild meant that they had significantly more to gain than other banks from developing a consistent, clear, and transparent bookkeeping system. They had to develop a recording technique that ensured the quality of their bookkeeping records or risk punishment, or even expulsion from the Guild. They responded initially by developing detailed single entry where the location of the double entry is not evident nor implied, because the contra entry was to cash, and no account was held for cash.

The banking fragments from 1211 demonstrate that when book transfers began to be made, dual entries were used that indicated the parties involved but not the location of the contra account. Some of the entries involved a transfer from the account of 'X' on behalf of 'Y' and the location of the contra entry was sometimes unclear. For example, consider this credit entry in one of the accounts from 1211 that settled a debit balance with an entry attributed to a chain of four different individuals:

Diede Bilicozzi is due to give us £9. 13. 4d...

Mainetto Tomaquinci has given us £9. 13. 4d.; he paid it on our behalf to Vinedico Prestazzi, to whom we owed it on behalf of Dello, son of Mainetto dello Scilinguato, with other moneys, on account of Rinieri, son of Orlandino of Lungarno. (Lee 1972, 41)

Entries of this form were extremely commonplace under the *cessione*-driven book transfer system.<sup>10</sup> Recording the location of the account in which the contra entry was made within each entry addressed the previous lack of clarity, resulting in the emergence of double entry bookkeeping.

When it became evident that banks also needed to be aware of or verify their cash position, double entry embracing cash was the logical next step. However, the Catholic Church's objection to usury deterred the banks from extending their accounting systems to include a cash account. This explains why all transactions involving cash continued to be recorded by banks in single entry until the Church began to relax its stance in the mid-15<sup>th</sup> century.

The conclusions of this study are consistent with the views of Littleton

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<sup>10</sup> See Sangster et al. (2014) for a discussion of the problems this form of entry presented.

(1931), Lee (1972), and Martinelli (1974), who all concluded that bankers may have been the first group to develop double entry bookkeeping. Martinelli went further, believing that the likeliest group to have done so were Sieneese international merchant bankers in the 13<sup>th</sup> century, but there is no direct evidence to support this conclusion. Further, there is no special circumstance unique to those bankers that may have led them to introduce the innovation first.

However, even if international merchant bankers or merchants, such as the Sieneese, had developed a system of double entry bookkeeping, they would not have devised a system using terminology only suitable for personal accounts, especially when so much of their business activity at that time was conducted using barter. The single entry tabular system would have been more than sufficient for their needs and smaller merchants dealing on a daily basis with the public would have been more than adequately served by simply noting the amount due to them by their customers on a scrap of parchment or paper. Some small shops were doing this routinely in many parts of the world, including the U.K., in the mid-20<sup>th</sup> century, where this form of small business credit was called 'tick'. There would have been much less impetus for such merchants to maintain a ledger of debtors and creditors.

In summary, the terminology adopted and the nature of commerce and credit in the late 12<sup>th</sup> and early 13<sup>th</sup> century makes it highly likely that banks were the first entities to adopt a detailed single entry system to record entries for debtors and creditors. Similarly, they were also likely to have been the first to extend that system into dual entry by recording book transfers. Of the banks that emerged at that time, only the local banks of Florence were subject to constant external scrutiny via their accountability to the Bankers Guild. To avoid censure and conflict with the auditors, banks had incentive to transform dual entry into double entry by the addition in each entry of the location of the contra entry. This double entry system facilitated checking of entries and enhanced the accuracy and control over their debtors and creditors. The bankers also adopted terminology that rapidly became technical rather than literal in nature because of its consistent application across all the accounts.<sup>11</sup>

Finally, returning to the conditions that led to the emergence of double entry bookkeeping, three circumstances in particular point toward the local bankers of Florence being the group in most need of a sound system of bookkeeping. The first two resonate with the first and third of Littleton's 'conditions' (1927):

1. The emergence of a relatively large number of banks between the mid-12<sup>th</sup> and mid-13<sup>th</sup> centuries. Where previously a formal banking system had not existed, large and small banks emerged, all with a need for a better system of accounting.
2. The expanding nature of commerce in 12<sup>th</sup> and 13<sup>th</sup> century Italy that relied heavily upon the bankers and their creation and maintenance of a 'bank money'-based cashless economy. This system blossomed in Italy, and particularly in Florence, where it became widely used for business and private transactions over the following 200 years.

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<sup>11</sup> For example, when a debt was paid, the verb used in the credit entry cancelling the debt was *deve avere*. Its literal meaning of "should have" made no sense in the entry. It had become a technical term.



### 3. The requirements of the Bankers Guild.

The requirements of the Bankers Guild acted as the primary catalyst that most likely led to double entry bookkeeping first emerging in the local banks of Florence. Before the middle of the 13<sup>th</sup> century, merchants adopted the system and Martinelli (1974) describes how they slowly widened its scope to incorporate impersonal accounts and completed the process to enterprise-wide bookkeeping systems by the addition of accounts for capital.

#### **Limitations**

This study has several clear limitations. As de Roover (1938, 144) declared, there is a scarcity of identified archival accounting information relating to this period, and therefore studies of this type must primarily use the available facts to deduce the form that a likely scenario might take. Therefore, this study sought to identify conditions that may have given rise to the emergence of double entry bookkeeping rather than to identify specific evidence of such a pattern.

The original statutes of the Bankers Guild have not survived, but the statutes from 1299 are available and it is generally believed that they had changed relatively little since the Guild was first founded. Even had the Guild not existed, the commercial and credit environment and the dependency of that environment upon the growing banking sector and its system of book transfers makes it virtually certain that bankers were the first group to develop double entry bookkeeping. But the Guild did exist, and it existed to safeguard the money of those who placed their funds with the banks. Double entry provided reassurance that the circulation of those funds was being correctly recorded, and a means to check that this was the case.

The development of the commercial environment in the late-12<sup>th</sup> century, particularly the growth of a banking system to store cash and to provide credit, along with the infrastructure to support the existence of a credit-based economy, fuelled the expansion of trade. Supporting conditions included the accountability of the banks to their guild, presenting a strong case for double entry bookkeeping having first emerged in the local banks of 13<sup>th</sup> century Florence. This origin is more likely the genesis of double entry bookkeeping than similar developments involving bankers or merchants in Venice or anywhere else.

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