



Examining the Origins of Double-Entry Bookkeeping, Memorandums, Journals, and Ledgers as the Foundation of Modern Accounting: A Literature Review

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ABSTRACT

This study examines the emergence of double-entry bookkeeping, memoranda, journals, and ledgers as the foundations of modern accounting from an accounting historiography perspective. Using a qualitative approach, the research employs a non-systematic literature review (non-SLR) of 26 national and international journal articles, supported by primary historical sources on accounting record systems. Data were analyzed through identification, classification, literature synthesis, and thematic analysis. The findings show that double-entry bookkeeping evolved gradually from medieval Italian trade through the development of memoranda, journals, and ledgers as tools for transaction recording, economic control, and trade documentation. This evolution was driven not only by commercial and technical needs but also by social, cultural, political, legal, and economic factors. The study also identifies a historical continuity between traditional ledger systems and contemporary accounting developments, including blockchain-based distributed ledger technology. It concludes that memoranda, journals, and ledgers form part of the multidimensional evolution of accounting knowledge that has shaped accounting practices from the medieval period to the modern digital era.

INTRODUCTION

The development of modern accounting cannot be separated from the emergence of double-entry bookkeeping as the cornerstone of contemporary financial recording systems. In the historiography of accounting, the emergence of the memorandum, journal, and ledger is viewed as a critical turning point that transformed human economic recording practices from simple forms into a structured and rational administrative system. Studies on the origins of double-entry bookkeeping indicate that the system did not emerge suddenly but evolved through a long historical process as trade became more complex and the need for economic control in medieval society grew. Izoulet (2021) explains that the development of the double-entry bookkeeping system was the result of gradual innovations in 13th- and 14th-century Italian trading companies, influenced by the rise in credit transactions and the need for systematic management of accounts receivable. In this context, the memorandum evolved as an initial record of transactions based on the sequence of events, the journal served to classify transactions into debits and credits, while the ledger became the central hub for account management, enabling merchants to monitor their financial position comprehensively (Izoulet, 2021). This development demonstrates that the accounting recording system did not arise solely from administrative needs but also from social and institutional requirements to maintain the stability of trade relationships. Sangster (2025) even points out that an early form of double-entry bookkeeping was used by money-changer-bankers in Northern Italy as early as the 12th century, prior to Luca Pacioli's codification in 1494. Thus, the historiography of modern accounting reveals that the memorandum, journal, and ledger are the result of a historical evolution closely tied to changes in the structure of trade, law, and the organization of medieval society.

Studies on the origins of the memorandum, journal, ledger, and double-entry bookkeeping are important because the development of these recording systems not only shaped modern accounting practices but also influenced how people understand economic reality and social relationships. Matringe & Power (2024) explain that accounting records are a form of social memory technology that helps communities build continuity in economic relationships and collective identity. From this perspective, the ledger is not merely understood as a general ledger for recording transactions but also as a medium for social legitimization and the establishment of trust among merchants within medieval trade networks (Matringe & Power, 2024). Carnegie et al. (2020) also emphasize that accounting must be understood as a social practice that shapes organizations and power relations within society. Thus, the development of memoranda, journals, and ledgers possesses strong social, cultural, and political dimensions because these recording systems help establish mechanisms for economic oversight and organizational control (Carnegie et al., 2020). Gilbert et al. (2024) even demonstrate that accounting developed alongside patriarchal structures and capitalism in the history of human civilization, meaning that accounting recording practices have never been truly socially or politically neutral. This perspective indicates that the emergence of double-entry

bookkeeping cannot be understood merely as a technical innovation in trade but also as part of the social and epistemological transformation of early modern society. Therefore, research on the emergence of the memorandum, journal, ledger, and double-entry bookkeeping holds significant academic relevance as it helps explain how accounting recording systems developed as social and intellectual constructs in the history of human civilization.

In addition to being influenced by developments in trade and social organization, the evolution of memoranda, journals, and ledgers is also closely linked to advancements in science, mathematics, and modern economic rationality. Mattessich (2003) explains that the relationship between mathematics and accounting has existed for thousands of years, even before the emergence of Venetian bookkeeping practices. According to Mattessich (2003), the development of accounting was influenced by the evolution of numerical representation systems and mathematical logic, which enabled humans to organize economic activities systematically. In this context, the ledger evolved not only as an administrative tool but also as an analytical instrument enabling the measurement of financial position and the evaluation of economic activities. This perspective is reinforced by Edwards (2014), who demonstrates that the development of bookkeeping was also influenced by the scientific revolution and the use of deductive reasoning in accounting. Accounting began to be understood as a rational system capable of explaining economic relationships through systematic cause-and-effect logic (Edwards, 2014). Thus, the development of the memorandum, journal, and ledger reflects the epistemological shift in early modern society, which began to rely on numerical documentation and scientific rationality in economic management. This study indicates that double-entry bookkeeping is not merely a transaction recording technique but part of humanity's intellectual evolution in understanding accountability, economic control, and information management. Therefore, research on the origins of double-entry bookkeeping holds a significant position in explaining the epistemological roots of modern accounting.

Although previous research has examined the development of double-entry bookkeeping from various perspectives, there remains a significant research gap. Most previous studies tend to address a specific dimension in a partial manner, such as the technical aspects of bookkeeping, the historiography of Italian trade, the development of capitalism, or the transformation of modern accounting technology. The studies by Izoulet (2021), Sangster (2025), and Gurskaya (2025), for example, place greater emphasis on the historical evolution of bookkeeping systems within the context of medieval Italian trade. Meanwhile, the studies by Matringe & Power (2024), (Carnegie et al., 2020), and Vollmer (2024) focus more on the social and epistemological dimensions of accounting records. The study by Maiti et al. (2021) is even more oriented toward the transformation of ledgers toward blockchain and triple-entry accounting. This fragmentation of research focus indicates that few studies have integratively linked the memorandum, journal, and ledger as a unified evolution of the accounting knowledge system. Consequently, the development of the “ ” of these three recording instruments is often discussed in isolation

and not situated within a comprehensive framework of accounting historiography. Furthermore, accounting historiography remains dominated by a Eurocentric approach that positions the Italian Renaissance and Luca Pacioli as the primary center of double-entry bookkeeping's development. However, research by Yağci & Erserim (2022), Ogie Dewandaru et al. (2025), and Oyedokun (2025) indicates that the development of accounting was also influenced by cross-cultural interactions, colonialism, and global knowledge transfer. Thus, there remains significant scope for research to integrate historical, social, philosophical, and technological dimensions in understanding the emergence of double-entry bookkeeping, the memorandum, the journal, and the ledger.

Given these circumstances, this study was conducted to examine the emergence of double-entry bookkeeping, the memorandum, the journal, and the ledger as the primary foundations of modern accounting through a literature review approach. This study aims to explain how the historical development of the memorandum, journal, and ledger shaped the modern accounting recording system from an accounting historiography perspective. Additionally, this study aims to analyze why the development of these recording systems was influenced not only by the technical needs of trade but also by social, cultural, political, legal, and epistemological factors within society. This study further aims to examine the continuity of the evolution of double-entry bookkeeping from the medieval trade era toward modern accounting information systems and contemporary blockchain technology, as described by Maiti et al. (2021). Using a literature review approach, this study seeks to integrate various previously fragmented perspectives—including technical, historical, social, and technological approaches. This study also seeks to strengthen the critical historiographical perspective in the history of accounting by not only reproducing traditional narratives regarding Luca Pacioli and Venetian trade but also examining accounting as a social and epistemological construction that evolves through the dynamics of power and changes in human civilization. Therefore, this study is expected to provide a theoretical contribution to expanding our understanding of the history of modern accounting development, as well as a practical contribution to understanding the historical relevance of memoranda, journals, and ledgers to the development of contemporary accounting information systems.

Based on this background, the research problem in this study is formulated into three main research questions. First, what is the historical process of the emergence and development of double-entry bookkeeping, the memorandum, the journal, and the ledger in shaping the modern accounting recording system from the perspective of the " " in accounting historiography? Second, why was the development of the memorandum, journal, and ledger influenced not only by the technical needs of trade but also by social, cultural, political, legal, and epistemological factors in the history of accounting development? Third, how does the evolution of the concepts of double-entry bookkeeping, the memorandum, the journal, and the ledger demonstrate the continuity of changes in accounting recording systems from the medieval trade

era toward modern accounting information and technology systems? These three research questions form the primary basis of this study in examining the development of accounting as a multidimensional historical process involving simultaneous economic, social, cultural, and technological transformations. Thus, this study is expected to provide a more comprehensive understanding of the emergence of double-entry bookkeeping and the role of the memorandum, journal, and ledger as the primary foundations of modern accounting development from the medieval period to the contemporary digital era.

LITERATURE REVIEW

The development of modern accounting is inseparable from the emergence of double-entry bookkeeping, which has become the foundation of contemporary financial reporting systems. According to accounting historiography, double-entry bookkeeping evolved gradually through the increasing complexity of commercial activities in medieval Europe, particularly in Italian trading centers. Early accounting records began with memorandums, which served as chronological notes of business transactions. These records later developed into journals and ledgers, creating a more systematic mechanism for classifying and monitoring financial information. Scholars such as Izoulet (2021) and Sangster (2025) argue that the evolution of these recording practices was driven by the growing need for accountability, credit management, and economic control in expanding trade networks.

The literature further suggests that memorandums, journals, and ledgers should not be viewed merely as technical accounting instruments but also as important social and institutional tools. Matringe and Power (2024) describe accounting records as forms of social memory that facilitate trust and continuity in economic relationships. Similarly, Carnegie et al. (2020) emphasize that accounting functions as a social practice that shapes organizational structures and power relations within society. The ledger, therefore, became more than a financial record; it evolved into a mechanism for legitimizing transactions, establishing credibility among merchants, and supporting the governance of commercial activities. These perspectives demonstrate that the development of accounting was deeply embedded within broader social and cultural transformations.

Another important theme in the literature concerns the influence of mathematics and economic rationality on the evolution of accounting systems. Mattessich (2003) highlights that accounting development was closely connected to advances in numerical representation and mathematical reasoning. The application of mathematical principles enabled merchants and organizations to measure financial positions, evaluate economic performance, and maintain systematic records. Edwards (2014) further argues that bookkeeping practices were influenced by the emergence of scientific reasoning, which promoted logical and structured approaches to economic management. Consequently, double-entry bookkeeping became not only a recording technique but also an intellectual framework for understanding

economic reality through the principles of balance, consistency, and accountability.

The literature also reveals that the spread of double-entry bookkeeping occurred through cross-cultural interactions, global trade, and colonial expansion. While Italy is commonly recognized as the birthplace of modern bookkeeping, studies indicate that accounting knowledge was adapted and transformed across different regions and civilizations. Yağci and Erserim (2022) demonstrate how accounting practices were introduced into the Ottoman Empire through Western influences, while Oyedokun (2025) highlights the interaction between indigenous accountability systems and colonial accounting methods in Yoruba society. These findings suggest that the development of accounting was not a purely European phenomenon but rather the result of continuous knowledge transfer, cultural adaptation, and institutional change across diverse historical contexts.

Recent literature extends the discussion by examining the continuity between traditional bookkeeping systems and modern digital accounting technologies. Maiti et al. (2021) argue that blockchain-based triple-entry accounting represents a contemporary evolution of the traditional ledger concept. Although accounting technologies have shifted from manual records to computerized and distributed systems, the fundamental principles established by memorandums, journals, and ledgers remain central to modern accounting information systems. This historical continuity demonstrates that accounting is a dynamic knowledge system capable of adapting to technological advancements while preserving its core functions of recording, controlling, and communicating economic information. Therefore, the literature consistently portrays double-entry bookkeeping and its supporting instruments as the enduring foundation of modern accounting development.

METHODOLOGY

This study employs a qualitative approach using a non-systematic literature review (non-SLR) method, aiming to critically examine the historical development of double-entry bookkeeping, memoranda, journals, and ledgers as the foundation of modern accounting. The literature review approach was chosen because this study focuses on the conceptual, historiographical, social, and epistemological synthesis of various previous studies on the evolution of accounting recording systems. This study does not employ a systematic literature review (SLR) approach because the primary objective is not to conduct bibliometric mapping or quantitative measurement of research trends, but rather to construct a deep historical and conceptual interpretation of the development of the memorandum, journal, and ledger within the history of accounting. The research design involves an integrative review of 26 national and international journal articles, as well as several key historical sources relevant to the research theme. The primary focus of the study is on research discussing the history of double-entry bookkeeping, accounting historiography, the development of ledgers, the evolution of accounting records, and the transformation of accounting toward modern technologies such as blockchain and distributed ledger technology, as described by Maiti et al. (2021), Matringe

& Power (2024), Sangster (2025), Carnegie et al. (2020), Carnegie et al. (2020), and Vollmer (2024). In addition to journal articles, this study also utilizes a primary historical source: Luca Pacioli's **Particularis de Computis et Scripturis** as the foundation for understanding the development of the memorandum, journal, and ledger during the Italian Renaissance (Pacioli, 1494/1994). Thus, this research design positions accounting historiography as the primary framework for explaining the multidimensional development of accounting recording systems.

The research sample consists of 26 national and international journal articles selected through purposive sampling based on the relevance of their content to the theme of the emergence of double-entry bookkeeping, the memorandum, the journal, and the ledger. The criteria for selecting articles include: first, the article discusses the history of accounting development or accounting historiography; second, the article discusses memoranda, journals, ledgers, or double-entry bookkeeping; third, the article discusses the social, cultural, political, legal, epistemological, and technological dimensions of accounting; and fourth, the article is relevant to the development of modern accounting and the digital transformation of accounting. These articles draw from various research perspectives, including accounting history, critical accounting, accounting historiography, accounting technology, and social accounting. The research instrument used is a literature review matrix designed to identify the authors, year of publication, research focus, research approach, key concepts, and the theoretical contributions of each article to this study. The data collection procedure was conducted through a process of identification, classification, in-depth reading, data reduction, and grouping of the main research themes. All articles were then analyzed using content analysis and thematic analysis techniques to identify historical patterns, conceptual relationships, and the evolutionary development of memoranda, journals, and ledgers within modern accounting systems. The analysis was conducted interpretatively by framing the development of accounting as a social and historical process influenced by changes in trade, social organization, law, economic rationality, and information technology, as described by Hopwood (1987), Edwards (2014), Mattessich (2003), and Bánociová & Pavliková (2014). Thus, this research method is designed to be replicable by other researchers through the stages of literature selection, theme classification, and systematic historiographical analysis in examining the evolution of accounting recording systems.

RESEARCH RESULT

The Historical Development of Double-Entry Bookkeeping, Memoranda, Journals, and Ledgers

The research findings indicate that the development of double-entry bookkeeping, memoranda, journals, and ledgers occurred through a gradual historical process and was closely linked to the evolution of trade from the medieval to the modern era. Based on a synthesis of 26 analyzed journal articles, it was found that early economic recording practices evolved from

simple memorandum forms toward more structured journal and ledger systems. Izoulet (2021) explains that 13th- and 14th-century Italian trading companies began using T-accounts to separate debits and credits, thereby enabling more systematic oversight of credit and receivable transactions. Sangster (2025) found that an early form of double-entry bookkeeping had been used by Florentine bankers as early as the 12th century, prior to Luca Pacioli's codification in 1494. This research indicates that ledgers evolved as evidential instruments to document economic rights and obligations in credit-based trade transactions. Meanwhile, Pacioli (1494/1994) described the structure of the memorandum, journal, and ledger as an integrated system of interconnected records. The memorandum serves as the initial record of transactions, the journal is used to categorize debit and credit transactions, while the ledger functions as the central hub for account management. The research findings also indicate that the development of this recording system became the primary foundation of the modern accounting cycle, which is still utilized in contemporary accounting systems.

Table 1. Historical Overview of the Development of Accounting Recording Systems

Period	Key Findings	Recording Instruments	Researcher
12 th Century	Early practice of double-entry bookkeeping by Italian bankers	Early ledgers	Sangster (2025)
13th–14th centuries	Development of Italian trade debit-credit accounts	Memorandum, Journal	Izoulet (2021)
Year 1494	Codification of the Venetian accounting system	Memorandum, Journal, Ledger	Pacioli & Cripps (1994)
19th century	Spread of modern accounting to the Ottoman Empire	Modern Journal and Ledger	Yağci & Erserim (2022)
Modern Era	Digital ledger transformation	Blockchain and Triple-entry	Maiti et al. (2021)

Social, Cultural, and Political Dimensions in the Development of Accounting

Research findings show that the development of memoranda, journals, and ledgers was influenced not only by the technical needs of trade, but also by the social, cultural, political, and organizational dynamics of society. Matringe & Power (2024) demonstrate that accounting records evolved as a form of social memory technology that helped communities establish economic legitimacy and the continuity of trade relationships. Ledgers served as a medium for the formation of social identity and trust among merchants within medieval trade networks. Carnegie et al. (2020) found that accounting developed as a social practice that shaped organizational structures, power relations, and the economic administrative framework of society. Gilbert et al. (2024) demonstrate

that accounting is closely linked to the development of patriarchy and capitalism, such that recording systems were used as instruments for resource management and economic control. Hopwood (1987) research shows that accounting systems developed as part of institutional and social organizational changes. Research findings also indicate that the development of journals and ledgers helped create patterns of economic coordination and oversight within commercial organizations. Additionally, the research by Ogie Dewandaru et al. (2025) shows that the historiography of modern accounting has begun to shift from a technical approach toward a more contextual social-critical approach. Thus, the research findings indicate that memoranda, journals, and ledgers have highly significant social and political functions in the history of accounting's development.

Table 2. Social and Political Dimensions of Accounting

Aspect	Research Findings	Researcher
Social Memory	Ledger as a collective memory technology	Matringe & Power (2024)
Social Control	Accounting as a monitoring mechanism	Hopwood (1987)
Capitalism	Accounting supports the expansion of capitalism	Gilbert et al. (2024)
Organization	Accounting shapes organizational structure	Carnegie et al. (2020)
Critical Historiography	Shift from a technical to a social approach	Ogie Dewandaru et al. (2025)

The Influence of Mathematics and Economic Rationality on Accounting

Research findings indicate that the development of the memorandum, journal, and ledger is closely linked to the evolution of mathematics and modern economic rationality. Mattessich (2003) found that the development of accounting was influenced by the evolution of numerical representation systems and mathematical logic, which enabled humans to organize economic activities systematically. Ledgers evolved as analytical tools to measure financial positions and evaluate economic activities in a more complex manner. Edwards (2014) demonstrates that the development of bookkeeping was also influenced by the scientific revolution and the use of deductive reasoning in accounting. Accounting began to be understood as a rational system that explains economic relationships through cause-and-effect logic. The study demonstrates that journals and ledgers are not merely administrative tools but also conceptual instruments for understanding changes in economic value. Pacioli & Cripps (1994) also emphasized the importance of the balance between debits and credits as the core principle of double-entry bookkeeping. The research findings indicate that this principle of balance serves as the primary foundation of modern accounting and contemporary accounting information systems. Furthermore, the development of modern accounting plans and charts of accounts demonstrates the continuity of the ledger's evolution toward a more

structured economic information system, as explained by Bánociová & Pavliková (2014). Thus, the research findings demonstrate that the development of modern accounting has very strong intellectual and mathematical roots.

Table 3. The Development of Rationality and Accounting Information Systems

Concept	Research Findings	Researcher
Mathematical Representation	Number-based accounting	Mattessich (2003)
Deductive Reasoning	Bookkeeping as a rational system	Edwards (2014)
Debit-Credit	Principle of accounting balance	Pacioli & Cripps (1994)
Accounting Plans	Standardization of modern ledgers	Bánociová & Pavliková (2014)
Accounting Cycle	Modern journals and ledgers	Kieso et al. (2020)

Global Spread and Cultural Adaptation of Double-Entry Bookkeeping

Research findings indicate that the development of double-entry bookkeeping was not linear and did not occur solely in Italy, but also spread through cultural interactions, colonialism, and global trade. Yağci & Erserim (2022) found that the transformation of accounting in the Ottoman Empire occurred through French influence and 19th-century global economic integration. French accounting terms began to be used in Ottoman journals, ledgers, and trade documents as part of the process of the Westernization of economic administration. Research by Oyedokun (2025) indicates that Yoruba society already had practices of resource management and economic accountability prior to the arrival of Western colonial influence. However, colonialism subsequently introduced the double-entry bookkeeping system, which gradually replaced local practices. This research demonstrates that the memorandum, journal, and ledger evolved through processes of cultural adaptation and global knowledge transfer. Additionally, research by Kokaze et al. (2025) shows that 16th-century Spanish accounting books featured a complex organizational structure of information to support imperial trade. The journal served as a chronological record of transactions, while the ledger was used to organize account relationships within international trade networks. The research findings indicate that the development of modern accounting was influenced by the interaction of various civilizations and global trade systems. Thus, the findings demonstrate that the evolution of the memorandum, journal, and ledger possesses broad geopolitical and institutional dimensions.

Table 4. Global Spread of Double-Entry Bookkeeping

Region	Key Findings	Researcher
Italy	Early development of bookkeeping	Izoulet (2021); Sangster (2025)
Ottoman	Westernization of accounting	Yağci & Erserim (2022)

Yoruba Land	Adaptation of colonial accounting	Oyedokun (2025)
Imperial Spain	Global trade accounting	Kokaze et al. (2025)
Modern Europe	Accounting Standardization	Bánociová & Pavliková (2014)

The Transformation of Ledgers Toward Modern Accounting Technology

Research findings indicate a historical continuity between traditional ledgers and the development of modern accounting technology. Maiti et al. (2021) found that the limitations of double-entry accounting in providing transparency and real-time information drove the development of blockchain-based triple-entry accounting. Blockchain is viewed as a new evolution of the traditional ledger because it enables distributed and transparent transaction recording. Matringe & Power (2024) also compared early double-entry bookkeeping with modern blockchain to demonstrate the continuity of the ledger’s function as a medium for managing economic memory. Research by Urip Wardoyo et al. (2021) demonstrates that the modernization of accounting through computerization and digital applications is a continuation of the evolution of the classical bookkeeping system. The findings indicate that the fundamental principles of the memorandum, journal, and ledger persist even as the recording medium shifts to digital systems. Kieso et al. (2020) explain that modern accounting information systems are still built on the principles of debits and credits derived from classical double-entry bookkeeping. Furthermore, the development of distributed ledger technology indicates that the concept of the ledger remains at the core of modern accounting’s evolution. Thus, the research findings demonstrate the continuity of accounting’s evolution from the medieval trade era to the contemporary digital era.

Table 5. The Evolution of Ledgers from Traditional to Digital

Era	Ledger Type	Characteristics	Researcher
Medieval	Manual ledger	Trade recording	Sangster (2025)
Renaissance	Double-entry ledger	Debits and credits	Pacioli & Cripps (1994)
Modern	Accounting plans	Standardization of information	Bánociová & Pavliková (2014)
Digital	Computerized accounting	Electronic information systems	Wardoyo et al. (2021)
Contemporary	Blockchain ledger	Distributed ledger technology	Maiti et al. (2021)

DISCUSSION

1. Discussion of Research Question 1: How did double-entry bookkeeping, the memorandum, the journal, and the ledger historically emerge and evolve to form the modern accounting recording system from an accounting historiography perspective?

Research findings indicate that the emergence of double-entry bookkeeping, the memorandum, the journal, and the ledger was a historical evolutionary process that unfolded gradually and cannot be understood as a single invention that arose spontaneously. These findings reinforce Izoulet's (2021) argument that the development of the double-entry bookkeeping system arose through gradual innovations within 13th- and 14th-century Italian trading companies. In this context, the memorandum evolved as an early form of recording trade transactions based on the sequence of economic events, while the journal began to be used to classify transactions into a more systematic debit and credit structure. The ledger subsequently developed into a central account management system that enabled merchants to monitor receivables, payables, capital, and profits more comprehensively. Thus, the research findings demonstrate that the memorandum, journal, and ledger evolved as an integrated evolutionary unit that formed the foundation of modern accounting. These findings also reinforce the historiographical perspective of modern accounting that rejects the linear narrative portraying Luca Pacioli as the sole inventor of double-entry bookkeeping. Instead, this study suggests that Pacioli is more accurately understood as a codifier of accounting practices that had already developed within medieval Italian commerce. This perspective aligns with the findings of Sangster (2025), which show that early forms of double-entry bookkeeping were used by Florentine bankers as early as the 12th century, prior to the publication of **Particularis de Computis et Scripturis**. Therefore, the historical process of the development of modern accounting is the result of a long-term interaction between commerce, economic administrative needs, and the institutional transformations of medieval society.

The findings of this study also indicate that the development of memoranda, journals, and ledgers was closely linked to the increasing complexity of trade and credit transactions during the medieval period. Sangster (2025) explains that the need for evidence in credit trade was a key factor driving the development of ledgers as a means of documenting economic rights and obligations. In medieval Northern Italian trade, the diverse quality of currency and the rise in lending activities led merchants to require a recording system capable of providing more reliable transaction legitimacy. Consequently, ledgers evolved as administrative and legal instruments supporting trade stability. These findings demonstrate that the development of modern accounting was influenced not only by technical recording needs but also by the legal and institutional requirements of the trading community. This study also found that memoranda and journals played a crucial role in establishing economic administrative order before transactions were transferred to the ledger. This structure later evolved into the modern accounting cycle as described by Kieso et al. (2020). Thus, the research results demonstrate a historical continuity between medieval bookkeeping practices and modern accounting information systems. The contribution of this study lies in its ability to integrate memoranda, journals, and ledgers as interrelated evolutionary elements in the formation of the modern accounting system. Most previous research has tended to discuss double-entry bookkeeping in general without

placing these three instruments within a comprehensive historical framework. Therefore, this study offers a historiographical contribution that expands our understanding of the origins of modern accounting as an evolutionary process of economic knowledge systems.

In addition, this study found that the development of double-entry bookkeeping was also influenced by advances in mathematics and modern economic rationality. Mattessich (2003) explains that the development of accounting is closely linked to the evolution of mathematical logic and the representation of numbers throughout human history. In this context, the ledger emerged as an analytical tool enabling the measurement of financial positions and the systematic evaluation of economic activities. The findings of this study demonstrate that the memorandum, journal, and ledger did not merely develop as administrative tools for trade but also as forms of economic rationalization in early modern society. This perspective is reinforced by Edwards (2014), who highlights that the development of bookkeeping was influenced by the use of deductive reasoning in accounting. Accounting began to be understood as a rational system that explains economic relationships through systematic cause-and-effect logic. Thus, the development of double-entry bookkeeping reflects an epistemological transformation in society, which began to rely on numerical documentation and rational logic in economic management. This study makes an important contribution to the field of accounting historiography by demonstrating that the development of modern accounting has not only economic roots but also strong intellectual and epistemological foundations. This demonstrates that the emergence of the memorandum, journal, and ledger is part of the evolution of human knowledge in understanding accountability, economic control, and social organization. Therefore, the significance of this research lies in its ability to explain accounting as a multidimensional knowledge system that developed through the interaction between commerce, mathematics, law, and scientific rationality.

2. *Discussion of Research Question 2: Why was the development of memoranda, journals, and ledgers influenced not only by the technical needs of commerce, but also by social, cultural, political, legal, and epistemological factors in the history of accounting?*

Research findings indicate that the development of memoranda, journals, and ledgers was significantly influenced by changes in the social and cultural structure of medieval trading societies. These findings align with the research by Matringe & Power (2024), which explains that accounting records are a form of social memory technology that helps societies build continuity in economic relationships and collective identity. In medieval trade, trust among merchants was a crucial factor because transactions were conducted through credit networks and long-distance trade. Therefore, memoranda, journals, and ledgers evolved not only as administrative tools but also as media for social legitimization and the establishment of economic trust. Ledgers helped merchants systematically document transactional relationships so they could serve as social and economic evidence. Thus, the development of accounting records is closely tied to society's need to create order and stability in trade

relationships. The findings of this study's " " reveal that double-entry bookkeeping evolved as a social technology that helped society organize economic activities and build a collective memory of trade. This perspective demonstrates that accounting possesses social and cultural dimensions far broader than mere transaction recording techniques. The contribution of this research lies in reinforcing a critical historiographical perspective that views accounting as a social and institutional practice shaping society's economic relationships.

This study also found that the development of memoranda, journals, and ledgers is closely linked to the political and economic power structures of society. Gilbert et al. (2024) explain that accounting developed as part of a social control mechanism within patriarchal and capitalist societies. From this perspective, accounting was used to manage resources, control the workforce, and reinforce the economic dominance of certain groups. The findings of this study show that during the Italian Renaissance, ledgers and journals became important instruments for bankers and merchants in systematically managing capital and credit. These recording systems enabled them to expand their trade networks and strengthen their economic positions within society. Hopwood (1987) also explains that accounting systems possess political and institutional dimensions because they help shape organizational structures and patterns of social control. Thus, the development of memoranda, journals, and ledgers cannot be separated from changes in social organization and economic power structures. This study makes an important contribution to the field of accounting history by demonstrating that the development of modern accounting is closely linked to the transformation of capitalism and the economic organization of early modern society. Furthermore, this study shows that accounting plays a constitutive role in shaping power relations and economic legitimacy. Consequently, the significance of this research lies in its ability to demonstrate that the development of accounting is never neutral but is always influenced by specific social and political contexts.

The legal dimension is also a key finding of this study. Sangster (2025) demonstrates that the early development of double-entry bookkeeping was closely linked to evidentiary needs in medieval Italian trade. In a credit-based trading system, transaction recording became a vital tool for establishing the economic rights and obligations of the parties involved. Consequently, ledgers evolved as a documentation medium serving both legal and administrative functions. This study found that memoranda, journals, and ledgers helped reduce trade disputes and enhance the legitimacy of economic transactions. Furthermore, the development of medieval trade law also drove the standardization of recording practices so that transactions could be systematically verified. These findings indicate that accounting evolved as part of the legal mechanisms of early modern trade. In this context, memoranda, journals, and ledgers served not only as economic instruments but also as legal instruments supporting the stability of trade relations. This research contributes by expanding the understanding that the development of modern accounting is closely related to the development of legal institutions and the economic

administration of society. This demonstrates that the historiography of accounting needs to be understood through a multidimensional approach that simultaneously involves economic, legal, social, and cultural aspects.

In addition to social and legal dimensions, this study also found that the development of memoranda, journals, and ledgers was influenced by shifts in the epistemology of early modern society. Mattessich (2003) and Edwards (2014) demonstrate that the development of accounting is linked to the evolution of mathematical logic and scientific rationality. In this context, double-entry bookkeeping became a rational representation of economic activity through the balance of debits and credits. The findings of this study demonstrate that the development of accounting reflects changes in how humans understand economic reality and organizational control. Accounting began to be understood as a rational system capable of explaining economic relationships systematically and logically. This perspective indicates that the development of memoranda, journals, and ledgers is part of the epistemological transformation of modern society, which began to rely on numerical documentation and scientific logic in economic decision-making. This research contributes to expanding the historiography of accounting from a mere chronology of technical developments to an analysis of changes in society's economic thinking. Thus, the significance of this research lies in its ability to explain accounting as an epistemological construct that shapes modern economic rationality.

3. *Discussion of Research Question 3: How does the evolution of the concepts of double-entry bookkeeping, memoranda, journals, and ledgers demonstrate the continuity of changes in accounting recording systems from the medieval trade era to modern accounting information systems and technology?*

The research findings indicate a very strong historical continuity between medieval bookkeeping practices and the development of modern information technology-based accounting. During the medieval Italian trade period, memoranda were used as preliminary records of transactions organized chronologically based on economic events. These transactions were then transferred to a journal to be classified into debits and credits before being recorded in a ledger. This structure became the foundation of the modern accounting cycle that is still used today, as explained by Kieso et al. (2020). The research findings show that the basic principles of the memorandum, journal, and ledger have persisted despite significant transformations in the technology used for recording. Thus, the development of modern accounting is a historical continuation of the classical bookkeeping system that emerged during the medieval era. This study also found that the development of modern accounting plans and charts of accounts represents a standardization of the traditional ledger structure, as explained by Bánociová & Pavliková (2014). The ledger has evolved from a simple recording tool into an economic information system that supports managerial decision-making and global financial reporting. Therefore, this study demonstrates that modern accounting continues to uphold the fundamental principle of double-entry bookkeeping as the primary foundation of contemporary financial information systems.

The most significant transformation in the development of ledgers is evident in the evolution toward modern digital and blockchain technologies. Maiti et al. (2021) explain that the limitations of double-entry accounting in providing transparency and real-time information have driven the emergence of blockchain-based triple-entry accounting. From this perspective, blockchain is understood as a new evolution of the traditional ledger because it enables distributed and more transparent transaction recording. The findings of this study show that the concept of the ledger remains at the core of modern accounting development even though the recording medium has changed significantly. Matringe & Power (2024) also compare early double-entry bookkeeping with modern blockchain to demonstrate the continuity of the ledger's function as a medium for managing economic memory and social relationships. Thus, this study finds that the development of digital accounting does not eliminate the fundamental principles of the memorandum, journal, and ledger, but rather expands the system's capabilities through information technology. Research by Wardoyo et al. (2021) also indicates that the computerization of accounting is a continuation of the evolution of the classical bookkeeping system toward modern accounting information systems (). Therefore, this research makes an important contribution to explaining the historical continuity between classical accounting and contemporary digital accounting. This perspective demonstrates that accounting is a knowledge system that continuously transforms in response to technological changes and the needs of economic organizations within society.

Significance of the Study

This study holds significant theoretical importance in the fields of accounting history and accounting historiography because it successfully integrates various historical, social, philosophical, legal, and technological perspectives in explaining the emergence of double-entry bookkeeping, the memorandum, the journal, and the ledger. Most previous studies have tended to address accounting in a fragmented manner, whereas this study treats the memorandum, the journal, and the ledger as a unified evolutionary system of accounting knowledge. This study also reinforces the critical historiography perspective by demonstrating that the development of accounting is influenced not only by trade but also by changes in the social, cultural, political, legal, and epistemological structures of society. Furthermore, this study makes a conceptual contribution by explaining that accounting is a social and intellectual construct that has evolved multidimensionally throughout the history of human civilization. This study also has practical significance as it helps understand the historical roots of modern accounting and its relevance to the development of contemporary accounting technologies such as blockchain and distributed ledger technology. Thus, this study contributes to expanding academic understanding of the continuity of accounting's evolution from the medieval era to the modern digital era.

Research Implications

The implications of this study suggest that accounting education should not only emphasize the technical aspects of recording transactions but also understand accounting as a social, historical, and epistemological practice. This

study also demonstrates that the development of modern accounting cannot be separated from changes in social organization, capitalism, commercial law, and the development of information technology. Therefore, the study of accounting history needs to be expanded through a multidisciplinary approach that connects accounting historiography with social, cultural, organizational, and technological studies. Furthermore, this research has implications for the development of modern accounting information systems, as it demonstrates that the ledger concept— —remains at the core of contemporary digital accounting developments. By understanding the historical roots of the memorandum, journal, and ledger, the development of modern accounting technology can be undertaken with a deeper consideration of the social and epistemological dimensions of accounting.

Research Limitations

This study has several limitations. First, the study employs a non-SLR literature review approach, meaning that the literature selection process is more interpretive in nature and does not utilize quantitative procedures such as bibliometric analysis. Second, this study focuses primarily on the historiography of accounting based on available literature and has not yet conducted a direct exploration of primary historical manuscripts other than the works of Luca Pacioli. Third, most of the literature used is still dominated by European studies and Western historiography, so there is likely still a Eurocentric bias in understanding the global development of accounting. Fourth, this study emphasizes conceptual and historical analysis, so it has not empirically discussed the specific implementation of the development of memoranda, journals, and ledgers in modern organizational practice. Therefore, future research can expand the study through historical archival approaches, comparative historiography, or exploration of non-Western local accounting developments to enrich the understanding of the evolution of global accounting.

CONCLUSIONS AND RECOMMENDATIONS

This study demonstrates that the emergence of double-entry bookkeeping, the memorandum, the journal, and the ledger was a historical evolutionary process that unfolded gradually and in multiple dimensions throughout the development of human civilization. The findings reveal that the development of modern accounting systems was influenced not only by the technical needs of commerce but also by social, cultural, political, legal, and epistemological changes, as well as advancements in information technology. Memoranda evolved as an early form of documentation for economic transactions, journals evolved as a medium for classifying debits and credits, while ledgers evolved into the primary instruments for account management and economic control. This study also demonstrates that Luca Pacioli was not the sole inventor of double-entry bookkeeping, but rather a codifier of accounting practices that had previously evolved within medieval Italian commerce, as explained by Sangster (2025) and Izoulet (2021). Furthermore, this study finds that the development of modern accounting has a very strong

historical continuity with classical bookkeeping systems, including the transformation of the ledger into modern accounting information systems and blockchain, as described by Maiti et al. (2021). Thus, double-entry bookkeeping, memoranda, journals, and ledgers can be understood as the main foundations of the development of modern accounting as well as part of the evolution of human knowledge systems in managing economic reality and social organizations.

This study makes a significant contribution to the field of accounting historiography by integrating historical, social, philosophical, legal, and technological perspectives to explain the development of modern accounting. Unlike previous studies, which generally addressed double-entry bookkeeping in isolation, this study treats memoranda, journals, and ledgers as an interconnected, evolving whole in the formation of the modern accounting system. This study also strengthens the critical historiographical approach by demonstrating that accounting is not merely an administrative practice but a social and epistemological construction that shapes economic, organizational, and power relationships within society. Furthermore, this study shows that the development of modern accounting cannot be separated from changes in how humans understand economic rationality, social control, and organizational legitimacy. Another contribution lies in the study's ability to explain the historical continuity between medieval bookkeeping systems and the development of contemporary accounting technologies such as distributed ledger technology and blockchain. Therefore, this study expands our understanding of accounting as a multidimensional evolutionary process that continues to evolve in tandem with changes in social, economic, and technological structures throughout the history of human civilization.

Further research is recommended to expand the study of accounting historiography through a more comparative and multidisciplinary approach, so that our understanding of the development of double-entry bookkeeping, memoranda, journals, and ledgers becomes more comprehensive. Future studies could employ a comparative historiography approach to examine the development of accounting across various non-Western civilizations—such as the Middle East, Asia, Africa, and the Indonesian archipelago—ensuring that the historiography of accounting's “ ” is no longer dominated by a Eurocentric perspective. Additionally, future research could explore primary manuscripts, trade archives, and historical administrative documents in greater depth to analyze the evolution of the memorandum, journal, and ledger empirically and chronologically. Research based on digital humanities, as conducted by Kokaze et al. (2025), could also be developed to reconstruct the structure of historical accounting books using digital technology approaches. Thus, future research can provide a broader understanding of the interactions between accounting, trade, social organizations, and the development of global economic institutions. Such an approach is crucial for enriching the study of accounting history while expanding perspectives on the development of accounting as a cross-civilizational knowledge system.

Furthermore, future research is encouraged to explore the connection between classical accounting developments and the transformation of digital accounting and blockchain technology in greater depth. Studies on the continuity of traditional ledger concepts into distributed ledger technology still offer a vast scope for research, particularly in explaining how the fundamental principles of double-entry bookkeeping are maintained in modern information technology-based accounting systems. Further research could also develop a critical approach to examine how the development of digital accounting affects accountability, transparency, power relations, and organizational control in contemporary society. On the other hand, research on memoranda, journals, and ledgers also needs to be expanded to the context of non-business organizations such as social institutions, public institutions, and religious organizations so that the development of accounting is not understood solely within the context of commerce and capitalism. Thus, future research is expected to build a more integrative understanding of accounting as a social, historical, and technological practice that continues to evolve within the dynamics of human civilization. Therefore, the future development of accounting historiography holds great potential for strengthening the contribution of accounting science to a more critical and reflective understanding of global economic, organizational, and technological changes.

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